

**CONTRACT DOCUMENTS
FOR
City of Burlington
Vermont**



Department Of Public Works

**July 1, 2013 - October 1, 2013
FY'14 Street Reconstruction Program
Contract #SC13-5000-01**

**Structure Adjustment
Asphalt Reclamation
Asphalt Grinding
Pavement Markings
Bituminous Wearing Course Placement**

February 2013

TABLE OF CONTENTS

GENERAL BID INFORMATION & REQUIREMENTS

- A1 Advertisement for Bids
- A2 General Bid Information
- A3 Bid Form
- A4 Bid Bond

CONTRACT AND PROJECT FORMS

- B1 Notice of Award
- B2 Agreement
- B3 Performance Bond
- B4 Payment Bond
- B5 Notice to Proceed

STATUTORY REQUIREMENTS

- C1 Women in Construction Trades Ordinance
- C2 Pre-Qualification of Construction Contractors Application
- C3 Livable Wages Ordinance

CONDITIONS OF THE CONTRACT

- D1 General Conditions
- D2 Special Conditions

REVISION, CLARIFICATION, AND MODIFICATION FORMS

- E1 Field Order
- E2 Work Change Directive
- E3 Change Order

SPECIFICATIONS

DIVISION 100 - GENERAL PROVISIONS

Section 101 - Definitions and Terms

- 101.01 - Abbreviations
- 101.02 - Definitions
- 101.03 - Intention of Terms

Section 102 – (This Section Intentionally Left Blank)

Section 103 - Taxes and Insurance

- 103.01 - Construction Equipment Tax

- 103.02 - Withholding of Taxes
- 103.03 - State Sales Tax
- 103.04 - Insurance Requirements

Section 104 - Scope of Work

- 104.01 - Intent of Contract
- 104.02 - Alteration of Plans or Character of Work
- 104.03 - Extra Work
- 104.04 - Maintenance of Traffic
- 104.05 - Removal and Disposal of Structures and Obstructions
- 104.06 - Use of Materials Found in the Roadway Authorization; Payment
- 104.07 - Final Cleaning Up Following Completion of Project
- 104.08 - Differing Site Conditions

Section 105 - Control of the Work

- 105.01 - Authority of the Engineer
- 105.02 - City Engineer to Be Referee
- 105.03 - Plans and Working Drawings
- 105.04 - Conformity with Plans and Allowable Deviations
- 105.05 - Coordination of Contract Documents - Permits, Special Provisions, Contract Plans, General Special Provisions, Standard Drawings, Supplemental Specifications, and Standard Specifications, and Specifications Adopted by Reference.
- 105.06 - Cooperation by Contractor
- 105.07 - Cooperation with Utilities
- 105.08 - Cooperation Between Contractors
- 105.09 - Construction Stakes for Reclaim Operations
- 105.10 - Authority and Duties of Resident Engineer (Engineer)
- 105.11 - Authority and Duties of Inspectors
- 105.12 - Inspection of Work
- 105.13 - Removal of Unacceptable and Unauthorized Work
- 105.14 - Sunday and Holiday Work
- 105.15 - Convict Labor
- 105.16 - Load Restrictions
- 105.17 - Maintenance of Project during Construction
- 105.18 - Failure to Maintain Project; Cost
- 105.19 - Final Acceptance and Final Inspection
- 105.20 - Claims for Adjustment
- 105.21 - Payrolls
- 105.22 - Environmental Protection

- 105.23 - Erosion Prevention and Sediment Control
- 105.24 - Pollution Control
- 105.25 - Control of Waste, Borrow, and Staging Areas
- 105.26 - Opening Waste, Borrow, and Staging Areas
- 105.27 - Maintaining Waste, Borrow, and Staging Areas
- 105.28 - Closing Waste, Borrow and Staging Areas
- 105.29 - Payment for Erosion Prevention and Sediment Control
- 105.30 - Value Engineering

Section 106 - Control of Material

- 106.01 - Source of Supply and Quality Requirements
- 106.02 - Local Material Sources
- 106.03 - Samples and Tests
- 106.04 - Plant Inspection
- 106.05 - Storage of Materials
- 106.06 - Handling Materials
- 106.07 - Unacceptable Materials
- 106.08 - Explosive and Flammable Materials
- 106.09 - Stockpiling of Materials

Section 107 - Legal Relations and Responsibility to the Public

- 107.01 - Laws to be Observed
- 107.02 - Permits, Licenses, and Taxes
- 107.03 - Patented Devices, Material, and Processes
- 107.04 - Federal-Aid Provisions (NOT USED)
- 107.05 - Sanitary Provisions
- 107.06 - Plant Pest Control Requirements
- 107.07 - Public Convenience and Safety
- 107.08 - Traffic Control Devices
- 107.09 - Responsibility for Use of Flaggers
- 107.10 - Railway-Highway Provisions
- 107.11 - Use of Explosives
- 107.12 - Protection and Restoration of Property
- 107.13 - Protection and Restoration of Utilities and Services
- 107.14 - Protection of Historical and Archaeological Sites
- 107.15 - Forest Protection
- 107.16 - Responsibility for Damage Claims
- 107.17 - Opening Sections of Project to Traffic

- 107.18 - Contractor's Responsibility for Work
- 107.19 - No Personal Liability of Public Officials
- 107.20 - No Waiver of Legal Rights
- 107.21 - Furnishing Right-Of-Way
- 107.22 - Buy America Provisions (NOT USED)
- 107.23 - Defense of Lawsuits - Challenge to Jurisdiction and Waiver of Immunity
- 107.24 - Interest

Section 108 - Prosecution and Progress

- 108.01 - Subletting or Assignment of Contract
- 108.02 - Notice to Proceed
- 108.03 - Prosecution and Progress
- 108.04 - Limitations of Operations
- 108.05 - Character of Workers, Methods and Equipment
- 108.06 - Wages and Conditions of Employment
- 108.07 - Labor and Rental Preference
- 108.08 - Meeting Personnel Requirements
- 108.09 - Temporary Suspension of the Work
- 108.10 - Suspensions of Work Ordered by the Engineer
- 108.11 - Determination of Extension of Contract Time for Completion
- 108.12 - Failure to Complete Work on Time
- 108.13 - Termination of Contract
- 108.14 - Termination of Contract for Convenience
- 108.15 - Termination of Contractor's Responsibility

Section 109 - Measurement and Payment

- 109.01 - Measurement of Quantities
- 109.02 - Purchases of Materials Based Upon City Measurements
- 109.03 - Scope of Payment
- 109.04 - Significant Changes in the Character of Work
- 109.05 - Compensation for Altered Plans or Quantities
- 109.06 - Extra and Force Account Work
- 109.07 - Eliminated Items
- 109.08 - Partial and Final Payments
- 109.09 - Applications for Payment

DIVISION 200 - EARTHWORK

Section 210 - Cold Planing

DIVISION 300 - SUBBASE AND BASE COURSES

Section 310 – In-Place Recycled Base Course

DIVISION 400 - SURFACE COURSES AND PAVEMENT

Section 406 - Bituminous Concrete Pavement

DIVISION 500 - STRUCTURES

NOT USED (Except as included by Reference)

DIVISION 600 - INCIDENTAL CONSTRUCTION

Section 604 – Structure Adjustment

Section 646 - Retroreflective Pavement Markings

DIVISION 700 - MATERIALS

NOT USED (Except as included by Reference)

PROJECT SPECIFIC MAPS, DRAWINGS, AND DATA INFORMATION

APPENDIX A	Street List
APPENDIX B	Street Map
APPENDIX C	Estimate Quantity Sheet
APPENDIX D	Textured Crosswalk and Rumble Strip Details
APPENDIX D-2	Traffic Calming Detail
APPENDIX E	Arterial Speed Bump Detail
APPENDIX F-1	Pavement Marking Details
APPENDIX F-2	Bicycle Details I
APPENDIX F-3	Bicycle Details II
APPENDIX G	Drainage and Water Valve Details
APPENDIX H	Valve Box Specifications
APPENDIX I	Downtown District
APPENDIX J	Service Box Specifications
APPENDIX K	Asphalt Price Adjustment

END OF TABLE OF CONTENTS

ADVERTISEMENT FOR BIDS (A1)

July 1, 2013 – October 1, 2013, Street Reconstruction Program

City of Burlington
Public Works Department
645 Pine Street
Burlington, VT 05401

Sealed BID for the construction of the FY'14 Street Reconstruction Program for Asphalt Grinding and Reclamation, Bituminous Wearing and Base Course Placement and Structure Adjustment; Contract # SC13-5000-01, will be received by the City of Burlington, Vermont, the PROJECT, at the office of City Engineer, 645 Pine Street, P.O. Box 849, Burlington, Vermont 05402 until **2:00 PM EST, Wednesday, March 27, 2013** and then at said office publicly opened and read aloud. Approximately **7,720 tons** of Asphalt, **11,150 square yards** of Asphalt Grinding, **40,750 square yards** of Asphalt Reclamation, **203** Structure Adjustments, and other Work as indicated on the Bid Form are planned for Contract #SC13-5000-01.

Each BID must be accompanied by a certified check payable to the OWNER, the City of Burlington, for 5% of the BID price. A BID bond may be used in lieu of a certified check.

Copies of the CONTRACT DOCUMENTS may be examined at the office of The Public Works Department located at 645 Pine Street, Burlington, Vermont, and Works in Progress. Plans may be obtained from Blueprints, Etc.

A Performance Bond and a Payment Bond each in an amount equal to one hundred percent (100%) of the contract price will be required. Irrevocable letters of Credit from an approved bank may be used in lieu of the Performance and Payment Bonds or cash in the amount equal to one hundred percent (100%) of the contract price at the approval of the City Engineer.

This contract is subject to the Burlington Women in Construction Trades Ordinance, the Burlington Pre-Qualification of Construction Contractors Ordinance and the Burlington Livable Wage Ordinance. No bid will be accepted without a signed statement of intent to comply with these ordinances and a filled out Pre-Qualification of Construction Contractors Application.

An optional pre-bid conference will be held on **Wednesday, March 20, 2013 at 2:00 PM EST** at the Burlington Public Works Office, 645 Pine Street. All prospective bidders are encouraged to attend.

Please contact Erin Demers, Public Works Engineer at the City of Burlington Public Works with any questions at: 802-863-9094 or edemers@burlingtonvt.gov.

END OF ADVERTISEMENT FOR BIDS

GENERAL BID INFORMATION (A2)

February 2013

BIDS for **Contract #SC13-5000-01, Street Reconstruction Program** (herein called the PROJECT), will be received by the City of Burlington Department of Public Works herein called the "OWNER"), at 645 Pine Street, Burlington, Vermont until **2:00 PM EST, Wednesday, March 27, 2013** and then at said office publicly opened and read aloud.

Each BID must be submitted in a sealed envelope, addressed to City of Burlington Public Works Department at 645 Pine St., Burlington, Vermont. Each sealed envelope containing a BID must be plainly marked on the outside as "BID #SC13-5000-01, FY'14 Street Reconstruction Program," and should bear on the outside the name of the BIDDER, and their address. If forwarded by mail, the sealed envelope containing the BID must be enclosed in another envelope addressed to the OWNER located at:

Burlington Public Works Department
P. O. Box 849
Burlington, Vermont 05402

An optional pre-bid conference will be held on **2:00 PM EST, Wednesday, March 20, 2012** at the Burlington Public Works office, 645 Pine Street. All prospective bidders are encouraged to attend.

Each BID must be accompanied by a certified check payable to the OWNER for **5% of the BID Price**. As soon as the BID prices have been compared, the OWNER will return the certified checks of all except the three lowest responsive, responsible BIDDERS. When the Agreement is executed, the certified checks of the two remaining unsuccessful BIDDERS will be returned. The certified check of the successful BIDDER will be retained until the payment BOND and performance BOND have been executed and approved, after which it will be returned. A BID BOND may be used in lieu of a certified check.

The OWNER may waive any informalities or minor defects or reject any and all BIDS. Any BID may be withdrawn prior to the above scheduled time for the opening of BIDS or authorized postponement thereof. Any BID received after the time and date specified, shall not be considered. No BIDDER may withdraw a BID within 90 days after the actual date of the opening thereof.

Should there be reasons why the contract cannot be awarded within the specified period; the time may be extended by mutual agreement between the OWNER and the BIDDER.

The PROJECT is subject to the City of Burlington "Women in Construction Trades Ordinance" Chapter 21, Article II, Section 21-50 through 21-54, the Pre-Qualification of Construction Contractors Ordinance, Chapter 21, Article V, Section 21-67 through 21-78, and the "Livable Wages Ordinance" Chapter 21, Article VI, Section 21-80 through 21-87. No bids will be accepted without a signed statement of intent to comply with these Ordinances and a filled out Pre-Qualification of Construction Contractors Application. All applicable laws, ordinances, and the rules and regulations of all authorities having jurisdiction over construction of the PROJECT, shall apply to the contract throughout.

The PROJECT is subject to the requirements for contact of Minority and Women Business Enterprises. The successful bidder upon receipt of letter of intent to award contract shall submit a Minority/Women Business Enterprise (MWBE) Reporting Form. The contract will not be executed until the MWBE Form is received.

This PROJECT is subject to all of the Safety and Health Regulations (CFR 29, Part 1926 and all subsequent amendments) as promulgated by the U.S. Department of Labor on August 1, 1991 (VOSHA). The CONTRACTOR shall become familiar with the requirements of these regulations. CONTRACTS for work under this proposal will obligate the CONTRACTORS and SUBCONTRACTORS not to discriminate in employment practices.

The CONTRACTOR must satisfy itself of the accuracy of the estimated quantities in the BID form by examination of the site and a review of the drawings and/or specifications including ADDENDA. After BIDS have been submitted, the BIDDER/CONTRACTOR shall not assert that there was a misunderstanding concerning the quantities of WORK or of the nature of the WORK to be done.

All questions by prospective BIDDERS as to the interpretations of the INFORMATION FOR BIDDERS, Forms of PROPOSAL, form of CONTRACT, Plans, Specifications or BONDS, must be submitted in writing to the Burlington Public Works Department, at least two (2) business days before the date for the opening of BIDS. An interpretation of each question so raised which, in their opinion, require interpretation will be mailed by certified mail with return receipt requested to prospective BIDDERS at the addresses given by them not later than one (1) business days before the date of opening BIDS. Failure of BIDDER to receive any such ADDENDA or interpretation shall not relieve such BIDDER from obligation under their BID as submitted. All ADDENDA so issued shall become part of the CONTRACT DOCUMENTS.

In the event there is a discrepancy in the PROPOSAL between a unit price and the extended totals, the unit price shall govern and the extended totals in each case shall be corrected accordingly.

The CONTRACTOR and its agents will be permitted to make, at their own responsibility and expense, such investigations over the site of the proposed work as they deem necessary. They shall satisfy themselves by personal examination of the location of the proposed work, and by such other means as they deem necessary, as to the actual conditions and requirements of the WORK. Prices bid shall include every and all costs for the construction complete between the limits indicated on the Plans and/or as set out in the Specifications.

At the CONTRACTOR'S request the OWNER shall provide all information which is pertinent to, and delineates and describes, the land owned and rights-of-way acquired or to be acquired.

The CONTRACT DOCUMENTS contain the provisions required for the construction of the PROJECT. Information obtained from any officer, agent, or employee of the OWNER or any other person shall not affect the risks or obligations assumed by the CONTRACTOR or relieve them from fulfilling any of the conditions of the contract.

A performance BOND and a payment BOND, each in the amount of 100 percent of the CONTRACT PRICE, with a corporate surety approved by the OWNER, will be required for the faithful performance of the contract. Irrevocable Letters of Credit from an approved bank may be used in lieu of the performance and payment bonds, each in the amount of one-hundred percent (100%) of the contract price, with the approval of the City Engineer.

Attorneys-in-fact who sign BID BONDS or payment BONDS and performance BONDS must file with each BOND a certified and effective dated copy of their power of attorney.

The party to whom the contract is awarded will be required to execute the Agreement and obtain the performance BOND and payment BOND within five (5) business days from the date when NOTICE OF AWARD is delivered to the BIDDER. The NOTICE OF AWARD shall be accompanied by the necessary Agreement and BOND forms. In case of failure of the BIDDER to execute the Agreement, the OWNER may, at their option, consider the BIDDER in default, in which case the BID BOND or certified check accompanying the proposal shall become the property of the OWNER.

The party to whom the contract is awarded shall provide a CPM Progress Schedule to the OWNER within ten (10) business days of award in the critical path form. This CPM Progress Schedule shall show the order in which they propose to carry out the work, including the date(s) at which they will start the various segments of the work and the estimated completion dates of each segment. The CPM Progress Schedule shall be submitted for the review and approval of the OWNER.

A preconstruction conference will be held in the Public Works Department Office at 645 Pine Street soon after delivery of the NOTICE OF AWARD. The CONTRACTOR will be notified of the exact

time and date. Those invited shall include all utilities and/or departments affected by construction activities, and topics of discussion shall include coordination and scheduling of work requirements by all concerned parties.

The OWNER, within ten (10) business days of receipt of acceptable performance BOND, payment BOND and Agreement signed by the party to whom the Agreement was awarded, shall sign the Agreement and return to such party an executed duplicate of the Agreement. Should the OWNER not execute the Agreement within such period, the BIDDER may by WRITTEN NOTICE, withdraw their signed Agreement. Such notice of withdrawal shall be effective upon receipt of the notice by the OWNER.

The NOTICE TO PROCEED shall be issued within ten (10) business days of the execution of the Agreement by the OWNER. Should there be reasons why the NOTICE TO PROCEED cannot be issued within such period, the time may be extended by mutual agreement between the OWNER and CONTRACTOR. If the NOTICE TO PROCEED has not been issued within the ten (10) day period or within the period mutually agreed upon, the CONTRACTOR may terminate the Agreement without further liability on the part of either party.

The OWNER may make such investigations as they deem necessary to determine the ability of the BIDDER to perform the WORK, and the BIDDER shall furnish to the OWNER, all such information and data for this purpose as the OWNER may request. The OWNER reserves the right to reject any BID if the evidence submitted by, or investigations of, such BIDDER fails to satisfy the OWNER that such BIDDER is properly qualified to carry out the obligations of the Agreement and to complete the WORK contemplated therein.

Each BIDDER is responsible for inspecting the site and for reading and being thoroughly familiar with the CONTRACT DOCUMENTS. The failure or omission of a BIDDER to do any of the foregoing shall, in no way, relieve said BIDDER from stated obligations in respect to their BID.

The BIDDER awarded the CONTRACT shall supply the names and addresses of major material SUPPLIERS and SUB-CONTRACTORS to the OWNER.

Contractor shall not have the right to sublet, transfer, or assign this Contract or any part thereof, without the prior written consent of the City and such consent shall not relieve the Contractor of any liability or responsibility hereunder. The failure of the City to assert any of its rights hereunder shall not be construed as a waiver thereof.

BIDDER must satisfy itself with respect to the locations of buried utilities in the work area, which may have an impact on their ability to perform the WORK. All coordination between the Utilities and the BIDDER/CONTRACTOR is the responsibility of the BIDDER. Bidder/CONTRACTOR shall comply with DIG SAFE per Title 30, Vermont Statutes.

The CONTRACTOR will be required to satisfactorily complete the entire work, including final grooming and clean-up prior to **October 1, 2013**.

The Contractor shall not commence work under this contract until it has obtained all the insurance required hereunder, and such insurance has been approved by the OWNER. Nor shall the CONTRACTOR allow any subcontractor to commence work on their subcontract until all similar insurance required of the subcontractor has been so obtained and approved. Approval of the insurance by the OWNER shall not relieve or decrease the liability of the CONTRACTOR hereunder.

The Contractor shall take out and maintain during the life of the contract such Comprehensive General Bodily Injury Liability and Property Damage Liability Insurance and Automobile Bodily Injury Liability and Property Damage Liability as shall protect them and any subcontractor performing work covered by this contract for claims for damages for personal injury, including accidental death, as well as from claims for property damage, which may arise from operations under this contract, whether such operations by the contractor or by any subcontractor or by anyone directly or indirectly employed by either of them.

INDEMNIFICATION

The CONTRACTOR will indemnify and hold harmless the OWNER, the ENGINEER, and their agents and employees from and against all claims, damages, losses and expenses including attorney's fees arising out of or resulting from the performance of the WORK. Provided that any such claims, damage, loss or expense is attributable to bodily injury, sickness, disease or death, or to injury to or destruction of tangible property including the loss of use resulting therefore; and is caused in whole or in part by any negligent or willful act or omission of the CONTRACTOR, and SUBCONTRACTOR, anyone directly or indirectly employed by any of them or anyone for whose acts any of them may be liable.

In any and all claims against the OWNER, or the ENGINEER, or one or more of their agents or employees, by an employee of the CONTRACTOR, or SUBCONTRACTOR, or anyone directly or indirectly employed by any of them, or anyone for whose acts any of them may be liable, the indemnification obligation shall not be limited on the amount or type of damages, compensation or benefits payable by or for the CONTRACTOR or any SUBCONTRACTOR under workmen's compensation acts, disability benefit acts or other employee benefits acts.

END OF GENERAL BID INFORMATION

BID FORM (A3)
CONTRACT #SC13-5000-01
February 2013

Proposal of _____ (hereinafter called "BIDDER"), organized and existing under the laws of the State of _____ doing business as _____, (a corporation, a partnership or an individual) to the **City of Burlington** (hereinafter called "OWNER").

The BIDDER declares as follows:

- (1) the only parties interested in this PROPOSAL as Principals are named herein;
- (2) this PROPOSAL is made without collusion with any other person, firm, or corporation;
- (3) no officer or agent of the OWNER is directly or indirectly interested in this bid;
- (4) he/she has examined carefully the location of the proposed work, the annexed proposed CONTRACT AGREEMENT, and the drawings and/or specifications therein referred to;
- (5) he/she has gathered and understands information relative to the locations of existing structures, and utilities, and is aware of apparent and latent conditions, and natural phenomena. The information carries no guarantee expressed or implied, as to its completeness or accuracy, and they have made due allowance therefore;
- (6) he/she understands that the quantities of work tabulated in this PROPOSAL or indicated on the drawings or in the specifications are for bid purposes only.
- (7) the owner reserves the right to modify or delete items and quantities without affecting the unit pricing of other items under this contract.
- (8) he/she understands that they shall provide a work schedule within **ten (10) days** of award in the critical path method progress schedule form which is subject to the OWNER'S review. The approved CPM Progress Schedule may be modified when necessary to account for Contract and City Engineer approved delays. Modified CPM Progress Schedules shall be submitted a minimum **three (3) working days** prior to the next scheduled Progress Meeting.
- (9) he/she understands that the WORK under this contract is to commence on the date of issuance of the notice to proceed, and to be fully complete by **October 1, 2013** according to the schedule provided by the contractor within **ten (10) days** of award.
- (10) he/she understands that the WORK under this proposal is located in the areas bound in the back of these specifications, (see appendix A) with actual locations, provided by the OWNER at the time of construction;
- (11) he/she acknowledges the receipt of the following addenda: (Must be filled out by the CONTRACTOR at the time of submission)
 - a) Addendum No.____ Dated: _____
 - b) Addendum No.____ Dated: _____
 - c) Addendum No.____ Dated: _____
- (12) and he/she proposes and agrees that, if this PROPOSAL is accepted, he/she will contract with the OWNER, in accordance with the copy of the contract documents deposited in the office of the OWNER, this PROPOSAL form being part of and included in a copy of said

documents, to provide all necessary machinery, tools, apparatus, and other means of construction and to do all the work and furnish all the materials specified in this contract in the manner and time therein prescribed and according to the requirements of the OWNER as therein set forth and that he/she will take in full payment for each item of work thereof, the unit or lump sum price applicable to that item as stated in the schedule below.

In submitting this PROPOSAL, the undersigned understands and agrees that the OWNER, either prior to executing the CONTRACT AGREEMENT, or at any time during the course of the WORK, may elect to omit certain portions of the WORK. If part of the WORK is thus omitted by the OWNER, the prices to be paid the CONTRACTOR for the remaining items as indicated in the CONTRACTOR'S PROPOSAL price herein before shall include full compensation for all overhead expenses which might otherwise have been distributed to the items of work reduced or omitted, and no claim shall be made because of expenses incurred or loss of anticipated profit on account of the work omitted.

IN THE EVENT THAT THERE IS A DISCREPANCY BETWEEN THE UNIT PRICES WRITTEN IN WORDS AND FIGURES, THE PRICES WRITTEN IN WORDS SHALL GOVERN.

NOTES PERTAINING TO BID FORM:

1. BIDDERS must bid on all items in the BID FORM. All entries in the entire BID must be entered clearly and in ink; prices must be written in both words and figures.
2. BIDDERS shall insert total prices obtained from quantities and unit prices and total bid price.
3. The TOTAL FIGURE COLUMN (in numerals) is for informal comparison of bids only. The contract will be awarded based on unit prices multiplied by estimated quantities, to the lowest responsible bidder.
4. All quantities are estimated. Quantities are assumed for comparison of bids. The OWNER reserves the right to add or delete quantities of work without altering the contract unit price for work performed.

BID FORM (Continued)

ITEM NO.	BRIEF DESCRIPTION (in both words and numerals)	UNIT PRICE QUANTITY	ESTIMATED TOTAL PRICE (IN NUMERALS)
1.	Structure Adjustment in Pavement Reclamation areas (Condition # 1), per each unit adjusted:	\$ _____ <u>91 EACH</u>	_____ Dollars and _____ Cents (\$ _____)
2.	Structure Adjustment in Pavement Milled areas (Condition # 2), per each unit adjusted:	\$ _____ <u>48 EACH</u>	_____ Dollars and _____ Cents (\$ _____)
3.	Water Gate Valve Box Adjustment in All Areas (Condition # 3), per each unit adjusted:	\$ _____ <u>64 EACH</u>	_____ Dollars and _____ Cents (\$ _____)
4.	One Inch or Half Inch (1" or 1/2") Bituminous Concrete Wearing Course Placement, per ton of material in-place:	\$ _____ <u>3,200 TON</u>	_____ Dollars and _____ Cents (\$ _____)
5.	Two Inches (2") Bituminous Concrete Base Course Placement, per ton of material in-place:	\$ _____ <u>4520 TON</u>	_____ Dollars and _____ Cents (\$ _____)
6.	Asphalt Grinding, per square yard:	\$ _____ <u>11,150 SY</u>	_____ Dollars and _____ Cents (\$ _____)
7.	Asphalt Reclamation, per square yard:	\$ _____ <u>40,750 SY</u>	_____ Dollars and _____ Cents (\$ _____)

BID FORM (Continued)

8. Durable Bike Symbol, per unit each: \$ _____ Dollars
0 EACH and _____ Cents
(\$ _____)
9. Retroreflective Line Painting, \$ _____ Dollars
Conforms to section 646.05 _____ Cents
per linear foot: 2,160 LF
(\$ _____)
10. 3M Durable Tape, Type I, Turn Arrow, \$ _____ Dollars
per unit each: 6 EACH and _____ Cents
(\$ _____)
11. 3M Durable Tape, Type I, Stop Bar, \$ _____ Dollars
2' Wide, per linear foot: 300 LF and _____ Cents
(\$ _____)
12. 3M Durable Tape, Type I, Crosswalk, \$ _____ Dollars
2' Wide, per linear foot: 2030 LF and _____ Cents
(\$ _____)
13. 3M Durable Tape, Type I, \$ _____ Dollars
"School" Legend, per unit each: 2 EACH and _____ Cents
(\$ _____)

BID FORM (Continued)

14. 3M Durable Tape, Type I,
"ONLY" or "STOP" Legend,
per unit each:

\$ _____

_____ Dollars

1 EACH

and _____ Cents

(\$ _____)

15. Textured Crosswalk,
per square foot:

\$ _____

_____ Dollars

2880 SF

and _____ Cents

(\$ _____)

BID FORM (Continued)

Refer to Appendix A, B & C for listing of streets and their limits which the CITY has specific plans for undertaking this season. The City reserves the right to add, subtract, delete or modify any of the work listed in the BID FORM. Unit prices shall apply regardless of the final quantities eventually authorized by the City for this contract. The completion date for work indicated by the Contract Documents is **October 1, 2013**.

The total price for Items 1 thru 15 inclusive derived and described in the BID DOCUMENTS is:

_____ Dollars _____ Cents

NOTE: BID shall include all applicable taxes and fees.

(Name of Bidder)

(Business Address)

(Signature of Authorized Representative)

(City & State)

(Title of Authorized Representative)

(Date)

END OF BID FORM

BID BOND (A4)

KNOWN BY ALL BY THESE PRESENT, that we, the undersigned,

as Principal, and _____ as

Surety, are hereby held and firmly bound unto _____

as OWNER in the penal sum of _____
for the payment of which, well and truly to be made, we hereby jointly and severally find ourselves, successors
and assigns.

Signed this _____ day of _____, 2013.

The Condition of the above obligation in such that whereas the

Principal has submitted to _____ a certain
BID, attached hereto and hereby made a part hereof to enter into a
contract in writing, for _____

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 attached hereto (properly completed in accordance with said BID) and shall furnish a BOND for their faithful performance of said contract, and for the payment of all persons performing labor or 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 those present 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 as amended) and be authorized to transact business in the state where the project is located.

END OF BID BOND

NOTICE OF AWARD (B1)

To: _____

Project Description: **City of Burlington, Street Reconstruction Program, Contract #SC13-5000-01**

The OWNER has considered the BID submitted by you for the above described WORK in response to its Information for Bidders, dated _____, 2013.

You are hereby notified that your BID has been accepted for items 1 through 15 , in the amount of \$ _____.

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

If you fail to execute said Agreement and do not 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 or certified check. 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 _____, 2013.

By: _____

Title: _____

ACCEPTANCE OF NOTICE

Receipt of the above NOTICE OF AWARD for Contract #SC13-5000-01 is hereby acknowledged.

By: _____

Date: _____

Title: _____

END OF NOTICE OF AWARD

AGREEMENT (B2)

THIS AGREEMENT, is made this _____ day of _____, 2013, by and between City of Burlington, hereinafter called the "OWNER" and _____, a _____ corporation 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 construction of the City of Burlington, Vermont Street Reconstruction Program, **Contract #SC13-5000-01** as described in the CONTRACT DOCUMENTS.
2. The CONTRACTOR will furnish all the material, supplies, tools, equipment, labor, traffic control measurements, 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 on the date of issuance of the NOTICE TO PROCEED and will complete the same by **October 1, 2013**, unless the period for completion is extended otherwise by the CONTRACT DOCUMENTS or an amendment thereto. The CONTRACTOR acknowledges that the date of beginning and the time for completion of the WORK are essential conditions of the CONTRACT DOCUMENTS and the CONTRACTOR further agrees to pay liquidated damages, the sum of \$900.00 for each consecutive calendar day that the CONTRACTOR shall be in default after the time specified in the Agreement.
4. The CONTRACTOR agrees to perform all the WORK described in the CONTRACT DOCUMENTS and comply with the terms therein as shown in the BID DOCUMENTS, DIVISION 100, and subsection 108.03.
5. The term "CONTRACT DOCUMENTS" means and includes the following:
 - (A) Contracting and Project Forms
 - NOTICE OF AWARD
 - AGREEMENT
 - PERFORMANCE BOND OR LETTER OF CREDIT
 - PAYMENT BOND OR LETTER OF CREDIT
 - CERTIFICATES OF INSURANCE
 - NOTICE TO PROCEED
 - STATUTORY & OTHER REQUIREMENTS
 - WOMEN IN CONSTRUCTION TRADES COMPLIANCE DOCUMENTATION
 - PRE-QUALIFICATION CONTRACTOR APPLICATION
 - CITY LIVABLE WAGES ORDINANCE DOCUMENTATION
 - (B) Conditions of the Contract
 - GENERAL CONDITIONS
 - SPECIAL CONDITIONS
 - (C) Revisions, Clarifications, and Modifications
 - ADDENDA:

No. ____, dated _____, 2013

No. ____, dated _____, 2013

No. ____, dated _____, 2013

FIELD ORDERS

WORK CHANGE DIRECTIVES

CHANGE ORDERS

(D) SPECIFICATIONS

GENERAL PROVISIONS

TECHNICAL DIVISIONS AND SECTIONS

(E) PROJECT SPECIFIC MAPS, DRAWINGS, AND DATA INFORMATION

6. The OWNER will pay to the CONTRACTOR in the manner and at such times as set forth in the General Conditions such amounts as required by the CONTRACT DOCUMENTS. Retention from progress payments will be in accordance with the requirements stipulated in the General Conditions.

7. 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 duplicate, each of which shall be deemed an original on the date first above written.

ATTEST:

OWNER: CITY OF BURLINGTON

Name: _____

Signature: _____

Title: _____

WITNESS: _____

ATTEST:

CONTRACTOR: _____

Firm: _____

Name and Title: _____

Signature: _____

Address: _____

WITNESS: _____

**Certificate of Acknowledgment of Contractor as a Corporation for
CONTRACT AGREEMENT**

State of (_____)

County of (_____) ss:

On this _____ day of _____, 2013,

before me personally came _____,

to me known, who being duly sworn did say as follows: that he/she

resides at _____

and is the _____

of _____, the corporation

described in and which executed the foregoing instrument; that he knows the corporate seal of said corporation; that the seal affixed to the foregoing instrument is such corporate seal and it was so affixed by order of the Board of Directors of said corporation; and that by the like order he/she signed thereto his/her name and official designation.

Notary Public (Seal)

My commission expires _____

END OF AGREEMENT

PERFORMANCE BOND (B3)

KNOW BY ALL PRESENT: that

(Name of Contractor)

(Address of Contractor)

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

and _____
(Name of Surety)

(Address of Surety)

hereinafter called Surety, are held and firmly bound unto _____

(Name of Owner)

(Address of Owner)

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 present.

THE CONDITION OF THIS OBLIGATION is such that whereas the Principal entered into a certain contract with the OWNER, dated the _____ day of _____, 2013, a copy of which is hereto attached and made a part hereof for the construction of:

The City of Burlington, Street Reconstruction Program, Contract #SC13-5000-01.

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 year guarantee period, and if he/she 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 reasons 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 obligations 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 there under or the SPECIFICATIONS accompanying the same shall in any wise 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 CONTRACTOR shall abridge the right of any beneficiary hereunder, whose claim may be unsatisfied.

IN WITNESS WHEREOF, this instrument is executed in _____
(number)

counterparts, each one of which shall be deemed an original, this
the _____ day of _____, 2013.

ATTEST:

(Principal)

(Principal Secretary)

(SEAL)

By _____(s)

(Address)

(Witness as to Principal)

(Address)

(Surety)

ATTEST:

By _____
(Attorney)

(Witness as to Surety)

(Address)

(Address)

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

END OF PERFORMANCE BOND

PAYMENT BOND (B4)

KNOW BY ALL PRESENT: that

(Name of Contractor)

(Address of Contractor)

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

and _____
(Name of Surety)

(Address of Surety)

hereinafter called Surety, are held and firmly bound unto _____

(Name of Owner)

(Address of Owner)

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 present.

THE CONDITIONS OF THIS OBLIGATION is such that whereas the Principal entered into a certain contract with the OWNER, dated the _____ day of _____ 2013 a copy of which is hereto attached and made a part hereof for the construction of:

The City of Burlington, Street Reconstruction Program, Contract # 2012CAL.

NOW, THEREFORE, if the Principal shall promptly make payment to all persons, firms, SUBCONTRACTORS, and corporations furnishing materials for or performing labor in the prosecution of the WORK provided for in such contract, and any authorized extension or modification thereof, including all amounts due for materials, lubricants, oil, gasoline, coal and coke, repairs or machinery, equipment and tools, consumed or used in connection with the construction of such WORK. And all insurance premiums on said WORK, and for all labor performed in such WORK whether by SUBCONTRACTOR or otherwise, 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 there under 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 CONTRACTOR shall abridge the right of any beneficiary hereunder, whose claim may be unsatisfied.

IN WITNESS WHEREOF, this instrument is executed in _____
(number)

counterparts, each one of which shall be deemed an original, this
the _____ day of _____, 2013.

ATTEST:

(Principal)

(Principal Secretary)
(SEAL) By _____(s)

(Address)

(Witness as to Principal)

(Address)

(Surety)

ATTEST:

(Witness as to Surety) By _____
(Attorney)

(Address) _____
(Address)

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

END OF PAYMENT BOND

WOMEN IN CONSTRUCTION TRADES ORDINANCE (C1)

- EMPLOYMENT PLAN -

NAME OF COMPANY: _____

ADDRESS: _____

PROJECT TITLE: **City of Burlington, Street Reconstruction Program, Contract #SC13-5000-01**

AWARDING AUTHORITY: **City of Burlington - Department of Public Works**

CONTRACT AMOUNT: _____

NAME & TITLE OF RESPONSIBLE OFFICIAL: _____

PHONE NUMBER OF RESPONSIBLE OFFICIAL: _____

PROJECTED START DATE: _____ **July 1, 2013**

PROJECTED FINISH DATE: _____ **October 1, 2013**

CURRENT WORKFORCE REPORT FOR THIS PROJECT

PROJECTED START DATE	PROJECTED FINISH DATE	TRADE	(SUB)/CONTRACTOR	# OF EMPLOYEES ON THIS PROJECT	# OF WOMEN ON THIS PROJECT	% OF WOMEN WORKERS
-------------------------	--------------------------	-------	------------------	--------------------------------------	----------------------------------	--------------------------

TOTAL

A. Based on the Current Workforce Report, are you in compliance with the Women in Construction Trades Ordinance:

- 1) in each trade area? Yes____ No____
- 2) in total of trade workers on this project? Yes____ No____

If you answered yes to both of the above, go on to Section B.

If you answered no to either of the above, provide an explanation of the circumstances:

B. Recruitment in Hiring Procedures for Start-up and/or On-going Compliance.

1. Description of company's traditional recruitment and hiring procedures.

2. Names of newspapers in which job openings will be listed (The wording "Women Encouraged to Apply" shall be included in all advertisements):

3. List organizations that will be sent recruitment notices (A minimum of 8 organizations need to be listed here. Please see the attached technical assistance sheet):

4. The General Contractor and Subcontractors on

Contract #SC13-5000-01 (Street Reconstruction Program) shall maintain a file of relevant documents related to recruitment including, but not limited to: copies of all advertisements for job openings related to the project, including placement of such advertising and dates thereof; copies and/or notations of all referrals requested and all referrals received for employment on the project, including names, addresses and phone numbers of all female applicants; records of all individual applications made for employment on the project and the results of these individual applications; and a record of all persons hired to work on the project together with their starting dates.

5. The General Contractor and Subcontractors of

Contract #SC13-5000-01 (Street Reconstruction Program) shall establish and maintain a printed list of the skill requirements for each construction trade category they employ. This list should cover specific skills used on the job, experience with specialized tools and any other standards the contractor maintains for performance in the job category.

STATEMENT OF INTENT TO COMPLY

The Contractor and subcontractors on this project have read and understand the provisions of the City of Burlington's Women in Construction Trades Ordinance and the Livable Wage Ordinance as described in the Ordinance and the Administrative Policy statement.

The Contractor shall submit prior to the signing of the contract a completed Employment Plan, including wages to comply with the governing Ordinances. This Employment Plan shall have been approved by the Owner before the signing of the contract.

The Contractor and all subcontractors shall prepare and submit Monthly Compliance Reports no later than the first Thursday of each month following the month work is performed. The Owner shall be notified of any work suspension, the day work was suspended, and the day the work commencement is anticipated. This Monthly Compliance Report shall document the name, address, social security number and sex of each worker, job classification, and total hours worked each day on the project, total hours worked during this time period, rate of pay and gross earnings.

The Contractor and subcontractors shall comply with all Ordinances spelled out in the contract throughout the contract period.

(Signature of Authorized Official)

(Date)

**TECHNICAL ASSISTANCE SHEET
FOR WOMEN IN CONSTRUCTION TRADES ORDINANCE
- RECOMMENDED RECRUITMENT LIST -**

Reach-Up
"Community Service Placement only"
101 Cherry St Suite 101
Burlington, VT 05401
802.863.7360
Contact: Julia Chase

Vermont Works for Women
51 Park St
Essex Jct., VT 05453
800.639.1472 x108
Contact: Kristen Mullins

Center for Technology, Essex
3 Educational Dr
Essex Jct., VT 05452
802.879.4832
Contact: Karen Archer, Adult Services Coordinator

Chittenden Community Action
191 North St
Burlington, VT 05401
802.863.6248
Contact: Peggy Treanor

Restart
c/o Probation and Parole
33-43 Pearl St, Room 305A
Burlington, VT 05401
863-7452
Contact: Glen Boyd, Director

Department of Labor
63 Pearl St.
Burlington, VT 05401
863.7676
Contact: Becky Trudeau, Career Development Specialist

**RECOMMENDED PRESS LISTING FOR
- CLASSIFIED ADVERTISING -**

For effective recruitment, it is a requirement to state in your advertisement, "Women Encouraged to Apply."

Burlington Free Press
Classified Advertising
191 College Street
Burlington, Vermont 05401
863-3441

Seven Days Newspaper
225 South Champlain Street
Burlington, VT 05401

Vermont Times
P.O. Box 940
3 Webster Road
Shelburne, Vermont 05482

Times-Argus
112 Main Street
Montpelier, Vermont 05602

Attached is a sample monthly compliance report form.

- * You may use this form, or submit your company payroll form, with all of the required information (see sample form).
- * This report should contain information for at least 4 full payweeks, but need not correlate precisely with the calendar month.
- * Reports are due no later than the first Thursday of each month, and should be sent to:

**City of Burlington
Department of Public Works
645 Pine Street
Attn: Erin Demers, Public Works Engineer
Burlington, VT 05401**

- * The authorized official shall submit with each report, the following statement:

"I verify that the information on the monthly compliance report is true, and in compliance with the employment plan."

This statement shall be signed and dated by the authorized official.

END OF WOMEN IN CONSTRUCTION TRADES ORDANCE

City of Burlington



Pre-Qualification of Construction Contractors Application (C2)

Date Received: _____

Date Checked: _____

Available for Electronic Mailing

Pre-Qualification of Construction Contractors Application

This is an application for pre-qualification of construction contractors for the City of Burlington under Chapter 21 of the Code of Ordinances. The purpose of the application is to solicit information necessary to determine whether a contractor applying for work on a government funded project is a responsible contractor.

1. Policy

It is the policy of the City of Burlington to let contracts for city construction projects only to contractors and subcontractors that demonstrate that they are responsible contractors.

2. Responsible Contractor

Responsible contractors are those contractors and subcontractors who have demonstrated to the city that they are financially responsible, have experience suggesting that they have the ability to perform government projects responsibly, have demonstrated that they are responsible employers, and have demonstrated that they have fair subcontractor relations, or that they perform all work with their own forces.

3. Minimum Contract Amount

This pre-qualification requirement applies to any construction contract by a department, board or council of the City, or those construction projects financed by tax exempt bonds issued by the Burlington Community Development Corporation, in which the total project cost is \$100,000 or more.

4. Contracting Authority

This application is to be delivered to the contracting authority under the schedule determined by that authority as part of the bidding process. The contracting authority is the department, board or council, agency, or entity that is sponsoring the contract on behalf of a government funded project.

5. Proprietary Information

All information submitted by contractors and subcontractors in connection with a pre-qualification application shall be considered proprietary information. The City shall not release the information except as may be required by the Access to Public Records Law, or by court order.

6. Subcontract Work

The pre-qualification requirement does not apply to subcontractors where the total value of the work to be performed is less than \$7,500.

Instructions for Filing the Questionnaire, Financial Statement and Other General Information For Contractors

1. Preparation of Statement:

One copy of the questionnaire is required by the City. It must be completely executed and properly sworn to before a Notary Public. Financial Statements which are compiled, reviewed, or fully-audited must be prepared and certified by an Independent Certified Public Accountant (CPA). A Certified Public Accountant is considered on who, in Vermont, is registered by the State of Vermont Board of Public Accountancy as a CPA. For other states, the City will consider a CPA whose registration qualifications in their state equal those established in Vermont. This questionnaire must be submitted at least five (5) working days before the date of opening bids in order to ensure consideration for pre-qualification for a particular bid opening.

2. Notification of Action Taken:

The City will send in writing to the applicant a notification of its decision. Questionnaires will be considered in the order received and acted upon at all times as promptly as circumstances permit. Contractors duly pre-qualified will be appraised in writing of both the amount and type of work on which they will be eligible to bid.

3. Duration of Pre-Qualification:

The duration of any pre-qualification will not exceed one (1) year and will expire annually three (3) months subsequent to the closing date of the contractors fiscal year, as evidenced in their financial statement.

4. Revision of Pre-Qualification Rating:

Requests for revision of pre-qualification rating will be considered at any time provided credentials showing increased assets, equipment or ability to perform work are submitted. These must be submitted at least five (5) working days prior to a bid opening to receive consideration for that bid opening. Contractors shall also report any substantial increase in liabilities that occurs during the pre-qualification period.

5. Request for Plans, Specifications and Proposal Form:

Contractors having been duly pre-qualified will receive notices from time to time inviting submission of proposals for the contracts to be let on specified dates. A Contractor desiring to receive plans, proposal and specifications for any contract may obtain them upon written request only, utilizing the special form entitled A Standard Form B Request for Proposal and/or Plans. This form is furnished to all pre-qualified contractors by the City and this form must show the status of all work under contract or otherwise executed by the Contractor, both inside and outside the State of Vermont, as of the date of request.

**PRE-QUALIFICATION OF
CONSTRUCTION CONTRACTORS
APPLICATION**

Submitted by _____

Corporation Partnership Individual Other _____

Mailing Address _____

Location Address _____

Telephone Number _____ Federal ID Number _____

The signatory of this questionnaire guarantees the truth and accuracy of all statements and of all answers to interrogatories hereinafter made.

