CENTRAL VERMONT REGIONAL PLANNING COMMISSION

STANDARD CONTRACT

Part 1 – Contract Detail

SECTION 1 - GENERAL CONTRACT INFORMATION

Original ☒	Amendment ☐ #_____	
Contract Amount: $455,125	Contract Start Date: 05/X/19	Contract End Date: 90 days later
Contractor Name: G&N Excavation		
Contractor Physical Address: 3804 North Fayston Road		
City: Moretown	State: VT	Zip Code: 05660
Contractor Mailing Address: 3804 North Fayston Road		
City: Moretown	State: VT	Zip Code: 05660
Contract Type: Cost Reimbursement ☐ Fixed Price ☒ Other ☐ (please specify)		
If this action is an amendment, the following is amended: Funding Amount ☐ Performance Period ☐ Scope of Work ☐ Other ☐ (please specify)		

SECTION 2 – CONTRACTOR INFORMATION (to be completed by CVRPC)

Contractor Duns: 0796400452

DUNS Registered Name *(if different than Contractor Name above):*

SAM checked for DUNS Suspension and Debarment Exclusions
(https://sam.gov/SAM/pages/public/index.jsf . Print Screen Must be Placed in Contract File)

Date: 04/18/19 Initials: PD SAM Expiration Date: 01/21/20

State of Vermont checked for Debarment Exclusions
(http://bgs.vermont.gov/purchasing-contracting/debarment. Print Screen Must be Placed in Contract File)

Date: 04/18/19 Initials: PD Debarment Expiration Date: NA

Risk Assessment completed (Questions for contractor at ..\..\..\Forms\Risk Assessment_Contractor Questions.docx. Staff completes assessment at ..\..\..\Forms\Risk Assessment_Contractor.docx. Contractor responses and completed risk assessment places in contract file. Contract modified to reflect assessment results.)

Date: 04/23/19 Initials: PD

Single Audit check in Federal Audit Clearinghouse (https://harvester.census.gov/facdissem/Main.aspx. Print screen must be placed in contract file))

Date: 04/18/19 Initials: PD

IRS Form W9 - Request for Taxpayer Identification Number and Certification
(Contractor must complete a Form W-9. Form must be placed in contract file.)

Date: 04/23/19 Initials: PD

Certificate of Insurance (Contractor must provide a valid Certificate of Insurance demonstrating compliance with minimum insurance requirements of the originating funding. If originating funding has none, default minimums are State of Vermont requirements.)

Date: 04/23/19 Initials: PD

Will the Contractor Charge CVRPC for Taxable Purchases? Yes ☐ No ☒
[Provide written documentation of answer from contractor. If yes, CVRPC tax exemption certificate must be provided to contractor (obtain from CVRPC finance staff). CVRPC is not subject to sales tax.]

Date: 04/23/19 Initials: PD

Contract Total Value exceeds, or cumulatively may exceed, $250,000? Yes ☒ No ☐
(Contractor must provide list of all proposed subcontractors and subcontractors' subcontractors and the identity of those party's worker compensation providers)

Date: 04/23/19 Initials: PD

SECTION 3 – FUNDING SOURCE

Funding Type: ☐ Federal CFDA #: Program Title:
FAIN: Amount of Federal Funding: $
Federal Awarding Agency:
Federal Award Date: Project Description:
☒ State Contract #: 2017-ERP-M-18
☐ Other Source:

SECTION 4 – CONTACT INFORMATION

CVRPC

Project Contact/Coordinator
Name: Pamela DeAndrea
Title: Senior GIS Planner
Work Phone: (802) 229-0389
Email: deandrea@cvregion.com

Finance/Billing
Name: Nicole Sancibrien
Title: Accounting Contractor
Work Phone: 802-229-0389
Email: macbrien@cvregion.com

CONTRACTOR

Project Contact/Manager
Name: Michele Gaboriau
Title: President
Work Phone: 802-496-3735
Cell Phone (if applicable):
Email: mgaboriau@gmavt.net

Finance/Billing
Name: Michele Gaboriau
Title: President
Work Phone: 802-496-3735
Cell Phone (if applicable):
Email: mgaboriau@gmavt.net
Address if different than Section 1):
Mailing:
City/State/ZIP:

AGREEMENT

THIS AGREEMENT, made this _____ day of _____, 20___, by and

between Central Vermont Regional Planning Commission, hereinafter called "OWNER" and

G&N Excavationdoing business as (an individual, 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 Water Street Stormwater Improvements 2019-01 (Project Name & OWNER's Project Number).

2. The CONTRACTOR will furnish all the material, supplies, tools, equipment, labor and other services necessary for the construction and completion of the PROJECT described herein.

3. The CONTRACTOR will commence the WORK required by the CONTRACT DOCUMENTS on the date of issuance of the NOTICE TO PROCEED and will complete the same within 90 calendar days unless the period for completion is extended otherwise by the CONTRACT DOCUMENTS. 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 as liquidated damages, the sum of $1000 for each consecutive calendar day that the CONTRACTOR shall be in default after the time specified in the Agreement and as provided in Section 15 of the General Conditions.

4. The CONTRACTOR agrees to perform all the WORK described in the CONTRACT DOCUMENTS and comply with the terms therein for the sum of $455,125 or as shown in the BID schedule.

5. The term "CONTRACT DOCUMENTS" means and includes the following:
   - Advertisement for BIDS
   - Information for BIDDERS
   - BID
   - BID Bond
   - Notice of Award
   - Agreement
   - Payment BOND
   - Performance BOND
   - Notice to Proceed
   - Payment Requisition Form
   - Change Order Format
   - Partial Release and Waiver of Lien
   - Consent of Surety to Reduce Retainage at Substantial Completion
   - Certificate of Substantial Completion
   - Consent of Surety to Release Final Payment
   - Certificate of Final Completion and Acceptance of Work
   - General Conditions
   - Hazardous Materials and Historic Preservation
   - Notice to CONTRACTORs (Unauthorized Bypassing Prohibited)
   - Supplemental General Conditions
   - DRAWINGS prepared by ____Aldrich & Elliott_____ numbered ___1_____ through _____6_____, and dated _February_____, 2019.
   - SPECIFICATIONS prepared or issued by _Aldrich & Elliott_____, and dated __February_____, 2019.
   - ADDENDA: No. _1___, dated __April 4, 2019_____

6. 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.

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 __1_ copies, each of which shall be deemed an original on the date first above written.

OWNER: Central Vermont Regional Planning Commission **ATTEST:** _____
(Signature)

BY: _____ Name: _____
(Signature) (Print or Type)

Name: _Bonnie Waninger_____ Title: _____
(Print or Type)

Title: _Executive Director_____

CONTRACTOR: G&N Excavation_____

BY: _____
(Signature)

Name: _Michele Gaboriau_____ (CONTRACTOR Seal if available)
(Print or Type)

Address: 3804 North Fayston Road_____

Moretown, VT 05660_____

(802) 496-3735_____
Phone #

FED CONSTRUCTION PROJECT MANAGER:

_____
(Signature)

Name: _____
(Print or Type)

ATTEST: _____
(Signature)

Name: _____
(Print or Type)

Title:_____

PAYMENT BOND

KNOW ALL MEN BY THESE PRESENTS THAT:

G&N Excavation
(Name of CONTRACTOR)

3804 North Fayston Road,Moretown, VT 05660
(Address of CONTRACTOR)

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

and _____
(Name of Surety)

_____
(Address of Surety)

hereinafter called Surety, are held and firmly bound unto

Central Vermont Regional Planning Commission
(Name of OWNER)

29 Main Street, Suite 4, Montpelier, VT 05602
(Address of OWNER)

hereinafter called OWNER, in the penal sum of Four Hundred Fifty Five Thousand One Hundred Twenty Five Dollars, $(455,125) in lawful money of the United States, for the payment of which sum well and truly to be made, we bind ourselves, successors, and assigns, jointly and severally, firmly by these presents.

THE CONDITION OF THIS OBLIGATION is such that whereas, the Principal entered into a certain contract with the OWNER, dated the _____ day of _____, 20_____, a copy of which is hereto attached and made a part hereof for the construction of:

Water Street and Union Brook Road Stormwater Infrastructure and Stormwater Chamber System.

_____

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 on 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 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 hereunder 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 _____ counterparts, each one of which shall be deemed an original, this the _____ day of _____, 20_____.

ATTEST:

_____
Principal's Printed Name

_____
(Principal Secretary)

By: _____(s)

Address: _____

_____

(Seal)

_____
Witness as to Principal

_____
Address

_____

_____
Surety

ATTEST:

By: _____
Attorney-in-Fact

_____
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.

PERFORMANCE BOND

KNOW ALL MEN BY THESE PRESENTS THAT:

G&N Excavation
(Name of CONTRACTOR)

3804 North Fayston Road,Moretown, VT 05660
(Address of CONTRACTOR)

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

_____
(Name of Surety)

_____
(Address of Surety)

hereinafter called Surety, are held and firmly bound unto

Central Vermont Regional Planning Commission
(Name of OWNER)

29 Main Street, Suite 4, Montpelier, VT 05602
(Address of OWNER)

hereinafter called OWNER, in the penal sum of Four Hundred Fifty Five Thousand One Hundred Twenty Five Dollars, $(455,125) in lawful money of the United States, for the payment of which sum well and truly to be made, we bind ourselves, successors, and assigns, jointly and severally, firmly by these presents.

THE CONDITION OF THIS OBLIGATION is such that whereas, the Principal entered into a certain contract with the OWNER, dated the _____ day of _____, 20_____, a copy of which is hereto attached and made a part hereof for the construction of:

Water Street and Union Brook Road Stormwater Infrastructure and Stormwater Chamber System.

_____

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 guaranty period, and if he shall satisfy all claims and demands incurred under such contract, and shall fully indemnify and save harmless the OWNER from all costs and damages which it may suffer by reason of failure to do so, and shall reimburse and repay the OWNER all outlay and expense which the OWNER may incur in making good any default, then this obligation shall be void; otherwise to remain in full force and effect.

PROVIDED, FURTHER, that the said Surety for value received hereby stipulates and agrees that no change, extension of time, alteration or addition to the terms of the contract or to the WORK to be performed hereunder 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 _____ counterparts, each one of which shall be deemed an original, this the _____ day of _____, 20_____

ATTEST:

_____

Principal's Printed Name

_____

(Principal Secretary) By: _____(s)

Address: _____

(Seal)

_____

_____

Witness as to Principal

_____

Address

_____ _____

Surety

ATTEST: By: _____

Attorney-in-Fact

_____ Address: _____

Witness as to Surety

_____

_____ _____

_____

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 locate

NOTICE TO PROCEED

To: G&N Excavation_____ Date of Issuance: _____
(CONTRACTOR)

3804 North Fayston Road Project: Water Street Stormwater Improvements

Moretown, VT 05660 _____

_____

You are hereby notified to commence all WORK on this date in accordance with the Agreement dated

_____, 20____. The date of completion of all WORK is _____, 20____

Central Vermont Regional Planning Commission
(Name of OWNER)

Owner

By: Bonnie Waninger
(Printed or Typed Name)

By:_____
(Signature)

Title: Executive Director

FED Construction Manager

By: _____
(Printed or Typed Name)

By: _____
(Signature)

Title:

ACCEPTANCE OF NOTICE

Receipt of the above NOTICE TO PROCEED

is hereby acknowledged by G&N Excavation,
(Name of CONTRACTOR)

this the ____ day of _____, 20___

By: Michele Gaboriau
(Printed or Typed Name)

By:_____
(Signature)

Title: President

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See the link below for the most current version of the CONTRACTOR’s Partial Payment form.

Partial Payment Estimate Form

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INSTRUCTIONS FOR CONTRACTORS OR SUBCONTRACTORS RELEASE AND WAIVER OF LIEN FORM

1. At the preconstruction meeting, the OWNER will receive from the CONTRACTOR a list of all major items (s)he intends to subcontract.

2. Prior to the first requisition for payment, the OWNER will inform the CONTRACTOR as to which of these SUBCONTRACTORs or vendors may be required to complete a Release of Lien Form. Note that 40 CFR §33.302 requires CONTRACTOR to pay their SUBCONTRACTORs for satisfactory performance within 30 days of payment to CONTRACTOR by OWNER.

3. The CONTRACTOR shall include in the payment package a Release of Lien Form for the overall CONTRACT and those of any SUBCONTRACTORs or vendors so identified by the OWNER.

4. For all interim payments prior to 90% completion of the CONTRACT, the CONTRACTOR may delete, "…the undersigned does hereby waive, release and relinquish any and all claims, demands and rights of lien for all work, labor, materials, machinery or other goods, equipment or services done, performed or furnished…" from the first statement.

5. Final payment requires complete wording in the first statement and a fully executed form.

GENERAL CONTRACTOR'S OR SUBCONTRACTOR'S RELEASE AND WAIVER OF LIEN

For and in consideration of the receipt of $_____, in payment for labor and/or materials furnished, the undersigned does hereby waive, release and relinquish any and all claims, demands and rights of lien for all work, labor, materials, machinery or other goods, equipment or services done, performed or furnished for the construction located at the site hereinafter described, to wit:

Water Street Stormwater Improvements, Central Vermont Regional Planning Commission

(Project Name and OWNER)

_____

Northfield, Vermont as of _____

(Date)

The undersigned further warrants and represents that any and all valid labor and/or materials and equipment bills, now due and payable on the property herein above described in behalf of the undersigned, have been paid in full to date of this waiver, or will be paid from these funds.

$_____ Total Paid to Date This Contract

$_____ Current Payment Due

$_____ Total Billed to Date This Contract

_____ CONTRACTOR/Sub-CONTRACTOR

_____ Witness Signature

By:_____

_____ Witness Printed Name

Title: _____

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CHANGE ORDER #____

Owner's Project Number RF/VT/STAG #_____ Date: _____
Contract #: _____ Agreement Date: _____
Contract Title: _____ ORIGINAL PRICE: $_____
Owner:_____ Notice to Proceed Date: _____
Contractor:_____ Calendar Days: _____
Engineer: _____ Original Completion Date: _____

The following changes are hereby made to the CONTRACT DOCUMENTS:

DESCRIPTION:

JUSTIFICATION:

PRICE: This C.O.(1) will (not change/increase/decrease) the Contract Price By: $_____
Current Contract Price per most recent C.O.: $_____
The new Contract Price including this C.O. is: $_____

TIME: Current Contract Calendar Days as per most recent C.O.: Calendar Days _____
This C.O. will (not change/increase/decrease) the Contract Calendar Days by: Calendar Days _____
The new Contract Calendar Days including this C.O. is: Calendar Days _____
The new Contract Completion Date is, therefore: _____

NOTE: The CONTRACTOR must provide a Revised Project Schedule to reflect increases or decreases in Contract Time as authorized by this C.O.

REQUESTED BY: _____
Print or Type Name Signature

SIGNATURES/APPROVALS:
Stipulated price and time adjustment includes all costs and time associated with the above described change. CONTRACTOR waives all rights for additional compensation or time extension for said change. CONTRACTOR and OWNER agree that the price(s) and time adjustment(s) stated above are equitable and acceptable to both parties.

Recommended By (Engineer): _____
Print or Type Name Signature

Accepted By (CONTRACTOR): _____
Print or Type Name Signature

Concurred By: _____
(FED Construction Project Manager) Print or Type Name Signature

Ordered By (OWNER): _____
Print or Type Name Signature

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Supply (with an original signature) the Consent of Surety to Reduction in Retainage, using AIA Document G707A or a similarly formed document, along with the original of the CONTRACTOR's request for the reduction of retainage. A sample of the CONTRACTOR's request form for reduction in retainage on page 3 of 3. This document will be submitted to the Engineer for review and recommended approval to the OWNER prior to the payment requisition which shows a reduction in retainage at successful completion of at least 50% of the work (not including materials stored on site) or at Substantial Completion for further reduction below 5% (but not less than the remaining value of work to be completed). Retainage will not be reduced until the Surety provides a document in the form (as noted above) to the CONTRACTOR for submission by the CONTRACTOR to the OWNER which indicates that the Surety agrees with the reduction.

Note: if additional copies are needed, a copy of the Consent of Surety form and a copy of the CONTRACTOR's Request for Reduction of Retainage are acceptable.

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CONTRACTOR'S REQUEST FOR REDUCTION OF RETAINAGE

TO:
OWNER:
Date

FROM: CONTRACTOR Name, Address

OWNER'S PROJECT #:

CONTRACT NO.:

CONTRACT WORK:

Adjusted Total Contract (Including Change Orders)		$
Work Completed (Not Including Material Stored)	%	$
Current Retainage	%	$
Requested Retainage	%	

☐ Consent of Surety Letter attached

CONTRACTOR Signature:

CONTRACTOR's Typed Name:

Title Date

PROFESSIONAL ENGINEER'S RECOMMENDATION FOR REDUCTION OF RETENTION

Pursuant to the conditions of the Construction Documents and my evaluation of the satisfactory performance by the CONTRACTOR in the execution of the work, I do ☐ do not ☐ recommend release of retention and future percentage as set forth below.

Typed Name	Recommend Release/Sign	Do Not Recommend Release/Sign	Date
	☐	☐	
	☐	☐	
	☐	☐	

OWNER'S AUTHORIZATION FOR REDUCTION OF RETENTION

Authorization is hereby granted for retention on the subject contract to be maintained at _____% until further notice.

OWNER's Authorized Representative Signature: Date: _____

OWNER's Authorized Representative Typed Name:

E-MAIL THIS FORM: This form may be submitted to OWNER/ENGINEER electronically for review by e-mail addressed to the OWNER'S Authorized Representative at: and the ENGINEER at:

NOTE: Form may be submitted electronically only for review purposes. To meet contractual requirements, form submitted to OWNER must have original signatures and be accompanied by Consent of Surety. Reduction of Retainage does not release the CONTRACTOR or Surety of the requirements to satisfactorily complete the Contract. General Conditions Section 19.1 applies to this request.

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CERTIFICATE OF SUBSTANTIAL COMPLETION

OWNER _____ OWNER's Project Number _____

Project Name _____

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CONTRACTOR _____ Contract Date _____

Contract for _____

==========

Project or Specified Part Shall Include _____

_____

_____

==========

DEFINITION OF SUBSTANTIAL COMPLETION

The date of Substantial Completion of a Project or specified part of a Project is the date when the construction is sufficiently completed, in accordance with the Contract Documents, so that the Project or specified part of the Project can be utilized for the purpose for which it was intended.

==========

To: _____
(OWNER)

And To: _____
(CONTRACTOR)

The WORK performed under this CONTRACT has been inspected by authorized representatives of the OWNER, CONTRACTOR, and ENGINEER, and the Project or Specified Part of the Project is hereby declared to be Substantially Completed as of the following date:

Date of Substantial Completion: _____

If a tentative list of items to be completed or corrected is appended hereto, the failure to include an item on it does not alter the responsibility of the CONTRACTOR to complete all the WORK in accordance with the CONTRACT DOCUMENTS and CONTRACT TIME.

Recommended By:

_____	_____	_____
ENGINEER	(Signature)	Date
	_____	
	(Print or Type Name)	

Concurred By:

_____	_____	_____
FED CONSTRUCTION PROJECT MANAGER	(Signature)	Date
	_____	
	(Print or Type Name)	

Approved By:

_____	_____	_____
OWNER	(Signature)	Date
	_____	
	(Print or Type Name)	

==========

The CONTRACTOR accepts the above Certificate of Substantial Completion.

_____	_____	_____
CONTRACTOR	(Signature)	Date
	_____	
	(Print or Type Name)	

==========

EXCEPTIONS AS TO GUARANTEES AND WARRANTIES:

==========

ATTACHMENTS:

1) Punch List Dated: _____

2) List the CONTRACTOR's Warranty Start and End Dates along with any Extended Warranty information here. Some items (such as roofing) may have a manufacturer's warranty longer than one year. Any documentation to support warranty requests (bill of sale, etc.) need to be supplied as part of the OWNER's O&M Manual under the warranty section.

Consent of Surety Company to release the Final Payment, using AIA Document G707 or a similarly formed letter (sample next page), with the original of the Consent attached to the original of the application, and a copy of the consent attached to each copy of the application.

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CONSENT OF SURETY COMPANY TO FINAL PAYMENT

Project: _____
Location:_____
Contract #:_____

TO: _____, **OWNER**
_____
_____

CONTRACTOR: _____ Contract Date: _____

In accordance with the provisions of the Contract between the OWNER and the CONTRACTOR as indicated above, the

_____ (here insert name and address of Surety Company and delete this reminder) , Surety Company,
_____
_____
_____
on bond of
_____ (here insert name and address of CONTRACTOR and delete this reminder) , CONTRACTOR,
_____
_____
_____
hereby approves of the final payment to the CONTRACTOR, and agrees that final payment to the CONTRACTOR shall not relieve the Surety Company of any of its obligations to the OWNER as set forth in the said Surety Company's bond. The Surety agrees to be bound to the warranty period under the same conditions as the CONTRACTOR. The warranty is defined as commencing with Substantial Completion (or with each Substantial Completion if there is more than one) of the Project, or any portion thereof, and continuing for one (1) calendar year from the date of Final Acceptance of the entire project unless otherwise modified in writing as part of the Substantial Completion or Final Acceptance.

IN WITNESS WHEREOF, _____
the Surety Company has hereunto set its hand this _____ Day of _____, _____

_____
Surety Company

_____
Signature of Authorized Representative

_____

Attest: Title
(Seal)

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CERTIFICATE OF FINAL COMPLETION AND ACCEPTANCE OF WORK

CONTRACT NO. _____ AGREEMENT DATE: _____

CONTRACT DESCRIPTION: _____

_____

Notice to Proceed Date of Issuance: _____

Completion Date per Agreement and Change Orders # _____ thru # _____: _____
(Date)

FINAL CERTIFICATION OF CONTRACTOR

I hereby certify that the WORK as identified in the Final Estimate of Payment for construction CONTRACT WORK dated _____, represents full compensation for the actual value of WORK completed. All WORK completed conforms to the terms of the AGREEMENT and authorized changes.

_____
CONTRACTOR Signature

_____
Date Print or Type Name

_____
Title

FINAL CERTIFICATION OF ENGINEER

I have reviewed the CONTRACTOR'S Final Payment Request dated _____ and hereby certify that to the best of my knowledge, the cost of the WORK identified on the Final Estimate represents full compensation for the actual value of WORK completed and that the WORK has been completed in accordance with the terms of the AGREEMENT and authorized changes. This certification is provided in accord with the terms of GENERAL CONDITION number 20.1.

_____
ENGINEER Signature

_____
Date Print or Type Name

FINAL CONCURRANCE OF FED

I have reviewed the CONTRACTOR'S Final Payment Request dated _____ and hereby certify that to the best of my knowledge, the cost of the WORK identified on the Final Estimate represents full compensation for the actual value of WORK completed and that the WORK has been completed in accordance with the terms of the AGREEMENT and authorized changes. This certification is provided in accord with the terms of GENERAL CONDITION number 20.1.

_____
FED CONSTRUCTION PROJECT MANAGER Signature

_____
Date Print or Type Name

FINAL ACCEPTANCE OF OWNER

I, as representative of the OWNER, accept the above Final Certifications and authorize Final Payment in the amount of $_____and direct the CONTRACTOR'S attention to the GENERAL CONDITION #19. The guaranty for all WORK completed subsequent to the date of SUBSTANTIAL COMPLETION, expires one (1) year from the date of this Final Acceptance.

OWNER Signature

Date Print or Type Name

Title

GENERAL CONDITIONS

1. DEFINITIONS

1.1 Wherever used in the CONTRACT DOCUMENTS, the following terms shall have the meanings indicated which shall be applicable to both the singular and plural thereof:

1.2 ADDENDA - Written or graphic instruments issued prior to the execution of the Agreement which modify or interpret the CONTRACT DOCUMENTS, DRAWINGS and SPECIFICATIONS, by additions, deletions, clarifications or corrections.

1.3 BID - The offer or proposal of the BIDDER submitted on the prescribed form setting forth the prices for the WORK to be performed.

1.4 BIDDER - Any person, firm or corporation submitting a BID for the WORK.

1.5 BONDS - Bid, Performance, and Payment Bonds and other instruments of security, furnished by the CONTRACTOR and his surety in accordance with the CONTRACT DOCUMENTS.

1.6 CHANGE ORDER - A written order to the CONTRACTOR authorizing an addition, deletion or revision in the WORK within the general scope of the CONTRACT DOCUMENTS, or authorizing an adjustment in the CONTRACT PRICE or CONTRACT TIME.

1.7 CONTRACT DOCUMENTS - The contract, including Advertisement For Bids, Information For Bidders, BID, Bid Bond, Agreement, Payment Bond, Performance Bond, NOTICE OF AWARD, NOTICE TO PROCEED, CHANGE ORDER, DRAWINGS, SPECIFICATIONS, and ADDENDA.

1.8 CONTRACT PRICE - The total monies payable to the CONTRACTOR under the terms and conditions of the CONTRACT DOCUMENTS.

1.9 CONTRACT TIME - The number of calendar days stated in the CONTRACT DOCUMENTS for the completion of the WORK.

1.10 CONTRACTOR - The person, firm or corporation with whom the OWNER has executed the Agreement.

1.11 DRAWINGS - The part of the CONTRACT DOCUMENTS which show the characteristics and scope of the WORK to be performed and which have been prepared or approved by the ENGINEER.

1.12 ENGINEER - The person, firm or corporation named as such in the CONTRACT DOCUMENTS.

1.13 FIELD ORDER - A written order effecting a change in the WORK not involving an adjustment in the CONTRACT PRICE or an extension of the CONTRACT TIME, issued by the ENGINEER to the CONTRACTOR during construction.

1.14 NOTICE OF AWARD - The written notice of the acceptance of the BID from the OWNER to the successful BIDDER.

1.15 NOTICE TO PROCEED - Written communication issued by the OWNER to the CONTRACTOR authorizing him to proceed with the WORK and establishing the date of commencement of the WORK.

1.16 OWNER - A public or quasi-public body or authority, corporation, association, partnership, or individual for whom the WORK is to be performed.

1.17 PROJECT - The undertaking to be performed as provided in the CONTRACT DOCUMENTS.

1.18 RESIDENT PROJECT REPRESENTATIVE - The authorized representative of the OWNER who is assigned to the PROJECT site or any part thereof.

1.19 SHOP DRAWINGS - All drawings, diagrams, illustrations, brochures, schedules and other data which are prepared by the CONTRACTOR, a SUBCONTRACTOR, manufacturer, SUPPLIER or distributor, which illustrate how specific portions of the WORK shall be fabricated or installed.

1.20 SPECIFICATIONS - A part of the CONTRACT DOCUMENTS consisting of written descriptions of a technical nature of materials, equipment, construction systems, standards and workmanship.

1.21 SUBCONTRACTOR - An individual, firm or corporation having a direct contract with the CONTRACTOR or with any other SUBCONTRACTOR for the performance of a part of the WORK at the site.

1.22 SUBSTANTIAL COMPLETION - That date as certified by the ENGINEER when the construction of the PROJECT or a specified part thereof is sufficiently completed, in accordance with the CONTRACT DOCUMENTS, so that the PROJECT or specified part can be utilized for the purposes for which it is intended.

1.23 SUPPLEMENTAL GENERAL CONDITIONS - Modifications to General Conditions required by a Federal agency for participation in the PROJECT and approved by the agency in writing prior to inclusion in the CONTRACT DOCUMENTS, or such requirements that may be imposed by applicable state laws.

1.24 SUPPLIER - Any person or organization who supplies materials or equipment for the WORK, including that fabricated to a special design, but who does not perform labor at the site.

1.25 WORK - All labor necessary to produce the construction required by the CONTRACT DOCUMENTS, and all materials and equipment incorporated or to be incorporated in the PROJECT.

1.26 WRITTEN NOTICE - Any notice to any party of the Agreement relative to any part of this Agreement in writing and considered delivered and the service thereof completed, when posted by certified or registered mail to the said party at his last given address, or delivered in person to said party or his authorized representative on the WORK.

2. ADDITIONAL INSTRUCTION AND DETAIL DRAWINGS

2.1 The CONTRACTOR may be furnished additional instructions and detail drawings, by the ENGINEER, as necessary to carry out the WORK required by the CONTRACT DOCUMENTS.

2.2 The additional drawings and instruction thus supplied will become a part of the CONTRACT DOCUMENTS. The CONTRACTOR shall carry out the WORK in accordance with the additional detail drawings and instructions.

3. SCHEDULES, REPORTS AND RECORDS

3.1 The CONTRACTOR shall submit to the OWNER such schedule of quantities and costs, progress schedules, payrolls, reports, estimates, records and other data where applicable as are required by the CONTRACT DOCUMENTS for the WORK to be performed.

3.2 Prior to the first partial payment estimate the CONTRACTOR shall submit construction progress schedules showing the order in which he proposes to carry on the WORK, including dates at which he will start the various parts of the WORK, estimated date of completion of each part and, as applicable:

3.2.1 The dates at which special detail drawings will be required; and

3.2.2 Respective dates for submission of SHOP DRAWINGS, the beginning of manufacture, the testing and the installation of materials, supplies and equipment.

3.3 The CONTRACTOR shall also submit a schedule of payments that he anticipates he will earn during the course of the WORK.

4. DRAWINGS AND SPECIFICATIONS

4.1 The intent of the DRAWINGS and SPECIFICATIONS is that the CONTRACTOR shall furnish all labor, materials, tools, equipment, and transportation necessary for the proper execution of the WORK in accordance with the CONTRACT DOCUMENTS and all incidental work necessary to complete the PROJECT in an acceptable manner, ready for use, occupancy or operation by the OWNER.

4.2 Any conflicts between the Contract Documents and Specifications, between Contract Drawings, and/or site conditions shall be brought to the attention of the ENGINEER in writing immediately upon discovery. The ENGINEER shall respond per General Conditions 27.4. If the CONTRACTOR requests additional compensation refer to General Condition 13. WORK done by the CONTRACTOR after his discovery of such discrepancies, inconsistencies or ambiguities shall be done at the CONTRACTOR's risk.

5. SHOP DRAWINGS

5.1 The CONTRACTOR shall provide SHOP DRAWINGS as may be necessary for the prosecution of the WORK as required by the CONTRACT DOCUMENTS. The ENGINEER shall promptly review all SHOP DRAWINGS. The ENGINEER'S approval of any SHOP DRAWING shall not release the CONTRACTOR from responsibility for deviations from the CONTRACT DOCUMENTS. The approval of any SHOP DRAWING, which substantially deviates from the requirement of the CONTRACT DOCUMENTS, shall be evidenced by a CHANGE ORDER.

5.2 When submitted for the ENGINEER'S review, SHOP DRAWINGS shall bear the CONTRACTOR'S certification that he has reviewed, checked and approved the SHOP DRAWINGS and that they are in conformance with the requirements of the CONTRACT DOCUMENTS.

5.3 Portions of the WORK requiring a SHOP DRAWING or sample submission shall not begin until the SHOP DRAWING or submission has been approved by the ENGINEER. A copy of each approved SHOP DRAWING and each approved sample shall be kept in good order by the CONTRACTOR at the site and shall be available to the ENGINEER.

6. MATERIALS, SERVICES AND FACILITIES

6.1 It is understood that, except as otherwise specifically stated in the CONTRACT DOCUMENTS, the CONTRACTOR shall provide and pay for all materials, labor, tools, equipment, water, light, power, transportation, supervision, temporary construction of any nature, and all other services and facilities of any nature whatsoever necessary to execute, complete, and deliver the WORK within the specified time.

6.2 Materials and equipment shall be so stored as to insure the preservation of their quality and fitness for the WORK. Stored materials and equipment to be incorporated in the WORK shall be located so as to facilitate prompt inspection.

6.3 Manufactured articles, materials and equipment shall be applied, installed, connected, erected, used, cleaned and conditioned as directed by the manufacturer.

6.4 Materials, supplies and equipment shall be in accordance with samples submitted by the CONTRACTOR and approved by the ENGINEER.

6.5 Materials, supplies or equipment to be incorporated into the WORK shall not be purchased by the CONTRACTOR or the SUBCONTRACTOR subject to a chattel mortgage or under a conditional sale contract or other agreement by which an interest is retained by the seller.

7. INSPECTION AND TESTING

7.1 All materials and equipment used in the construction of the PROJECT shall be subject to adequate inspection and testing in accordance with generally accepted standards, as required and defined in the CONTRACT DOCUMENTS.

7.2 The OWNER shall provide all inspection and testing services not required by the CONTRACT DOCUMENTS.

7.3 The CONTRACTOR shall provide at his expense the testing and inspection services required by the CONTRACT DOCUMENTS.

7.4 If the CONTRACT DOCUMENTS, laws, ordinances, rules, regulations or orders of any public authority having jurisdiction require any WORK to specifically be inspected, tested, or approved by someone other than the CONTRACTOR, the CONTRACTOR will give the ENGINEER timely notice of readiness. The CONTRACTOR will then furnish the ENGINEER the required certificates of inspection, testing or approval.

7.5 Inspections, tests or approvals by the engineer or others shall not relieve the CONTRACTOR from his obligations to perform the WORK in accordance with the requirements of the CONTRACT DOCUMENTS.

7.6 The ENGINEER and his representatives will at all times have access to the WORK. In addition, authorized representatives and agents of any participating Federal or State agency shall be permitted to inspect all work, materials, payrolls, records of personnel, invoices of materials, and other relevant data and records. The CONTRACTOR will provide proper facilities for such access and observation of the WORK and also for any inspection, or testing thereof.

7.7 If any WORK is covered contrary to the written instructions of the ENGINEER it must, if requested by the ENGINEER, be uncovered for his observation and replaced at the CONTRACTOR'S expense.

7.8 If the ENGINEER considers it necessary or advisable that covered WORK be inspected or tested by others, the CONTRACTOR, at the ENGINEER'S request, will uncover, expose or otherwise make available for observation, inspection or testing as the ENGINEER may require, that portion of the WORK in questions, furnishing all necessary labor, materials, tools, and equipment. If it is found that such WORK is defective, the CONTRACTOR will bear all the expenses of such uncovering, exposure, observation, inspection and testing and of satisfactory reconstruction. If, however, such WORK is not found to be defective, the CONTRACTOR will be allowed an increase in the CONTRACT PRICE or an extension of the CONTRACT TIME, or both, directly attributable to such uncovering, exposure, observation, inspection, testing and reconstruction and an appropriate CHANGE ORDER shall be issued.

8. SUBSTITUTIONS

8.1 Whenever a material, article or piece of equipment is identified on the DRAWINGS or SPECIFICATIONS by reference to brand name or catalog number, it shall be understood that this is referenced for the purpose of defining the performance or other salient requirements and that other products of equal capacities, quality and function shall be considered. The CONTRACTOR may recommend the substitution of a material, article, or piece of equipment of equal substance and function for those referred to in the CONTRACT DOCUMENTS by reference to brand name or catalog number, and if, in the opinion of the ENGINEER, such

material, article, or piece of equipment is of equal substance and function to that specified, the ENGINEER may approve its substitution and use by the CONTRACTOR. Any cost differential shall be deductible from the CONTRACT PRICE and the CONTRACT DOCUMENTS shall be appropriately modified by CHANGE ORDER. The CONTRACTOR warrants that if substitutes are approved, no major changes in the function or general design of the PROJECT will result. Incidental changes or extra component parts required to accommodate the substitute will be made by the CONTRACTOR without a change in the CONTRACT PRICE or CONTRACT TIME.

9. PATENTS and COPYRIGHTS

9.1 The CONTRACTOR shall pay all applicable royalties and license fees. He shall defend all suits or claims for infringement of any patent rights and copyrights, and save the OWNER harmless from loss on account thereof, except that the OWNER shall be responsible for any such loss when a particular process, design, or the product of a particular manufacturer or manufacturers is specified, however, if the CONTRACTOR has reason to believe that the design, process or product specified is an infringement of a patent or copyright, he shall be responsible for such loss unless he promptly gives such information to the ENGINEER.

10. SURVEYS, PERMITS, REGULATIONS

10.1 The OWNER shall furnish all boundary surveys and establish all base lines for locating the principal component parts of the WORK together with a suitable number of bench marks adjacent to the WORK as shown in the CONTRACT DOCUMENTS. From the information provided by the OWNER, unless otherwise specified in the CONTRACT DOCUMENTS, the CONTRACTOR shall develop and make all detail surveys needed for construction such as slope stakes, batter boards, stakes for pile locations and other working points, lines, elevations and cut sheets.

10.2 The CONTRACTOR shall carefully preserve bench marks, reference points and stakes and, in case of willful or careless destruction, he shall be charged with the resulting expense and shall be responsible for any mistake that may be caused by their unnecessary loss or disturbance.

10.3 Permits and licenses of a temporary nature necessary for the prosecution of the WORK shall be secured and paid for by the CONTRACTOR unless otherwise stated in the SUPPLEMENTAL GENERAL CONDITIONS. Permits, licenses and easements for permanent structures or permanent changes in existing facilities shall be secured and paid for by the OWNER, unless otherwise specified. The CONTRACTOR shall give all notices and comply with all laws, ordinances, rules and regulations bearing on the conduct of the WORK as drawn and specified. If the CONTRACTOR observes that the CONTRACT DOCUMENTS are at variance therewith, he shall promptly notify the ENGINEER in writing, and any necessary changes shall be adjusted as provided in Section 13, CHANGES IN THE WORK.

11. PROTECTION OF WORK, PROPERTY AND PERSONS

11.1 The CONTRACTOR will be responsible for initiating, maintaining and supervising all safety precautions and programs in connection with the WORK. He will take all necessary precautions for the safety of, and will provide the necessary protection to prevent damage, injury or loss to all employees on the WORK and other persons who may be affected thereby, all the WORK and all materials or equipment to be incorporated therein, whether in storage on or off the site, and other property at the site or adjacent thereto, including trees, shrubs, lawns, walks, pavements, roadways, structures and utilities not designated for removal, relocation or replacement in the course of construction.

11.2 The CONTRACTOR will comply with all applicable laws, ordinances, rules, regulations and orders of any public body having jurisdiction. He will erect and maintain, as required by the conditions and progress of the WORK, all necessary safeguards for safety and protection. He will notify OWNERs of adjacent utilities when prosecution of the WORK may affect them. The CONTRACTOR will remedy all damage, injury or loss to any property caused, directly or indirectly, in whole or in part, by the CONTRACTOR, any SUBCONTRACTOR or anyone directly or indirectly employed by any of them or anyone for whose acts any of them be liable, except damage or loss attributable to the fault of the CONTRACT DOCUMENTS or to the acts or omissions of the OWNER or the ENGINEER or anyone employed by either of them or anyone for whose acts either of them may

be liable, and not attributable, directly or indirectly, in whole or in part, to the fault or negligence of the CONTRACTOR.

11.3In emergencies affecting the safety of persons or the WORK or property at the site or adjacent thereto, the CONTRACTOR, without special instruction or authorization from the ENGINEER or OWNER, shall act to prevent threatened damage, injury or loss. He will give the ENGINEER prompt WRITTEN NOTICE of any significant changes in the WORK or deviations from the CONTRACT DOCUMENTS caused thereby, and a CHANGE ORDER shall thereupon be issued covering the changes and deviations involved.

12. SUPERVISION BY CONTRACTOR

12.1 The CONTRACTOR will supervise and direct the WORK. He will be solely responsible for the means, methods, techniques, sequences and procedures of construction. The CONTRACTOR will employ and maintain on the WORK a qualified supervisor or superintendent who shall have been designated in writing by the CONTRACTOR as the CONTRACTOR'S representative at the site. The supervisor shall have full authority to act on behalf of the CONTRACTOR and all communications given to the supervisor shall be as binding as if given to the CONTRACTOR. **The supervisor shall be present on the site during any construction activity to perform adequate supervision and coordination of the WORK.**

13. CHANGES IN THE WORK

13.1 The OWNER may at any time, as the need arises, order changes within the scope of the WORK without invalidating the Agreement. If such changes increase or decrease the amount due under the CONTRACT DOCUMENTS, or in the time required for performance of the WORK, an equitable adjustment shall be authorized by CHANGE ORDER.

13.2 The ENGINEER may also at any time, by issuing a FIELD ORDER, make changes in the details of the WORK. The CONTRACTOR shall proceed with the performance of any changes in the WORK so ordered by the ENGINEER unless the CONTRACTOR believes that such FIELD ORDER entitles him to a change in CONTRACT PRICE or TIME, or both, in which event he shall give the ENGINEER WRITTEN NOTICE thereof within seven (7) days after the receipt of the ordered change. Thereafter the CONTRACTOR shall document the basis for the change in CONTRACT PRICE or TIME within thirty (30) days. The CONTRACTOR shall not execute such changes pending the receipt of an executed CHANGE ORDER or further instruction from the OWNER.

14.CONTRACT CHANGE ORDERS

14.1 All changes affecting the Project's construction cost, length of time, or modifications of the terms or conditions of the CONTRACT, must be authorized by means of a written CONTRACT Change Order which is mutually agreed to by the OWNER and CONTRACTOR. The CONTRACT Change Order will include extra WORK, WORK for which quantities have been altered from those shown in the BID Schedule, as well as decreases or increases in the quantities of installed units which are different from those shown in the BID Schedule because of final measurements. All changes must be recorded on a CONTRACT Change Order (which form is part of these CONTRACT Documents) and fully executed before they can be included in a partial payment estimate. Changes for WORK, quantities, and/or conditions will include any respective time adjustment, if justified. Time adjustments will require an updated Project Schedule with the Change Order.

14.2 When the Contract sum is, in whole or in part, based on unit prices, the OWNER reserves the right to increase or decrease a unit price quantity as may be deemed reasonable or necessary in order to complete the WORK contemplated by this CONTRACTOR. Overhead and Profit (OHP) will not be included in a unit quantity Change Order.

14.3 The CONTRACT PRICE may be changed only by a CHANGE ORDER. The value of any WORK covered by a CHANGE ORDER or of any claim for increase or decrease in the CONTRACT PRICE shall be

determined by one or more of the following methods in the order of precedence listed below:

(a) Unit prices previously approved, or
(b) An agreed lump sum, or
(c) Time and Materials (T&M) for labor, direct overhead, materials, supplies, equipment, and other services necessary to complete the WORK.

14.4In addition, there may be added an amount to be agreed upon to cover the cost of general overhead and profit (OHP). The markup for OHP by the General CONTRACTOR may not exceed 15% if the General CONTRACTOR executes the WORK. If a SUBCONTRACTOR executes the WORK, the Sub-CONTRACTOR's OHP may not exceed 15% of the cost of the actual WORK, and the General CONTRACTOR may not apply for more than a 5% markup for OHP on the actual WORK (not including the SUBCONTRACTOR's OHP).

15. TIME FOR COMPLETION AND LIQUIDATED DAMAGES

15.1 The date of beginning and the time for completion of the WORK are essential conditions of the CONTRACT DOCUMENTS and the WORK embraced shall be commenced on a date specified in the NOTICE TO PROCEED.

15.2 The CONTRACTOR will proceed with the WORK at such rate of progress to insure final completion within the CONTRACT TIME. IT is expressly understood and agreed, by and between the CONTRACTOR and the OWNER, that the CONTRACT TIME for the completion of the WORK described herein is a reasonable time, taking into consideration the average climatic and economic conditions and other factors prevailing in the locality of the WORK.

15.3 If the CONTRACTOR shall fail to complete the WORK within the CONTRACT TIME, or extension of time granted by the OWNER, then the CONTRACTOR will pay to the OWNER the amount for liquidated damages as specified in the BID for each calendar day that the CONTRACTOR shall be in default after the time stipulated in the CONTRACT DOCUMENTS.

15.4 The CONTRACTOR shall not be charged with liquidated damages or any excess cost when the delay in completion of the WORK is due to the following, and the CONTRACTOR has promptly given WRITTEN NOTICE of such delay to the OWNER or ENGINEER.

15.4.1 To any preference, priority or allocation order duly issued by the OWNER;

15.4.2 To unforeseeable causes beyond the control and without the fault or negligence of the CONTRACTOR, including but not restricted to, acts of God, or of the public enemy, acts of the OWNER, acts of another CONTRACTOR in the performance of a CONTRACT with the OWNER, fires, floods, epidemics, quarantine restrictions, strikes, freight embargoes, and abnormal and unforeseeable weather; and

15.4.3 To any delays of SUBCONTRACTORS occasioned by any of the causes specified in paragraphs 15.4.1. and 15.4.2 of this article.

16. CORRECTION OF WORK

16.1 The CONTRACTOR shall promptly remove from the premises all WORK rejected by the ENGINEER for failure to comply with the CONTRACT DOCUMENTS, whether incorporated in the construction or not, and the CONTRACTOR shall promptly replace and re-execute the WORK in accordance with the CONTRACT DOCUMENTS and without expense to the OWNER and shall bear the expense of making good all WORK of other CONTRACTORS destroyed or damaged by such removal or replacement.

16.2 All removal and replacement WORK shall be done at the CONTRACTOR's expense. If the CONTRACTOR does not take action to remove such rejected work within ten (10) days after receipt of WRITTEN NOTICE, the OWNER may remove such WORK and store the materials at the expense of the CONTRACTOR.

17. SUBSURFACE CONDITIONS

17.1 The CONTRACTOR shall promptly, and before such conditions are disturbed, except in the event of an emergency, notify the OWNER by WRITTEN NOTICE of:

17.1.1 Subsurface or latent physical conditions at the site differing materially from those indicated in the CONTRACT DOCUMENTS; or

17.1.2 Unknown physical conditions at the site, of an unusual nature, differing materially from those ordinarily encountered and generally recognized as inherent in WORK of the character provided for in the CONTRACT DOCUMENTS.

17.2 The OWNER shall promptly investigate the conditions, and if he finds that such conditions do so materially differ and cause an increase or decrease in the cost of, or in the time required for, performance of the WORK, an equitable adjustment shall be made and the CONTRACT DOCUMENTS shall be modified by a CHANGE ORDER. Any claim of the CONTRACTOR for adjustment hereunder shall not be allowed unless he has given the required WRITTEN NOTICE; provided that the OWNER may, if he determines the facts so justify, consider and adjust any such claims asserted before the date of final payment.

18. SUSPENSION OF WORK, TERMINATION AND DELAY

18.1 The OWNER may suspend the WORK or any portion thereof for a period of not more than ninety days or such further time as agreed upon by the CONTRACTOR, by WRITTEN NOTICE to the CONTRACTOR and the ENGINEER which notice shall fix the date on which WORK shall be resumed. The CONTRACTOR will resume the WORK on the date so fixed. The CONTRACTOR will be allowed an increase in the CONTRACT PRICE or an extension of the CONTRACT TIME, or both, directly attributable to any suspension.

18.2 If the CONTRACTOR is adjudged as bankrupt or insolvent, or if he makes a general assignment for the benefit of his creditors, or if a trustee or receiver is appointed for the CONTRACTOR or for any of his property, or if he files a petition to take advantage of any debtor's act, or to reorganize under the bankruptcy or applicable laws, or if he repeatedly fails to supply sufficient skilled workmen or suitable materials or equipment, or if he repeatedly fails to make prompt payments to SUBCONTRACTORS or for labor, materials or equipment or if he disregards laws, ordinances, rules, regulations or orders of any public body having jurisdiction of the WORK or if he disregards the authority of the ENGINEER, or if he otherwise violates any provision of the CONTRACT DOCUMENTS, then the OWNER may, without prejudice to any other right or remedy and after giving the CONTRACTOR and his surety a minimum of ten (10) days from delivery of a WRITTEN NOTICE, terminate the services of the CONTRACTOR and take possession of the PROJECT and of all materials, equipment, tools, construction equipment and machinery thereon owned by the CONTRACTOR, and finish the WORK by whatever method he may deem expedient. In such case the CONTRACTOR shall not be entitled to receive any further payment until the WORK is finished. If the unpaid balance of the CONTRACT price exceeds the direct and indirect costs of completing the PROJECT, including compensation for additional professional services, such excess SHALL BE PAID TO THE CONTRACTOR. If such costs exceed such unpaid balance, the CONTRACTOR will pay the difference to the OWNER. Such costs incurred by the OWNER will be determined by the ENGINEER and incorporated in a CHANGE ORDER.

18.3 Where the CONTRACTOR's services have been so terminated by the OWNER, said termination shall not affect any right of the OWNER against the CONTRACTOR then existing or which may thereafter accrue. Any retention or payment of monies by the OWNER due the CONTRACTOR will not release the CONTRACTOR from compliance with the CONTRACT DOCUMENTS.

18.4 After ten (10) days from delivery of a WRITTEN NOTICE to the CONTRACTOR and the ENGINEER, the OWNER may, without cause and without prejudice to any other right or remedy, elect to abandon the PROJECT and terminate the CONTRACT. In such case, the CONTRACTOR shall be paid for all WORK executed and any expense sustained plus reasonable profit.

18.5 If, through no act or fault of the CONTRACTOR, the WORK is suspended for a period of more than ninety (90) days by the OWNER or under an order of court or other public authority, or the ENGINEER fails to act on any request for payment within thirty (30) days after it is submitted, or the OWNER fails to pay the

CONTRACTOR substantially the sum approved by the ENGINEER or awarded by arbitrators within thirty (30) days of this approval and presentation, then the CONTRACTOR may, after ten (10) days from delivery of a WRITTEN NOTICE to the OWNER and the ENGINEER, terminate the CONTRACT and recover from the OWNER payment for all WORK executed and all expenses sustained. In addition and in lieu of terminating the CONTRACT, if the ENGINEER has failed to act on a request for payment or if the OWNER has failed to make any payment as aforesaid, the CONTRACTOR may upon ten (10) days WRITTEN NOTICE to the OWNER and the ENGINEER stop the WORK until he has been paid all amounts then due, in which event and upon resumption of the WORK, CHANGE ORDERS shall be issued for adjusting the CONTRACT PRICE or extending the CONTRACT TIME or both to compensate for the costs and delays attributable to the stoppage of the WORK.

18.6 If the performance of all or any portion of the WORK is suspended, delayed, or interrupted as a result of a failure of the OWNER or ENGINEER to act within the time specified in the CONTRACT DOCUMENTS, or if no time is specified, within a reasonable time, an adjustment in the CONTRACT PRICE or an extension of the CONTRACT TIME, or both, shall be made by CHANGE ORDER to compensate the CONTRACTOR for the costs and delays necessarily caused by the failure of the OWNER or ENGINEER.

19. PAYMENTS TO CONTRACTOR

19.1 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 his interest therein, including applicable insurance. The ENGINEER will, within ten (10) days after receipt of each partial payment estimate, either indicate in writing his approval of payment and present the partial payment estimate to the OWNER, or return the partial payment estimate to the CONTRACTOR indicating in writing his 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 ten (10) days of the presentation to him of an approved partial payment estimate, pay the CONTRACTOR a progress payment on the basis of the approved partial payment estimate. The OWNER shall retain ten (10) percent of the amount of each payment until final completion and acceptance of all WORK covered by the CONTRACT DOCUMENTS. However, after fifty (50) percent of the WORK has been completed, if the OWNER finds that satisfactory quality and progress is being made, the OWNER shall reduce Retainage to five (5) percent on the current and remaining estimates. When the WORK is substantially complete (operational or beneficial occupancy), the retained amount shall be further reduced below five (5) percent to only that amount related to the punchlist and necessary to assure completion. On completion and acceptance of a part of the WORK on which the price is stated separately in the CONTRACT DOCUMENTS, payment may be made in full, including retained percentages, less authorized deductions.

19.2 Prior to SUBSTANTIAL COMPLETION, the OWNER, with the approval of the ENGINEER and with the concurrence of the CONTRACTOR, may use any completed or substantially completed portions of the WORK. Such use shall not constitute an acceptance of such portions of the WORK.

19.3 The OWNER shall have the right to enter the premises for the purpose of doing WORK not covered by the CONTRACT DOCUMENTS. This provision shall not be construed as relieving the CONTRACTOR of the sole responsibility for the care and protection of the WORK, or the restoration of any damaged WORK except such as may be caused by agents or employees of the OWNER.

19.4 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 by him 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.

19.5 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, material-

men, 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.

19.6 If the OWNER fails to make payment thirty (30) days after approval by the ENGINEER, in addition to other remedies available to the CONTRACTOR, there may be added to each such payment interest at the maximum legal rate commencing on the first day after said payment is due and continuing until the payment is received by the CONTRACTOR.

20. ACCEPTANCE OF FINAL PAYMENT AS RELEASE

20.1 Upon final completion and acceptance of the WORK, the ENGINEER shall issue a certificate attached to the final payment request that the WORK has been accepted by him 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.

20.2 The acceptance by the CONTRACTOR of final payment shall be and shall operate as a release to the OWNER of all claims and all liability to the CONTRACTOR other than claims in stated amounts as may be specifically excepted by the CONTRACTOR for all things done or furnished in connection with this WORK and for every act and neglect of the OWNER and others relating to or arising out of this WORK. Any payment, however, final or otherwise, shall not release the CONTRACTOR or his sureties from any obligations under the CONTRACT DOCUMENTS or the Performance BOND or Payment BONDS.

21. INSURANCE

21.1 The CONTRACTOR shall purchase and maintain such insurance as will protect him from claims set forth below which may arise out of or result from the CONTRACTOR'S execution of the WORK, whether such execution be by himself or by any SUBCONTRACTOR or by anyone directly or indirectly employed by any of them, or by anyone for whose acts any of them may be liable.

21.1.1 Claims under workmen's compensation, disability benefit and other similar employee benefit acts

21.1.2 Claims for damages because of bodily injury, occupational sickness or disease, or death or his employees

21.1.3 Claims for damages because of bodily injury, sickness or disease, or death of any person other than his employees

21.1.4 Claims for damages insured by usual personal injury liability coverage which are sustained (1) by any person as a result of an offense directly or indirectly related to the employment of such person by the CONTRACTOR, or (2) by any other person; and

21.1.5Claims for damages because of injury to or destruction of tangible property, including loss of use resulting there from.

21.2 Certificates of Insurance acceptable to the OWNER shall be filed with the OWNER prior to commencement of the WORK. These Certificates shall contain a provision that coverage afforded under the

policies will not be canceled unless at least fifteen (15) days prior WRITTEN NOTICE has been given to the OWNER.

21.3 INSURANCE REQUIREMENTS. Insurance obtained by the CONTRACTOR to cover the below-listed requirements shall be procured from an insurance company registered and licensed to do business in the State of Vermont. All insurance coverage for property damage shall provide coverage for "Replacement" cost. Before the CONTRACT is signed and becomes effective, the CONTRACTOR shall file with the OWNER a certificate of insurance, in duplicate, executed by an insurance company or its licensed agent(s), on a form satisfactory to the OWNER, stating that with respect to the CONTRACT awarded, the CONTRACTOR carries insurance in accordance with the following requirements. Renewal certificates for keeping the required insurance in force for the duration of the CONTRACT shall also be filed as specified above. No warranty is made that the coverages and limits listed herein are adequate to cover and protect the interests of the CONTRACTOR and any SUBCONTRACTOR for the CONTRACTOR'S and any SUBCONTRACTOR'S operations. These are solely minimums that have been established to protect the interests of the OWNER. The CONTRACTOR shall procure and maintain, at his own expense, during the CONTRACT TIME, insurances as hereinafter specified:

21.3.1Workers Compensation Insurance. With respect to all operations performed the CONTRACTOR shall carry Workers Compensation Insurance in accordance with the laws of the State of Vermont, 21 V.S.A. Chapter 9. The CONTRACTOR shall also ensure that all SUBCONTRACTORS carry Workers Compensation Insurance in accordance with 21 V.S.A. Chapter 9 for all work performed by them.

21.3.2Commercial General Liability Insurance. With respect to all operations performed by the CONTRACTOR and SUBCONTRACTORS, the CONTRACTOR shall carry Commercial General Liability Insurance on an occurrence form providing all major divisions of coverage, including but not limited to:

Premises - Operations
Independent CONTRACTOR's Protective
Products and Completed Operations
Personal Injury Liability

CONTRACTOR's General Liability and Property Damage Insurance will be obtained by the CONTRACTOR protecting him from all claims for personal injury, including death, and all claims for destruction of or damage to property arising out of or in connection with any operations under the CONTRACT DOCUMENTS, whether such operations be by himself or by any SUBCONTRACTOR under him, or anyone directly or indirectly employed by the CONTRACTOR or by a SUBCONTRACTOR under him. Contractual Liability applying to the CONTRACTOR'S obligations, unless this requirement is waived in writing by the OWNER, shall have Limits of Coverage not less than:

$1,500,000 Each Occurrence
$2,000,000 General Aggregate applying, in total to this project only
$2,000,000 Products/Completed Operations Aggregate
$ 250,000 Fire Damage Legal Liability

21.3.3Automobile Liability Insurance. The CONTRACTOR shall carry Automobile Liability Insurance covering all motor vehicles, including owned, hired, borrowed, and non-owned vehicles, used in connection with the project. Limits of Coverage shall be not less than:

Bodily Injury: $1,000,000 Each Person, $1,000,000 Each Occurrence
Property Damage: $ 500,000 Each Occurrence, OR
Combined Single Limit: $1,500,000 Each Occurrence

21.3.4Railroad 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 Conditions 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 OWNER. The OWNER 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.

21.3.5General Insurance Conditions. The insurance specified under paragraphs 21.3.1, 21.3.2, and 21.3.3 above shall be maintained in force until acceptance of the project by the OWNER. Under paragraph 21.3.2 above, Products and Completed Operations Coverage shall be maintained in force for at least one year from the date of acceptance of the project. Under paragraph 21.3.4 above, the Railroad Protective Policy shall remain in force until all work required to be performed on railroad property is completed to the satisfaction of the Railroad and the OWNER. The contractual liability insurance requirements detailed in the Contract Documents are to indemnify, defend, and hold harmless the OWNER, and railroad(s), as applicable, and their officers, agents, representatives, and employees, with respect to any and all claims, causes of actions, losses, expenses, or damages 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 this project. Each policy, except the Workers Compensation Policy, shall name the OWNER, and railroad(s), as additional insured for actions, losses, expenses or damages 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 this project. Umbrella Excess Liability Policies may be used in conjunction with primary policies to comply with any of the limit requirements specified above. "Claims-made" coverage forms are not acceptable without the prior written consent of the OWNER. The CONTRACTOR shall investigate and the CONTRACTOR and/or insurance company shall either adjust or defend all claims against the insured for damages covered, even if groundless. 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 OWNER, 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 OWNER. There shall be no directed compensation allowed the CONTRACTOR on account of any premium or other charge necessary to take out and keep in effect such insurance or bond; the cost thereof shall be considered included in the general cost of the work.

21.3.6 The CONTRACTOR shall acquire and maintain, if applicable, Fire and Extended Coverage insurance upon the PROJECT to the full insurable value thereof for the benefit of the OWNER, the CONTRACTOR, and SUBCONTRACTORS as their interest may appear. This provision shall in no way release the CONTRACTOR or CONTRACTOR'S surety from obligations under the CONTRACT DOCUMENTS to fully complete the PROJECT.

21.4 The CONTRACTOR shall procure and maintain, at his own expense, during the CONTRACT TIME, in accordance with the provision of the laws of the state in which the WORK is performed, Workmen's Compensation Insurance, including occupational disease provisions, for all of his employees at the site of the PROJECT and in case any WORK is sublet, the CONTRACTOR shall require such SUBCONTRACTOR similarly to provide Workmen's Compensation Insurance, including occupational disease provisions for all of the latter's employees unless such employees are covered by the protection afforded by the CONTRACTOR. In case any class of employees engaged in hazardous WORK under this CONTRACT at the site of the PROJECT is not protected under Workmen's Compensation statute, the CONTRACTOR shall provide, and shall cause, each SUBCONTRACTOR to provide, adequate and suitable insurance for the protection of his employees not otherwise protected.

21.5 The CONTRACTOR shall secure "All Risk" type Builder's Risk Insurance for WORK to be performed. Unless specifically authorized by the OWNER, the amount of such insurance shall not be less than the CONTRACT PRICE totaled in the BID. The policy shall cover not less than the losses due to fire, explosion, hail, lightning, vandalism, malicious mischief, wind, collapse, riot, aircraft, water and smoke during the

CONTRACT TIME, and until the WORK is accepted by the OWNER. The policy shall name as the insured the CONTRACTOR, the ENGINEER, and the OWNER.

22. CONTRACT SECURITY

22.1 The CONTRACTOR shall within ten (10) days after the receipt of the NOTICE OF AWARD furnish the OWNER with a Performance BOND and a Payment BOND in penal sums equal to the amount of the CONTRACT PRICE, conditioned upon the performance by the CONTRACTOR of all undertakings, covenants, terms, conditions and agreements of the CONTRACT DOCUMENTS, and upon the prompt payment by the CONTRACTOR to all persons supplying labor and materials in the prosecution of the WORK provided by the CONTRACT DOCUMENTS. Such BONDS shall be executed by the CONTRACTOR and a corporate bonding company licensed to transact such business in the state in which the WORK is to be performed and named on the current list of "Surety Companies Acceptable on Federal Bonds" as published in the Treasury Department Circular Number 570. The expense of these BONDS shall be borne by the CONTRACTOR. If at any time a surety on any such BOND is declared bankrupt or loses its right to do business in the state in which the WORK is to be performed or is removed from the list of Surety Companies accepted on Federal BONDS, CONTRACTOR shall within ten (10) days after notice from the OWNER to do so, substitute an acceptable BOND (or BONDS) in such form and sum and signed by such other surety or sureties as may be satisfactory to the OWNER. The premiums on such BOND shall be paid by the CONTRACTOR. No further payments shall be deemed due nor shall be made until the new surety or sureties shall have furnished an acceptable BOND to the OWNER.

23. ASSIGNMENTS

23.1 Neither the CONTRACTOR nor the OWNER shall sell, transfer, assign or otherwise dispose of the CONTRACT or any portion thereof, or of his right, title or interest therein, or his obligations hereunder, without written consent of the other party.

24. INDEMNIFICATION

24.1 The CONTRACTOR will indemnify and hold harmless the OWNER and 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 there from; 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.

24.2 In any and all claims against the OWNER or the ENGINEER, or any of their agents or employees, by any employee of the CONTRACTOR, any SUBCONTRACTOR, anyone directly or indirectly employed by any of them, or anyone for whose acts any of the may be liable, the indemnification obligation shall not be limited in any way by any limitation 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.

24.3 The obligation of the CONTRACTOR under this paragraph shall not extend to the liability of the ENGINEER, his agents or employees arising out of the preparation or approval of maps, DRAWINGS, opinions, reports, surveys, CHANGE ORDERS, design or SPECIFICATIONS.

25. SEPARATE CONTRACTS

25.1 The OWNER reserves the right to let other CONTRACTS in connection with this PROJECT. The CONTRACTOR shall afford other CONTRACTORS reasonable opportunity for the introduction and storage of their materials and the execution of their WORK, and shall properly connect and coordinate his WORK with theirs. If the proper execution or results of any part of the CONTRACTOR'S WORK depends upon the WORK of any other CONTRACTOR, the CONTRACTOR shall inspect and promptly report to the ENGINEER any defects in such WORK that render it unsuitable for such proper execution and results.

25.2 The OWNER may perform additional WORK related to the PROJECT by himself or he may let other CONTRACTS containing provisions similar to these. The CONTRACTOR will afford the other CONTRACTORS, who are parties to such CONTRACTS (for the OWNER, if he is performing the additional WORK himself), reasonable opportunity for the introduction and storage of materials and equipment and the execution of WORK, and shall properly connect and coordinate his WORK with theirs.

25.3 If the performance of additional WORK by other CONTRACTORS or the OWNER is not noted in the CONTRACT DOCUMENTS prior to the execution of the CONTRACT, WRITTEN NOTICE thereof shall be given to the CONTRACTOR prior to starting any such additional WORK. If the CONTRACTOR believes that the performance of such additional WORK by the OWNER or others involves him in additional expense or entitles him to an extension of the CONTRACT TIME, he may make a claim therefore as provided in Section 14 and 15.

26. SUBCONTRACTING

26.1 The CONTRACTOR may utilize the services of specialty SUBCONTRACTORS on those parts of the WORK which under normal contracting practices, are performed by specialty SUBCONTRACTORS.

26.2 If the CONTRACTOR was not required to obtain OWNER approval of the SUBCONTRACTOR(s) prior to Award of the CONTRACT, the CONTRACTOR shall provide written notification to the OWNER within 10 working days of the CONTRACTOR's intent to employ SUBCONTRACTOR(s) on site. The notification shall list the name, address and telephone number of the SUBCONTRACTOR(s); estimated dollar amounts of SUBCONTRACT(s); estimated start and completion dates of the SUBCONTRACTOR(s) work.

26.3 The CONTRACTOR shall be fully responsible to the OWNER for the acts and omissions of his SUBCONTRACTORS and of persons whether directly or indirectly employed by them, as he is for the acts and omissions of persons directly employed by him.

26.4 The CONTRACTOR shall cause appropriate provisions to be inserted in all subcontracts relative to the WORK to bind SUBCONTRACTORS to the CONTRACTOR by the terms of the CONTRACT DOCUMENTS insofar as applicable to the WORK of SUBCONTRACTORS and to give the CONTRACTOR the same power as regards terminating any subcontract that the OWNER may exercise over the CONTRACTOR under any provision of the CONTRACT DOCUMENTS.

26.5Nothing contained in this CONTRACT shall create any contractual relation between any SUBCONTRACTOR and the OWNER.

27.ENGINEER'S AUTHORITY

27.1 The ENGINEER shall act as the OWNER'S representative during the construction period. He shall decide questions which may arise as to quality and acceptability of materials furnished and WORK performed. He shall interpret the intent of the CONTRACT DOCUMENTS in a fair and unbiased manner. The ENGINEER will make visits to the site and determine if the WORK is proceeding in accordance with the CONTRACT DOCUMENTS.

27.2 The CONTRACTOR will be held strictly to the intent of the CONTRACT DOCUMENTS in regard to the quality of materials, workmanship and execution of the WORK. Inspections may be made at the factory or fabrication plant of the source of material supply.

27.3 The ENGINEER will not be responsible for the construction means, controls, techniques, sequences, procedures, or construction safety.

27.4 The ENGINEER shall promptly make decisions in writing relative to interpretation of the CONTRACT DOCUMENTS.

28. LAND AND RIGHTS-OF-WAY

28.1 Prior to issuance of NOTICE TO PROCEED, the OWNER shall obtain all land and rights-of-way necessary for carrying out and for the completion of the WORK to be performed pursuant to the CONTRACT DOCUMENTS, unless otherwise mutually agreed.

28.2 The OWNER shall provide to the CONTRACTOR information which delineates and describes the lands owned and rights-of-way acquired.

28.3 The CONTRACTOR shall provide at his own expense and without liability to the OWNER any additional land and access thereto that the CONTRACTOR may desire for temporary construction facilities, or for storage of materials.

29. GUARANTY

29.1 The CONTRACTOR shall guarantee all materials and equipment furnished and WORK performed for a period of one, (1) year from the date of SUBSTANTIAL COMPLETION or FINAL COMPLETION OF THE PROJECT or specified part, as appropriate. The CONTRACTOR warrants and guarantees for a period of one (1) year from the date of SUBSTANTIAL COMPLETION (or FINAL COMPLETION OF THE PROJECT for items not completed at time of SUBSTANTIAL COMPLETION) or specified part, as appropriate, that the completed project is free from all defects due to faulty materials or workmanship and the CONTRACTOR shall promptly make such corrections as may be necessary by reason of such defects including the repairs of any damage to other parts of the project resulting from such defects. The OWNER will give notice of observed defects with reasonable promptness. In the event that the CONTRACTOR should fail to make such repairs, adjustments, or other WORK that may be made necessary by such defects, the OWNER may do so and charge the CONTRACTOR the cost thereby incurred. The Performance BOND shall remain in full force and effect through the guarantee period.

30. TAXES

30.1 The CONTRACTOR will pay all sales, consumer, use and other similar taxes required by the law of the place where the WORK is performed.

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HAZARDOUS MATERIALS AND HISTORIC PRESERVATION

1. If at any time during construction the presence of unanticipated hazardous materials at or proximate to a construction site is detected, the construction CONTRACTOR shall cease work in the affected area and perform the following immediately:

   a. Notify the OWNER verbally and in writing. The OWNER is responsible for notification of the Waste Management Division of the Agency of Natural Resources.

      THE HAZARDOUS MATERIALS SPILLS AND EMERGENCY REPORTING PHONE NUMBER IS Toll Free 1-800-641-5005.

   b. Take all action necessary and appropriate for the protection and safety of the public and persons at or about the site, including posting danger signs and other warnings against hazards, promulgating safety regulations and notifying OWNERs and users of adjacent sites and utilities.