Authorized Signature

Date

EXPERIENCE QUESTIONNAIRE

How many years has your organization been in business as a general contractor under your present business name? _____ Under other names? (List) _____

How many years experience in construction work has your organization had, (a) As a general Contractor, (b) As a Sub-Contractor: _____

_____ Has your organization, or any officer, partner, director or principal individual thereof ever admitted to or been convicted of any criminal violation, including but not limited to discrimination, anti-trust or labor violations, other than traffic offences; or been convicted of or is currently being sued for any civil antitrust violation or other civil suit involving fraud; or been debarred from performing work on any contract? YES / NO

If so, give full details, including the name of any individual involved and the court and docket number of any civil or criminal actions:

Date of reinstatement _____

2. Is your organization currently debarred from performing work on any contract?

YES / NO

If yes, by whom? _____

Date of reinstatement: _____

3. Has your organization ever been denied pre-qualification?

YES / NO

If so, by whom and for what reason? _____

4. Have you ever failed to complete any work awarded to you? YES / NO
If so, where and why? _____

5. Has any officer, director or partner of your organization ever been an officer or partner of some other organization that failed to complete a construction contract?
YES / NO

If so, state the name of individual, other organization and reason therefore:

6. Has any officer, director or partner of your organization ever failed to complete a construction contract handled in his own name? YES / NO

If so, state name of individual, name of owner and reason therefore: YES / NO

7. Has the organization been cited in the past three (3) years for violations of OSHA?
If so, please explain: YES / NO

8. Has the organization currently any outstanding legal action against it by a subcontractor on a current or former job? YES / NO

If so, please explain: _____

9. List all parents, subsidiaries, affiliates or divisions of your firm, and any related parties included in disclosures in your most recent financial statements or the notes thereto:

10. List any of your officers, shareholders or directors that are affiliated with any other

contractor and/or supplier:

11. Identify all persons having final bidding authority and/or the Chief Estimator:

12. Give names and complete addresses of three (3) major material suppliers and/or subcontractors with whom your firm has done business in the past 3 years:

13. List the names and addresses of the following:

Bank: _____

Amount of Letter of Credit: _____

Bonding Co. and limit (Please specify per project and aggregate limits) _____

Bonding Agent: _____

Liability Insurance:

Name of Carrier: _____

Limits of Liability: _____

Worker's Compensation:

Name of Carrier: _____

14. Does the organization have a company safety program, such as, a currently approved VOSHA plan in place? YES / NO

If so, briefly describe: _____

15. List the average wages and benefits paid by the organization over the past year for the skills, trades and job classifications intended to be employed for the contract (s) under consideration in this pre-qualification:

<u>Job Title</u>	<u>Hourly wages</u>	<u>Benefits</u>
CARPENTER	_____	_____
ELECTRICIAN	_____	_____
PAINTERS	_____	_____
PIPEFITTERS	_____	_____
PLUMBERS	_____	_____
ROOFERS	_____	_____
POWER EQUIPMENT OPERATORS	_____	_____
TRUCKER DRIVERS	_____	_____
LABORERS	_____	_____
OTHERS	_____	_____

16. List specific projects which your organization has completed in the last five years (Attach additional sheet if required):

<u>Contract Amount</u>	<u>Type of Work</u>	<u>% of Subcontract</u>	<u>When Completed</u>	<u>Location</u>	<u>Name, Address and Telephone of Owner</u>
_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____

17. List all field supervisory personnel and indicate their construction experience:

<u>Name</u>	<u>Present Position or Office</u>	<u>No. of Years With this Firm</u>	<u>Construction Experience</u>	<u>Magnitude and Type of Work</u>	<u>In what Capacity</u>
-------------	-----------------------------------	------------------------------------	--------------------------------	-----------------------------------	-------------------------

18. Is your firm pre-qualified by the State of Vermont? YES / NO

If so, please state rating and type of work qualified to perform:

<u>RATING</u>	<u>TYPE OF WORK</u>
---------------	---------------------

EXPERIENCE AND WORK PREFERENCE

In the following tabulation indicate the various types of work in which you are experienced and for which you desire to be qualified:

Bridge Construction	_____	Bridge Rehabilitation	_____
Railroad Signals	_____	Roads Culverts	_____
Building Construction	_____	Building Demolition	_____
Surface Rehabilitation	_____	Maintenance	_____
Tank Removal/Replacement	_____	Foundation	_____
Guard Rail, Fencing & Signs	_____	Hazardous Material Removal	_____
Construction &	_____	Landscaping	_____
Rehabilitation	_____	Pavement Markings	_____
Traffic Signals & Lighting	_____	Water & Sewer	_____
Road Construction	_____	Other (as specified)	_____

19. Financial Capability.

The City reserves the right to request additional information if necessary to establish financial capability. _____

END OF PREQUALIFICATION OF CONSTRUCTION CONTRACTORS

LIVABLE WAGES ORDINANCE (C3)

Bidders are advised that certain City contractors are required to comply with the City of Burlington's LIVABLE WAGES ORDINANCE. The Livable Wages Ordinance is applicable to **service contracts** with the City of Burlington (as opposed to the purchasing of goods) where the total amount of the contract or contracts with the same person or entity exceeds **\$15,000** for any twelve-month period. As of March 1, 2012, the livable wage for employees who receive health care benefits (i.e., the employer cost of or contribution of at least \$3.77 per hour) is **\$13.94** per hour. The livable wage for employees who do not receive health care benefits is **\$17.71** per hour. All contractors working in the city of Burlington are responsible for obtaining the latest livable wage amounts.

An employee of a covered contractor must be paid the livable wage during the period of time he or she expends on furnishing services funded by the City. Covered employees must agree to the payment of the livable wage as a condition of entering into a covered service contract with the City. A covered employer who violates the livable wage ordinance may be barred for receiving a contract or grant from the City for a period of up to two (2) years and may be subject to other civil enforcement remedies.

Please see Code Ordinances, City of Burlington, VT, SUBPART B - RELATED LAWS, CHAPTER 21, ARTICLE VI - LIVABLE WAGES, Sec. 21-80 through Sec. 21-87, for a more detailed description of its requirements, which can be found online at:

<http://library.municode.com/index.aspx?clientID=13987&stateID=45&statename=Vermont>

<http://www.burlingtonvt.gov/CT/Livable-Wage-Ordinance/>

END OF LIVEABLE WAGES ORDINANCE

GENERAL CONDITIONS (D1)

<u>TITLE</u>	<u>Page</u>
1. Definitions	D1-2 to D1-4
2. Obligations and Liability of Contractor	D1-4
3. Authority of the Engineer	D1-5
4. Supervision of Work	D1-5
5. Parts of Contract	D1-6
6. Discrepancies, Errors, and Omissions	D1-6
7. Insurance	D1-6 to 8
8. Compliance with Laws	D1-8
9. Provisions Required by Law Deemed Inserted	D1-8
10. Permits	D1-8
11. Not to Sublet or Assign	D1-9
12. Time of Beginning Work	D1-9
13. Time for Completion	D1-9 to 10
14. Examination of Work	D1-10
15. Defective Work	D1-10
16. Protection against Water and Storm	D1-11
17. Mistakes of Contractor	D1-11
18. Alterations	D1-11
19. Extra Work	D1-11
20. Extension of Time on Account of Extra Work	D1-12
21. Changes Not to Affect Bonds	D1-12
22. Abandonment of Work	D1-12
23. Prices for Work	D1-12
24. Partial Payment Not Acceptance	D1-13
25. Payments to Contractors	D1-13
26. Final Estimate and Payment	D1-13
27. Waivers	D1-14
28. Liability of Owner	D1-14
29. Guarantee	D1-14
30. Submittals	D1-15
31. Schedules	D1-15
32. Daily Job Shutdown	D1-15
33. Payment For Testing Services	D1-15
34. Unsuitable Material	D1-15
35. Posting of Streets	D1-16

1. **Definitions.** Whenever the words defined in this section or pronouns used in their stead occur in this contract, they shall have the meanings herein given.
- (a) **Addenda**—Written or graphic instruments issued prior to the opening of Bids, which clarify, correct, or change the Bidding Requirements or the proposed Contract Documents.
 - (b) **Agreement**—The written instrument, which is evidence of the agreement between Owner and Contractor covering the Work.
 - (c) **Bid**—The offer or proposal of a Bidder submitted on the prescribed form setting forth the prices for the Work to be performed.
 - (d) **Bidder**—The individual or entity who submits a Bid directly to Owner.
 - (e) **Bidding Documents**—The Bidding Requirements and the proposed Contract Documents (including all Addenda).
 - (f) **Bidding Requirements**—The advertisement for bids, General Bid Information, Bid security of acceptable form, if any, and the Bid Form with any supplements.
 - (g) **Change Order**—A document recommended by Engineer which is signed by Contractor and Owner and authorizes an addition, deletion, or revision in the Work or an adjustment in the Contract Price or the Contract Times, issued on or after the Effective Date of the Agreement.
 - (h) **Claim**—A demand or assertion by Owner or Contractor seeking an adjustment of Contract Price or Contract Times, or both, or other relief with respect to the terms of the Contract. A demand for money or services by a third party is not a Claim.
 - (i) **Contract**—The entire and integrated written agreement between the Owner and Contractor concerning the Work. The Contract supersedes prior negotiations, representations, or agreements, whether written or oral.
 - (j) **Contract Documents**—Those items so designated in the Agreement. Only printed or hard copies of the items listed in the Agreement are Contract Documents. Approved Shop Drawings, other Contractor submittals, and the reports and drawings of subsurface and physical conditions are NOT Contract Documents.
 - (k) **Contract Price**—The moneys payable by Owner to Contractor for completion of the Work in accordance with the Contract Documents as stated in the Agreement (subject to provisions in the case of Unit Price Work).
 - (l) **Contract Times**—The number of days or the dates stated in the Agreement to: (i) achieve Milestones, if any; (ii) achieve Substantial Completion; and (iii) complete the Work so that it is ready for final payment as evidenced by Engineer's written recommendation of final payment.
 - (m) **Contractor**—The word "Contractor" shall mean the party of the second part entering into this contract for the performance of the work required, the legal representative of said party, or the agent appointed to act for said party in the performance of the work. All Contractors must be registered with the State of Vermont Secretary of State.
 - (n) **Engineer**—The word "Engineer" shall mean that person or firm duly appointed by the Owner to undertake the duties herein assigned to the Engineer, acting either directly or through properly authorized agents, such agents acting within the scope of the particular duties entrusted to them. The Inspector is the Engineer's designee. Specifically, the Engineer is the **City Engineer**.
 - (o) **Field Order**—A written order issued by the Engineer which requires minor changes in the Work but which does not involve a change in the Contract Price or the Contract Times.

- (p) **Inspector** - An authorized representative of the Engineer assigned to make detailed inspections of Contract performance.
- (q) **Laws and Regulations; Laws or Regulations**—Any and all applicable laws, rules, regulations, ordinances, codes, and orders of any and all governmental bodies, agencies, authorities, and courts having jurisdiction.
- (r) **Liquidated Damages** - The charge assessed to the Contractor pursuant to the Contract because the Contractor did not complete the Contract within the Contract time or by the Contract completion date, not as a penalty but as an assessment of damages that are impossible or difficult to determine with accuracy.
- (s) **Milestone**—A principal event specified in the Contract Documents relating to an intermediate completion date or time prior to Substantial Completion of all the Work.
- (t) **Notice of Award**—The written notice by Owner to the Successful Bidder stating that upon timely compliance by the Successful Bidder with the conditions precedent listed therein, Owner will sign and deliver the Agreement.
- (u) **Notice to Proceed**—A written notice given by Owner to Contractor fixing the date on which the Contract Times will commence to run and on which Contractor shall start to perform the Work under the Contract Documents.
- (v) **Owner**—The word "Owner" shall mean the party of the first part or any board, officer, or agent duly authorized to act for the said party of the first part in the matter covered by the contract. Specifically, the Owner is the **City of Burlington**.
- (w) **Progress Schedule**—A schedule, prepared and maintained by Contractor, describing the sequence and duration of the activities comprising the Contractor's plan to accomplish the Work within the Contract Times.
- (x) **Project**—The total construction of which the Work to be performed under the Contract Documents may be the whole, or a part.
- (y) **Specifications**—That part of the Contract Documents consisting of written requirements for materials, equipment, systems, standards and workmanship as applied to the Work, and certain administrative requirements and procedural matters applicable thereto.
- (z) **Subcontractor**—An individual or entity having a direct contract with Contractor or with any other Subcontractor for the performance of a part of the Work at the Site.
- (aa) **Substantial Completion**—The time at which the Work (or a specified part thereof) has progressed to the point where, in the opinion of Engineer, the Work (or a specified part thereof) is sufficiently complete, in accordance with the Contract Documents, so that the Work (or a specified part thereof) can be utilized for the purposes for which it is intended. The terms "substantially complete" and "substantially completed" as applied to all or part of the Work refer to Substantial Completion thereof.
- (bb) **Successful Bidder**—The Bidder submitting a responsive Bid to whom Owner makes an award.
- (cc) **Special Conditions**—That part of the Contract Documents which amends or supplements these General Conditions.
- (dd) **Supplier**—A manufacturer, fabricator, supplier, distributor, materialman, or vendor having a direct contract with Contractor or with any Subcontractor to furnish materials or equipment to be incorporated in the Work by Contractor or Subcontractor.
- (ee) **Underground Facilities**—All underground pipelines, conduits, ducts, cables, wires, manholes, vaults, tanks, tunnels, or other such facilities or attachments, and any encasements containing such facilities, including those that convey electricity, gases, steam, liquid petroleum products, telephone or other communications, cable television, water, wastewater, storm water, other liquids or chemicals, or traffic or other control

systems.

- (ff) **Unit Price Work**—Work to be paid for on the basis of unit prices.
- (gg) **Work**—The entire construction or the various separately identifiable parts thereof required to be provided under the Contract Documents. Work includes and is the result of performing or providing all labor, services, and documentation necessary to produce such construction, and furnishing, installing, and incorporating all materials and equipment into such construction, all as required by the Contract Documents.
- (hh) **Work Change Directive**—A written statement to Contractor issued on or after the Effective Date of the Agreement and signed by Owner and recommended by Engineer ordering an addition, deletion, or revision in the Work, or responding to differing or unforeseen subsurface or physical conditions under which the Work is to be performed or to emergencies. A Work Change Directive will not change the Contract Price or the Contract Times but is evidence that the parties expect that the change ordered or documented by a Work Change Directive will be incorporated in a subsequently issued Change Order following negotiations by the parties as to its effect, if any, on the Contract Price or Contract Times.

2. Obligations and Liability of Contractor. The Contractor shall do all the work and furnish all the materials, tools, and appliances, except as otherwise specified herein, and everything necessary or proper for performing and completing the work required by this contract, in the manner and within the time hereinafter specified. Contractor shall complete the entire work to the satisfaction of the Owner, in accordance with the specifications and/or drawings herein mentioned, and at the prices herein agreed upon and therefore fixed. All the work, labor and materials to be done and furnished under this contract shall be done and furnished strictly pursuant to and in conformity with the attached specifications and instructions of the Owner as given from time to time during the progress of the work under the terms of this contract and also in accordance with the contract drawings if applicable. The Contractor shall coordinate their operation with those of any other contractors who may be employed on other work of the Owner, shall avoid interference therewith, and shall cooperate in the arrangements for storage of materials.

- (a) A preconstruction conference will be held in the Public Works Department Office at 645 Pine Street soon after delivery of the notice of award. The Contractor will be notified of the exact time and date. Those invited shall include all utilities, and topics of discussion shall include coordination and scheduling of work requirements by all concerned parties. The Contractor shall provide a work progress schedule previously reviewed by the Owner.
 - (1) At this conference Owner and Contractor each shall designate, in writing, a specific individual to act as its authorized representative with respect to the services and responsibilities under the Contract. Such individuals shall have the authority to transmit instructions, receive information, render decisions relative to the Contract, and otherwise act on behalf of each respective party.
 - (2) The Progress Schedule will be acceptable to Engineer if it provides an orderly progression of the Work to completion within the Contract Times. Such acceptance will not impose on Engineer responsibility for the Progress Schedule, for sequencing, scheduling, or progress of the Work, nor interfere with or relieve Contractor from Contractor's full responsibility therefor.
- (b) The Contractor shall conduct their work so as to interfere as little as possible with private business and public travel.
- (c) Wherever necessary or required, and at their own expense, they shall maintain fences, furnish watchmen, maintain lights, and take such other precautions as may be necessary to protect life and property.
- (d) The Contractor shall take all responsibility for the work done under this contract, for the protection of the work, and for preventing injuries to persons and damage to property and utilities on or about the work. They shall in no way be relieved of their responsibility by any

right of the Owner to give permission or instructions relating to any part of the work by any such permission or instructions given, or by failure of the Owner to give such permission or instructions. The Contractor shall bear all losses resulting to them or to the Owner on account of the quantity or character of the work, because the nature of the land in or on which the work is done is different from what was estimated or expected, or on account of the weather, elements, or other causes. The Contractor shall assume the defense of all claims of whatsoever character against the Contractor or the Owner and indemnify and save harmless the Owner, its officers, or agents against all claims for injury or damage to persons, corporations, or property arising out of the work done under this contract whether said claims arise out of negligence or not, or whether said claims relating to labor and materials furnished for the work. The Contractor shall not be required to indemnify for Owner against damage or claims occasioned solely by acts or omissions of the Owner in connections with the work performed by the Contractor for the Owner, except as otherwise provided in the section relative to patents.

- (e) The Contractor shall conduct operations so as not to damage existing structures or work installed either by them or by other contractors. In case of any such damage resulting from their own operations, they shall repair and make good as new the damaged portions at their own expense with the consent of the damaged party. In the event that consent is not given within a time frame deemed reasonable by the Engineer, the Contractor shall be relieved thereby of liability for the damage caused.

3. Authority of the Engineer / Inspector. The Engineer / Inspector shall be the Owner's field representative during the life of this contract and he shall observe the work in progress on behalf of the Owner. He shall have authority to act on behalf of the Owner only to the extent expressly provided in the contract documents or otherwise in writing, which shall be shown to the Contractor, upon request. He shall have authority to stop the work whenever such stoppage may be necessary in his reasonable opinion to prevent improper execution of the work.

- (a) The sequence of execution of the work and the general conduct of the work shall be subject to the approval of the Engineer who shall have authority to instruct that changes be made in such sequence where public necessity or welfare shall require, which approval or instruction shall, however, in no way affect the responsibility of the Contractor in the conduct of the work. The Engineer shall make all necessary explanations as to the meaning and intention of the drawings and/or specifications. The Engineer shall in all cases determine the amount, quality, acceptability, and fitness of the several kinds of work and materials which are to be paid for under this contract and shall decide all questions in relation to said work and the construction thereof. In the event that a determination or decision of the Engineer is questioned by the Contractor, the decision of the Engineer shall be a condition precedent to the Contractor's right to receive any money for the work or materials to which the question or difference in opinion relates.
- (b) If the Contractor considers any work demanded to be outside the requirements of the Contract or if they consider any decision or determination of the Engineer to be unfair, they shall immediately, upon such work being demanded or such decision or determination being made, ask in writing for written instructions, decision, or determination. Such instructions, decision, or determination shall be given by the Engineer, in writing, within five (5) days after the request therefore. Upon receipt of such written instruction, decision, or determination, the Contractor shall proceed without delay to perform the work or conform to the instructions, decision, or determination. Within ten (10) days after receipt of the written instructions, decision, or determination, the Contractor may file a written protest with the Owner stating clearly and in detail their obligations, the reasons therefore, and the nature and amount of damages which the Engineer's decision will cause them. Unless the Contractor shall file such written protest with the Owner within such ten (10) day period, they shall be deemed to have waived all grounds for such protests and such damages and to have accepted the instruction, decision, or determination of the Engineer as just and reasonable and as being within the scope of the Contractor's obligations under the contract.

4. Supervision of Work. The Contractor shall give the work the constant attention necessary to

facilitate the progress thereof and shall cooperate with the Engineer in every possible way.

- (a) At all times, the Contractor shall have as their agent on the work a competent superintendent capable of reading and thoroughly understanding the drawings and/or specifications. The superintendent on the work shall have full authority to execute the directions of the Engineer without delay and supply promptly such materials, equipment, tools, labor, and incidentals as may be required.
 - (b) Whenever the Contractor is not present on any part of the work where it may be necessary to give instructions, such instructions may be given by the Engineer and shall be received and obeyed by the Contractor's superintendent or foreman who may have charge of the particular work involved.
5. Parts of Contract. The AGREEMENT, all ADDENDA, the GENERAL and SPECIAL CONDITIONS, the SPECIFICATIONS and PROJECT SPECIFIC MAPS, DRAWINGS and DATA INFORMATION, and executed CHANGE ORDERS are made parts of this contract.
6. Discrepancies, Errors, and Omissions. The drawings and/or specifications are intended to be explanatory, but should any discrepancy appear or any misunderstanding arise as to the import of anything contained in either, the interpretation and decision of the Engineer shall be final and binding on both parties to this contract.
- (a) Any correction of errors or omissions in drawings and/or specifications may be made by the Owner when such correction is necessary for the proper fulfillment of their intention as construed by him. Where said correction of errors or omissions adds to the amount of work to be done by the Contractor, compensation for said additional work shall be made under the item of work for which a unit price is included in the PROPOSAL. All work indicated on the drawings and not mentioned in the specifications, or vice versa, shall be furnished and executed the same as if they were called for both by the drawings and by the specifications.
7. Insurance Requirements.
The foregoing policies shall be purchased and maintained with a company or companies lawfully authorized to do business in the State of Vermont. The City of Burlington and all its affiliates, reserves the right to require the contractor to provide and maintain additional coverage in the event that the process of performing work involves unusual risks.

Prior to commencing any work under this contract the Contractor will file with the Owner, and any other additional insured or loss payee a certificate of insurance evidencing their ability to meet the insurance requirements of this Contract.

Failure of the Owner to demand such certificates or other evidence of Contractor's full compliance with these insurance requirements, or failure of the Owner to identify a deficiency in compliance from the evidence provided shall not be construed as a waiver of the Contractors obligation to maintain such insurance.

The Owner does not represent that insurance coverage and limits established in the Contract will be adequate to protect Contractor. Further the insurance and insurance limits required herein shall not be deemed as a limitation on the Contractor's liability under the indemnities granted to the Owner, and other applicable parties in the Contract Documents.

Insurance Schedule:

General Liability:	
Each Occurrence:	\$1,000,000
Damage to Rented Premises:	\$300,000
Medical Expenses:	\$10,000
Personal & Adv Injury:	\$1,000,000
General Aggregate:	\$2,000,000 (project specific)
*Products Comp/Ops Aggregate:	\$2,000,000

*Contractor will maintain such products and completed operations insurance for a period of two years post final completion of this project. Contractor further agrees to provide The City of Burlington an updated certificate of insurance upon every insurance renewal to fulfill this obligation.

Auto Liability:

Combined Single Limit:	\$1,000,000
Hired & Non owned Autos:	\$1,000,000

Workers Compensation:

Employers Liability:	\$100,000/\$500,000/\$100,000
----------------------	-------------------------------

** Vermont must be listed as a covered state under section 3 of the WC policy**

Excess/Umbrella Liability:	\$5,000,000
----------------------------	-------------

Pollution Liability:	\$1,000,000
----------------------	-------------

The City of Burlington and The State of Vermont must be named as an additional insured on a primary and non-contributory basis using Additional Insured Endorsements CG 2037 04 and CG 2010 04. The GL and Umbrella policy must not exclude coverage for XCU. Contractual liability must be included in the GL and Umbrella to cover the contractor's indemnity obligations under this contract.

Waivers of subrogation in favor of the City of Burlington, and the State of Vermont must apply to the General Liability, Umbrella, Auto liability, and the Workers Compensation policy, and be evidenced on the certificate of insurance.

Each policy furnished shall contain a rider or non-cancellation clause reading in substance as follows:

Anything herein to the contrary notwithstanding, no cancellation, termination, or alteration of this policy by the company or the assured shall become effective unless and until notice of cancellation, termination, or alteration has been given by registered mail to the City Engineer, Department of Public Works, 645 Pine Street, Burlington, VT 05401, at least 30 calendar days before the effective cancellation, termination or alteration date unless all work required to be performed under the terms of the Contract is satisfactorily completed as evidenced by the formal final acceptance of the project by the City.

Any deductibles under said policies will be the responsibility of the Contractor.

Railroad Protective Liability Insurance. When the Contract involves work on, over or under the right-of-way of any railroad, the Contractor shall carry, with respect to operations performed by the Contractor and/or by the Contractor's subcontractors, Railroad Protective Liability Insurance in a form and amount as required by the railroad company and as specified in the Special Provisions and/or Supplemental Specifications for the project. If not available from insurance companies registered and licensed to do business in the State of Vermont, this insurance may be procured from Eligible Surplus Lines Companies approved by the Vermont Department of Banking, Insurance, Securities, & Health Care Administration (BISHCA).

The Contractor shall file the original Railroad Protective Policy and one duplicate policy with the City. The City will transmit the original Railroad Protective Policy to the railroad concerned.

The Contractor shall cooperate with and allow the railroad company or its agents free and full access to the project during construction along with all materials and equipment necessary in order that their duly authorized employees or agents may do any and all railroad construction,

inspection, flagging and watching.

The Contractor shall defend, indemnify, and save harmless the railroad and all of its officers, employees, and agents against any claim or liability arising from or based on any delay to the Contractor as a result of railroad construction or maintenance, whether by the railroad company, its employees, or agents

Property Insurance: Prior to starting work under this Contract, the contractor will purchase and maintain property insurance for the full replacement cost of the project, naming the Owners, and subcontractors as insured's. Such insurance should be written on a builder's risk all risk policy form that shall include insurance for physical loss or damage to the work, temporary buildings, false work, property in transit, and property stored at other locations. This policy should not exclude resulting damage due to faulty workmanship. Any deductibles attributable to this policy will be the sole responsibility of the contractor. This insurance must stay in effect until final completion has been achieved.

Indemnification: To the fullest extent permitted by laws and regulations, the Contractor shall indemnify and hold harmless, the City of Burlington, The State of Vermont, and railroads (as applicable) and their officers agents, representatives and employees from and against all claims, costs, losses and damages (including but not limited to all fees and charges of engineers, architects, attorneys and other professionals and all court arbitration or other dispute resolution costs) caused by, arising out of or resulting from the performance of the Work, provided that any such claim, cost, loss or damage is

1. attributable to bodily injury, sickness, disease or death, or to injury to or destruction of tangible property (other than the work itself) including the loss of use resulting there from
2. is caused in whole or in part by any negligent act or omission of Contractor, any subcontractor, any supplier, any person or organization directly or indirectly employed by any of them to perform or furnish any of the Work or anyone for whose acts they may be liable, regardless of whether or not caused in part by any negligence or omission of a person or entity indemnified hereunder or whether liability is imposed upon such indemnified party by Laws and Regulations regardless of the negligence of any such person or entity.

8. Compliance with Laws. The Contractor shall be fully informed of all existing and future State and National laws and municipal ordinances and regulations in any manner affecting those engaged or employed in the work, the materials used in the work or the conduct of the work, and of all such orders and decrees of bodies or tribunals having any jurisdiction or authority over the same. If any discrepancy or inconsistency is discovered in the plans, drawings, specifications, or contract for this work, in relation to any such law, ordinance, regulation, order or decree, they shall forthwith report the same to the Owner in writing. They shall at all times observe and comply with, and cause all agents and employees to observe and comply with, all existing laws, ordinances, regulations, order and decrees; and he shall protect and indemnify the Owner, its officers, and agents against any claim or liability arising from or based upon violation of any such law, ordinance, regulation, order or decree, whether the Contractor or their employees.
9. Provisions Required by Law Deemed Inserted. Each and every provision of law and clause required by current applicable law to be inserted in this contract shall be deemed to be inserted herein, and the contract shall be read and enforced as through they were included herein. If through mistake or otherwise any such provision is not inserted, or is not correctly inserted, then upon the application of either party, the contract shall forthwith be physically amended to make such insertion.
10. Permits. The Contractor shall, at their own expense, take out all necessary permits from the county, municipal, or other public authorities; shall give all notices required by law or ordinances; and shall post all bonds and pay all fees and charges incident to the due and lawful prosecution of the work covered by this contract. Fees for the excavation permit shall be waived by the Owner.

However, where parking meter bags are required, the Contractor shall obtain them from the Department of Public Works and the cost will be determined on a case by case basis.

11. Not to Sublet or Assign. The Contractor shall constantly give personal attention to the faithful prosecution of the work, shall keep the same under their personal control, shall not assign, by power of attorney or otherwise, or sublet the work or any part thereof, without the previous consent of the Owner, and shall not either legally or equitably assign any of the moneys payable under this agreement, or their claim thereto, unless by an with the like consent of the Owner and the Surety on the Bonds.
12. Time of Beginning Work. Except as herein provided, the Contractor shall commence work at such points as the Owner may approve in accordance with the Notice to Proceed as issued by the Owner.
 - (a) Such time of starting may be postponed by written agreement between the Owner and the Contractor because of expected delays in receipt of materials and equipment, if the season is unsuitable for commencement of the work, or because of any other contingency clearly beyond the control or responsibility of the Contractor. Unless stipulated otherwise in said agreement, the Contractor shall commence work at such points as the Owner may direct or approve within five (5) days after the receipt of a written order from the Owner to start work.
13. Time for Completion. The rate of progress shall be such that the whole work shall be performed in accordance with the terms of this contract before the expiration of the time limit stipulated under the INFORMATION FOR BIDDERS, unless and except as any part may be delayed under the provisions of this contract.
 - (a) Time is of the Essence. The Contractor shall proceed with work in a timely manner to meet the schedule they have provided. No deviations from this schedule shall occur without the written consent of the Owner. Time is of the essence to this Contract.
 - (b) No Extension of Time. No extension of time will be made for ordinary delays, minor variances in actual unit quantities versus estimated bid quantities, inclement weather, and accidents, and the occurrence of such will not relieve the Contractor from the necessity of maintaining this rate of progress.
 - (c) Owner's Prescription. If, in the opinion of the OWNER, the rate of progress of the WORK has fallen behind schedule so as to jeopardize the timely completion of the PROJECT, the OWNER may prescribe in writing, operations and/or manpower additions to be performed to assure the timely completion of the PROJECT in accordance with the CONTRACT.
 - (d) Acceptable Delays. If delays are caused by acts of God, acts of Government or State, strikes, extra work, or other contingencies clearly beyond the control or responsibility of the Contractor, the Contractor shall be entitled to so much additional time wherein to perform and complete this contract on their part as the Owner shall certify in writing to be just.
 - (e) Liquidated Damages; General; Days Charged. For each working day on which any work remains incomplete after the completion date specified in the Contract for completion of the work involved, there shall be deducted from any monies due the Contractor the amount shown in the following table, unless otherwise specified in the Contract. The deduction is not a penalty, but is liquidated damages to defray the cost to the City to administer of the Contract including, but not limited to, the cost of engineering, inspection, supervision, inconvenience to the public, obstruction of traffic, and interference with business. Due account shall be provided for any adjustment of the Contract time for completion of the work under General Provisions, Subsection 108.11.

**DAILY CHARGE FOR LIQUIDATED DAMAGES
FOR EACH WORKING DAY OF DELAY**

Original Contract Amount		
<u>From More Than</u>	<u>To And Including</u>	<u>Daily Charge Per Day of Delay</u>
\$ 0	\$ 300,000	\$ 300.00
300,000	500,000	700.00
500,000	1,000,000	900.00
1,000,000	1,500,000	1,100.00
1,500,000	3,000,000	1,400.00
3,000,000	5,000,000	1,900.00
5,000,000	10,000,000	2,500.00
10,000,000	20,000,000	3,400.00
20,000,000+	-----	4,200.00

Should the Contractor elect to work on Saturdays, Sundays, Holidays, or days from August 31 to April 15th, exclusive, after the Contract completion date, the Contractor will be charged liquidated damages for such days worked.

- (f) Early Completion Incentive. For each working day prior to the completion date specified in the Contract, that the entire Contract work is completed the Contractor shall receive the same amount as stated for the daily charge for liquidated damages. The incentive payment passes on the amount of cost to the City to administer of the Contract including, but not limited to, the cost of engineering, inspection, supervision, inconvenience to the public, obstruction of traffic, and interference with business. Due account shall be provided for any adjustment of the Contract time for completion of the work under General Provisions, Subsection 108.11.
14. Examination of Work. The Engineer shall be furnished with every reasonable facility for ascertaining that the work is in accordance with the requirements and intention of this contract, even to the extent of uncovering or taking down portions of finished work.
15. Defective Work. The inspection of the work shall not relieve the Contractor of any obligations to fulfill the contract as herein prescribed, and defective work shall be made good and unsuitable materials shall be rejected, notwithstanding that such work and materials have been previously overlooked by the Engineer and estimated for payment. Defective work, whether the result of poor workmanship, use of defective materials, damage through carelessness of the Contractor or any other outside agency, found to exist prior to the final acceptance of the work, shall be replaced or repaired and tested in a manner acceptable to the Owner and at the Contractor's own expense. The Contractor shall be responsible to establish lines and grades of the intended work to insure drainage flows properly to the catch basin structures. The Contractor shall be fully responsible for insuring all structures are properly adjusted, including the furnishing and installing of all riser rings, frames, covers or other materials necessary for such adjustments.
- (a) No work shall be done without lines and grades and structure adjustments having been accepted by the Engineer. Work done contrary to any instructions given by the Engineer will be considered defective and will not be paid for under the provisions of the Contract

and may be ordered removed or replaced at the Contractor's own expense.

16. Protection against Water and Storm. The Contractor shall take all precautions to prevent damage to work by storms or by water entering the site of the work directly or through the ground. In case of damage by storm or water, the Contractor shall make such repairs or replacements or rebuild such parts of the work as the Engineer may require in order the finished work may be completed as required by the drawings and/or specifications.
 - (a) The Engineer may prohibit the carrying out of any work at any time when, in their judgment, the conditions are not suitable or the proper precautions are not being taken, whatever the weather may be, in any season.
17. Mistakes of Contractor. The Contractor shall make good any defects, omissions, or mistakes for which they are responsible, and they shall pay to the Owner all expenses, losses, and damages incurred therefore.
18. Alterations. The Engineer may make alterations in the line, grade, plan, form, dimensions, or materials of the work or any part thereof, either before or after the commencement of construction. If such alterations increase or diminish the quantity of work to be done, adjustment for such increase or decrease shall be made at the unit prices stipulated for such work under this contract. If such alterations diminish the quantity of work to be done, they shall not warrant any claim for damages or for anticipated profits on the work that is eliminated.
19. Extra Work. Extra work includes only work that is not provided for in the unit price items in this contract. It does not include clearing, grubbing, excavation, backfill, compaction and supply and installation of all materials required by this contract to complete the work.
 - (a) The Contractor shall do any work incidental to the proper completion of the contract and not otherwise provided for herein, when and as ordered in writing by the Owner, either,
 - 1) at the price agreed upon before the work is commenced and named in the order for the work or,
 - 2) if the Owner so elects, for the reasonable cost of said work as determined by the Contractor and approved by the Owner, plus a percentage of such cost, as set forth below.
 - (b) Extra work shall only be authorized by a Work Change Directive signed by the Owner prior to the undertaking of the extra work or by an executed Change Order signed by both the Owner and the Contractor.
 - (c) The cost of extra work done under (a)(1) above shall include the reasonable cost to the Contractor of materials used and equipment installed, common and skilled labor, and foremen, and the fair rental of all machinery used on the extra work for the period of such use.
 - (d) At the request of the Owner, the Contractor shall furnish itemized statements of the cost of the work ordered and give the Owner access to all accounts, bills, and vouchers relating thereto.
 - (e) To the cost of extra work done by the Contractor's own forces under (a)(1) above (determined as stated above), the Contractor shall add no more than ten (10) percent to cover overhead and profit.
 - (f) In the case of extra work under (a)(1) above by a subcontractor, the combined contractor and subcontractor overhead shall not exceed fifteen (15) percent of the subcontractor's charge for the extra work.
 - (g) If extra work is done under (a)(1) above, the Contractor and/or subcontractor shall keep daily records of such extra work. The daily record shall include names of personnel employed and hours worked, materials and equipment incorporated, and machinery used,

if any, in the prosecution of such extra work. This daily record shall be signed by the Contractor's authorized representative and (if approved) by the Owner, verifying that such work has been done. A separate daily record shall be submitted for each extra work order.

20. Extension of Time on Account of Extra Work. When extra work or work in excess of the quantities in the bid is ordered at any time during the progress of the work which requires in the opinion of the Owner an unavoidable increase of time for the completion of the contract, a suitable time extension or rescheduling into subsequent year's paving season shall be made by the Owner.
21. Changes Not to Affect Bonds. It is distinctly agreed and understood that any changes made in the drawings and/or specifications for this work (whether such changes increase or decrease the amount thereof) or any change in the manner or time or payments made by the Owner to the Contractor shall in no way annul, release, or affect the liability and surety on the bonds given by the Contractor.
22. Abandonment of Work. If the work to be done under this contract shall be abandoned, if this contract or any part thereof shall be sublet without the previous consent by the Owner, if the contract or any claim there under shall be assigned by the Contractor otherwise than as herein specified, or if at any time the Engineer shall be of the opinion, and shall so certify in writing, that the conditions herein specified as to the rate of progress are not fulfilled, that the work or any part thereof is unnecessarily or unreasonably delayed, or that the Contractor has violated any of the provisions of this contract, the Owner may notify the Contractor by a written order, with a copy mailed to the home office of the Surety, to discontinue all work, or any part thereof; thereupon the Contractor shall discontinue such work or such part thereof as the Owner may designate; and the Owner may thereupon, by contract or otherwise as it may determine, complete the work, or such part thereof, and charge the entire expense of so completing the work or part thereof to the Contractor. For such completion the Owner, for itself or its contractors, may take possession of and use or cause to be used in the completion of the work or part thereof any of such materials, equipment, machinery, implements, and tools of every description as may be found at the location of said work.
 - (a) All expenses charged under this article shall be deduced and paid by the Owner out of any moneys then due or to become due the Contractor under this contract or any part thereof; in such accounting, the Owner shall not be held to obtain the lowest figures for the work of completing the contract or any part thereof, or for ensuring its proper completion, but all sums actually paid therefore shall be charged to the Contractor. In case the expenses so charged are less than the sum which would have been payable under this contract if the same had been completed by the Contractor, the Contractor shall be entitled to receive the difference, and, in case such expenses shall exceed the said sum, the Contractor or his Surety shall pay the amount of the excess to the Owner.
23. Prices for Work. The Owner shall pay, and the Contractor shall receive, the prices stipulated in the Proposal attached hereto as full compensation for everything furnished and done by the Contractor under this contract, including all work required but not specifically mentioned, and also for all loss or damage arising out of the nature of the work aforesaid, from the action of the elements, or from any unforeseen obstruction or difficulty encountered in the prosecution of the work, for all risks of every description connected with the work, for all expense incurred by or in consequence of the suspension or discontinuance of the work as herein specified, and for well and faithfully completing the work and the whole thereof, as herein provided.
 - a) Unit Price Work. Where the Contract Documents provide that all or part of the Work is to be Unit Price Work, initially the Contract Price will be deemed to include for all Unit Price Work an amount equal to the sum of the unit price for each separately identified item of Unit Price Work times the estimated quantity of each item as indicated in the Agreement.
 - 1) The estimated quantities of items of Unit Price Work are not guaranteed and are solely for the purpose of comparison of Bids and determining an initial Contract Price. Determinations of the actual quantities and classifications of Unit Price Work performed by Contractor will be made by Engineer subject to the following

provisions:

- a. Engineer will determine the actual quantities and classifications of Unit Price Work performed by Contractor.
 - b. Engineer will review with Contractor the Engineer's preliminary determinations on such matters before rendering a written decision thereon (by recommendation of an Application for Payment or otherwise).
 - c. Engineer's written decision thereon will be final and binding (except as modified by Engineer to reflect changed factual conditions or more accurate data) upon Owner and Contractor.
- 2) Each unit price will be deemed to include an amount considered by Contractor to be adequate to cover Contractor's overhead and profit for each separately identified item.
 - 3) Owner or Contractor may make a Claim for an adjustment in the Contract Price in accordance with the General Provisions if:
 - a. the quantity of any item of Unit Price Work performed by Contractor differs materially and significantly from the estimated quantity of such item indicated in the Agreement; and
 - b. there is no corresponding adjustment with respect to any other item of Work; and
 - c. Contractor believes that Contractor is entitled to an increase in Contract Price as a result of having incurred additional expense or Owner believes that Owner is entitled to a decrease in Contract Price and the parties are unable to agree as to the amount of any such increase or decrease.
24. Partial Payment Not Acceptance. It is agreed that this is an entire contract for one whole and complete work, as called out by the SPECIAL CONDITIONS (3) parts for completing milestones, as called out by the SPECIAL CONDITIONS and by DIVISION 100, subsection 109.10 (b). And that no other partial payments on account by the Owner or the use of parts of the proposed equipment shall constitute an acceptance of any part of the work before its entire completion and final acceptance.
25. Payments to Contractor. At least ten (10) days before each progress payment falls due (but not more often than once a month), the CONTRACTOR will submit to the ENGINEER a partial payment estimate filled out and signed by the CONTRACTOR covering the WORK performed during the period covered by the partial payment estimate and supported by such data as the ENGINEER may reasonably require. If payment is requested on the basis of materials and equipment not incorporated in the WORK but delivered and suitably stored at or near the site, the partial payment estimate shall also be accompanied by such supporting data, satisfactory to the OWNER, as will establish the OWNER'S title to the material and equipment and protect their interest therein, including applicable insurance. The ENGINEER will, within ten (10) days after receipt of each partial payment estimate, either indicate in writing their approval of payment and present the partial payment estimate to the OWNER, or return the partial payment estimate to the CONTRACTOR indicating in writing the reasons for refusing to approve payment. In the latter case, the CONTRACTOR may make the necessary corrections and resubmit the partial payment estimate. The OWNER will, within fourteen (14) days of presentation of an approved partial payment estimate, pay the CONTRACTOR a progress payment on the basis of the approved partial payment estimate.
- (a) The request for payment may also include an allowance for the cost of such major materials and equipment, which are suitably stored either at or near the site.
 - (b) Each individual section or block of a street shall be completed in its entirety and accepted as complete by the INSPECTOR or ENGINEER before payment is considered. This includes restoration of greenbelt areas and site clean up.
26. Final Estimate and Payment. As soon as practicable after the completion of the work under this

contract, the Contractor shall make a final estimate in writing of the quantity of work done under the contract and the amount earned.

- (a) The Owner shall pay to the Contractor the entire sum found to be due hereunder after deducting therefrom all previous payments, all amounts to be kept, and all amounts to be retained under the provisions of this contract.
 - (b) All quantities shown on progress estimates and all prior payments shall be subject to correction in the final estimate and payment.
 - (c) Upon completion and acceptance of the WORK, the ENGINEER shall issue a certificate attached to the final payment request that the WORK has been accepted under the conditions of the CONTRACT DOCUMENTS. The entire balance found to be due the CONTRACTOR, including the retained percentages, but except such sums as may be lawfully retained by the OWNER, shall be paid to the CONTRACTOR within thirty (30) days of completion and acceptance of the WORK.
 - (d) The CONTRACTOR will indemnify and save the OWNER or the OWNER'S agents harmless from all claims growing out of the lawful demands of SUBCONTRACTORS, laborers, workmen, mechanics, materialmen, and furnishers of machinery and parts thereof, equipment, tools, and all supplies, incurred in the furtherance of the performance of the WORK. The CONTRACTOR shall, at the OWNER'S request, furnish satisfactory evidence that all obligations of the nature designated above have been paid, discharged, or waived. If the CONTRACTOR fails to do so the OWNER may, after having notified the CONTRACTOR, either pay unpaid bills or withhold from the CONTRACTOR'S unpaid compensation a sum of money deemed reasonably sufficient to pay any and all such lawful claims until satisfactory evidence is furnished that all liabilities have been fully discharged whereupon payment to the CONTRACTOR shall be resumed, in accordance with the terms of the CONTRACT DOCUMENTS, but in no event shall the provisions of this sentence be construed to impose any obligations upon the OWNER to either the CONTRACTOR, his Surety, or any third party. In paying any unpaid bills of the CONTRACTOR, any payment so made by the OWNER shall be considered as a payment made under the CONTRACT DOCUMENTS by the OWNER to the CONTRACTOR and the OWNER shall not be liable to the CONTRACTOR for any such payments made in good faith.
27. Waivers. Neither the inspection by the Owner or any of its agents; nor any order, measurement, or certificate by the Engineer; nor any order by the Owner for the payment of money; nor any payment for or acceptance of the whole or any part of the work by the Owner; nor any extension of time; nor any possession taken by the Owner or its employees shall operate as a waiver or any provision of this contract, of any power herein reserved to the Owner, or any right to damages herein provided; nor shall any waiver or any breach of this contract be held to be a waiver of any other or subsequent breach. Any remedy provided in this contract shall be taken and construed as cumulative, that is, in addition to each and every other remedy herein provided and in addition to all other suites, actions, or legal proceedings, the Owner shall also be entitled as right to a writ of injunction against any breach of any of the provisions of this contract.
28. Liability of Owner. No person, firm or corporation, other than the signer of this contract as Contractor, now has any interest hereunder; no claim shall be made or be valid; and neither the Owner nor any agent of the Owner shall be liable for or be held to pay any money, except as herein provided. The acceptance by the Contractor of the final payment shall operate as and shall be a release to the Owner and every agent of the Owner from all claim and liability to the Contractor for anything done or furnished for or relating to the work or for any act or neglect of the Owner or of any person relating to or affecting the work, except the claim against the Owner for the remainder, if there is any, of the amounts kept or retained as herein provided.
29. Guarantee. The Contractor guarantees that the work to be done under this contract, and the workmanship performed and the materials and equipment used in the construction of the same shall be free from defects or flaws. This guarantee shall be for a period of One (1) year from and after the date of completion of work as stated in the final estimate payment and agreed to by the Owner. The Contractor shall repair or replace as required, promptly and without charge, all work,

and materials, or parts thereof, which fail to meet the above guarantee during the one year herein quoted.

30. Submittals. The Contractor shall prepare and submit to the Owner, certifications of materials and equipment called for in the specifications, before work commences. Such submittals are subject to review and acceptance by the Engineer. Such acceptance does not relieve the Contractor of performance of work in compliance with plans and specifications in a workmanlike manner.
- (a) Unless otherwise specifically directed by the Engineer all samples shall be of the precise article proposed to be furnished. The Engineer will consider proposed substitutions of materials, equipment and methods only when such proposals are accompanied by full and complete technical data and all other information required by the Engineer to evaluate the proposed substitution.

Do not substitute materials, equipment or methods unless such substitution has been specifically accepted for this work by the ENGINEER.

The following submittals shall be provided by the Contractor to the Engineer prior to initiation of construction activities.

- (a) Asphalt Mix Sieve Analysis Type II, III, IV
- (b) Emulsified Asphalt
- (c) Brick
- (d) Mortar
31. Schedules. The Contractor shall provide a work schedule to the Owner within ten (10) days of award in the critical path format. This CPM Progress Schedule shall show the order in which they propose to carry out the work, including the date(s) at which they will start the various segments of the work and the estimated completion dates of each segment.
32. Daily Job Shutdown. At the close of each workday, or when and as directed by the Engineer or Inspector, all unfinished work shall be identified in a manner so as to warn and prevent pedestrians from going over or using the unfinished area. In the event that work performed under, through, or in conjunction with this contract requires the closing or blocking off of pedestrian or vehicular right-of-way(s), the Contractor shall post signs to that effect at both ends of the street, sidewalk, or other such termini.
- (a) Job shutdown overnight, weekend or holiday shall have at each end of the job/work site no less than one (1) blinking light barricade plus intermediate blinking light barricades every fifty (50) feet and other MUTCD requirements.
33. Payment For Testing Services.
- (a) The Owner will pay for all initial testing services requested by the City Engineer unless otherwise specified.
- (b) When initial tests indicate noncompliance with the Contract Documents, all subsequent retesting occasioned by the noncompliance shall be performed by the same testing laboratory at the Contractor's expense.
- (c) Testing of all constituents used in concrete mixtures or of trial test batches of concrete for the purpose of establishing an acceptable design mix for concrete shall be at the Contractor's expense.
34. Unsuitable Material. If unsuitable material for foundation (in the opinion of the Engineer) is found at or below the grade to which excavation would normally be carried in accordance with the drawings and/or specifications, the Contractor, at the direction of the Engineer, shall remove such material to the required width and depth and replace it with thoroughly compacted, screened gravel, select bank-run gravel, fine aggregate or concrete as directed.
- (a) The Engineer may direct the Contractor to install a geotextile fabric in any excavated area prior to backfilling. The City will provide the geotextile fabric. The Contractor shall install

the fabric at no additional charge to the City.

35. Posting of Streets. The Contractor shall post the street (using signs provided by Owner) prior to 4:00 p.m. the day before work is started and shall notify the Police and Fire Departments of any and all street construction activities.

END OF GENERAL CONDITIONS

SPECIAL CONDITIONS (D2)

1. Application of SPECIAL CONDITIONS. Whenever conditions as set forth in the SPECIAL CONDITIONS conflict with conditions in the CONTRACT AGREEMENT, and Specifications, the SPECIAL CONDITIONS shall take precedence.