2. Actions at the construction site following completion of these steps shall be at the direction of the Waste Management Division. Nothing in this Article shall be construed to require the CONSULTANT and/or the CONTRACTOR to perform work for which adequate compensation has not been contracted for other than to insure that basic measures necessary to protect the health and welfare of workers, residents and abutters are immediately adopted.

3. At construction sites where the presence of contaminated or hazardous materials are suspected to exist and provisions have been made in the Contract Documents for their management, the requirements in the Contract Documents will determine the appropriate actions of the CONTRACTOR. In any event, discovery of contaminated soils require the immediate notification of the OWNER. If sites other than the suspected areas previously delineated in the Contract Documents are discovered, Item 1 above shall apply.

HISTORIC PRESERVATION

1. If at any time during construction, the presence of possible human remains are discovered at or proximate to a construction site, the CONTRACTOR shall cease work in the affected area and immediately contact the local medical examiner or law enforcement official in addition to notifying the OWNER or OWNER's representative. The CONTRACTOR shall take all action necessary and appropriate for the protection and safety of the public and the site.

   a. Notify the OWNER verbally and in writing. The OWNER is responsible for notification of the Agency of Natural Resources and FED Construction Project Engineer

2. If at any time during construction, the presence of unanticipated historic and archeological resources are detected at or proximate to a construction site, the construction CONTRACTOR shall cease work in the affected area, take all action necessary and appropriate for the protection and safety of the public and the site, and inform the following immediately:

   a. Notify the OWNER verbally and in writing. The OWNER is responsible for notification of the Agency of Natural Resources and FED Construction Project Engineer.

   b. Notify the Vermont Division of Historic Preservation at: **(802) 828-3050 landline or (802) 477-2517 cell Or (802) 828-3048 landline or (802) 310-0289 cell**

3. Actions at the construction site following completion of these steps shall be at the direction of the local medical examiner, law enforcement agent or Historic Preservation Division as appropriate. Nothing in this Article shall be construed to require the CONSULTANT and/or the CONTRACTOR to perform work for which adequate compensation has not been contracted for other than to insure that basic measures necessary to protect the safety and welfare of the workers and the site.

NOTICE TO CONTRACTORS AND SUBCONTRACTORS: UNAUTHORIZED BYPASSING PROHIBITED

PURPOSE:

To alert all CONTRACTORS and SUBCONTRACTORS of the prohibition against bypassing sewerage facilities and to provide information regarding reporting unavoidable EMERGENCY BYPASSES. This notice is for protection of public health and water quality.

Notice to CONTRACTORS and SUBCONTRACTORS:

The CONTRACTOR is not authorized to initiate any bypassing of sewerage facilities whether or not under construction or rehabilitation. Any OWNER authorized bypass within the system is depicted under the Special Conditions of these CONTRACT DOCUMENTS.

If a bypass not authorized in the Special Conditions occurs under an unavoidable emergency situation, the CONTRACTOR is required to immediately notify the OWNER giving the details of the occurrence. The OWNER is required by State Law to notify the Watershed Management Division of the Vermont Department of Environmental Conservation.

If the OWNER, upon receipt of a written request from the CONTRACTOR, is asked to consider bypassing of the system or components of treatment and such bypass will result in discharges with treatment levels less than those allowed in the NPDES Permit, the CONTRACTOR acknowledges that the OWNER is required to file a request for State of Vermont review and receive a response from the State. If approvable, the Department shall issue an Emergency Pollution Permit.

Report all unavoidable Emergency bypasses to:

A. OWNER and

B. State of Vermont Department of Environmental Conservation: (Report in order as follows)

1) Watershed Management Division Regional Wastewater Program Staff –
Contact Information available at: http://dec.vermont.gov/watershed/wastewater/contacts
If the Regional Program Staff is unable to be reached, call the Main Office at (802) 828-1535

2) Facilities Engineering Division (802) 828-1550 (office)
Construction Section (802) 760-8135 (cell)

SUPPLEMENTAL GENERAL CONDITIONS INDEX

The following is an index of documents that are made part of the CONTRACT DOCUMENTS either by direct inclusion in these documents or via reference in this section. The BIDDERS and CONTRACTOR are responsible for knowledge of, and compliance with all requirements, provisions, policies and permits contained in the SUPPLEMENTAL GENERAL CONDITIONS. **Any conflicts between these contract documents and the most current version of the Code of Federal Regulations housed online at eCFR shall be governed by the most current version of the ruling.**

INDEX:

PERMITS:

- Federal, State and local permits apply to the performance of WORK under this CONTRACT:
  (*Refer to last page of this document for a list of permits)*

PERMITS PERTAINING TO THIS WORK

See Appendix A

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SECTION 01010

SUMMARY OF WORK

1. GENERAL

1.1 CONTRACT DOCUMENT

A. The general provisions of the Contract, including General and Supplementary Conditions and General Requirements, apply to the work specified in all sections.

B. Specification Arrangement
   1. Titles to and arrangements of sections and paragraphs in these Specifications are used merely for convenience and shall not be taken as a correct or complete segregation of the several categories of materials, equipment, and labor, nor as the attempt to outline or define jurisdictional procedures.

1.2 INTENT

A. The entire work provided for in this Specification and on the Contract Drawings shall be constructed and finished in every respect in a good workmanlike and substantial manner. All parts necessary for the proper and complete execution of the work whether the same may have been specifically mentioned or not, or indicated in a manner corresponding with the rest of the work as if the same were particularly described and specifically provided herein. It is not intended that the Contract Drawings shall show every detailed piece of material or equipment, but such parts and pieces as may be in accordance with the best practices and regulatory requirements, even though not shown, shall be furnished and installed. All materials and equipment shall be new unless specifically stated otherwise in these Contract Documents.

1.3 SCOPE

A. The work required by these Specifications shall include furnishing all labor, skill, supervision, tools, construction plant, equipment and materials, and performing all operations necessary for the properly completed Contract work as shown on the Specification Drawings, as mentioned in these Specifications, and as evidently required, to the complete satisfaction of the awarding authority and their authorized representatives.

1.4 GENERAL DESCRIPTION OF WORK

A. Construction of a New Stormwater Collection System on Water Street to include:
   1. Installation of approximately 1,185 linear feet of new storm drain, stormdrain manholes and catch basins.
   2. Construction of a new subsurface stormwater storage chamber system.
   3. Clearing and regrading site of new stormwater chamber system.
   4. Surface restoration and paving.

1.5 WORK BY OTHERS

A. There may be other contractors working on related or nonrelated projects. If, through acts of neglect on the part of the Contractor, any other contractor or any subcontractor shall suffer loss or damage on the work, the Contractor agrees to settle with such other contractor or subcontractor by agreement or arbitration if such other contractor or subcontractor will settle. If such other contractor or subcontractor shall assert any claim against the Owner because of any damage alleged to have been sustained, the Owner shall notify the Contractor who shall indemnify and save harmless the Owner against any such claim.

1.6 WORK SEQUENCE

A. Sequence construction to accommodate continued usage of public property.

B. Contractor to sequence operations to conform with any requirements stipulated by permits, ordinances, or the Contract Documents.

C. Prior to performing any work, the Contractor shall submit a detailed flow plan and work schedule for review and approval by the Owner and engineer.

1.7 PROJECT COMPLETION

A. It is expected that all work will be completed in the 2019 construction season. See the WINTER SHUTDOWN section below.

1.8 WINTER SHUTDOWN

A. If desired by the Contractor, a Winter Shutdown may be requested in writing to the Owner for approval.

B. A Winter Shutdown may occur between October 15, 2019, and April 15, 2020. Utilization of a Winter Shutdown.

C. Prior to a Winter Shutdown, the Contractor shall meet the following provisions at minimum.

1. Ensure installed storm drain is capable of draining stormwater and snowmelt without backing up onto surfaces.
2. Stabilize all disturbed slopes as necessary to prevent erosion during winter.
3. Ensure that all storm drains can pass stormwater or snow/ice melt without eroding or flooding the work zone and fouling downstream infrastructure and bodies of water.
4. Store equipment and materials in a manner that does not impact snow removal efforts.
5. Provide additional erosion control measures as required by the Owner.

D. Although no work shall occur during the Winter Shutdown, it is expected that the Contractor shall maintain all erosion control and make adjustments as required by conditions and/or the Owner.

1.9 The Contractor shall be responsible for addressing any downstream issues that are a result of material migration, etc. at no additional cost to the Owner.

1.10 INITIAL EXCAVATION FOR STORMWATER CHAMBER SYSTEM

A. The Town of Northfield will conduct the initial excavation for the stormwater chamber system as part of a funding match requirement for this project. The Contractor shall be prepared to coordinate timing of this excavation with the Town a minimum of two weeks in advance or more, as required to maintain the project schedule. Final layout of the chamber system is the responsibility of the Contractor. See Specification Section 01025 for more information.

1.11 CONTRACTOR USE OF PREMISES

A. Confine operations at site to areas permitted by:
   1. Law
   2. Ordinances
   3. Permits
   4. Contract Documents

B. Do not unreasonably encumber site with materials or equipment.

C. Do not load structures with weight that will endanger structures.

D. Assume full responsibility for protection and safekeeping of products stored on premises. Move any stored products which interfere with operations of Owner or other contractor(s).

E. Obtain and pay for use of additional storage or work areas needed for operations.

F. Limit use of site for work and storage.
   1. Use of site not to interfere with pedestrian and vehicle access to abutting properties.

2. PRODUCTS

2.1 None used.

3. EXECUTION

3.1 None used.

END OF SECTION

SECTION 01012

PERMITS

1. GENERAL

1.1 CONTRACT DOCUMENT

A. The following permits have been acquired by the Owner or must be obtained by the Contractor (as indicated). The conditions and requirements of these permits are material requirements of the Contract Documents. Bidders shall factor the time and costs of all permit conditions into the Bid. The Contractor shall comply with all permit conditions as they relate to the performance of the work and the delivered project. The Contractor shall not be granted additional compensation to comply with any permit requirement.

1.2 VERMONT CONSTRUCTION GENERAL PERMIT

A. This project is subject to the State of Vermont Agency of Natural Resources, DEC General Permit 3-9020 (Latest Revision).

B. Less than one (1) acre of total disturbance is anticipated for this project. If the Contractor disturbs or wishes to disturb more than one (1) acre, it shall be the Contractor's responsibility to obtain the required permits and satisfy any permit requirements and the condition listed below at no additional cost to the owner.

C. The Contractor shall obtain co-permittee status under this General Permit, as part of this project. Upon execution of this Agreement, the Contractor shall submit the Assignment of Co-Permittee form to the State. As Co-Permittee, the Contractor has operation and management responsibilities and liabilities associated with erosion prevention and sediment control in completion of the work, including but not limited to the following:
   1. Operation and maintenance of control structures.
   2. Proper disposal of sediment.
   3. Posting of notice at construction site.
   4. Frequency of inspection.
   5. Corrective action.
   6. Record keeping.
   7. Late fall/winter construction activities.
   8. Submittal of Notice of Termination to the VTDEC.

D. Overwinter construction (October 15th through May 1st) is not permitted without approval from the VTDEC Water Quality Division.
   1. It is expected that final grading, seeding and mulching of disturbed areas will be performed by October 15th of the construction year. If final grading, seeding and mulching of disturbed areas cannot be completed by October 15th of the construction year, measures to provide overwinter stabilization shall be implemented prior to October 15th; final grading, seeding and mulching of these areas shall be performed in the spring following.

2. For site work extending beyond October 15th, and exclusively consisting of site stabilization and minor activities that do not involve new areas of earth disturbance, the VTDEC Water Quality Division shall be notified in writing prior to September 15th of those planned activities.
3. For site work between October 15th and May 1st, and involving new areas of earth disturbance, a written request to perform overwinter construction shall be submitted to the VTDEC Water Quality Division before September 15th of the construction year and approved by the VTDEC Water Quality Division. The written request shall identify specific areas where overwinter construction will occur and the erosion prevention and sediment control measure to be utilized. All measured possible shall be taken to limit the exposure of soils during all late fall and winter construction activities.
4. The VTDEC Water Quality Division reserves the right to either require an individual permit for construction extending into this time period, or may require suspension of construction activities until the next construction season, if winter construction is determined to present a significant risk to water quality.

END OF SECTION

SECTION 01015

CONTRACT DRAWINGS

1. GENERAL

1.1 CONTRACT DOCUMENT DRAWINGS

A. The drawings listed on the "Title Sheet" may be modified by addenda and will be issued for construction purposes. These drawings may be supplemented or superseded by such additional general and detail drawings as may be necessary or desirable as the work progresses. The drawings issued for construction at that time or after the signing of the Contract Documents will become the contract drawings.

1.2 EXISTING AND ADJACENT CONDITIONS

A. Wherever existing conditions or construction not required as part of the work of the contract are shown, they are so shown as a source of information only. The Owner, while believing such information is substantially correct, assumes no responsibility therefore. Before starting any work that might be affected by such existing construction or conditions, the Contractor shall have made himself familiar with all conditions affecting the nature and manner of performing the work and shall not be entitled to any extra compensation for any work or expense arising from or caused by his neglect to have verified all existing conditions and requirements.

1.3 DIMENSIONS

A. The drawings are made to scale by and large, but all working dimensions shall be taken from the figured dimensions or by actual measurements at the work, and in no case by scaling the prints. The Contractor shall study and compare all drawings and verify all figures before laying out or constructing the work and shall be responsible for any and all errors in the contract work which might have been avoided thereby. Whether or not an error is believed to exist, deviations from the drawings and the dimensions given thereon shall be made only after acknowledgment of receipt of revision is obtained in writing from the Engineer. The Contractor shall take all measurements of existing established conditions notwithstanding the figured dimensions on the drawings. When figured dimensions are not in agreement with the Contractor's measurements, the Contractor will adjust measurements as necessary and provide Engineer with justification for said revisions.

1.4 DIAGRAMMATIC DRAWINGS

A. Plans or drawings where work is shown diagrammatically, indicate approved working systems. Every piece of material, fittings, fixtures, or small equipment is not shown nor every difficulty or interference that may be encountered. To carry out the true intent and purpose of the Contract Documents, all necessary parts to make complete, correct working systems or installation shall be included as if detailed on these drawings.

B. The location of equipment shown on the drawings, unless exactly dimensioned, shall be considered as approximate only. The Contractor shall adjust the position of the equipment in accordance with good working practices to meet interferences, provide proper clearance and provide proper access space for operation and maintenance.

1.5 TYPICAL DETAILS

A. Where shown, the typical details shall apply to each and every item of the Contract work where such items are incorporated and the detail is applicable. Unless noted otherwise, such typical details shall be applicable in full.

1.6 COPIES OF DRAWINGS FURNISHED

A. The Owner will furnish the Contractor, without charge, up to five copies of the Drawings and Specifications for execution of the Contract work. Additional copies will be furnished at the Contractor's expense when requested.

B. All drawings and Specifications are the property of the Engineer. The Contractor shall return all copies if so requested.

1.7 LIST OF DRAWINGS

A. See "Index of Drawings" of the Contract Drawings.

2. PRODUCTS

2.1 None used.

3. EXECUTION

3.1 None used.

END OF SECTION

SECTION 01025

MEASUREMENT AND PAYMENT

1. GENERAL

1.1 GENERAL

A. Each unit price or lump sum stated in the Schedule of Prices shall constitute full compensation for all materials, labor, tools, equipment and incidentals thereto, to perform the work in accordance with the Contract Documents.

B. Payment for any Item of work required by the Contract Drawings and Specifications and/or normally required during the construction of the work herein specified, and not listed as a separate item in the Schedule of Prices in the Bid shall be considered as included in the lump sum and/or unit prices stated in the Schedule of Prices and will not be paid for as a separate item.

C. Contractor shall request progress payments no more than monthly. Retainage as described in the general conditions will be withheld until final payment.

D. A Project Schedule update in accordance with Specification Section 01310 shall be submitted with each monthly payments request and is a requirement for approval of the pay estimate.

1.2 ALLOWANCES

A. Payments for allowances shall include the actual direct cost of the work or fee. No contractor mark-up will be allowed when calculating the actual cost incurred.

1.3 PAYMENTS FOR MATERIALS STORED ON-SITE

A. Materials which have been delivered and properly stockpiled in the vicinity of the construction site shall be paid for only when all of the following conditions exist:
   1. The Contractor provides the Owner with a copy of his insurance against any loss or damage of all materials
   2. The Contractor provides the Owner with copies of complete itemized billing for the delivered cost of all materials for which payment is requested. The invoices shall indicate that the material has been delivered to the site.
   3. Payments shall not be made for materials or equipment laid out along roadsides or along other proposed routes.
   4. Materials and equipment must meet Specifications.

1.4 GRAVITY STORM DRAINS (ITEM A-1)

A. Measurement
   1. The quantity to be paid for under this Item in the Schedule of Prices is the length measured horizontally along the centerline of the pipe as laid. The depth of storm drain as referred to in the Schedule of Prices is measured vertically from the existing

ground surface prior to excavation to the sump. The depth of storm drain measurement does include additional fill to be added as shown on Contract Drawings. No deductions will be made for the lengths of manholes or catch basins. Measurement shall be made to the nearest lineal foot. Trench payment limit at pipe elevation shall be as specified in the Typical Trench Details on the Contract Drawings.

B. Payment

1. The price stated for this Item in the Schedule of Prices is full compensation for all work and expense incidental thereto for the complete furnishing and installing of all pipe, fittings, plugs, backfill materials, and other materials required for constructing the pipelines, for dewatering, for excavating (except rock and boulder); for laying, setting, and joining all pipes and fittings; clearing and grubbing, for making all connections to existing pipes and manholes; for all testing; for backfilling, for all orange safety and protection fencing, for removing and replacing curbs, sods, shrubs, fences, lawns, trees, and other surface materials (except road and drive resurfacing); for furnishing and placing all temporary sheeting and bracing; any temporary shoring and bracing of existing structures, including “holding” utilities’ poles, relocation of any conflicting utilities, and the repair of any damage which may be done to such structures and temporary sheeting, shoring, and bracing used for structures and temporary sheeting, shoring, and bracing used for control of groundwater; for all guardrails to be removed, reset or replaced; for all catch basins, drop inlets, headwalls, and culverts that need to be repaired, replaced, or maintained during the course of sewer installation; for all traffic control (except Uniformed Traffic Control); and for all other work and expense incidental thereto are included in the prices stated in this Item.

1.5 NEW OR REPLACED STORM DRAIN MANHOLES, AND CATCH BASINS (ITEMS B-1 THRU B-3)

A. Measurement

1. The quantity to be paid for under these Items in the Schedule of Prices is the number of vertical feet of manholes or catch basins built complete in place as noted on the Contract Drawings. The vertical foot referred to in the Schedule of Prices is the distance measured from top of manhole cover to invert at center of manhole OR floor of catch basin sump. Measurement shall be made to the nearest tenth of vertical foot.

B. Payment

1. The price stated for this item in the Schedule of Prices is full compensation for all labor, tools, products, construction equipment, and materials including concrete fill, precast concrete, table and flow channels, steps, precast concrete risers, frames and covers, excavation, backfill materials, removal and proper disposal of the existing structures or excavated soils, other materials required for the removal of existing structures, dewatering, backfilling, shoring and bracing of existing structures, and repair of any damage which may be done to structures, maintaining existing wastewater flow (including bypass pumping, as necessary), and for all other purposes necessary for the installation of structures.

1.6 ROCK EXCAVATION (ITEM C-1)

A. Measurement
1. The quantity to be paid for under these Items in the Schedule of Prices is the number of cubic yards of ledge rock in place, as measured before excavation.
a. Contractor shall uncover undisturbed surface of ledge rock in place and profile ledge rock surface with the Engineer prior to blasting or removal operations. If the Contractor fails to uncover the ledge rock, notify the Engineer, or allow ample time for profiling the undisturbed material, the Contractor shall have no right to claim any measurement other than that allowed by the Engineer.
2. For trenches, quantities shall be measured from a depth of 6" below underside of pipe and to a width of 36”, or 24" greater than the outside diameter of the pipe, whichever is greater. Rock excavation greater than this limit shall not be paid.
3. For structures, unless otherwise shown, rock shall be excavated to bottom of the structure bedding material and shall be excavated a minimum of 2'-0" from any side of a structure.
4. Volume shall be measured to the nearest one-tenth cubic yard.

B. Payment
1. The price stated for these Items in the Schedule of Prices is full compensation for all work and expense incidental thereto, for the complete excavation of ledge rock including the disposal of excavated ledge rock.
a. To include all drilling, blasting, excavation, and disposal, providing for any deficiency in backfill, and all else incidental thereto for which payment is not included under other Items in the Proposal. Includes pre-blast survey reports and blasting insurance.
b. No payment of rock removal will be made without copies of the pre-blast survey and blasting records presented to the Engineer.
c. Rock excavation shall be disposed of properly offsite or onsite with the Engineer's permission. The Contractor shall be responsible for obtaining all necessary permits needed for the disposal of rock excavation.

1.7 BOULDER EXCAVATION (ITEMS C-2)

A. Measurement
1. The quantity to be paid for under these Items in the Schedule of Prices is the number of cubic yards or boulders, more than one (1) cubic yard in volume, excavated and disposed of during the construction work.
a. This includes only boulders encountered in construction that are within trench and excavation limits shown on the Contract Drawing, and those that must be physically removed from the site and disposed of in offsite locations. No payment will be made for boulders just moved in onsite locations.
b. Measurement of boulders will be based on the average dimensions in three planes.
c. Volume shall be measured to nearest one-quarter cubic yard.

B. Payment
1. The price stated for these Items in the Schedule of Prices is full compensation for all work and expense incidental thereto, for the complete excavation of boulders including the disposal of excavated boulders as directed by the Engineer.

a. To include all drilling, blasting, excavation, and disposal providing for any deficiency in backfill, and all else incidental thereto for which payment is not included under other Items in the Schedule of Prices.

1.8 MISCELLANEOUS, EXTRA, AND BELOW GRADE EARTH EXCAVATION (ITEM C-3)

A. Measurement
1. The quantity to be paid for under these Items in the Schedule of Prices is the number of cubic yards of miscellaneous, extra, and below grade earth excavation so excavated by order of the Engineer, as measured before backfilling.
a. Includes required new test pits shown on the Contract Drawings and all other as directed by the Engineer in writing.
b. Measurement of volume by average end area method calculations.
c. Volume shall be measured to nearest one-quarter (1/4) cubic yard.

B. Payment
1. The price stated for these Items in the Schedule of Prices is full compensation for all work and expense incidental thereto, for the complete excavation of miscellaneous, extra, and below grade earth, including the disposal of surplus or unused excavated materials in embankments, backfill, fill or disposal areas as directed by the Engineer, and for all surface restoration necessary as a result of test pit excavations.
a. No payment will be made for any miscellaneous, extra and below grade excavation if the Contractor does not have written direction for same from the Engineer, excepting new test pits shown on the Contract Drawings.

1.9 EXCAVATION AND REPLACEMENT OF UNSUITABLE MATERIAL (ITEM C-4)

A. Measurement
1. The quantity to be paid for under these Items in the Schedule of Prices is the number of cubic yards of material for additional bedding of pipes and/or structures starting below the lower limits of the normal bedding dimension, that is unsuitable which is removed and replaced with ¾" diameter stone measured by the average end area method. Volume shall be measured to the nearest one-quarter (1/4) cubic yard.

B. Payment
1. The price stated for these Items in the Schedule of Prices shall be full compensation for all work and expenses incidental thereto, for complete excavation and disposal of unsuitable materials and the replacement thereof with ¾" crushed diameter stone and the placement and compaction of same.

1.10 PERMANENT BITUMINOUS PAVEMENT REPAIR – ROADWAYS (ITEM D-1)

A. Measurement
1. The quantity to be paid for under these Items in the Schedule of Prices are the actual number of square yards of bituminous concrete pavement installed and measured along the centerline of the pipe within the payment limits (aka "Trench Limit"), as shown on the Contract Drawings. This shall be measured at the completion of work.

a. To include pavement repair related to the construction of new main line sewer pipe, sewer services, manholes, storm drains, catch basins, watermains and water services.

B. Payment

1. The price stated for these Items in the Schedule of Prices is full compensation for furnishing all material, including stabilization fabric, gravel subbase, fine crushed gravel and base and top course, labor, tools, and construction equipment and for all work and expense incidental thereto, including necessary excavation and maintenance regardless of the width of the pavement required, and backing-up the pavement.
   a. Any pavement damaged along the side of trenches outside the pavement payment limits or in other areas by the Contractor, shall be repaved at the Contractor's expense.
   b. No additional payment will be made to the Contractor for repair or replacement work done by him in maintaining bituminous concrete pavement while work of the Contract is underway.

1.11 BITUMINOUS SIDEWALK REPAIR (ITEM D-2)

A. Measurement

1. The quantity to be paid for under these Items in the Schedule of Prices is the actual lineal feet of the sidewalk material specified, or repaired over trenches as measured along the centerline of the pipe as laid.
   a. To include main line pipes and services.

B. Payment

The price stated for these Items in the Schedule of Prices is full compensation for all work and expense incidental thereto for the complete furnishing and installing of sidewalks as shown on the Contract Drawings; including excavation, subbase and base materials, compacting, leveling, grading, forming, paving, surfacing, maintaining, and all other expenses ordinary to the construction of sidewalks.

1.12 GRANITE CURB REPAIR (ITEM D-3)

A. Measurement

1. The quantity to be paid for under this Item in the Schedule of Prices is the actual number of linear feet of the curbing material specified or installed either over pipe trenches as measured along the centerline of the pipe within the payment limits (aka “Trench Limit”), or as specifically indicated on the Contract Drawings.

B. Payment

1. The price stated for this Item in the Schedule of Prices is full compensation for all work and expense incidental thereto for the complete removal and replacement of curbing as shown on the Contract Drawings; including excavation, subbase and base materials, compacting, forming, leveling, grading, curbing material as specified, maintaining, and all other expenses ordinary to the construction of curbing.

1.13 CLASS “B” CONCRETE (ITEM E-1)

A. Measurement
1. The quantity to be paid for under these Items in the Schedule of Prices is the number of cubic yards measured in place. The Class “B” concrete to be paid for under this item shall be for any miscellaneous concrete ordered placed by the Engineer for which payment is not provided for under other items. Volume shall be measured to the nearest one-tenth cubic yard. Concrete encasement of pipes shall be based on calculations of volume of concrete thickness on the Contract Drawings. Concrete used in excess of these calculations will not be considered for payment.

B. Payment
1. The price stated for these Items in the Schedule of Prices is full compensation for all work and expense incidental thereto, for providing and placing of Class “B” concrete including placing and removing forms and supports, furnishing, hauling and placing concrete, sampling, testing, and all other work and expenses incidental thereto.

1.14 CALCIUM CHLORIDE (ITEM E-2)

A. Measurement
1. The quantity to be paid for under these Items of the Schedule of Prices is the number of tons of calcium chloride actually furnished and spread as directed by the Engineer.
2. Volume shall be measured to the nearest one-tenth (1/10) of a ton.

B. Payment
1. The price stated for these Items in the Schedule of Prices is full compensation for all work and expense incidental thereto for the complete furnishing and spreading of calcium chloride.

1.15 RIGID TRENCH INSULATION (ITEM E-3)

A. Measurement
1. The quantity to be paid for under these Items in the Schedule of Prices is the length in feet measured along the centerline of the pipe as laid.

B. Payment
1. The price stated for these Items in the Schedule of Prices shall be full compensation for all work and expense incidental thereto for the complete furnishing and installing of rigid insulation along trench as shown on the Contract Drawings, or as required by the Engineer or Owner.

1.16 SILT FENCE (ITEM E-4)

A. Measurement
1. The quantity to be paid for under these Items in the Schedule of Prices is the actual number of linear feet of silt fence measured in place from end post to end post of each separate installation. The silt fence must be complete and accepted.

B. Payment
1. The price stated for these Items in the Schedule of Prices shall be full compensation for all work and expense incidental thereto for the complete furnishing, installation,

maintenance, and removal of silt fence, including, but not limited to the following:
a. Furnishing materials.
b. Erecting and maintaining the fence.
c. Removing and disposing of accumulated silt.
d. Removing the fence.
e. Surface restoration (seeding, mulching, etc.).

2. If the silt fence must be repaired or replaced, the work shall be done at the Contractor's expense.
3. If silt fence is required due to Contractor's negligence, carelessness, or failure to install erosion control measures as part of the work as scheduled, the Contractor shall perform such work at his own expense.

1.17 TEMPORARY INLET PROTECTION (ITEM E-5)

A. Measurement
1. The quantity to be paid for under this Item in the Schedule of Prices is the number of temporary inlet protections installed.

B. Payment
1. The price stated for this Item in the Schedule of Prices shall be full compensation for all work and expense incidental thereto for the complete installation of temporary inlet protections including all labor, materials, maintenance and all other expenses necessary to complete installation as shown on the Contract Drawings, or as required by the Engineer or Owner.

1.18 STORMWATER CHAMBER SYSTEM (ITEM F-1)

A. Measurement
1. Construction of all work identified between the limits of payment shown in the Contract Documents shall be paid on a lump sum basis. The lump sum price paid for this item in the Schedule of Prices (Bid Schedule) shall include the complete construction of the subsurface stormwater chamber system and bypass storm drain as described in the Contract Documents. The work materials and cost shall include, but not be limited to the following:
a. Preparation of site
b. Demarcation of project areas, coordination with adjacent homeowners, City, and Engineer
c. Performance of subsurface investigation and verification of subsurface conditions necessary to successfully complete construction of the new stormwater practice.
d. Removal and disposal of all existing stormwater infrastructure components.
e. Removal and disposal of existing vegetative cover, trees and shurbs where required.
f. Protection of trees or existing infrastructure where called out on the contract documents.
g. Excavation, stockpiling and reuse of existing soil if deemed suitable for use by the Engineer.

h. Furnish and install stormwater chamber system, stone envelope, control structures, stormdrains, stormdrain manholes, underdrain, and make connections to existing stormwater collection system.
i. Provide all necessary dewatering equipment and materials to successfully complete construction of the new stormwater practice.
j. Excavation and disposal of existing soils. Removal and disposal of boulders and rock if encountered.
k. Furnishing, placing and grading various fill materials and geotextile fabrics for complete installation of slopes, lawns etc.
l. Final grading and surface restoration of all disturbed lawns, sidewalks, roads, or curbs.
m. Provide and maintain erosion control measures until grass seed and vegetative cover establishes.

B. Payment
1. The Lump Sum Price stated for this Item in the Schedule of Prices is full compensation for furnishing all labor, materials, tools and equipment and for work and expenses incidental thereto for the complete construction and installation as shown on the Contract Drawings, and as needed herein including appurtenances.
a. As part of a funding match, the Owner shall provide Time and Materials to excavate the Stormwater Chamber System **ONLY**. The Contractor shall exclude cost for excavation of the Stromwater Chamber System from their price.
b. The Contractor shall **INCLUDE** all costs for excavation and installing the stromdrain pipe draining to the Stormdrain Manhole providing access to the Stormwater Chamber system headers.
c. The Contractor shall also **INCLUDE** costs of furnishing and placing all fill materials, as well as disposing all excess materials excavated by the Owner or Contractor.

1.19 PREPARATION OF SITE AND MISCELLANEOUS WORK (ITEM F-2)

A. Measurement
1. The preparation of site and miscellaneous work shall be bid on a lump sum basis for these Items of the Schedule of Prices and shall be full compensation for preparing for and performing the following items of work under this Contract as specified or as shown on the Contract Drawings, unless it is definitely provided for under the other various Items in the Schedule of Prices. The lump sum shall include full compensation for providing: prep site miscellaneous work, miscellaneous equipment, cleanup of the entire site after construction, for; tree pruning, removal, replacement; tree root fertilization; grading, loaming, seeding; also maintenance of water and sewer services, insurance, mobilization, temporary facilities, and general supervision.

B. Payment
1. The lump sum price stated for this Item in the Schedule of Prices is full compensation for furnishing all labor, materials, tools and equipment and for all work and expense incidental thereto for the preparation of site and miscellaneous work.
a. As a condition precedent for the making of partial payment under this Item, the Contractor shall furnish the Engineer evidence of the work done and expenses

incurred. Not more than 20% of the price stated under this Item shall be included for payment in the first monthly estimate. Thereafter additional amounts not to exceed an additional 20% of the price stated in any one monthly estimate will be included for payment in later monthly estimates until a total of 80% of the price stated in this Item has been included in the estimates for payment. The remaining 20% of the price stated shall not be included in any partial estimate, but shall be included in the final estimate made at the completion of the work.

1.20 BONDS (ITEM F-3)

A. Measurement
1. The quantity to be paid for under these Items in the Schedule of Prices shall be the total cost of all the bonds required for the project based on the estimated total cost of all of the bonds required for the Project based on the estimated total cost of all items of work in the Schedule of Prices, except this Item.

B. Payment
1. The cost of all the bonds shall be paid for on a lump sum basis and shall be included for payment in the first monthly estimate. In the final estimate, an adjustment shall be made if necessary so that the total amount paid for the bonds will be based on the total Contract cost for all work actually done under the various items of work in the Schedule of Prices except for the bond.

2. PRODUCTS

2.1 None used.

3. EXECUTION

3.1 None used.

END OF SECTION

SECTION 01045

CUTTING AND PATCHING

1. GENERAL

1.1 DESCRIPTION

A. Execute cutting (including excavating), fitting, or patching or work required to:
   1. Make several parts fit properly.
   2. Uncover work to provide for installation of ill-timed work.
   3. Remove and replace defective work.
   4. Remove and replace work not conforming to requirements of Contract Documents.
   5. Remove samples of installed work as specified for testing.
   6. Install specified work in existing construction.

B. In addition to Contract requirements, upon written instructions of Engineer:
   1. Uncover work to provide for Engineer's examination of covered work.
   2. Remove samples of installed materials for testing.
   3. Remove work to provide for alteration of existing work.

C. Do not endanger any work by cutting or altering work or any part thereof.

D. Do not cut or alter work of another contractor without written acknowledgment from the Engineer.

1.2 SUBMITTALS

A. Prior to cutting which affects structural integrity or safety of Project, or work of another contractor, submit written notice to Engineer requesting to proceed with cutting. Include:
   1. Identification of Project.
   2. Description of affected work.
   3. Necessity of cutting.
   4. Effect on other work, on structural integrity of project.
   5. Description of proposed work. Designate:
      a. Scope of cutting and patching
      b. Contractor and trades to execute work
      c. Products proposed to be used
      d. Extent of refinishing
   6. Alternatives to cutting and patching.