2. Applicable City of Burlington Ordinances. (available online at http://library4.municode.com/default-test/home.htm?infobase=13987&doc_action=whatsnew)
 - a) Women's Economic Opportunity Program. As defined by SUBPART B - RELATED LAWS, CHAPTER 21, ARTICLE II – WOMEN IN CONSTRUCTION TRADES, Sections 21-50 through 21-55.
 - b) Prequalification of Construction Contractors. As defined by SUBPART B - RELATED LAWS, CHAPTER 21, ARTICLE V - PREQUALIFICATION OF CONSTRUCTION CONTRACTORS, Sec. 21-67 through Sec. 21-78.
 - c) City Livable Wages Ordinance. As defined by SUBPART B - RELATED LAWS, CHAPTER 21, ARTICLE VI - LIVABLE WAGES, Sec. 21-80 through Sec. 21-87.

3. Contract Milestones. Milestone dates and requirements shall be as follows:
 - a) **August 1, 2013** **20%** of work shall be complete
 - b) **September 1, 2013** **65%** of work shall be complete
 - c) **October 1, 2013** **100%** of work shall be complete
 - a. Work continued after **October 1, 2013** shall accrue liquidated damages as put forth by the GENERAL and SPECIAL CONDITIONS.
 - d) "Work Complete" shall be based on the dollar value of fully completed and invoiced streets, where all contract requirements are completed including sign-off of each street and work segment by the Engineer.

4. Amount of Liquidated Damages. The Owner will deduct **\$900** to the Contract Price for each working day (Saturdays, Sundays and legal holidays excluded) of delay from payments due to the Contractor as set forth under "Liquidated Damages" in the GENERAL CONDITIONS.
 - a) Early Completion Incentive. The Owner will add **\$900** to the Contract Price for each working day (Saturdays, Sundays and legal holidays excluded) prior to the Contract completion date the Contract Work has been completed as set forth under "Early Completion Incentive" in the GENERAL CONDITIONS.

5. Coordination With Other Contractors, Utilities, and Municipal Departments. During the course of construction the Contractor shall coordinate all activities with those of others to insure a smooth completion of the project with a minimum of disruption to the public and private sector, while providing the specified quality of finished product. Contractor's responsibilities include, but shall not be limited to:
 - a) Contacting applicable utilities and Dig Safe to field locate and mark underground lines and structures a minimum 72 hours prior to beginning construction activities which may endanger those utilities. Maintenance of these markings throughout the completion of construction activities in the immediate area is required.
 - b) Contacting applicable utilities according to the laws and ordinances of the City of Burlington.
 - c) Maintaining safe public access to commercial businesses, residential units, etc. at all times.

- d) Employment of sufficient manpower and equipment necessary to achieve an appropriate rate of progress to allow for timely interfacing with other Contractors working on separate portions of the Street Reconstruction Program. The Contractor shall adhere to the schedule they provide within ten (10) days of Notice of Award. No deviations from this schedule shall occur without consent of the Owner.
- e) Coordinating closure of private drives and sidewalks with property owners to provide for minimum disruption of access during installation of sidewalks and curbs. Under no circumstances shall private access be cut off over weekend shutdowns.
- f) Coordinate with the Department of Public Works, Right-Of-Way work group regarding their installation of concrete sidewalk ramps which adjoin various streets.

No additional compensation shall be paid to the Contractor for these activities, and all costs should be considered subsidiary to other payment items. A preconstruction meeting among all concerned parties will be held prior to the NOTICE TO PROCEED to discuss coordination and scheduling problems.

6. Traffic Control Requirements. The Contractor shall provide all vehicular and pedestrian traffic control and worksite protection measures in accordance with City of Burlington Standards and the U.S. Department of Transportation's "Manual On Uniform Traffic Control Devices" (MUTCD), ATSSA Basic Traffic Control for Utilities Guide Book, and ATSSA Flagging Handbook. Prior to commencement of Work, the Contractor shall provide a traffic plan to the City Engineer.

- a) A sufficient amount of cones and/or barricades shall be provided by the Contractor for overnight and weekend use as designated by the Engineer.
- b) In certain areas a uniformed traffic officer shall be required; these areas shall be designated by the City Engineer. Should a uniformed traffic officer be required it will be supplied at the contractor's expense.

7. Work Area Progress. Upon commencement of construction in a daily area, the Contractor shall maintain consistent daily progress so as to minimize the time of disruption to adjoining property owners. The Contractor may have more than one work area in operation at, once, however, consistent daily progress shall be maintained in each until completion.

Precautions such as grading/ramping and marking of high structures (catch basins and manholes) should be taken within the travel way so that traffic is aware of a raised structure during the construction period.

8. Weather/Seasonal Limitations.

- a) Asphalt Paving. No paving work shall begin unless the following requirements have been met:
 - (1) Temperature. Ambient air temperature is **40 deg F and rising.**
 - (2) Rain. No rain is falling, and surfaces to be paved are dry.
 - a. Note: STOP WORK during paving operations if rain begins to fall. Do not continue paving operations that day, unless otherwise directed by the Engineer.
 - (3) Wind. A windy condition, with blowing dust and debris, does not interfere with paving operations.
- b) Concrete. No concrete shall be poured on a frozen or thawing subgrade, during unseasonable weather conditions, or when the temperature is 40 deg F and falling. The Contractor shall record the temperature daily as outlined in Proposed recommended Practice for Cold Weather Concreting, ACI, Section 306. In hot weather, temperature of freshly placed concrete shall not be allowed to exceed 85 deg F, conforming to ACI,

Section 305.

- c) Exceptions. If the Limitations as listed above come in conflict with the Technical Specifications, the more stringent requirement shall prevail, unless otherwise approved by the Engineer.
9. Authority to Close Streets to Parking. Under Section 20-63, City of Burlington Codes and Ordinances, the contractor under this contract may temporarily close streets to parking.
- The following general conditions shall be met:
- a) Standard "No Parking" paper signs - (furnished by Owner)
 - b) Posted in conspicuous locations on streets where contract Work is to be performed. One or both sides of the street may be posted if the work warrants such action as determined by the contractor. "No Parking" signs shall be free standing on Contractor furnished stakes. Under no conditions will signs be affixed to utility poles, street signs or mail boxes.
 - c) Signs shall be in place no later than 4:00 PM on the day preceding Work to start, including holidays and weekends, and Police, Fire Departments, Chittenden County Transportation Authority (CCTA), and Chittenden County Metropolitan Planning Organization (CCMPO) traffic alerts shall be notified of the area.
 - d) Prohibited parking will remain in effect until said signs are removed by the Contractor. This shall be as soon as work is completed.
 - e) The signs shall state the date on which parking is prohibited, the time at which prohibited parking commences, and a note that says that prohibited parking shall remain in effect until said signs are removed.
10. Street Trees. The City Arborist will be aware of street tree locations that may be affected by the Work. The City Arborist will be available at the pre-bid conference and in the field prior to construction to review with the Contractor the proper methods of root pruning and construction within the drip line as required.
- a) Contractor shall not begin construction within the drip line of any tree, public or private, until the City Arborist has addressed, inventoried and discussed any special requirements with the contractor. The City Arborist will again inspect any trees in the area after construction is finished.
 - b) Contractor shall be liable for any damage to affected trees due to construction.
 - c) Should the Contractor believe that construction will damage any tree regardless of precautions; the Contractor shall not work in that area and shall immediately notify the Engineer in writing.
11. Restoration of Existing Surfaces. All existing street pavements, driveway aprons, and greenbelt areas disturbed by excavation and/or construction activities of the Contractor shall be restored to their original conditions or better. Street pavements shall be restored to existing asphalt thickness or a minimum 4 inch thickness, whichever is greater. Driveway aprons shall be regraded and finished to match the grades of the new curb cut opening and promote proper drainage or surface runoff. Greenbelt areas shall be regraded to match the grades of the curbing using excavation and/or earth borrow as required and a minimum 4 inch layer of topsoil. Top soil shall consist of uniform natural sandy loam, free from lumps, clods, sods, stones larger than 3/4 inch in any dimension, sticks, wood, cinders, concrete or any foreign or undesirable materials. It shall be natural and fertile soils possessing the characteristics of good soil which produce heavy growth of crops, grass or other vegetation and shall be obtained from natural, well-drained areas. It shall be free of sub-soil.
- a) Acidity range from pH 5.0 to pH 6.0 inclusive. Disturbed areas shall be seeded and mulched to provide a vigorous growth of grasses to match the surrounding terrain. This

growth of grasses is subject to the three (3) year guarantee period. Seed shall be fresh, clean seed of the latest crop, which meets the standards of the Federal Seed Act including percent pure seed, percent germination and percent weed content listed below. All seed shall be furnished in sealed standard containers of vendor with each container showing vendor name, weight percent of each grass seed, percent pure seed, percent germination, percent weed content, date of seed crop, and date of test. Seed shall be L.D. Oliver Seed Co., "Burlington Public Works Special Mix" with the following analysis, or an approved equal:

30%	Shortstop Turf-type Tall Fescue	90%	Germination
20%	Jasper Red Fescue	90%	Germination
20%	Creeping Red Fescue	85+%	Germination
20%	Fiesta II Perennial Rye Grass	90%	Germination

- b) Broadcast seed at 5 lbs/1,000 square feet.
- c) All such work must conform to the "Vermont Standards & Specifications for Erosion Prevention & Sediment Control, 2006", and as amended and all earthen material associated with, or disturbed by, the project shall be retained on the subject property. Bare earthen material shall immediately be stabilized with erosion control netting and with topsoil, seed and mulch to establish vegetative cover.

12. Items Included by Reference. Items not specifically bound within these documents but referenced from the "2006 Standard Specifications for Construction Book" as adopted by the State of Vermont Department of Transportation (VTTrans), shall be included as if bound into these documents.

The items to be included as referenced is available for download from VTTrans at:
<http://www.aot.state.vt.us/conadmin/2006StandardSpecs.htm>

END OF SPECIAL CONDITIONS

Work Change Directive (E2)

No. _____

Date of Issuance: _____ Effective Date: _____

Project: Street Reconstruction Program	Owner: City of Burlington	Owner's Contract No.: #SC13-5000-01
Contract:		Date of Contract:
Contractor:		Contractor's Project No.:

You are directed to proceed promptly with the following change(s):

Item No.	Description

Attachments (list documents supporting change):

Purpose for Work Change Directive:

- Authorization for Work described herein **to proceed** on the basis of Cost of the Work due to:
- Nonagreement on pricing of proposed change.
- Necessity to expedite Work described herein prior to agreeing to changes on Contract Price and Contract Time.

Estimated change in Contract Price and Contract Times:

Contract Price \$ _____ (increase/decrease) Contract Times _____ (increase/decrease)

If the change involves an increase, the estimate amounts are not to be exceeded without further authorization.

Recommended for Approval by Engineer / Inspector:	Date:
Authorized for Owner by City Engineer:	Date:
Accepted for Contractor by:	Date:

END OF WORK CHANGE DIRECTIVE

CHANGE ORDER (C.O.) # _____

Project No. _____ Date: _____

Contract No. #SC13-5000-01 _____ Agreement Date: _____

CONTRACT TITLE: Street Reconstruction Program ORIGINAL PRICE: _____

OWNER (GRANTEE): **City of Burlington, Department of Public Works** _____

CONTRACTOR: _____

The following changes are hereby made to the CONTRACT DOCUMENTS:

DESCRIPTION: _____

JUSTIFICATION: _____

PRICE:

Current Contract Price per most recent C.O.: \$ _____

This C.O. will (not change/increase/decrease) the Contract Price by: \$ _____

The new Contract Price including this C.O. is: \$ _____

TIME:

Current Contract Calendar Days as per most recent C.O.: DAYS _____

This C.O. will (not change/increase/decrease) the Contract Calendar Days By: DAYS _____

The new Contract Calendar Days including this C.O. is: DAYS _____

The new Contract Completion Date is, therefore: _____

And reflects increases or decreases in Contract Times as authorized by this C.O.

REQUESTED BY: _____
(Contractor, Owner, Engineer, State, Federal Government)

SIGNATURES/APPROVALS:

Recommended by: _____
(Engineer)

Accepted by: _____
(Contractor)

Ordered by: _____
(Owner)

END OF CHANGE ORDER

DIVISION 100 - GENERAL PROVISIONS

The General and Special Conditions apply to and are complementary with these DIVISION 100 General Provisions.

SECTION 101 - DEFINITIONS AND TERMS

101.01 ABBREVIATIONS.

Wherever the following abbreviations are used in these Specifications or on the Plans, they are to be construed the same as the respective expressions represented:

A	Ampere(s)
A	Arch (Section 601)
ABS	Acrylonitrile-Butadiene-Styrene
ADA	Americans with Disabilities Act
AAN	Americans Association of Nurserymen
AAR	Association of American Railroads
AASHTO	American Association of State Highway Transportation Officials
ACI	American Concrete Institute
AGC	Associated General Contractors of America
AI	Asphalt Institute
AIA	American Institute of Architects
AISC	American Institute of Steel Construction
AISI	American Iron and Steel Institute
AITC	American Institute of Timber Construction
Amp(s)	Ampere(s)
AMRL	AASHTO Materials and Reference Laboratory
ANR	Agency of Natural Resources
ANSI	American Railway Association
AREA	American Railway Engineering Association
AREMA	American Railway Engineering and Maintenance-of-Way Association
ASCE	American Society of Civil Engineers
ASLA	American Society of Landscape Architects
ASME	American Society of Mechanical Engineers
ASR	Alkali-Silica Reactivity
ASTM	American Wood-Preservers' Association
AWS	American Welding Society
AWWA	American Water Works Association
BTU	British Thermal Unit
CAAP	Corrugated Aluminum Alloy Pipe

CCRL	Cement and Concrete Reference Laboratory
CF, FT ³ , ft ³	Cubic Foot (Feet)
CFR	Code of Federal Regulations
CIP	Cast Iron Pipe
CPEP	Corrugated Polyethylene Pipe
CPM	Critical Path Method
CRSI	Concrete Reinforcing Steel Institute
CSP	Corrugated Steel Pipe
CWT	Hundredweight
CY, YD ³ , yd ³	Cubic Yard(s)
DIP	Ductile Iron Pipe
EA	Each
EPA	Environmental Protection Agency
°F	Degrees Fahrenheit
FHWA	Federal Highway Administration, US Department of Transportation
FRA	Federal Railroad Administration, US Department of Transportation
FSS	Federal Specifications and Standards (General Services Administration)
FTA	Federal Transit Administration, US Department of Transportation
Gal or gal	Gallon(s)
HA or ha	Hectare(s)
HDPE	High Density Polyethylene
Hz	Hertz
in ²	Square Inch(es)
ISEA	International Safety Equipment Association
ISO	International Standards Organization
ITE	Institute of Transportation Engineers
kips	Thousand pounds
Kw	Kilowatt(s)
lbf	Pounds of Force
Lb(s) or lb(s)	Pound(s)
LF	Linear Foot (Feet)
LRFD	Load and Resistance Factor Design
LS	Lump Sum
LU	Lump Unit
MC	Medium Curing
MS	Medium Set
MFBM	Thousand Feet Board Measure
MGAL	Thousand Gallons

MNL	Manual
MUTCD	Manual on Uniform Traffic Control Devices for Streets and Highways
NBFU	National Board of Fire Underwriters
NCHRP	National Cooperative Highway Research Program
NDS	National Design Specification
NDT	Nondestructive Testing
NEC	National Electric Code
NEMA	National Electrical Manufacturers Association
NETC	New England Transportation Consortium
NHS	National Highway System
NIST	National Institute of Standards and Technology
NPS	Nominal Pipe Size
NSBA	National Steel Bridge Alliance
NSPE	National Society of Professional Engineers
OSHA	Occupational Safety and Health Administration
PCA	Portland Cement Association
PCC	Portland Cement Concrete
PCCSP	Polymeric Coated Corrugated Steel Pipe
PCI	Precast/Prestressed Concrete Institute
PI	Paved Invert
PSI or psi	Pounds Per Square Inch
PVC	Polyvinyl Chloride
QA	Quality Acceptance
RAP	Recycled Asphalt Pavement
RCP	Reinforced Concrete Pipe
RC	Rapid Curing
RS	Rapid Set
ROW or R.O.W	Right-Of-Way
RT	Refined Tar
SAE	Society of Automotive Engineers
SF, FT ² , ft ²	Square Foot (Feet)
SI	The International System of Units. The version of the metric system used in these Specifications.
SL	Smooth Lined
SSPC	Steel Structures Painting Council
SY, YD ² , yd ²	Square Yard(s)
UL	Underwriters' Laboratories, Inc.
µm	Micrometer

μW	Microwatt
USC or U.S.C.	United States Code
UTO	Uniformed Traffic Officer(s)
V	Volt(s)
VAOT, AOT or VTrans	Vermont Agency of Transportation
VCP	Vitrified Clay Pipe
VOSHA	Vermont Occupational Safety and Health Act
VSA or V.S.A.	Vermont Statutes Annotated
W	Watt
YD or yd	Yard(s)

All standard recognized abbreviations may be used in connection with the Contract.

101.02 DEFINITIONS.

Wherever in these Specifications or in other Contract Documents the following terms or pronouns in place of them are used, the intent and meaning shall be interpreted as follows:

ACCEPTANCE DATE - Date noted in the Completion and Acceptance memorandum on which designated responsible City personnel have accepted the completeness and quality of all material incorporated in and work performed to complete the project(s).

ACTUAL COMPLETION DATE – Date noted in the Completion and Acceptance memorandum on which designated responsible City personnel have reviewed the project(s) and determined that all Contract work is completed and all Contract requirements have been met.

ACT OF GOD - An “Act of God” means an earthquake, flood, cyclone, or other cataclysmic phenomena of nature beyond the ability of a prudent Contractor to foresee and make preparation to defend against damage.

AGGREGATE - Inert material such as sand, gravel, crushed gravel, broken stone, or crushed stone, or a combination thereof.

APPROVED PRODUCTS LIST (APL) – A listing of products and materials that have been tested and/or evaluated by the Materials and Research Section and have been deemed satisfactory for use on City projects without additional certification requirements.

AUTHORIZED REPRESENTATIVE

Contractor’s – An individual registered with the Office of Contract Administration having the legal authority to sign Contract documents on behalf of the Contractor.

City’s – The City Engineer or his Duly Authorized Representative(s) who are responsible for engineering supervision of the construction project. See **ENGINEER AND INSPECTOR**.

BASE COURSE - The layer or layers of specified or selected material of designed thickness on a subbase to support a surface course.

BOARD - Transportation Board of the State of Vermont or its successor.

BRIDGE - A structure, including supports, erected over a depression or an obstruction such as water, a highway, or a railway, having a track or passageway for carrying traffic or other moving loads and having a clear span of more than 6.1 m (20 feet) [1.8 m (6 feet) on Non-Federal-Aid projects] measured along the center of the roadway between abutments, spring lines of arches, extreme ends of openings for multiple boxes, or multiple pipes where the clear distance between openings is less than 50 percent of the smaller contiguous opening.

Bridge Length - The dimension of a structure measured along the center of the roadway between backs of abutment backwalls or between the ends of a bridge floor, whichever is greater.

Bridge Width - The clear dimension of structure measured at right angles to the center of the roadway between the inner faces of parapet or railing.

CALENDAR DAY - Any day shown on the calendar, beginning and ending at midnight.

CHANGE ORDER – Refer to Definitions in the GENERAL CONDITIONS.

CHANNEL - A natural or artificial watercourse.

CITY – City of Burlington, Vermont

CITY ENGINEER - Burlington City Engineer. See also DIRECTOR OF PUBLIC WORKS.

CLAIM – Also refer to Definitions in the GENERAL CONDITIONS.

Contractor's Claim - A claim by the Contractor for adjustment or dispute under Subsection 105.20.

Damage Claim - A claim by an individual or entity for damage to property or for personal injury.

Labor and Materials Claim - A claim by a subcontractor, supplier, or other entity covered by 19 V.S.A. Section 10(9) for monies claimed to be due and payable.

CLEAR ZONE - The roadside border area starting at the edge of the traveled way available for use by errant vehicles. Specified clear zones are as shown in the Plans.

COLLUSION - A secret agreement among two or more persons for a deceitful or fraudulent purpose.

CONDUIT - A tube used for carrying, holding, and protecting electrical or other utilities.

CONSTRUCTION AREA - The entire portion of a project site within the right-of-way and easement limits during construction.

CONSTRUCTION EASEMENT - See EASEMENT

CONTRACT - Refer to Definitions in the GENERAL CONDITIONS.

CONTRACT BONDS - The approved forms of security, signed and furnished by the Contractor and the Contractor's surety or sureties, guaranteeing complete performance of the Contract, compliance with the Contract, and the payment of all legal debts pertaining to the construction of the project or work.

CONTRACT COMPLETION DATE - The calendar date by which the work shall be completed. If the Contract is a duration type Contract, the Notice to Proceed shall also indicate the Contract Completion Date.

CONTRACT DOCUMENTS - Refer to Definitions in the GENERAL CONDITIONS.

CONTRACT DURATION - The number of working days or calendar days allowed for completion of the Contract.

CONTRACT ITEM - A specific unit of work for which a price is provided in the Contract.

CONTRACTOR - Refer to Definitions in the GENERAL CONDITIONS.

CONTRACT PLANS - The Contract drawings that show the location, character, and dimensions of the work, including layouts, profiles, crosssections, and other details. Also: Plans.

DETOUR - A temporary route to carry traffic.

DIAMETER NOMINAL (DN) — The metric version of nominal pipe size (NPS), applying to all plumbing, gas, oil, drainage, and other piping used in the project.

DIRECTOR OF PUBLIC WORKS or CITY ENGINEER – Director of the Public Works Division of the City of Burlington. Wherever the terms “Director,” “Chief Engineer,” “Director of Engineering and Construction,” “Director of Construction and Maintenance,” or “Director of Project Development” appear in the Contract Document, they shall be read as, and shall mean, “City Engineer.”

DRAINAGE - The system of pipes, drainage ways, ditches, and structures by which surface or subsurface waters are collected and conducted from the project area or a transportation facility.

EARTH – See SOIL.

EASEMENT (RIGHT-OF-WAY) - A right acquired to use or control property outside of the established right-of-way limits for a designated purpose.

EMBANKMENT - That portion of a filled area situated between the previously existing ground level and the subgrade (roadbed).

ENCROACHMENT - Use of highway right-of-way or easement unlawfully and/or without authority or permission.

ENGINEER – Refer to Definitions in the GENERAL CONDITIONS.

ENGLISH – Other than when referring to the English language, the U.S. Customary Units of Measurement.

EQUIPMENT - All machinery, instruments, tools, vehicles, and apparatus together with the necessary supplies for upkeep and maintenance, for the proper construction and acceptable completion of the work.

EXTRA WORK - An item of work not provided for in the Contract as awarded but determined by the Engineer to be essential to the satisfactory completion of the Contract. Extra Work shall be performed at agreed upon prices or on a Work Change Directive basis as provided in the Contract.

FEDERAL HIGHWAY ADMINISTRATION - The agency within the US Department of Transportation, Washington, D.C., with authority concerning highways.

FEDERAL RAILROAD ADMINISTRATION - The agency within the US Department of Transportation, Washington, D.C., with authority concerning railroads.

FEDERAL TRANSIT ADMINISTRATION - The agency within the US Department of Transportation, Washington, D.C., with authority concerning public transit.

FINAL ESTIMATE - A compilation of item quantities prepared upon completion of the Contract stating the whole amount of work done by the Contractor and the final amount to be paid under the Contract.

WORK CHANGE DIRECTIVE - Prescribed work paid for on the basis of actual costs, including appropriate extra work, as defined in Subsection 109.06. Also refer to Definitions in the GENERAL CONDITIONS.

GRADE SEPARATION - A crossing of two or more transportation facilities at different elevations.

HAZARDOUS MATERIALS AND WASTE COORDINATOR – The City’s duly authorized Hazardous Materials and Waste Coordinator.

HOLIDAYS & SPECIAL EVENTS – Contractor and his forces shall do their best to avoid working in construction areas during the times where the City of Burlington’s Special Events may take place. Planning around Special Events shall be done in weekly project meetings to avoid conflicts in these areas.

If a Holiday falls on a Sunday, the following Monday shall be considered the Holiday; if a Holiday falls on a Saturday, the Friday immediately preceding shall be considered the Holiday.

INSPECTOR - Refer to Definitions in the GENERAL CONDITIONS.

LABORATORY - The City's Materials and Research Section Central Laboratory or any other testing laboratory, which may be designated by the Engineer.

LIQUIDATED DAMAGES - Refer to Definitions in the GENERAL CONDITIONS.

LOAD TICKET - A ticket accompanying a load of material and indicating the gross weight of the load less the tare weight of the delivery vehicle, and other information as specified and/or as required by the Engineer.

MASS - The words "mass" and "weight" are used interchangeably. Mass must be converted to force (by multiplying by gravity) before computing structural reactions, shears, moments, or internal stresses.

MATERIALS - Any substance(s) specified for use in the construction of the project and its appurtenances.

MEDIAN - Unless different in context, the portion of a divided highway separating opposing traveled ways.

NON-PARTICIPATING - Designates work in which the cost is not shared by the Federal and/or State Government.

NOTICE TO PROCEED - Refer to Definitions in the GENERAL CONDITIONS.

OWNER – Refer to Definitions in the GENERAL CONDITIONS.

PAY ITEM - See CONTRACT ITEM.

PAVEMENT STRUCTURE - The combination of subbase, base course, and surface course (wearing course or travel course) placed on a subgrade to support the traffic load and distribute it to the roadbed.

PLANS - The plans and drawings that show the location, character, sequence, and dimensions of the work, including layouts, profiles, crosssections, and other details.

Contract Plans - See CONTRACT PLANS.

Standard Drawings – See STANDARD DRAWINGS.

PROFESSIONAL ENGINEER - A qualified registered Professional Engineer licensed in the State of Vermont or eligible to practice engineering in the State of Vermont under the transient practice provisions of Title 26 VSA Section 1181a.

PROFILE GRADE - The trace of a vertical plane intersecting the top surface of the proposed wearing surface, usually along the longitudinal centerline. Depending on the context, "profile grade" means either the elevation at one or more points or the gradient of such trace.

PROJECT - Refer to Definitions in the GENERAL CONDITIONS.

RIGHT-OF-WAY - The land or property, or interests therein, devoted to transportation purposes.

ROADBED - The graded surface prepared as a foundation for the pavement structure and shoulders of a transportation facility. (Also: "SUBGRADE").

ROADSIDE - The area adjoining the outer edge of the traveled way or shoulder of a highway. Extensive median areas between the roadways of a divided highway may also be considered roadside.

ROADWAY - The portion of a highway within limits of construction.

SAFETY OFFICER

Contractor's - An individual designated by the Contractor charged to assure that all construction operations under the Contract are performed safely and according to all VOSHA regulations.

SCHEDULE OF WORK - The approved CPM work progress schedule prepared and submitted by the Contractor.

SHOULDER - The portion of the roadway contiguous with the traveled way for accommodation of stopped vehicles, for emergency use, and for lateral support of base and surface courses.

SIDEWALK - That portion of the roadway primarily constructed for the use of pedestrians.

SLOPES - The inclined areas extending from the shoulders to the previously existing surface of the ground.

SOIL (EARTH) - Sediments or other unconsolidated accumulations of solid particles produced by the chemical and physical disintegration of rocks and which may or may not contain organic matter.

SPECIAL PROVISIONS - Additions and revisions to the Standard Specifications for Construction, Supplemental Specifications, and General Special Provisions applicable to the Contract, as well as other provisions specific to the Contract.

SPECIALTY ITEM - Work that requires highly specialized knowledge, ability or equipment not ordinarily available in contracting organizations qualified to bid on the Contract as a whole; in general specialty items are limited to minor components of the overall Contract.

SPECIFICATIONS - Refer to Definitions in the GENERAL CONDITIONS.

STANDARD SPECIFICATIONS FOR CONSTRUCTION – Specification SECTIONS within DIVISIONS 100, 200, 300, 400, 500, 600 and 700 as bound into these Bid/Contract Documents and as referenced from the “2006 Standard Specifications for Construction Book” as adopted by the State of Vermont Department of Transportation (VTTrans), available for download at: <http://www.aot.state.vt.us/conadmin/2006StandardSpecs.htm>

STATE - The State of Vermont.

SUBBASE - The layer or layers of specified or selected material of designated thickness placed to support a base and/or surface course.

SUBCONTRACTOR - An individual or legal entity to whom or which the Contractor sublets part of the work.

SUBGRADE - The graded surface prepared as a foundation for the pavement structure and shoulders of a transportation facility. (Also called “ROADBED.”)

SUBSTANTIAL COMPLETION DATE - The date when, in the opinion of the Engineer, the work to be performed pursuant to the Contract has been sufficiently completed to enable use of the project or facilities for the intended purpose.

SUBSTRUCTURE - All of that part of a structure below the bearings of simple and continuous spans, skewbacks of arches, and tops of footings of rigid frames; included are backwalls, wingwalls, and wing protection railings.

SUPERINTENDENT - The Contractor’s authorized representative in responsible charge of the work.

SUPERSTRUCTURE - All that part of a structure supported by the substructure, excluding the approach slabs.

SUPPLEMENTAL SPECIFICATIONS - Specifications so designated that are not included in the Standard Specifications, General Special Provisions, or Special Provisions.

SURETY - The individual, partnership, firm, or corporation, or any acceptable combination thereof, other than the Contractor, executing the bond or bonds furnished by the Contractor. Surety Companies must be authorized to do business in the state of Vermont [See 19 VSA Section 10 (8)].

SURFACE COURSE - The uppermost component of a pavement structure, also called the wearing course or travel surface.

TON - The word “ton” by itself is a unit of measure equivalent to 2000 pounds.

TRAVELED WAY - The portion of the roadway for the movement of vehicles, exclusive of shoulders and auxiliary lanes.

UNIT PRICE - The Contract price for one unit of work, as defined by the BID FORM, and GENERAL and SPECIAL CONDITIONS.

UTILITY - The privately, publicly, or cooperatively owned lines, facilities, and systems for producing, transmitting, or distributing communications, power, electricity, light, heat, gas, oil, crude products, water, steam, waste, storm water not connected with highway drainage, and other similar commodities, including publicly owned fire and police signal systems and street lighting systems, which directly or indirectly serve the public or any part thereof. The term "utility" shall also mean the utility company, inclusive of any wholly owned or controlled subsidiary.

WEIGHT - In these Specifications, the words "weight" and "mass" are used interchangeably.

WEIGHTS AND MEASURES – The Vermont Department of Agriculture, Division of Weights and Measures.

WORK - Refer to Definitions in the GENERAL CONDITIONS.

WORK CHANGE DIRECTIVE. Refer to Definitions in the GENERAL CONDITIONS.

WORKING DAY - A calendar day on which construction operations could proceed as determined by the Engineer; unless excepted, "Working Day" excludes Saturdays, Sundays, Holidays, and the period from October 21 to April 15, exclusive. Contractor may work on a Saturday only with prior written approval by the engineer. Saturday's will not be counted as a regular working day with regards to liquidated damages or the early completion incentive.

WORKING DRAWINGS - Supplemental design sheets or similar data, which the Contractor is required to submit to the Engineer such as stress sheets, shop drawings, erection plans, falsework plans, framework plans, cofferdam plans, and bending diagrams for reinforcing steel.

WRITTEN ORDER - A statement in writing from the Engineer to the Contractor that:

- (a) Authorizes or directs work to be done that is not part of the Contract, including method of payment.
- (b) Informs the Contractor of work that is not being accomplished according to the Plans and these Specifications, and directs corrective action.
- (c) Documents quantities to be paid for designated Contract items.
- (d) Directs that safety, environmental, or other requirements or measures be followed.
- (e) Directs that certain work or all work be stopped or discontinued.
- (f) Brings to the Contractor's attention any other information or concerns that the Engineer may wish to emphasize.

101.03 INTENTION OF TERMS.

- (a) By/To the Engineer. In order to avoid cumbersome and confusing repetition of expressions in these Specifications, whenever anything is, or is to be, done if, as, when, or where "contemplated, required, determined, directed, specified, authorized, ordered, given, designated, indicated, considered necessary, deemed necessary, permitted, reserved, suspended, established, approval, approved, disapproved, acceptable, unacceptable, suitable, accepted, satisfactory, unsatisfactory, sufficient, insufficient, rejected, or condemned," it shall be read and understood as if the expression were followed by the words "by the Engineer" or "to the Engineer."
- (b) As Ordered/Directed by the Engineer. When the phrases, "as ordered by the Engineer," "as directed by the Engineer," or similar phrases are used in the Contract, they shall be understood to provide the Engineer latitude to meet field conditions, but in no case shall these phrases be construed to permit changing the intent of the Contract Documents.

- (c) Furnish and Provide. “Furnish,” “provide,” and words of similar meaning when used in relation to the “Contractor,” shall mean at the Contractor’s expense unless otherwise specifically provided in a Contract item.
- (d) Headings and Caption of Sections, Subsection and Paragraphs. All headings and captions are inserted for convenience and identification only and are in no way intended to define, limit, or expand the scope and intent of the Contract.
- (e) Approval of/Ordered by/Consent of Engineer. As they appear in these specifications, phrases like “approval of the Engineer,” “as ordered by the Engineer,” “with the consent of the Engineer,” and any similar phrase indicating the acceptance or direction by the Engineer shall not supersede any requirement of the Contract that the Contractor meet all contractual obligations, including but not limited to, compliance with permit conditions and applicable laws, rules, regulations, ordinances, and bylaws.

Construction/Interpretation of Contract Documents. The Contract and its provisions shall not be construed or interpreted for or against the City because the City drafted or caused its representative(s) to draft its provisions.

SECTION 102

THIS SECTION INTENTIONALLY LEFT BLANK

SECTION 103 – TAXES AND INSURANCE

103.01 CONSTRUCTION EQUIPMENT TAX.

The Contractor shall pay all construction equipment tax assessed under Title 32 VSA Section 3603 for machinery and other personal estate; the provisions of Title 32 VSA Section 3603 are made a part hereof by reference.

103.02 WITHHOLDING OF TAXES.

The Contractor shall comply with the requirements of subchapter 4 of Chapter 151 of Title 32 VSA relating to the withholding of taxes from employees, and all taxes withheld pursuant to subchapter 4 shall be reported and paid to the Commissioner of Taxes.

103.03 STATE SALES TAX.

Contractors are not required to pay the Vermont sales tax for materials incorporated into a city or state funded project completed on property owned or held in trust for the benefit of any governmental body or agency and used exclusively for public purposes or owned or held in trust for the benefit of any organization holding a valid Exemption Certificate [see Vermont Sales and Use Tax Regulations No. 226-2 and 226-7 and 32 V.S.A. Section 9743(4)] and used exclusively in the conduct of its business or purpose, or for materials incorporated in a rail line in connection with the construction, maintenance, repair, improvement or reconstruction of the rail line [see 32 V.S.A. Section 9741(44)]. Therefore, no sales tax shall be included in the cost of these materials. Contractors are responsible for maintaining records sufficient to justify eligibility for sales tax exemption. Forms for maintaining these records are available from the Vermont Department of Taxes.

103.04 INSURANCE REQUIREMENTS. Refer to the GENERAL CONDITIONS.

SECTION 104 - SCOPE OF WORK

104.01 INTENT OF CONTRACT.

The intent of the Contract is to provide for the construction and completion in every detail of the work described by the contract documents. The Contractor shall furnish all labor, materials, equipment, tools, transportation, and supplies required to complete the work in accordance with the Plans, Specifications, and other provisions of the Contract.

- (a) The Contract # 2012CAL, Street Reconstruction Program Work Scope shall include providing a Bituminous Concrete Base Course with a new Bituminous Concrete Pavement wear course with Striping and Textured Crosswalks, and includes Cold Planing or Reclaiming of pavement, and Structure Adjustment of water gate-valve boxes, drop inlets, catch basins, and manholes as listed in APPENDIX A.
- (b) It is the intent NOT to provide new curbing or driveway apron work, except when necessary to match grading elevation for a smooth driveway transition.

104.02 ALTERATION OF PLANS OR CHARACTER OF WORK.

To suit conditions disclosed as the work progresses, the Engineer may, without notice to the Sureties on the Contractor's bonds, make alterations in the design, in type of materials, in the quantities or character of the work or materials required, in the cross-sections, in dimensions of structures, in length of project, in locations, and any other ways deemed appropriate. Alterations will not constitute a change in other parts of the Contract or a waiver of any condition of the Contract, and shall not invalidate any of the provisions of the Contract Documents.

Payment for work occasioned by changes or alterations will be made according to Subsections 109.04 and 109.05. If the altered or added work is of sufficient magnitude to require additional time in which to complete the project, a time adjustment will be made pursuant to Subsection 108.11.

104.03 EXTRA WORK.

The Contractor shall perform extra or unforeseen work for which there is no quantity and price included in the Contract according to the Contract or as directed by the Engineer whenever it is deemed necessary or desirable by the Engineer in order to complete the work as contemplated; payment will be made pursuant to Subsection 109.06. Refer to the GENERAL CONDITIONS.

104.04 MAINTENANCE OF TRAFFIC.

- (a) All Roadways Safe and Passable. All roadways to be used by the traveling public, including temporary highways, bridges, and approaches as necessary to accommodate the traffic diverted from the roadway undergoing improvements, shall be provided and maintained in a safe and passable condition. All traffic control plans and devices shall conform to the latest edition of the MUTCD.
 - (1) Contractor shall maintain smooth paved-in joint transitions to existing roadways during and after the construction process.
 - (2) Streets may be opened to traffic once graded base course is placed, allowing for proper drainage, and with the permission of the Engineer.
- (b) Service Shall Be Maintained. During working hours, at a minimum, one-lane traffic will be maintained. Working hours will be limited to the period between 7 AM to 9 PM. At a minimum, one-lane traffic highway facilities shall be open to the unrestricted two-way flow of traffic, unless otherwise shown on the Plans or directed by the Engineer. Wherever one-way traffic is being maintained by the Contractor, the traveling public shall not be delayed more than 10 minutes. However, two-way traffic shall be re-established during all holiday periods, temporary shutdowns, and any other periods designated by the Engineer.
 - (1) Contractor shall match and maintain access to each impacted driveway and curb cut by maintaining a reasonable drop off during construction. Contractor shall match all driveways after paving completion.

- (2) Contractor shall not perform work during peak rush hours, except in out-of-the-way side streets.
 - (3) Contractor shall maintain and keep each work area clean and safe during work operation.
- (c) Traffic Control Plan; Alternate Plan. When the Plans contain a City designed traffic control plan that includes, but is not limited to, references to Standard Drawings, the Contractor may submit an alternate traffic control plan for the project. This alternate plan may be for the entire traffic control plan of the project or for one or more phases of the City's design in the Plans, including the specific location of the lanes where the traffic will be maintained. The submitted alternative must include complete construction details, including all facets of traffic control, to the same extent as provided in the City design. The City shall have 30 calendar days to review the proposed alternative and to make changes before it is implemented.
- (d) Detours and Temporary Bridges. Detours necessary for public travel, which are not contiguous to the work will be designated by the City unless otherwise provided. When contiguous to the work, detours shall be constructed and maintained by the Contractor and no compensation will be allowed to the Contractor except as provided in the Contract. If the Contractor elects to construct a temporary bridge on a detour contiguous to the work over which traffic is to be maintained while a culvert or bridge is being constructed, the temporary bridge shall be constructed according to Section 528. The expense of the construction, maintenance, and removal of a temporary bridge and its approaches and all incidental work pertaining thereto shall not be paid directly, but shall be incidental to all other Contract items. The Contractor shall be responsible to the public for the structural adequacy and safety of these structures and approaches. The Contractor shall provide, erect, and maintain all necessary barricades, lights, signs, signals, other traffic control devices and flaggers required in accordance with Subsections 107.08 and 107.09.
- (e) Winter Maintenance On Active Projects. If conditions on active projects (not closed down for the winter) require snowplowing, sanding, or salting of the highway, including temporary highways, detours, and bridges, the Contractor shall perform such snowplowing, sanding, and salting. The costs for snowplowing and sanding will be paid for under the Contract item Roadway Patrol Maintenance, and salting will be paid for under the Contract item Dust and Ice Control with Calcium Chloride.
- (f) Winter Maintenance On Closed Projects. When a project is closed down for the winter season, the Contractor shall leave the project in a clean and usable condition, as satisfactory to the Engineer, for the traveling public and in a condition suitable for normal and satisfactory winter maintenance.

The full depth of subbase shall be placed over portions of the road under construction and used by the traveling public unless otherwise shown on the Plans or directed by the Engineer.

During the period that the project is officially closed down for the winter season the City will assume responsibility for snowplowing, salting, and sanding. This shall not relieve the Contractor of any other responsibilities regarding public convenience and safety as specified in this Section, from the liabilities as specified in Section 107, or as specified elsewhere in the Contract.

If unsatisfactory travel conditions or ruts develop in the traveled way or other construction defects or conditions dangerous to the traveling public develop, whether arising from the execution or non-execution of the work, the Contractor may be directed to return to the construction site and carry out necessary measures to satisfactorily remedy the situation; the cost for said work will be included as part of the cost of the items in the Contract, with no additional payment.

If the Contractor fails to carry out the measures to satisfactorily remedy the situation immediately, the Engineer may cause the work to be performed and deduct the cost from any monies due or to become due to the Contractor. If the closing of a project is due to the Contractor's inability to complete the Contract before the Contract completion date, the Contractor shall bear all costs associated with making the project acceptable to the Engineer for winter shut down.

- (g) Closed Projects; Temporary Traffic Control Devices. When a project is closed down for the winter season or for any other reason, the Contractor shall erect and maintain temporary guardrail, guide posts, barricades, warning signs, and other traffic control devices throughout the length of the project as directed by the Engineer. These temporary installations shall conform to requirements for the permanent items except that approved, used material may be substituted; they shall be removed when the Engineer indicates they are no longer required. The installation, maintenance and removal of temporary guardrail, guide posts, barricades, warning signs, and other traffic control devices will not be paid for directly, but will be incidental to other items in the Contract.
- (h) Closed Projects; Guardrail. When the Contract specifies that the base course or the binder course of pavement be placed prior to suspension of work for the winter season, permanent, rather than temporary, guardrail shall be installed in accordance with the Plans. No payments will be made for adjustments to these permanent installations in order to accomplish work when construction resumes in the spring.
- (i) Suspension of Work; Contractor Responsibility. If, regardless of the cause, construction is suspended on the project before the completion, acceptance, and termination of the Contractor's responsibility as defined under Subsection 108.15, the Contractor shall take precautions against injury or damage to the work and shall reinstall any damaged work as specified under Subsection 107.18.
- (j) Traffic Control Devices. All traffic control devices shall be presented to the Engineer for approval prior to placement on the project. At no time will traffic control devices that do not have the specified reflectivity sheeting or are dirty, damaged, or unacceptable to the Engineer be placed or remain on the project. All traffic control devices, including but not limited to signs, pavement markings, pavement marking removals, temporary traffic barrier, barricades, reflectorized plastic drums, cones, flashing arrow boards, and detours shall conform to the latest edition of the MUTCD, shall be approved by the Engineer, shall be installed to the satisfaction of the Engineer, and shall be functioning prior to the beginning of work.
 - (1) Crosswalks and pavement markings shall be placed immediately after paving occurs for correct application and safety for pedestrians and motorists.
 - (2) Contractor shall post "no parking" signs 24 hours prior to beginning work on that street.
 - (3) Contractor shall un-post "no parking" signs when a street is not being worked on for more than 24 hours.
 - (4) Temporary markings shall be installed on busier streets to maintain safe traffic flows to the Engineer's satisfaction.
 - (5) Contractor shall install meter bags 24 hours prior to beginning work on a street.
 - a. Meter bags shall be requested from the Department of Public Works at the Contractor's cost.
 - b. City will enforce no parking and arrange for vehicle tows prior to Contractor beginning work on a street.
- (k) Reflectorized Sheeting; Cleaning; Costs. All reflectorized sheeting on the project shall be cleaned on a bi-weekly basis, unless more frequent cleaning is directed by the Engineer. The cost of this work will not be paid for directly, but will be incidental to all other Contract items.

- (l) Traffic Control Devices During Construction; Costs. Costs involved in covering, uncovering, and otherwise adjusting the signing and traffic control devices during construction to conform to the changing requirements of traffic flow around and through various construction operations will not be paid for directly, but will be incidental to all other Contract items.
- (m) Suspension of Work; Treatment of Signing; Costs. Costs involved in covering or removing signs at the beginning of a suspension of work, including winter shutdown, and in uncovering or re-installing the signs at the end of a suspension of work will not be paid for directly, but will be incidental to all other Contract items. Such signing adjustments shall be performed as directed by the Engineer.

104.05 REMOVAL AND DISPOSAL OF STRUCTURES AND OBSTRUCTIONS.

The Contractor shall remove any existing structure, parts of structure, or other obstructions, which interfere in any way with the new construction, or which is shown on the Plans to be removed.

Unless otherwise provided, all salvageable material being removed shall become the property of the Contractor, except for scrap metals, and shall be disposed of and/or recycled as authorized by the Engineer. Salvage generated by utility relocation shall remain the property of the applicable utility.

104.06 USE OF MATERIALS FOUND IN THE ROADWAY; AUTHORIZATION; PAYMENT.

- (a) General. With the written approval of the Engineer the Contractor may use stone, gravel, sand, or other materials found in the excavation for other construction items for the project provided the materials meet the requirements of the Contract.

The Contractor will be paid for the removal of such materials used for the project at the proper Contract unit price for items of excavation.

The Contractor shall not excavate or remove any material that is not within the slope and grade lines of an excavation as shown on the Plans without written authorization from the Engineer. If the Engineer allows over-excavation for the use of the Contractor, the State will be compensated for the quantity of material removed, and the replacement of material, if necessary, shall be done at no additional cost to the City and shall conform to the requirements of embankment construction as specified in the Contract. The over-excavation, if allowed by the Engineer, shall only occur within the State's right of way.

- (b) Quantities. Whenever any material, except granular borrow, is removed from excavation and used in the construction of other items in the Contract, the total quantity measured for payment of these items shall be multiplied by 1.15, and the resulting quantity deducted from the total quantity of the Contract item Earth Borrow. If the final quantity of Earth Borrow is zero, no deductions will be made for material used for other items.

Whenever material meeting the requirements for granular borrow is taken from excavation on the project and used for Contract item Granular Borrow, its removal and use shall be paid for by single payment under the appropriate excavation item in Section 203.

104.07 FINAL CLEANING UP FOLLOWING COMPLETION OF PROJECT.

- (a) Cleanup of Project. Upon completion of the work, before acceptance, and before final payment will be made, the Contractor shall satisfactorily and completely clean and remove from the right-of-way and grounds occupied by the Contractor in connection with the work all equipment, falsework, surplus and discarded materials, rubbish, temporary structures, buildings, tools, lumber, refuse, sediment, and other unsightly material.
- (b) Restoration of Property. The Contractor shall restore in an acceptable manner satisfactory to the Engineer all property, both public or private, which has been damaged during the prosecution of the work; replace or renew any fences damaged; leave the

waterways unobstructed; and leave the construction area in a neat and presentable condition throughout the entire length of the work.

- (c) Drainage Structures and Ditches. The removal and disposal of silt, debris, and other material from drainage structures and ditches, whether deposited prior to or during construction under the Contract, shall be accomplished prior to acceptance of the project as ordered by the Engineer.
- (d) Closure of Material Supply and Disposal Areas. Material supply and disposal areas shall be closed in accordance with Subsection 105.28.
- (e) Costs. Costs involved with final cleanup following completion of the project will be paid for as incidental to the Contract.