B. Contractor is responsible for cost of all cutting and patching work.

C. Should conditions of work, or schedule indicate change of materials or methods, submit written recommendation to Engineer. Include:
   1. Conditions indicating change.
   2. Recommendations for alternative materials or methods.
   3. Submittals as required for substitutions.
   4. Estimate of cost.

D. Submit written notice to Engineer designating time work will be uncovered so as to provide for observation by the Engineer.

1.3 PAYMENT FOR COSTS

A. Costs caused by ill-timed or defective work, or work not conforming to Contract Documents, shall be borne entirely by the Contractor.

B. Costs for work done by the request of Engineer, other than on defective or nonconforming work, shall be borne by the Owner only by way of previously approved change order.

2. PRODUCTS

2.1 MATERIALS

A. Materials for replacement of work shall comply with Specifications for type of work to be done.

3. EXECUTION

3.1 INSPECTION

A. Inspect existing conditions of work, including elements subject to movement or damage during:
   1. Cutting and patching.
   2. Excavating and backfilling.

B. After uncovering work, inspect conditions affecting installation of new products.

3.2 PREPARATION PRIOR TO CUTTING

A. Provide shoring, bracing, and support as required to maintain safety and structural integrity of project.

B. Provide protection for other portions of Project.

C. Provide protection from elements.

3.3 PERFORMANCE

A. Execute fitting and adjustment of products to provide finished installation to comply with specified tolerances and finishes.
B. Execute cutting and demolition by methods which will prevent damage to other work and will provide proper surfaces to receive installation of repairs and new work.
C. Execute excavating and backfilling by methods which will prevent damage to other work and will prevent settlement.

D. Restore work which has been cut or removed; install new products to provide completed work in accordance with requirements of Contract Documents and the instructions of the Engineer.

E. Refinish entire surfaces as necessary to provide an even finish.

END OF SECTION

SECTION 01070

ABBREVIATIONS AND REFERENCES

1. GENERAL

1.1 SECTION INCLUDES

A. The following abbreviations which may be used in these Specifications:

CISPI -	Cast Iron Soil Pipe Institute
AASHTO -	American Association of State Highway and Transportation Officials
ACI -	American Concrete Institute
AGMA -	American Gear Manufacturers Association
AIEE -	American Institute of Electrical Engineers
AISC -	American Institute of Steel Construction, Inc.
AISI -	American Iron & Steel Institute
ANSI -	American National Standards Institute
API -	American Petroleum Institute
ASA -	American Standards Association
ASCE -	American Society of Civil Engineers
ASME -	American Society of Mechanical Engineers
ASSE -	American Society of Sanitary Engineers
ASTM -	American Society for Testing Materials
AWS -	American Welding Society, Inc.
AWWA -	American Water Works Association
CIPRA -	Cast Iron Pipe Research Association
DIPRA -	Ductile Iron Pipe Research Association
Fed.Spec -	Federal Specifications
NEWWA -	New England Water Works Association
NEC -	National Electrical Code
NEMA -	National Electrical Manufacturers Association
NEMI -	New England Masonry Institute, Inc.
NFPA -	National Fire Protection Association
SCPI -	Structural Clay Products Institute

U.L. -	Underwriters Laboratory
SDI -	Steel Door Institute
AWI -	Architectural Woodwork Institute
NAAMM -	National Association of Architectural Metal Manufacturers
AAMA -	Architectural Aluminum Manufacturers Association
AA -	Aluminum Association
AITC -	American Institute of Timber Construction
ASHRAE -	American Society of Heating, Refrigerating, Air Conditioning Engineers
ARI -	Air Conditioning and Refrigeration Institute
SMACNA -	Sheet Metal and Air Conditioning Contractors National Association
AMCA -	Air Moving and Conditioning Association
AWPB -	American Wood Preservers Bureau
OSHA -	Occupational Safety and Health Act
AGC -	Associated General Contractors
VOSHA -	Vermont Occupational Safety and Health Act
VHD -	Vermont Highway Department
ANR/DEC -	Agency of Natural Resources/Department of Environmental Conservation
EPA -	Environmental Protection Agency (Federal)
FmHA -	Farmers Home Administration (Federal)
VTrans -	Vermont Agency of Transportation
DTA -	District Transportation Administrator

B. Where reference is made to a specification by one of the above mentioned or other organizations, it is understood that the latest revisions thereof shall apply.

C. In case of conflict, these Specifications shall take precedence over the above noted specifications.

2. PRODUCTS

2.1 None used.

3. EXECUTION

3.1 None used.

END OF SECTION

SECTION 01200

PROJECT MEETINGS

1. GENERAL

1.1 PRECONSTRUCTION MEETING

A. After execution of Contract Documents and prior to beginning the work, a preconstruction meeting at a location determined by the Engineer shall be scheduled and held. This can coincide with Agreement execution date.

B. In attendance shall be:
1. Owner
2. Engineer
3. Contractor (Project Manager and Superintendent)
4. Representatives of State and/or Federal agencies
5. Representatives of local government
6. Representative of local electric company
7. Representative of local telephone company

C. The minimum agenda will consist of the following:
1. Distribute and discuss the tentative Project Schedule
2. Notice to Proceed
3. Sanitary regulations
4. Project signs
5. Critical work sequencing
6. Relationships and coordination with other contracts and/or work, awarding of subcontracts
7. Designation of responsible personnel
8. Processing of field decisions and change orders
9. Submittal of shop drawings, project data, and samples
10. Procedures for maintaining record documents
11. Major equipment deliveries and priorities
12. Safety and first aid procedures
13. Security procedures
14. Completion time for Contract and liquidated damages
15. Requests for extension of Contract time
16. Procedures for making partial payments
17. Guarantee on completed work
18. Equipment to be used
19. Staking of work
20. Project inspection
21. Labor requirements
22. Equipment and labor rates
23. Project schedule with monthly schedule of payments

1.2 MONTHLY PROGRESS MEETINGS

A. Contractor's Project Manager and resident Supervisor (Superintendent) shall attend monthly progress meetings as scheduled by the Engineer.

B. The minimum agenda will consist of the following:
1. Review work progress over the last month
2. Review planned work activities over the next month
3. Review the overall project schedule (updated for the meeting)
4. Review status of shop drawing submissions/review
5. Review outstanding change order pricing and approval
6. Submission of record drawings for materials installed over last month
7. Review monthly Payment Request
8. Review Owner concerns
9. Review Engineer concerns
10. Review Contractor concerns
11. Review Funding Agency concerns
12. Other business as necessary

1.3 COORDINATION/STATUS MEETINGS

A. Contractor shall schedule and coordinate weekly status meetings with the field engineer and Owner's representative. The meeting will cover a review of upcoming work activities, coordination issues and other concerns that should be addressed prior to the Monthly Progress Meeting.

1.4 PAYMENT REQUESTS

A. Payment Requests shall be submitted by the Contractor in accordance with the General Conditions including Paragraph 19 and 20. These Payment Requests will be reviewed at the Monthly Progress Meetings. Complete Payment Requests must include:
1. Up-to-date Project Schedule/Schedule of Payments.
2. Up-to-date record drawing field data available.
3. Davis-Bacon certified payrolls.
4. **The Payment Request will not be approved until the items listed above are provided, to the satisfaction of the Owner and Engineer**.

2. PRODUCTS

2.1 None used.

3. EXECUTION

3.1 None used.

END OF SECTION

SECTION 01300

SUBMITTALS AND SUBSTITUTIONS

1. GENERAL

1.1 DESCRIPTION

A. Wherever possible throughout the Contract Documents, the minimum acceptable quality of workmanship and materials has been defined either by manufacturer's name and catalog number or by reference to recognized industry standards. To ensure that the specified quality of product is furnished and installed in accordance with design intent, procedures have been established for advance submittal of design data and for its review for compliance to Specification by the Engineer.

1.2 PRODUCT HANDLING

A. Make all submittals of schedules, shop drawings, samples, requests for substitutions, and other items in strict accordance with the provisions of this Section of these Specifications.

1.3 SCHEDULES

A. Project Schedules/Schedule of Payments
   1. See Specifications Section 01310, for project schedule requirements.
   2. The preliminary project schedule shall be submitted before the pre-construction meeting. The schedule shall be updated at least monthly, as called for in specification section 01310.
   3. Prepare a Schedule of Monthly Payments (cash flow) after Engineer’s review of project schedule. Use project schedule to prepare an estimate of monthly pay requests for work in-place and stored materials.
   4. The Schedule of Monthly Payments must be submitted prior to the first pay estimate.

1.4 SHOP DRAWINGS

A. The Contractor shall furnish one (1) electronic copy in searchable PDF format, per the Engineer’s direction, of manufacturer's shop drawings, specific design data as required in the detailed Specifications, and technical literature covering all equipment and fabricated materials which he proposes to furnish under this Contract in sufficient detail to indicate full compliance with the Specifications. Shop drawings shall indicate the method of installation, the exact layout dimensions and weights of the equipment or materials, including the locations, size, and details of valves, pipe connections, etc.
   1. All Contractor submittals must be accompanied by a transmittal cover sheet that provides all information required by the Engineer for a prompt and timely review. The transmittal cover sheet shall be as shown at the end of this section. The Engineer will provide an electronic version of the transmittal cover sheet to the Contractor at the pre-construction meeting for their use. Shop drawing submittals that are missing the transmittal cover sheet or with cover sheets missing required

information will be returned to the Contractor without review. The Contractor shall make no modifications to the form, except to complete fillable sections on the form.

2. The Contractor is responsible for the prompt submission of all shop and working drawings so that there shall be no delay in the work.
3. All substitutions must be marked as substitutions.
4. Submittals in excess of 30 pages shall be provided with a table of contents (index) to facilitate review.
5. Submittals in excess of 100 pages shall be submitted as a searchable and indexed pdf. They shall also be accompanied by one (1) paper copy upon request by the Engineer.
6. Where contents include manufacturers' catalogue pages, clearly indicate the precise items included in this installation and delete or otherwise clearly indicate all manufacturers' data with which this installation is not concerned.
7. Operation & Maintenance Manuals shall be submitted both as a searchable and indexed pdf as described above, as well as three (3) hard copy manuals.

B. The Contractor shall complete a detailed review of all shop drawings before they are transmitted to the Engineer. The Contractor shall confirm that each of the conditions listed in Item 1.4.A above have been met and that the shop drawing specifically depicts the products and/or materials that they plan to provide/install. The Contractor shall further assure that all extraneous and irrelevant information is purged from the submission. When a specific submittal sheet indicates multiple options or choices, the proposed option or choice shall be clearly marked. If the Owner/Engineer is the select between options, those options that are not available shall be clearly indicated as such. Failure to meet any of these requirements will result in a rejection of the submission by the Engineer without a review. The Engineer will only consider a review of the submission after the Contractor makes the submission conforming to these requirements.

C. The Contractor is solely responsible for determining that the submission is properly coordinated with other work and other shop drawings. Contractor shall verify all field dimensions. Contractor shall determine suitability of materials and equipment to meet the design concept. Contractor shall confirm that the submission conforms to their means and methods.

D. The Contractor shall clearly list any and all deviations from the Contract Documents on the shop drawing transmittal cover sheet and clearly indicate deviations within the shop drawing material as well. The Engineer will review and accept or reject deviations noted above. Failure of the Contractor to properly identify a deviation and the Engineer’s subsequent approval of the shop drawing does not alleviate the Contractor’s responsibility to address said deviation which may include a subsequent rejection of the shop drawing submission if the deviation is found to be unacceptable.

E. The Engineer shall promptly review all shop drawings. The Engineer's acknowledgment of general conformance of any shop drawing shall not release the Contractor from responsibility for deviations from the Contract Documents and coordination with other work. Regardless of corrections made in or acknowledgment of general conformances given to such drawings by the Engineer, the Contractor will nevertheless be responsible for the accuracy of such drawings and for their conformity to the Contract Drawings and Specifications. The Engineer may require the submission of associated work, even work

of other specification sections, if necessary to perform a coordinated review. In such an event, the Engineer shall promptly notify the Contractor.

F. The Engineer will review the submission for conformance with the information in the contract documents and to determine whether the proposed installation is compatible with the design concept. The Engineer will not make a determination regarding whether the submission is properly coordinated with other submissions, nor will the Engineer review Contractor means and methods, which are the sole responsibility of the Contractor.

G. Any substantive design changes or Contract Time or Price changes that the Contractor believes are resulting from the Engineers review comments, will be brought to the Engineer immediately. Engineer review comments on a shop drawing are not authorization for the Contractor to perform a change in the Work that results in a Contract Time or Price change. Such changes can only be made by change order.

H. Approval by the Owner of any deviation in materials, workmanship, or equipment proposed subsequent to acceptance of the Shop Drawings or design data shall be requested in writing by the Contractor.

I. Portions of the work requiring a Shop Drawing or sample submission shall not begin until the Shop Drawing or submission has been acknowledged as conforming to Contract Documents by the Engineer. A copy of each Shop Drawing and each sample shall be kept in good order by the Contractor at the site and shall be available to the Engineer.

J. Provide a Products List per Section 01600.

1.5 MANUFACTURER'S CERTIFICATIONS

A. For pipe, cement, steel reinforcement, paint, and similar materials which are normally tested in the shop by the manufacturer, the Contractor shall furnish the Engineer certified records of physical, chemical, and other pertinent tests and/or certified statements from the manufacturer that the materials have been manufactured and tested in conformity with the Specifications. Where such a small quantity of materials is required to make physical tests or chemical analyses impractical, a certificate from the manufacturer stating the results of such tests or analyses of similar materials which were concurrently produced may be considered by the Engineer.

B. Each manufacturer's certificate shall be endorsed or accompanied by the Contractor's certificate that the materials certified by the manufacturer will be the material incorporated in the work.

1.6 SAMPLES

A. The Contractor shall furnish for review samples of materials to be used for construction, as requested by the OWNER or ENGINEER.

B. Contractor shall pay all costs for samples. Samples will only be returned to the Contractor upon Contractor's request. Such requests must be made in writing at the time of delivery to the ENGINEER for review.

1.7 GROUPING OF SUBMITTALS

1. Unless otherwise specifically permitted by the Engineer, make all submittals as appropriate in groups containing all associated items, including items of other specification sections, to allow the Engineer to review and confirm that there is coordination between components as specified. The Engineer may not allow partial submittals as not complying with the provisions of the Contract Documents.
2. All shop drawing submissions shall be separated by specification section. The Engineer will review shop drawings by specification section. Failure to comply with this requirement without the prior approval of the Engineer will result in return of the submission without review.
3. To the extent practical, the Contractor shall submit all information required by a given specification section at one time.
4. Where components described by different specification sections are submitted concurrently, for convenience or to satisfy (condition #1 above), they must still be submitted divided by specification section.

1.8 TIMING OF SUBMITTALS

A. General
1. Make all submittals far enough in advance of scheduled dates of installation to provide all required time for reviews, for securing necessary approvals, for possible revision and re-submittal, and for placing orders and securing delivery.

B. Delays
1. Costs of delays occasioned by tardiness of submittals shall be borne entirely by the Contractor.

1.9 RECORD DRAWINGS

A. Refer to Section 01720.

2. PRODUCTS

2.1 None used.

3. EXECUTION

3.1 None used.

CONTRACTOR'S REVIEW CERTIFICATION

Submittal Description: _____

Specification Section: _____

Project: _____

Contractor: _____ Engineer: **Aldrich + Elliott, PC**

Contractor Project No.: _____ Engineer's Project No.: _____

Supplier Name: _____
Supplier Address: _____
_____
Supplier Contact: _____
Supplier Phone: _____
Supplier E-Mail: _____

Contractor's Review Certification:

Contractor certifies that they make this submission for Engineer's review in conformance with the Standard General Conditions of the Construction Contract and Specification Section 01300. Contractor accepts that they are solely responsible for accuracy and completeness of details, such as quantities, dimensions, weights, fabrication, means, methods, sequencing, coordination with other trades, providing a complete and coordinated assembly and performing the work in a safe and satisfactory manner. Contractor shall remain solely responsible for compliance with the Contract Documents and manufacturer's instructions except as expressly permitted in writing by the Owner.

Contractor certifies that this submission is in full conformance with the Contract Documents, except for specific deviations (with accompanying justification) listed below. Failure of the Contractor to provide a summary list and note any and all deviations from the Contract Documents does not relieve them of full responsibility for conformance.

Engineer's review is only for general conformance with the design concept of the project and general compliance with the Contract Documents.

☐ **No Deviations**

☐ **List of Deviations:**

(Provide a succinct list of all deviations from the Contract Documents along with justification for the deviation and attach it to this certification. Simply noting deviations throughout the content of the submittal is not acceptable. All deviations from the Contract Documents must be approved in writing by the Owner.)

As authorized representative of [Contractor], I attest to the accuracy of the above certification, accept responsibility for conformance with the Contract Documents and understand the conditions under which the Engineer will render his review.

_____ _____

(Name of Authorized Representative) (Signature of Authorized Representative)

SECTION 01310

PROJECT SCHEDULES

1. GENERAL

1.1 DESCRIPTION

A. Provide projected project schedules for entire work.
   1. Submit initial draft project schedule to Engineer prior to preconstruction conference.
   2. Update monthly and submit with pay request.

1.2 PROJECT SCHEDULES, FORM AND CONTENT

A. Prepare the CPM (critical path method) project schedule in the form of a bar graph to include all information that is required per this section.
   1. Provide separate horizontal bar column for each trade, operation, or construction activity.
   2. Activities shall be in chronological order showing the beginning and ending date of each activity.
   3. Show all schedule tasks on each schedule page.

B. Identify work of separate phases or other logically grouped activities in accordance with Special Conditions and time restraints. Work shall be scheduled to reflect logical and planned dependencies between work activities. If requested by the Engineer, provide a schedule that indicates the interdependencies between activities. Also provide a network schedule that shows the interdependencies between activities to the Engineer for review. An updated network schedule may be required periodically by the Engineer if they deem that the Work has changed substantially from the initial schedule logic.

C. Show work to be performed by others as a separate activity. Provide ample notice to the Engineer and Owner if schedule updates change the start date of such work, so it can be properly scheduled to avoid impact to the Contractor's schedule. The Contractor is solely responsible for providing the necessary notice to the Engineer and Owner of schedule requirements for work performed by others.

D. The schedule shall be based on the critical path method of scheduling. The schedule shall indicate the critical path and the Contractor shall provide the Engineer with a network schedule showing the interdependencies between tasks upon request.

E. In a critical path schedule there will be float assigned to activities not on the critical path. The Owner owns the float in the schedule. Time extensions will only be granted for changes in the work that alter (impact) the critical path. An updated construction schedule showing the impact of the change in work must accompany any request for a time extension.

1.3 UPDATING

A. Update monthly and submit with pay requisitions for review by Engineer.

B. The update shall include all changes occurring since the previous submission of an updated schedule including progress of each activity and revised completion dates, including:
   1. Major changes in scope
   2. Activities modified since previous updating
   3. Revised projections due to changes
   4. Other identifiable changes

1.4 SUBMITTALS

A. Submit Project Schedules prior to:
   1. Preconstruction meeting
   2. With each monthly payment
   3. Re-start after any planned shutdown

2. PRODUCTS

2.1 None used.

3. EXECUTION

3.1 EXECUTION OF SCHEDULE

A. The Contractor is solely responsible for the scheduling of the work. The Contractor shall use the construction schedule as an aid in planning and executing the work.

B. The Engineer shall review the preliminary schedule as well as monthly schedule updates and advise the Contractor if they have questions regarding the sequence of work or stated duration of individual activities. Engineer review of the schedule shall not be construed as approval of the sequence of work or relieve the Contractor of sole responsibility for any schedule impacts due to incorrect sequencing or estimates of the duration of work activities.

END OF SECTION

SECTION 01500

TEMPORARY FACILITIES

1. GENERAL

1.1 FIELD OFFICES

A. Contractor's Field Office
1. The Contractor shall provide and maintain on the project site, at the start of construction a weather tight office for use by his personnel from the start of construction work until the completion of the Contract.

1.2 ENGINEER'S FIELD OFFICE

A. The Contractor shall also provide a separate space at the start of construction work for use by the Engineer and authorized representatives of the Owner. This space shall be at least 250 sq. ft., well lighted and be furnished with:
1. At least 2 windows (screened) with shades which can be opened and locked shut.
2. Plan table approximately 3' x 5' with suitable stool and light.
3. Desk approximately 3' x 5' with chair (double pedestal desk).
4. Four (4) folding chairs.
5. One (1) conference table 30" X 96".
6. One (1) 2-drawer fire resistant file cabinet, letter size, with lock and key.
7. 4 lb. carbon dioxide fire extinguisher.
8. Heater.
9. Two (2) wastebaskets.
10. One (1) combination telephone with answering machine by Panasonic, or equal.
11. Air conditioner.
12. Plan rack with 5 plan holders.
13. Compact refrigerator (at least 1.5 cu. ft. volume).
14. Provide use of a copier and supplies required for the complete operation of this plain paper copier. This shall include, but not limited to full maintenance contract, toner, developer, extra cartridges, and paper supply, sizes 8 1/2" x 11" and 11" x 17". Copier shall be an automatic feed.
15. Internet connection and modem (DSL or broadband).

B. The Contractor shall pay all costs for providing, maintaining and removing the office structures; shall pay for electrical service and all energy consumed; shall pay for telephone and internet monthly service; shall pay for all heating fuel required; shall pay all charges for janitorial service.

C. **The temporary facilities for use by the Resident Project Representative shall be fully operational within 7 calendar days from the start of work on this Contract.** The first Contractor's pay request shall not be processed until the Engineer's temporary space is completely furnished and operational.

1.3 SANITARY FACILITIES

A. The Contractor shall provide and maintain at the project chemical toilets, number as may be required to comply with health regulations, for use by all Contractors, Subcontractors, Engineers, Owner, State and Federal agencies, and their personnel or representatives. Where work activities are remote to the office trailer (more than 1/2 miles away), sanitary facilities shall be provided in the close proximity of the work area in addition to facilities at the office trailer.

B. The sanitary facilities provided shall be housed in a weather tight shelter located as approved by the Owner and fitted with a padlock. The Contractor shall maintain the shelter(s) and facilities in a neat and sanitary condition at all times.

C. Upon completion of his field operations, the Contractor shall remove all traces of the temporary facilities.

1.4 UTILITY STRUCTURES

A. Any temporary structure which the Contractor or any of his subcontractors may require for storage of material which may be damaged by weather, or other purpose shall be erected, maintained, and finally removed by the Contractor at no expense to the Owner.

1.5 WATER SERVICE

A. The Contractor shall at the outset of the project make arrangements for bottled water service installation and pay for all costs.

1.6 ELECTRICAL SERVICE

A. The Contractor shall make whatever arrangements are necessary to provide and pay for temporary electric service for the work of this Project. Receptacles shall be provided with ground fault indicators in accordance with National Electrical Code. Each outlet shall cover 2,500 sq. ft. of construction area, or less. Two (2) duplex receptacles minimum.

B. The Owner may allow the Contractor to use their existing electrical service at the Owner’s sole discretion. In such cases, the Contractor shall reimburse the Owner for electrical usage by the Contractor to perform their work.

1.7 TELEPHONE/INTERNET SERVICE

A. The Contractor shall make arrangements for temporary private telephone and internet service for Engineer's trailer and pay all costs to install and maintain service including basic monthly phone bill.

1.8 PROJECT SIGN

A. The Contractor shall furnish and maintain one project sign to be installed at job site. The project sign shall conform to the template at the end of this section. The project sign shall be installed within 15 days of start of construction work.

1.9 TEMPORARY HEAT

A. The Contractor shall furnish temporary heating equipment, pay all fuel costs and supervise their operation as is necessary to permit work to continue throughout inclement weather. No salamanders or open flame burners unless they bear the label of approval by the Underwriter's Laboratory will be permitted. Temporary heaters shall not be electric.

1.10 TEMPORARY ENCLOSURES

A. The Contractor shall furnish all materials and labor to provide temporary enclosures to permit work to continue during inclement weather.

1.11 TEMPORARY WORK ACCESS ITEMS

A. The Contractor shall furnish and maintain all temporary items and any other appurtenances required for movement about and/or access at the project. The Contractor shall provide all scaffolds, fences, railings, other protective measures, etc., as required for the proper execution of the work and for the safety of the personnel.

1.12 REMOVAL OF TEMPORARY STRUCTURES

A. On completion of Contract, Contractor will remove all temporary structures, grade and clean temporary facilities areas and otherwise restore the areas to the same condition as existed prior to any work.

2. PRODUCTS

2.1 None used.

3. EXECUTION

3.1 None used.

END OF SECTION

SECTION 01570

TRAFFIC REGULATIONS

1. GENERAL

1.1 DESCRIPTION

A. Work under this section shall include all operations necessary to maintain traffic flow, both vehicular and pedestrian on all roads affected by work done under this Contract, and to maintain access to all properties adjacent to the work. This work shall include, but not be limited to use of uniformed traffic control and flaggers, furnishing, erecting, moving, and dismantling barricades, signs, and temporary lighting to inform the general public of hazards existing near the site of the work.

B. Work under this section shall also include prevention of slippery surface conditions resulting directly from the Contractor's operations. As part of this section, the Contractor shall also facilitate the passage of school buses and provide safe access to all school bus stops, and notify the School Superintendent or his authorized agent at least 72 hours in advance where he intends to work and the location of all detours.

1.2 UNIFORMED TRAFFIC CONTROL

A. Uniformed traffic control shall mean uniformed law enforcement personnel hired by the Contractor to control traffic along State highways only.

B. Uniformed traffic control shall be acceptably attired in uniforms, headgear, and exposed badges that will readily distinguish them from all other employees and shall present a neat appearance to the traveling public at all times. Uniformed traffic control shall include transportation with appropriate emergency lights and equipment.

1.3 FLAGGERS

A. Flaggers shall be used by the Contractor to control traffic in all areas of the Project as necessary.

B. Flaggers are personnel hired and paid by the Contractor. Flaggers may or may not be uniformed traffic control officers. Cost for flaggers shall not be paid under a separate pay item but shall be included under other pay items. These flaggers may work in conjunction with uniformed traffic control personnel along State highways.

C. Flaggers or UTO serving as a trained flagger shall wear safety apparel meeting requirements of ISEA "American National Standard of High-Visibility Apparel" and labeled as meeting the ANSI 107-1999 standard performance for Class 2 risk exposure. Individuals engaged in traffic control shall wear the high-visibility vest with "TRAFFIC CONTROL" visible, without exception so that they are readily distinguished by the traveling public as a person in charge of directing traffic. Acceptable clothing shall include approved headgear and blaze orange vests with reflective stripes.

1.4 GENERAL RESPONSIBILITY

A. The employment of uniformed traffic control officers or flaggers shall in no way relieve the Contractor of any responsibility or liability under the terms of the Contract.

1.5 QUALITY ASSURANCE

A. Work under this section shall be carried out in accordance with Section 630 of the "Standard Specifications for Construction" Vermont Agency of Transportation (latest edition) and Manual on Uniformed Traffic Control Devices.

B. Uniformed traffic officers and flaggers shall be trained in traffic control by their employer. All Contractors and Subcontractors providing traffic control personnel to a project shall have an employee certified to train traffic control personnel. All traffic control personnel on a project shall have completed the course in traffic control given by the certified employee representing the specific Contractor or subcontractor providing traffic control personnel for that project.

C. Certification to train traffic control personnel may be obtained by completing one of the following courses.
   1. Vermont Agency of Transportation Flagger Training Course.
   2. Associated General Contractors of New Hampshire Flagger Certification course; or
   3. By obtaining certification from the American Traffic Safety Services Association as a Worksite Traffic Supervisor.

2. PRODUCTS

2.1 SIGNS

A. Road construction approach signs shall be built, erected, and located in accordance with Vermont Agency of Transportation Standard Drawing E-8 and E-9.

B. Hand held signs shall be an 18" flagman's paddle with a rigid handle. The STOP face shall have white letters and a white border outlining an octagonal red background. The SLOW face shall have black letters and a black border outlining a diamond-shaped orange background. Red, white, and orange areas shall be reflectorized. Lettering shall be 6" Series C letters per Vermont Agency of Transportation "Standard Specifications for Construction" and Manual on Uniformed Traffic Control Devices.

3. EXECUTION

3.1 GENERAL

A. Refer to the Contract Drawings for requirements for signage and traffic control.

3.2 TRAFFIC CONTROL PERSONNEL RESPONSIBILITY

A. Traffic control personnel shall direct traffic in accordance with subsection entitled

Responsibility for Use of Flaggers, Section 107.09, Vermont Agency of Transportation "Standard Specifications for Construction" and/or these Specifications and Manual on Uniformed Traffic Control Devices.

B. If the traveling public should stop to ask questions, uniformed traffic control personnel or flaggers shall answer them concisely in a courteous manner, but shall remain alert to their duties.

C. Please note that the UTO, under authority granted by law (Title 23 VSA) may direct and control traffic. Suitable examples in work zones might include the direction and control of traffic at intersections where signals are not functioning or are malfunctioning. In these cases, the presence of the blue light may not be suitable or necessary. The wearing of departmentally required and approved reflective garments is required.

D. Flaggers are allowed to stop and release traffic as indicated in the latest MUTCD, Section 6E.04 Flagger Procedures.

3.3 TWO-WAY RADIO COMMUNICATION

A. Traffic control personnel shall use two-way radio communication at all times when two (2) traffic control personnel are used.

END OF SECTION

SECTION 01600

MATERIALS AND EQUIPMENT

1. GENERAL

1.1 QUALITY

A. Incorporate only new materials and equipment in the work unless otherwise specified. All materials and equipment furnished by the Contractor shall be subject to the inspection of the Engineer. Do not deliver materials to the work site prior to completion of the shop drawing process.

B. Furnish all facilities and labor for the handling and inspection of all materials and equipment. If required by the Engineer, either prior to beginning or during the progress of the work, submit samples of materials for such special tests as may be necessary to demonstrate that they are of the quality specified. Furnish, store, pack, and ship such samples as required by manufacturer.

1.2 HANDLING AND STORAGE OF MATERIALS

A. Handle and store all materials and equipment to be incorporated in the work, before, during, and after shipment in a manner to prevent warping, twisting, bending, breaking, chipping, rusting, and any injury, theft, or damage of any kind whatsoever to the material or equipment.

B. Store cement and lime under a roof and off the ground. Keep completely dry at all times. Keep spilling to a minimum. Store all miscellaneous steel and reinforcing steel off the ground or otherwise to prevent accumulations of dirt or grease, and in a position to prevent accumulations of standing water and to minimize rusting. Handle and store brick, block, and similar masonry products in a manner to reduce breakage, chipping and cracking.

C. Store all mechanical equipment subject to corrosive damage by the atmosphere, in a building.

D. Remove promptly from the site of the work all materials which have become so damaged as to be unfit for the use intended or specified. The Contractor shall not receive compensation for the damaged material or its removal.

E. Unload and place and secure pipe and all other materials delivered to the job in a manner which will not hamper the normal operations, or interfere with the flow of necessary pedestrian or vehicular traffic.

F. The Contractor shall provide suitable equipment and labor, and shall handle materials at all times so as to avoid damage. Under no circumstances shall pipe be dropped.

G. The Contractor shall be fully responsible for all materials until final acceptance of the completed work.

H. The Contractor shall take all precautions to prevent stored materials and equipment from becoming dislodged, shifting, or falling.

1.3 PRODUCTS LIST

A. Within thirty (30) days after date of Contract, submit to Engineer a complete list of all products which are proposed for installation.

B. Tabulate list by each Specification section.

C. For products specified under reference standards, include with listing of each product:
1. Name and address of manufacturer
2. Trade name
3. Model or catalogue designation
4. Manufacturer's data
5. Performance and test data
6. Reference standards

1.4 CONTRACTOR'S OPTIONS

A. For products specified only by reference standards, select any product meeting standards, by any manufacturer.

B. For products specified by naming several products or manufacturers, select any product or manufacturer named.

C. For products specified by naming one or more products, but indicating the option of selecting equivalent products by either a specific or general "or equal" clause, Contractor must submit request, as required for substitution, for any product not specifically named.

2. PRODUCTS

2.1 None used.

3. EXECUTION

3.1 None used.

END OF SECTION

SECTION 01710

CLEANUP

1. GENERAL

1.1 DESCRIPTION

A. Maintain premises and public properties free from accumulation of waste, debris, and rubbish caused by operations.

B. At completion of work, or as directed by the Engineer, remove waste materials, rubbish, tools, equipment, machinery, and surplus materials and clean all sight-exposed surfaces; leave project clean and ready for occupancy.

1.2 SAFETY REQUIREMENTS

A. Standards
1. Maintain project in accordance with the following safety and insurance standards:
   a. Construction Safety Act.
   b. "Manual of Accident Prevention in Construction," by AGC.
   c. Current VOSHA Standards.

B. Hazards Control
1. Store volatile wastes in covered metal containers and remove from premises daily.
2. Prevent accumulation of wastes which create hazardous conditions.
3. Provide adequate ventilation during use of volatile or noxious substances.

C. Conduct cleanup and disposal operations to comply with local ordinances and anti-pollution laws.
1. Do not burn or bury rubbish and waste materials on project site.
2. Do not dispose of volatile wastes such as mineral spirits, oil, or paint thinner in storm or sanitary drains.
3. Do not dispose of wastes into streams or waterways.

2. PRODUCTS

2.1 MATERIALS

A. Use only cleaning materials recommended by manufacturer of surface to be cleaned.

B. Use cleaning materials only on surfaces recommended by cleaning material manufacturer.

3. EXECUTION

3.1 DURING CONSTRUCTION

A. The work and the adjacent areas affected thereby shall be kept cleaned up so as always to be in a neat and sanitary condition and all rubbish, surplus materials, and unneeded construction equipment shall be removed and all damage repaired so that the public and property owners will be inconvenienced as little as possible.

B. Execute cleanup to ensure that buildings, grounds, and public properties are maintained free from accumulations of waste materials and rubbish.

C. Wet down dry materials and rubbish to control dust as specified.

D. Each week during progress of work, clean site and public properties and dispose of waste materials, debris, and rubbish.

E. Provide onsite trash containers for collection of waste materials, debris, and rubbish.

F. Remove waste materials, debris, and rubbish from site and legally dispose of at public or private dumping areas off Owner's property.