104.08 DIFFERING SITE CONDITIONS.

- (a) During the progress of the work, if subsurface or latent physical conditions are encountered at the site differing materially from those specified in the Contract or if unknown physical conditions of an unusual nature, differing materially from those ordinarily encountered and generally recognized as inherent in the work provided for in the Contract, are encountered at the site, the party discovering such conditions shall promptly notify the other party in writing of the specific differing conditions before they are disturbed and before the affected work is performed.
- (b) Upon written notification, the Engineer will investigate to determine if the conditions materially differ and will cause an increase or decrease in the cost or time required for the performance of any work under the Contract. The Contractor will be notified of the Engineer's determination, whether or not an adjustment of the Contract is warranted. If an adjustment is warranted, the Contract will be modified in writing accordingly. Any adjustment made will exclude loss of anticipated profits.
- (c) No Contract adjustment that results in a benefit to the Contractor will be allowed unless the Contractor has provided the required written notice.
- (d) No Contract adjustment will be allowed under this clause for any effects caused on unchanged work.

SECTION 105 - CONTROL OF THE WORK

105.01 AUTHORITY OF THE ENGINEER.

- (a) General. The Engineer shall decide all questions, which arise concerning the quality and acceptability of materials furnished, the manner of performance of the work, the rate of progress of the work, and compliance with the requirements of the Contract; the Engineer shall decide all questions concerning interpretation of the Contract.
- (b) Quantities; Orders; Disputes; Rejection of Materials, Work; Suspension of Work. The Engineer shall determine the amount and quantity of the work performed and materials furnished that are to be paid for under the Contract. The Engineer shall have authority to enforce and make effective decisions and orders the Contractor fails to carry out promptly. In case of any dispute arising between the Contractor and the Engineer as to materials furnished or the manner of performing the work, the Engineer has the authority to reject the materials and/or to suspend the work until the dispute is decided by the City Engineer. The Engineer is not authorized to revoke, alter, enlarge, relax, or release any requirements of the Contract Documents. The Engineer has authority to suspend the work or withhold payment of all estimates due the Contractor when necessary to secure proper compliance with the Contract.
- (c) Performance of Work by Engineer; Setoff. If the Contractor fails to perform work ordered by the Engineer, the Engineer may, upon written notice, proceed to perform the work as

deemed necessary; the cost of the work will be deducted from any monies due or which may become due the Contractor under the Contract.

- (d) Advice by Engineer. Advice given the Contractor by the Engineer shall not be construed as binding the City in any way, or releasing the Contractor from any obligations under the Contract.

105.02 CITY ENGINEER TO BE REFEREE.

- (a) General. The City Engineer shall act as referee in all questions of dispute arising under the terms of the Contract. If the Contractor is aggrieved by the decision of an Engineer, the Contractor may appeal the decision in writing to the City via the Director of Public Works. Included with the notice of appeal shall be a complete outline of the nature and extent of the question or questions appealed together with any supporting documentation.
- (b) Limitation of Time to Appeal. Notwithstanding any other provision of law, case law, regulation, or the Contract, all appeals shall be made within 30 calendar days of the decision to which the Contractor is aggrieved, and not thereafter.

105.03 PLANS AND WORKING DRAWINGS.

A comprehensive description of the work scope will be furnished to the Contractor by the City. Plans and Working Drawings are to be provided as follows:

- (a) Contract Plans. The City will furnish an overall project map identifying street work, quantity sheets, specifications and general details as necessary to give a comprehensive description of the construction scope of work.
- (b) Working Drawings.
 - (1) General. Certain items and construction activities require plans, drawings, procedures, and other information to document the Contractor's proposed actions to conform to Contract requirements.

Drawings and procedures shall be submitted sufficiently in advance of the anticipated work to allow for review(s), comment(s), and correction(s).

The cost of furnishing Drawings, including obtaining any necessary design or field measurements, shall be included in the Contract unit price for the item involved.

When a Contract item requires calculations to be submitted, the calculations shall be included with the submittal of the Working Drawings.
 - (2) Existing Condition Maps. Contractor shall note existing conditions on copies of City base maps prior to beginning work.
 - a. The City will provide one set of base maps of each street proposed for work to the Contractor.
 - 1) Contractor shall make copies of each map for use for the project.
 - b. Contractor shall, in a legible manner, hand sketch and note existing condition information for each street on City base maps. Information documented shall identify and dimension each structure and street element within the work as measured perpendicular off curbs and longitudinally down from curb cuts with identified property address information.
 - (3) Record Drawings. When work is complete Contractor shall provide as-built Record Drawings for each completed work segment to the Engineer submitted with a written notice for final inspection of approved work segments.

- a. General. Submit one (1) complete set of marked-up Record Drawings on City base maps that incorporates existing condition information and changes to the existing.
- b. Drawing Size. Drawing sketches shall conform to U.S. 'B' size (11 inch vertical by 17 inches horizontal), printed as black-on-white originals on bright white bond paper, and be drawn to 1" = 20' scale.
 - 1) A title block shall be provided on the right hand 11 inch high side, and shall include the following:
 - City of Burlington, VT
 - Project name and number
 - Route number and location information
 - Prime contractor name and address
 - Sheet title or identification of item shown
 - Name of supervisor in charge
 - Information provider's name
 - Date
 - Sheet number ____ of ____
 - North Arrow
 - Scale: 1" = 20'
- c. Preparation. Mark Record Prints to show the actual as-built installation where installation or location of existing varies from that shown originally. Require individual or entity who observed record data information to prepare the marked-up Record Prints.

Accurately record information in an understandable and legible manner.

Record data as soon as possible after obtaining it. Record and check the markup before enclosing concealed installations.
- d. All submittals shall be addressed to:
 - City Engineer
 - Department of Public Works
 - City of Burlington
 - 645 Pine Street
 - Burlington, Vermont 05401

105.04 CONFORMITY WITH PLANS AND ALLOWABLE DEVIATIONS.

- (a) General. The work shall be performed in reasonably close conformity with the lines, grades, cross-sections, dimensions, and material requirements, including tolerances, shown on the Plans or specified in the Contract Documents. Any deviation from the Contract as required will be determined by the Engineer and authorized in writing.
- (b) Acceptance of Non-Conforming Materials/Work; Price Adjustment. If the materials or the finished product in which the materials are used do not conform to the Contract requirements, but reasonably acceptable work has been produced, the Engineer will determine if the work will be accepted and remain in place. If accepted, the Engineer will document the basis of acceptance, which may require a Contract modification and price adjustment.

- (c) Rejection of Non-Conforming Materials/Work; Treatment of Rejected Materials/Work. If the materials or the finished product in which the materials are used do not conform to the Contract requirements, and the Engineer determines that the product is unsatisfactory, the Engineer will direct the work or materials be removed, replaced or otherwise corrected by the Contractor at the Contractor's expense.

105.05 COORDINATION OF CONTRACT DOCUMENTS – PERMITS, SPECIAL PROVISIONS, CONTRACT PLANS, GENERAL SPECIAL PROVISIONS, STANDARD DRAWINGS, SUPPLEMENTAL SPECIFICATIONS, STANDARD SPECIFICATIONS, AND SPECIFICATIONS ADOPTED BY REFERENCE.

- (a) General. The Project Permits, Special Provisions, Contract Plans, General Special Provisions, Standard Drawings, Supplemental Specifications, Standard Specifications, and all supplemental documents are essential parts of the Contract; a requirement occurring in one is as binding as though occurring in all. The Contract Documents are complementary and intended to describe and provide for a complete work. In case of discrepancy, precedence of the Contract Documents will be determined in the following order:

Contract Document Precedence

- (1) Project Permits. In the event of a conflict between permit requirements, the more protective or stringent shall take precedence as determined by the Engineer.
 - (2) Special Provisions
 - (3) Contract Plans
 - a. Calculated Dimensions
 - b. Scaled Dimensions
 - (4) General Special Provisions
 - (5) Standard Drawings
 - a. Calculated Dimensions
 - b. Scaled Dimensions
 - (6) Supplemental Specifications
 - (7) Standard Specifications
 - (8) Other Specifications Adopted by Reference
- (b) No Advantage from Errors or Omissions in Contract Documents. Neither the Contractor nor the City shall take advantage or be afforded any benefit as the result of apparent error(s) or omission(s) in the Contract Documents. If either party discovers error(s) or omission(s), it shall immediately notify the other.
- (c) Corrections to Contract Documents. The Engineer will make corrections and interpretations deemed necessary and appropriate to fulfill the intent of the Contract Documents. When there is an apparent absence or mention of a detail or an apparent omission of a detailed description in the Contract Documents, the detail or description shall be interpreted/understood/determined using the best general engineering and construction practice.
- (d) Effect of Other Requirements/Standards. Other standard requirements (e.g. ASTM, NDS, CRSI, ACI) cited by reference shall become effective only if the work or material covered by them is not included in the Contract Documents. Standards so referenced shall be the latest revision in effect on the date of advertisement for bids.

105.06 COOPERATION BY CONTRACTOR.

The Contractor shall:

- (a) Project Specific Maps, Drawings, Data Information, and Specifications. Have available on the project at all times during the prosecution of the work one (1) copy each of the Project Specific Maps, Drawings, Data Information, and Specifications.
- (b) Competent Contractor Superintendent. Have on the project at all times a competent and reliable English-speaking Superintendent authorized to receive orders and to act for the Contractor. The Contractor shall make every effort to provide continuity in the position of Superintendent. However, the City reserves the right to refuse or terminate the assignment of any Superintendent on the project, which termination shall not be grounds for a claim under Subsection 105.20.
- (c) Competent Safety Officer. Have available on the project at all times during the prosecution of the work a competent and reliable English-speaking employee designated as the safety officer; this person shall be authorized to receive orders and issue binding directions concerning safety to all persons associated with the project who are employed by the Contractor, subcontractors or material suppliers. This individual shall be well versed in OSHA and VOSHA regulations, shall be capable of implementing a plan to conform to these regulations, and shall have the authority to stop construction operations on the project.
- (d) Emergency Contacts. Furnish to the Engineer a list of addresses and telephone numbers of the Contractor's personnel who can be reached in an emergency. The Contractor shall alert certain personnel to stand by and shall inform the Engineer of all arrangements therefore;
- (e) Facilities; Information; Assistance; Samples; Control Points. Provide all reasonable facilities and furnish the information, assistance, and samples required by the Engineer or Inspector to properly inspect and test materials and quality of work; and cooperate in setting and preserving stakes, bench marks, and other control points used in laying out the work.

105.07 COOPERATION WITH UTILITIES.

- (a) General. The City will notify all utility companies, pipeline owners, and other known parties affected and endeavor to have all necessary adjustments of the public or private utility fixtures, pipelines, and other appurtenances within or adjacent to the limits of construction made as soon as practical.
- (b) Moving Utility Property; Owner's Expense. Water lines, gas lines, wire lines, service connections, water and gas meter boxes, water and gas valve boxes, light standards, cableways, signals, and all other utility appurtenances within the limits of the proposed construction which are to be relocated or adjusted are to be moved by the owners at their expense, unless otherwise provided in the Contract.
- (c) Utility Interference; No Claim for Delays. The Contractor acknowledges and understands that, at the time of bid submission, it has considered all of the permanent and temporary utility facilities or appurtenances in their present and/or relocated positions as shown on the Plans and evident at the site. Notwithstanding any other provision of law, case law, regulation, or the Contract, no additional compensation will be allowed for any delays, inconvenience or damage sustained by the Contractor due to any interference from utilities, utility companies, utility facilities, appurtenances, or the operation of moving them.
- (d) Utility Relocation for Contractor's Convenience. Should the Contractor desire temporary changes of location of any utility facilities or appurtenances for convenience in performing the work, the Contractor shall satisfy the City that the proposed relocation does not interfere with its own or other contractors' operations or the requirements of the work and does not cause an obstruction or a hazard to traffic. The Contractor shall be responsible for requesting such relocation work of a utility and/or other affected parties. Such relocation work shall be made solely at the Contractor's expense.

105.08 COOPERATION BETWEEN CONTRACTORS.

- (a) City Right to Contract. The City reserves the right to contract for and perform other or additional work on or near the work covered by the Contract at any time.
- (b) No Interference of Other Contractors. When separate contracts are let within the limits of a project, each contractor shall conduct its own work so as not to interfere with or hinder the progress or completion of the work being performed by other contractors. Contractors working on the same project shall cooperate with each other as specified or ordered by the Engineer.
- (c) Liability, Indemnification, Defense. Each contractor involved shall assume all liability, financial or otherwise, in connection with its own contract and shall defend, indemnify, protect and save harmless the City from any and all damages or claims that may arise because of inconvenience, delay, or loss experienced by the Contractor because of the presence and operations of other contractors working within the limits of the same project.

105.09 CONSTRUCTION STAKES FOR RECLAIM OPERATIONS.

- (a) Initial Layout. Unless other methods of placing stakes are provided in the Contract, the Engineer will be responsible for setting sufficient points to establish the initial alignment and elevation of the proposed work; this shall include centerline offset stakes marked with centerline finish grades, offsets for establishing working points for any structures on the project, critical horizontal control points, and an adequate number of benchmarks for establishing vertical control. The Contractor shall check the proposed grades; any mistakes or errors identified shall be brought immediately to the attention of the Engineer, and adjustments will be made by the Engineer.
- (b) Layout of Subgrade. Prior to fine-grading the subgrade, the Engineer will rerun the centerline, from which the Contractor shall set working stakes. After the Contractor has set the working stakes at the outer limits of the subbase course, the Engineer will reestablish the finished centerline grades. The Contractor shall check the proposed grades; any mistakes or errors identified shall be brought immediately to the attention of the Engineer, and adjustments will be made by the Engineer.
- (c) Permanent Marking Layout. Once the wearing course has been placed, the Engineer will establish the layout for the centerline permanent traffic markings, including passing zones, breaks for town highways and side roads, and any other items required for the centerline markings.
- (d) Responsibility for Layout. The Contractor shall be responsible for the preservation of all stakes and markings, and shall replace any stakes or grades that are destroyed or disturbed. No claim shall be brought and no additional compensation will be paid on account of any alleged inaccuracies in the construction layout, including any additional layout that the Engineer may perform that is not covered in this Subsection, unless the Contractor notifies the Engineer of the inaccuracies in writing at least 24 hours prior to commencement of the work.
- (e) Qualified Personnel. All other stakes, templates, and other materials, either in addition to or in replacement of the original set, which may be required for the construction operations, shall be furnished, set, and properly referenced by qualified personnel employed by the Contractor.
- (f) Contractor Layout. The Contractor shall stake out the work and make known the immediate plan or procedure of the next work contemplated sufficiently in advance of construction to permit the Engineer to take the necessary measurements for the computation of quantities and to check the Contractor's layout. The Contractor shall lay out in a timely manner and maintain a sufficient number of grade stakes so the Engineer can monitor and regulate all portions of the Contract work.

- (g) Cost. The cost of this work shall be considered as incidental to the project as a whole, and shall be included in the unit price bid for the Contract items involved.

105.10 AUTHORITY AND DUTIES OF ENGINEER.

As the direct representative of the City Engineer, the Engineer on a project has immediate charge of the engineering details of the project; is responsible for the administration and satisfactory completion of the project(s); has the authority to reject defective material, to suspend any work that is being improperly performed, and to withhold payment until defective work has been corrected. The Engineer, at the sole discretion of the Engineer, also has the authority to suspend work, or specific aspects of the work, if necessary to address a concern for safety of the workers or traveling public, or a serious environmental concern or violation. Notwithstanding any other provision of law, case law, regulation, or the Contract, no additional compensation shall be provided for any work suspensions of this sort.

105.11 AUTHORITY AND DUTIES OF INSPECTORS.

Inspectors employed by the City are authorized to inspect all work done and materials furnished and to perform other duties as directed by the Engineer. Inspections can extend to all or any part of the work and to the preparation, fabrication, or manufacture of the materials used. An Inspector is not authorized to alter or waive the provisions of the Contract, to issue instructions contrary to the Contract Documents, or to act for the Contractor.

105.12 INSPECTION OF WORK.

- (a) General; Contractor To Help Engineer. The Engineer or designated representative shall be allowed access to all parts of the work at all times and shall be furnished by the Contractor all information and assistance to be able to make a complete and detailed inspection. The Contractor shall furnish such help as the Engineer desires and/or needs to ascertain whether or not the work is performed in accordance with the requirements and the intent of the Contract.
- (b) Examination of Completed Work. If, before the acceptance of the work, the Engineer requests, the Contractor shall remove or uncover portion(s) of the finished work as the Engineer may direct. After the examination, the Contractor shall restore the portion of the work to the standard required by the Contract. If the work thus exposed or examined proves acceptable, the expenses of uncovering or removing and replacing the parts removed shall be paid for as Extra Work as defined in Subsection 109.06; but if the work exposed or examined is unacceptable, the expenses of uncovering or removing and replacing the parts removed shall be borne by the Contractor.
- (c) All Work Requires Supervision or Inspection. The City will not be required to pay for any work done or materials used without supervision or inspection by the Engineer or an Inspector at the City's discretion. Supervision/inspection includes project, mill, plant, or shop inspection of any material furnished under the Contract.
- (d) Inspection By Others. When any unit of government or of a public or private entity is to pay a portion of the cost of the work covered by the Contract, its respective representative(s) shall have the right to inspect the work. Such inspection shall not make any entity a party to this Contract and shall not interfere with the rights of either party hereunder.
- (e) Inspection by Contractor: The Contractor shall inspect Engineer acceptable work segments believed to be substantially complete, and develop a written "Punch List" of items to be complete prior to requesting Inspection by the Engineer. A copy of each "completed" Contractor "Punch List" shall be submitted with each written request for Inspection by Engineer.
- a. Engineer observed incomplete items noted as being "complete" on the Contractor "Punch List" are grounds for immediate suspension of the Inspection

by Engineer. The Inspection by Engineer may not resume until each incomplete item has been completed to the satisfaction of the Engineer.

- (f) Inspection by Engineer. The Engineer will inspect portions of the work to determine if requirements have been met. Those items not meeting requirements will be issued to the Contractor as a "Punch List" with a date certain called out for correction to be completed.
 - a. Payment for each portion of the work will not be made by the City until each Engineer "Punch List" requirement for that portion has been completed to the satisfaction of the Engineer.

105.13 REMOVAL OF UNACCEPTABLE AND UNAUTHORIZED WORK.

- (a) General. All work that does not conform to the requirements of the Contract will be considered unacceptable unless otherwise determined to be acceptable under the provisions of Subsection 105.04.
- (b) Removal and Replacement of Unacceptable Work. Unacceptable work, whether the result of poor quality of work, use of defective materials, damage through carelessness or any other cause found to exist prior to the acceptance of the work, shall be removed immediately and replaced in an acceptable manner.
- (c) All Work Must Be Authorized. Work shall be performed only with lines and grades having been provided by the Engineer, unless replaced as existing. Work performed contrary to the instructions of the Engineer, beyond the lines shown on the Plans, or without authority will be considered unauthorized and no payment therefore will be made. Work so done may be ordered removed or replaced at the Contractor's expense.
- (d) Failure To Comply With Order of Engineer. Upon failure by the Contractor to comply forthwith with any order of the Engineer communicated under the provisions of this Subsection, the Engineer will have authority to require unacceptable work to be remedied or removed and replaced and to require unauthorized work to be removed; in either case, the Engineer is authorized to deduct the costs from any monies due or to become due the Contractor.
- (e) Responsibility for City Expense. Any expense incurred by the City in making removals, renewals, or repairs which the Contractor has failed or refused to make shall be paid for out of any monies due or which may become due the Contractor or may be charged against one or more Contract Bonds.
- (f) No Compensation for Additional Time. No additional Contract time shall be warranted for any of the work described in this Subsection.

105.14 SUNDAY AND HOLIDAY WORK.

- (a) Sundays. The Contractor shall not carry on construction operations on Sundays except as authorized by the Engineer.
- (b) Holidays. Contractor shall not work on holidays, and if the Contractor's operations are of such a nature, the project is so located, or traffic is of such volume that the Engineer deems it expedient to do so, the Engineer may require the Contractor to cease construction operations the day before a holiday if it falls on Tuesday, and the day after a holiday if it falls on Friday.
 - (1) Special Event Days. If the Contractor's operations are of such a nature, the project is so located, or traffic is of such volume that the Engineer deems it expedient to do so, the Engineer may require the Contractor to cease construction operations on streets affected by Special Event Days.
- (c) Application. The limitations in this Subsection shall not apply for the purposes of maintenance, emergency repairs, and proper protection of the work, including but not limited to the curing of concrete and the repair and servicing of equipment.

(d) Other Provisions Not Affected. The above limitations shall not relieve the Contractor of any responsibility for the work involved as set forth in Subsections 105.06, 107.18, or elsewhere in the Contract.

(e) Holidays and Special Days to take note of are as follows:

Independence Day Fireworks	July 3, 2013
Independence Day	July 4, 2013
Bennington Battle Day	August 16, 2013
First Day of School	August 28, 2013
Criterion Bike Race	September 2, 2013
Rosh Hashanah(Jewish New Year)	September 5, 2013
Labor Day	September 2, 2013
Yom Kippur	September 14, 2013
Columbus Day	October 14, 2013
Veteran's Day	November 11, 2013
Thanksgiving Day	November 28, 2013
Christmas Day	December 25, 2013
New Years Day	January 1, 2014
M.L. King's Birthday	January 16, 2014
President's Day	Third Monday in February, February 17, 2014
Town Meeting Day	First Tuesday in March, March 4, 2014
College Commencements (tentative)	Saturday, May 3, 2014 & Sunday, May 10, 2014
Kids' Day	Saturday, May 10, 2014 (parade downtown)
College Move-Out Day (tentative)	Wednesday, May 21, 2014
Burlington City Marathon	Sunday, May 25, 2014
Memorial Day	Last Monday in May, May 26, 2014
Jazz Festival	June 1-10, 2014

105.15 CONVICT LABOR.

No incarcerated convict labor shall be employed on the project.

105.16 LOAD RESTRICTIONS.

(a) General. The Contractor and all subcontractors and suppliers shall comply with all legal load restrictions specified in Title 23 VSA § 1392 in the hauling of equipment or material on public roads beyond the limits of the project. The application for and possession of a

hauling permit will not relieve the Contractor of liability for any damage that results from use or the moving of equipment and vehicles.

- (b) Limitations or Use of Equipment and Vehicles. The operation of equipment and vehicles of such mass (weight) or loaded so as to cause damage to structures, the roadway, or to any other type of construction shall not be allowed. Hauling materials over the base course, surface course, or structure during construction shall be limited and allowed only as directed. No loads will be permitted on a concrete pavement, cement treated base course, or concrete structure prior to expiration of the curing period and until the concrete reaches its specified 28-day compressive strength. No vehicle or equipment exceeding the load restrictions cited in Title 23 VSA § 1392 shall be allowed on a structure. The Contractor shall be responsible for all damage done by the Contractor's equipment and vehicles.
- (c) Speed Prior to Wearing Surface; Expansion Joints On Structures. Prior to placement of the wearing surface, vehicle travel speed over any structure shall be kept to a minimum; an acceptable transition ramp shall be constructed at any expansion joint that projects above the travel surface.
- (d) Penalty and Reduction for Overweight Operation. Each vehicle entering or leaving the project limits must be within the legal load limit or the load limit imposed by a current overload permit for the roadways and structures. Should any vehicle not meet these requirements, in addition to the appropriate penalty under Title 23 V.S.A. § 1391a, the difference in mass (weight) between the legal load limit and the gross vehicle mass (weight) shall be converted to the appropriate measurement quantity for the item involved and treble this amount shall be deducted from the quantity of the item to be paid the Contractor. The Contractor shall not deduct this amount from the payment to its trucking subcontractor(s)/supplier(s).
- (e) Provision of Overweight Permit Copies. The Contractor shall provide copies of overweight permits to the Engineer prior to the commencement of hauling. Copies of permits provided after hauling has begun will not be considered to be in effect for the project prior to the time that the Engineer receives the copy.
- (f) Provision of Tare Weight . The Contractor shall provide the Engineer with tare weights for all vehicles carrying or delivering materials to be used on a project. A tare weight shall be the weight of the unloaded vehicle with full fuel tank and water tank as applicable.
- (g) Application to All Vehicles Used for Project. These requirements, including the overload reduction, shall apply to the Contractor's vehicles as well as all other vehicles used in conjunction with the construction of this project, including the vehicles of subcontractors and suppliers.

105.17 MAINTENANCE OF PROJECT DURING CONSTRUCTION.

- (a) General. The Contractor shall maintain the work in a clean and safe manner during construction and until the work is finally accepted. This maintenance shall constitute continuous and effective performance of the work day by day with adequate equipment and forces so that the roadway, structures, or other portions of the project are kept in an Engineer acceptable satisfactory condition at all times.
- (b) Costs. All cost of maintenance work during construction and before acceptance of the work shall be included in the Contract unit prices for the various pay items, and the Contractor will not be paid an additional amount for such work.
- (c) Maintenance During Shutdown. In the event the work is ordered shut down for failure to comply with the provisions of the Contract or for any other reason, the Contractor shall maintain the project as provided herein and provide such ingress and egress for local residents as necessary during the period of shutdown.

105.18 FAILURE TO MAINTAIN PROJECT; COST.

Failure on the part of the Contractor to properly maintain the work will result in the Engineer immediately notifying the Contractor to comply with the required maintenance provisions. If, after receipt of such notice, the Contractor fails to remedy the situation to the Engineer's satisfaction, the Engineer will proceed with adequate forces and equipment to maintain the project; the cost of this maintenance will be deducted from monies due or which may become due the Contractor under the Contract.

105.19 FINAL ACCEPTANCE AND FINAL INSPECTION.

- (a) General. None of the work shall be finally accepted until all of the work required by the Contract has been satisfactorily completed, except as determined by the City Engineer.
- (b) Procedure. Upon notice from the Contractor of presumptive completion of the project, the Engineer will arrange a date for final inspection of the work. If all construction provided for and contemplated by the Contract is found to be completed, the Contractor will be informed in writing immediately following the inspection that the Acceptance Date is the date of the final inspection of the project; should any of the work be found unsatisfactory or incomplete, instructions for corrective action will be issued in writing as a "Final Punch List". As soon as the "Final Punch List" deficiencies have been corrected to the satisfaction of the Engineer, notification will be made in writing to the Contractor establishing the Acceptance Date.

105.20 CLAIMS FOR ADJUSTMENT.

- (a) General. If the Contractor believes additional compensation is due for work or materials not clearly covered by the Contract, for encountering conditions substantially different than represented by the Contract, or for work and materials not ordered by the Engineer as an extra as defined herein, the Contractor shall notify the Engineer in writing of the specific intention to make a claim for such additional compensation prior to beginning the work on which the claim will be based. If such notification is not provided and the Engineer not afforded proper "notice of intent" by the Contractor, the Contractor hereby waives any claim for additional compensation.
- (b) Contractor's Obligation. Upon providing the notice of intent, the Project Superintendent shall commence daily records for all labor hours, equipment hours (idle and operating), and materials involved with the work under contention, and the Superintendent shall submit the daily record to the Engineer. These records will be used to evaluate the claim, if necessary, at a later date.
- (c) Procedure. Written notification of a claim by the Contractor or the fact that the Engineer has documented an accurate account of a claim shall not be construed as proving the validity of the claim. Claims must be judged by the Engineer. Should a claim be judged in favor of the Contractor, it will be allowed and paid as provided in the Contract. Should a claim be denied by the Engineer, the Contractor may appeal to the City Engineer.
- (d) Appeal to the City Engineer. Appeals will be judged by the City Engineer. Should an appeal be judged in favor of the Contractor, it will be allowed and paid as provided in the Contract. Should a claim be denied by the City Engineer, the Contractor may appeal under Subsection 105.02.
- (e) Time for Claims; Appeals. Notwithstanding any other provision of law, case law, regulation, or the Contract, all claims by the Contractor shall be submitted in writing within 90 calendar days after the Acceptance Date of the project or within 90 calendar days of the notification in writing of the specific intention to make a claim, whichever occurs first, and not thereafter. However, if the disputed work lasts more than 90 days after such notification, the Contractor shall submit a request to extend this period prior to the expiration of the 90 days, and shall make additional requests as necessary, until the work has been completed. Notwithstanding any other provision of law, case law, regulation, or the Contract, an appeal from the decision of the Engineer shall be made within 30 calendar days of denial, and not thereafter.

- (f) Mediation; Cost. If the Contractor appeals a decision by the Director of Public Works pursuant to Subsection 105.02, prior to the Transportation Board hearing the claim, the City and the Contractor may agree to submit the claim to mediation before a mediator acceptable to both parties. Mediation costs shall be shared equally by the City and the Contractor.

105.21 PAYROLLS.

- (a) General. The Contractor shall maintain and make available payroll records as required in the Contract. This requirement shall also apply to the work of any subcontractor having a subcontract for any part of the work performed on the job. Any costs associated with this work will not be paid for directly, but will be considered incidental to the Contract pay items.
- (1) Contractor is subject to City of Burlington Livable Wages Ordinance requirements.
- (b) Examination, Authority. The Contractor hereby authorizes the Engineer or the Engineer's authorized representative to examine the Contractor's orders for construction workers on file with the local employment office of the City and the Vermont Department of Employment and Training.

105.22 ENVIRONMENTAL PROTECTION.

The Contractor shall perform all project related operations so as to give adequate protection to the natural environmental and cultural resources of the City and the State. The Contractor shall conduct the work in conformance with all regulations and permit conditions applicable to the project. If additional permits are required, or if the Contractor proposes to perform the work differently than the manner provided in the Contract, the Contractor shall obtain approval from the appropriate regulating entities prior to performing the work. Costs associated with obtaining and complying with permits required to perform the work will not be paid for directly, but will be considered incidental to the Contract pay items.

105.23 EROSION PREVENTION AND SEDIMENT CONTROL.

- (a) Submission of Plans. At the preconstruction conference or prior to the start of applicable construction, the Contractor shall submit a plan in writing for the prevention of erosion and control of sedimentation and pollution on the project and on associated access roads, material waste and borrow areas, and staging areas. No work shall be started until the plan has been approved by the Engineer.
- 1) The plan should identify a competent erosion prevention and sediment control coordinator who will be in charge of ensuring that the project maintains proper EPSC measures. Their contact information shall be included on the plan.
- 2) Additionally, while typical EPSC measures can be specified for the majority of the project, the Contractor shall specifically identify any areas of the project which might pose more risk (due to slope of surface, proximity to waterways/drainage structures, etc.) as far as discharging sediment to waterways or to manmade structures which drain to waterways. A specific EPSC plan must be developed for these identified areas. The City may also elect to identify such areas of risk as well, for which specific plans will also need to be developed by the Contractor.
- (b) Erosion Prevention and Sediment Control Measures. Erosion prevention and sediment control measures shall be installed and maintained in conformance with the Contract. Unless otherwise specified in the Contract, this work shall be performed as described in this Section.
- (c) Engineer's Authority; General. The Engineer has authority to limit the surface area of erodible earth material exposed by excavation, borrow, and fill operations and to direct the Contractor to provide immediate permanent or temporary erosion prevention and

sediment control measures to minimize adverse effects on resources. Such work may include the construction of berms, dikes, dams, sediment basins, slope drains and use of mulches, mats, seeding, or other control devices or methods as necessary to control or prevent erosion and siltation. As the earthwork proceeds, slopes shall be graded to finish grade whenever practical and all disturbed areas shall be stabilized by seeding and mulching or other acceptable methods within 48 hours of disturbance.

- (d) Temporary and Permanent Erosion Prevention and Sediment Control. As shall be specified in the approved Erosion Prevention and Sediment Control Plan, the Contractor shall incorporate all temporary and permanent erosion prevention and sediment control measures into the project at the earliest reasonable time. Temporary erosion prevention and sediment control measures shall be used to prevent erosion and to correct conditions that develop during construction prior to installation of permanent measures; this may include work outside the right-of-way and/or defined project limits. When work outside the right-of-way or defined project limits is required, a property release form must be executed to allow access to the specific property and the area must be reviewed by the VAOT Environmental Section for adverse effects on cultural and natural resources.
- (e) Erosion; Clearing and Grubbing. Where erosion is likely to occur and project conditions permit, clearing and grubbing shall be scheduled and performed so that grading operations and the installation of permanent erosion prevention and sediment control measures may be performed immediately thereafter; otherwise temporary erosion prevention and sediment control measures shall be required between successive construction stages.
- (f) Limiting Operations. The Engineer may limit the area of clearing and grubbing, excavation, borrow, and embankment operations in progress commensurate with the Contractor's capability and progress in keeping the finish grading, mulching, seeding, and other such permanent erosion prevention and sediment control measures current in accordance with the approved Erosion Prevention and Sediment Control Plan. Without prior approval by the Engineer the amount of surface area of erodible earth material exposed at one time within the project limits shall not exceed **2 acres**.
- (g) Conflicts. In the event of conflict between the requirements of this Subsection and those of Federal, State, or local agencies, the more restrictive provision(s) shall apply as determined by the Engineer.
- (h) Suspension of Operations. If construction operations are suspended, the excavation and embankment areas shall be stabilized. If permanent stabilization is not possible, exposed areas shall be shaped and then covered with mulch or matting in order that water runoff will be intercepted and diverted to locations where the least amount of erosion will result. During a suspension of construction operations, the Contractor shall act immediately to correct any deficiencies that develop with the erosion prevention and sediment control measures and/or stabilized areas.
- (i) Maintenance of Temporary Erosion Prevention and Sediment Control Measures. Temporary erosion prevention and sediment control measures shall be installed and acceptably maintained until both the permanent drainage facilities have been constructed and vegetation has been established throughout the project.
- (j) Limits on Use of Mechanized Equipment. Unless otherwise approved in writing and permitted by the appropriate Federal or State regulating authority, mechanized equipment shall not be operated in flowing streams except as required and permitted to construct changes in the channel and permanent or temporary structures. Rivers, streams, and impoundments shall, as soon as construction will allow, be cleared of all falsework, piling, and debris caused by construction operations.
- (k) Water Quality. Any construction activity in or adjacent to rivers, streams, brooks, creeks, lakes, ponds, reservoirs, wetlands, and any other regulated surface water shall not cause the average downstream water quality values to fall outside the classification limits specified in the Vermont Water Quality Standards. Should the Contractor desire a

variance from the Vermont Water Quality Standards, the Contractor must obtain a 1272 Permit (Regulation of Activity Causing Discharge - Title 10 VSA § 1272) from the Agency of Natural Resources. When work in a river, stream, brook, creek, lake, pond, reservoir, wetland, or any other regulated surface water is prohibited, such work will be allowed only if the Contractor obtains a 1272 Permit for such work.

- (l) Access Roads. Access roads will not be constructed without the approval of the Engineer. Access roads shall have proper erosion prevention and sediment control measures. All access roads shall be restored to their original condition unless a permit allows for a permanent change from that condition.

105.24 POLLUTION CONTROL.

- (a) General. The Contractor shall exercise every reasonable precaution to prevent pollution of the waters of the State. Pollutants, including but not limited to chemicals, paints, fuels, lubricants, bitumens, raw sewage, sediment or sediment laden water, and other waste, shall not be discharged into or alongside the waters of the State or into natural or constructed channels or drainage structures leading thereto. The Contractor shall comply with applicable statutes and regulations relating to the prevention and abatement of pollution.
- (b) Bridge Operations. When bridge painting, cleaning, cutting, welding, or grinding operations are in progress, the Contractor shall utilize containment devices to retain all materials which are generated. All waste materials generated that contain lead, zinc, or other hazardous materials shall be disposed of appropriately as hazardous waste.
- (c) Coated/Treated Materials. The Contractor shall comply with all air, ground, and water pollution control, health, and transportation regulations when cleaning, handling, moving, repainting, cutting, welding, sanding, or grinding any coated or treated materials.
- (d) Noise and Air Pollution. The Contractor shall employ standard methods to minimize noise and air pollution occurring in conjunction with and as a result of construction operations, including, but not limited to, clearing, grubbing, drilling, blasting, excavation, and hauling operations. The method(s) employed shall be acceptable to the Engineer and compatible with the location of the work. The burning of tires or other manufactured products is prohibited.
- (e) Hazardous Materials and Waste. The Contractor shall provide documentation to the Engineer that any generated hazardous waste and any hazardous materials and waste found were disposed of in conformance with all applicable regulations governing the handling, transporting, and disposal of such materials and waste.

105.25 CONTROL OF WASTE, BORROW, AND STAGING AREAS.

- (a) Definitions.
 - (1) Waste areas are those areas where excess material or materials unsuitable for construction are disposed.
 - (2) Borrow areas are all borrow pits, gravel pits, quarries, sand pits, and similar sources of materials used in the construction of the project.
 - (3) Staging areas are any areas that the Contractor uses for storage of materials and equipment or for general use for Contract operations.
- (b) Permits and Clearances. Waste, borrow, and staging areas are necessary adjuncts to a VAOT construction project. The Contractor and/or the property owner shall be required to obtain all necessary permits and clearances, and specifically in accordance with Title 10 VSA Chapter 151 (Act 250), if applicable, prior to opening or using an area for an City project.
- (c) Establishment of Waste, Borrow, and Staging Areas. To establish a waste, borrow, or staging area, the Contractor shall submit a completed Waste, Borrow, and Staging

application package to the Engineer (application packages are available from the VAOT Environmental Section). The application must be completed and should be submitted at least twenty-one calendar days prior to the planned utilization of the area. All proposed waste, borrow, and staging areas will be reviewed by the VAOT Environmental Section for effects on cultural and natural resources. If the proposal includes the initial disturbance of soil in an area or the wasting of erodible materials, the Engineer must also approve a site specific Erosion Prevention and Sediment Control Plan prior to the use of such an area.

- (d) Required Approval. The Contractor shall not perform any preparatory work or make use of a waste, borrow, or staging area until approval is obtained in writing from the Engineer.
- (e) Unpermitted Areas. If a proposed waste, borrow, or staging area does not have a permit as provided in part (b) above, the application must state the length of time the area has been operating and the annual rates of disposal, extraction, or use for the last five years.

105.26 OPENING WASTE, BORROW, AND STAGING AREAS.

Prior to issuing approval, the Engineer shall be satisfied that the area and its operation are approved in accordance with all project permits and:

- (a) Will not seriously hurt or impair the rights of any adjacent property owner;
- (b) Will not result in undue water or air pollution;
- (c) The final shape, slope, and contour of the land in and about the area will not be undesirable aesthetically or as it relates to drainage;
- (d) Will not cause unreasonable soil erosion or reduction in the capacity of the surrounding land to hold water in order that a dangerous or unhealthy condition may result;
- (e) Will not have an undue, adverse effect on the scenic or natural beauty of the area's aesthetics, historic sites, or rare and irreplaceable natural areas;
- (f) Is consistent with any duly adopted development plan, land use plan or land capability plan, whether site specific, local, or regional;
- (g) The entrance is at the most desirable angle or perspective from any nearby highways, residences, and other facilities;
- (h) The Contractor will remove, stockpile, and preserve topsoil, sod, and other suitable material from the surface of the area prior to proceeding with other operations; and
- (i) The Contractor has all erosion prevention and sediment control measures, as indicated in the approved Erosion Prevention and Sediment Control Plan, in place prior to use of the area.

105.27 MAINTAINING WASTE, BORROW, AND STAGING AREAS.

- (a) General. The Contractor shall conduct waste, borrow, and staging area operations so as to maintain a minimum of air pollution. The Contractor shall keep in a condition acceptable to the Engineer the portions of an area where a pit or pits have been opened and shall maintain all access roads with sufficient dust control and proper drainage to prevent damage to adjacent properties. Area operations shall be restricted to normal working hours except with the express written approval of the Engineer and shall be in accordance with all permit conditions.
- (b) Area Erosion Prevention and Sediment Control Measures. Installation and maintenance of erosion prevention and sediment control measures at waste, borrow, and staging areas shall be consistent with the approved Erosion Prevention and Sediment Control Plan for the specific area. The On Site Coordinator shall review these areas if and as required in the Contract.

105.28 CLOSING WASTE, BORROW, AND STAGING AREAS.

With the exception of those areas which will remain open for commercial use, prior to abandoning or closing any area on which the Contractor has completed operations, the Contractor shall 1) shape the entire area to leave banks in a neat and presentable condition, properly and thoroughly graded and drained and 2) establish vegetation on all disturbed areas. All stones, boulders, stumps, and debris shall be removed or satisfactorily disposed of. Slopes shall not be left steeper than 1:1.5 (vertical : horizontal). The tops of slopes and toes of slopes shall be neatly rounded. After grading the slopes and surfaces of the area, the stockpiled sod, topsoil, and other stripped material shall be evenly spread over the surface of the area. The complete area shall be seeded and mulched in accordance with Section 651. The Contractor shall place screens of trees and/or other vegetation, berms, or embankments where necessary to conceal the undesirable features of a waste, borrow, or staging area.

The Contractor shall have the written approval of the Engineer prior to completely abandoning or closing any waste, borrow, or staging area.

105.29 PAYMENT FOR EROSION PREVENTION AND SEDIMENT CONTROL.

(a) General.

Unless otherwise indicated in the Contract, all materials, installation, monitoring, maintenance and, where necessary, removal for those erosion prevention and sediment control measures that are items in the Contract will be paid for at the appropriate Contract unit price bid.

Unless otherwise indicated in the Contract, all materials, installation, monitoring, maintenance and, where necessary, removal for those erosion prevention and sediment control measures required by the Plans and/or the Engineer that are not items in the Contract will not be paid for directly, but will be considered incidental to all other Contract items.

Environmental protection work in connection with erosion prevention and sediment control for the opening, maintaining, and closing of waste, borrow, and staging areas and pollution control measures will not be paid for directly, but will be considered incidental to all Contract items.

Costs for damages to waste, borrow, and staging areas, to the owners thereof, or to adjacent property owners shall be the responsibility of the Contractor.

(b) Temporary Erosion Prevention and Sediment Control Measures. Required temporary erosion prevention and sediment control work not attributable to the Contractor's negligence, carelessness, or failure to install permanent controls will be performed and paid for as specified in part (a) of this Subsection or as ordered by the Engineer.

Temporary erosion prevention and sediment control measures required due to the Contractor's negligence, carelessness, or failure to install permanent controls as a part of the scheduled work or as ordered by the Engineer shall be performed by the Contractor at the Contractor's expense.

(c) Failure to Control Erosion, Pollution, or Siltation. In case of repeated failures by the Contractor to control erosion, pollution, or siltation, the Engineer may employ outside assistance or use State forces to provide the necessary corrective measures. Such incurred direct costs, plus project engineering costs, will be charged to the Contract and appropriate deductions made from any money or monies due or to become due the Contractor.

105.30 VALUE ENGINEERING.

(a) General. The intent of value engineering is to provide an incentive to the Contractor to initiate, develop, and present to the Engineer for consideration cost reduction proposals involving changes in the drawings, designs, specifications, or other requirements of the Contract. These provisions do not apply unless the proposal submitted is specifically

identified by the Contractor as being presented for consideration as a value-engineering proposal.

The cost reduction proposals contemplated are those that would require a Change Order modifying the Contract and would produce a savings to the City by providing less costly items or methods than those specified in the Contract and/or reducing future maintenance costs without impairing essential functions and characteristics such as service life, reliability, economy of operation, ease of maintenance, and necessary standardized features.

(b) Procedure.

(1) Value engineering proposals will be processed in the same manner as prescribed for any other alterations of the Contract that require a Change Order. As a minimum, the following information shall be submitted by the Contractor with each proposal:

- a. A statement that the proposal is being submitted as a value-engineering proposal.
- b. A description of the proposal.
- c. An itemization of the requirements of the Contract that must be changed and a recommendation of how to make each change.
- d. An estimate of the reduction in performance costs that will result from adoption of the proposal.
- e. A prediction of any effects the proposed changes would have on other costs to the City, including environmental effects, traffic impacts and preventive measure costs.
- f. A statement of the time by which an agreement for adoption of the proposal must be executed to obtain the maximum costs reduction during the remainder of the Contract and the reasoning for this time schedule.
- g. A statement as to the effect the proposal would have on the time for the completion of the Contract.

(2) The City shall not be liable for any delay in acting upon any value-engineering proposal submitted. The Contractor may withdraw in whole or in part any value-engineering proposal not accepted within the period specified in the proposal. The decision of the Engineer as to the acceptance or rejection of value engineering proposals will be final and will not be subject to the provisions of Subsection 105.02 or 105.20. The Contractor will be notified in writing of the Engineer's decision to accept or reject each value-engineering proposal submitted under the provisions of this Subsection.

(c) Accepted Proposals: Change Order. If a proposal is accepted, the necessary Contract modifications will be effected by execution of a Change Order, which will provide for equitable price adjustments giving the Contractor and the City equal shares in net savings resulting therefrom. Unless and until a proposal is effected by such Contract modification, the Contractor shall remain obligated to perform in accordance with the terms of the existing Contract.

The Change Order affecting the necessary Contract modifications shall establish the net savings agreed upon and shall provide for such adjustment in the Contract price as will divide the net savings equally between the Contractor and the City. All reasonably incurred costs of developing the cost reduction proposal and implementing the changes, including any increased costs to the City resulting from its application, will be deducted from the total estimated decrease in the Contractor's costs of performance to arrive at the net savings.

- (d) Conditions: Compensation. The City reserves the right to include in the Change Order any conditions it deems appropriate for consideration, approval, and implementation of the cost reduction proposal. The Contractor's 50 percent share of the final realized net savings shall constitute full compensation for effecting all changes pursuant to the Change Order. Compensation shall be paid once the work associated with the value-engineering proposal has been completed, and a Change Order has been executed to compensate the Contractor for this work.
- (e) Use of Information. Upon acceptance of a cost reduction proposal, any restrictions imposed by the Contractor on its use or on disclosure of the information submitted shall be void, and the City shall thereafter have the right to use, duplicate, and disclose in whole or in part any data necessary to the utilization of the proposal on this project or other projects.
- (f) Time Savings. Any time savings realized by implementation of value-engineering proposals may result in a corresponding adjustment in the Contract completion time. No incentive pay will be provided for early completion days resulting from time savings of any approved value-engineering proposals.

SECTION 106 - CONTROL OF MATERIAL

106.01 SOURCE OF SUPPLY AND QUALITY REQUIREMENTS.

The material used in the work shall meet quality requirements of the Contract. In order to expedite the inspection and testing of materials, the Contractor shall notify the Engineer of the proposed sources of materials at least 96 hours prior to delivery. At the option of the Engineer, materials may be approved at the source of supply before delivery is started. If it is found during acceptance that supplied materials from previously approved sources do not meet specifications, the Contractor shall take action to supply materials that meet specifications.

106.02 LOCAL MATERIAL SOURCES.

The Contractor shall determine potential sources of material and the amount of equipment and work required to produce material meeting the specifications. The City Engineer maintains a list of material sources that have previously produced materials meeting specifications. Exploration for new material sources will be the responsibility of the Contractor. The ability to purchase from the owner(s) of the source(s) and the quality of the material are not guaranteed by the City. The Contractor acknowledges that it is not possible to ascertain from samples the limits of a deposit and that variations in quality in a material source are normal and to be expected. The Engineer may order procurement of material from any portion of a material source and may reject portions of the material sources as unacceptable. It shall be the responsibility of the Contractor to acquire the right to take materials from any source together with the right to use such property as required for whatever purpose, including plant sites, stockpiles, and hauling roads. The Contractor shall pay all costs related thereto together with any costs resulting from exploring and developing these sources.

106.03 SAMPLES AND TESTS.

All materials will be inspected, sampled, tested or accepted by the Engineer as incorporated into the work. Under any applicable Quality Acceptance (QA) specifications, the Contractor shall perform all Process Quality Control testing with the Engineer performing all Quality Acceptance testing. Any work in which untested and/or unaccepted materials are used without the approval or written permission of the Engineer shall be performed at the Contractor's risk. Any work determined to be unacceptable and unauthorized will not be paid for. All testing will conform to the most recent cited standard methods of AASHTO or ASTM, including AASHTO Provisional Specifications or the ASTM Tentative Specifications that are current on the date of the advertisement for bids, unless otherwise specified. In the case of conflict between the ASTM and the AASHTO methods of sampling and testing, the AASHTO method shall govern. When modified AASHTO or ASTM test methods or Vermont Agency of Transportation test methods are

designated, the test method will be available at the office of the City's Materials and Research Section. Tests for compliance with specification requirements will be made by and at the expense of the City.

Samples will be taken by authorized representatives of the City in accordance with the requirements of the latest edition of the State of Vermont's Materials Sampling Manual. The Contractor shall provide such facilities, as specified in these Specifications, or as the Engineer may require, for collecting and/or forwarding samples. In all cases, the Contractor shall furnish the required samples without charge.

All materials used are subject to inspection, testing, and acceptance/rejection at any time during the Contract period. Materials contaminated by the Contractor's operations shall be removed. No work or materials shall be deemed approved until accepted by the Engineer. Copies of all test results will be furnished to the Contractor's representative upon request.

In lieu of testing, the City may approve the use of certain materials based upon the receipt of a certification from the manufacturer stating that such material is in compliance with these Specifications. The requirements for such certifications are specified in Subsection 700.02.

Bituminous materials designated for acceptance under QA provisions will be randomly sampled and tested in accordance with the recommended acceptance guidelines specified for the applicable Contract item. Samples may also be taken any time the material appears defective or when the Engineer determines that a change in the process or product has occurred. Acceptance tests will govern in all cases for determination of pay factors without regard to quality control tests.

- (a) The Contractor shall provide Process Quality Control adequate to produce work of acceptable quality. The Contractor shall perform Process Quality Control sampling, testing, and inspection during all phases of the work at a rate sufficient to assure that the work conforms to the Contract requirements and the minimum guidelines specified.

The Engineer will not sample or test for Process Quality Control or assist in controlling the Contractor's production operations. The Contractor shall provide personnel and testing equipment capable of providing a product that conforms to specified requirements. Continual production of non-conforming work at a reduced price, in lieu of adjustments to bring work into conformance, shall not be allowed.

- (1) The Contractor shall provide and maintain a Process Quality Control Plan, hereinafter referred to as the "Plan", including all the personnel, equipment, supplies, and facilities necessary to obtain samples, perform tests, and otherwise control the quality of the product to meet specified requirements.

The Contractor shall be prepared to present and discuss, at the preconstruction conference, quality control responsibilities for the specific Contract items. The Contractor shall submit the Plan to the Engineer for approval/rejection, at least ten (10) working days prior to the start of related work. The Contractor shall not start work on the subject items without an approved Plan.

The approval process for the Contractor's Plan may include inspection of testing equipment and a sampling and testing demonstration by the Contractor's technician(s) to assure an acceptable level of performance.

- (2) All Contractor Process Quality Control testing under the Plan shall be performed by qualified technicians in laboratories approved by the City Engineer. Technician qualifications shall be as described in the specifications for the Contract item being accepted.

Laboratory facilities shall be kept clean and all equipment shall be maintained in proper working condition. Major pieces of equipment shall be calibrated and/or verified in accordance with the schedule provided by Subsection 106.03(b)(4). Records indicating equipment condition and calibration status shall be maintained in the laboratory. The Engineer shall be permitted unrestricted access

to inspect and review the Contractor's laboratory facility. The Engineer will advise the Contractor of any noted deficiencies concerning the laboratory facility, equipment, supplies, or testing personnel and procedures. Deficiencies shall be grounds for the Engineer to order an immediate stop to incorporating materials into the work until deficiencies are corrected.

- (3) The Plan shall be administered by a qualified individual. Administrator qualifications shall be as described in the specifications for the Contract item(s) being accepted.

The individual administering the Plan must be a fulltime employee of, or a consultant engaged by, the Contractor. The individual shall have full authority to institute any and all actions necessary for the successful operation of the Plan.

- (4) The Plan shall contain a system for sampling that assures all material being produced has an equal chance of being selected for testing. The Engineer shall be provided the opportunity to witness all sampling.

When directed by the Engineer, the Contractor shall sample and test any material that appears inconsistent with similar material being sampled, unless such material is voluntarily removed and replaced or the resulting deficiency otherwise corrected by the Contractor. All sampling and testing shall be in accordance with City, AASHTO, or ASTM procedures.

- (5) All testing shall be performed in accordance with the acceptance test procedures applicable to the specified Contract items or other methods specified in the approved Plan. Should acceptance test procedures not be applicable to quality control tests, the Plan shall stipulate the test procedures to be utilized. Upon request, the Contractor shall provide copies of all test results on forms meeting the approval of the Engineer.

- (6) The Contractor shall maintain complete records of all Process Quality Control tests and inspections. Quality control tests that are initiated but not run to completion shall be incorporated into the records with all available information that was derived. The records shall be available to the Engineer for review and copies furnished upon request. A complete set of all such documents shall be provided upon completion of the Contract.

Control Charts acceptable to the Engineer shall be maintained and kept current at a location satisfactory to the Engineer. At a minimum, the Control Charts shall identify the project number, the Contract item number, the test number(s), each test parameter, the upper and lower specification limit applicable to each test parameter and the Contractor's test results.

The Contractor shall include the Control Charts as part of a Process Quality Control System. The charts shall be used for identifying production and equipment problems and for identifying aspects, which could result in pay factor reductions before they occur. Trigger mechanisms for corrective action and suspension of operations must be identified.

- (7) The Engineer may suspend associated construction or production operations at any time that the Plan is not being followed by the Contractor.
- (8) Under such conditions where two sub-lot test results indicate that the lot will result in a sub-par Percent Within Limits (PWL), the Contractor may request that a third test, herein termed a "lot/day termination test," be taken. After performing a lot/day termination test, all production operations shall immediately be terminated for that day. The Contractor shall secure the Engineer's approval and concurrence prior to performing said test. This test shall not be cause for switching to "low production activities" as specified in Subsection 106.03(a)(9).

- (9) Upon 24 hours advance request and subsequent approval by the Engineer, the Contractor may perform production activities outside of the requirements of the Plan in the instance those activities involve “low production activities”. For the purpose of this Section, low production activities are defined as those not associated with mainline activities and up to a maximum daily production of 275 tons of bituminous mixture.

Materials being produced for low production activities will be tested under the “method spec” provisions of materials testing and control of mixtures and shall comply with all applicable specifications for the mix type being produced.

- (b) Items specified to be sampled and tested for QA purposes will be evaluated for acceptance in accordance with the guidelines specified for those Contract items. All acceptance test results for a lot, as defined in the specification, will be analyzed collectively and statistically by the Quality Level Analysis – “Percent Within Limits” Method using the procedures listed to determine the total estimated percent of the lot that is within specification limits. Quality Level Analysis – “Percent Within Limits” is a statistical procedure for estimating the percent compliance with a specification and is affected by shifts in the arithmetic mean (x) of the test results and by the sample standard deviation (s).

- (1) If less than three samples have been obtained at the time a lot is terminated, the material in the shortened lot will be included as a part of an adjacent lot and a pay factor computed for the combined lots. Generally, this involves combining the shortened day’s results with a subsequent day’s test results.

However, if this occurs on the last day of production, these results will be combined with the most recent day’s lot results for a revised determination.

- (2) The Engineer may reject material which appears to be obviously defective based on visual inspection. Such rejected material shall not be used in the work.

- (3) Quality Level Analysis – “Percent Within Limits” procedures are defined as follows:

- a. Compute the upper quality index (Q_u):

$$Q_u = \frac{USL - \bar{X}}{s}$$

Where USL = upper specification limit

\bar{X} = arithmetic mean of the test results

s = sample standard deviation

- b. Compute the lower quality index (Q_L):

$$Q_L = \frac{\bar{X} - LSL}{s}$$

Where LSL = lower specification limit

- c. Determine PWL_U (percent within the upper specification limit which corresponds to a given Q_U) from references available through the Engineer.
Note: If a USL is not specified, PWL_U will be 100.
- d. Determine PWL_L (percent within the lower specification limit which corresponds to a given Q_L) from references available through the Engineer.
Note: If a LSL is not specified, PWL_L will be 100.
- e. Determine the PWL (total percent within specification limits).
 $PWL = PWL_U + PWL_L - 100$
- f. Determine the Pay Factor (PF) for the lot from the process or equation applicable to the specific Contract item.
- g. Results from the above calculations shall be carried to significant figures and rounded according to the following procedures:

1. Significant Figures:

- Report all standard deviation calculations to 0.01
- Report all pay factor calculations to 0.1%
- Use "precision as displayed" option when using "Excel" spreadsheets

2. Rounding: The use of AASHTO "rounding rule D" shall be discontinued and the following procedure used:

When Rounding: If the first number to the right of the number to be rounded is greater than or equal to 5, then the number is rounded up to the next highest number. If the number to be rounded is less than 5, then the number remains the same.

Example: Round to 1 decimal (1.0)

5.35 would round to 5.4

5.34 would round to 5.3

(4) Bituminous Concrete Lab Calibration / Verification Procedures:

This subpart provides a summary of procedures for both required internal laboratory calibration and verification and required external (independent) laboratory calibration services.

INTERNAL CALIBRATIONS / VERIFICATIONS

PROCEDURES LISTING

VAOT Number	Calibration (C) / Verification (V) Item	Frequency (months)
4	General Purpose Drying Oven (V)	12
10	Temperature Measuring Devices (V)	6
10c	Temperature Measuring Devices - ASTM E1, E77, E230 (C)	6
10f	Temperature Measuring Devices -	6

	Reference ASTM E1, E77, E230 (C)	
11	Sieves (V)	6
20	Marshall Compaction Molds – AASHTO T 245 (V)	12
22	Sand Equivalent Test – AASHTO T 176 (V)	12
23	Vacuum System – AASHTO T 209 (V)	12
32	Timers	6
45	Mechanical Sieve Shaker (C)	12
54m	Marshall Stability / Flow Apparatus – AASHTO T245 (C)	12
58	Marshall Molds, Manual Hammer, Breaking Heads, Pedestal – AASHTO T 245 (V)	12

EXTERNAL CALIBRATION

REQUIREMENTS

VAOT Number	Verification (V) / Calibration (C) Item	Frequency (months)
TBD	Scales, Balances	12

For the purposes of this Subsection, calibrations are performed on equipment that can be adjusted into compliance. Verifications are completed on fixed condition equipment or equipment that requires outside calibration (typically by a manufacturer or calibration service). Laboratory records that include the date, service person, equipment calibrated or verified, procedure used for calibration and/or verification, and equipment condition shall be maintained in the laboratory. Equipment determined unsuitable for use will be marked "out of service". Tests performed on equipment marginally meeting specifications shall include a note on the results sheet indicating such condition.

Example calibration/verification procedures noted above are available from the City' Engineer. Alternate procedures approved in advance by the City Engineer are allowable and anticipated.

106.04 PLANT INSPECTION.

The Engineer may undertake the inspection of materials at the source. In the event plant inspection is undertaken the following conditions shall be met:

- (a) The Engineer shall have the cooperation and assistance of the Contractor and the producer with whom the Contractor has contracted for materials.
- (b) The Engineer shall have full entry at all times to such parts of the plant as may concern the manufacture or production of the materials being furnished.

- (c) When required by the Contract, the Contractor shall arrange for an approved building or trailer with the necessary equipment for testing for the use of the Inspector; such building or trailer shall be located conveniently near the plant.
- (d) Adequate safety measures shall be provided and maintained.

The City reserves the right to retest all materials that have been tested and accepted at the source of supply prior to incorporation into the work after delivery and to reject all materials that do not meet the requirements of the Contract when retested.

106.05 STORAGE OF MATERIALS.

Materials shall be stored so as to ensure the preservation of their quality and fitness for the work. Stored materials, even though approved before storage, may be inspected prior to their use in the work; they shall meet the requirements of the Contract at the time of use. Stored materials shall be located so as to facilitate inspection. Upon approval, portions of the right-of-way not required for public travel may be used for storage purposes and for the placing of the Contractor's plant and equipment, but any additional space required therefore shall be at the Contractor's expense. Private property shall not be used for storage purposes without written permission of the owner and/or lessee. All storage sites shall be restored to their original condition at the Contractor's expense; this shall not apply to the stripping and storing of topsoil, or to other materials salvaged from the work or specifically prescribed in the Contract.

106.06 HANDLING MATERIALS.

All materials shall be handled so as to preserve their quality and fitness for the work.

106.07 UNACCEPTABLE MATERIALS.

At the discretion of the Engineer, all materials not in conformance with the requirements of the Contract shall be considered unacceptable and all such materials, whether in place or not, shall be rejected and removed immediately from the site of the work unless otherwise instructed by the Engineer. Rejected materials that have been subsequently corrected shall not be used unless and until approval has been given.

106.08 EXPLOSIVE AND FLAMMABLE MATERIALS.

The Contractor's attention is directed to the provisions of the Vermont Statutes Annotated as amended which (1) authorize the State Fire Marshal to make, publish, enforce, and from time to time to alter, amend, or repeal rules and regulations pertaining to fire prevention and public safety concerning the safekeeping, storage, use, manufacture, sale, handling, transportation, or other disposition of blank cartridges, gun powder, dynamite, nitroglycerine, crude petroleum or any of its products including liquefied petroleum gas, explosives, flammable gases and flammable fluids, compounds or tablets, any other explosive, or any substance that may spontaneously or acting under the influence of any contiguous chemical or physical agent ignite, inflame, or generate inflammable or explosive vapors or gases to a dangerous extent, and (2) may prescribe the location, materials, and construction of buildings and other facilities to be used for storage of such products. Attention is further directed to the regulations applying to explosives while being transported by carriers in motor vehicles, railroad cars, or vessels in conformity with the regulations adopted by the US Department of Transportation, the US Coast Guard, or the Secretary of Transportation under the provisions of Title 5 VSA § 2001 and Subsection 107.11.

106.09 STOCKPILING OF MATERIALS.

- (a) Ordering Materials: Stockpiling Authority. The Contractor is urged to place orders for materials with producers and suppliers as early as practical so that delays may be kept to a minimum.

The Contractor may submit a written request to the City to pay for stockpiled material.

The Engineer may authorize payment for the Contractor's cost of materials, including freight.

The City may deny any and all requests to stockpile materials and to make stockpile payments.

(b) Request and Procedure; Criteria. To request stockpiling, the Contractor shall submit the following for consideration by the City:

1. Listing of material(s) by specific Contract pay item and quantity to be stockpiled;
2. Invoice for all materials, or a receipt for delivery;
3. Drafts of documents that show that ownership of the material(s), without encumbrances, will be in the name of the Contractor and will be for the benefit of the City;
4. Appropriate certifications and/or passing samples as required for the specific material(s);
5. Statement that the material shall be clearly marked so as to easily identify the project in which the material will be incorporated and shall be available for inspection by the City; and
6. The location where and condition(s) under which the material will be stockpiled.
The storage location and security of the stockpiled material(s) shall be the responsibility of the Contractor.

(c) Raw Materials. In addition to the criteria set out above for other materials, raw material stockpiles shall be approved by the City Engineer and meet the following additional criteria:

1. The various components of the finished product shall include all of the appropriate certifications, passing samples, passing tests, and any other documentation that may be required to certify that the materials are acceptable; and
2. Any other criteria the Engineer deems necessary to allow for payment.

(d) Cap; Payment to Supplier; Charge Back; Minimum to Stockpile. Payment will be made for the invoiced amount, not to exceed 75% of the total Contract bid amount for each specific item for which stockpiling is allowed; the quantity of stockpiled material shall not exceed the Contract quantity for the specific item. The Contractor shall furnish the paid invoice within 28 calendar days after the cutoff date for the estimate in which the stockpile amount is paid. If the Contractor fails to furnish the paid invoice within this time limit, the amount of the stockpile payment will be deducted from one or more subsequent payments. Under no circumstances shall stockpiling be allowed for an item with a Contract bid amount totaling less than \$25,000.

The stockpile credit amount shall be reduced once installation of the item begins, and the reduction shall correspond with the installation and payment of the specific stockpiled item.

The Contractor may request an exception to the 75% cap; any such request shall be included in the original request for stockpile and shall include all information to support the request.

(e) Finished Product. Payment for stockpiled materials shall not relieve the Contractor from providing an acceptable finished product or from its responsibility for the condition of the materials as specified elsewhere in the Contract. Any defects, flaws, or poor craftsmanship shall be the responsibility of the Contractor and shall be corrected to the City's satisfaction at the Contractor's expense.

- (f) Material or Energy Shortage. In the event that unreasonable delays or changes in the work occur as a result of a material or energy shortage, the Contractor shall notify the City in writing. If, in the opinion of the City Engineer, the Contractor's argument has merit, alternate methods of construction, substitution of materials, or an extension of time may be authorized.

SECTION 107 - LEGAL RELATIONS AND RESPONSIBILITY TO THE PUBLIC

107.01 LAWS TO BE OBSERVED.

- (a) General; Defense and Indemnification. The Contractor shall observe and comply with all Federal and State laws and local bylaws, ordinances, and regulations in any manner affecting the conduct of the work and the action or operation of those engaged in the work, including all orders or decrees as exist at present and those which may be enacted later by bodies or tribunals having jurisdiction or authority over the work, and the Contractor shall defend, indemnify, and save harmless the State and all its officers, agents, and employees against any claim or liability arising from or based on the violation of any such law, bylaws, ordinances, regulations, order, or decree, whether by the Contractor in person, by the employees of the Contractor, or by a subcontractor or supplier.
- (b) Contract Contrary. If the Contractor discovers any provisions in the Contract that are contrary to or inconsistent with any law, ordinance, regulation, order, or decree, the Contractor shall immediately report it to the Engineer in writing.
- (c) U.S., VOSHA, and Environmental Protection Regulations. The Contractor's attention is directed to the various regulations promulgated and enforced by the United States and VOSHA and the environmental protection agencies.
- (d) Fair Employee Practices Act. The Contractor shall comply with all of the requirements of Title 21 VSA Chapter 5, subchapter 6, relating to fair employment practices to the extent applicable. A similar provision shall be included in any and all subcontracts.
- (e) Hazardous Wastes. The Contractor's attention is directed to regulations regarding the management of hazardous wastes such as waste crankcase and hydraulic oils, and waste paint generated by construction operations (ref: Agency of Natural Resources' Department of Environmental Conservation and Title 10 VSA Chapter 159).
- (f) Americans with Disabilities Act. The Contractor shall comply with the Americans with Disabilities Act of 1990 and shall assure that individuals with disabilities have equal access to the services, programs and employment activities/opportunities offered by the Contractor under this Contract.
- (g) Prompt Payment Act. The Contractor shall fully comply with the provisions of 9 V.S.A. Chapter 102, also referred to as Act No. 74 of 1991 or the Prompt Payment Act, as amended.
- (h) Subcontractor Payments; Reporting; Violations; Inclusion In Subcontracts. On all federal-aid and state funded contracts, the Contractor, during the life of the Contract and on a monthly basis, shall submit electronically, a listing of payments to subcontractors on the form specified by the State and made available at: <http://www.aot.state.vt.us/dbe/login.asp>. Electronic reports shall be filed with the Agency Office of Civil Rights by an authorized representative and received in the Agency Office of Civil Rights on or before the tenth working day after month end. Contractors without access to the internet shall obtain and submit manual reports to the Agency Office of Civil Rights. Manual reports shall be signed by an authorized representative, sent to the Agency Office of Civil Rights, and postmarked on or before the tenth working day after month end. There shall be no direct compensation allowed the Contractor for this work, but the cost thereof shall be included in the general cost of the work.

In accordance with 9 V.S.A. Section 4003, notwithstanding any contrary agreement, payments made to subcontractors after seven (7) days from receipt of a corresponding progress payment by the State to the Contractor, or seven (7) days after receipt of a subcontractor's invoice, whichever is later, violate this agreement.

Violations shall be reported to the Agency Office of Civil Rights for review. Failure to resolve disputes in a timely manner may result in a complaint made to the Agency Pre-qualification Committee. In this Committee's judgment, appropriate penalties may be involved for failure to comply with this specification. Penalties may include suspension, reduction or revocation of the Contractor's pre-qualification rating.

This clause shall be included in the prime Contractor's Contract made with all of its subcontractors.

- (i) Women's Economic Opportunity Program. This Contract is subject to the Women's Economic Opportunity Program as defined by Chapter 21, Sections 21 50 through 21 54 (Revised 1986-1987) in the City of Burlington Code of Ordinances, and bids will be accepted only if they include an Employment Plan approved by the Community & Economic Development Office (CEDO), City Hall, Burlington, Vermont.

In addition, monthly compliance reports must be submitted to the CEDO Office no later than the first Thursday of each month. Blank employment plan and compliance report forms. CEDO will offer technical assistance to BIDDERS with questions or problems regarding the development of their employment plan and other ordinance requirements. Contact CEDO at 865-7180 for information.

107.02 PERMITS, LICENSES, AND TAXES.

The Contractor shall procure all permits and licenses, pay all charges, fees, and taxes, and give all notices necessary and incidental to the lawful prosecution of the work.

107.03 PATENTED DEVICES, MATERIAL, AND PROCESSES.

If any design, device, material, or process covered by letters of patent or copyright is used by the Contractor, whether required or not, the Contractor shall provide for such use by suitable legal agreement with the patentee or owner; a copy of this agreement shall be filed with the City. The Contractor and the Contractor's surety shall defend, indemnify, and save harmless the State, any affected third party, or political subdivision from any and all claims for infringement by reason of the use of any such patented design, device, material, or process, or any trademark or copyright, and shall indemnify the City for any costs, expenses, and damages including reasonable attorney's fees which it may be obliged to pay by reason of any infringement at any time during the prosecution or after the completion of the work.

107.04 FEDERAL AID PROVISIONS (NOT USED)

107.05 SANITARY PROVISIONS.

The Contractor shall provide and maintain, in a neat and sanitary condition, such toilet and potable drinking water accommodations for the use of its employees as necessary to comply with the requirements and regulations of the State or local Boards of Health at no expense to the City.

Such accommodations shall be removed from each location prior to requesting final inspection by the Engineer for that location.

107.06 PLANT PEST CONTROL REQUIREMENTS.

Soil and soil moving equipment are subject to plant quarantine regulations. In general, these regulations provide for cleaning soil from equipment before it is moved from a project. Complete information may be secured from State or Federal plant pest control inspectors.

107.07 PUBLIC CONVENIENCE AND SAFETY.

- (a) General. The Contractor shall conduct all work so as to ensure the least possible obstruction to traffic. The safety and convenience of the general public and the residents along the highway within the construction area and the protection of persons and property shall be provided for by the Contractor as specified in Subsection 104.04.
- (b) Dust Control. The Contractor shall use all necessary dust control on haul road(s) and maintenance yard(s) in the same manner as required for materials sources and disposal areas in Subsection 105.27. Dust control on haul road(s) and maintenance yard(s) shall be performed in accordance with Section 609, and will not be paid for directly, but will be considered incidental to all other Contract items. The Contractor shall perform all dust control directed by the Engineer on the haul road(s) and/or maintenance yard(s); unless otherwise provided, dust control will not be paid for directly, but will be considered incidental to all other Contract items.

The Engineer will direct the use of all necessary dust control within the limits of the construction performed under the Contract. Under those contracts that contain pay items for dust control, the dust control within the construction area shall be performed in accordance with the requirements of Section 609 and will be paid for under the appropriate Contract item(s). Under those contracts which do not contain pay items for dust control, the necessary dust control shall be performed in accordance with the requirements of Section 609 and the cost will not be paid for directly, but will be considered incidental to all other Contract items.

- (c) Stored Materials. Materials stored within the construction area shall be placed so as to cause a minimum obstruction to the traveling public and snow removal operations.
- (d) Fire Hydrants. Fire hydrants located within the construction area shall be kept accessible to fire apparatus at all times and no material or obstruction shall be placed within 15 feet of any such hydrants.
- (e) Adjoining Ways. Footways, gutters, drainage inlets, and portions of highways adjoining the roadway under construction shall be obstructed only when necessary.
- (f) Lane Restrictions. When the total useable width of a traveled way will be decreased to 14 feet or less for a period longer than one working day, the Contractor shall notify the Engineer of the date of the first day and the anticipated period of time such a lane restriction will be in effect. This notification shall be provided at least two weeks prior to the beginning of the lane restriction so that the Engineer may provide proper notification to the Oversized/Overweight Section of the Commercial Vehicle Enforcement Unit of the Department of Motor Vehicle and the City's Communications Section. When the date of the removal of the restriction becomes known, the Contractor shall notify the Engineer so that notification can be provided to these entities.

107.08 TRAFFIC CONTROL DEVICES.

- (a) General. All approach signs shown on the Plans shall be installed prior to beginning other work. Additional traffic control devices necessary for work on any portion of the project shall also be installed prior to beginning work on that portion. All traffic control devices shall conform to the latest version of the MUTCD. Use of metal drums as traffic control devices is prohibited.

The Contractor shall furnish, erect, and maintain all signs, barricades, lights, signals, and other traffic control devices necessary for the protection of the work and safety of the traveling public.

- (b) Existing Pavement Markings. Whenever existing pavement markings conflict with desired traffic patterns within a construction or detour area or otherwise create a potentially misleading, confusing, or hazardous condition for the traveling public, the markings will be completely removed or obliterated by the Contractor to the satisfaction of the Engineer. Painting over the existing lines is not acceptable. Unless otherwise specified in

the Contract, no direct payment will be made for this work, which will be considered incidental to other Contract items.

- (c) Warning Signs. The Contractor shall erect warning signs in advance of any location on the project where operations interfere with the use of the road by traffic and all locations where the new work crosses or coincides with an existing road.
- (d) Detour Signs. The Contractor shall provide and maintain throughout the project acceptable warning, direction, and detour signs at all closures and intersections; along the construction and detour routes, the contractor shall provide and maintain acceptable warning, direction, and detour signs directing traffic around the closed portion or portions of the highway so that the temporary detour route(s) shall be indicated clearly throughout its (their) entire length(s).
- (e) Closed Highways. Highways closed to traffic shall be protected by barricades and/or other approved barriers, which shall be reflectorized or illuminated.
- (f) Delineation. Delineation will be required through the construction area as shown on the Plans or as directed by the Engineer.
- (g) Flashers. Flashers may be required by the Engineer for use on signs and barricades to call attention to special or hazardous conditions.
- (h) Costs Incidental. The cost of furnishing, fabricating, installing, maintaining, and removing traffic control devices shall be considered incidental to other items in the Contract unless otherwise specified.
- (i) Failure to Install, Maintain, Remove. If the Contractor fails to satisfactorily install, maintain or remove traffic control devices, the Engineer may have such installations made, maintained, or removed, and the cost thereof shall be deducted from the monies due the Contractor.

107.09 RESPONSIBILITY FOR USE OF FLAGGERS.

As conditions warrant, the Contractor shall employ one or more flaggers at any location on the project where equipment or construction operations will interfere with the movement or safety of the traveling public. This includes operations where equipment enters, leaves or crosses normal traffic lanes being used or set aside for the traveling public and locations where heavy equipment is operating adjacent to areas where traffic is moving. Flaggers may not be required at locations manned by uniformed traffic officers assigned for the protection of the traveling public as a pay item of the Contract. Attention is directed to the provisions of Section 108 as they may apply to the use of flaggers. Where needed to assure safe ingress and egress for activities associated with the construction of the project, the Engineer may require the use of flaggers at locations off of the project site.

The dress, equipment, and procedures of all flaggers shall conform to the requirements in the MUTCD and Section 630.

107.10 RAILWAY-HIGHWAY PROVISIONS.

If the Contractor is required or elects to haul materials across the tracks of a railway other than on a public highway, the Contractor shall make arrangements with the railway for a new private crossing or for the use of an existing private crossing. All work to be performed within a railroad right-of-way by the Contractor in the construction of railway-highway separation structures or at grade crossings shall be done in accordance with the Contract. The Contractor shall use all care and precaution in order to avoid crashes, damage, or unnecessary delay or interference with the railway company's trains and other property. The Contractor shall carry Public Liability and Property Damage Insurance as stipulated elsewhere in these Specifications or other Contract Documents.

107.11 USE OF EXPLOSIVES.

- (a) Explosives are NOT to be USED.

107.12 PROTECTION AND RESTORATION OF PROPERTY.

- (a) General. The Contractor shall:
 - (1) Not enter upon private property for any purpose without obtaining written permission;
 - (2) Be responsible for the preservation of all public and private property along and adjacent to the work;
 - (3) Use every precaution necessary to prevent damage or injury to public and private property;
 - (4) Protect from disturbance or damage all land monuments and property markers until an authorized agent has witnessed or otherwise referenced their locations, monuments, and property markers;
 - (5) Not move any land monuments and property markers until directed by the Engineer; and
 - (6) Protect all trees, shrubs, and other plants not marked by the Engineer for removal from damage by construction operations.
- (b) Protection of Existing Infrastructure. The Contractor shall make sure that any portions of the existing roadway and existing structures that are to be retained for public travel are left in as good condition as when the Contractor commenced work. The Contractor shall not move or use equipment on any pavement or structure in a manner that may or does cause damage
- (c) Contractor's Responsibility. The Contractor shall be responsible for all claims involving damage or injury to, or destruction of, property of any type resulting from any act, omission, neglect, or misconduct of the Contractor's manner or method of executing the work, due to the Contractor's non-execution of said work, or due to defective work or materials. The Contractor's responsibility shall not be released until the work has been completed and accepted and the applicable statute of limitations has expired.
- (d) Restoration of Damaged Property. When any direct or indirect damage or injury is done to public or private property by or on account of any act, omission, neglect, or misconduct in the execution of the work or in consequence of the non-execution thereof on the part of the Contractor, such property shall be restored at the Contractor's expense to a condition similar or equal to that existing before such damage or injury was done or the Contractor shall make good such damage or injury in an acceptable manner.
- (e) Cleaning Traffic Signals and Street Lighting. When the Contractor's operations compromise the functionality of existing traffic signals and/or street lighting equipment, the Engineer may require the Contractor to clean said equipment prior to project completion. Cleaning of traffic signals shall include all vehicle and pedestrian signal face lenses (inside and outside). Further, the inside of the controller cabinet shall be vacuumed and any vent filter shall be replaced; cleaning of streetlights shall include both the lens (inside and outside) and the reflector. The cleaning of electrical equipment shall be done by a traffic signal/electrical contractor. Any equipment that is damaged in the cleaning process shall be repaired or replaced at the Contractor's expense. The costs for cleaning will not be paid for directly, but will be considered incidental to other items in the Contract.
- (f) Ground Vibration Limits. The maximum Peak Particle Velocity (PPV) of ground vibration in any of the three mutually perpendicular components of particle velocity for the following structure types shall be limited as follows:

<u>Type of Structure</u>	<u>PPV in in/sec</u>	
	<u>Frequencies < 40 Hertz</u>	<u>Frequencies > or = 40 Hertz</u>

Modern Homes (drywall interior)	0.75	2.0
Older Homes (plaster on wood or lath)	0.50	2.0
Non-Residential Structures		
Underground Utilities		

The City reserves the right to lower the PPV limit in areas where there may be structures or elements with a higher sensitivity to ground vibration. Adherence to this specification does not waive the Contractor's responsibility for damage as specified in this Subsection and in Subsection 107.16.

107.13 PROTECTION AND RESTORATION OF UTILITIES AND SERVICES.

- (a) General. The Contractor shall take proper precaution during construction to avoid damage to public and private services. These services include, but are not limited to gas, water, sewer and drainage pipes, springs, wells, septic tanks, cesspools, telephone, telegraph, television, and other communication and electrical services. Services may be located on or adjacent to the project, above, on, or under the ground, and may not be shown on the Plans.
- (b) Dig-Safe. The Contractor shall comply with the requirements of Dig-Safe, Title 30 V.S.A. Chapter 86, Sections 7001 - 7008.
- (c) Notice of Work. At commencement or resumption of construction, the Contractor shall notify the owners, operators, occupants, or lessees of all the public or private services of any work to be done on, over, under, adjacent to, or in proximity to said utilities during the construction of the project. Further, the Contractor shall again notify the aforesaid parties seven (7) to fourteen (14) calendar days in advance of starting such work to enable them to take steps as they may deem necessary to protect their property or structures from damage. Provision of notice shall not relieve the Contractor of its responsibility for any damages resulting from the Contractor's work.
- (d) Owner Access. Owners, employees, or agents of public or private services located within the project limits shall be allowed free and full access with the tools, materials, and equipment necessary to install, operate, maintain, place, replace, relocate, and remove service facilities. No compensation will be paid to the Contractor for any inconvenience caused by working with these parties or around or with their services.
- (e) Service Relocation. The exact location of any service facility relocated within the project limits shall be as directed by the Engineer.
- (f) Cooperation. The Contractor shall cooperate with the owners of any of the aforementioned services in order that the service removal and/or relocation operation will progress in a reasonable manner, that duplication or temporary relocation work may be reduced to a minimum, and that services rendered by the concerned parties will not be unnecessarily interrupted.
- (g) Service Interruption. If in connection with the work interruption in service occurs, the Contractor shall promptly notify the owner or the owner's authorized representative and cooperate with the owner to promptly restore service. In no case shall interruption to water or sewer service be allowed to exist outside of normal working hours without the substitution of acceptable alternate service.
- (h) Fire Hydrants. No work shall be undertaken around fire hydrants until provisions for continued service have been approved by the local fire authority.

- (i) Responsibility for Damage. The Contractor shall be responsible for all damages done to services from the beginning of construction to the satisfactory completion of the project, including all damages to water supplies and sewage systems, including but not limited to damage to springs and wells, septic tanks, cesspools, and underground pipes, whether located within or outside the project right-of-way or whether or not shown on the Plans, except as otherwise provided in the Contract.
- (j) Water; Investigation of Claims. The City will receive and investigate all claims relating to damage to springs, wells, and water supply systems. The Contractor will be notified of the results of the investigation. If it is determined that the damage is the responsibility of the State, the Contractor will not be liable and will be reimbursed by the State for expenses incurred in providing temporary water service and repairing the damage.
- (k) Restoration of Service by City. If the Contractor fails to restore a service or to make good on a damage or injury to service(s), the Engineer may proceed to repair, rebuild, or otherwise restore the service as deemed necessary and the cost thereof will be deducted from any monies due, or which may become due, the Contractor under the Contract.

107.14 PROTECTION OF HISTORICAL AND ARCHAEOLOGICAL SITES.

When the Contractor's excavation operations encounter sites or artifacts of historical or archaeological significance, the operations shall be immediately discontinued. The Engineer will contact archaeological authorities and give them 48 hours to determine the appropriate action to be taken. When directed by the Engineer, the Contractor shall excavate the site in a manner that will preserve the artifacts encountered and/or remove them for delivery to the custody of proper state authorities; such excavation will be considered and paid for with Contract pay items or as Extra Work.

107.16 RESPONSIBILITY FOR DAMAGE CLAIMS.

- (a) General. The Contractor shall defend, indemnify and save harmless the City, the State, and railroad(s) and all of their officers, agents, and employees from all suits, actions, or claims of any character, name, and description brought for or on account of any injuries or damages received or sustained by any person, persons, or property that arise out of, relate to, or are in any manner connected with the Contractor's work or the supervision of the Contractor's work on the project; or by or in consequence of any neglect in safeguarding the work; or through use of unacceptable materials in constructing the work; or by or on account of any act of omission, neglect, or misconduct of the Contractor; or by or on account of any claims or amounts recovered for any infringement of patent, trademark, or copyright; or from any claims or amounts arising or recovered under the Workers Compensation Act, or any other law, bylaw, ordinance, order, or decree. So much of the money due the Contractor under and by virtue of the Contract as shall be considered necessary by the City for such purpose may be retained for the use of the State. If no money is due, the Contractor's surety shall be held until such suit or suits, action or actions, or claim or claims for injuries or damages shall have been resolved and suitable evidence to that effect furnished to the City.
- (b) Submission of Damage Claims. With regard to each and every damage claim, the Contractor shall:
 - (1) Provide the claimant with a damage claim form for the submission of damage claims to the Contractor and City;
 - (2) Pay, settle, or otherwise resolve the claim;
 - (3) Submit the claim to the insurance carrier, with a copy to the City;
 - (4) Treat all claimants with respect.

107.17 OPENING SECTIONS OF PROJECT TO TRAFFIC.

- (a) General. Opening of a section of a project to traffic prior to substantial completion of the entire Contract may be desirable in some instances. Discussions concerning such an opening shall involve, but are not limited to, the Engineer and City Engineer. Such an opening shall be made when directed by the City Engineer and documented in a Written Order. Such an opening shall not constitute acceptance of the work or a part thereof or a waiver of any provisions of the Contract.
- (b) Maintenance; Expense. On any section opened by direction of the Engineer prior to substantial completion of the Contract, the Contractor shall not be required to assume any expense entailed in maintaining the road for traffic beyond that required of a Contractor when opening a section of roadway to traffic. When extraordinary work is required to open a section of work prior to substantial completion of the Contract, the Engineer in his/her sole discretion may determine that compensation for any additional expense incurred by the Contractor to maintain traffic and allowance of additional time needed to complete the work will be made to the Contractor.
- (c) Delayed Completion of Project. If the Contractor delays completion of shoulders, drainage structures, or other features of the work, the Engineer will notify the Contractor in writing and establish a reasonable period of time in which the work shall be completed. If the Contractor fails to complete the work by the time specified, the Engineer may order all or a portion of the project opened to traffic at no additional cost to the City. On sections that are ordered to be opened, the Contractor shall conduct the remainder of construction operations so as to cause the least obstruction and disruption to the traveling public, including vehicular and pedestrian traffic, adjacent landowners, and commercial businesses. The Contractor shall not receive any additional compensation due to the added cost caused by opening such section(s) to traffic.
- (d) Opening Project to Traffic for Winter Season. As specified in Subsection 104.04, the Contractor shall open the roadway for the winter shutdown period from December 1st to April 15th. However, when this work is being done because the Contractor did not complete the work before the Contract Completion Date, any work that is not covered by a pay item in the Contract shall be considered incidental to the original Contract items and shall be performed at no additional cost to the City. This shall include any work required by the City's Transportation Administrator(s) and/or municipal highway or public works officials to aid in the performance of winter maintenance activities. None of the time associated with the performance of this work shall be considered for an extension of time under Subsection 108.11. Furthermore, the Contractor shall not be entitled to any additional compensation for the completion of remaining work that has to be performed under the influence of pedestrian and/or vehicular traffic.
- (e) Compensation for Work on Opened Sections. Except as provided for in this Subsection, notwithstanding any other provision of the Contract Documents, the Contractor shall receive no additional compensation for work on a section of the project that has been opened to traffic as described herein.

107.18 CONTRACTOR'S RESPONSIBILITY FOR WORK.

- (a) General. Until acceptance of the project by the Engineer the Contractor shall be responsible therefore and shall take every precaution against injury or damage to any part thereof by the action of the elements or from any other cause, whether arising from the execution or from the non-execution of the work. The Contractor shall rebuild, repair, restore, and make good all injuries or damages to any portion of the work before acceptance and shall bear the expense thereof except damage to the work due to unforeseeable causes beyond the control of and without the fault or negligence of the Contractor, including but not restricted to acts of God, of a public enemy, or governmental authorities. For purposes of this paragraph the term work shall exclude Contractor owned, rented, or leased materials, equipment, and incidentals.
- (b) Suspension of Work. When work is suspended for any reason, the Contractor shall be responsible for the project and shall take precautions to prevent damage to the project,

provide for normal drainage, and erect any necessary temporary structures, signs, or other facilities solely at the Contractor's expense. During a period of suspension of work, the Contractor shall properly and continuously maintain in an acceptable growing condition all living material in newly established plantings, seedings, and soddings furnished under the Contract and take adequate precautions to protect new tree growth and other important vegetative growth against injury.

- (c) Winter Maintenance. The performance by the State, a subdivision thereof, or other authorized agent of any snowplowing, salting, and/or sanding shall not relieve the Contractor of its responsibility as outlined herein or elsewhere in the Contract.

107.19 NO PERSONAL LIABILITY OF PUBLIC OFFICIALS.

It being understood that in all such matters relative to the Contract that they act solely as agents and representatives of the City, neither the City Engineer, Engineer, or their authorized representatives shall be liable, either personally or as officials of the City, for their actions pursuant to authority granted to them by the Contract.

107.20 NO WAIVER OF LEGAL RIGHTS.

- (a) General. Upon completion of the work, the City will expeditiously make final inspection and notify the Contractor of acceptance. Acceptance of the project, however, will not preclude or prevent the City from correcting any measurement, estimate, or certificate made before or after completion of the work; and the City will not be precluded or prevented from recovering from the Contractor, the Contractor's surety, or both any overpayment it may have made by failure on the part of the Contractor to fulfill the Contractor's obligations under the Contract. A waiver on the part of the City of any breach of any part of the Contract shall not be held to be a waiver of any other or subsequent breach.
- (b) Latent Defects, Fraud, and Gross Mistakes. Without prejudice to the terms of the Contract, the Contractor shall be liable to the City for latent defects, fraud, and such gross errors, omissions, or mistakes as may amount to fraud, and as regards the City's rights under any warranty or guaranty.

107.21 FURNISHING RIGHT-OF-WAY.

It will be the responsibility of the City or appropriate political subdivision to secure all of the permanent rights-of-way, which may be necessary for a construction contract and to make said rights-of-way completely and physically available to the Contractor. Any additional rights-of-way and/or additional rights to use land outside of the right-of-way as shown on the Plans which the Contractor desires for its own convenience shall be obtained and paid for by the Contractor.

107.22 (NOT USED)

107.23 DEFENSE OF LAWSUITS - CHALLENGE TO JURISDICTION AND WAIVER OF IMMUNITY.

When defending any claim that may arise under the Contract, the Contractor shall not raise or impose any defense involving the jurisdiction of the tribunal before which said claim is pending, the immunity of the City, or the provision of any statutes respecting suits against the said City of Burlington without obtaining the express advance permission of the Vermont Attorney General's Office.

107.24 INTEREST.

Notwithstanding any statutory or other provisions to the contrary, interest on monies owed pursuant to the Contract shall be paid as follows:

- (a) Claims for Adjustment or Dispute – Pre-Decision or Judgment. Interest shall be allowed the Contractor on a decision or judgment for money in a claim for adjustment or dispute. Predecision or judgment interest shall be calculated for twenty-one (21) days after the

date the money would have been paid in a biweekly or final estimate, or the date of the claim, whichever is later, but for the failure of the City to make the payment to the date of decision or judgment, at a simple rate equal to the weekly average 1-year constant maturity Treasury yield, as published by the Board of Governors of the Federal Reserve System, for the calendar week preceding the date of the decision or judgment

- (b) Claims for Adjustment or Dispute – Post-Decision or Judgment. Interest shall be allowed the Contractor on a decision or judgment for money in a claim for adjustment or dispute. Postdecision or judgment interest shall be calculated from the date of decision or judgment to the date of payment at a simple rate equal to the weekly average 1-year constant maturity Treasury yield, as published by the Board of Governors of the Federal Reserve System, for the calendar week preceding the date of the decision or judgment.

SECTION 108 - PROSECUTION AND PROGRESS

108.01 SUBLETTING OR ASSIGNMENT OF CONTRACT.

- (a) General. The Contractor shall not sublet, assign, sell, transfer, or otherwise dispose of the Contract or any portion thereof, or of its right, title, or interest therein to any individual, firm, corporation, or other entity without the written consent of the Engineer. When consent is given, the Contractor must file with the City copies of all executed subcontracts and other documents. An approved subcontractor shall not in turn sublet or assign any of the work pertaining to the subcontract without the Contractor obtaining further permission from the City. In no event shall City approval release the Contractor from responsibility and liability under the Contract and bonds.
- (b) Performance of the Contract Work. The Contractor shall perform Contract work with its own organization amounting to at least 50 percent of the total Contract work amount, minus "Specialty Items." The Contractor's own organization includes only workers employed and paid directly by the Contractor and equipment owned, leased, or rented by it from a non-debarred individual or entity, with or without operators. The term "own organization" does not include employees or equipment of a subcontractor, assignee, agent, or supplier of the Contractor. When determining whether the Contractor is in compliance with this 50 percent requirement, the following shall apply:
- (1) The cost of materials and manufactured products to be purchased or produced under the Contract shall be included in the amount upon which the 50 percent requirement is computed.
 - (2) The percentage of subcontracted work shall be based on the Contract, rather than subcontract, unit prices. If only a part of a Contract item is to be sublet, its proportional value shall be determined on the same basis.
 - (3) When a firm sells materials to a Contractor and performs the work of incorporating the materials into the project, these actions must be considered in combination and as constituting a single subcontract.
 - (4) Disqualified subcontractors shall not be permitted to work on any part of the Contract.
- (c) "Specialty" Items. The cost of "Specialty Items" may be deducted from the total Contract price before computing the amount of work required to be performed by the Contractor's own organization. Specialty items will be designated as such in the project Special Provisions and may be performed by subcontract.
- (d) Performance Requirements. The Contractor and its subcontractor(s) shall, in the staffing and administration of the Contract, comply with the following performance requirements:
- (1) Commercially Useful Function. The Contractor and subcontractor(s) must each perform a "commercially useful function." This means that the Contractor/subcontractor is responsible for the execution of a distinct element of

the work of a Contract and carries out its responsibilities by actually performing, managing, and supervising the work involved. The Contractor/subcontractor must have the latitude to independently:

- a. Select contracts to be bid;
- b. Determine prices to be quoted;
- c. Select material suppliers;
- d. Hire, fire, supervise, and pay employees; and
- e. Direct or cause the direction of the management and policies of the firm.

The Contractor/subcontractor may not broker work for another firm or act as a bidding conduit.

(2) Contractor to Furnish Competent Representative; Safety Officer; Others. To ensure that any subcontracted work is performed in accordance with the Contract requirements, the Contractor shall be required to furnish:

- a. A competent, reliable English-speaking representative employed by the Contractor who has full authority to direct performance of the work in accordance with the Contract requirements and who is responsible for all construction operations on the project regardless of who performs the work.
- b. A competent, reliable English-speaking employee designated as the safety officer who is authorized to receive orders and to issue binding directions concerning safety to all persons except City representatives associated with the project, whether employed by the Contractor, subcontractors, or material suppliers.
- c. Such other individual(s) from the Contractor's organization as the City Engineer determines is (are) necessary to ensure the performance of the Contract, e.g., supervisory, managerial and engineering personnel.

(3) Employees on Payroll. The Contractor/subcontractor is not permitted to place on the payroll the employees of another firm for the purpose of avoiding Federal or State regulations or the provisions of the Contract.

108.02 NOTICE TO PROCEED.

The Contractor shall not commence construction operations until Contract bonds have been filed, the Contract Documents have been signed on the part of the City, and the City Engineer has given the Contractor written notice to proceed.

The "Notice to Proceed" will stipulate the date on which the Contractor may begin construction and from which date Contract time will be charged.

108.03 PROSECUTION AND PROGRESS.

(a) CPM Progress Schedule. Within ten (10) calendar days after the award of the Contract, the Contractor shall submit to the Engineer for approval a CPM progress schedule. The CPM progress schedule shall show the proposed sequence of work and when the Contractor proposes to complete the various items of work within the time(s) established in the Contract. During the progress of the work, the Contractor shall confer with the Engineer concerning performance of the work in accordance with the approved schedule. The approved schedule shall be used as a basis for establishing major construction operations and for checking the progress of the work.

(1) Progress Updates. The CPM Progress Schedule shall be adjusted when necessary and reissued for Progress Meetings to account for weather, Owner provided, and other unavoidable work delays as acceptable to the Engineer.