G. Road Sweeping
1. The Contractor shall provide a mechanical sweeper and shall sweep clean all roads used or in the construction areas on a daily basis or as requested by the Engineer, if the Engineer determines that less frequent sweeping is warranted. This shall be done as construction progresses to further control the dust nuisance caused by unpaved trenches in roadways and other areas. This shall be done in addition to the spreading of calcium chloride.

H. Maintenance of Potholes, Erosion, Etc.
1. The Contractor shall maintain construction areas as necessary and as directed by the Engineer so as to keep the inconvenience to the general public to the minimum.

3.2 FINAL CLEANUP

A. General
1. On or before the completion of the work, the Contractor, unless otherwise directed or permitted in writing, shall tear down and remove all temporary buildings and structures built by him.
2. The Contractor shall remove all temporary materials and equipment furnished by him.
4. The Contractor shall remove and acceptably disinfect and cover all organic matter and material containing organic matter in, under, and around privies and other buildings used by him.
5. The Contractor shall remove all rubbish from grounds he has occupied.
6. The Contractor shall leave roads and all parts of the premises and adjacent property affected by his operations in a neat and satisfactory condition.

7. To this end, the Contractor shall do such additional amounts of removing of materials, grading, loaming, seeding, and other work not otherwise herein provided for as may be ordered.

B. Employ experienced workmen or professional cleaners for final cleanup.

C. In preparation for substantial completion or occupancy, conduct final inspection of sight-exposed interior surfaces, exterior surfaces, and of concealed spaces.

D. Remove grease, dust, dirt, stains, labels, fingerprints, and other foreign materials from sight-exposed interior and exterior finished surfaces; polish surfaces so designated to shine finish.

E. Repair, patch, and touch up marred surfaces to specified finish, to match adjacent surfaces.

F. Broom-clean paved surfaces and rake-clean other surfaces of grounds.

G. Owner will assume responsibility for cleaning as of time designated on Certificate of Substantial Completion for Owner's acceptance of project or portion thereof.

3.3 INCIDENTAL WORK

A. The Contractor shall restore or replace, when and as directed, any public or private property damaged by his work, equipment, or employees, to a condition at least equal to that existing immediately prior to the beginning of operations. To this end, the Contractor shall do as required all necessary roadway, driveway, walk, and landscaping work. Suitable materials, equipment, and methods shall be used for such restoration.

B. Do all incidental work not otherwise specified but obviously necessary for the proper completion of the Contract as specified and as shown on the Contract Drawings.

END OF SECTION

SECTION 01720

PROJECT RECORD DOCUMENTS

1. GENERAL

1.1 MAINTENANCE OF DOCUMENTS

A. Maintain at job site one (1) copy of:
   1. Contract Drawings
   2. Specifications
   3. Addenda
   4. Reviewed shop drawings
   5. Change orders
   6. Other modifications to Contract
   7. All test records

B. Store documents in approved location in addition to and apart from documents used for construction.

C. Provide files and racks for storage of documents.

D. File documents in accordance with Engineer approved format.

E. Maintain documents in clean, dry, legible condition.

F. Do not use record documents for construction purposes.

G. Make documents available at all times for inspection by the Engineer, Owner, State, or Federal representatives.

1.2 RECORDING BY CONTRACTOR

A. Label each document “PROJECT RECORD” in 2" high printed letters.

B. Keep Record Documents Current and Orderly
   1. Keep complete index with document name and location stated; number each document.

C. Do not permanently cover or conceal any work until required information has been recorded.

D. Contract Drawings
   1. Daily legibly mark in red to record actual construction
      a. Depths of various elements of foundation in relation to survey data
      b. Horizontal and vertical location of underground utilities and appurtenances referenced to permanent surface improvements
      c. Locations of internal utilities and appurtenances concealed in construction referenced to visible and accessible features of structure

d. Field changes of dimension and detail
e. Changes made by change order or field order
f. Details not on original Contract Drawings

E. Specifications and Addenda
1. Legibly Markup Each Section to Record
a. Manufacturer, trade name, catalogue number, and supplier of each product and item of equipment actually installed
b. Changes made by change order or field order
c. Other matters not originally specified

F. Record drawings shall be updated daily and shall be reviewed with the Engineer monthly prior to the monthly meeting. Failure of the Contractor to maintain satisfactory project records on a monthly basis (as judged by the Engineer) will result in a delay in the monthly progress payment to the Contractor until the matter is rectified to the satisfaction of the Engineer and Owner.

1.3 SUBMITTAL

A. At completion of project, deliver record documents to Engineer.

B. Accompany record documents with transmittal letter in duplicate containing:
1. Date
2. Project title and number
3. Contractor's name and address
4. Title and number of each record document
5. Certification that each document as submitted is complete and accurate
6. Signature of Contractor or his authorized representative

2. PRODUCTS

2.1 None used.

3. EXECUTION

3.1 None used.

END OF SECTION

SECTION 01740

GUARANTEES

1. GENERAL

1.1 DESCRIPTION

A. The Contractor shall take notice of special guarantees required in the technical sections of these Specifications. If any item requires excessive maintenance during guarantee periods, the item shall be considered defective and the Contractor shall correct the defects. All defects so corrected shall be at the expense of the Contractor. Where no specific guarantee period is indicated in the technical specifications, the Contractor shall guarantee the work for a period of not less than one (1) year after substantial completion as set forth in the executed Contract Documents.

B. In the event that any equipment or work furnished as part of this Contract fails to meet the Performance Specifications herein during the applicable guarantee period and the equipment has been maintained by the Owner in accordance with the manufacturer's recommendations, the equipment shall be repaired, modified, or replaced with equipment acceptable to the Owner at no cost to the Owner so that the Performance Specifications are met. The Contractor shall bear all cost associated with such guarantee work.

C. In the event that any equipment or work furnished as part of the Contract fails to meet performance specifications, more than once during the guarantee period, the Owner may, at their sole discretion re-issue the Certificate of Substantial Completion for that item of work to start on the date that the work was connected to meet the Performance Specification.

D. The Contractor shall refer to Article 7.17 of the Standard General Condition of the Construction Contract for additional requirements and conditions of the Contractor’s General Warranty and Guarantee.

2. PRODUCTS

2.1 None used.

3. EXECUTION

3.1 None used.

END OF SECTION

SECTION 02010

SUBSURFACE INVESTIGATION

1. GENERAL

1.1 DESCRIPTION

A. Work Included
1. Furnish all labor, materials, equipment, and incidentals required for the preparation, excavation, and completion, including cleanup and reseeding or repaving, if necessary, of all test pits and other subsurface explorations as specified herein, shown on the Contract Drawings or as directed by the Engineer.

1.2 DEFINITIONS

A. Test pits shall mean excavations at locations designated on the Contract Drawings or as directed by the Engineer to identify the location of existing utilities or underground items and/or conditions. These excavations can be by backhoe or by hand.

1.3 PAYMENT

A. Test pits will be paid for under item "Miscellaneous, Extra, and Below Grade Earth Excavation," in the Schedule of Prices.

2. PRODUCTS

2.1 None used.

3. EXECUTION

3.1 LIMITS OF EXCAVATION FOR TEST PITS

A. The Contractor shall excavate only to the extent necessary to locate the existing underground item. Each excavation shall be performed in the presence of the Engineer and shall begin in the most likely location of the existing underground item.

B. The Contractor is cautioned to exercise the greatest care in protecting existing structures and utilities while proceeding with work under this section. Any damage that might occur shall be repaired immediately to the satisfaction of the Engineer. All repairs shall be at the expense of the Contractor.

3.2 ADJUSTMENTS

A. Test Pit Areas Shall Be Returned to as Good as Original Condition
1. Test pits shall be backfilled immediately after their purpose has been satisfied.
2. The surface shall be restored and maintained to the satisfaction of the Engineer.

3.3 FIELD QUALITY CONTROL

A. Field Report

1. The Contractor shall measure the horizontal and vertical locations of the existing underground utilities as encountered and shall report same in writing to the Engineer.

END OF SECTION

SECTION 02015

SUBSURFACE INFORMATION

1. GENERAL

1.1 JOB CONDITIONS

A. Subsurface information has not been gathered at the site of the work. There is no expressed or implied agreement that the depths or the character of the materials or any other information or data regarding the material to be encountered in carrying out the work to be done under this Contract as shown on the Contract Drawings have been indicated correctly; and it is understood that conditions affecting the cost or quantity of the work to be done may differ from assumed conditions. It is agreed that the Contractor shall make for his own information all additional borings and tests to enable him too fairly and accurately estimate the extent of his effort. It is the intent of this Contract that the Contractor assumes all risks regarding the character of material to be encountered.

2. PRODUCTS

2.1 None used.

3. EXECUTION

3.1 None used.

END OF SECTION

SECTION 02016

EXISTING UTILITIES AND UNDERGROUND STRUCTURES

1. GENERAL

1.1 JOB CONDITIONS

A. Locations of utility installations and underground structures shown on the Contract Drawings are only approximate. It shall be the Contractor's responsibility to locate and protect all utilities within the construction area prior to proceeding with construction.

B. Wherever culverts, sewers, drains, manholes, catch basins, catch basin connections, water mains, valve chambers, electric conduits, telephone conduits, or any other underground construction are encountered by the Contractor during construction they shall be protected and firmly supported by the Contractor, at his own expense, until the construction work is complete and the existing structures are made secure. Injury to any such utilities/structures caused by or resulting from the Contractor's work shall be repaired at the Contractor's expense. The authority having charge of any particular underground structure shall be notified promptly of injury to its structure.
   1. No additional compensation will be allowed for any delays, inconvenience, or damage sustained by the Contractor due to any interference from said utility appurtenances or the operation of moving them by the utility companies.

C. Whenever required, pipe or other underground structures encountered in excavating or trenching, shall be permanently supported with wooden supports across the excavation or trench.

D. The restoration of existing property or structures shall be done as promptly as practicable and shall not be left until the end of the construction period.

E. Cooperation with Utilities
   1. The Contractor shall allow the Owner or its agents and other Contractors, and public service corporations, or their agents, to enter upon the work for the purpose of constructing, maintaining, repairing, removing, altering or replacing such pipes, sewers, conduits, manholes, wires, poles, or other structures and appliances as are now located or as may be required or permitted at or on the work by the Engineer. The Contractor shall cooperate with all aforesaid parties and shall allow reasonable facilities for the prosecution of any other work by the Owner, or of public service Corporation, to be done in connection with this work. Care shall be taken at all times to inconvenience abutters as little as possible.
   2. Crossing Utilities
      a. When construction crosses highways, railroads, streets, or utilities under jurisdiction of State, County, City, or other public agency, public utility, or private entity, Contractor shall secure written permission from proper authority before executing such construction. A copy of this written permission must be filed with the Owner before any work is done. Contractor will be required to furnish a release from proper authority before final acceptance of work.

F. Fire Hydrants
   1. Existing fire hydrants on or adjacent to work shall be kept accessible to firefighting equipment at all times.

G. Temporary provisions shall be made by Contractor to insure proper functioning of all gutters, sewer inlets, drainage ditches, which shall not be obstructed except as approved by the Engineer.

2. PRODUCTS

2.1 None used.

3. EXECUTION

3.1 None used.

END OF SECTION

SECTION 02017

UTILITIES INTERFERENCE WITH PROPOSED WORK

1. GENERAL

1.1 CONTRACT DOCUMENTS

A. The general provisions of the Contract, including General and Supplemental General Conditions, apply to this section including the applicable Contract Drawings.

1.2 DEFINITION OF A UTILITY

A. A utility is a sewer, water, or gas system; electric power, telephone or television service system; highway or rail system; drainage system, or another similar system.

1.3 PIPE LOCATIONS

A. The proposed buried pipelines of this Contract will be located substantially as indicated on the Contract Drawings, but the Engineer reserves the right to make such adjustments in location and grade as may be found desirable to avoid interference by existing structures and/or utilities or to avoid unsatisfactory locations, all as he may see fit as being in the best interest of the Owner.

1.4 INTERFERENCE BY UTILITIES

A. The term "interference" shall mean the following:
   1. Water mains will be considered as interfering with the sewers when the water main crosses below or within the direct path of or without a minimum 18" vertical clearance over the sewer and/or the proposed pipeline cannot be constructed with minor change in vertical or horizontal alignments to provide minimum 18" vertical clearance between the sewer and water main.
   2. Gas mains, drains, sewers, and underground conduits and cables will be considered as interfering if they cross within the direct path of, or without a minimum 2" clearance in any direction and/or the proposed pipeline cannot be constructed with minor change in vertical or horizontal alignments to provide minimum 2" vertical clearance between the proposed pipeline and existing utility.
   3. Above ground electric, telephone, and cable utilities including poles, guy wires, deadmen, and headwalls will be considered as interfering if they are within the trench or other limits of construction or would otherwise interfere with equipment operation.

1.5 RELOCATION OF UTILITIES

A. All water, sewer, gas, electric, telephone, cable TV, highway, and other utilities which are indicated on the Contract Drawings or otherwise found to interfere with the proposed work shall be relocated, unless the Engineer determines to adjust the location of the proposed work to avoid the interference.

B. Relocation work shall be conducted in such a manner that if interference makes it necessary to change the locations of utilities, not specifically provided for elsewhere in this Contract, it shall be the responsibility of the Contractor to make the necessary relocation arrangements with the owners of the utilities. Relocation arrangements shall be acceptable to the Engineer.

C. If the owners of the utilities permit, the Contractor may do the whole or any portion of the relocation work as may be required. Otherwise, the owners of the utilities will do the whole or any portion of the work with full cooperation by the Contractor as may be required by the nature of the relocation.

D. If the owners of the utility agree that because of unsatisfactory vertical and/or horizontal clearance and relocation of the interfering utilities may be waived provided the proposed pipeline can be installed in a manner acceptable to regulatory authorities.

1.6 PROTECTION OF UTILITIES AND DAMAGES THERETO

A. The Contractor shall notify all utility companies of his operations sufficiently in advance of construction and take all measures necessary to avoid damage or undue interruption to the utilities' normal services.

B. For utilities which do not interfere, and for utilities which interfere, until such time as they are relocated, the Contractor shall make all arrangements to protect and support them as they are encountered or endangered by the work of the Contractor, in their original and/or relocated locations.

C. Where indicated on the Contract Drawings or directed by the Engineer, or permitted by the Engineer at the Contractor's request, the Contractor shall dig test pits to locate the various utilities. The Contractor shall be responsible for the methods used to dig test pits and the cost of damages resulting from the digging of test pits will be paid by the Contractor at no additional expense to the Owner.

D. The Contractor shall pay all costs of protecting and supporting utilities, all costs of replacing utilities which are damaged by the Contractor's operations, or negligence or failure to comply with the requirements of these Specifications, and all costs of temporarily or permanently relocating utilities for the Contractor's convenience.

E. The Contractor shall make himself aware of the physical condition of the existing utilities expected to be encountered, including the degree of workmanship with which they were installed. Claims by the Contractor for repair or damages attributed to the physical condition or degree of workmanship of the existing utilities will, in general, be reviewed by the Engineer.

1.7 RELOCATION COSTS AND CLAIMS

A. Relocation costs of all utilities specified on the Contract Drawings to be relocated or shown on the Contract Drawings to interfere with the proposed work, as defined within this section, shall be the responsibility of the Contractor and be included in the

Contractor's bid prices.

B. The relocation cost of municipally owned public utilities which interfere and for which claims are allowed by the Engineer for payment, will be paid by the Owner under this Contract as follows:
   1. If the Contractor does the work, he will be paid in accordance with Paragraph 13 - Changes in the Work, and Paragraph 14 – Contract Change Orders of the General Conditions. If the Owners of the utilities do the work, they will invoice the cost of the work to the Contractor who will pay the utilities and be reimbursed in accordance with the above noted General Conditions provisions of this Contract. The relocation cost of all other utilities for which relocation is required by the work of this Contract, will, in general, not be allowed by the Engineer for payment as extra work. Exceptions as determined by the Engineer will be paid for as outlined above.

C. No extra work claims will be approved for costs due to delays and unanticipated mobilization and demobilization costs resulting from utilities interferences unless such claims are justified by the Engineer after considering all factors including the availability and proximity of other work locations. No claims for suspension of work or differing site conditions will be allowed without notification to the Engineer by the Contractor, within 48 hours of the time of occurrence of the reason that a claim is going to be submitted.

1.8 LIABILITY OF UTILITY COMPANIES

A. Claims against the Owner by the Contractor for the cost of delays or damage repair sustained by the Contractor because of damage to or interference between privately owned public utilities and the proposed work will be denied except for claims where, in the opinion of the Engineer, the delay is the result of a differing site condition.

B. For claims involving municipally owned public utilities or claims for delay involving privately owned public utilities, determined by the Owner to be the result of differing site conditions, the provisions of Parts 1.3 to 1.7 shall govern. Claims denied under this section will be settled between the Contractor and the privately owned public utility.

C. The Owner reserves the right to exercise, or not to exercise, any rights he may have to require relocations of privately owned public utilities at the utility company's expense in case of interferences. If the Owner does not exercise such rights, all of the other provisions of this section will govern.

1.9 UTILITY SERVICE CONNECTIONS

A. The Contractor shall make all arrangements with the utility companies for temporary and permanent services, subject to the conditions described elsewhere in these Specifications. Public utility companies in the area of work and/or expected to provide service to the work are as follows:

1. Name: Dig Safe Center
   Telephone No.: 888-344-7233
   Municipally ___ Privately _x_ Owned
2. Electricity
   Name: Green Mountain Power
   Contact Person: Kristina Carter
   Address: 2154 Post Rd., Rutland, VT 05702
   Telephone 802-770-3441
   Municipally ___ Privately _X_ Owned
3. Water, Sewers and Streets
   Name: Northfield
   Contact Person: Patrick DeMasi
   Address: 242 Dog River Drive, Northfield, VT 05663
   Telephone No.: (802) 485-7355
   Municipally _x_ Privately ____ Owned

2. PRODUCTS

2.1 None used.

3. EXECUTION

3.1 None used

END OF SECTION

SECTION 02110

SITE CLEARING

1. GENERAL

1.1 DESCRIPTION

A. Work Included
1. Furnish all labor, materials, equipment, and incidentals required to perform all clearing and grubbing work for the Contract.

1.2 PROTECTION

A. Protection shall be afforded workmen and passersby in accordance with OSHA regulations.

B. Streets, roads, adjacent property, and other works to remain shall be protected from damage throughout the work.

C. Existing Trees, Shrubs, and Bushes
1. Protect from damage during construction work. Exceptions only as shown on Contract Drawings and as specified herein.
2. Limits of site clearing as shown on the drawings.

D. Trees, shrubs, or bushes to remain within the limits of clearing and grubbing shall be clearly marked by means of yellow flagging.

1.3 MEASUREMENT AND PAYMENT

A. Quantities shall not be measured or paid for under a separate Item. Clearing and grubbing shall be included in the various other Contract lump sum or unit prices stated in the Schedule of Prices in the Bid.

1.4 REQUIREMENTS OF REGULATORY AGENCIES

A. State and Local code requirements shall control the disposal of waste materials.

2. PRODUCTS

2.1 None used.

3. EXECUTION

3.1 CLEARING

A. Remove trees, saplings, shrubs bushes, vines and undergrowth within the limits of clearing to the heights above ground given in the following:
   1. Trees over 3" in diameter: 6"
   2. Shrubs, saplings, bushes and trees under 3" in diameter: 3"
   3. Vines and undergrowth: 2"

B. Stumps
   1. Stumps required to be removed shall be to a depth of 8" below ground elevation.
   2. Engineering requirements shall control removal of stumps under fills, foundations, or any construction in contact with the stumps.

C. Where erosion is likely to occur, leave root systems intact to reduce erosion unless otherwise directed.

3.2 GRUBBING

A. Limits of grubbing shall coincide with the limits of clearing.

B. Remove all stumps, roots over 4" in diameter, and matted roots within the limits of grubbing to the depths below:
   1. Footings: 18"
   2. Walks: 12"
   3. Roads: 36"
   4. Parking areas: 12"
   5. Lawn areas: 8"
   6. Fills: 12"
   7. In the case of footings, roads, walks or other construction on fills, the greater depth shall apply.

3.3 DISPOSAL

A. All logs, stumps, roots, cuttings and other materials from clearing and grubbing operations shall be removed from the site weekly as it accumulates and shall be disposed of at a facility approved of by the State of Vermont to receive such wastes.

B. Stumps, brush, untreated wood and certain other nonhazardous inert materials may be buried **outside** a certified landfill if an Insignificant Waste Disposal Event (IWDE) application is approved by the Waste Management Division of the Vermont Department of Environmental Conservation. Contact person: Jeffrey Bourdeau (or his successor) at (802) 479-8768.

C. Burning of any materials onsite will not be permitted.

D. Chipping
   1. The Contractor, at his option, may chip suitable materials from A above and use as a permanent mulch at the site in areas approved by the Engineer. Suitable materials shall include brush and limbs of less than 3" butt diameter. A chipping machine is to be used for this work.

E. Dumping
   1. No materials other than common fill material shall be dumped within the project areas.

END OF SECTION

SECTION 02140

DEWATERING, DRAINAGE, AND EROSION CONTROL

1. GENERAL

1.1 DESCRIPTION

A. Work Included
1. Furnish all labor, materials, equipment, and incidentals required to accomplish the necessary dewatering, drainage, and erosion control to complete the work specified and as shown on the Contract Drawings.

1.2 SUBMITTALS

A. Submit to the Engineer for review the proposed methods of dewatering, underwater work, drainage, and erosion control for the various portions of the work. Review shall be for method only. The Contractor shall remain responsible for the structural adequacy and safety of the methods.
1. The final trimming excavation and placing of bedding material shall not be done until the Engineer is satisfied that the method of dewatering the excavation is acceptable.

1.3 JOB CONDITIONS

A. The Contractor shall at all times have sufficient pumping equipment to dewater all excavations and he shall provide pump wells, underdrains, or otherwise, as may be required to properly handle the water.

B. Due to the restricted construction site, the Contractor is to do all that is necessary to prevent erosion on to adjacent lands.
1. Site drainage control is critical on this job.
2. Water from the trenches and other excavations shall be disposed of in an approved manner and at approved locations such that injury will not be caused to either the public health, to public or private property, to adjacent property, water courses, or water supplies.

2. PRODUCTS

2.1 None used.

3. EXECUTION

3.1 DEWATERING

A. The Contractor shall remove by pumping, draining, bailing, or otherwise, any water which may accumulate or be found in trenches or other excavations made under this Contract while the pipelines and other structures and their foundations are being built.

B. The Contractor shall consider and use, if necessary, underdrains which may be either perforated asphalt-coated corrugated galvanized metal pipe, perforated corrugated aluminum alloy pipe, or perforated PVC pipe to control groundwater. The trench shall be excavated as shown on the Contract Drawings, or as required by the Engineer. The pipe shall be laid to line and grade in a bed of screened gravel.

C. The Contractor shall furnish, install, and maintain all drainage systems and pumping equipment necessary to keep the groundwater level at an elevation low enough so that no structures to be built under this Contract shall move or float because of uplift pressure. The Contractor shall make all necessary computations for the weights of the structures during the various stages of construction as may be necessary to satisfy this requirement of the Specifications.

D. Damages and costs of whatever nature resulting from dewatering operations shall be borne solely by the Contractor.

E. Removal of dewatering equipment shall be accomplished after the system is no longer required. The material and equipment constituting the system shall be removed by the Contractor.

3.2 DRAINAGE

A. Water entering the work areas from surface runoff shall be collected in shallow ditches around the perimeter of the work site as necessary and either drained to protected gravity discharge points or drain to sumps, and pumped from the excavation to maintain a bottom free from standing water.

B. Drainage shall be disposed of in approved areas only so that flow or seepage back into the excavated area will be prevented.
   1. Drainage shall not cause erosion or any other type of damage.

C. Drainage from spring runoffs shall be provided as necessary to protect the work areas and roadways but shall be controlled so as to prevent injury to public or private property, water courses, water supplies, or public health.

D. All costs shall be borne by the Contractor.

3.3 EROSION CONTROL

A. Sufficient precautions shall be taken during construction to minimize the run-off of polluting substances such as silt, clay, fuels, oils, bitumens, calcium chloride, or other polluting materials.
   1. Special precautions shall be taken in the use of construction equipment to prevent operations which promote erosion.

B. Stockpiled excavated materials must be provided proper erosion controls. These controls may include but not be limited to the following methods of erosion control:
   a. Interceptor drainage ditches
   b. Velocity reduction dams in drainage ditches
   c. Temporary bank protection such as riprap, matting, or artificial covering
   d. Baled-hay drainage control systems
   e. Special stockpiling methods
   f. Water bars

C. The Contractor, at his expense, must do all that is necessary to ensure effective erosion controls are implemented and maintained as well as removed at the completion of the work.

END OF SECTION

SECTION 02142

EROSION PREVENTION AND SEDIMENT CONTROL

1. GENERAL

1.1 DESCRIPTION

A. Work Included
1. Furnish all labor, materials, equipment, and incidentals required to accomplish the necessary erosion prevention and sediment control to complete the work specified and as shown on the Contract Drawings.

1.2 REFERENCES

A. Vermont Handbook for Soil Erosion and Sediment Control on Construction Sites, latest revision, available at http://www.vtwaterquality.org/docs/construction/sw_low_risk_site_handbook.pdf.

B. General Permit 3-9020 for Stormwater Runoff from Construction Sites (See Appendix A Permits).

1.3 SUBMITTALS

A. Submit to the Engineer for review the proposed methods of erosion prevention and sediment control for the various portions of the work. Review shall be for method only. The Contractor shall remain responsible for the effectiveness, structural adequacy, and safety of the methods.

1.4 JOB CONDITIONS

A. Due to the restricted construction site, the Contractor is to do all that is necessary to prevent erosion and control sediment on to adjacent lands.
1. Site drainage control is critical on this job.
2. Water from the trenches and other excavations shall be disposed of in an approved manner and at approved locations such that injury will not be caused to either public health, to public or private property, to adjacent property's drainage ways, or water supplies.

2. PRODUCTS

2.1 SILT FENCE

A. General
1. The silt fence shall be pre-fabricated erosion control fence by Mirafi, or approved equal.

B. Filter Fabric
   1. The filter fabric shall be Mirafi 100x, or approved equal.
   2. The filter fabric shall meet the following specifications:

Mechanical Properties	Test Method	Unit	Minimum Average Roll Value
Grab Tensile Strength	ASTM D 4632	N (lbs)	550 (124)
Grab Tensile Elongation	ASTM D 4632	%	15
Trapezoid Tear Strength	ASTM D 4533	N (lbs)	290 (65)
Mullen Burst Strength	ASTM D 3786	kPa (psi)	2060 (300)
Puncture Strength	ASTM D 4833	N (lbs)	266 (60)
Apparent Opening Size (AOS)	ASTM D 4751	mm (U.S. Sieve)	0.600 (30)
Permittivity	ASTM D 4491	sec^{-1}	0.10
Flow Rate	ASTM D 4491	$1/min/m^2$ ($gal/min/ft^2$)	405 (10)
UV Resistance (at 500 hours)	ASTM D 4355	% strength retained	70

C. Fence Posts
   1. Posts shall be a minimum 1 1/2" nominal square hardwood of sound quality.
   2. The length shall be a minimum of 36” long.
   3. The spacing shall be a maximum of 10 feet between posts.

2.2 DEGRADABLE EROSION CONTROL BLANKET

A. Single Net Straw Blanket, Type A
   1. Single net straw blanket shall be S75 as manufactured by North American Green, or approved equal.
   2. The erosion control blanket shall be a machine-produced mat of 100% agricultural straw with a functional longevity of approximately 12 months.
   3. The blanket shall be of consistent thickness with the straw evenly distributed over the entire area of the mat. The blanket shall be covered on the top side with a lightweight photodegradable polypropylene netting having an approximate 0.50” x 0.50” mesh and be sewn together on 1.50” centers (50 stitches per roll width) with degradable thread.
   4. The blanket shall be manufactured with a colored line or thread stitched along both outer edges (approximately 2”-5” from the edge) to ensure proper material overlapping.
   5. The erosion control blanket shall have the following properties:

a. Matrix
   1) 100% Straw Fiber (0.50 lbs/yd^2)
b. Netting
   1) One side only, lightweight photodegradable (2.10 lbs/1,000 ft^2 approximate weight).
c. Thread
   1) Degradable

B. Double Net Straw Blanket, Type B
1. Double net straw blanket shall be S150 as manufactured by North American Green, or approved equal.
2. The erosion control blanket shall be a machine-produced mat of 100% agricultural straw matrix with a functional longevity of approximately 12 months.
3. The blanket shall be of consistent thickness with the straw evenly distributed over the entire area of the mat. The blanket shall be covered on the top and bottom sides with lightweight photodegradable polypropylene netting having an approximate 0.50” x 0.50” mesh. The blanket shall be sewn together on 1.50” centers (50 stitches per roll width) with degradable thread.
4. Installation staple patterns shall be clearly marked on the erosion control blanket with environmentally safe paint. The blanket shall be manufactured with a colored line or thread stitched along both outer edges (approximately 2”-5” from the edge) to ensure proper material overlapping.
5. The erosion control blanket shall have the following properties:
   a. Matrix
      1) 100% Straw Fiber (0.50 lb/yd^2)
   b. Netting
      1) Both sides lightweight photodegradable (1.64 lbs/1,000 ft^2 approximate weight)
   c. Thread
      1) Degradable

C. Double Net Straw/Coconut Blanket, Type C
1. Double net straw/coconut blanket shall be SC150 as manufactured by North American Green, or approved equal.
2. The erosion control blanket shall be a machine-produced mat of 70% agricultural straw and 30% coconut fiber matrix with a functional longevity of approximately 24 months.
3. The blanket shall be of consistent thickness with the straw and coconut fiber evenly distributed over the entire area of the mat. The blanket shall be covered on the top side with heavyweight photodegradable polypropylene netting having ultraviolet additives to delay breakdown and an approximate 0.63” x 0.63” mesh, and on the bottom side with a lightweight photodegradable polypropylene netting with an approximate 0.50” x 0.50” mesh. The blanket shall be sewn together on 1.50” centers (50 stitches per roll width) with degradable thread.
4. Installation staple patterns shall be clearly marked on the erosion control blanket with environmentally safe paint. The blanket shall be manufactured with a colored line or thread stitched along both outer edges (approximately 2”-5” from the edge) to ensure proper material overlapping.

5. The erosion control blanket shall have the following properties:
   a. Matrix
      1) 70% Straw Fiber (0.35 lb/yd^2)
      2) 30% Coconut Fiber (0.15 lb/yd^2)
   b. Netting
      1) Top side heavyweight photodegradable with UV additives (3.0 lbs/1,000 ft^2 approximate weight)
      2) Bottom side lightweight photodegradable (1.64 lbs/1,000 ft^2 approximate weight)
   c. Thread
      1) Degradable

D. Double Net Coconut Blanket, Type D
1. Double net coconut blanket shall be SC125 as manufactured by North American Green, or approved equal.
2. The erosion control blanket/channel lining shall be a machine-produced mat of 100% coconut fiber with a typical functional longevity of approximately 36 months.
3. The blanket shall be of consistent thickness with the coconut fiber evenly distributed over the entire area of the mat. The blanket shall be covered on the top and bottom with heavyweight polypropylene netting having ultraviolet additives to delay breakdown and approximate 0.625" x 0.625" (1.59 x 1.59 cm) mesh size. The blanket shall be sewn together on 1.50" (3.81 cm) centers (50 stitches per roll width) with UV stable polypropylene thread.
4. Installation staple patterns shall be clearly marked on the erosion control blanket with environmentally safe paint. The blanket shall be manufactured with a colored line or thread stitched along both outer edges (approximately 2"-5" from the edge) to ensure proper material overlapping.
5. The erosion control blanket shall have the following properties:
   a. Matrix
      1) 100% Coconut Fiber (0.50 lb/yd^2)
   b. Netting
      1) Both sides, heavyweight UV stabilized (3.0 lbs/1,000 ft^2 approximate weight)
   c. Thread
      1) 100% Black Polypropylene

E. Biodegradable Stake
1. The biodegradable stake shall be the North American Green Bio-Stake, or approved equal.
2. The stake shall be a 100% biodegradable "U"-shaped pin designed to safely and effectively secure erosion control blankets. The biodegradable stake shall be fully degradable by biological activity within a reasonable time frame.
3. The bio-plastic resin used in production of the biodegradable stake shall consist of polylactide, a natural, completely biodegradable substance derived from renewable agricultural resources.
4. The biodegradable stake must exhibit ample rigidity to enable being driven into hard ground, with sufficient flexibility to resist shattering.
5. The biodegradable stake shall have serrations on the leg to increase resistance to pull-out from the soil.

2.3 TEMPORARY STONE CHECK DAMS

A. General
1. Temporary stone check dams shall be used to minimize the erosion rate in areas of concentrated flow (i.e. swales or ditches) that are in need of protection during establishment of grass linings.

B. Stone for Stone Fill, VAOT Item 706.04 Type I
1. Stone for stone fill shall be approved, hard, blasted, angular rock other than serpentine rock containing the fibrous variety chrysotile (asbestos). The stone fill shall be reasonably well graded from the smallest to the maximum size stone specified so as to form a compact mass when in place.
2. The longest dimension of the stone shall vary from 1" to 12" and at least 50 percent of the volume of the stone in place shall have a least dimension of 4". The least dimension of the stone shall be greater than 33 percent of the longest dimension.

C. Filter Fabric
1. The filter fabric shall be Mirafi 140NL or approved equal.
2. The filter fabric shall meet or the following specifications:

Mechanical Properties	**Test Method**	**Unit**	**Minimum Average Roll Value**
Grab Tensile Strength	ASTM D 4632	kN (lbs)	0.4 (90)
Grab Tensile Elongation	ASTM D 4632	%	50
Trapezoid Tear Strength	ASTM D 4533	kN (lbs)	0.178 (40)
Mullen Burst Strength	ASTM D 3786	kPa (psi)	1205 (175)
Puncture Strength	ASTM D 4833	kN (lbs)	0.24 (55)
Apparent Opening Size (AOS)	ASTM D 4751	mm (U.S. Sieve)	.025 (60)
Permittivity	ASTM D 4491	sec^{-1}	0.20
Permeability	ASTM D 4491	cm/sec	2.0
Flow Rate	ASTM D 4491	$1/min/m^2$ ($gal/min/ft^2$)	5907 (145)
UV Resistance (at 500 hours)	ASTM D 4355	% strength retained	70

2.4 TEMPORARY UNDER GRATE FABRIC INLET PROTECTION

A. General
   1. Under grate fabric inlet protection shall only be used for existing catch basins in existing paved areas for linear pipeline projects where the amount of sediment run off is minimal and the duration of construction is short.

B. Filter Fabric
   1. The filter fabric shall be Mirafi 140NL or approved equal.
   2. The filter fabric shall meet the requirements specified in paragraph 2.3-C.2 of this specification.

3. EXECUTION

3.1 GENERAL

A. Contractor shall install all temporary erosion prevention and sediment control measures as shown on the Contract Drawings. Contractor shall provide any additional measures necessary.

B. Contractor shall adhere to the General Permit 3-9020 (latest edition) for stormwater runoff from construction sites, provided in the Appendix.

C. Sufficient precautions shall be taken during construction to minimize the run-off of polluting substances such as silt, clay, fuels, oils, bitumens, calcium chloride, or other polluting materials.
   1. Special precautions shall be taken in the use of construction equipment to prevent operations which promote erosion.

D. Erosion prevention and sedimentation control measures shall be implemented prior to performing any earthwork, downstream of the disturbed area and as directed by the Engineer. The measures shall be maintained until the upstream disturbed area has been permanently stabilized and as directed by the Engineer. The Contractor shall install all temporary erosion prevention and sediment control measures as shown on the contract drawings.

E. Silt fence shall be installed, as shown on the contract drawings, prior to any earthwork downstream of the disturbed area and as directed by the Engineer. The silt fence shall be maintained and cleaned until the upstream disturbed area has been permanently stabilized and as directed by the Engineer. Where possible natural drainage ways shall be utilized and left open to remove excess surface water.

F. Stone check dams shall be installed in drainage swales, as shown on the contract drawings and as directed by the Engineer. Check dams shall be installed immediately following disturbance of the drainage swale and shall be maintained until the upstream disturbed area is permanently stabilized and as directed by the Engineer.

G. Degradable erosion control blankets shall be installed on disturbed vegetated slopes that have slopes greater than 3:1. The Contractor shall install the degradable erosion control blankets as indicated on the Drawings and as per the manufacturer's recommendations.

H. The Contractor shall prevent soil erosion and control sediment around stockpiled excavated materials. These controls may include, but not be limited to, the following methods of erosion prevention and sediment control:
   1. Perimeter silt fence
   2. Interceptor drainage ditches
   3. Velocity reduction dams in drainage ditches
   4. Temporary bank protection such as riprap, matting, or artificial covering
   5. Stone check dam control systems
   6. Special stockpiling methods
   7. Water bars

I. The Contractor shall sweep the roads clean in construction areas to remove accumulated sediment and prevent sediment runoff into receiving waters, as directed by the Engineer.

J. The Contractor shall properly operate and maintain all installed stormwater treatment, erosion prevention, and sediment control structures. All temporary measures shall be removed upon completion of the Work or site stabilization, whichever occurs last.

K. The smallest practical area of land shall be disturbed at any one time during construction. When land is disturbed during construction, the disturbance shall be kept to the shortest practical duration as approved by the Engineer. Land shall not be left disturbed during the winter months and overwinter stabilization measures shall be installed prior to October 15th.

L. All disturbed areas and side slopes which are finish graded with no further construction to take place shall be loamed, limed, fertilized, seeded, and mulched within 48 hours of final grading. A minimum of 4" of loam shall be placed. Seed, lime, fertilizer, and mulch shall conform to Technical Specification Section 02930.

M. All disturbed areas with slopes greater than 3:1 shall be finish graded and stabilized within three (3) days. Temporary cover with mulch shall be used until the soils are finish graded and stabilized. Once the disturbed areas are finish graded they shall be topsoiled, fertilized, seeded, and mulched and have erosion control blankets installed (where required) to stabilize the soils.

N. No disturbed areas with slopes less than 3:1 shall be left unseeded and unmulched for more than seven (7) days. Disturbed areas which will be regraded later during construction shall be mulched and seeded with rye grass to prevent erosion. Hay or straw mulch shall be applied to all freshly seeded areas at the rate of 2 tons per acre. Bales shall be unspoiled, air dried, and free from weed, seeds, and any coarse material. Contractor may also use erosion matting or other approved methods of temporary cover.

O. After all upstream disturbed areas have been permanently stabilized and as directed by the Engineer, the downstream temporary erosion control measures are to be removed and the accumulated sediment properly disposed of. The area disturbed by the removal of temporary measures shall be prepared, seeded, and mulched.

P. The Contractor shall collect and dispose of sediments and other pollutants in a manner that prevents the sediments and pollutants from entering waters of the State.

Q. The Contractor shall post at a location visible to the public, a notice containing the General Permit NOI number, the text: “Vermont Department of Environmental Conservation ((802) 490-6168) has authorized the discharge of stormwater runoff from this construction site under General Permit 3-9020 (latest edition).”, the name and telephone number of the Owner and the On-Site Coordinator, the location where a copy of the Contract Drawings and Specifications is available, and a brief description of the project.

R. The Contractor’s On-Site Plan Coordinator shall inspect at least once every seven (7) calendar days and as soon as possible but no later than 24 hours after any storm event which generates a discharge of stormwater runoff from the construction site. If there is no earthwork performed during the period from December 15th through March 15th and all exposed soils and drainage channels have been at least temporarily protected, inspections may be suspended during that period, but the final inspection record for the season shall clearly show the status of the site grading and stabilization efforts at the end of the construction season.

S. The Contractor’s On-Site Plan Coordinator shall note any evidence of measurable amounts of sediment or sediment laden water leaving the construction site or any visible discoloration of surface waters (including wetlands). The Contractor shall immediately correct the discharge, including halting or reducing construction activities as necessary until the discharge and/or the condition is fully corrected. In the event that a discharge authorized under this permit is causing, or has reasonable potential to cause or contribute to, a violation of water quality standards, the Contractor shall immediately notify the VTDEC Watershed Management Division of the problem and the corrective actions that have been or are being taken. The Contractor shall prepare a written report fully describing the violation, including the source, the cause, why the erosion prevention and sediment control measures installed did not prevent the problem, how the problem was addressed, and the timetable for corrective action. This report shall be filed within seven (7) days of when the problem is first identified.

T. The Contractor’s On-Site Plan Coordinator shall keep a written record of inspections and any water quality monitoring data and shall note all problem areas and the measures taken to correct those problems and prevent future problems. The records shall reflect the status of the project in terms of consistency with the planned construction sequence and what areas are disturbed at the time of the inspection and what areas have been temporarily or permanently stabilized since the last inspection record. Each inspection record shall be signed by the Contractor’s On-Site Plan Coordinator. The Contractor shall submit two copies of all records to the Engineer. The Engineer shall keep one copy and shall send one copy to the Owner. The Owner shall retain the Contract Drawings and Specifications and a copy of all project records required by the General Permit for a minimum of three (3) years following completion of construction activities. This period shall be extended during the course of unresolved litigation regarding violations of this permit.

U. Construction activities shall be sequenced so that the areal extent of disturbed soils left open to erosion at any given time is kept to a minimum. The sequencing shall be shown

in the Contractor's Project Schedule as required in Section 01310 Project Schedules. Unnecessary soil disturbance shall not be acceptable. Project phasing shall be used to lessen the areal extent of soils exposed at any given time. Removal of existing, non-invasive vegetative cover shall be limited to that necessary to accomplish the activity.

V. Soil disturbances that occur between October 15th and May 1st shall be considered Winter Construction and shall be treated with overwinter erosion control measures. Winter construction is not permitted under the General Permit 3-9020 (latest edition) for Stormwater Runoff from Construction Sites. If construction is required after October 15th, the Contractor shall submit a written request to perform overwinter construction to the Engineer prior to August 31. The written request must identify specific areas where overwinter construction shall occur and the erosion prevention and sediment control measures that are to be utilized. The following overwinter erosion and sediment control measures shall be taken for any work that occurs between October 15th and May 1st:
   1. The disturbed area shall be limited to those areas in which work is to occur during the following 14 days and that can be mulched in one day prior to any snow event. In order to minimize areas without erosion control protection, continuation of work in additional areas shall not begin until the exposed soil surface on the area being worked has been stabilized.
   2. Silt fence, snow barrier fencing, stone check dams, and temporary inlet protection shall be installed before the ground freezes.
   3. Degradable erosion control blankets shall be used in all grassed areas of disturbed soil. Degradable erosion control blankets shall not be installed on top of snow; the snow shall be removed down to a 1" depth or less prior to installation. An area shall be considered stabilized when the exposed surfaces have been adequately anchored so that the ground surface is not visible through the blanket. These areas shall be seeded and mulched as soon as seasonally possible in the spring.
   4. Degradable erosion control blankets shall be used to stabilize all disturbed ditches and slopes. Temporary stone riprap may be used in lieu of the degradable erosion control blanket. These areas shall be final stabilized as soon as seasonally possible in the spring.
   5. All disturbed paved and gravel areas shall be backfilled with gravel subbase to final grade. All paved areas shall be repaved as soon as seasonally possible in the spring.
   6. Soil stockpiles shall be mulched for overwinter protection with hay or straw at twice the normal rate. This will be done within 24 hours of stocking and re-established prior to any rainfall or snowfall.

3.2 SILT FENCE

A. Silt fence shall be constructed and placed according to the Contract Drawings.

B. At the time of installation, the fabric will be rejected if it has defects, rips, holes, flaws, deterioration, or damage.

C. The Contractor shall maintain the silt fence until the project is accepted or until the fence is removed, and shall remove and dispose of silt accumulations at the silt fence when so directed by the Engineer. Filter fabric shall be removed and replaced whenever it has deteriorated or clogged to such extent that it reduces the effectiveness of the silt fence.

D. Silt fence shall remain in place until the Engineer directs that it be removed. Silt fence which has been removed will remain the property of the Contractor and may be used at other locations provided it is in a condition acceptable to the Engineer. Upon removal of the silt fence, the Contractor shall return the area to its original condition, or better, and shall seed and mulch the area.

3.3 DEGRADABLE EROSION CONTROL BLANKET

A. Degradable erosion control blankets shall be constructed and placed according to the Contract Drawings.

B. Preparation of Area
1. The ground surface shall be shaped to the lines and grades shown on the Contract Drawings and shall have a smooth surface free of depressions and eroded areas that would allow water to collect of flow under the matting.
2. The surface shall be cleared of stones, sticks, and other objectionable material that would prevent the matting from close contact with the ground.
3. Placement of the topsoil, fertilizer, seed and mulch, when required, shall be completed prior to placing of the matting.

C. Installation
1. Install degradable erosion control blankets per the manufacturer's recommendations.
2. After the soil has been properly shaped, fertilized, seeded and mulched, the matting shall be laid out parallel to the flow of water or vertically on slopes.
3. No traffic of any kind will be permitted over the matting during or after placement. Any torn or damaged material shall be replaced at the Contractor's expense.
4. Mulch shall be under the complete coverage of the net so that the net is not in direct contact with the ground. The net shall be spread over the hay mulch so that there is space for a worker to walk between adjacent widths of the net.
5. The edges of adjacent widths of the net shall be pulled together and held in place with biodegradable stakes spaced not more than 12" apart along the edges of the net. The biodegradable stakes shall be pushed into the ground so that the top of the stake is about 2" above the ground. The ends of each strip of net shall be held in place by biodegradable stakes at each corner and at the center of the net. Additional stakes shall be installed as directed by the Engineer.

D. Maintenance
1. The Contractor shall maintain the matted areas until all work has been completed and accepted. Maintenance shall consist of repairing areas damaged by erosion, wind, fire, or other causes at the Contractor's expense. Such areas shall be repaired to re-establish the condition and grade of the soil prior to application of the matting and shall be refertilized and reseeded as required.

3.4 TEMPORARY UNDER GRATE FABRIC INLET PROTECTION

A. Temporary under grate fabric inlet protection shall be constructed and placed according to the Contract Drawings.

B. At the time of installation, the fabric will be rejected if it has defects, rips, holes, flaws, deterioration, or damage.

C. The Contractor shall maintain the fabric inlet protection until the project is accepted or until the fabric is removed, and shall remove and dispose of silt accumulations at the inlet when so directed by the Engineer. Filter fabric shall be removed and replaced whenever it has deteriorated or clogged to such extent that it reduces the effectiveness of the inlet protection.

D. Temporary under grate fabric inlet protection shall remain in place until the Engineer directs that it be removed. Filter fabric that has been removed will remain the property of the Contractor and may be used at other locations provided it is in a condition acceptable to the Engineer.

END OF SECTION

SECTION 02161

SHEETING, SHORING, AND BRACING

1. GENERAL

1.1 DESCRIPTION

A. Work Included
1. Furnish all labor, materials, equipment, and incidentals required to accomplish the necessary sheeting, shoring, and bracing to complete the work specified and as shown on the Contract Drawings. This includes all work which may be necessary to support the sides of excavations and to prevent any movement of earth and materials which could diminish the width of excavations to less than that necessary for proper construction and safety, or could otherwise injure persons, or the work, or delay the work, or endanger adjacent structures.

1.2 PROTECTION ASSURANCE

A. The Contractor is to design, use, and maintain sheeting, shoring, and bracing so as to comply with current OSHA regulations and General Conditions, "Protection of Work, Property and Persons," Paragraph 11.

1.3 SUBMITTALS

A. Shop Drawings
1. Construction details including sketches.
2. Materials description.

B. Qualifications/Experience
1. Provide a detailed resume of the sheeting subcontractor.

C. Engineered Systems
1. Where specified in these Contract Documents, provide a sheeting, shoring and bracing plan designed by licensed professional engineer (licensed in Vermont).

2. PRODUCTS

2.1 GENERAL

A. The materials used by the Contractor for sheeting, shoring, and bracing shall be those materials suitable for their intended use. Contractor's selected materials and methods shall be described in detail in shop drawing submittals.

3. EXECUTION

3.1 INSTALLATION

A. Sheeting shall be driven and excavation work conducted in such a manner as to prevent the materials in back of the sheeting from running under the sheeting and into the excavated area.

B. Care shall be taken to prevent voids outside of the sheeting. If voids are formed, they shall be immediately filled and well compacted. Where soil cannot be properly compacted to fill a void, lean concrete shall be used as backfill at no additional expense to the Owner.

C. Sheeting shall not be carried to such depth at manholes, if it crosses the pipeline(s) that it will bear upon the pipe.

D. Sheeting is not to be withdrawn if driven below mid-diameter of any pipe. Nor shall sheeting be unnecessarily driven below the mid-diameter of any pipe only to necessitate its being left permanently in place.

E. Sheeting, shoring, and bracing shall be a special precaution to guard against damage to, or settlement of buildings, walls, roads, or other structures which are adjacent to the work.

F. Temporary sheeting or bracing shall be removed carefully so as not to endanger the construction or wellbeing of other pipelines, structures, or the like.
   1. All voids left or caused by the withdrawal of sheeting shall be backfilled immediately with material acceptable to the Engineer and compacted as directed.

G. The sheeting, shoring, bracing, or parts thereof, shall be left in place after the completion of the work in locations where shown on the Contract Drawings or ordered in writing by the Engineer. The Engineer may require that, at intervals, the sheeting shall be left in place to support existing structures and that other sheeting be removed. All sheeting which is left in place, whether ordered by the Engineer or left for the convenience of or to subserve the interests of the Contractor, shall be cutoff at least 2' below the surface. The right of the Engineer to order sheeting, shoring and bracing left in place shall not be construed as creating any obligation on his part to issue such orders, and his failure to exercise his right to do so shall not relieve the Contractor from liability for damages to persons or property occurring from or upon the work occasioned by negligence or otherwise, growing out of a failure on the part of the Contractor to leave in place sufficient sheeting, shoring, and bracing to prevent any caving or moving of the ground.

H. The Contractor shall consider and use, if necessary, sheeting to control groundwater. Where sheeting is driven below the pipeline to control groundwater, it shall be cut off at least 2' below the surface and not lower than 1' above the top of the pipe with the lower portion left permanently in place.

I. Records
   1. The Contractor shall keep a record of all sheeting and bracing left in place whether shown on Contract Drawings, ordered by the Engineer, or for his own convenience.
      a. This record shall include location and size of sheeting including lengths and elevations top and bottom, and the locations and sizes of bracings.
      b. A complete copy of this record shall be submitted to the Engineer at job completion.

END OF SECTION

SECTION 02205

ROCK AND BOULDER REMOVAL

1. GENERAL

1.1 DESCRIPTION

A. Work Included
1. Furnish all labor, materials, equipment, and incidentals required for the excavation, disposal, and replacement of rock boulders as specified herein and as shown on the Contract Documents.

1.2 DEFINITIONS

A. Rock excavation shall mean rock which requires for its removal, drilling, and blasting. Rubble masonry and concrete foundations exceeding one (1) cubic yard in volume shall be considered as rock.

B. Boulder excavation shall mean boulders one (1) cubic yard in volume or larger.

C. Rock and boulders shall not include any materials which may fall or otherwise enter excavations from beyond limits indicated on the Contract Drawings or specified herein.

1.3 PAYMENT

A. Rock and boulder removal will be paid for under a separate item in the Bid. Include all costs of same in various other lump sum and unit price items in the Schedule of Prices in the Bid.

2. PRODUCTS

2.1 None used.

3. EXECUTION

3.1 LIMITS OF EXCAVATION IN ROCK

A. Limits of rock excavation shall be the payment limits as defined in Section 01025 - Measurement and Payment.

3.2 DISPOSAL AND REPLACEMENT OF ROCK

A. Excavated rock and boulders may not be used to backfill in trenches.

B. If rock outside of limits specified is shattered by blasting, caused by holes drilled too deep,

or too heavy charges or explosives, or any other circumstance due to blasting, and if such shattered rock in the Engineer's opinion does not provide suitable foundation, the rock shall be removed and the excavation refilled with compacted bedding or backfill material at the expense of the Contractor.

C. The Contractor shall be responsible for disposal of rock and boulders at an offsite location, in accordance with State requirements.

D. Any excavated rock and boulders to be wasted on site shall be disposed of in areas approved by the Engineer and Owner.

END OF SECTION

SECTION 02210

GRADING

1. GENERAL

1.1 DESCRIPTION

A. Work Included
1. Furnish all labor, materials, equipment, and incidentals required for the grading, including rough and finished, as specified herein and/or as shown on the Contract Drawings.

1.2 JOB CONDITIONS

A. Grading both rough and finished, on the project site shall blend the finished contours in with the existing contours to effect a smooth transition. At no times will the finished graded slope be steeper than 2:1.

B. All drainage ditches shall be graded to effect gravity flow of water as shown on the Contract Drawings and as directed by the Engineer.

C. All grading activity on the project site shall be maintained within the strict construction limits.

2. PRODUCTS

2.1 None used.

3. EXECUTION

3.1 PERFORMANCE

A. Grading in preparation for placing of loam, planting areas, paved walks and drives, and appurtenances shall be performed at all places that are indicated on the Contract Drawings, to the lines, grades, and elevations shown and otherwise as directed by the Engineer and shall be performed in such a manner that the requirements for formation of embankments can be followed. All material encountered, of whatever nature, within the limits indicated, shall be removed and disposed of as directed. During the process of grading, the subgrade shall be maintained in such condition that it will be well drained at all times. When directed, temporary drains and drainage ditches shall be installed to intercept or divert surface water which may affect the execution or condition of the work.

B. If at the time of grading it is not possible to place any material in its proper section of the permanent structure, it shall be stockpiled in approved areas for later use. No extra payment will be made for stockpiling or double handling of excavated material.

C. The right is reserved to make minor adjustments or revisions in lines or grades if found necessary as the work progresses, due to discrepancies in the Contract Drawings or in order to obtain satisfactory construction.

D. Stones or rock fragments larger than 4" in their greatest dimensions will not be permitted in the top 6" of the finished subgrade of all fills or embankments.

E. In cuts, all loose or protruding rocks on the back slopes shall be barred loose or otherwise removed to line or finished grade of slope. All cut and fill slopes shall be uniformly dressed to the slope, cross-section and alignment shown on the Contract Drawings or as directed by the Engineer.

F. Hold all subgrade within 2" maximum deviation from required elevations. Except for areas receiving drainage fill or other paved areas rough graded to provide smoothly rolling contours 4” - 6" below the finished elevations shown on the Contract Drawings or directed by the Engineer.

END OF SECTION

SECTION 02220

EXCAVATION, BEDDING, BACKFILL, AND FILL

1. GENERAL

1.1 DESCRIPTION

A. Work Included
1. Furnish all labor, materials, equipment, and incidentals required to perform all excavation, bedding, backfill, and fill necessary to complete the work as specified herein and as shown on the Contract Drawings. The work shall include, but not necessarily be limited to excavation for structures, foundations, pipelines, all bedding, backfilling and fill, and related work such as compaction, handling and rehandling of materials. Work shall include hand work as well as power assisted work.

B. Loam may be salvaged by the Contractor for his own convenience for use as specified under this section, Part 3.3, B.

1.2 SUBMITTALS

A. Submit to the Engineer for approval the proposed methods of construction including:
1. Compaction.
2. Backfilling.

B. The Contractor shall remain responsible for the structural adequacy and safety of the methods.

C. Submit three (3) gradation test results for each type of material from each source. These tests shall be at the Contractor's expense.

1.3 SOIL TESTING

A. Previous to the general placement of the fill, and during such placement, the Engineer may select areas within the limits of the fill and test the degree of compaction obtained. The Contractor shall cooperate fully in obtaining the information desired.

B. If test results are unsatisfactory, all costs involved in correcting deficiencies in compacted materials to the satisfaction of the Specifications will be borne by the Contractor.

C. All soils testing shall be at the Contractor's expense.

1.4 QUALITY ASSURANCE

A. Reference Specifications
1. Except as otherwise specified herein, the material and construction shall be in accordance with the "Vermont Agency of Transportation Standard Specifications for Construction," latest edition, including all addenda.

2. The Contractor shall maintain at the job site during the entire period of construction the complete and up-to-date Standard Specifications of the Vermont Agency of Transportation as referenced above.

2. PRODUCTS

2.1 PIPE EMBEDMENT MATERIALS

A. Crushed Stone Bedding, VAOT 704.02B
1. Material shall consist of clean, hard, crushed stone, uniformly graded. Material shall meet the grading requirement of the following table:

Sieve Designation	Percentage of Weight Passing Square Mesh Sieves
1”	100
3/4”	90 - 100
3/8”	20 - 55
No. 4	0 - 10
No. 8	0 - 8

B. Sand Blanket, VAOT 703.03A
1. Material shall be clean, hard, and reasonably free from silt, loam, clay, or organic matter. It shall be obtained from approved sources, be uniformly graded from coarse to fine and shall meet the requirements of the following table:

Sieve Designation	Percentage of Weight Passing Square Mesh Sieves Total Sample
2”	100
1 1/2”	90 - 100
1/2”	70 - 100
No. 4	60 - 100
No. 100	0 - 20
No. 200	0 - 8

2.2 TRENCH FINAL BACKFILL MATERIAL

A. Suitable Material
1. Suitable material/common fill shall be the material excavated during the course of construction or from other sources. Material shall exclude debris, pieces of pavement, frozen material, organic matter, topsoil, all wet or soft muck, peat, clay, ledge excavation, rocks over 12" in largest dimension, rocks over 50 lbs, or any material determined by the Engineer that will not provide sufficient support or maintain the completed construction in a stable condition.

2. On cross-country construction, suitable material shall be as described above except that the Engineer may permit the use of: topsoil, loam, muck, or peat, provided he is satisfied that the completed construction will be stable and allow easy access to the pipe for maintenance.

2.3 STRUCTURES BEDDING MATERIAL

A. Crushed Stone, VAOT 704.02B
1. Material shall consist of clean, hard, crushed stone, uniformly graded. Material shall meet the grading requirement of the following table:

Sieve Designation	Percentage of Weight Passing Square Mesh Sieves
1”	100
3/4”	90 - 100
3/8”	20 - 55
No. 4	0 - 10
No. 8	0 - 5

2.4 STRUCTURES BACKFILL MATERIAL

A. Granular Backfill for Structures, VAOT 704.08A
1. Material shall be obtained from approved sources, consisting of satisfactorily graded, free draining granular material reasonably free from loam, silt, clay, and organic material and shall meet the requirements of the following table:

Sieve Designation	Percentage of Weight Passing Square Mesh Sieves
3”	100
No. 4	45 - 75
No. 100	0 - 12
No. 200	0 - 6

B. Fine Crushed Gravel, VAOT 704.05A
1. Material shall be obtained from approved sources, consisting of satisfactorily graded, free draining granular material reasonably free from loam, silt, clay and organic material and shall meet the requirements of the following table:

Sieve Designation	Percentage of Weight Passing Square Mesh Sieves
2”	100
1 1/2”	90 - 100
No. 4	30 - 60
No. 100	0 - 12
No. 200	0 - 6

2.5 ROADWAY MATERIAL

A. See Section 02510 - Roadways, Walks and Paving.

3. EXECUTION

3.1 EXCAVATION BELOW GRADE

A. Unauthorized Excavations
1. If the bottom of any excavation has been removed below the grade shown by the Contract Drawings or that prescribed by the Engineer, it shall be brought to grade at the Contractor's expense by filling with material approved by the Engineer and well compacted to 95% of the maximum density in 6" layers.

3.2 STRUCTURES EXCAVATION, BACKFILL, AND COMPACTION PROCEDURES

A. Excavations for structures shall be of sufficient width(s) and depth(s) as indicated on Contract Drawings to allow for the proper forming of concrete footings and walls.

B. Side slopes of excavations shall be less than the angle of repose of the material excavated and shall be flat enough to prevent slides or cave-ins. Any excavation required as a result of slides or cave-ins shall be done by the Contractor at his own expense.

C. Final excavation, which is to be done by hand, shall not be done until the ground has been thoroughly dewatered and the Contractor is ready to construct the foundation(s) of the structure(s).

D. When excavation for foundations has reached prescribed depths, the Engineer shall be notified and he will inspect conditions.

E. Compaction
1. Material to be compacted shall not be placed on a frozen surface or one covered by snow or ice, nor shall snow, ice, or frozen earth be incorporated in the compacted fill.
2. Where it is impractical to use large equipment for compaction or when such methods may disturb the surrounding natural subgrade, the fill shall be compacted using hand operated mechanical compactors.
3. If the material is compacted by rolling or by vibration, only equipment allowed by the Engineer shall be used. The material shall be evenly spread in layers. Previously placed or new materials shall be moistened by sprinkling, if required, to ensure proper bond and compaction.
4. No compacting shall be done when the material is too wet to be compacted properly.

F. Backfilling Under/Around Structures
1. The Contractor shall backfill excavations with approved excavated materials unless otherwise shown on the Contract Drawings or specified herein. All materials used for backfilling shall be free of roots, stumps, frost, and stones weighing over 50 lbs.
2. Compaction - Backfilling
   a. No compacting shall be done when the material is too wet. At such times the work shall be suspended until the previously placed and new materials have dried sufficiently to permit proper compaction.
   b. As soon as practicable after the structure has acquired a suitable degree of hardness (if concrete) and other necessary work has been done, backfill and compaction shall continue without delay. Fill shall be carried up evenly to avoid unequal soil pressures.

c. Whatever method of compacting backfill is used, care shall be taken that stones and lumps shall not become nested and that all voids between stones shall be completely filled with fine material.
d. Minimum compaction requirements and the method of compaction shall be such as to secure not less than 95% of the maximum density around structures or not less than 98% of the maximum density under foundations, unless otherwise specified herein or as shown on the Contract Drawings, as determined by the Standard Method Test for the Moisture-Density Relationship of Soils specified in accordance with AASHTO T-99 Method C.

3.3 TRENCH EXCAVATION

A. Materials to be excavated shall be any materials encountered within the limits required to be excavated including earth, boulders, ledge rock, various types of thicknesses of pavement, and other materials whether or not such materials are indicated by the Contract Drawings. The work also includes any excavation, embankment, or backfill required for the construction of dikes or any other works to prevent damage of work by flood flows.

B. Stripping Topsoil (Loam)
1. The Contractor shall strip all topsoil and organic matter from the areas where trenches are to be constructed and elsewhere as required by the Engineer. The Contractor may strip all topsoil from the site of the trench construction for use as a loam elsewhere. The topsoil shall be excavated and placed at locations approved by the Engineer or disposed of outside the limits of construction. All topsoil stripped from the site to be used as loam shall be stored at a location near the site of the work where allowed by the Engineer prior to its final incorporation in the work.

C. The width and depth of all trenches for pipelines shall be as shown on the Contract Drawings. Trenches excavated wider than specified may add to the loading on the pipe and in such cases the Contractor may be required to substitute a higher strength pipe or bedding or both with no additional compensation. No tunneling will be permitted in place of open trench construction unless specifically allowed by the Engineer. Excavations adjacent to existing underground pipelines and other underground structures shall be done by hand to insure against possible damage to such pipelines and structures.
1. Trenches for pipelines, where the pipe is to be laid directly on the trench bottom, shall not be excavated entirely to subgrade by machinery. The last of the material to be excavated shall be removed by hand tools and the resulting trench shall have a shaped bottom so that the pipe will be supported throughout its entire length by firm and undisturbed material.
2. Trenches for all pipelines where bedding material is to be used, may be excavated to the depths required using machinery.

D. The pipe trenches on paved streets shall be constructed to minimum practical widths by using temporary sheeting or other acceptable methods such that a minimum of inconvenience is caused to the public. The Engineer may require that the pavement be cut ahead with pneumatic tools, without extra compensation to the Contractor, where it is necessary to prevent damage to the remaining road surface.

E. In undeveloped areas where there is no danger to adjacent property and subsurface structures and where permitted by the Engineer, trenches may be cut with sloping sides. In such cases, the Contractor shall limit his construction operations within the limits shown on the Contract Drawings unless written permission is obtained from the property owners.

F. On steep slopes and in areas inaccessible by machinery, trench excavation shall be by hand tool as necessary to complete the work as specified and shown on the Contract Drawings.

G. The length of trench to be open shall be kept to a minimum and as allowed by the Engineer. The total running length of all work in each section shall be kept as short as practicable.
   1. Trenches shall be opened at such time and to such extent only as may be permitted by the Engineer. All driveways, crosswalks, sods, shrubs, trees, and any other surface material affected by the work shall be carefully taken up and kept separate from other excavated material. Excavated material, if suitable, shall be used for embankments, backfill, and fill.

H. Surplus excavated materials not used as backfill, fill, or embankment at the site of the work shall be disposed of as allowed by the Engineer. All surplus material shall be removed promptly so as not to be objectionable to abutters or to the general public.

3.4 TRENCH BEDDING

A. As shown on the Contract Drawings and/or as specified elsewhere.

B. As stated in these Specifications, trenches shall be completely dewatered prior to the placing of bedding.

C. Minimum compaction requirements and the method of compaction shall be such as to secure not less than 95% of the maximum density, unless otherwise specified herein or as shown on the Contract Drawings, as determined by the Standard Method Test for the Moisture-Density Relationship of Soils specified in accordance with AASHTO T-99 Method C (Standard Proctor).

3.5 TRENCH BACKFILLING

A. The Contractor shall backfill trenches with approved excavated material in maximum 12" lifts or unless otherwise shown on the Contract Drawings or specified herein. All material used for backfilling shall be free of roots, stumps, frost, and stones weighing over 50 lbs.

B. The backfill material shall be compacted by mechanically operated hand tampers as indicated on the Contract Drawings. The backfill layer 12" above the top of the pipe shall be thoroughly rammed to provide a compacted envelope around the pipe.
   1. If the backfill is compacted by ramming, at least one (1) rammer shall be provided to every three (3) men backfilling.
   2. No mechanical tampers shall be used directly over pipe to insure pipe is not damaged.

C. Where a moveable trench shield is used the Contractor shall provide adequate temporary sheeting and shoring to protect the workmen carrying out the tamping operation.

D. Under no circumstances will material be dropped directly on the pipe from the top of the trench.

E. The remaining portion of the trench shall be backfilled and shall be compacted by puddling, thoroughly ramming, or otherwise in an equally effective manner.

F. Where trenches cross or are adjacent to subsurface installations, compaction shall be such as to secure not less than 95% of the maximum density as determined by the AASHTO T-99 Method C to prevent damage due to settlement of the backfill.

G. Backfilling trenches in an unpaved road shall be so compacted to secure not less than 95% of the maximum density.

H. Minimum compaction requirements and the method of compaction shall be such as to secure not less than 95% of the maximum density, unless otherwise specified herein or as shown on the Contract Drawings, as determined by the Standard Method Test for the Moisture-Density Relationship of Soils specified in accordance with AASHTO T-99 Method C (Standard Proctor).

I. Backfilling trenches 12" and above the crown of the pipe by mechanical equipment may be permitted if the materials are suitable and adequate compaction is achieved to satisfy the Engineer. Special precautions shall be taken against undue damage to existing surface materials by mechanical equipment. Unnecessary damage to such surface materials shall be repaired at the Contractor's expense.

J. Special backfilling procedures in areas of hand-dug trenches will be as allowed by the Engineer.

3.6 MISCELLANEOUS EARTH EXCAVATIONS AND EXTRA EARTH EXCAVATION

A. Wherever required, the Contractor shall do earth excavation and backfilling in addition to excavation and backfilling needed to construct the work required by the Contract Documents. Miscellaneous earth excavation and backfilling may be required for test pits or for other unforeseen purposes. It may be necessary to do some of the work by hand.

B. Extra earth excavation which is not indicated by the existing ground surface as shown by the Contract Drawings, may be ordered by the Engineer.

C. Suitable excavated material shall be used for fill embankments or backfill on the different parts of the work as required.

END OF SECTION

SECTION 02227

WASTE MATERIAL DISPOSAL

1. GENERAL

1.1 DESCRIPTION

A. Work Included
1. Furnish all labor, materials, equipment, and incidentals required for the disposal of waste materials as specified herein and as shown on the Contract Drawings. Waste materials shall include stumps, debris, unsuitable and extra or surplus materials.

1.2 PROTECTION

A. During the hauling and final disposal of waste materials all Local, State and Federal regulations shall be adhered to by the Contractor.

1.3 PAYMENT

A. Unsuitable materials removal including all labor, tools, equipment and for all work and expense incidental thereto, is included in the lump sum and/or unit prices in the Schedule of Prices in the Bid and will not be paid for under a separate item. It shall include the stockpiling unsuitable material, hauling and placing on side slopes of embankments or at other locations.