- (b) Performance of the Work. The work shall be performed from as many points, in as many parts, at times, in a manner, and with sufficient materials, equipment, and labor so as to ensure its completion within the time(s) set forth in the Contract.
 - (1) Coordination. Contractor shall provide proper and adequate coordination between work crews, with the Engineer, and with affected Utilities in order to prosecute the work in a timely manner and according to schedule.
- (c) Resumption of Work After Discontinuance With Consent. Should the performance of the work be discontinued by the Contractor for any reason, the Contractor shall notify the Engineer at least 24 hours before resuming operations.
- (d) Preconstruction Meeting. City Engineer will schedule a preconstruction meeting after Notice of Award.
 - a. Attendance: City Engineer, Engineer(s), affected Utilities, Contractor, Project Superintendent, Contractor Quality Control Representative, major subcontractors, and all other appropriate personnel whose Work will be discussed or who will be affected by decisions made.
 - b. Agenda: The agenda may include some or all of the following:
 - 1) Distribution of returned bid documents.
 - 2) Submission of Schedule of Values.
 - 3) Designation and responsibilities of personnel representing the parties in Contract.
 - 4) Procedures and processing of Requests for Interpretation, field decisions, Engineer's Field Orders, Submittals, Substitutions, Applications for Payments, Proposal Requests, Proposed Change Order requests, Construction Change Directives, Change Orders, and contract closeout procedures.
 - 5) CPM Progress Scheduling and scheduling updates.
 - 6) Construction facilities and temporary controls.
 - 7) Notice to Proceed.
 - 8) Environmental and Safety responsibilities and procedures.
 - 9) Funding source requirements.
 - 10) Critical work sequencing and long lead items.
 - 11) Preparation of Record Documents.
 - 12) Use of premises.
 - 13) Office work and storage areas.
 - 14) Working hours.
 - 15) Channels and procedures for communication.
 - 16) Weather delay procedures.
 - 17) Inspection and acceptance procedures.
 - 18) Payment procedures.
 - c. Minutes: The Engineer or his authorized representative will record minutes and distribute copies to participants, and those affected by decisions made.
- (e) Construction Meetings. Construction meetings shall be held weekly with attendance required by the Contractor.

- a. Attendance: Engineer, affected Utilities, Contractor, Project Superintendent, Contractor Quality Control Representative, and all other appropriate personnel whose Work will be discussed or who will be affected by decisions made.
 - b. Minutes: The Engineer or his authorized representative will record minutes and distribute copies to participants, and those affected by decisions made.
- (f) Progress Meetings. Progress meetings shall be held bi-monthly with attendance required by the Contractor.
- a. Attendance: Engineer, affected Utilities, Contractor, Project Superintendent, Contractor Quality Control Representative, and all other appropriate personnel whose Work will be discussed or who will be affected by decisions made.
 - b. Agenda: The agenda may include some or all of the following:
 - 1) Review minutes of the previous progress meeting.
 - 2) Schedule
 - 3) Changes, revisions and clarifications.
 - 4) Review of applications for payment.
 - 5) Pre-installation requirements.
 - c. Minutes: The Engineer or his authorized representative will record minutes and distribute copies to participants, and those affected by decisions made.
- (g) Milestones. Milestone dates and requirements shall be as put forth by the GENERAL and SPECIAL CONDITIONS.

108.04 LIMITATIONS OF OPERATIONS.

- (a) Traffic Interference. The Contractor shall conduct the work at all times in a manner and sequence that will ensure the least interference with traffic. The Contractor shall have due regard to the location of detours and to the provisions for handling traffic. The Contractor shall not commence work to the prejudice or detriment of work previously started. The Engineer may require the Contractor to complete an area on which work is in progress before work is commenced on other area(s) if the opening of the area in progress is essential to public convenience.
- (1) Reclaimed/Open Street: When work on a street has been started, the contractor has **one (1) calendar week** to complete all necessary work and apply the base course asphalt application. Streets shall not be excavated in such a way that they remain open to the elements for long periods of time and where catch basins remain closed.
- (b) Weather/Seasonal Limitations. Refer to SPECIAL CONDITIONS.

108.05 CHARACTER OF WORKERS, METHODS AND EQUIPMENT.

- (a) General. The Contractor shall at all times employ sufficient labor and equipment to perform the several classes of work to full completion in the manner(s) and time(s) required by the Contract Documents.
- (1) Contractor shall secure and own a reclamation or reclaimer machine for prosecution of the work.
- (b) Workers' Skill and Experience. All workers shall have sufficient skill and experience to properly perform the work assigned to them. Workers engaged in specialty or skilled work shall have sufficient skill, experience and experience with equipment required to perform such work properly and satisfactorily.
- (c) Electrical Work. All electrical work shall be performed by or under the supervision of a licensed electrician (master or journeyman). Electrical work shall be defined as any work

which involves making connections to electrical components or splices in wiring that are, or will be, carrying 100 V or more. "Under the supervision of" means that the licensed electrician employed on the project shall be physically present on the project and must be actively supervising the work.

- (d) Removal of Workers from Project. Any person employed by the Contractor or a subcontractor who in the opinion of the Engineer does not perform work in a proper and skillful manner or is intemperate or disorderly shall, at the written order of the Engineer, be removed forthwith by the Contractor or subcontractor employing such person and shall not be employed again in any portion of the work without the approval of the Engineer.
- (e) Failure to Remove Worker from Project. If the Contractor fails to remove a person or persons as required above, or fails to furnish suitable and sufficient personnel for the proper prosecution of the work, the Engineer may withhold all estimates which are or may become due and/or may suspend the work by written notice until the Contractor complies with the order.
- (f) Equipment Sufficiency. All equipment used to perform the work shall be of sufficient size and mechanical condition to meet requirements of the work and to produce work of satisfactory quality. Equipment used on the project shall not cause injury to the roadway, adjacent property, or other highways.
- (g) Methods and Equipment Not Prescribed. When the methods and equipment to be used by the Contractor are not prescribed in the Contract, the Contractor is free to use any methods or equipment that it demonstrates to the satisfaction of the Engineer will accomplish the work in conformity with the requirements of the Contract, and provided they pose no safety risk to the workers, inspection staff, traveling public, or general public.
- (h) Methods and Equipment Prescribed. When the Contract specifies that the work be performed by the use of certain methods and equipment, those methods and equipment shall be used unless otherwise authorized by the Engineer. If the Contractor desires to use a method or type of equipment other than those specified in the Contract, the Contractor shall request authorization from the Engineer to do so. The request shall be in writing and shall include a full description of the methods and equipment proposed to be used and an explanation of the reasons for desiring to make the change. If approval is given, it will be on the condition that the Contractor will be fully responsible for producing work in conformity with Contract requirements. If, after trial use of the substituted methods or equipment, the Engineer determines that the work produced does not meet Contract requirements, the Contractor shall discontinue the use of the substitute method or equipment and shall complete the remaining work with the specified methods and equipment. The Contractor shall remove the deficient work and replace it with work of specified quality or take such other corrective action as the Engineer may direct. No change will be made in basis of payment for the construction items involved or in Contract time as a result of authorizing a change in methods or equipment.
- (i) Removal of Machinery and Equipment. The Contractor shall not remove from the project any item of machinery or equipment after it has been placed on the project without the prior consent of the Engineer, which consent shall not be unreasonably withheld. Reasonableness shall be tested by the needs of the project and not by the needs of any other project in which the Contractor may be engaged.

108.06 WAGES AND CONDITIONS OF EMPLOYMENT.

- (a) General. The Contractor and all subcontractors shall comply with the provisions and requirements of all City and State labor laws and with the wage requirements set forth in detail in the Contract. In case of conflicts between wage determinations made by the US Department of Labor and the minimum wage established by statute, the larger of the two amounts shall be the minimum wage for that classification.

- (1) City Livable Wages Ordinance.
- (2) Davis-Bacon Act. Where the Contract includes Davis – Bacon wage rate requirements, the following also applies.
 - a. General. The wage rate determination of the US Secretary of Labor, which has been incorporated in the proposal, may not contain all job classifications necessary for the work contemplated under the project. The Contractor is independently responsible for ascertaining area practice with respect to the necessity, or lack thereof, for the use of any job classifications in the prosecution of the work contemplated by the project; no inference concerning prevailing area practices relative to their use may be drawn from the omission of these job classifications. Further, the omission of a job classification shall not be construed as establishing governmental liability for increased labor cost.
 - b. Missing Job Classification(s)/Wage Rate(s). The Contractor shall submit to the City any requests for missing job classifications and proposed wage rates.
 - c. Vermont Labor Laws. The Contractor's attention is directed to the provisions and requirements of the Vermont Workers Compensation Act and to Vermont statutes regulating employment of minors.

108.07 LABOR AND RENTAL PREFERENCE.

In accordance with Vermont Statutes Annotated, Title 19 Section 17, the Contractor shall give preference to Vermont labor and trucks owned in Vermont. This requirement shall not apply to any highway project, or any part thereof, financed with Federal funds.

108.08 MEETING PERSONNEL REQUIREMENTS.

Contractors are encouraged to use the services of the local offices of the State Department of Employment and Training to meet their personnel requirements. Recruitment of workers in all occupations and skills is conducted by the State Employment and Training Services, initially from the immediate labor market areas, and when workers with the required skills are not available locally, through the nationwide workforce clearance system of the US Employment Service.

108.09 TEMPORARY SUSPENSION OF THE WORK.

- (a) General. The work may be suspended by the Engineer, wholly or in part, for such period or periods as necessary on account of:
 - (1) Unsuitable weather conditions.
 - (2) Failure on the part of the Contractor to carry out instruction or an order given, to perform satisfactory work, or to perform one or more provisions of the Contract.
 - (3) Any other conditions which, in the judgment of the Engineer, make work impractical, dangerous, harmful to the environment, or in violation of a permit or other authorization for the project.
- (b) Authority of City Safety Officer. In the absence of the Engineer, the City Safety Officer, or person acting in that role, shall have authority to suspend work when s/he determines that the suspension of work is warranted for a safety violation on the job site. The period of time work is suspended due to a serious safety violation will not be justification for an extension of time under Subsection 108.11 or for additional compensation.
- (c) Authority of City Hazardous Materials and Waste Coordinator. In the absence of the Engineer, the City Hazardous Materials and Waste Coordinator, or person acting in that role, shall have authority to suspend work when s/he determines that the suspension of work is warranted for an environmental violation on the job site. The period of time work

is suspended due to a serious environmental violation will not be justification for an extension of time under Subsection 108.11 or for additional compensation.

- (d) Seasonal Closure. From December 1st to April 15th, exclusive, no construction work of any kind shall be done except by written permission of the Engineer, and only under such conditions as specified therein.
- (e) Seasonal Closure Procedure. Construction procedure prior to closing down the project for seasonal closure shall be as specified in Subsection 104.04.
- (f) Contractor Suspension of Work. The Contractor shall not suspend the work without permission of the Engineer. Such permission will not be unreasonably withheld.
- (g) Contract Applicable. If the work is suspended for any reason, all appropriate requirements of the Contract shall continue.

108.10 SUSPENSIONS OF WORK ORDERED BY THE ENGINEER.

- (a) Additional Compensation/Time Request; Time Limit. If the performance of all or any portion of the work is suspended or delayed by the Engineer for an unreasonable period of time not originally anticipated, customary, or inherent to the construction industry, and the Contractor believes that additional compensation and/or Contract time is due as a result of the suspension or delay, the Contractor shall submit to the Engineer in writing a request for adjustment within seven (7) calendar days of receipt of the notice to resume work, and not thereafter. The request shall set forth the reasons and support for the adjustment requested. No Contract adjustment will be allowed unless the Contractor has submitted the request for adjustment within the time prescribed.
- (b) Evaluation of Request. Upon receipt, the Engineer will evaluate the Contractor's request. If the Engineer agrees that the cost and/or time required for the performance of the Contract has increased as a result of the suspension/delay and the suspension/delay was caused by conditions beyond the control of and not the fault of the Contractor, its suppliers, or subcontractors at any approved tier, and not caused by weather, the Engineer will make an adjustment (excluding profit) and modify the Contract accordingly. The Engineer will notify the Contractor whether or not an adjustment of the Contract is warranted. To the extent that performance would have been suspended or delayed by any other cause or an adjustment is provided for or excluded under some other term or condition of the Contract, no Contract adjustment will be allowed under this Subsection.

108.11 DETERMINATION OF EXTENSION OF CONTRACT TIME FOR COMPLETION.

- (a) General; Request for Extension of Contract Completion Date. When a definite date for completion or a fixed number of days is specified in the proposal and Contract, and when the Contractor finds it impossible to substantially complete the work within the Contract time specified due to unforeseen conditions beyond the control and without fault or negligence of the Contractor, the Contractor may submit the appropriate extension of time forms. The Contractor will be supplied these forms within 90 calendar days of the Acceptance Date. The forms shall be completed and returned to the Engineer within 60 calendar days of the date of the letter accompanying the forms. Failure to respond within 60 calendar days shall constitute a waiver to apply for an extension of time, and the Contractor will be assessed liquidated damages as prescribed in the Contract Documents. Upon written order by the Engineer establishing a Substantial Completion Date prior to the Contract Completion Date, no request for an extension of time by the Contractor will be necessary.
- (b) Determination of Contract Completion Date Extension. Whenever the work is delayed or suspended through no fault of the Contractor, a completion date extension will be determined upon consideration of the following:
 - (1) The days from April 15th to December 1st, inclusive, on which the weather or condition of the ground caused suspension of the work.

- (2) Delay by the City in awarding the Contract and/or in issuance of the Notice to Proceed.
 - (3) Federal or State laws passed subsequent to the date of the Contract adversely affecting progress of the work.
 - (4) Acts of God.
 - (5) If major items of work are suspended by order of the Engineer, the time for completion will be extended an amount equal to the elapsed time between effective dates of order to suspend and order to resume.
 - (6) If satisfactory completion of the Contract with any authorized extension and increases requires the performance of work in greater quantities than those set forth in the proposal, the Contract time allowed for performance of the work will be increased in the same ratio that the total cost of the work actually performed bears to the total cost in the proposal. However, when additional time is added to the Contract by Change Order, the number of days added will be deducted from the number of days calculated in the method above. Also, if more days are added by Change Order than would have been by the previously mentioned method, the Contractor will not have the excess days deducted. In the event that a Change Order adds work to the Contract, but is silent as to any additional time, the Contractor will be granted additional time as described above. Additional time may be allowed for unusual circumstances when cost alone is not a determining factor in time required to perform the additional work. Any change in the final Contract time shall be computed to the nearest full day.
 - (7) Delay caused by a shortage of materials, but only when the Contractor furnishes to the Engineer documentary proof that a diligent effort has been made to obtain the materials from all known sources and the inability to obtain the materials when originally planned did in fact cause a delay in final completion of the entire work, and the delay could not be avoided by revising the sequence of the Contractor's operations. The Contractor shall notify the Engineer in writing of the causes of delay caused by material shortages no later than 15 calendar days from the beginning of any such delay and not thereafter.
 - (8) Any other conditions which in the opinion of the City Engineer warrants consideration for an extension of time.
- (c) Failure to Perform Adequately. Failure to perform the work continuously and effectively with adequate work force and as scheduled for the full time allowed will be cause for denial of a time extension that might otherwise be allowed.

108.12 FAILURE TO COMPLETE WORK ON TIME.

- (a) Time Essential Element. Time is an essential element of the Contract. The Contractor shall plan its progress schedule and vigorously press the progress of the work in order to complete the Contract on or before the Contract completion date set forth in the Contract.
- (b) Manner, Sequence, or Schedule Required. Whenever the Special Provisions of the Contract call for any portion or portions of the work to be performed in any particular manner or for any portion or portions of the work to be completed pursuant to a certain sequence or schedule prior to the date of completion of the entire Contract, the Contractor shall punctually comply with the related instructions, dates, and periods of time.
- (c) Liquidated Damages. Refer to GENERAL and SPECIAL CONDITIONS.
- (d) No Waiver. Permitting the Contractor to continue to finish the work or any part of the work after the time fixed for its completion or after the date to which the time for completion may have been extended shall not operate as a waiver on the part of the City of any of its rights under the Contract.

- (e) Liability for Liquidated Damages. The Contractor covenants and agrees that should the amount of monies due or that may become due the Contractor be less than the amount of ascertained liquidated damages, the Contractor and the Contractor's surety shall be liable to the City for the deficiency.
- (f) Liquidated Damages Cutoff Date. No liquidated damages will be charged after the establishment of a Substantial Completion Date.

108.13 TERMINATION OF CONTRACT.

- (a) General; Notice. Upon written notice from the Engineer or other proof satisfactory to the Secretary, the Secretary will give notice in writing to the Contractor and the Contractor's surety of delay, neglect, or default if the Contractor:
 - (1) fails to begin the work under the Contract within the time specified in the "Notice to Proceed;"
 - (2) in the opinion of the Engineer, fails to perform the work with sufficient workers and equipment or with sufficient materials to ensure the prompt completion of said work;
 - (3) in the opinion of the Engineer, performs the work unsuitably or neglects or refuses to remove materials or to redo or replace work rejected as defective and unsuitable;
 - (4) discontinues the prosecution of the work without authorization of the Engineer;
 - (5) fails to resume work that has been discontinued within a reasonable time after notice to do so;
 - (6) becomes insolvent, is declared bankrupt, or commits any act of bankruptcy or insolvency;
 - (7) allows any final judgment to stand against the Contractor unsatisfied for a period of ten (10) calendar days;
 - (8) makes an assignment for the benefit of creditors; or
 - (9) in the opinion of the Engineer, fails, for any cause whatsoever, to carry on the work in an acceptable and timely manner.
- (b) Failure of Contractor to Proceed; Termination. If the Contractor or the Contractor's surety does not proceed in accordance with the notice within a period of ten (10) calendar days after notice, the City may, without violating the Contract, terminate the Contract by taking performance of the work out of the hands of the Contractor. The City may appropriate and use any or all materials and equipment on the project as are suitable and acceptable and may enter into an agreement for the completion of the Contract, according to the terms and provisions thereof or use such other methods as, in the discretion of the Engineer, will be required for the completion of the Contract in an acceptable manner and in the best interest of the City.
- (c) City's Costs. All costs and charges incurred by the City, together with the costs of completing the work under contract, shall be deducted from any monies due or which may become due the Contractor. If the expense incurred by the City is less than the sum which would have been payable under the Contract had it been completed by the Contractor, the Contractor shall be entitled to receive the difference; if the expense exceeds the sum which would have been payable under the Contract, the Contractor and the Contractor's surety shall be liable and shall pay to the City the amount of the excess.

108.14 TERMINATION OF CONTRACT FOR CONVENIENCE.

- (a) General. The City may, by written order to the Contractor, terminate the Contract or any portion thereof when such termination would be in the best interest of the City. In the event such termination occurs, without fault and for reasons beyond the control of the

Contractor, all completed items of work as of the date of termination will be paid for at the Contract bid price. Payment for partially completed work will be made either at agreed prices or by Work Change Directive methods provided elsewhere in the Contract. Items that are eliminated in their entirety by such termination shall be paid for as provided in Subsection 109.07. The Contractor shall make all Contract-related records available to the City upon request.

- (b) Materials. Acceptable materials obtained by the Contractor for the work but which have not been incorporated into the work may, at the option of the City, be purchased from the Contractor at actual cost delivered to a location prescribed by the Engineer or otherwise disposed of as mutually agreed.
- (c) Claim by Contractor. After receipt of Notice of Termination from the City, the Contractor shall submit any claim for additional damages or costs not covered above or elsewhere in the Contract within 60 days of the effective termination date, and not thereafter.
- (d) Negotiation; No Anticipated Profit. The intent of negotiations is to reach a settlement equitable to both the Contractor and the City. In no event, however, will loss of anticipated profits be considered as part of any settlement.
- (e) Records. The Contractor agrees to make all cost records available to the City to the extent necessary to determine the validity and amount of each item claimed.
- (f) Contractual Responsibilities Continue. Termination of the Contract, or portion thereof, shall not relieve the Contractor of its contractual responsibilities for the completed work and shall not relieve the Contractor's Surety of its obligation for and concerning any just claim arising out of the work performed.

108.15 TERMINATION OF CONTRACTOR'S RESPONSIBILITY.

- (a) General. Whenever the project(s) provided for by the Contract has (have) been completely performed by the Contractor, all parts of the work have been approved and accepted by the Engineer, and all Contract Documents complied with, the Contractor will then be released from further obligations except as set forth in the bonds provided.
- (b) Completion at Separate Location(s). If the Contract includes work at more than one location as separate projects or as separate locations on a single project, the City may accept the work at any location when the work at that location is completely finished and all responsible parties agree to acceptance in the same manner as a normal final inspection. If a portion of the Contract is accepted by the Engineer, and all Contract Documents related thereto are complied with, the Contractor shall remove all construction warning signs from that portion and the Contractor will then be released from further obligations as to that portion except as set forth in the bonds provided.
- (c) Limited Acceptance. If substantial completion of the work is accomplished, but additional work is required to achieve final acceptance, the City may accept the work under the contract with exceptions and/or reservations.

SECTION 109 - MEASUREMENT AND PAYMENT

109.01 MEASUREMENT OF QUANTITIES.

- (a) General. All work completed under the Contract will be measured by the Engineer according to U.S. Customary units, as required by the Contract Documents.

The measurement and determination of the number of units of each pay item will be made as specified in this Section and as are specifically described under the "Method of Measurement" and "Basis of Payment" subsections for each item.
- (b) Area. Unless otherwise specified in the Contract area computations will be made horizontally, and no deductions will be made for individual fixtures having an area of 10

square feet or less; measurements for area computations will be the neat dimensions shown on the Plans or authorized in writing by the Engineer.

- (c) Structures. Structures will be measured according to neat lines shown on the Plans or as altered to fit field conditions in accordance with the method of measurement stated in the Contract.
- (d) Volumes. Volumes of excavation and borrow pits will be calculated from cross-sections and the use of average end area formulae or by another approved method. Volumes of other work, e.g. Cement Masonry or Removal of Concrete or Masonry, will be calculated by using arithmetical formulae. Where the volume is bounded by varying dimensions and there is no simple volumetric formula applicable, frequent crosssections will be taken and the volume computed from average end area formulae. Other methods of measurement for small quantities may be authorized when approved in writing by the Engineer.
- (e) Length Measurement. All items measured by the linear foot will be measured parallel to the base or foundation upon which the item is placed, unless otherwise shown on the Plans.
- (f) Ton. The term "ton" means the English short ton consisting of 2000 pounds. All materials that are measured, or proportioned by weight, shall be done so on accurate, approved scales by competent, qualified personnel.
- (g) Bituminous Materials Measurements.
 - (1) General. Bituminous materials will be measured by the gallon or hundredweight (CWT). Volumes of bituminous materials will be measured at 60° F or will be corrected to the volume at 60° F using ASTM D1250 for asphalt or ASTM D633 for tar.
 - (2) Shipping of Bituminous Materials; Correction. When liquid bituminous materials are shipped by truck or transport, net certified weight or volume subject to correction for loss or foaming may be used for computing quantities.
- (h) Cement. Cement will be measured by the hundredweight (CWT).
- (i) Timber. Timber will be measured by the thousand feet board measure (MFBM) actually incorporated in the work. Measurement will be based on nominal widths and thicknesses and the in place length of each piece.
- (j) Lump Sum.
 - (1) General. The term "lump sum" when used as a unit of measurement for an item of payment means complete payment for the work described in the item description.
 - (2) Everything Included. When a complete structure or structural unit (in effect, "lump sum" work) is specified as the unit of measurement, the unit will be construed to include all labor, tools, equipment, material, necessary fittings, accessories and incidentals necessary to complete the work.
- (k) Rental. Rental of equipment will be measured by time in hours of actual work time and the necessary travel time of the equipment within the limits of the project.
- (l) Final Bridge Quantities. In order to save engineering resources and expedite payment of the final estimate, the City will pay for the original plan quantities, exclusive of estimated overrun allowances, for all bridge quantities if the City and the Contractor agree to the acceptance of the plan quantities by the time the final survey is made. However, if either the Contractor or the State challenges the quantities, final quantities will be computed in accordance with the Contract. When one or more changes in design generate changes in quantities, final quantities shall be based on final measurements.
- (m) Where the conversion of SI to U.S. Customary quantity measurements is required, the following conversion factors shall apply:

<u>From SI to U.S. Customary Unit</u>	<u>Multiply SI Unit by</u>
meter to foot	3.281
kilometer to mile	0.6214
square meter to square foot	10.76
cubic meter to cubic foot	35.31
square meter to square yard	1.196
cubic meter to cubic yard	1.308
hectare to acre	2.471
kilograms to CWT	0.0220
liters to gallons	0.2642
cubic meter to MGAL	0.2642
cubic meter to MFBM	0.4238
metric ton to ton	1.102

109.02 PURCHASES OF MATERIALS BASED UPON CITY MEASUREMENTS.

- (a) Estimates Are Not Guarantees. The City does not furnish or guarantee estimates of measurements of borrow, gravel, sands, soils, fill, and other construction materials to be used on the project for the benefit and/or convenience of the Contractor either in dealings with sellers of those materials or any other purpose.
- (b) Purchase of Materials. Except by written agreement, with a copy of the agreement furnished to the City prior to removal of materials for the project, the Contractor shall not purchase materials on terms that require payment on the basis of the estimates of measurement made by the City.

109.03 SCOPE OF PAYMENT.

- (a) General. The Contractor shall receive and accept the compensation provided in the Contract as full payment:
 - (1) For furnishing all materials, labor, tools, and equipment and performing all work contemplated and required under the Contract;
 - (2) For all loss or damage arising out of the work from the actions of the elements, or from any unforeseen difficulties or obstructions which may arise or be encountered during the prosecution of the work until its acceptance by the City.
 - (3) For all risks of every description connected with the prosecution of the work; and
 - (4) For all expenses incurred by or in consequence of the temporary suspension or discontinuance of the work for any infringement of patent, trademark, or copyright, and for completing the work in an acceptable manner according to the Contract Documents.
- (b) Payment of Estimates; Obligations of Contractor. The payment of any current or final estimate shall not prejudice or affect the obligation of the Contractor under the Contract, at its own cost and expense, to repair, correct, renew, or replace any defects or imperfections in the project and its appurtenances or the strength of or quality of materials used on the project; payment of an estimate, including a final estimate, shall not relieve the Contractor from the payment of any and all damages due or attributed to defects or imperfections.

- (c) Damage Claims and Liabilities; Payment by City. Relative to damage, labor and materials, and other claims against the Contractor or project, no monies payable under the Contract or any part thereof shall become due and payable if the City so elects until the Contractor satisfies the City that the Contractor has fully settled or paid all damage, labor, or materials claims and all liabilities incurred in connection with the work; if it so elects, the City may pay any or all claims or liabilities wholly or in part and deduct the amount or amounts so paid from any biweekly or final estimate(s).
- (d) Written Evidence of Releases. If it so elects, the City may require the Contractor to furnish written evidence of release from all claims and obligations connected with the work.

109.04 SIGNIFICANT CHANGES IN THE CHARACTER OF WORK.

- (a) General. At any time during work the Engineer reserves the right to make, in writing, changes in quantities and alterations in the work as are deemed necessary or desirable to satisfactorily complete the project. Changes in quantities and alterations in the work will not invalidate the Contract or release the Contractor's surety, and the Contractor shall perform the work as altered.
- (b) Significant Alteration/Change to Character of Work; Adjustment to Contract. If the alterations or changes in quantities significantly change the character of the work under the Contract, whether or not changed by different quantities or alterations, a monetary adjustment will be made to the Contract; loss of anticipated profits shall not be included. The basis for the adjustment shall be agreed upon prior to the performance of the work. If a basis cannot be agreed upon, an adjustment will be made as the Engineer determines to be fair and equitable.
- (c) Alterations/Changes Not Significant. If the alterations or changes in quantities do not significantly change the character of the work to be performed under the Contract, the altered work will be paid for as provided elsewhere in the Contract.
- (d) Significant Change Defined. The term "significant change" shall be construed to apply only to the following circumstances:
 - (1) When the character of the work as altered differs materially in kind or nature from that involved or included in the original proposed construction; or
 - (2) When a major item of work, as defined, is increased in excess of 25 percent above or decreased below 75 percent of the original Contract quantity. Any allowance for an increase in quantity shall apply only to that portion in excess of 125 percent of the original Contract item quantity; any allowance for a decrease in quantity below 75 percent shall apply to the actual amount of work performed.
- (e) Major Item Defined. A major item of work is any bid item that has a total bid value greater than 20 percent of the total bid amount of the Contract.

109.05 COMPENSATION FOR ALTERED PLANS OR QUANTITIES.

- (a) General. When alterations in the Plans or quantities of work are ordered and performed as provided in Subsection 104.02 and when such changes or alterations result in an increase or decrease of not more than 25 percent of the total original Contract amount, or the length of the project is not increased or decreased more than 25 percent of the original length shown in the Contract, the Contractor shall accept payment in full at the Contract unit price for the actual quantities of work done.
- (b) Adjustment When Exceeded. When changes or alterations result in a sum total change of more than 25 percent of the total cost of the Contract calculated from the original bid quantities and the original Contract unit prices, or a length increased or decreased more than 25 percent, and a demand is made by the Contractor or the City, a negotiated Change Order shall be signed by both parties setting forth the necessity for the change and an adjustment of unit prices agreed upon as satisfactory to both parties.

- (c) No Further Allowance. No further payments will be made for changes/alterations, including no further allowances for any increased expense, loss of expected reimbursement, or loss of anticipated profits suffered or claimed by the Contractor resulting directly from the changes/alterations or indirectly from unbalanced allocation of overhead expense among the Contract items by the Contractor and subsequent loss of expected reimbursements therefore or from any other cause.

109.06 EXTRA AND WORK CHANGE DIRECTIVE WORK.

Extra work ordered and accepted as specified in Subsection 104.03 will be paid for on a unit price or lump sum basis under a Change Order. The agreement will be made before the work is started. When the Engineer deems it impractical to handle any Extra Work ordered on a unit price or lump sum basis, a Change Order will be made and the work will be ordered done and paid for on a Work Change Directive basis as follows:

Any additional costs for Public Liability Insurance and Property Damage Insurance that are required in the Contract will be allowed and reimbursed at the actual cost to the Contractor.

- (a) Labor. For all machine or equipment operators, other workers, and supervisors in direct charge of the specific operation, the Contractor shall receive the actual wages agreed upon before beginning the work and were paid to the workers performing the work, to which shall be added an amount equal to 10 percent for profit. If the Contractor elects to use employee(s) more skilled than required to perform the extra work, the City reserves the right to allow compensation for said employee(s) to be capped at 125% of the applicable Davis-Bacon wage rate of the base skill level required to perform the work.

Workers Compensation Insurance, Unemployment Compensation Insurance, and Social Security charges on labor items as paid by the Contractor will be allowed. Other employee insurances (health, disability, e.g.) being paid by the Contractor just prior to the work being ordered will also be allowed, provided the Contractor submits an applicable notarized insurance rate schedule from its insurance agent. The Contractor shall submit an City form indicating all applicable insurances and overhead items for each employee involved in the extra work.

The Contractor will be allowed an additional 10% of the actual wages as compensation for administration charges and any other additional costs. Additional cost or charge for the Superintendent shall not be allowed.

- (b) Materials. The Contractor shall receive the actual cost including freight charges (both as submitted on original receipted bills) for all materials furnished and used. Ten percent shall be added thereto for overhead, profit and any other costs incurred in supplying the materials. Vermont sales tax shall not be included.
- (c) Equipment. The Contractor will be reimbursed as described below. Equipment used shall be specifically described by year, manufacturer, model number, and any other information required to identify the appropriate hourly rate in the Rental Rate Blue Book published by Equipment Watch ("Blue Book"). In the event the Contractor elects to use equipment of a higher rental value than equipment suitable for the work, payment will be made at the rate applicable to suitable equipment.

(1) Contractor Owned Equipment.

- a. Ownership Costs. The Contractor will be reimbursed for its ownership costs for self-owned equipment at the rates agreed to before the work begins. These rates shall be on an hourly basis and shall not exceed the monthly ownership rates listed in the current Blue Book divided by 176. The rates will be adjusted for depreciation as computed and published in the Blue Book rate adjustment tables, but will not be adjusted as recommended on the Blue Book regional adjustment maps. The rates for ownership costs will be total reimbursement to the Contractor for all non-operating costs of the equipment, including depreciation, insurance,

taxes, interest, storage, overhead, repairs, and profit. The maximum duration for reimbursement in a day shall not exceed eight (8) hours unless the equipment actually is operated for more than eight (8) hours on a particular day, in which case the rate shall be paid for all hours the equipment actually worked on that day.

- b. Operating Costs. The rates for operating costs include fuel, lubricants, other operating expendables, and preventative and field maintenance. The Contractor will be reimbursed the amount derived as the product of the number of hours of actual use multiplied by the Blue Book estimated operating cost per hour. Operating costs do not apply to equipment idle time. Operating costs do not include the operators' wages.

Except as otherwise provided, the rates to be used for computation shall be those in effect at the time the Work Change Directive work is performed as reflected in the applicable publication of the Blue Book.

- c. In the event that an ownership cost rate and/or an operating cost rate is not established in the Blue Book for a particular piece of equipment, the Engineer shall establish a rate(s) for that piece of equipment consistent with its costs and expected life. The Contractor shall make no charge for small tools that are considered as having a replacement value of less than \$500.

- (2) Rented Equipment. In the event the Contractor does not own a specific type of equipment and must rent, the Contractor will be reimbursed the actual cost for the equipment, as submitted by invoice, for the time that the equipment is used to accomplish the work. Vermont sales tax shall not be included.

The City reserves the right to limit the hourly rate to the maximum amount allowed by Blue Book in the event that the prime contractor is a subsidiary of, or has a close affiliation to, the firm supplying the rented equipment.

- (3) Maximum Amount Payable. The maximum amount of reimbursement for the ownership cost of Contractor owned equipment or the rental cost of rented equipment is limited to the original purchase price of the equipment.
- (4) Equipment Downtime. No rental cost or operating cost will be paid for downtime for either rented equipment or Contractor owned equipment.
- (5) Transportation Costs. The Contractor will be paid for the reasonable documented cost of transporting both Contractor owned and rented equipment to the work location and back to its original location or a new location if the cost is less.

- (d) Subcontracted Work: The Contractor shall receive the actual cost, as submitted on original receipted bills, for all extra and Work Change Directive work subcontracted to others. Ten (10) percent shall be added thereto for overhead, profit and any other costs incurred to perform the subcontracted work. However, the City reserves the right to use the Work Change Directive procedures as depicted previously in this subsection in the event that the cost of reimbursable subcontracted work is deemed excessive.

The compensation as herein provided shall be received by the Contractor as payment in full for Extra Work done on a Work Change Directive basis. The Contractor's representative and the Engineer shall compare records of Extra Work on a Work Change Directive basis at the end of each day. Copies of these records shall be made on City forms provided for this purpose and shall be signed by both the Engineer and Contractor's representative. All requests for compensation for Extra Work done on a Work Change Directive basis, including original receipted bills to verify cost and freight charges for all materials, shall be submitted to the City as soon as possible; however, if the required request, invoices, and other documentation are not filed before 90 days have lapsed following final acceptance of the project, the costs associated with such Extra and Work Change Directive work shall not be reimbursable.

109.07 ELIMINATED ITEMS.

Should any item(s) contained in the Contract be found unnecessary for proper completion of the work, the Engineer may, upon written order to the Contractor, eliminate the item(s) from the Contract; such action shall have no effect on the other provisions of the Contract and shall in no way invalidate the Contract. No compensation will be allowed for items eliminated from the Contract

109.08 PARTIAL AND FINAL PAYMENTS.

- (a) General. Partial payments, computed upon the basis set forth in the Contract, will be made by the Engineer. On or before the Saturday of each alternate week during satisfactory progress of the work, the Engineer will make a biweekly estimate of the amount of work performed and will compute and report the value thereof under the Contract. Such estimates may be approximate only and not be based on actual measurements. All biweekly and partial estimates will be paid in full except as set forth below, and no payment will be made when the total value of the work done since the last estimate amounts to less than \$500.
- (b) Tax Compliance. If the Contractor is found to not be in good standing with respect to, or in full compliance with a plan to pay, any and all taxes due the State as required in Title 32 VSA Section 3113, money otherwise owed to the Contractor will be withheld from one or more biweekly estimates and the final estimate.
- (c) Claims and Withholdings. For the protection of the City, creditors and, other claimants of the Contractor, payment for all or part of one or more biweekly estimates and/or the final payment as determined by the final estimate may be held for the use of the City, if the City so elects, until the Contractor has fully settled for or paid for all materials and equipment used in or upon the work and labor done in connection therewith and fully settled for or paid for all damage claims or liabilities incurred in connection with said work. Upon satisfactory settlement of all such accounts, the final estimate will be paid to the Contractor.
- (d) Final Payments. Payment of the final estimate will be made when an agreement is reached on the final quantities of all project pay items, when the final acceptance date as defined in Subsection 101.02 is established and when all other project requirements have been met. If the Contractor does not accept the quantities determined by the City, the Contractor may appeal to the City Engineer, as provided in Subsection 105.20. Notwithstanding Subsections 105.02 and 105.20, failure to complete required documentation within six (6) months from the time the Contractor is presented with the City's final quantities or to appeal to the City Engineer as provided in Subsection 105.20 will be deemed a waiver of the Contractor's right to appeal. The Contractor will then be presented with the final estimate for signing. Failure of the Contractor to sign the final estimate within 20 days will result in payment of the amount owed without the Contractor's signature and the Contract will be closed.
- (e) Retainage. The City shall not withhold retainage on the Contract; the Contractor shall not withhold retainage on any subcontract; and subcontractors shall not withhold any retainage on any of their subcontracts.

109.10 APPLICATIONS FOR PAYMENT

- (a) General. Each Application for Payment shall be consistent with previous applications and payments as certified by the City Engineer and paid for by the City.
- (b) Payment Application Times. At milestone dates coordinated with the completion of defined work segments to be set in conjunction with the City Engineer.
 - (1) 20% Completion by July 1, 2012
 - (2) 65% Completion by August 1, 2012

- (3) 100% Completion by August 31, 2012
- (c) Payment Application Forms. Use AIA Document G702 and Continuation Sheets G703 as the form for the application.
- (d) Application Preparation. Complete every entry, including notarization and execution by person authorized to sign on behalf of the City. Incomplete applications will be returned without action.
 - (1) Entries shall match data on the Schedule of Values and Contractor's Construction Schedule. Use updated schedules if revisions have been made.
 - (2) Include amounts of Change Orders and Construction Change Directives issued prior to the last day of the period covered by the application.
- (e) Transmittal. Submit two (2) executed copies of each application to the City Engineer; one (1) copy shall be complete, including waivers of lien and similar attachments.
 - (1) Transmit each copy with a transmittal listing attachments, and recording information related to the application.

END OF DIVISION 100

SECTION 210

COLD PLANING

210.01 DESCRIPTION

This work shall consist of the removal, and the satisfactory disposal and clean up of pavements by cold planing, in accordance with these specifications and as directed by the Engineer.

Contract Plans, Appendices, and General and Special Conditions, DIVISION 100 General Provisions, and other Technical Specification Sections, apply to this Section.

210.02 EQUIPMENT

The equipment shall consist of a power operated planing machine or grinder capable of accurately establishing profile grades by referencing from both the existing pavement and from an independent grade control. The equipment shall have a positive means for controlling cross slope elevations. The planer is to have sufficient weight to perform all types of planing without lifting. Sufficient and positive down pressure is to be provided on the drum assembly at all times when planing. The cutting head shall be maintained so that the depth of cut is within a tolerance of 1/8 inch throughout the width of the head. The equipment shall also have an effective means of preventing dust from escaping into the air.

210.03 GENERAL CONSTRUCTION REQUIREMENTS

The bituminous surface shall be removed to the depth, width, grade, and typical cross section as shown on the plans or as directed by the Engineer. No variation from the typical cross section of more than 1/8 inch will be allowed. Any bituminous surfaces adjacent to objects such as scuppers, expansion joints, drop inlets and curbs which are inaccessible to the cold planer shall be removed by means of other approved equipment.

Unless otherwise specified, the planed material will become the property of the Contractor and will be removed from the project. All dust and other remaining material shall be immediately removed with a power vacuum sweeper to the satisfaction of the Engineer. The resulting surface on bridges shall be left in a condition to receive tar emulsion or, if indicated on the plans, a membrane, or as ordered by the Engineer. The Contractor shall exercise reasonable care to ensure no damage occurs to the Portland cement concrete deck when removing pavement from bridges.

When traffic shall be maintained for any period of time on a cold planed area, the following conditions apply:

- (a) All planed and sawed cross roadway butt joints of 3/4 inch depth or greater shall have a temporary wedge of bituminous concrete pavement installed as directed by the Engineer.
- (b) The Contractor shall repave any cold planed areas within 28 calendar days of planing or when directed by the Engineer, provided that any cold planed area that is not repaved the same day as it is cold planed has proper and adequate tapers installed before the end of the working day in which the cold planing is performed. Should the area remain unpaved for a period of more than 28 calendar days without the approval of the Engineer, no payment whatsoever will be made for the cold planing. If the Contractor lays down temporary pavement to avoid the above non-payment for cold planing, temporary pavement and subsequent cold planing shall be at the Contractor's expense. Traffic cones will be placed along the longitudinal drop-off as directed by the Engineer.
- (c) The temporary pavement wedge and taper shall be totally removed prior to placing the permanent final pavement at cold planed locations. All costs involved with installing and removing a temporary pavement wedge and/or taper will not be paid for directly, but will be considered incidental to the Contract.
- (d) Cold planed areas susceptible to ponding of water shall be drained by cutting slots through the adjoining non-milled area. The slots shall then be filled with materials satisfactory to the Engineer. All costs of cutting and filling the slots will not be paid for directly but will be

considered incidental to the Contract.

210.04 METHOD OF MEASUREMENT

The quantity Bituminous Pavement Cold Planing to be measured for payment will be the number of square yards (sy) of surface from which bituminous pavement has been removed.

210.05 BASIS OF PAYMENT

The accepted quantity of Bituminous Pavement Cold Planing will be paid for at the contract unit price per square yard (sy). Payment shall be full compensation for furnishing all labor, tools and equipment including the vacuum sweeper, necessary to complete the work.

END OF SECTION 210

SECTION 310

IN-PLACE RECYCLED BASE COURSE

310.01 DESCRIPTION

This work shall consist of total in-place preparation of a recycled base course, composed of a mixture of the existing bituminous concrete pavement together with a portion of the existing base course, mixed into a uniform blend, and fine graded and compacted to a uniform gradient as directed by the Inspector or Engineer.

Within 5 to 10 calendar days after placing the recycled base course a 2 inch thick bituminous concrete binder course shall be overlaid on the recycled base course in accordance with SECTION 406. Dust control and the riding surface shall be kept in an acceptable condition such that full block to block segments may be paved.

Contract Plans, Appendices, and General and Special Conditions, DIVISION 100 General Provisions, and other Technical Specification Sections, apply to this Section.

310.02 MATERIALS

- (a) Recycled Base Course shall be a mixture of existing bituminous concrete pavement and base course materials pulverized to conform to the following gradation:

<u>Sieve Designation</u>	<u>% By Weight Passing</u>
75 mm (3 inches)	100
37.5 mm (1-1/2 inches)	80-100
4.75 mm (#4)	30-60

Additional aggregate material added to make up grading deficiencies and/or to correct roadway geometry shall meet the requirements of Subsection 704.05 of the VAOT 2006 Standard Specification for Construction for Subbase of Crushed Gravel, Fine Graded.

- (b) Cleanliness Requirements. The recycled base course material shall not contain more than trace amounts of wire, steel or plastic that were associated with the original placement of the bituminous material. No additional wire, steel or plastic may be added to the recycled base course. No discernable amounts of oils, fats, soaps, surfactants or organic contaminants shall be present in the recycled base course. Hazardous materials will not be allowed and when present shall be grounds for rejection of the subbase work.
- (c) Water for Stabilization. All water used shall be clear and free of harmful amounts of oil, salt, acids, alkalies, sugar, organic matter, or other substances injurious to the finished product, plant life, or the establishment of vegetation.

No formal tests of water will be made unless the Engineer questions the quality of the water. Water known to be of potable quality may be used without tests.

310.03 EQUIPMENT

Each item of equipment used shall be in accordance with DIVISION 100, subject to the approval of the Inspector, and be maintained in satisfactory working order at all times while in use on this project.

Pulverization shall be accomplished with a machine having positive depth control adjustments and capable of reducing the pavement material to the specified size. Equipment such as a milling

machine or a rock crushing plant will not be permitted.

The mixer shall be a self-propelled mixer. The mixing rotor, or rotors, shall have positive depth control to ensure a uniform depth of mixing. When Stabilization Asphalt is designated as the stabilizing agent, the mixer shall also be a combined mixer and liquid distributor. The mixer shall meet the approval of the Engineer.

The equipment for distributing the designated stabilizing agent shall be uniformly adjustable and shall be equipped to accurately verify the rate of application of the stabilizing agent at any time. The rollers used to compact the recycled base material shall be as specified in Subsection 310.07.

The power grader and any replacement graders shall have grade control automation.

The base course recycling equipment shall have the established capacity of recycling bituminous pavements in place, to produce a crushed material conforming to the gradation table in subsection 310.02. In addition, the base course recycling base equipment shall have an established record of producing the recycled material at a rate of production consistent with meeting the project scope and schedule.

On areas where irregularities or unavoidable obstacles make the use of mechanical spreading and finishing equipment impractical, the recycled base course shall be spread, leveled and compacted by hand operated tools.

It is the sole responsibility of the Contractor to achieve, to the satisfaction of the Owner, the specified recycled base course and bituminous concrete pavement with his base course recycling equipment.

310.04 CONSTRUCTION.

Pulverizing. The existing bituminous concrete pavement and base shall be initially recycled in place by pulverizing and blending these materials to an average depth of 6 to 8 inches. Required structure adjustment, such as manhole covers, catch basin grades, and valve boxes, to accommodate the passage of the recycling operations, shall be accomplished by the Contractor, who shall satisfy himself that all such structures have been adequately provided for prior to commencement of Equipment operations, and shall hold the Owner harmless against claims for damage to Contractor's Equipment due to contact with unaccounted for structures.

Approximately 3 inches of subbase material shall be removed from the surface such that a rough grade is achieved to allow for the addition of 3 inches of bituminous concrete pavement bringing the final roadway grade back to approximately the existing pavement surface, unless noted otherwise by the Drawings.

When a stabilizing or dust control agent is not exclusively specified, water shall be used as the agent to meet all of the requirements of this Section.

Stabilization with water shall not be performed during rainstorms nor when the ambient air temperature is below 40°F. The contractor shall pulverize only that area of pavement that can be stabilized during the same working day.

All excavated reclaim material shall be removed from the jobsite and disposed of by the Contractor in a suitable location within ten (10) miles of the jobsite as directed by the Engineer.

Payment For Reclaim Material Removal: The trucking, disposal and haul of the reclaim material shall be included in the unit price of the work item. The Contractor shall clean structures of debris and materials accumulated as a result of construction activities. No direct payment shall be made for this work.

Surface Tolerance. The Asphalt Treated Permeable Base will be tested by the Engineer at

selected locations. The variation of the surface shall at no point exceed 15 mm (1/2 Inch). This variation shall not be maintained for a distance longer than 15 m(50 feet). The required crown and superelevation shall be maintained. All humps or depressions exceeding the specified tolerances shall be corrected by reshaping or removing defective work and replacing it with new material as directed by the Engineer. Any new material used to replace removed material shall meet the applicable gradation specification listed in Subsection 310.02.

310.05 TESTING

The Contractor shall perform all process control and quality control sampling and testing.

- (a) Process control sampling and testing shall involve taking a set of four (4) representative excavated samples from the test section, after the test section has been pulverized. The four (4) samples shall be taken at random, representing the four-quarter segments of the test section. The four (4) samples shall be sieved to determine if the process can produce the required gradation or if additional materials must be added. Following the completion of the sieve analysis, using the AASHTO T 27 procedure modified to include air-drying of the material only, the materials shall be physically combined to produce a representative sample.
- (b) A moisture/density curve, representing the combined sample, shall be generated in accordance with AASTHO T 180, Method C, using a minimum of five (5) different moisture contents to determine the maximum density and optimum moisture.
- (c) The Contractor shall perform quality control tests for density using a nuclear gauge in accordance with AASHTO T 238, Method B (per compacted lift of stabilized material).
 - (1) A minimum of six (6) nuclear gauge tests per 0.6 lane mile of compacted reclaimed base material shall be performed. Additional tests shall be performed as necessary or as directed by the Engineer. The Contractor shall verify that the minimum target density is maintained prior to resurfacing.
 - (2) The Contractor shall also perform quality control tests for uniform gradation of the pulverized material at a minimum rate of one (1) test per 0.6 lane mile.
- (d) The Contractor shall provide the Engineer with written or scanned electronic copies of all process control and quality control results, including test locations. These test results will not be used to determine acceptance of the Recycled Base material.
- (e) Acceptance testing will be performed by City personnel.

310.06 TEST SECTION

- (a) The Contractor shall construct a test section to assure the Engineer that the Contractor's equipment and procedure(s) are suitable for the work specified and capable of achieving the minimum target density approved by the Engineer.
- (b) The test section shall be full roadway width and of a length approved by the Engineer. No further recycling shall be performed until all aspects of the test section and the target density are approved by the Engineer. The Contractor shall use the same equipment for building both the accepted test section(s) and performing the Recycled Base work on the project unless equipment substitution is approved by the Engineer. The Engineer may require an additional test section and additional process control sampling to investigate the suitability of substituted or changed equipment. The costs of such additional testing will not be paid for directly, but will be considered incidental to the Recycled Base item.
- (c) If the test section does not meet the requirements of this specification, or the density

achieved does not meet the minimum target density, then the Contractor shall modify the procedure and either construct another test section or reconstruct the original test section until suitable results are obtained.

310.07 SHAPING AND COMPACTING

Shaping and compacting shall be done immediately upon completion of blending and rough grading activities. The base course shall be finished such that a roadway crown of 1/4 inch per foot is achieved and an allowance for a 3-3.5 inch layer of new bituminous pavement is made to return the roadway to the approximate original grade within a +/- 1/4 inch tolerance.

Each catch basin frame and grate that does not meet the current City standard shall be replaced with standard frame and grate, which shall be provided by the City at City expense and be available at the Street Division on Pine Street. The transportation of frames and grates, standard and substandard to and from the Street Division, and the adjustment thereof shall be included as work incidental to those adjustments.

Compaction of the reclaimed stabilized base shall be accomplished by successive passes of a vibratory sheeps foot or pad foot roller of at least 25 tons of dynamic force. Final rolling shall be accomplished by a smooth steel wheel vibratory roller of at least 13 tons of dynamic force. The material shall be compacted to achieve at least the minimum target density approved by the Engineer.

The restored cross-section material shall be thoroughly compacted to a consolidated mass no less than 95% of the maximum dry density at the optimum moisture content, and shall be finished within a cross sectional tolerance of (+/-) 1/4 inch. It shall be inspected for smoothness and accuracy, with portions reshaped and recompacted until a satisfactory surface acceptable to the Engineer is obtained.

310.08 CURING AND STABILITY

The completed and cured Recycled Base may be opened to traffic as approved by the Engineer. The Contractor shall open up and construct only that area of pavement that can be completed during that working day. No paving or reclamation work shall begin when in the opinion of the Inspector rain is threatening. Required density and moisture content of the finished base shall be maintained until it is paved over. Any imperfections discovered shall be repaired by the Contractor as directed by the Engineer at no additional cost to the City of Burlington.

Moisture. Calcium chloride shall be applied as needed to ensure optimum moisture content at the time of compaction as well as to provide adequate dust control at all times.

The stabilized material shall be allowed to cure to a condition such that the free moisture content is reduced to 1.0% or less before bituminous concrete pavement is placed on it.

310.09 METHOD OF MEASUREMENT

The quantity to be measured for payment of recycled base course will be the number of square yards constructed to the depths specified, complete in place in the accepted work. No allowance will be made for overlapping areas.

310.10 BASIS OF PAYMENT

The accepted complete in place quantity of recycled base course will be paid for at the Contract unit price per square yard. Payment shall be full compensation for excavating, handling, transporting, and placing the necessary materials; pulverizing, adding or removing moisture; shaping, placing, and compacting the designated materials; constructing and/or conducting

testing; maintaining the finished base until it is paved over and for furnishing all labor, tools, signage, equipment, and incidentals necessary to complete the work.

The contract unit price shall also include all traffic control equipment, flag personnel and uniformed traffic officers required to maintain traffic flow, furnishing and placing all water required for adequate compacting and dust control, cleaning structures of debris and materials accumulated as a result of construction activities, and coordination with other contractors working on separate portions of the Street Maintenance Project.

Water used to adjust the moisture content prior to stabilization, for stabilization when water is used as the stabilizing agent, for compacting the pulverized material and for dust control after the reclamation will not be paid for directly, but will be considered incidental to the Recycled Base item.

No payment will be made for the following:

- (a) Material forced into or mixed with the subgrade material.
- (b) Material placed to a depth greater than shown on the Plans.
- (c) Water used to obtain required compaction.
- (d) Removal and replacement of subbase material to correct unsatisfactory work.
- (e) Scarifying, recompacting, or regrading of subgrade or subbase layers, when required.
- (f) Bituminous Binder paving operations and materials, which shall be measured and paid for as described in SECTION 406 of these specifications.

END OF SECTION 310

SECTION 406

BITUMINOUS CONCRETE PAVEMENT

406.01 DESCRIPTION

This work shall consist of one or more courses of bituminous mixture constructed on a prepared foundation in accordance with these specifications and the specific requirements of the type of surface being placed.

The Contractor is responsible for grading the road to allow for proper drainage. No puddles or ponding over 12 inches in any direction and no more than 1/4 inch deep shall result after final paving. The Contractor shall adjust drainage at catch basins and pavement grades to assure proper final drainage. The Contractor shall maintain the centerline location of the roadway. If improper drainage results from grading, the Contractor shall be responsible for its remedy. In addition, the Contractor will be responsible for the adjustment of all Public Works owned utilities within the work area. Riser rings are not an acceptable form of adjustment.

Sweeping the existing surface prior to the placement of emulsified asphalt RS-1 is considered part of this contract, and shall be performed by the Contractor or their designee.

Contract Plans, Appendices, and General and Special Conditions, DIVISION 100 General Provisions, and other Technical Specification Sections, apply to this Section.

406.02 MATERIALS

- (a) Asphalt Cement shall be prepared by the refining of crude petroleum by the fractional distillation and coking method. It shall be homogeneous, free from water, and shall not foam when heated to 347°F. The various grades shall conform to the requirements of AASHTO M226, Table 2. The grade of Asphalt Cement shall be AC5, AC10, or AC20 as directed by the Engineer prior to the commencement of work, and which may be changed upon one (1) week notice.
- (b) Emulsified Asphalt, RS-1, shall be homogeneous and shall show no separation at the time of use. It shall be used no later than thirty days after delivery to the batch plant.
- (c) Aggregate for bituminous concrete pavement shall conform to the following:
 - (1) Coarse Aggregate for bituminous concrete pavement shall consist of clean, hard, crushed stone or crushed gravel, uniformly graded. The blending of crushed stone and crushed gravel shall not be permitted. It shall be reasonably free from dirt, deleterious material and pieces that are structurally weak. Coarse aggregate shall be considered to be that portion of material passing the No. 8 sieve.
 - (2) Fine aggregate for bituminous concrete pavement shall consist of natural sand or a combination of natural sand and stone screenings. At least 50 percent, by weight, of the material passing the No. 8 sieve must be natural sand. Natural sand is considered to be any sand that is found to exist in a natural deposit. Sand shall be reasonably free from dirt and deleterious material.
 - (3) Percent of Wear:
 - a. Crushed Stone. When the coarse aggregate is composed of crushed stone, the percent of wear of the parent rock shall be not more than 5 when tested in accordance with AASHTO T 3, or the crushed stone a percent of wear of not more than 30 when tested in accordance with AASHTO T 96. When the aggregate is composed of crushed igneous rock, the percent of wear of the crushed rock shall be not more than 50 when tested in accordance with AASHTO T 96.
 - b. Crushed Gravel. When the coarse aggregate is composed of crushed gravel, the percent of wear of the parent gravel shall be not more than 16 when tested in accordance with AASHTO T 4, or the crushed gravel a percent of wear of not more than 35 when tested in accordance with

AASHTO T 96.

- (4) Fractured Faces. When crushed gravel is used as coarse aggregate, at least 50 percent, by weight, of the stone content shall have at least one fractured face.
Fractured faces of samples obtained from individual stockpiles will be determined on the material passing the No. 4 sieve.
- (5) Thin and Elongated Pieces. Not more than 10 percent, by weight, of thin and elongated pieces will be permitted.
Thin and elongated pieces of samples obtained from individual stockpiles will be determined on the material passing the No. 4 sieve.
- (6) Mineral Filler. The mineral filler shall consist of approved limestone dust, talc dust, or other approved materials, and shall be added to the aggregate if required.
- (7) Soundness for all Aggregates. When there is any question of either soft or laminated pieces being detrimental to the aggregate, a soundness test shall be performed on the aggregates in accordance with AASHTO T 104. The weighted average percentage of loss shall be not more than 8 percent, by weight, when subjected to 5 cycles of the sodium sulphate soundness test.
- (8) Control of Aggregate Stockpiles. Before the start of bituminous concrete paving operations and throughout the duration of the paving operation, the cold feed aggregate stockpiles shall each contain at least 1000 tons, or the job requirements of accepted aggregate if less than 1000 tons.
The addition of unacceptable material to an accepted stockpile shall result in the rejection of the entire stockpile.
The stockpiles shall be separated by partitions or otherwise separated to the satisfaction of the Inspector or Engineer to prevent intermixing of the stockpiles.

406.03 COMPOSITION OF MIXTURE

- (a) Gradation. The materials shall be combined and graded to meet the following composition limits by weight.

<u>Sieve Size</u>	<u>Type I</u>	<u>Type II</u>	<u>Type III</u>	<u>Type IV</u>	<u>Type V</u>
	(% by weight passing square mesh sieve)				
1-1/2"	100				
1"	95-100	100			
3/4"	74-86	95-100	100		
1/2"	60-80	76-88	95-100	100	
3/8"	-	62-82	78-90	95-100	100
No. 4	35-60	44-62	54-75	62-80	85-100
No. 8	25-45	30-48	39-60	39-60	68-88
No. 16	-	20-38	24-45	24-45	45-67
No. 30	10-25	13-30	14-35	14-35	27-53
No. 50	-	6-22	6-24	6-24	13-40
No. 200	0-4	0-4	0-4	0-4	0-7
Total Agg.	99-96	93-95	92-94.5	92-94.5	91-93
Bitumen (% of Total Mix)	4-6	5-7	5.5-8	5.5-8	7-9

Unless otherwise specified, Type II shall be used for Binder Courses, Type IV shall be used for shim courses, Types II or IV as directed by the Engineer shall be used for wearing courses, and Type V for surface maintenance courses, (Skinny Mix). The materials shall be combined and graded to meet specifications of the Vermont Agency of Transportation, [Materials Sampling Manual](#), 2005, as amended.

2. Job Mix. The composition limits given above are master ranges of tolerances to cover mixtures made from any raw materials meeting the specifications and they are the maximum and minimum for all cases. A closer control within these ranges is intended for any specific project, and shall be referred to as the job aim.

No work shall be started until the Contractor has submitted and the Engineer has approved a mix design including cold feed and hot bin gradings, mixing times, and the percentage of each ingredient including bitumen and the job mix formula from such a combination.

At the time the above mix design is submitted, the Contractor shall indicate and make available for sampling and testing stockpiles of all aggregates proposed for use. A minimum time of one (1) week shall be allowed for testing prior to approval of the job mix. No modification to the approved job mix formula shall be made without the approval of the Engineer.

If an analyzed sample is out of the job aim, a check sample shall be taken. If the check sample is also out of the job aim, immediate adjustment shall be made by the Contractor. After each adjustment, the resulting mix will be sampled and tested for compliance with the job aim. With the permission of the Inspector, the plant may continue production pending results of tests, but if the Inspector deems it in the best interest of the project, they may at any time order plant production stopped. In this event, additional adjustments shall be made and tested on a trial drop basis until the deficiency is corrected.

406.04 WEATHER AND SEASONAL LIMITATIONS

Shall be in accordance with DIVISION 100, Subsection 108.04 (b) and as follows:

Bituminous material shall be placed only when the ambient air temperature and temperature at the paving site in the shade and away from artificial heat is 40°F and rising for courses 1-1/4 inches or greater in compacted thickness, or 40°F and rising for courses less than 1-1/4 inches in compacted thickness.

Bituminous material shall not be placed on a wet or frozen surface or when weather or other conditions would prevent the proper handling, finishing, or compacting of the material, unless otherwise approved by the Engineer. Bituminous material shall not be placed when, in the opinion of the Inspector or Engineer, rain is imminent or the existing surface is wet.

Bituminous material shall not be applied between November 1st and May 1st.

When it is in the public interest, the City Engineer may adjust the ambient air temperature requirements, pavement temperature requirements, or extend the dates of the paving season.

406.05 BITUMINOUS MIXING PLANT AND TESTING

Bituminous mixing plants and testing facilities shall conform to all requirements as outlined in 406.05 through 406.08 of the "Standard Specifications for Highway and Bridge Construction" for the Vermont Agency of Transportation.

406.06 PREPARATION OF BITUMINOUS MATERIAL.

The bituminous material shall be uniformly heated to the specified temperature. A continuous supply of the bituminous material shall be provided to the mixer at a uniform temperature at all times.

406.07 PREPARATION OF AGGREGATES.

The aggregate for the mixture shall be dried and heated at the mixing plant before being placed in the mixer. Flames used for drying and heating shall be properly adjusted to avoid damage to the aggregate and to avoid depositing soot or unburned fuel on the aggregate.

Immediately after heating, the aggregates shall be screened and conveyed into separate bins ready for batching and mixing with bituminous material.

If required to meet the gradation requirements, mineral filler shall be added in a manner approved by the Engineer after the aggregates have passed through the dryer.

The above preparation of aggregates does not apply for drum-mix plants.

406.08 MIXING.

The dried aggregates shall be combined with the bituminous material in a manner that will produce a mixture which, when discharged from the mixing unit, shall be at the temperature specified on the approved mix design unless otherwise directed by the Engineer.

The dried aggregates shall be combined in the mixer in the appropriate proportions required to meet the job-mix formula and be thoroughly mixed prior to adding the bituminous material. Dry mix times shall be increased as deemed necessary by the Engineer in such cases that RAP material is introduced into the mixer.

The bituminous material shall be measured and introduced into the mixer in the amount determined by the Engineer for the material being used and at temperatures between 240°F and 280°F, unless otherwise directed by the Engineer.

After the required amounts of aggregate and bituminous material have been introduced into the mixer, the materials shall be mixed until a complete and uniform coating of the particles and a thorough distribution of the bituminous material throughout the aggregate is obtained. The mixing time shall be regulated by the Engineer and a suitable locking mechanism shall be provided for such regulation.

All plants shall have a means of eliminating oversized and foreign material from being incorporated into the mixer.

406.09 HAULING EQUIPMENT

To prevent the mixture from adhering to the beds, trucks used for hauling bituminous mixture shall have tight, clean, smooth metal beds, which have been thinly coated with an oil or soap solution to prevent the mixture from adhering to the beds. Petroleum based products will NOT be permitted.

The trucks used for hauling bituminous mixture shall be compatible with the equipment used for placing the bituminous mixture. Trucks are not to be cleaned and/or emptied on surfaces to be paved.

Each truck shall have a cover of canvas or other suitable material of such size sufficient to extend over all sides of the haul vehicle to afford protecting the mix from the weather. When necessary to assure placement of material at the specified temperature, truck beds shall be insulated and covers shall be securely fastened.

406.10 PLACING EQUIPMENT

The bituminous concrete paver shall be a self-propelled unit with an activated screed or strike-off assembly, capable of being heated if necessary and will be capable of spreading the mixture without segregation for the widths and thicknesses required. The screed shall be adjustable to provide the desired cross-sectional shape.

Pavers shall be in good mechanical condition, equipped with all necessary attachments, and designed to operate electronically for controlling the grade of the finished surface. Bituminous pavers shall distribute the mixture over the entire width or over such partial width as may be practical. Additionally, pavers shall be equipped such that, upon extension of the screed a distance of 18 inches or more, auger extensions shall be used as directed by the Engineer. The machine shall, at all times, be in good mechanical condition and shall be operated by competent personnel.

The adjustments and attachments of the paver shall be checked and approved by the Inspector or Engineer before placement of bituminous material.

Bituminous concrete pavers shall be equipped with a sloped plate to produce a tapered or notched tapered edge at longitudinal joints. The sloped plate shall produce a tapered or notched

tapered edge having a minimum face slope of 1 vertical: 3 horizontal. The plate shall be able to accommodate compacted mat thicknesses from 1-1/4 inches to 4 inches. The bottom of the sloped plate shall be mounted 3/8 inch to 1/2 inch above the existing pavement.

Bituminous pavers shall be equipped with a joint heater of at least 6250 BTU/min (110,000 W) capacity to heat the longitudinal edge of the previously placed mat to a surface temperature of 200°F, or higher if necessary, to achieve bonding of the newly placed mat with the previously placed mat without undue breaking or fracturing of aggregate at the interface. The surface temperature shall be measured immediately ahead of the screed. The joint heater shall be equipped with automated controls, which shut off the burners when the paving machine stops and reignites them with the forward movement of the paver. The joint heater shall heat the entire area of the previously placed wedge to the required temperature. Heating to the point of 200°F or higher shall immediately precede placement of the bituminous material.

406.11 ROLLERS

Rollers shall be in good mechanical condition, operated by competent personnel, capable of reversing without backlash, and operated at speeds slow enough to avoid displacement of the bituminous mixture. The weight of the rollers shall be sufficient to compact the mixture to the required density, without excessive crushing of the aggregate. Rollers shall be equipped with tanks and sprinkling bars for wetting the rolls or tires.

Two (2) 2-Axle Tandem Rollers and one (1) Pneumatic-Tired Roller will be required on the Project at all times, and must be present prior to beginning paving operations.

Rollers shall meet the following requirements:

- (a) Two-axle tandem rollers shall have a gross weight of not less than 10 tons and not more than 12 tons and shall be capable of providing a minimum compactive effort of 250 pounds per inch of width of the drive roll. All rolls will be at least 42 inches in diameter.
- (b) Pneumatic-tired rollers shall be self-propelled and equipped with a minimum of seven wheels situated on the axles in such a way that the rear group of tires will not follow in the tracks of the forward group, but shall be spaced so that a minimum tire path overlap of 1/2 inch is obtained. The wheels on at least one of these axles will be capable of oscillating in a vertical direction, either individually or in pairs.

The tires shall be of equal size with a minimum size of 9 x 20 inch - 12 ply. The compressor for inflation of tires shall be capable of inflating the tires so that the air pressure between tires does not vary more than five (5) psi. The tires shall be smooth and capable of being inflated to a pressure necessary to provide ground contact pressure of at least 80 psi per tire. The Contractor shall provide a gauge at all times to enable the Inspector to check tire pressures. Appropriate charts or tables shall be posted on each roller showing the contact areas and contact pressures for the full range of tire inflation pressures and wheel loadings for the type and size of the roller and tires involved.

Pneumatic-tired rollers shall be equipped with appropriate skirts at all times and be preheated prior to use in order to avoid picking. The Contractor shall remove all picked material from the surface.

406.12 CONDITIONING AND PREPARATION OF EXISTING PAVED SURFACES

The existing surface shall be swept clean, structures adjusted, and sprayed with Emulsified Asphalt, RS-1, before placing the bituminous mixture, unless otherwise ordered by the Engineer. The emulsion shall be applied under pressure at the rate of 0.05 to 0.14 L/m² (0.01 to 0.03 gallons / yd²). The temperature of the emulsion shall not be less than 70°F at the time of application. The application shall be made just prior to the placement of the bituminous concrete mixture but shall progress sufficiently ahead of the paving so that the surface to be paved will be "tacky".

Contact surfaces such as curbing, gutters and manholes shall be painted with a thin, uniform coat of Emulsified Asphalt, RS-1, immediately before the bituminous concrete mixture is placed against them.

If there are deficiencies that require corrective action in the base course constructed under the Contract, a bituminous concrete mix approved by the Engineer shall be used to bring the base course to the designed grade and contour.

Where bituminous concrete is used to resurface existing pavements and the existing pavement contains irregularities, depressions or waves, such deficiencies shall be eliminated by the use of extra bituminous material for leveling to bring existing base to uniform section and grade before placing of the required courses of bituminous concrete.

406.13 PLACING AND FINISHING

The finished surface shall be of uniform texture and evenness and shall not show tearing, shoving, or pulling of the mixture.

The bituminous mixture, at the time of discharge from the haul vehicle, shall be at a temperature of not less than 225°F, nor more than 325°F unless otherwise directed by the Inspector or Engineer. Mixtures with a temperature below 225°F shall be removed from the job site.

The Contractor shall protect all exposed surfaces to remain from damage during all phases of the paving operation.

The bituminous mixture shall be placed and finished with the specified equipment and struck off in a uniform layer to the full width required and of such depth that each course, when compacted, shall have the required thickness and shall conform to the grade and elevation necessary to provide proper drainage. Bituminous pavers shall be used to distribute the mixture over the entire width or over such partial width as may be practical.

On areas where irregularities or unavoidable obstacles make the use of mechanical spreading and finishing equipment impracticable, the mixture shall be spread, raked and luted by hand tools.

No material shall be produced so late in the day as to prohibit the completion of spreading and compaction of the mixture during daylight hours.

Trucking or other vehicular traffic over material already placed will not be permitted until the material has been thoroughly compacted and has cooled to 140°F, unless otherwise authorized by the Engineer. The use of water to cool the pavement will not be permitted.

The City may require that all work adjacent to the pavement, such as guardrail, cleanup, and turf establishment, be completed prior to placing the wearing course when such work could cause damage to the pavement.

On projects where traffic will be maintained, the Contractor may be required to schedule daily paving operations such that at the end of each work day all travel lanes of the roadway on which work is being performed will be paved to the same limits or as directed by the Engineer.

Feather driveways with bituminous material as necessary to provide proper drainage and eliminate water ponding.

406.14 COMPACTION

Immediately after the bituminous mixture has been spread, struck off and surface irregularities adjusted, it shall be thoroughly and uniformly compacted by rolling.

The surface shall be rolled when the mixture is in the proper condition and when the rolling does not cause undue displacement, cracking, tearing, or shoving. Should the mix exhibit these characteristics, and the Contractor is unable to remedy these conditions to the satisfaction of the Engineer, both placement and approval of the mix design will be terminated.

The number, weight and type of rollers furnished shall be sufficient to obtain the required compaction while the mixture is in a workable condition. Generally, one breakdown roller will be needed for each paver used in the spreading operation

The initial, or breakdown, rolling shall be done by using a two-axle tandem roller; intermediate rolling by using a self-propelled pneumatic-tired roller; and final rolling by using a two axle tandem roller. An intermediate roller will not be required for shoulders constructed with one course of bituminous concrete. Final rolling may be done with a roller meeting the requirements for breakdown rolling when approved by the Inspector.

To prevent adhesion of the mixture to the rolls, they shall be kept properly moistened with water or water mixed with very small quantities of detergent or other approved material. Excess liquid and petroleum products shall not be permitted.

Along forms, curbs, headers, walls and other places not accessible to the rollers, the mixture shall be thoroughly compacted with hot or lightly oiled hand tampers, smoothing irons or mechanical tampers. On depressed areas, a trench roller may be used or cleated compression strips may be used under the roller to transmit compression to the depressed area.

Other combinations of rollers and/or methods of compacting may be used if approved in writing by the Inspector or Engineer, and providing the density requirements are met.

Unless otherwise directed, the longitudinal joint shall be rolled first and then rolling shall begin at the low side of the pavement and proceed towards the center or high side with lapped rolling parallel to the centerline. The speed of the roller shall be slow and uniform to avoid displacement of the mixture and the roller should be kept in a continuous operation as practicable. Rolling shall continue until all roller marks and ridges have been eliminated.

Rollers shall not be stopped or parked on new, freshly placed bituminous material.

Any mixture that becomes loose and broken, mixed with dirt, or is in any way defective shall be removed and replaced with fresh hot mixture, which shall be compacted to conform with the surrounding area. Any area showing an excess or deficiency of bitumen shall be removed and replaced at the Contractor's expense.

The Contractor shall replace the pavement with like material where cores are removed during hot mix operations. Cost for these replacements shall be included as incidental to the Contract.

The specific gravity of the compacted pavement shall be not less than 97 percent of the specific gravity of the corresponding daily job sample.

Bituminous concrete mixtures will be sampled once per subplot using a stratified random sampling procedure in accordance with ASTM D3665 and tested and evaluated by the Engineer for each mix type (each mix design) for each project in accordance with AASHTO T166 Method A for bulk specific gravity (B) and AASHTO T 209 for maximum specific gravity (M). For the purpose of evaluating acceptance test properties, a lot shall consist of the total quantity of bituminous concrete mixture compacted in-place during any one day's production to a maximum of 24 hours. Sampling shall be performed at the rate of one sample per lane 0.6 mile, with the exception that there shall not be fewer than six (6) samples taken per any one day's production. The quantity represented by each sample shall constitute a subplot.

Original core sampling locations will be selected by the Engineer or Inspector in accordance with ASTM D3665 within two (2) working days of the bituminous mixture being placed. Contractor will be advised in writing of the selected sampling locations.

Contractor may immediately challenge whether any particular original sample location(s) is representative of any particular lot by notifying the Engineer.

Upon receipt by the Engineer of a challenge from the Contractor, the Engineer will evaluate it within one (1) working day and notify the Contractor in writing of either acceptance or rejection of the challenge. Rejection of a challenge will result in the Engineer using the original core sampling locations for the determination of density data in any compaction calculations. Acceptance of a challenge will result in the Engineer selecting alternate core sampling location(s) for those challenged samples. Cores shall be taken by sawcut in accordance with AASHTO T 230, Method B. Physical core samples will be retained for a period of two (2) working days from the time that DC test results are relayed to the Engineer and Contractor.

406.15 JOINTS

Joints between old and new pavements or between successive day's work, shall be butt joints so as to insure a thorough and continuous bond between the old and new mixtures. Whenever the spreading process is interrupted long enough for the mixture to attain its initial stability, the paver shall be removed from the mat and a joint constructed.

Transverse butt joints shall be formed by cutting the pavement in a vertical plane at right angles to the centerline, at a location approved by the Inspector or Engineer, where the pavement has a true surface as determined by the use of a straight-edge at least 16 feet long. The transverse butt joint shall be thoroughly coated with Emulsified Asphalt, Type RS-1, just prior to depositing the paving mixture.

Longitudinal joints that have become cold shall be coated with Emulsified Asphalt, Type RS-1,

before the adjacent mat is placed. If directed by the Inspector or Engineer, shall be cut back to a clean vertical edge prior to painting with the emulsion.

Unless otherwise directed by the Inspector or Engineer, longitudinal joints shall be offset at least 6 inches from any joint in the lower courses of pavement. Transverse joints shall not be constructed nearer than 12 inches from the transverse joints constructed in lower courses.

Feathering joints may only be used at discretion of Inspector or Engineer with written approval. But if used transverse tapered joints shall be formed by ramping down the last 18 to 24 inches of the course being placed to match the lower surface. Care shall be taken in raking out and discarding the coarser aggregate at the low end of the taper, and in rolling the taper. The taper area shall be thoroughly coated with Emulsified Asphalt, RS-1 just prior to resuming paving. As the paver places new mixture on the taper area, placement shall proceed such that an evenly graduated deposit of mixture will complement the previously made taper. Shovels may be used to add additional mixture if necessary. The joint shall be smoothed with a rake and properly rolled, with coarse material discarded.

406.16 SURFACE TOLERANCES

The surface will be tested by the Inspector or Engineer using a 16 foot straight-edge at selected locations parallel with the centerline. Any variations exceeding 1/8 of an inch between any two contact points shall be satisfactorily eliminated. A 10 foot straight-edge, provided by the Contractor, may be used on a vertical curve.

406.17 TRAFFIC CONTROL

Whenever traffic must be maintained during a paving operation, uniformed traffic officers or flaggers shall be stationed at each end of the section being paved and at such other locations as may be required by the Owner. The traffic officers or flaggers shall conform to DIVISION 100, Subsection 104.04 requirements .

Whenever one-way traffic is maintained by the Contractor, the traveling public shall not be delayed more than 10 minutes unless otherwise directed by the Engineer. Two-way traffic shall be maintained during non-working hours.

406.18 METHOD OF MEASUREMENT

The quantity to be measured for payment of Bituminous Concrete Pavement will be the number of tons of mixture complete in place in the accepted work as determined from the weight tickets.

When a material lot is removed from the project under any provisions of the Contract, no payment will be made for that material nor for any applicable Pay Adjustments under this Section.

406.19 BASIS OF PAYMENT

The accepted quantities will be paid for at the contract unit price per ton for Bituminous Concrete Pavement. Payment shall be full compensation for furnishing, mixing, hauling, grading and placing of the material specified; for testing; for paint markings; and for the furnishing of signs, labor, tools, equipment, traffic control, flagmen, uniformed traffic officers, feathering of driveways and incidentals necessary to complete the work.

The Contract unit prices shall also include required coordination with other Contractors working on separate portions of the Street Maintenance Project.

END OF SECTION 406

SECTION 604 STRUCTURE ADJUSTMENT

604.01 DESCRIPTION

This work shall consist of rehabilitation, adjustment to grade or Changing Elevation of frames and covers for drop inlets, catch basins, storm or sanitary sewer manholes, and water gate valve boxes as required to accommodate paving and/or reclamation activities and reconstruction of deteriorated walls of brick structures as required.

Contract Plans, Appendices, and General and Special Conditions, DIVISION 100 General Provisions, and other Technical Specification Sections, apply to this Section.

604.02 MATERIALS

Materials shall meet the following requirements:

- (a) Frames & Grates. Existing frames and grates, or new frames and grates as provided by the City, shall be re-installed at each location.
- (b) Water Gate Valve Boxes. Existing water boxes, or new water boxes as provided by the City, shall be re-installed at each location.
- (c) Mortar, Type II shall be composed of 1-part cement and 2-part sand, and mixed with sufficient water to form a plastic composition. The cement, sand and water shall meet the following requirements:
 - (1) Cement: Air entraining Portland cement conforming to the requirements of AASHTO M85, Type I-A or II-A.
 - (2) Sand: Washed natural sand consisting of clean, hard durable grains, uniformly graded from coarse to fine meeting the following gradation:

<u>Sieve Designation</u>	<u>% By Weight Passing (Total Sample)</u>	<u>Square Mesh Sieves (Sand Portion)</u>
2 inches	100	
1-1/2 inches	90-100	
1/2 inch	70-90	
No. 4	60-100	100
No. 100		0-30
No. 200		0-12
 - (3) Water: Processed water from a state approved distribution system.
- (d) Clay or Shale Brick shall conform to the requirements of AASHTO M 91, Grade MS.

604.03 FRAME AND COVER GRADE ADJUSTMENT

- (a) Condition No. 1 - Pavement Reclamation Area
 - (1) Existing frames and covers, as marked by the Inspector or Engineer, shall be excavated and removed, and the drop inlet, catch basin, or manhole structure sufficiently and carefully dismantled to allow for a minimum 12 inches below the existing roadway elevation. A steel plate of sufficient size and strength to support area traffic loadings shall be placed over the structure opening in such a manner as to prevent materials from falling into the structure. The excavated area shall then be hot-mix patched as required to prevent scattering of backfill material by passing vehicles. Ties and measurements to relocate each structure shall be the

responsibility of the Contractor.

- (2) Frames and covers to be reused shall be thoroughly cleaned of mortar and safely stored by the Contractor. Should any frame or cover become broken through carelessness of the Contractor or his employees or subcontractors, it shall be replaced at his expense. Should any existing frames or covers prove to be defective, new units will be supplied by the City for installation by the Contractor.
- (3) Catch basin frames and grates that do not meet the current City standard shall be replaced with standard frame and grate, which shall be provided by the City at City expense and be available at the Street Division on Pine Street. Transportation of frames and grates, standard and substandard to and from the Street Division, and the adjustment thereof shall be included in pay item 604.07 as work incidental to those adjustments.
- (4) At the completion of Pavement Reclamation & Bituminous Binder Course Placement activities, each structure shall be re-excavated, the steel plate shall be removed, and the existing frame and cover shall be re-installed using brick in a structural format to match the existing brickwork, and shall be set by the Contractor with finished grade of wearing course; or if no wearing course is planned in this Contract, at finished grade of top course. The Contractor shall not begin paving sections until all structures in that section are at proper grade. Should the area reclaimed be scheduled for base course paving only, the frames and covers shall be raised to final base course elevation prior to paving.

(b) Condition No. 2 - Pavement Shim & Bituminous Overlay Areas

- (1) At the completion of Pavement Shim activities, the existing frames and covers as marked by the Inspector shall be excavated and removed, and the drop inlet, catch basin, or manhole structure sufficiently and carefully dismantled to allow for final grade adjustment using brick and mortar.
- (2) Each frame and cover unit shall be reinstalled using brick in a structural format to match the existing brickwork, and shall be set by the Contractor to be flush with the finished grade of the Bituminous Overlay wearing course. Catch basins shall be set allowing for a crown of 1/4 inch per foot so that storm water will drain to the catch basin without ponding. Each incident of ponding shall be corrected by the Contractor at his expense.
- (3) Catch basin frames and grates that do not meet the current City standard shall be replaced with standard frame and grate, which shall be provided by the City at City expense and be available at the Street Division on Pine Street. The transportation of frames and grates, standard and substandard to and from the Street Division, and the adjustment thereof shall be included in pay item 604.07 as work incidental to those adjustments.

The Contractor shall not begin paving sections until all structures in that section are at proper grade. It is the Contractor's responsibility to set the structure grade and pavement both flush to the structure and providing drainage to the catch basins without ponding. Each incident of ponding shall be corrected by the Contractor at his expense.

- (4) Frames and covers to be reused shall be thoroughly cleans of mortar prior to reinstallation. Should any frame or cover become broken through carelessness on the part of the Contractor, it shall be replaced at his expense. Should any existing frames or covers prove to be defective, new units will be supplied by the City for installation by the Contractor.

(c) Condition No. 3 - Water Gate Valve Box Adjustments - Pavement Reclamation Areas

- (1) The existing gate box and cover as marked by the Inspector shall be lowered to a depth of 12 inch. The opening shall be covered in a sufficient manner to prevent debris from getting into the gate valve box. The excavated area shall then be backfilled with compacted granular material and hot-mix patch as required to prevent scattering of backfill material by passing vehicles. Ties and measurements to relocate each structure shall be the responsibility of the Contractor.

- (2) Should any water gate valve boxes or covers become broken or stolen through the carelessness of the Contractor, it shall be replaced at his expense. Should any existing water gate valve boxes or covers prove to be defective, new units will be supplied by the City for installation by the Contractor.
 - (3) At the completion of Pavement Reclamation and Bituminous Binder Course Placement activities, the Contractor shall relocate the water gate valve box and adjust to base or final course grade as indicated by the Inspector. Material shall be compacted around water gate valve box and 6 inches of asphalt placed in 2 inch lifts. Refer to water gate valve box detail.
- (d) General: Reclaim areas, overlay and shim areas
- All water boxes in these work areas shall have the covers removed, be inspected by the Contractor and Public Works Inspectors and cleaned out, if necessary, shall be by time and materials. If the nut is not accessible, the location of the water box will promptly be given to the Engineer.

604.04 STRUCTURE WALL RECONSTRUCTION

Upon completion of the Contractor's removal of structure frames and covers as described in subsection 604.03, each drop inlet, catch basin, or manhole shall be examined by the Inspector or Engineer. If in the opinion of the Inspector or Engineer the structure walls warrant full or partial reconstruction, the Contractor shall dismantle that portion of the walls marked for removal, and shall re-construct them using brick and mortar in a structural format to match the existing brickwork prior to re-installation of the frame and cover. Existing structurally sound walls that are damaged through the negligence of the Contractor during excavation shall be reconstructed by the Contractor at no cost to the City.

604.05 RESTORATION OF EXISTING CONDITIONS

All areas disturbed by the activities of the Contractor shall, in the estimation of the Engineer, be restored to their original condition or better. Excavated areas around the structures in pavement shall be backfilled with compacted granular subbase material to a depth matching the existing subbase, and the pavement shall be restored using Bituminous Concrete Pavement. 1/2 inch aggregate shall be used, placed and compacted in maximum 2 inch lifts.

Contractor shall clean structures of debris and materials accumulated as a result of construction activities. Special attention shall be given to grate lifting holes, edges and undersides to insure a solid, smooth fit into the frame.

604.06 METHOD OF MEASUREMENT

The quantity to be measured for payment for Frame and Cover Grade Adjustment and water gate valve box adjustment at their contract unit prices will be the number of units adjusted to grade, complete in place for each condition as accepted by the Engineer or Inspector.

The Inspector or Engineer and Contractor are to come to an agreement as to which structures, i.e., catch basin, manhole (storm/sewer), lamp holes shall be rebuilt.

604.07 BASIS OF PAYMENT

Accepted quantities of Frame and Cover Adjustment and water gate valve box adjustment will be paid for at the contract unit price for each unit adjusted, which price shall include brick reconstruction required for adjustment of frames and covers as described in subsection 604.03.

Payment of Structure Wall Reconstruction or Rehabilitation will be on a time and materials basis. Only those walls previously approved and marked for reconstruction by the Inspector or Engineer will be eligible for payment under this item. Walls removed without prior approval and marking by the Inspector or Engineer shall be rebuilt by the Contractor at no cost to the City.

Payment at Contract Unit Prices shall be full compensation for all necessary cleaning of the interior of

the unit to determine the extent of the work; for excavating, cutting of pavement, and backfilling; for removing deteriorated materials and designated materials; for furnishing, transporting, handling, and/or placing all materials, including mortar, concrete block, brick, steel plates and reinforcing steel, granular backfill, hot-mix patch, concrete, concrete risers, top sections, steps, frames, grates, covers, coatings, pipe stubs, weep holes and underdrain ends required for reconstructing the unit as directed by the Engineer; and for furnishing all labor, tools, equipment, and incidentals necessary to complete the work.

Excavation associated with the rehabilitation or changing elevation of existing drop inlets, catch basins, and manholes will not be paid for separately, but will be considered incidental to the Contract.

The Contract unit price shall also include all traffic control in accordance with DIVISION 100, the "Manual on Uniform Traffic Control Devices", and cleaning structures of debris and materials accumulated as a result of construction activities and coordination with other Contractors working on separate portions of the Street Maintenance Project.

END OF SECTION 604

SECTION 646

RETROREFLECTIVE PAVEMENT MARKINGS

646.01 DESCRIPTION

This work shall consist of furnishing and placing retroreflective markings, including temporary markings, and necessary signing on roadway pavement and other surfaces. Contractor shall furnish all materials, labor, equipment and miscellaneous supplies as needed to complete the work.

Markings shall exhibit adequate intensity to demark the roadway in both daylight and under vehicle headlights at night. Markings shall have adequate contrast to distinguish them from the background material color unless otherwise specified. Minimum retroreflectivity shall be provided as specified in the Plans.

Marking operations shall be conducted in a manner that minimizes traffic disruptions. Adequate safety measures shall be provided for both the construction workers and the traveling public.

All pavement markings shall be in accordance with the specifications herein and the Manual on Uniform Traffic Control Devices ([MUTCD](#)) dated 2009, and the VTrans [Guideline for The Installation of Crosswalk Markings and Pedestrian Signing at Marked and Unmarked Crossings](#) (Revised July 2004), or meet a higher specification as stated herein.

Contract Plans, Appendices, and General and Special Conditions, DIVISION 100 General Provisions, and other Technical Specification Sections, apply to this Section.

646.02 MATERIALS AND WORKMANSHIP SPECIFICATIONS

All pavement marking materials used shall be in accordance with Standard Specifications for Construction subsections 708.08 through 708.14, and as approved by the City Engineer. Upon award of contract, bidder will submit a certificate of compliance to these specifications from the paint manufacturer prior to beginning work.

Provide 708.08(c) Epoxy paint pavement markings for long lines, and durable 708.12(a) Pavement Marking Tape, Type 1, or Recessed pavement markings for the crosswalks, turn arrows, school, and similar.

All paint markings shall be reflectorized by the use of approved type 708.09 Glass Beads at the rate of 5 lbs. per gallon of paint. The beads shall be spherical in shape and manufactured from glass of a composition designed to be highly resistant to the effects of weathering and traffic wear.

646.03 APPLICATION OF MARKINGS, GENERAL.

- (a) Placement of Markings. The final pavement markings shall be placed the same day as the wearing course of pavement.

Roadway surfaces shall be clean and dry at the time of application of pavement markings. The Engineer or inspector will inspect the pavement to determine if conditions are suitable for the placement of markings. The Engineer or inspector will check the pavement for cleanliness, moisture content, and temperature; and will check ambient air conditions. The Engineer or inspector will make the final determination as to the suitability of project conditions for the application of pavement markings. Where required, the Contractor shall clean the surface to be marked to the satisfaction of the Engineer so as to provide for an acceptable bond between the marking and the pavement or surface.

Pavement markings shall be applied only during daylight hours, and in accordance with the manufacturer's recommendations. Weather conditions must be sufficient to allow the placement

and curing of the pavement marking material without violating the manufacturer's requirements.

All markings shall be applied in a neat and professional manner. The lines shall be sharp and clear with no feathered edging or fogging, and precautions shall be taken to prevent tracking by tires of the marking equipment. Adequate quantities of the material shall be applied to assure constant thickness of marking material. Glass beads shall be delivered at a velocity that is at least 60% of ground speed for the application device. Markings shall be applied parallel to the roadway centerline or as shown on the Plans with no unsightly deviations.

After application, markings shall be protected from crossing vehicles for a time at least equivalent to the drying time of the marking material used. Markings shall be protected from the moment of application until they are sufficiently dry to bear traffic without damage to the marking, tracking, or adhering to vehicle tires.

Any pavement marking materials spilled or tracked on roadway surfaces shall be removed by the Contractor to the satisfaction of the Engineer and at no additional cost to the City. The method of removal shall be such that it is not injurious to the roadway or other surface and is acceptable to the Engineer.

Any pavement marking that is applied on hot pavement and discolors shall be reapplied, at the Engineer's discretion. Payment for each reapplication will be at the Contract unit price for the reapplied item.

All interim pavement markings, including line striping targets when used, shall be applied so that at the end of each working day all centerlines, island markings, gore markings, lane lines, special markings, etc. are in place on all paved surfaces where traffic will be maintained. During paving and cold planing, work shall be scheduled so that the pavement markings are complete immediately after the paving and cold planning operations cease for the day. All required markings shall be completely placed before dusk.

Unless otherwise directed by the Engineer, edgelines shall be applied within three (3) calendar days of the placement of any course of pavement. The Engineer may require edgelines to be applied within a shorter time frame if traffic volume and the safety of the traveling public appear to require an earlier application.

Line striping targets (LSTs) shall be placed as directed by the Engineer. If it becomes necessary to replace temporary LSTs with either more LSTs or the actual temporary pavement markings designated for that particular location, no further payment for the temporary pavement markings at that particular location will be made.

Failure on the part of the Contractor to comply with the provisions of this part of the specifications may result in progress payments being withheld until the required work is performed to the satisfaction of the Engineer.

- (b) Equipment, General. Painting equipment shall be fully adequate to insure painted lines are straight and of the required thickness, as determined by the Engineer. The pavement marking equipment shall meet the approval of the Engineer and shall be maintained in working condition at all times. It shall be of standard commercial manufacture of the type capable of satisfactorily applying the designated material at required application temperatures, rates, and manufacturer's recommended application practices. For long line markings, each machine shall be capable of applying two separate stripes, either solid or dash, at the same time. Each applicator shall be equipped with satisfactory cutoffs that will apply broken, dashed, or dotted lines automatically. Each applicator shall have a mechanical bead dispenser that will operate simultaneously with the applicator and distribute the beads in a uniform pattern at the rate specified over the entire surface area of the marking. The bead placement device shall maximize bead embedment in the marking material. Each applicator shall also be equipped with suitable line guides.

Equipment for application shall be mobile and maneuverable to the extent that straight lines can be followed and normal curves can be made in a true arc. Equipment shall include adequate process controls to regulate the application of marking materials and maintain required temperatures, pressures, and delivery speed of components in the pavement marking.

The pavement marking equipment shall be operated in accordance with recommendations of the equipment manufacturer, unless otherwise directed by the Engineer. Operating speeds shall be such as to provide uniformity and the specified wet or dry film thicknesses.

Pavement marking vehicles shall operate in the lane for traffic moving in the same direction; they shall not encroach into the lane for opposing traffic flow. Exceptions to this requirement shall be approved in writing by the Engineer.

The application equipment shall be so constructed as to ensure continuous uniformity in the dimensions of stripes. The applicator shall provide a means for cleanly cutting off stripe ends squarely and shall provide a method of applying dashed and dotted lines. The equipment shall be capable of applying varying widths of traffic markings.

Equipment to be used for determining temperature, moisture, and material thickness including, but not limited to, a thermometer and a micrometer are specified in Subsection 631.06.

(c) Weather Limitations.

- (1) At the time of application of painted markings, the temperature of the surface to be painted shall be a minimum of 40 °F and the ambient air temperature shall be 40 °F and rising. Ambient hygrometric conditions required for drying within a twenty minute period shall exist or painting shall be suspended.
- (2) At the time of application of durable pavement markings, the pavement surface shall be clean and dry at the time of application of pavement markings. The temperature shall be the greater or a minimum of 40 °F and the ambient air temperature shall be a minimum of 40 °F and rising or the manufacturer's specified application temperatures.
- (3) If weather does not permit the application of durable markings prior to October 15th, paint will be applied in accordance with this Section and Section 708.
- (4) When it is in the public interest, the Engineer may authorize the application of pavement markings under conditions that vary from these limitations or the manufacturer's published recommendations.

(d) Layout and Control. The Contractor is responsible for the layout of all markings. The pattern of painted, durable, or temporary markings shall be as follows, unless otherwise shown in the Contract Documents or directed by the Engineer.

Control. The Contractor shall provide the necessary horizontal and longitudinal control to keep all longitudinal lines within 2 inches of their designated locations. In addition, on tangent, the Contractor shall not allow longitudinal lines to vary from either side of a straight line by more than 1 inch in a distance of 100 feet.

646.04 ACCOMMODATION AND PROTECTION OF TRAFFIC.

The Contractor shall provide adequate warning signs and traffic control measures for the accommodation and protection of traffic, as shown on the Plans or as directed by the Engineer. Placement of pavement markings may be suspended at the discretion of the Engineer during peak traffic hours, or at any time, when in the Engineer's judgment, traffic is being unduly hampered, delayed by the work or when traffic interferes with the quality of work.

All equipment and devices necessary for the application of pavement markings and protection thereof, and for the protection of the traveling public shall be as usually required for work of this type as directed by the Engineer, and shall be furnished by the Contractor.

646.05 PAINT PAVEMENT MARKINGS

Retroreflective paint pavement markings shall be applied by a method in which the liquid paint is applied to the road surface and the glass beads are immediately applied on the paint and firmly embedded therein. The application procedure shall provide a retroreflective marking, with a night visibility satisfactory to the Engineer. The material shall have a dry film thickness of 15 ± 1 mil for

paint, unless otherwise specified, and shall be applied in a smooth uniform coat, free from thin places or films of excessive thickness.