2. PRODUCTS

2.1 None used.

3. EXECUTION

3.1 PREPARATION

A. Waste material shall only be disposed at legally designated landfills and other disposal sites. Upon Owner's request, Contractor shall present written evidence that all waste material disposal has been performed in accordance with all Local, State and Federal regulations.

B. If any materials are hazardous or toxic as determined by the State, the Contractor must obtain State approval of a disposal site prior to disposing of any such waste materials.

3.2 DISPOSAL OF WASTE MATERIALS

A. Surplus fill shall be disposed of by the Contractor off the site as approved by the Engineer.

B. The excavated or otherwise obtained unsuitable materials shall be stockpiled for use as topsoil on side slopes to flatten side slopes, hauled and placed as topsoil at other locations if the Contractor so desires, or disposed of outside the construction area.
   1. The stockpiled materials shall be neatly piled so as to inconvenience as little as possible the public and adjoining property owners until properly disposed.
   2. Waste materials are to be removed from the construction site in a timely fashion.

3.3 CLEANUP

A. All storage and disposal sites shall be maintained to prevent injury to persons or property.

B. Upon completion of the use of a disposal site, it shall be left in a neat and orderly condition. All conditions of its final configuration must have been met including final covering and grading.

C. The Contractor and the Engineer shall inspect each completed disposal site for its acceptability.

END OF SECTION

SECTION 02510

ROADWAYS, WALKS AND PAVING

1. GENERAL

1.1 DESCRIPTION

A. Work Included
1. Furnish all labor, materials, equipment, and incidentals required to install the roadways, parking areas, sidewalks, and paving as specified herein and/or as shown on the Contract Drawings. Work also includes repavement of surfaces disturbed during construction and all incidentals associated therewith.

1.2 JOB CONDITIONS

A. Traffic shall be maintained past all roadway excavation sites.

1.3 QUALITY ASSURANCE

A. Reference Specifications
1. Except as otherwise specified herein, the material and construction shall be in accordance with the "Vermont Agency of Transportation (VAOT) Standard Specifications for Construction," latest edition, including all addenda.
2. The Contractor shall maintain at the job site during the entire period of construction the complete and up-to-date standard Specifications of the Vermont Agency of Transportation as referenced above.

1.4 SUBMITTALS

A. The Contractor shall submit the required copies of all sieve analysis, certifications, mix designs and other tests required to show compliance with the materials specifications in this section for shop drawing review prior to incorporating any of said materials into this project.

2. PRODUCTS

2.1 MATERIALS

A. Paved Roadways and Parking Areas
1. Bituminous Pavement
a. Top course shall be as required by the Contract Drawings and as specified by VAOT Specification Section 406.03.
b. Base course shall be Type II as specified by VAOT Specification Section 406.03.
2. Tack coat shall be homogeneous emulsified asphalt as specified by VAOT Specification Section 702.14.

3. Dense Graded Gravel Subbase, VAOT 704.06A
   a. Dense graded crushed stone for subbase shall consist of clean, hard, uniformly graded, crushed stone. It shall be sufficiently free from dirt, deleterious material, and pieces that are structurally weak and shall meet the following requirements:
      1) Grading
         a) Dense graded crushed stone shall be uniformly graded from coarse to fine and shall meet the gradation requirements of the following table:

Sieve Grading Designation	**Percentage by Weight Passing Square Mesh Sieves Total Sample**
3 1/2"	100
3”	90 - 100
2”	75 - 100
1”	50 - 80
1/2"	30 - 60
No. 4	15 - 40
No. 200	0 - 20

      2) Percent of Wear
         a) The percent of wear of the crushed gravel shall be not more than 40 when tested in accordance with AASHTO T 96.
      3) Fractured Faces
         a) At least 30% by weight of the material coarser than No. 4 sieve shall have at least one (1) fractured face.

4. Fine Graded Crushed Gravel, VAOT 704.05B
   a. Gravel for surface course shall consist of clean, hard, screened gravel or crushed gravel. It shall be reasonably free from silt, loam, clay, or organic matter. It shall be obtained from approved sources, be uniformly graded from coarse to fine, and shall meet the requirements of the following table:

Sieve Grading Designation	**Percentage by Weight Passing Square Mesh Sieves Total Sample**
2”	100
1 1/2”	90 - 100
No. 4	30 - 60
No. 100	0 - 12
No. 200	0 - 6

B. Sidewalks
   1. Bituminous Sidewalks
      a. Sidewalks shall be constructed of bituminous pavement.
   2. Sidewalk Bedding
      a. Sidewalk bedding shall consist of material reasonably free from silt, loam, clay, or organic matter. It shall be obtained from approved sources and shall meet the following requirements:

Fine Crushed Gravel, VAOT 704.05B

Grading Sieve Designation	Percentage by Weight Passing Square Mesh Sieves Total Sample
2”	100
1 1/2”	90 - 100
No. 4	30 - 60
No. 100	0 - 12
No. 200	0 - 6

C. Granite Curbs
1. Granite: The granite shall be free from seams which impair its structural integrity and of a smooth splitting and machining character. Natural color variations that are characteristic of the deposit will be permitted.
2. Width - 4”
3. Depth - 18”
4. Length - Minimum 3’
Maximum 10’
5. Finishes - Top- Sawn
Face- Split
Back- Clean with no protrusions greater than 1/4"
Ends- Sawn or hand trimmed
6. Edge- Straightedge
7. Joints- Full
8. Utilize 90° driveway corners at driveways and intersections
9. Utilize transitions at handicap ramps
10. Curb Bedding
a. Curb Bedding shall consist of material reasonably free from silt, loam, clay, or organic matter. It shall be obtained from approved sources and shall meet the same requirements as those for concrete sidewalks

D. Calcium Chloride
1. Calcium chloride used for dust control shall be as referenced in “Vermont Agency of Transportation Standard Specifications for Construction", entitled "Calcium Chloride" Section 746.

3. EXECUTION

3.1 BITUMINOUS PAVEMENT

A. Subgrade Preparation
1. Refer to Specification Section 02220.

B. Subbase Course
1. In all areas to be paved, gravel subbase course material shall be placed on compacted backfill to the depth shown on Contract Drawings or specified herein and

compacted to a minimum 95% density, per AASHTO T99, Method C, to match existing surrounding grades.

2. Unless temporary paving is to be placed immediately, trenches shall be maintained to original surface by filling with crushed gravel, watering and grading, all as required, until such time as pavement is placed. The Contractor shall control dust in unpaved areas with the use of calcium chloride as required.

C. Surface Preparation
   1. Remove all loose material from the compacted gravel subbase surface immediately before paving. Use power brooms or blowers supplemented by hand brooms or other acceptable means.
   2. Proof roll prepared gravel subbase surface using heavy, rubber-tired rollers to check for unstable areas and areas requiring additional compaction.

D. Settlement
   1. In areas where trenching has been conducted, the Contractor shall allow a settling period to transpire before placing permanent pavement.
   2. The settlement period shall generally be a minimum of 60 days; however, longer periods may be requested by the Engineer.

E. Paving
   1. Preparation of Bituminous Material
      a. The bituminous material shall be heated to the specified temperature in a manner that will avoid local overheating and provide a continuous supply of the bituminous material to the mixer at a uniform temperature at all times.
   2. Preparation of Aggregates
      a. 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 soot or unburned fuel on the aggregate.
      b. The aggregates, immediately after heating, shall be screened and conveyed into separate bins ready for batching and mixing with bituminous material.
   3. Hauling Equipment
      a. Trucks used for hauling bituminous mixture shall have tight, clean, smooth metal beds which have been thinly coated with a non-petroleum based or soap solution to prevent the mixture from adhering to the beds.
   4. Placing Equipment
      a. 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. The finished surface shall be of uniform texture and evenness and shall not show tearing, shoving, or pulling of the mixture. The machine shall at all times be in good mechanical condition and shall be operated by competent personnel.
   5. Conditioning of Existing Surface
      a. The existing surface shall be cleaned and sprayed with emulsified asphalt, RS-1, before placing of the bituminous mixture except that when the surface to be paved is placed in the same construction season, the asphalt treatment will not be required unless ordered by the Engineer. The emulsion shall be applied under

pressure at the rate of 0.05 to 0.14 L/m^2. 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.” Equipment used to apply the emulsion shall meet the requirements for distributors under VAOT Subsection 404.04, Equipment.

b. When the bottom course of bituminous concrete pavement is left over the winter or paving is to be made over an existing cement concrete pavement or bituminous concrete pavement, the existing surface shall be cleaned and emulsified asphalt applied as described above before the next course is applied. 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.
c. All longitudinal and transverse joints and all cracks shall be sealed by the application of an approved joint sealing compound before spreading the mixture upon a Portland cement concrete surface. All excess bituminous material shall be removed from joints and cracks prior to placing the bituminous concrete mixture. Any large cracks in a bituminous surface shall be thoroughly cleaned and filled with a bituminous material or mixture approved by the Engineer.
d. 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 Engineer, they shall be cut back to a clean vertical edge prior to painting with the emulsion. Unless otherwise directed by the Engineer, longitudinal joints shall be offset at least 6" from any joint in the lower courses of pavement. Transverse joints shall not be constructed nearer than 12" from the transverse joints constructed in lower courses.
e. If there are deficiencies that require corrective action in the base course constructed as part of the Contract, a bituminous concrete mix which meets the approval of the Engineer shall be used to bring the base course to the designed grade and contour.
f. Where bituminous concrete pavement is used to resurface existing pavements and the existing pavement contain 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.

6. Placing and Finishing
   a. The temperature of the bituminous mixture, at the time of discharge from the haul vehicle, shall be within the range indicated in VAOT Table 702.06A.
   b. 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 specified. Bituminous pavers shall be used to distribute the mixture over the entire width or over such partial width as may be practical. When operating in tandem on multi-lane paving, the pavers shall be of the same type and characteristics. Material for leveling may be spread by the use of a grader, if approved by the Engineer. 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. The Contractor shall protect all exposed surfaces, which are not to be treated, from damage during all phases of the paving operation.
   c. 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, unless night paving has been approved for the project. No traffic will be permitted on material placed until the material has been thoroughly compacted and has been permitted to cool to 60°C. The use of water to cool the pavement will not be permitted.

d. Suitable aprons to transition approaches where required shall be placed at side road intersections and driveways as directed by the Engineer.

7. Compaction
   a. 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 or shoving.
   b. The number, mass and type or 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.
   c. Leveling courses shall be compacted using a self-propelled pneumatic-tired roller unless otherwise directed in writing by the Engineer. On base, binder, or wearing course, the initial or breakdown rolling shall be done by using a two-axle tandem roller; intermediate rolling by using a two-axle tandem roller or self-propelled pneumatic-tired roller; and final rolling by using an additional two- or three-axle tandem roller. An intermediate roller will not be required for shoulder constructed with one course of bituminous concrete, but the equipment shall be sufficient to obtain the required compaction while the mixture is in a workable condition. 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 will not be permitted.
   d. 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 with 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 Engineer, providing the compaction requirements are met.
   e. 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 rollings parallel to the centerline. The speed of the roller should be kept in continuous operation to the extent practicable. Rolling shall continue until all roller marks and ridges have been eliminated. Rollers will not be stopped or parked on the new, freshly placed mat.
   f. The density of the compacted pavement shall be at least 92%, but not more than 96% of the corresponding daily average maximum specific gravity. Values which fall outside of this range will require the Contractor to take immediate corrective action.
   g. It is the responsibility of the Contractor to conduct whatever process control the Engineer deems necessary. Acceptance testing will be conducted by the Engineer.
   h. 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. This replacement shall be at the Contractor's expense. The Contractor shall replace the pavement with material where cores are removed during hot mix operations. These replacements shall be at the Contractor's expense.

i. Should the Contractor choose to use vibratory rollers, the following additional criteria shall govern their operation. Vibratory rollers may be used when operated at an amplitude, frequency and speed that produces a mat conforming to Specifications and which prevent the creation of transverse ridges in the mat. Vibratory rollers may be used as a breakdown roller, an intermediate roller, or a finish roller. They shall not be used as a substitute for a pneumatic-tired roller on leveling courses, nor shall they be used for compacting lifts of pavement under 25 mm in depth. One single vibratory roller shall not be used alone as the breakdown, intermediate and finish roller, but may be used as any one of the rollers in the roller train.

j. If the Engineer determines that unsatisfactory compaction or surface distortion is being obtained or damage to highway components and/or adjacent property is occurring using vibratory compaction equipment, the Contractor shall immediately cease using vibratory compaction equipment and proceed with the Work in accordance with the acceptable method specified in this Section.

3.2 SIDEWALKS

A. Concrete Sidewalks
   1. Sidewalks shall be 5" thick except at drives where it shall be 8" thick. Width shall be the same as existing sidewalk being rebuilt or as shown on the Contract Drawings.
   2. Excavation
      a. Excavation and bedding shall conform to the requirements of 02220. Bedding shall be 6" deep compacted in place to 95% standard optimum density, per ASTM D-698, approved bedding material, as specified herein.
   3. Forms
      a. Forms shall be of wood or metal, straight or curved as required, free from warp. Form construction shall be such that there will be no interference to the inspection of grade or alignment. All forms shall extend for the entire depth of the sidewalk and shall be braced and secured sufficiently so that no deflection from alignment or grade will occur during the placing of the concrete.
   4. Mixing and Placing
      a. Compaction of concrete placed in the forms shall be by spading or other approved methods. Forms shall be left in place for 24 hours or until the concrete has set sufficiently so that they can be removed without injury to the sidewalk.
   5. Sections
      a. Sidewalk shall be constructed in sections having a uniform length of 5' or sidewalk width, whichever is less, unless otherwise ordered. Sections shall be separated by hand tooled joints 3 mm wide except at expansion joints.
   6. Expansion Joints
      a. Expansion joints shall be formed at the intervals shown on the Contract Drawings using a preformed expansion joint filler having a thickness of 5 mm. They shall be constructed at 20 feet intervals or as directed by the Engineer.
   7. Sidewalk Finish
      a. The perimeter of each sidewalk section shall receive a smooth tooled finish using a sidewalk edging trowel. The field of the sidewalk section shall receive a light

broom finish with the direction of the broom pattern perpendicular to the flow of traffic.

8. Curing
   a. Sidewalks shall be cured in accordance with VAOT Standard Specifications Subsection 501.17.
9. Backfilling
   a. After the concrete has set sufficiently, the spaces in front and back of the walkway shall be filled to the required elevation with layers of not more than 6" of the same material as the bedding and thoroughly tamped.

3.3 GRANITE CURBS

A. Granite Curb
   1. Excavation
      a. Excavation and bedding shall conform to the requirements of 02220. Bedding shall be 6" deep compacted in place to 95% standard optimum density, per ASTM D-698, approved bedding material, as specified herein.
   2. Sections
      a. Curbing shall be constructed in sections having a uniform length of 3’ to 10’ unless otherwise ordered.
   3. Backfilling
      a. The spacers in front and back of the curb shall be filled to the required elevation with layers of not more than 6” of the same material as the bedding and thoroughly tamped.

3.4 CALCIUM CHLORIDE

A. In order to control dust nuisance caused by unpaved trenches in roadways and other areas, the Contractor shall furnish and spread calcium chloride where and when required by the Engineer.

3.5 PAVEMENT PAINTING

A. Painting shall be done in a workmanlike manner and in accordance acceptable methods approved by the Engineer and per VAOT Standard Specifications.

END OF SECTION

SECTION 02605

STORM DRAIN MANHOLES

1. GENERAL

1.1 DESCRIPTION

A. Work Included
1. Furnish all labor, materials, equipment, and incidentals required for the construction of manholes as specified herein and as shown on the Contract Drawings.

1.2 QUALITY ASSURANCE

A. Acceptable Manufacturers
1. Precast reinforced concrete manhole: S.D. Ireland, Camp Precast, Inc., or equal.
2. Plastic manhole steps: M.A. Industries, Inc., or equal.
3. Frames and covers: East Jordan Iron Works, or equal.

1.3 SUBMITTALS

A. Shop Drawings
1. Submit manufacturer's literature and illustrations.

1.4 PRODUCT DELIVERY, STORAGE, AND HANDLING

A. Manholes
1. Manholes to be delivered to job in an acceptable condition. Manholes shall be inspected for acceptability prior to off-loading from the delivery vehicle. Unacceptable manholes are to be removed from project site.
2. Manholes are to be stored in locations acceptable to the Owner. They shall not be stored in areas that can cause damage to life or property and shall be stored out of traveled ways.
3. Manholes shall be handled at all times to prevent damage, chipping, breakage, etc.
4. Manholes shall be stored in areas to provide protection from damage.

B. Frames and Covers
1. Deliver to job site protected from damage.
2. Store at job site protected from damage.
3. Handle at job site to prevent damage.

2. PRODUCTS

2.1 PRECAST REINFORCED CONCRETE MANHOLES

A. Concrete
1. Class AA 4000 psi.

B. Precast Sections
   1. Built to ASTM Specification C478 (latest edition).

C. Steel
   1. Reinforced to ASTM Specs. 0.12 sq.in. per linear foot, #4 reinforcing bars.

D. Base
   1. Monolithic.

E. Joint Sealant
   1. Bitumastic double seal.

F. All precast sections and bases shall have the date of manufacture and the name or trademark of the manufacturer impressed or indelibly marked on the inside wall.

G. Manholes shall be capable of handling an 8 ton (H-20 loading) without failing Specification.

H. Provide cutouts for pipe entries with flexible manhole sleeves as required by the Contract Drawings.

I. Pipe through manhole sleeve as required by the Contract Drawings.
   1. Lock-joint flexible manhole sleeve, Kor-N-Seal joint sleeve, or equal.

2.2 MANHOLE STEPS

A. Materials
   1. Copolymer polypropylene plastic manhole steps; PS2-PF-SL by M.A. Industries, Inc., Peachtree City, GA 30209, or equal.

B. Placement of Steps (ASTM 478)
   1. Vertical: 12" from center to center.
   2. Width: 10" minimum, plus foot stop.
   3. Projection: 4" minimum.

C. Embedding
   1. Plastic manhole steps (plant installed, friction fit)
      a. 3 1/4" penetration
      b. 1 13/32" taper to 1 5/32" diameter
      c. Use set pin during curing to assure hole is not deformed
      d. Fully seat with sledge hammer
      e. Grout shall not be used around manhole steps at all. Manholes shipped to job site will be rejected if grout has been used around steps.

D. Load requirements (plastic manhole steps)
   1. Live load: 300 lb., applied point loading at maximum stress.
   2. Pull out: 2,500 lbs., applied center of rung.

2.3 MANHOLE FRAMES AND COVERS

A. General
   1. Ferrous castings shall be as manufactured by East Jordan Iron Works, or approved equal. They shall be of uniform quality, free from blowholes, porosity, hard spots, shrinkage distortion, or other defects. They shall be smooth and well cleaned by shot-blasting.

B. Quality
   1. Materials used in the manufacture of castings shall conform to ASTM A48, Class 30 or better for gray iron, or ASTMA 536 for ductile iron.

C. Finish
   1. All castings shall be manufactured true to pattern, component parts shall fit together in a satisfactory manner. Round frames and covers shall have machined bearing surfaces to prevent rocking and rattling.

D. Tolerances
   1. Cast dimensions may vary one-half the maximum shrinkage possessed by the metal of 1/16"± per foot.

E. Castings shall be able to withstand an H-20 loading.

F. Covers
   1. Covers shall have a suitable, easily accessible, and usable lifting hole.
   2. Stormwater manholes shall be stamped “STORM”.
   3. Covers shall have concealed pick holes. Open pick holes are not acceptable.

2.4 MASONRY

A. Each precast riser or brick shall be wetted and completely bedded in mortar at its bottom, sides and ends in one operation with care being taken to fill every joint. Work shall be well bonded, and joints shall be as close as practicable. No masonry shall be laid in water nor shall any water be allowed to rise on or around any masonry until it has set at least 24 hours. No masonry shall be laid in freezing weather.

B. The brick for ordinary brickwork shall be common hard-burned clay brick. All brick shall be regular and uniform in shape and size with plane, parallel beds, and faces. Ordinary brick shall conform to ASTM Specification C-32, latest version, and shall be Grade MS.

C. Masonry shall be laid in Portland cement mortar composed of one (1) part Portland cement and two (2) parts of sand, measured by volume, to which not more than 10 lbs. of lime shall be added for each bag of cement. Water for mortar shall be clean and only an amount sufficient to produce a workable mortar shall be used. Mortar shall be used within one hour from the time the cement was added to mix.

D. The sand for mortar for masonry shall be uniformly graded, clean, sharp, and contain no grades larger than will pass a 1/8" mesh screen.

3. EXECUTION

3.1 INSPECTION

A. Manholes
1. Examine precast manholes prior to installation for chipping, breakage, cracks and loose manhole rungs.
   a. Defective manholes shall not be installed and shall be removed from project site.

B. Frames and Covers
1. All castings shall be thoroughly cleaned and subject to a careful hammer inspection. Defective castings shall not be installed and shall be removed from project site.

3.2 INSTALLATION

A. Manholes
1. Install manhole on a firm bed for its entire areas as shown on the Contract Drawings.
2. Manhole joints shall be made in accordance with the manufacturer's instructions using bitumastic sealant.
3. Support blocks shall be shimmed as necessary to provide a true installation.

B. Frames and Covers
1. Provide a continuous unit with the precast concrete manhole. The brick risers and mortar shall be installed as shown on the Contract Drawings.
2. Frames shall be set with the tops conforming accurately to the grade of the final pavement or final gravel surface or as indicated on the Contract Drawings. Frames shall be set concentric with the top of the masonry and in full bed of mortar so that the space between the top of the manhole masonry and the bottom flange of the frame shall be completely filled and made watertight. A thick ring of mortar extending to the outer edge of the masonry shall be placed all around the bottom of flange and shall be smoothly finished having a slight slope to shed water away from the frame. Manhole covers shall be left in place in the frames on completion of other work at the manholes.

3.3 MANHOLE LEAKAGE TESTS

A. Vacuum Tests
1. After each structure has been set in place (but before backfilling), all inlet and outlet pipes connected, joints and openings sealed and otherwise ready to be backfilled, the Contractor shall perform a vacuum test of each structure in the presence of the Engineer.
   a. Connect the vacuum pump to the outlet port, open the valve, and draw a vacuum as follows: Manholes: 10”Hg (mercury)
   b. Close the valve and monitor the vacuum gage
   c. The manhole shall pass this test if the vacuum holds at the test Hg or drops by no lower than 1” Hg below the test vacuum within the following times:

Depth of Structure 4' - Diameter Concrete Structures	Time	
	Min.	Sec.
0' - 10'	2	0
10' - 15'	2	30
15' - 20'	3	0
20' - 25'	3	30

2. If the vacuum drop exceeds 1" Hg during the specified time periods, the structure shall be resealed on the exterior and steps (a) through (c) above repeated until the vacuum holds for the specified time.
3. After the structure passes the vacuum test, it shall be backfilled carefully so that no leaks are created. If the structure is disturbed in any way during backfill, it shall again be vacuum tested according to steps (a) through (c) above.
4. The Contractor shall provide the Engineer with a written log of each structure leakage test result.

3.4 ADJUSTMENTS

A. Check complete manhole and accessories for a completed and true installation. Adjustments shall be made as necessary to ensure a complete and satisfactory unit.

END OF SECTION

SECTION 02710

UNDERDRAINS

1. GENERAL

1.1 DESCRIPTION

A. Work Included
1. Furnish all labor, materials, equipment and incidentals required and install same as necessary to complete underdrains as appropriate and as specified herein and as shown on the Contract Drawings.

1.2 QUALITY ASSURANCE

A. Reject materials not conforming to all the requirements of this section.

B. Reject materials contaminated with gasoline, lubricating oil, liquid or gaseous fuel, aromatic compounds, paint solvent, paint thinner and acid solder.

1.3 SUBMITTALS

A. Shop Drawings
1. Submit manufacturer's literature and illustrations.

1.4 PRODUCT DELIVERY, STORAGE, AND HANDLING

A. Exercise care in accordance with manufacturer's recommendations in transporting, storing and handling to avoid damage to pipe and fittings.

B. Keep inside of pipes and fittings free of dirt and debris.

C. Reject pipes and fittings that have been cracked, broken, chipped, etc.

1.5 JOB CONDITIONS

A. The underdrain and associated granular backfill shall be installed as specified herein and as shown on the Contract Drawings.

2. PRODUCTS

2.1 UNDERDRAINS

A. Underdrain pipe shall be perforated or solid, as shown on Contract Drawings, and shall include all fittings as necessary to provide a complete installation as specified herein and shown on the Contract Drawings.
1. ASTM D3034 Standard Specification for P.V.C. Underdrain Pipe and Fittings (SDR 35 only).

a. Pipe must meet all standards of ASTM D3034, latest edition.

3. EXECUTION

3.1 INSPECTION

A. All pipe and fittings shall be inspected by the Contractor for any defects prior to installation. Any defective, damaged or unsound material shall be rejected.

B. Pipe to be Kept Clean
All foreign matter or dirt shall be removed from the inside of the pipe and fittings before they are lowered into position and then shall be kept clean by approved means during and after laying.

3.2 CUTTING PIPE

A. Cutting of pipe for any reason shall be done in a neat workmanlike manner without damage to the pipe and so as to leave a smooth end at right angles to the axis of the pipe.

3.3 INSTALLATION

A. Each pipe shall be laid true to line and grade and so laid as to form a tight joint with the next adjoining pipe and to bring the inverts continuous.

B. No walking on or working over the pipes will be permitted after they are once laid to grade, except as may be required in adjusting joints, in placing cradles, and in tamping the backfill material.

C. During construction, all openings to the pipelines shall be protected from the entrance of earth or other material. Open ends of branches and pipes, when completed, shall be sealed with stoppers or by equally effective methods. Where new pipes are to join existing ones, the Contractor shall do whatever work is necessary to make the connections.

3.4 CLEANING

A. Prior to the acceptance of the project, each underdrain system shall be thoroughly flushed with water to remove any accumulation of silt, sand or other debris.

END OF SECTION

SECTION 02720

DRAINAGE PIPE

1. GENERAL

1.1 DESCRIPTION

A. Work Included
1. Furnish all labor, materials, equipment and incidentals required and install as necessary to provide the drainage piping as specified herein and as shown on the Contract Drawings. Drainage piping includes, but is not limited to, all culverts, fittings, and accessories.

1.2 QUALITY ASSURANCE

A. Reject materials not conforming to all the requirements of this section.

B. Reference Specifications
1. Except as otherwise specified herein, the material and construction shall be in accordance with the Standard Specifications for Construction, Vermont Agency of Transportation, latest edition, including all addenda.

1.3 SUBMITTALS

A. Shop Drawings
1. Submit manufacturer's literature and illustrations.

1.4 PRODUCT DELIVERY, STORAGE, AND HANDLING

A. Exercise care in accordance with manufacturer's recommendations in transporting, storing and handling to avoid damage to pipe and accessories.

B. Reject pipes and accessories that are cracked, bent, or otherwise unacceptable.

1.5 JOB CONDITIONS

A. All culvert locations, sizes, etc., are shown on the Contract Drawings.

2. PRODUCTS

2.1 CORRUGATED HIGH DENSITY POLYETHYLENE (HDPE) PIPE

A. Corrugated polyethylene drain pipe, 4” through 60” diameter, shall conform to the requirements of ASTM F2648 for use in gravity-flow land drainage applications. Pipe shall have a smooth interior and annular exterior corrugations.

B. Pipe shall be joined with the bell-and-spigot joint meeting ASTM D3212. The joint shall be silt tight and nonrated watertight. Gaskets shall be made of polyisoprene meeting the requirements of ASTM F477 with the addition that the gaskets shall not have any visible cracking when tested according to ASTM D1149 after 72 hour exposure in 50 PPHM ozone at 104° Fahrenheit. Gaskets shall be installed by the pipe manufacturer and covered with a removable wrap to ensure the gasket is free from debris. A joint lubricant supplied by the manufacturer shall be used on the gasket and bell during assembly.

3. EXECUTION

3.1 INSPECTION

A. All pipe and fittings shall be inspected by the Contractor for any defects prior to installation. Any defective, damaged or unsound material shall be rejected.

B. Pipe to be kept clean from all foreign matter and shall be cleaned prior to installation.

3.2 CUTTING PIPE

A. Cutting of pipe for any reason shall be done in a neat workmanlike manner without damage to the pipe and so as to leave a smooth end at right angles to the axis of pipe.

3.3 INSTALLATION

A. General
   1. Except as specified herein and as shown on the Contract Drawings, all drainage piping shall be installed in accordance with the referenced Vermont Agency of Transportation, Standard Specifications for Construction entitled "Culverts and Storm Drains," Section 601.
      a. No pipe shall be placed until the trench and the prepared foundation have been approved by the Engineer.
   2. All pipes shall be laid true to line and grade and so laid and jointed so as to form a tight joint with the next adjoining pipe and to bring the inverts continuous.
   3. Backfilling shall be accomplished in accordance with the referenced Vermont Agency of Transportation, Standard Specifications for Construction.
      The Contractor is to provide temporary additional support as necessary to protect drainage culverts from damage from heavy equipment during the construction period.
   4. Riprap or stone fill, as shown on the Contract Drawings, shall be placed around the inlets and outlets of drainage piping so as to meet the approval of the Engineer and to provide proper protection from erosion.

3.4 CLEANING

A. Prior to the acceptance of the project, each drainage piping system shall be cleaned as necessary to remove any accumulations of silt, wood, stones, or other debris.

END OF SECTION

SECTION 02721

CATCH BASINS

1. GENERAL

1.1 DESCRIPTION

A. Work Included
1. Furnish all labor, materials, equipment, and incidentals required for the construction of catch basins as specified herein and as shown on the Contract Drawings.

1.2 QUALITY ASSURANCE

A. Acceptable Manufacturers
1. Precast reinforced concrete catch basins: Camp Precast, S.D. Ireland, Fort Miller Co., Inc., or equal.
2. Frames and grates: East Jordan Iron Works, Neenah Foundry, or equal.

1.3 SUBMITTALS

A. Shop Drawings
1. Submit manufacturer's literature and illustrations.

1.4 PRODUCT DELIVERY, STORAGE, AND HANDLING

A. Catch Basins
1. Catch basins to be delivered to job in an acceptable condition. Catch basins shall be inspected for acceptability prior to off-loading from the delivery vehicle. Unacceptable catch basins are to be removed from project site.
2. Catch basins are to be stored in locations acceptable to the Owner. They shall not be stored in areas that can cause damage to life or property and shall be stored out of traveled ways.
3. Catch basins shall be handled at all times to prevent damage, chipping, breakage, etc.
4. Catch basins shall be stored in areas to provide protection from damage.

B. Frames and Grates
1. Deliver to job site protected from damage
2. Store at job site protected from damage
3. Handle at job site to prevent damage

2. PRODUCTS

2.1 PRECAST REINFORCED CONCRETE CATCH BASINS

A. Concrete
   1. Class AA 4000 psi

B. Precast Sections
   1. Built to ASTM Specification C478 (latest edition)

C. Steel
   1. Reinforced to ASTM Specification 0.12 sq.in. per linear foot. #4 reinforcing bars.

D. Base
   1. Monolithic

E. Joint Sealant
   1. Bitumastic double seal

F. All precast sections and bases shall have the date of manufacture and the name or trademark of the manufacturer impressed or indelibly marked on the inside wall.

G. Catch basins shall be capable of handling an 8 ton (H-20 loading) without failing specification.

H. Provide cutouts for pipe entries with flexible manhole sleeves as required by the Contract Drawings.

I. Pipe through manhole sleeve as required by the Contract Drawings.
   1. Lock-Joint Flexible Manhole Sleeve, Kor-N-Seal Joint Sleeve, or equal.

2.2 CATCH BASIN FRAMES AND GRATES

A. General
   1. Ferrous castings shall be as manufactured by East Jordan Iron Works, Model No. 5520MB and 5524Z, or equal. They shall be of uniform quality, free from blowholes, porosity, hard spots, shrinkage distortion, or other defects. They shall be smooth and well cleaned by shot-blasting.

B. Quality
   1. Materials used in the manufacture of castings shall conform to ASTM A48, Class 30 or better, for gray iron, or ASTM A536, for ductile iron.

C. Finish
   1. All castings shall be manufactured true to pattern, component parts shall fit together in a satisfactory manner. Round frames and covers shall have machined bearing surfaces to prevent rocking and rattling.

D. Tolerances
   1. Cast dimensions may vary one-half the maximum shrinkage possessed by the metal of ±1/16” per foot.

E. Castings shall withstand an H-20 loading.

3. EXECUTION

3.1 INSPECTION

A. Catch Basins
   1. Examine precast catch basins prior to installation for chipping, breakage, and cracks.
      a. Defective catch basins shall not be installed.

B. Frames and Grates
   1. All castings shall be thoroughly cleaned and subject to a careful hammer inspection. Defective castings shall not be installed.

3.2 INSTALLATION

A. Catch Basins
   1. Install catch basins on a firm bed for its entire area as shown on the Contract Drawings.
   2. Catch basin joints shall be made in accordance with the manufacturer's instructions using bitumastic sealant.
   3. Support blocks may be used and shimmed as necessary to provide a true installation.

B. Frames and Grates
   1. Provide a continuous unit with the precast concrete catch basin. The precast concrete risers and non-shrink grout shall be installed as shown on the Contract Drawings.
   2. Frames shall be set with the tops conforming accurately to the grade of the final pavement or final surface or as indicated on the Contract Drawings. Frames shall be set concentric with the top of the concrete risers and in full bed of non-shrink grout so that the space between the top of the catch basin risers and the bottom flange of the frame shall be completely filled and made watertight. A thick ring of non-shrink grout extending to the outer edge of the concrete riser shall be placed all around the bottom of flange and shall be smoothly finished having a slight slope to shed water away from the frame. Grates shall be left in place in the frames on completion of other work at the catch basins.

3.3 ADJUSTMENTS

A. Check complete catch basin and accessories for a completed and true installation. Adjustments shall be made as necessary to ensure a complete and satisfactory unit. Test to be conducted in accordance with Section 01401.

END OF SECTION

SECTION 02722

STORMWATER CHAMBER SYSTEM

1. GENERAL

1.1 DESCRIPTION

A. Work Included
1. Furnish all labor, materials, equipment, and incidentals required for the construction and complete operation of the Stormwater Chamber System (SWCS).