Liquid tanks on paint application equipment shall be equipped with mechanical agitators. Beads shall be conditioned to provide a smooth uniform rate of release. All materials shall be maintained in the condition recommended by the marking manufacturer prior to and at the time of marking.

Paint shall conform to the requirements of Subsection 708.08 (b) or 708.08 (d). Application shall be in accordance with the manufacturer's requirements.

The paint for permanent markings shall be applied at a rate to create a uniform wet film thickness of 22 mils with an allowable range of +/-2 mils. The application rate shall take into account the surface roughness of the pavement to be marked. Minimum application rates are 70 square feet per gallon with glass beads applied at a rate of 8.0 lb per gallon of paint.

Long lines shall be 4 inches wide.

All lines shall be placed uniformly across the width of the line with clear, sharp edges. All lines shall be straight and neat, applied in a workmanlike manner. Centerlines shall be applied within 24 hours of each paving operation. Immediately after paving, either permanent or temporary centerline markings shall be installed by the contractor. Temporary markings will be considered an integral part of the pavement and payment shall be included under Subsection 406.19, Bituminous Concrete Pavement.

646.07 DURABLE PAVEMENT MARKINGS

Durable pavement markings shall be used at those locations shown on the Plans or directed by the Engineer. Durable pavement markings are classified as epoxy paint, thermoplastic markings, and polyurea paint. Unless otherwise indicated in the Contract, the Contractor may choose any of the following as being acceptable for durable pavement markings:

- (a) Pavement Marking Tape, Type I. Type I tape for pavement markings is classified as non-removable. Type I tape shall conform to the requirements of Subsection 708.12(a).

Type I tapes, when used as a final durable marking, shall be applied only by being inlaid in the bituminous pavement during the rolling operation in accordance with the manufacturer's requirements.

- (b) Epoxy Paint. Epoxy paint for pavement markings shall conform to the requirements of Subsection 708.08(c). Application shall be in accordance with the manufacturer's requirements. Mixing of the epoxy reagents shall be complete prior to the placement of the marking. Failure to set to a hard condition shall be grounds for rejection. Glass beads shall be AASHTO M247 Type I incorporated at 30% mass of the combined material, unless otherwise specified.

- (c) Thermoplastic. Thermoplastic pavement markings shall conform to the following requirements and shall meet the requirements of Subsection 708.10.

The thermoplastic pavement marking compound shall be extruded onto the pavement surface in a molten state. The temperature of the material shall not exceed the manufacturer's recommended heating temperature or rate of temperature increase. The surface shall be properly prepared for receipt of the marking material, including surface roughness, cleanliness, and moisture levels. The surface shall be primed when the manufacturer's recommendations require priming.

Following an application of glass beads to the marking surface, and upon cooling to normal pavement temperatures, the resultant marking shall be an adherent retroreflective stripe of the specified thickness and width that is capable of resisting deformation by traffic.

- (1) Thermoplastic Application Equipment. Thermoplastic application equipment shall be approved by the Engineer prior to the start of work.

Thermoplastic material shall be applied to the pavement surface by the extrusion method, wherein the bottom of the extrusion shoe is the pavement and the top and other three sides are contained by, or are part of, suitable equipment for maintaining the temperature and controlling the flow of material. The fourth side contains the extrusion opening.

The ribbon extrusion method will not be permitted.

The equipment used for the placement of thermoplastic pavement markings shall be of two general types:

- a. Mobile Applicator Equipment. The mobile applicator shall be defined as truck mounted equipment designed to apply thermoplastic by the extrusion method. The unit shall be equipped to apply the thermoplastic material at temperatures exceeding 400 °F, and at the widths and thicknesses specified herein. The mobile unit shall be capable of operating continuously and/or installing a minimum of 3.8 miles of longitudinal markings in an eight-hour day.

The mobile unit shall be equipped with extrusion shoes and shall be capable of simultaneously marking edge-line and/or two centerline stripes. The extrusion shoes shall be closed, heat jacketed or suitably insulated units; shall hold the molten thermoplastic at a temperature from 400 to 435°F; and shall be capable of extruding a line from 4 to 8 inches wide, between 96 and 100 mils thick, and of generally uniform cross-section. Material temperature gauges shall be affixed, adjacent to or incorporated in the extrusion shoe in such a manner as to be visible and capable of monitoring the composition temperature throughout the marking operation.

The mobile unit shall be equipped with an electronic and programmable line pattern control system, or mechanical system, so as to be capable of applying dashed, dotted, or solid lines in any sequence and through any extrusion shoe in any cycle length.

- b. Portable Applicator Equipment. The portable applicator shall be defined as hand operated equipment specifically designed for placing thermoplastic installations such as crosswalks, stop bars, legends, arrows, and short lengths of lane, edge, and centerlines. The portable applicator shall be capable of applying thermoplastic markings by the extrusion method. It is intended that the portable applicator will be loaded with hot thermoplastic composition from the melting kettle(s) or that the material will be melted by an integral "melting stack" when so equipped. The portable applicator shall be equipped with all the necessary components, including a material storage reservoir, bead dispenser, extrusion shoe and heating accessories, so as to be capable of holding the molten thermoplastic at a temperature from to 435 °F, and of extruding a line from 4 to 8 inches wide in 2 inch increments, between 80 and 100 mils thick, and of generally uniform cross-section. Material temperature gauges shall be affixed, adjacent to or incorporated in the extrusion shoe in such a manner as to be visible and capable of monitoring the composition temperature throughout the marking operation. If a machine, as manufactured, cannot be equipped with gauges at the extrusion shoe, the Engineer may approve an alternate method of monitoring the composition temperature at the point of deposition.

(2) Application Requirements.

- a. Primer. Primer shall be used under such conditions, at such rates and

thicknesses and of a type as is recommended by the manufacturer of the thermoplastic material being applied. Bituminous concrete primer shall be applied to pavements older than two years at the application rates and procedures recommended by the manufacturer of the thermoplastic material.

- b. Thermoplastic Composition. Thermoplastic composition shall conform to the requirements of Subsection 708.10.
 - c. Application Temperature. Thermoplastic composition shall be applied at a temperature range between 400 and 435°F.
 - d. Extruded Markings. All extruded markings shall be applied at the specified width and at a thickness between 96 and 100 mils exclusive of any drop on glass beads.
 - e. Beads.
 - 1. Glass beads meeting the requirements of AASHTO M247 Type I incorporated into the thermoplastic composition at a rate of between 28 and 30 percent by weight of the combined material.
 - 2. Reflective glass spheres (for “drop on”) shall be placed concurrently with application of the thermoplastic. The reflective glass spheres shall be dropped onto the molten thermoplastic marking at the rate of 7 ounces (avoir) per square yard of composition. The glass spheres shall conform to the requirements of AASHTO M247 Type I.
 - f. Gaps and Overlaps. When applying durable diagonal pavement markings that are to be enclosed within durable long line borders, the Contractor shall apply the diagonals in such a manner as to allow a maximum of a single overlap and no gaps between the diagonals and the long lines. Where possible and where applicable, a 2 inch gap should be maintained between thermoplastic pavement markings and parallel joints in bituminous concrete pavement. This requirement is secondary to the alignment controls specified in Subsection 646.04(d).
- (d) Polyurea Paint. Approved polyurea marking materials shall be one of the markings listed on the Approved Products List on file with the City's Materials and Research Section under Subsection 708.08(a). Glass beads shall be AASHTO M247 Type I incorporated at 30% mass of the combined material, unless otherwise specified.

646.08 (NOT USED)

646.09 OTHER RELATED MARKINGS.

- (a) Pavement Marking Recess. Recessed pavement markings shall be installed as specified for permanent markings. The recess shall be a uniform depth across the width of the marking. The recess shall be controlled such that the depth provided is 125% of the marking material thickness. The recess shall be clean and dry at the time of marking placement.
- (b) Raised Pavement Markers, Type I. Type I raised pavement markers are intended to be permanently installed in the pavement surface and are manufactured of a material which will resist destruction by snow plowing equipment.

Type I raised pavement markers shall meet the requirements as specified in Subsection 708.11 and shall be permanently installed in the wearing course of pavement in accordance with the manufacturer's recommendations.

Type I raised pavement markers of the color shown on the Plans or directed by the Engineer shall be installed at the locations shown the Plans or directed by the Engineer. Unless otherwise shown on the Plans or directed by the Engineer, Type I raised pavement markers shall be installed in accordance with the requirements of the MUTCD.

646.10 SUBSTITUTION OF MARKING MATERIALS.

If the durable markings can not be placed under suitable environmental conditions, paint shall be applied at the current standards as specified in Subsection 646.06 at no cost to the City of Burlington. Where it can be determined that through no fault of the Contractor the durable markings cannot be applied under suitable environmental conditions, paint may be applied for durable marking of the types indicated on the Plans where appropriate and as directed by the Engineer.

Regardless of the circumstance under which paint is applied after an unsuitable environmental condition determination, durable markings of the types indicated on the Plans shall be applied as soon as suitable environmental conditions permit during the following Spring. These durable markings shall be measured and paid for in accordance with Subsections 646.13 and 646.14.

646.11 (NOT USED)

646.12 REMOVAL OF EXISTING PAVEMENT MARKINGS.

Existing markings shall be obliterated in such a manner and by such means that a minimum of pavement scars are left and all of the existing marking is removed; i.e., grinding a square or rectangle on the pavement to remove a letter or arrow or grinding a large rectangle to remove a word so that the outline of the letter, symbol, or word is not ground into the pavement and therefore still legible even though the marking has been removed. Painting over existing markings is not an acceptable method of removal. The work shall be completed to the satisfaction of the Engineer. Masking of lines in intermediate duration activities shall be completed according to the Plans or as directed by the Engineer.

646.13 METHOD OF MEASUREMENT

The quantity to be measured for payment of line painting shall be the number of linear feet of painted line as directed for marking by the Inspector or Engineer.

Crosswalks and stop bars shall be measured for payment by the number of each individual crosswalks or stop bars installed made of an approved material in place per attached BPW-Traffic Standard.

All single arrows shall be measured as per each individual arrow of approved material in place. Combination arrows indicating two or more traffic movements shall be measured and counted as two single arrows.

All legends shall be measured by counting each individual letter in each legend of approved material in place for payment.

All marking material shall be "on-hand" one (1) week prior to start of work. Written notification of this fact shall be given to the OWNER.

646.14 QUANTITIES AND BASIS OF PAYMENT

Payment will be made for actual paint markings completed and accepted by the City Engineer. The basis of payment shall be by Contract unit price for linear foot units of work complete and measured. Dashed lane lines shall be paid by linear feet of painted line. Total actual quantities may vary from estimated quantities.

END OF SECTION 646

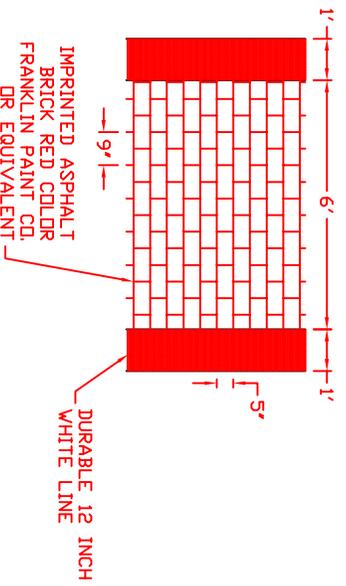
APPENDIX A
 Street Reconstruction List
 July 1, 2013 - October 1, 2013
 CONTRACT #SC13-5000-01

	STREET	FROM	TO
1	ADSIT		
2	ARLINGTON		
3	BRADLEY		
4	BRIGHT		
5	BUELL		
6	CHERRY ST	S WINOOSKI	CHURCH ST
7	DEFOREST HEIGHTS	DEFOREST RD	CHITTENDEN DR
8	ELM TERR		
9	FRONT		
10	INTERVALE AVE	SPRING ST	ARCHIBALD ST
11	LAUREL		
12	LUCK		
13	MAIN ST	WILLARD ST	WINOOSKI AVE
14	ORCHARD TERR		
15	POPLAR		
16	RUSSELL		
17	SANDRA CIRCLE		
18	SHORE RD	NORTH AVE	FERN ST

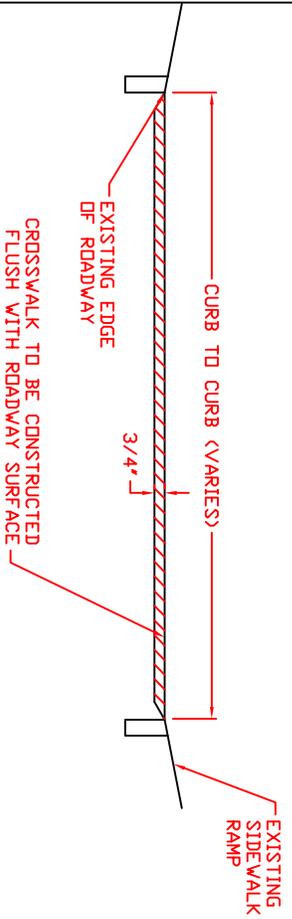
**FISCAL YEAR 2014: STREET RECONSTRUCTION ESTIMATE
APPENDIX C: ESTIMATE QUANTITY SHEET**

	Location	From	To	Length (FT)	Width (Ft)	Area (Sq-Ft)	CB	MH	GAS	WV	reclaim	mill/fill	watervalves	ITEM #4	ITEM #4	ITEM #5	ITEM #6	ITEM #7	ITEM #8	ITEM #9	ITEM #10	ITEM #11	ITEM #12	ITEM #13	ITEM #14	ITEM #15
											Structure Adj. #1 EA	Structure Adj. #2 EA	Structure Adj. #3 EA													
1	ADIST			317	20	6340	0	1	1	3	1	0	3	39	0	78	0	704	0	0	0	10	80	0	0	0
2	ARLINGTON			1003	30	30090	0	3	1	3	3	0	3	186	0	371	0	3343	0	0	0	0	0	0	0	0
3	BRADLEY			950	26	24700	4	3	0	5	7	0	5	152	0	305	0	2744	0	0	0	26	208	0	0	0
4	BRIGHT			739	26	19214	4	3	0	4	7	0	4	119	0	237	0	2135	0	0	0	26	104	0	0	260
5	BUELL			1426	30	42780	4	8	1	6	12	0	6	264	0	528	0	4753	0	500	0	90	1080	0	1	300
6	CHERRY ST	S WINOOSK	CHURCH	350	40	14000	4	7	1	8	0	11	8	86	43	0	1556	0	0	250	0	20	0	0	0	0
7	DEFOREST HEIGH	DEFOREST	END	1109	30	33270	3	5	3	5	8	0	5	205	0	411	0	3697	0	0	0	0	0	0	0	0
8	ELM TERR			370	26	9620	0	2	2	0	2	0	0	59	0	119	0	1069	0	0	0	0	0	0	0	0
9	FRONT			898	28	25144	5	4	0	4	9	0	4	155	0	310	0	2794	0	0	0	0	0	0	0	0
10	INTERVALE AVE	SPRING ST	ARCHIBALD	700	30	21000	10	8	3	5	0	18	5	130	65	0	2333	0	0	0	0	15	90	0	0	0
11	LAUREL			397	30	11910	2	1	0	0	3	0	0	74	0	147	0	1323	0	0	0	0	0	0	0	0
12	LUCK			528	26	13728	3	2	0	2	5	0	2	85	0	169	0	1525	0	0	0	26	0	0	0	0
13	MAIN ST 2	WINOOSKI	WILLARD	1300	50	65000	5	14		6	0	19	6	401	201	0	7222	0	0	1310	2	50	50	2	0	2320
14	ORCHARD TERR			792	26	20592	2	3	3	6	5	0	6	127	0	254	0	2288	0	0	0	13	48	0	0	0
15	POPLAR			370	18	6660	2	0	2	2	2	0	2	41	0	82	0	740	0	0	0	0	144	0	0	0
16	RUSSELL			475	26	12350	3	1	0	0	4	0	0	76	0	152	0	1372	0	0	0	0	104	0	0	0
17	SANDRA CIRCLE			2376	30	71280	4	4	0	3	8	0	3	440	0	880	0	7920	0	0	0	0	0	0	0	0
18	SHORE RD 1	NORTH AVE	FERN ST	1490	26	38740	9	6	6	2	15	0	2	239	0	478	0	4304	0	100	4	25	120	0	0	0
Total Units				15590		466418	64	75	23	64	91	48	64	2,879	309	4,524	11,111	40,713	0	2,160	6	301	2,028	2	1	2,880

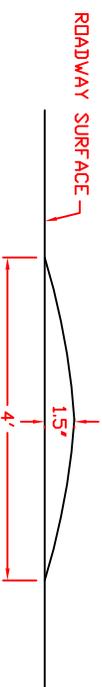
ORANGE = RECLAIM
BLUE = MILL/FILL



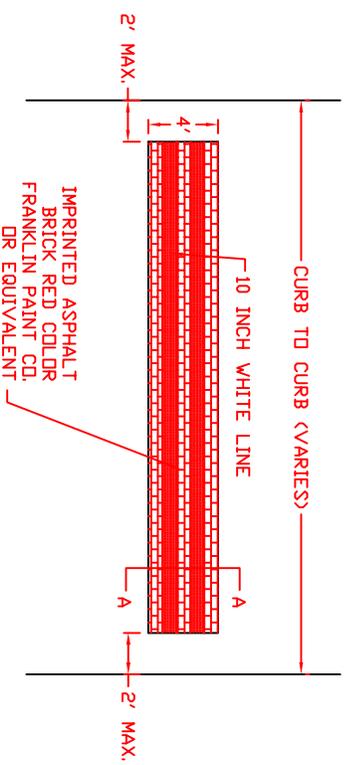
TEXTURED CROSSWALK SECTION
NTS



TEXTURED CROSSWALK DETAIL
NTS



RUMBLE STRIP DETAIL: SECTION A - A
NTS



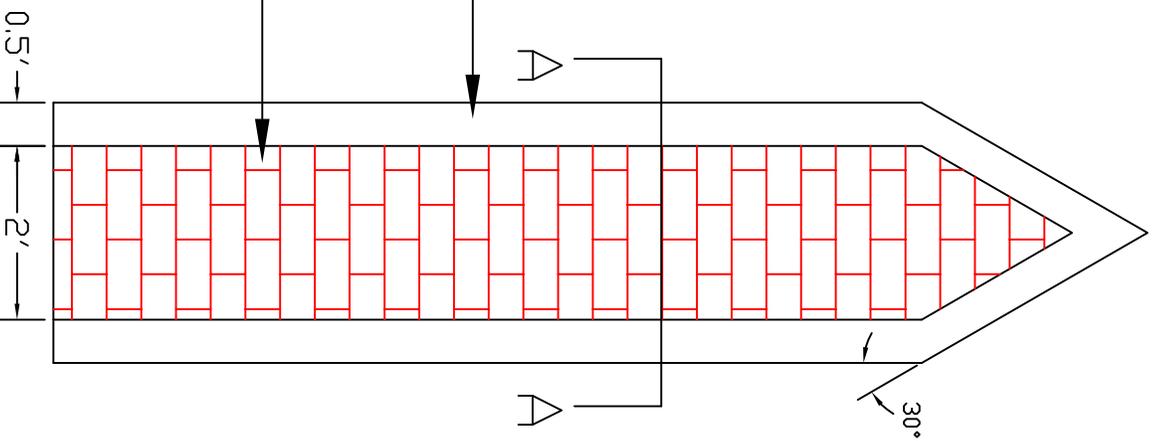
RUMBLE STRIP DETAIL
NTS

Burlington
Public Works

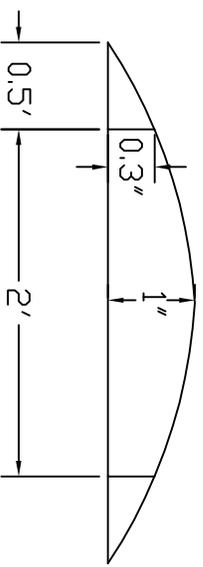
645 Pine Street
Burlington, VT 05401
(802) 853-9094
(802) 853-0466 (fax)
January 2011

Textured Crosswalk & Rumble Strip Details
Appendix D





Section A-A



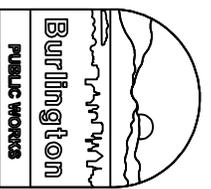
Durable 6" White
or Yellow Line-
Engineer will
specify

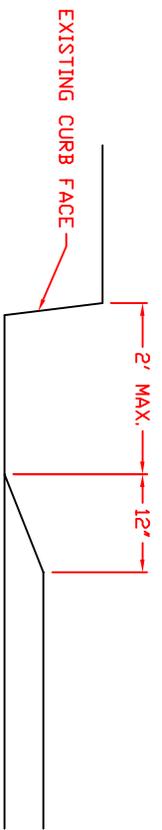
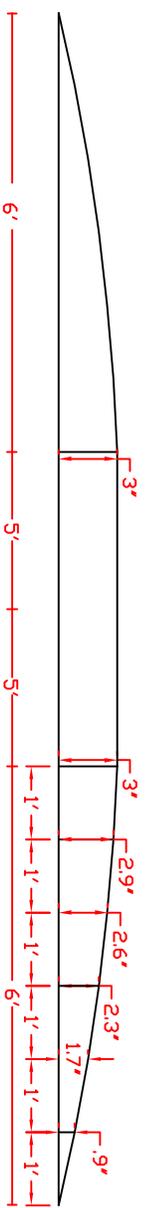
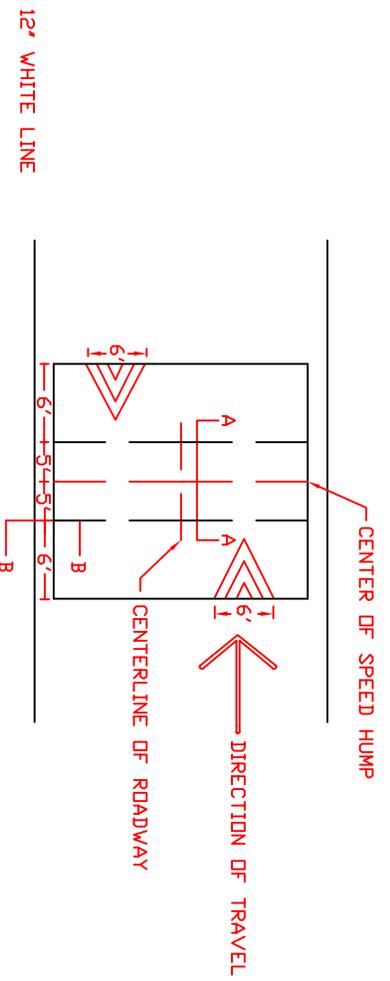
Imprinted Asphalt
Brink Red Color
Franklin Paint Co. or
Equivalent

Burlington
Public Works

Drawn by JPF
645 Pine Street
Burlington, VT 05401
(802) 863-9094
(802) 863-0466 (fax)

Traffic Calming Detail
Appendix D-2

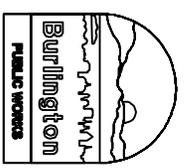


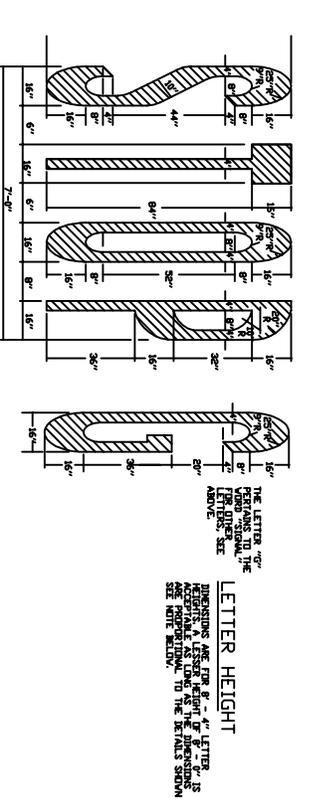
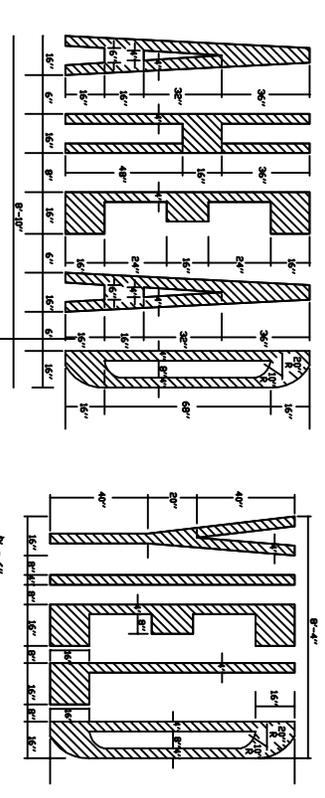
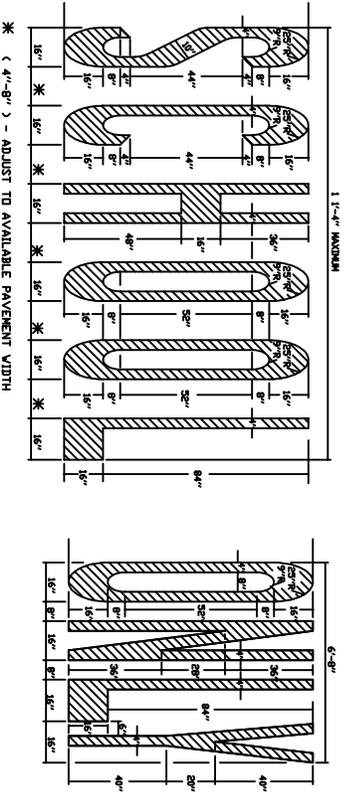


22' SPEED HUMP DETAIL
APPENDIX E

**BURLINGTON
PUBLIC WORKS**

645 PINE STREET
BURLINGTON, VT 05401
(802) 863-9094
(802) 863-0466 (Fax)

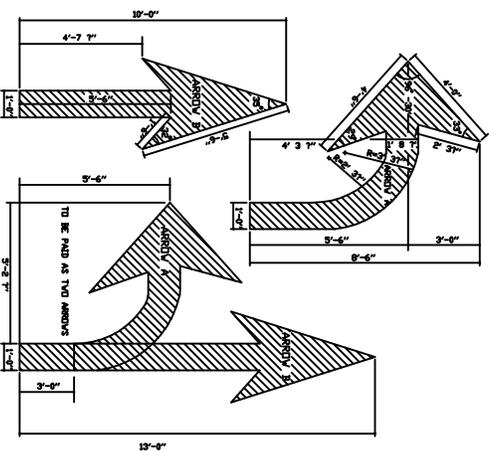




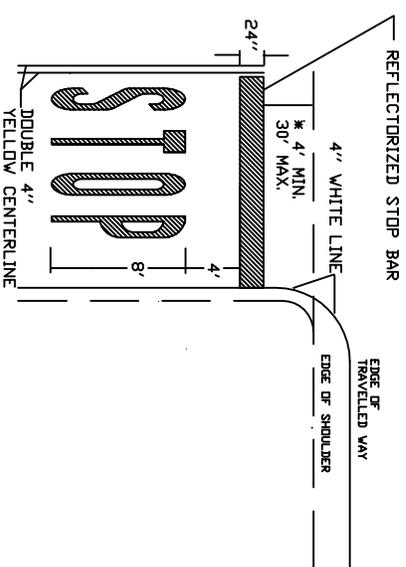
LETTER IN WORD MARKING DETAILS
NTS

Burlington
Public Works

545 Pine Street
Burlington, VT 05401
(802) 863-9094
(802) 863-0466 (Fax)

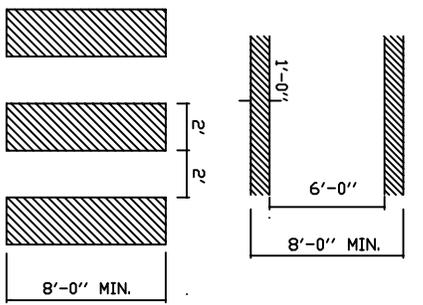


ARROW DETAILS
NTS



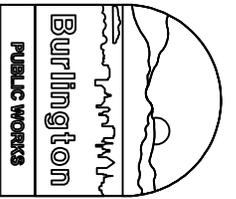
STOP BAR DETAIL
NTS

THE "DESIRED STOPPING POINT" IS THE LOCATION BASED ON SITE CONDITIONS THAT BEST ALLOWS THE STOPPED VEHICLE TO VIEW THE APPROACHING TRAFFIC.



CROSSWALK DETAILS
NTS

Pavement Marking Details
Appendix F-1



Shared Lane Marking

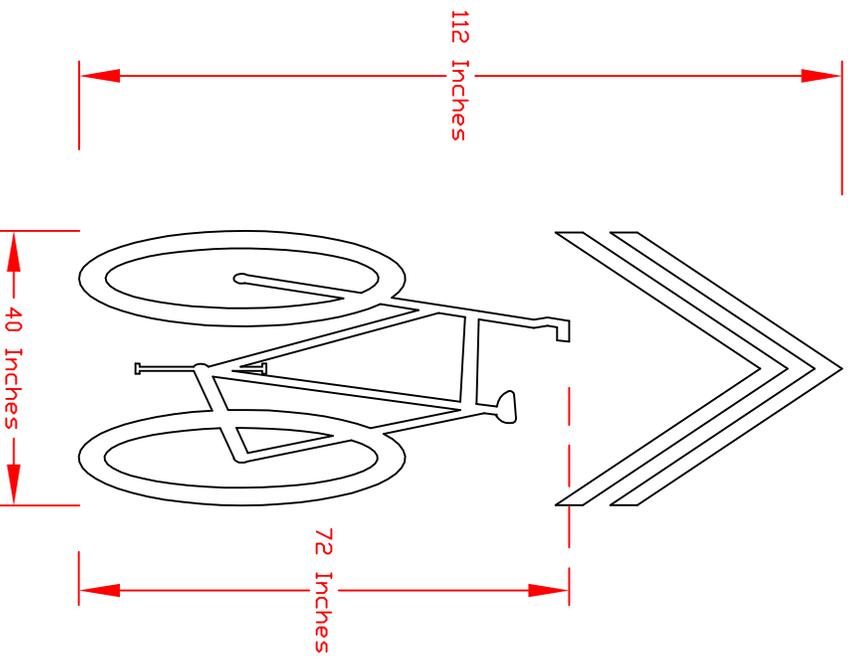
Guidance:

If used in a shared lane with on-street parallel parking, Shared Lane markings should be placed so that the centers of the markings are at least 11 feet from the face of the curb, or from the edge of the pavement where there is no curb.

If used on a street without on-street parking that has an outside travel lane that is less than 14 feet wide, the centers of the Shared Lane Markings should be at least 4 feet from the face of the curb, or from the edge of the pavement where there is no curb.

If used, the Shared Lane Marking should be placed immediately after an intersection and spaced at intervals not greater than 250 feet thereafter.

[Refer to Section 9 of the MUTCD]



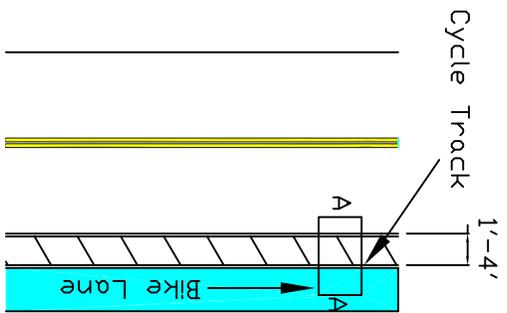
Shared Lane Marking

Burlington
Public Works

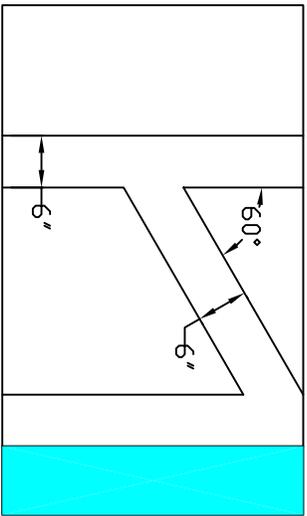
Drawn by JPF
643 Pine Street
Burlington, VT 05401
(802) 863-3099
(802) 863-0466 (fax)
January 2011

Bicycle Details 1
Appendix F-2

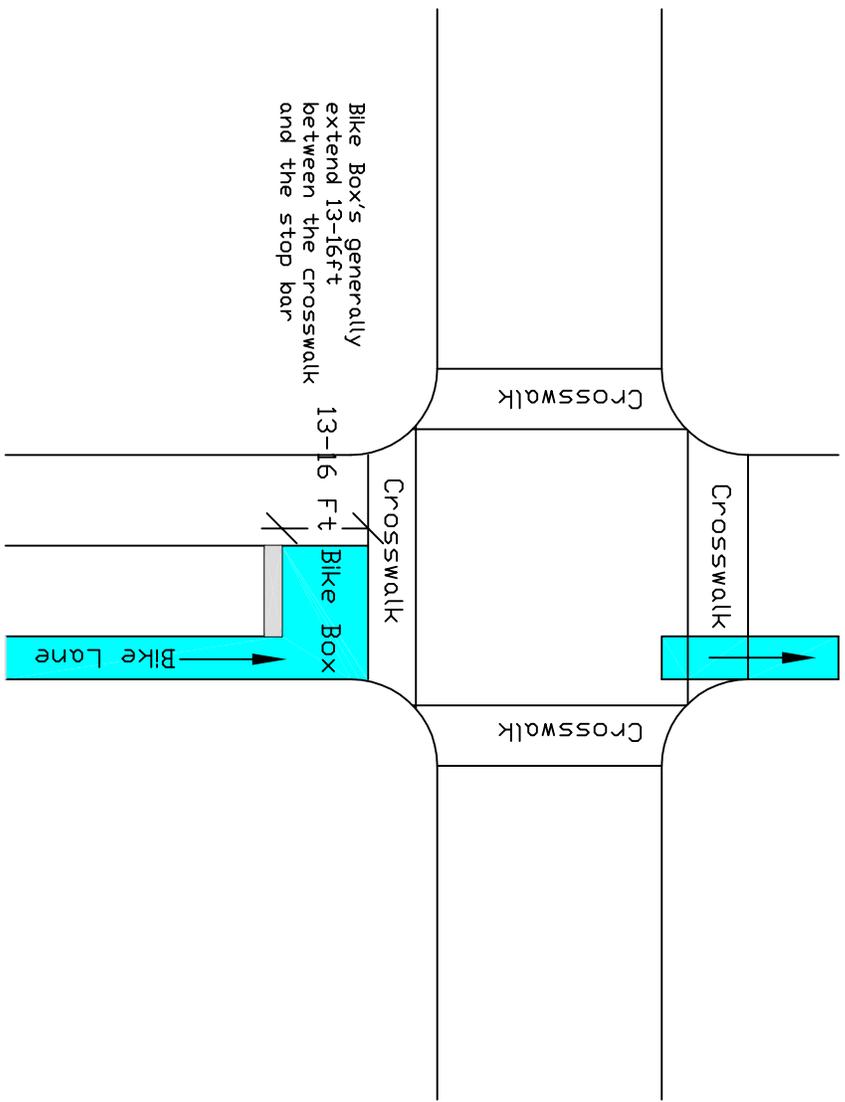




Section A-A



Cycle Track General
Conditions Detail



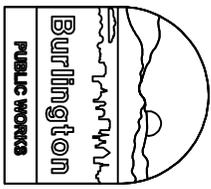
Bike Box's generally extend 13-16ft between the crosswalk and the stop bar

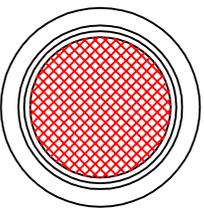
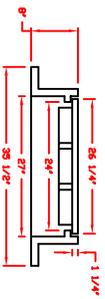
Bike Box General
Conditions Detail

Burlington
Public Works

Drawn By JPF
645 Pine Street
Burlington, VT 05401
(802) 863-9094
(802) 863-0466 (fax)
January 2011

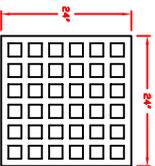
Bicycle Details 2
Appendix F-3



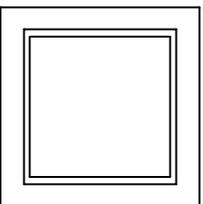
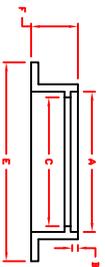


UNIT #	APPRX. WT.
360 FRAME	230 LBS
360A COVER	235 LBS
TOTAL	465 LBS

CAST IRON COVER WITH FRAME
N/S



CAST IRON GRATE
N/S



UNIT #	A	B	C	E	F	APPRX. WT.
416-4	24 1/8"	21"	21"	32 X 27	4"	100
416-6	24 1/8"	21"	21"	32.5 X 29.5	6"	190
416-8	24 1/8"	21"	22"	33 X 30	8"	225

*FOUR FLANGE AVAILABLE FOR ALL SIZES

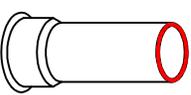
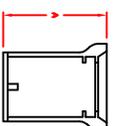
FRAME FOR CAST IRON GRATE
N/S



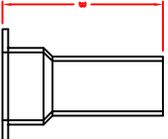
COVER



TOP



BOTTOM



MODEL #	562A	564A	664A	666A
DIM A (TOP)	16"	16"	26"	26"
DIM B (BOTTOM)	24"	36"	36"	48"

SLIP TYPE VALVE BOXES: 5 1/4"
N/S

Burlington Public Works

645 Pine Street
Burlington, VT 05401
(802) 863-9094
(802) 863-0466 (fax)
January 2011

Drainage & Water Valve Details Appendix G



APPENDIX 'H'

VALVE BOX

Specifications for the Burlington Public Works Department

1.0 Specifications

- 1.1 Valve box bottom sections shall be slide-type with bell-type base.
- 1.2 Valve box bottoms shall be 36 inches in length.
- 1.3 Valve box top sections shall be slide-type. It may have a top flange, but shall not have a "bead" or bottom flange.
- 1.4 Valve box tops shall be 26 inches in length.
- 1.5 Valve box covers shall be a 2 inch drop-type cover to fit the 7-1/4 inch opening of the top section.
- 1.6 Valve box extensions shall be slide-type with a minimum 3 inch belled bottom.
- 1.7 Material shall be cast iron or ductile free from defects.
- 1.8 Interior and exterior of all components shall be bituminous coated with a minimum of 4 mil dry film thickness.
- 1.9 Gate box covers shall fit properly and seat flush in the gate valve box top sections.
- 1.10 Boxes shall have slip-tight shaft; 5-1/4 inch.
- 1.11 Gate box extensions shall properly fit the gate valve box top sections and be Buffalo #B-5181 or Engineer approved equal.
- 1.12 Gate valve boxes shall be for water use only and marked "WATER".

2.0 General Provisions

- 2.1 Vendor shall identify any and all exceptions to the specifications, and promptly notify the Engineer in writing noting the location and nature of each discrepancy.
- 2.2 Vendor shall supply standard catalogue information for each item quoted for Engineer review and approval.

END OF APPENDIX 'H'

Downtown District- Appendix I

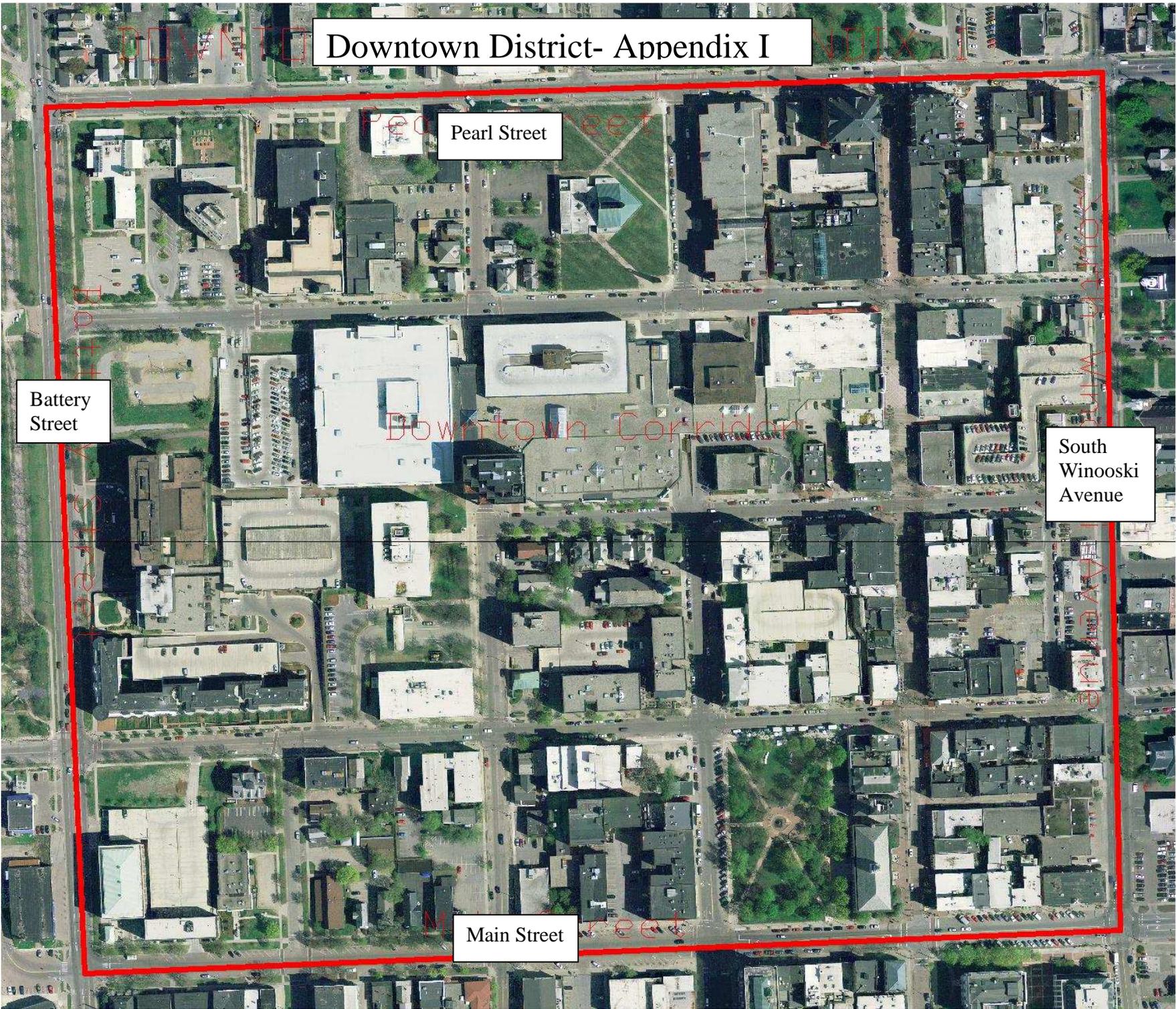
Pearl Street

Battery Street

South Winooski Avenue

Main Street

Downtown Corridor



APPENDIX 'J'

SERVICE BOX

Specifications for the Burlington Public Works Department

1.0 Specifications

- 1.1** Service box shall be constructed of heavy-duty cast iron or provided by the City of Burlington
- 1.2** Shall be Buffalo style with slide-type riser.
- 1.3** Top section shall have a length of 2 feet and the bottom shall be 4 feet in length.
- 1.4** Service box covers shall have a pentagon head brass bolt.
- 1.5** Service box covers shall be marked "WATER".
- 1.6** Foot piece shall have arch pattern for 3/4 inch to 1-1/2 inch curb valve and stops.

END OF APPENDIX 'J'

APPENDIX 'K'
ASPHALT PRICE ADJUSTMENT
Supplemental Specification
for the
Burlington Public Works Department

GENERAL REQUIREMENTS AND CONDITIONS

- (a) This specification contains price adjustment provisions for asphalt cement and emulsified asphalt used on City construction projects and produced under Section 406 of the Specifications, or as otherwise designated in the Contract Documents. This price adjustment clause is being inserted in this Contract to provide for either additional compensation to the Contractor or a payment to the City, depending upon an increase or decrease in the average price of asphalt cement during the construction of this project.
- (b) Emulsified asphalt shall be subjected to a correction factor of 0.45, applied to the quantity of material supplied. This corrected quantity shall be used for Asphalt Price Adjustment as specified and computed herein.
- (c) These provisions apply to this Contract only as specified in the procedures provided herein. No further asphalt cement and/or emulsified asphalt price adjustments will be allowed under this Contract.
- (d) It is understood by the Contractor that a price adjustment increase may cause the City to decrease the quantities of the Contract pay items subject to adjustment under these provisions. Provisions providing for decreased quantities and item cancellation in this paragraph are separate and take precedence, notwithstanding any other provisions of this Contract.
- (e) No price adjustment will be allowed beyond the Contract Completion Date or any applicable interim completion dates.
- (f) Any increase in the total Contract amount due to price adjustment under these provisions will not be justification for an extension of time under Subsection 108.11.
- (g) The Contractor hereby agrees that its bid prices for this Contract include no allowances for any contingencies to cover increased costs for which adjustment is provided herein.
- (h) Contract Plans, Appendices, and General and Special Conditions, DIVISION 100 General Provisions, and other Technical Specification Sections, apply to this Specification.

PRICE ADJUSTMENT PROCEDURES

- (1) Prior to advertising for bids, an Index Price for asphalt cement will be established by the City upon consideration of the New York State DOT average monthly price for asphalt cement, or other monthly index deemed appropriate by the City Engineer. The Index Price will be set monthly on or about the last day of the month. The Contract Index Price will be the most recent Index Price set by the City at the time of advertising for bids. This price will be as specified in the Special Provisions and will be the base from which price adjustments are computed.
- (2) For the duration of the Contract, Posted Prices for a ton of asphalt cement will be established monthly by the City. The Posted Prices will be established in the same manner as the Index Price.

- (3) A Price Adjustment will be paid or credited for asphalt cement only when the Posted Price of asphalt cement increases or decreases over its respective Index Price.
- (4) The Price Adjustment will be based upon the quantity of asphalt cement (QAC) and quantity of emulsified asphalt (QEA) incorporated in the work, determined as follows:
- a. Batch Plants. QAC is determined using the cumulative actual binder content for each applicable item as reported on the batch ticket, excluding any percent of asphalt cement from Recycled Asphalt Pavement (RAP).
 - b. Drum-Mix Plants. QAC is determined based upon the tons of mix placed, multiplied by the actual binder content reported on the demand tickets, as verified by City personnel. In the event of multiple binder contents, the accepted quantity of mix at each binder content shall be determined, and the total QAC used shall be calculated accordingly. The accumulated asphalt cement total on the plant automation may be checked and verified by City personnel for each mix.
 - c. Emulsified Asphalt. QEA is as determined in accordance with Subsection 404.11.
- (5) The Price Adjustment to be paid shall be computed as follows:
- PA = Price Adjustment (LU in \$)
 IP = Index Price (\$/ton)
 PP = Posted Price on date of work (\$/ton)
 QAC = Quantity of Asphalt Cement (tons)
 QEA = Quantity of Emulsified Asphalt (CWT)
- $$PA = [(PP/IP) - 1.00] \times [(QAC + (0.45 \times 0.05 \times QEA)) \times (PP - IP)]$$
- (6) The Contract bid prices for the applicable pay items will be paid separately under the Contract. The price adjustment will be calculated and paid in the same bi-weekly estimate as the applicable Contract work.
- (7) Payments for Price Adjustment, Asphalt Cement shall be debited or credited against the Contract price (Lump Unit) bid for Price Adjustment, Asphalt Cement.

Payment will be made under:

<u>Pay Item</u>	<u>Pay Unit</u>
406.50 Price Adjustment, Asphalt Cement (N.A.B.I.)	Lump Unit

END OF APPENDIX 'K'