1.2 QUALITY ASSURANCE

A. Acceptable Manufacturers
1. DC-780 SWCS: Advanced Drainage Systems, Contech Engineers Solutions, or equal.

B. The manufacturer of the SWTD shall be one that is regularly engaged in the engineering design and production of systems deployed for the treatment and management of storm water runoff for at least five (5) years and which have a history of successful production, acceptable to the Engineer.

C. All components shall be subject to inspection by the Engineer. All components are subject to being rejected or identified for repair if the quality of materials and manufacturing do not comply with the requirements of this specification. Components which have been identified as defective may be subject for repair where final acceptance of the component is contingent on the discretion of the Engineer.

1.3 SUBMITTALS

A. Shop Drawings
1. Submit manufacturer's literature, illustrations and documentation supporting all product performance claims, features, storage capacities, and maintenance requirements.
2. Manufacturer’s Performance Certificate.
3. Operation and Maintenance Manuals.

1.4 PRODUCT DELIVERY, STORAGE, AND HANDLING

A. SWCS and Components
1. Deliver to job in an acceptable condition. All components shall be subject to inspection by the engineer at the place of manufacture and/or installation. All components are subject to being rejected or identified for repair if the quality of materials and manufacturing do not comply with the requirements of this specification. Components which have been identified as defective may be subject for repair where final acceptance of the component is contingent on the discretion of the Engineer.

2. System and Components are to be stored in locations acceptable to the Owner. They shall not be stored in areas that can cause damage to life or property and shall be stored out of traveled ways.
3. System and Components shall be handled at all times to prevent damage, chipping, breakage, etc.
4. System and Components shall be stored in areas to provide protection from damage.

1.5 WARRANTY

A. The manufacturer shall guarantee the STD components against all manufacturer originated defects in materials or workmanship for a period of twelve (12) months from the date the components are delivered to the owner for installation. The manufacturer shall upon its determination repair, correct or replace any manufacturer originated defects advised in writing to the manufacturer within the referenced warranty period. The use of STD components shall be limited to the application for which it was specifically designed.

2. PRODUCTS

2.1 STORMWATER CHAMBER SYSTEM

A. Chambers
1. ADS DC-780 chamber sections and endcaps, or equal.
2. SWCS shall be evaluated by a licensed design engineer and meet AASHTO section 12.12 safety factors.
3. SWCS shall be designed in accordance with ASTM F 2418 Standard Specification for Polypropylene (PP) Corrugated Wall Stormwater Collection Chambers.
4. SWCS shall be designed in accordance with ASTM F 2787 Standard Practice for Structural Design of Thermoplastic Corrugated Wall Stormwater Collection Chambers.

B. Inspection Ports
1. Nyloplast inline style drain, or equal

C. Geotextile Fabric
1. Isolator Row: ADS Geosynthetics 315WTK Woven Geotextile or equal.
2. Treatment Cells: ADS Geosynthetics 315WTM Woven Geotextile or equal.
3. Chamber Liner: ADS Geosynthetics 60IT Non-Woven Geotextile or equal.

D. Drainage Pipe
1. See Specification Section 02720.

E. Stormdrain Manholes
1. See Specification Section 02721.

2.1 PERFORMANCE

A. Total Volume
   1. The SWCS shall have a minimum volume of 24,050 Cubic Feet.
   2. A MAXIMUM porosity of 40% shall be considered for stone voids in system volume calculations. If supplied stone is known to have a lower porosity, the lower value shall be used and the Contactor shall make adjustments to meet the required volume.

B. Stormwater Treatment
   1. A minimum of (1) row(s) shall be dedicated isolator rows to capture the first inch of stormwater for sediment and debris collection. An Isolator Row is a chamber row enclosed in geotextile fabric for sediment capture and maintenance.
   2. The stormwater treatment system shall remove a minimum of 80% of TSS

3. EXECUTION

3.1 INSPECTION

A. SWCS
   1. Examine prior to installation for chipping, breakage, cracks, and defects.
      a. Defective components shall not be installed, and replaced as required.

3.2 INSTALLATION

A. General
   1. Use the latest manufacturer's installation instructions prior to beginning system installation.
   2. Chamber products must be designed and installed in accordance with the manufacturer's minimum requirements. Failure to do so will void the manufacturer's limited warranty.
   3. The Contractor shall install all drainage structures, pipe and chambers in the locations shown on the design engineer's drawings and/or as approved by the Owner. Pipe shall be of the type and sizes specified on the drawings and shall be laid accurately to line and grade. Structures shall be accurately located and properly oriented.
   4. Chambers, pipe and drainage structures shall be inspected prior to installation and any defective or damaged product shall be replaced accordingly.
   5. Contact local underground utility companies prior to construction.
   6. The contractor must apply erosion and sediment control measures to protect the stormwater system during all phases of site construction per local codes and design engineer's specifications.

B. Site Preparation
   1. Excavation must be free of standing water. Contractor shall take all dewatering measures necessary to manage water on site.
   2. When groundwater is present in the work area, dewater to maintain stability of in-situ and imported materials. Maintain water level below pipe bedding and foundation to provide a stable trench bottom.
   3. Prepare the chamber bed's subgrade soil as outlined in the engineer's drawings.

Requirement for subgrade soil bearing capacity should meet or exceed the chamber manufacturer's required allowable subgrade soil bearing capacity. The contractor must report any discrepancies with subgrade soil's bearing capacity to the design engineer.

C. Chamber System Installation and Backfilling
   1. Install chamber system flat or at constant slope between points and elevations indicated.
   2. Construct fabric and stone foundation per chamber manufacturer's installation instructions.
   3. Construct the chamber bed by joining the chambers lengthwise in rows. Attach chambers by overlapping the end corrugation of one chamber onto the end corrugation of the last chamber in the row.
   4. See pipe manufacturer's installation instructions for pipe assembly.
   5. Stone placement between chamber rows and around perimeter must follow instructions as indicated in the most current version of the chamber manufacturer's installation instructions.
   6. The contractor must refer to the chamber manufacturer's installation instructions for a table of acceptable vehicle loads at various depths of cover. The contractor is responsible for preventing vehicles that exceed the chamber manufacturer's requirements from traveling across or parking over the chamber system. Temporary fencing, warning tape and appropriately located signs are commonly used to prevent unauthorized vehicles from entering sensitive construction areas.
   7. Refer to the chamber manufacturer's installation instructions for minimum requirements for backfill material above the stormwater chamber system.
   8. See pipe manufacturer's installation instructions for guidance on installing the plastic pipe fittings to the chamber system.
   9. Protect all inlets to the stormwater chamber system during construction. Once construction has ceased, the pipe plugs are removed to allow normal system functionality.
   10. All inlet and outlet structures should be protected against construction sediments.

3.3 ADJUSTMENTS

A. Check complete SWCS and accessories for a completed and true installation. Adjustments shall be made as necessary to ensure a complete and satisfactory unit. Test to be conducted in accordance with Manufacturer's Instructions.

END OF SECTION

SECTION 02930

LOAMING AND SEEDING

1. GENERAL

1.1 DESCRIPTION

A. Work Included
1. Furnish all labor, materials, equipment, and incidentals required to accomplish the loaming and seeding as specified herein and as shown on the Contract Drawings. The work shall include, but not be limited to, loaming, fertilizing, seeding and mulching.

1.2 SUBMITTALS

A. Shop Drawings
1. Submit certification that the seeding, fertilization, and liming products supplied meet or exceed the Specification requirements.
2. Submit actual Specifications of seed, lime, and fertilizer.

1.3 PRODUCT DELIVERY, STORAGE, AND HANDLING

A. Deliver all seed, lime, and fertilizer in original, unopened containers with identifying labels intact and legible. Store and handle materials in a manner to prevent adulteration and moisture damage.

1.4 JOB CONDITIONS

A. As shown on Contract Drawings.

2. PRODUCTS

2.1 MATERIALS

A. Loam
1. Loam (topsoil) shall consist of fertile, friable soil free from subsoil, gravel, roots, weeds, sod, and stones, and containing at least 3% organic matter by weight. Loam may be stripped topsoil, provided it is properly screened to remove deleterious material and is not excessively acid or alkaline nor contains toxic material harmful to plant life.

B. Fertilizer
1. Fertilizer shall be complete commercial fertilizer that is dry and free flowing and uniform in composition and have low or no phosphorus as shown by soil analysis.

C. Lime
1. Lime shall be ground limestone containing not less than 95% of total carbonates and shall be ground to a fineness such that at least 90% will pass through a 100 mesh sieve.

D. Grass Seed
1. Site areas (for facilities, pump stations, plants, etc.) Seed mix shall be clean material guaranteed to be 95% free of seeds other than those listed.

Grass	Percentage by Weight
Red Creeping Fescue	35%
Per Ryegrass	25%
Chewing Fescue	20%
KY Bluegrass	10%
Annual Ryegrass	10%

2. Ditches, steep areas, cross country and as called for on the Contract Drawings
   a. Seed mix shall be VT AOT rural conservation mix and be clean material guaranteed to be 95% free of seeds other than those listed.

Grass	Percentage by Weight
Creeping Red Fescue	37.5%
Turf Type Tall Fescue	37.5%
Birdsfoot Trefoil	15%
Red Top	5%
Annual	5%

3. Typical roadside and trench areas and as called for on the Contract Drawings.
   a. Seed shall be VT AOT urban conservation mix and be clean material guaranteed to be 95% free of seeds other than those listed.

Grass	Percentage by Weight
Creeping Red Fescue	42.5%
KY Bluegrass	42.5%
Per Ryegrass	10.0 %
Annual Ryegrass	5.0%

4. Conservation Mix (where shown on Contract Drawings)
   a. Seed mix shall be clean material guaranteed to be 95% free from seeds other than those listed in D.2 above.

5. Lawn Areas (trenches)
   a. Lawn seed mix shall be the same as the existing grass areas being seeded, or as approved by the Owner.

E. Mulch
1. Mulch shall be unspoiled hay or legume mowings, reasonably free from swamp grass, weeds, twigs, debris, or other deleterious materials. It shall be free of rot or mold.

3. EXECUTION

3.1 GENERAL

A. The Contractor shall loam and seed all areas shown on the Contract Drawings as being within the limits of work of these Specifications. This shall include areas of new construction, except the actual area occupied by structures, roads, parking areas, and walks, and shall include areas of established landscape and flora through which the work may pass where grassed areas are affected.

B. Areas to be seeded may have subgrade placed at any time of the year. However, placement and preparation of loam (topsoil) and seeding shall be performed only between the dates of April 20 to June 10 and August 15 to September 15, or as approved by the Engineer.

C. Whenever the subgrade material is sand, gravel, or other pervious material, and elsewhere as required by the Engineer, the Contractor shall place a 4” minimum layer of clay or other impervious material on the subgrade material before placing the loam. All areas to be finished with loam shall be cleaned of all stones, foreign matter and other kinds of rubbish.

D. Do not begin loaming or seeding until any eroded portions have been rough graded to the specified contours.

3.2 APPLICATION

A. Loam shall be placed and graded to the finished grades shown on the Contract Drawings, with allowance being made for settlement. The minimum thickness of the finished loam shall be 4". The loam shall not be hauled over, tramped over, or packed in any way.
   1. Prior to seeding, the loam shall be prepared to a minimum depth of 3" with lime and fertilizer. Lime may be added simultaneously with the fertilizer. Fertilizer and lime shall be tilled to a depth of 3" by disking, harrowing, raking, or other approved method.

B. Fertilizer shall be applied at the rate of 200 lbs. per acre, unless otherwise shown.

C. Lime shall be applied at a rate of 2,000 lbs. per acre, unless otherwise shown.

D. After application of fertilizer and lime, the loam shall be hand raked smooth. Grass seed shall be uniformly applied to the entire area to be seeded at a rate of at least 40 lbs. per acre. Seeding shall not be performed during unfavorable conditions, such as drought, high winds, excessive moisture, or other factors which will cause unsatisfactory seeding results.

E. Immediately after seeding, the entire seeded area shall be compacted and rolled to remove irregularities in the surface and reduce air pockets to a minimum. Roller shall weigh 60 to 90 lbs. per linear foot.

F. Within 24 hours after seeding and rolling, the area shall be mulched at the rate of 2 tons of mulch per acre. Mulch material shall be acceptable to the Engineer, prior to

application. Mulch shall be secured in place if necessary, by such means as a shallow covering of loam or a stapled erosion matting. Seeded and mulched areas shall be watered at a rate and frequency as necessary until the grass has sufficient growth to survive from natural moisture. Mulch shall be chopped and machine applied.

G. Where shown on the Contract Drawings and within 24 hours after the soil has been properly shaped, fertilized and seeded, the matting shall be laid out parallel to the flow of water or vertically on slopes. Erosion matting shall be spread over the hay mulch so that there is space for a workman to walk between adjacent widths of the net. The edges of adjacent widths of the net shall be pulled together and held in place with biodegradable staples spaced not more than 3' apart along the edge of the net. Mulch should be under the complete coverage of the net so that the net is not in direct contact with the ground. The biodegradable staples shall be pushed into the ground so that the top of the staple is about 1/2" above the ground. The ends of each width of net shall be held in place by staples at each selvage edge and at the center of the net. The matting shall be spread evenly and smoothly and in contact with the seeded areas at all points and shall not be stretched. Any seeded areas disturbed by the matting placement shall be uniformly reshaped, reseeded, re-fertilized, and mulched.

3.3 ADJUSTMENTS

A. Within two (2) weeks after the grass has shown exposed growth, any areas where the grass seed has not germinated properly or where the surface has been washed or damaged shall be reseeded in the same manner as described above.

B. Repair all damage resulting from erosion, gulleys, washouts, or other causes by filling with topsoil, tamping, fertilizing, and seeding without additional cost to the Owner until the time of Final Acceptance and within the guarantee.
   1. The Contractor shall provide signs and barricades as necessary to protect seeded areas from traffic.

C. After the first cutting of any new grass, the Contractor shall re-seed and re-fertilize any areas where growth is inadequate as directed by the Engineer.

END OF SECTION

SECTION 03305

CONCRETE
(CLASS B)

1. GENERAL

1.1 SCOPE

A. The work of this section consists of furnishing in place all new concrete for concrete supports, anchors, and thrust restraints as shown on Contract Drawings and as directed by the Engineer. This Specification does not apply to cast-in-place structure concrete for tanks and structures unless otherwise directed by the Engineer.

1.2 REFERENCE STANDARDS

A. Perform the work of this section in accordance with all applicable provisions of the following standards:
   1. ACI 306 (latest revision) Recommended Practice for Cold Weather Concreting.
   2. ACE 304 (latest revision) Recommended Practice for Measuring, Mixing, and Placing Concrete.
   3. ACI 305 (latest revision) Recommended Practice for Hot Weather Concreting.
   4. ACI 308 (latest revision) Recommended Practice for Curing Concrete.

1.3 SUBMITTALS

A. Submit to the Engineer all required data as follows:
   1. Design mix results or certificates.
   2. Manufacturer's information and engineering data on all admixtures proposed for use.

2. PRODUCTS

2.1 MATERIAL

A. Concrete
   1. Transit mixed conforming to all requirements of ASTM Specification C94.

B. Portland Cement
   1. ASTM Specification C150 Type II, Gray. Do not change sources or manufacturers.

C. Sand
   1. Conforming to ASTM Spec C33. No change in source during construction operations.

D. Coarse aggregate
   1. Conforming to ASTM Spec C33, 3/4" to No. 4 sieve. 50% of the stone to have at least one fractured face.

E. Water
   1. Clean, clear, and suitable for drinking.

F. Admixtures
   1. An air entraining admixture selected by the Engineer may be required in concrete. Other admixtures, such as water reducing agents, super plasticizers, and set retarders may be used upon approval by the Engineer. These admixtures must meet all the requirements of ASTM C494, type as appropriate for admixture being used. Accelerators and admixtures containing chloride will not be allowed. Admixtures which the Contractor wishes to use must be added proportionally to the trial mixes described herein, and manufacturer's information must be submitted to secure approval for use.

2.2 DESIGN OF MIXTURES

A. The Contractor shall have trial batches of the concrete made and tested by a laboratory approved by the Owner. The mix shall be made in accordance with ACI 318 (latest revision), Chapter 4, except as noted below. The mixture proportions to be used shall be based on job curves which show the relationship between 7 and 28 day compressive strength of concrete and the water-cement ratio. At least 3 points shall be established on the job curve by 3 different trial batches. No concrete shall be placed until the job curve and proposed mixtures are approved by the Owner. The cement factor of the concrete to be used shall correspond to a strength of at least 20% greater than the strength specified on this Contract. The factor of 20% is an attempt to compensate for variations in the field. The cost of the concrete mix design shall be paid for by the Contractor. Substitutions of material shall not be allowed on the project.

B. A certificate from the supplier that a proposed mix will meet all job requirements will be considered in lieu of trial batches. Test data supporting the strength capacity of a proposed mix will be required.

2.3 QUALITY OF CONCRETE (CLASS B)

A. Minimum Compressive Strength
   1. Not less than 3,500 psi at 28 days.

B. Water-Cement Ratio
   1. Maximum 5 1/2 gallons of water, including free surface moisture on aggregates, per 94 pound sack of cement (.49 lbs. water/lb. cement).

C. Air Entrainment
   1. 4 - 6% by volume.

D. Proportions
   1. In accordance with ACI 318 requirements.

E. Slump
   1. 2" to 4" measured in accordance with ASTM C143.

3. EXECUTION

3.1 DELIVERY AND STORAGE

A. Deliver cement in manufacturer's original moisture proof container with labels intact and legible.

B. Store cement in dry, weathertight, properly ventilated space with adequate provision to prevent moisture absorption.

C. Store sand in well drained location, take necessary steps to prevent inclusion of foreign matter.

3.2 PLACING OF CONCRETE

A. Place concrete only when all forms or other items have been completely installed, inspected, tested (if necessary), and approved by the Owner's Representative. Forms shall be clean and wetted, steel shall be clean and free of any coating.

B. Place no concrete in standing water.

C. Place no concrete when ambient temperature is less than 40°F or more than 90°F without specific approval of Owner's Representative; follow procedure outlined in referenced standards ACI 306 or ACI 305.

D. Convey concrete from mixer to place of final deposit as rapidly and continuously as practical until pouring is completed; avoid segregation and loss of ingredients. Deposit concrete in forms as nearly as possible in final position for minimum rehandling.

E. Immediately following deposit of concrete, consolidate by vibrating with mechanical vibrator or other means approved by Owner. Do not vibrate or disturb concrete after initial set.

F. No concrete shall be dropped more than five feet inside a form unless through a concrete pump hose or tremie hopper and elephant trunk. If either of these methods is used, provide temporary form opening through which concrete can be placed at intermediate height.

3.3 PROTECTION AND CURING

A. Maintain temperature of concrete surface at minimum 50°F for 72 hours after placing concrete. Preheat all enclosures and maintain for at least 2 hours, a minimum surface temperature of 45°F on all form surfaces to come in contact with the fresh concrete.

B. Except as specifically outlined above, adhere to all applicable recommended practices of ACI 306, 305, and 308 included in the Reference Standards herein.

3.4 ACCEPTANCE OF WORK

A. The Owner's representative will verify the acceptability of the concrete, its finish and its curing and compliance with the requirements of the Specification. Concrete that does not meet the Specification shall be replaced at no expense to the Owner.

B. Patch, or remove, as directed by the Owner's representative, all new concrete having honeycombed surfaces.

3.5 DEFICIENCIES

A. Remove and replace all new concrete found to be below required strength at no expense to the Owner.

END OF SECTION

SECTION 03600

NONSHRINK GROUT

1. GENERAL

1.1 DESCRIPTION

A. Work Included
1. Furnish all labor, materials, equipment, and incidentals and place all grout as specified herein and as shown on the Contract Drawings.

1.2 SUBMITTALS

A. Submit shop drawings of products to be used.

2. PRODUCTS

2.1 NONSHRINK GROUT

A. The grout shall be Halco Trademark nonshrink grout, as manufactured by Lehn & Fink Industrial Products, or approved equal.

3. EXECUTION

3.1 MIXING

A. Mix only amounts required for each application using approved means.

B. Mix completely to a uniform consistency.

C. Mix with proportions of ingredients specified.

D. Mix nonshrink grout in accordance with manufacturer's instructions.

3.2 PLACING

A. Place as shown on the Contract Drawings.

B. Insure no voids.

C. Trowel and smooth all surfaces.

D. Do not place any mortar or grout when outside temperatures are below 40°F, without prior approval by the Engineer.

END OF SECTION

SECTION 07240

RIGID INSULATION
(BURIED PIPE)

1. GENERAL

1.1 DESCRIPTION

A. Work Included
1. Furnish all labor, materials, equipment, and incidentals required to install all buried insulation for pipelines and structures as specified herein, as shown on the Contract Drawings, and as directed by the Engineer.

B. Related Work Specified Elsewhere
1. Division 1 - General Requirements.
2. Division 2 - Sitework.

1.2 QUALITY ASSURANCE

A. Acceptable Manufacturers
1. U.C. Industries, or approved equal.

1.3 PRODUCT DELIVERY, STORAGE, AND HANDLING

A. Deliver, store, and handle insulation to prevent damage thereto.

B. Reject any damaged or cracked materials.

1.4 JOB CONDITIONS

A. Buried Insulation to be Installed
1. Where shown on the Contract Drawings.
2. As directed by the Engineer.

2. PRODUCTS

2.1 INSULATION

A. Conform to ASTM C 578, Type IV.

B. Rigid Thermal Insulation: Foamular 250 (tongue & groove), or equal.
1. 24” or 48" wide x 96" long
2. Minimum compressive strength 25 psi
3. Maximum water vapor transmission rate of 1.1 perms per inch

3. EXECUTION

3.1 PREPARATION

A. Pipeline
   1. Backfill pipeline trenches and compact where insulation is required to 9" over the top of the pipe. Backfill and compact as required by other sections of these Specifications.
   2. Smooth top of backfill materials to receive insulation.

3.2 INSTALLATION

A. Lay two (2) layers of continuous insulation full width of trench (total in place thickness as shown on Contract Drawings).
   1. Stagger joints so that no joints of the two (2) layers are one over the other.
   2. Cut and fit as required.

B. Continue backfilling operations as specified elsewhere so as to prevent damage to installed insulation.

END OF SECTION

APPENDIX A

PERMITS PERTAINING TO THE WORK

STATE OF VERMONT
AGENCY OF NATURAL RESOURCES
DEPARTMENT OF ENVIRONMENTAL CONSERVATION

GENERAL PERMIT 3-9020 (2006) FOR STORMWATER RUNOFF FROM CONSTRUCTION SITES AS AMENDED F EBRUARY 2008

Effective September 13, 2006, Amended February 5, 2008

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PART 1: COVERAGE UNDER THIS PERMIT

1.1 Coverage Required

A. Coverage under this permit must be obtained for stormwater discharges from construction activities that result in a total land disturbance of equal to or greater than one acre, where those discharges enter waters of the State or a conveyance leading to waters of the State, subject to the conditions set forth in this permit. This coverage includes construction activities when the disturbance is less than one acre, but is part of a larger "common plan of development", if this larger common plan will ultimately result in the disturbance of one or more acres. A "common plan of development" is defined in Appendix C.

B. Construction activities or portions of construction activities that have achieved final stabilization as of the effective date of this permit shall not be considered for purposes of determining what constitutes disturbance under a common plan of development that requires coverage under this permit.

1.2 Authorization of Projects After the Effective Date of this General Permit

A. Projects Disturbing Greater than 1 Acre but Less than 5 Acres

1. This general permit waives the requirement for submission of a Notice of Intent (NOI) during the first sixty (60) days after the effective date of this permit for projects that disturb one (1) or more acres but less than five (5) acres provided that these projects immediately implement the requirements of DEC's *Low Risk Site Handbook for Erosion Prevention and Sediment Control* upon the effective date of this permit. This 60-day waiver does not apply to construction projects that disturb equal to or greater than five acres. If a project that qualifies for the waiver will not be completed within 60 days of the effective date of this general permit, a complete application for coverage shall be submitted prior to the end of the 60 day period. For purposes of this Subpart, a "complete project" means a project that has established final grades and established final cover of exposed areas (e.g. established permanent vegetation, paved roads).

B. Projects Disturbing Equal to or Greater than 5 Acres

1. Construction Activities Previously Authorized under DEC General Permit 3-9001 (2003)

a. All projects disturbing equal to or greater than 5 acres that have received coverage under DEC's General Permit 3-9001 (2003) as of the effective date this general permit do not need to apply for coverage under this general permit. However, if the project will continue beyond the expiration date of its authorization to discharge under General Permit 3-9001 (2003), the permittee

shall apply for coverage under this general permit at least sixty (60) days prior to the expiration of the authorization.

2. Construction Activities that Have Not Received Coverage under DEC General Permit 3-9001 (2003)

   a. If a project that will disturb equal to or greater than 5 acres has not obtained coverage under DEC's General Permit 3-9001 (2003) prior to the effective date of this permit, it must obtain coverage under this general permit prior to the commencement of construction activities. However, if an applicant has submitted an administratively and technically complete application for coverage under DEC's General Permit 3-9001 (2003) prior to the effective date of this permit, DEC will continue to process the application and issue coverage under General Permit 3-9001 (2003) if the project qualifies for such coverage.

1.3 Determining Permit Requirements

A. Prior to applying for permit coverage, a person with proposed construction activities shall answer the questions in Appendix A in order to determine if the proposed activities constitute:

Low-risk construction activities: These construction projects are required to submit a NOI and apply DEC's *Low Risk Site Handbook for Erosion Prevention and Sediment Control* during construction. DEC considers the *Low Risk Site Handbook for Erosion Prevention and Sediment Control* to be equivalent to an erosion prevention and sediment control plan for low risk construction activities.

Moderate risk construction activities: These construction projects are required to prepare and submit a NOI and a site specific Erosion Prevention and Sediment Control Plan (EPSC Plan). EPSC Plans will be reviewed by DEC to ensure compliance with the terms and conditions of this permit prior to the issuance of an authorization to discharge.

Construction activities requiring an individual permit: These construction projects are not eligible for coverage under this permit and must obtain an individual construction permit prior to the commencement of construction activities.

1.4 Stormwater Discharges Covered by this Permit

A. Subject to compliance with the terms and conditions of this permit, this permit authorizes:

1. The discharge of pollutants in stormwater associated with large and small construction activity as defined in Appendix C;

2. The discharge of pollutants in stormwater designated by the Secretary as needing a stormwater permit under 40 CFR Sections 122.26(a)(1)(v), 122.26(b)(15)(ii), 122.26(a)(9)(i)(C) or (D);

3. Discharges composed of allowable discharges listed in Subparts 1.4.A.1 and 2 commingled with a discharge authorized by a different National Pollutant Discharge Elimination System (NPDES) permit and/or a discharge that does not require NPDES permit authorization;

4. The discharge of pollutants in stormwater associated with support activities (e.g. equipment staging areas, material storage areas, excavated material disposal areas and borrow areas) within a common plan of development or outside a common plan of development in accordance with Subpart 1.6; and

5. Uncontaminated discharges from excavation dewatering activities.

1.5 Limitations on Coverage

A. This permit does not authorize:

1. Discharges of regulated stormwater runoff from impervious surfaces regulated pursuant to Vermont's stormwater statute (10 V.S.A. Section 1264) and DEC's stormwater rules (Chapters 18 and 22 of DEC's Environmental Protection Rules);

2. Discharges mixed with non-stormwater, except those discharges described in Subpart 1.4.A.3;

3. Stormwater discharges not associated with construction activities;

4. Non-stormwater discharges, except those discharges as described in Subpart 1.4.A3 and 1.4.A.5;

5. Any discharge from a federally owned facility;

6. Stormwater discharges associated with construction activity that are covered under an individual NPDES construction permit or an alternative individual or

general NPDES permit that is at least as stringent as the requirements of this general permit;

7. Stormwater discharges from construction related activities when that discharge or activity are likely to jeopardize the continued existence of any State or federally listed threatened or endangered species or result in the destruction or adverse modification of critical habitat;

8. Discharges that the Secretary, prior to authorization under this permit, determines will cause, have the reasonable potential to cause, or contribute to non-compliance with Vermont Water Quality Standards. Where such a determination is made prior to authorization, the Secretary may determine that an individual construction stormwater permit application is necessary or the Secretary may authorize coverage under this permit for the discharge provided the applicant includes appropriate controls and implementation procedures in an EPSC Plan designed to ensure the discharge is in compliance with water quality standards;

9. Discharges of pollutants of concern to waters for which there is a total maximum daily load (TMDL) established or approved by EPA unless the ESCP Plan incorporates measures or controls that are consistent with the requirements of such TMDL. If a specific wasteload allocation has been established in the TMDL that would apply to the discharge, the ESCP Plan must incorporate that allocation and include necessary steps to meet that allocation;

10. In a situation where an EPA-approved or established TMDL has specified a general wasteload allocation applicable to construction stormwater discharges, but no specific requirements for construction sites have been identified in the TMDL, the permit applicant should consult with the Secretary to confirm that adherence to an EPSC Plan that meets the requirements of this permit will be consistent with the approved TMDL. Where an EPA-approved or established TMDL has not specified a wasteload allocation applicable to construction stormwater discharges, but has not specifically excluded these discharges, adherence to an EPSC Plan that meets the requirements of this permit will be assumed to be consistent with the approved TMDL. If the EPA-approved or established TMDL specifically precludes such discharges, coverage under this permit is not allowed;

11. Stormwater discharges from construction activities that are determined to require an individual construction permit in accordance with the risk scoring process in Appendix A to this permit or as determined by the Secretary in accordance with Condition 2 of Appendix D; and

12. Discharges from construction activities below high water mark. These discharges may require a stream alteration permit pursuant to Vermont's stream alteration program and/or a federal Section 404 Army Corps of Engineers permit.

1.6 Off-Site Support Activities

A. Support activities (e.g. equipment staging areas, material storage areas, excavated material disposal areas and borrow areas) involving disturbance of one or more acres of land and support activities less than one acre that are part of a common plan of development require coverage under this permit. Support activities may obtain coverage as follows:

1. As a part of the same authorization to discharge issued for the construction project which will utilize the support activities; or

2. As an independent authorization separate from the authorization for the construction project which will utilize the support activities; or

3. As an amendment to an authorization to discharge for the construction project, with the owner of the land where the support activities will occur added as a co-permittee.

B. Permit coverage is not required for support activities involving disturbance of less than one acre of land if such disturbance is not part of a common plan of development that requires permit coverage.

1.7 Permitting and Risk Scoring of Phased Projects

A. A project may be permitted in phases under separate NOIs provided that each of phases is constructed independently. Phases are considered independent of one another if any of the following applies:

1. Each phase is constructed separately, with no construction of phases occurring simultaneously; or

2. Phases do not share a common landowner or a common principal operator; or

3. One of the phases is a support activity outside of a common plan of development.

B. When determining the risk category for an independent phase NOI, only the data applicable to that phase needs to be considered.

1.8 Qualifying Local Program

A. Federal stormwater regulations (40 CFR 122.44(s)) provide authority for DEC to recognize MS4 construction programs that meet or exceed DEC's construction program and to incorporate that program by reference in its general permit. In such a case, the local program is considered a "qualifying local program" and construction site operators' compliance with the local requirements constitutes compliance with DEC's construction permit requirements. DEC has yet to formally recognize any

MS4 community as having a qualifying local construction permitting program. If, and when, DEC designates a qualifying local program, this general permit will be amended to reflect that designation.

PART 2: AUTHORIZATION FOR DISCHARGES OF STORMWATER FROM LOW RISK CONSTRUCTION ACTIVITIES

This Part describes the application and public notice requirements for low risk construction activities.

2.1 Permit Applicant

A. An applicant for low risk construction activities shall prepare and submit a complete and accurate Notice of Intent. A NOI for low risk construction activities shall contain, at a minimum, the following:

1. Name of landowner(s) and principal operator(s) and contact information;

2. Project location information, description of construction project, projected date of construction commencement and final stabilization; total acreage to be disturbed;

3. A copy of a completed Appendix A showing the risk score for the project;

4. Name(s) of receiving water(s); and

5. Certification of accuracy of information submitted and certification relating to implementation of erosion prevention and sediment control measures in Low Risk Sites Handbook.

B. The applicant(s) shall be the person who owns the property and the principal operator(s). For purposes of this permit, "principal operator" means all parties associated with the construction activity that meet either of the following two criteria:

1. The party has operational control over construction plans and specifications including, but not limited to, the ability to make modifications to those plans and specifications; or

2. The party has continuous day-to-day operational control of those activities at a project that are necessary to ensure compliance with the *Low Risk Site Handbook for Erosion Prevention and Sediment Control* and other permit conditions (e.g., they are authorized to direct workers at a site to carry out activities required by the *Low Risk Site Handbook for Erosion Prevention and Sediment Control* or comply with other permit conditions).

C. If the owner of the construction site obtains coverage under this general permit and the owner is not the principal operator or is not the sole principal operator, then all principal operators shall obtain coverage as co-permittees in accordance with Subpart 7.2 prior to the commencement of construction activities.

2.2 Submitting Notice of Intent and Fee

A. The applicant for coverage for low risk construction activities shall submit an NOI in hard copy, or, if available, through an electronic NOI system.

B. The NOI form and instructions are available at www.vtwaterquality.org/stormwater.htm. The applicant shall submit the NOI and necessary attachments to the address listed in Subpart 2.2.C. of this permit. If available, these may be submitted through an electronic NOI system.

C. At the same time that the applicant submits the NOI, the applicant shall pay the applicable administrative processing and application review fee by submitting a check made out to the "State of Vermont" to the following address:

Vermont Agency of Natural Resources
Department of Environmental Conservation
Water Quality Division
Building 10 North, 103 South Main Street
Waterbury, Vermont 05671-0408

Applicants may elect to pay the fee through an electronic NOI system, if available.

D. The Secretary reserves the right to return an application that is incomplete or inaccurate or does not meet the requirements of this permit.

E. The Secretary may require an applicant to submit additional information that the Secretary considers necessary in order to make a decision on the eligibility for, or the issuance or denial of, an authorization to discharge pursuant to this permit. The Secretary may deny an authorization to discharge pursuant to this permit if the additional information requested is not provided to the Secretary within sixty (60) days of the Secretary's request or if any additional information submitted is inadequate for the Secretary to make a decision on the eligibility for, or the issuance or denial of, an authorization to discharge pursuant to this permit.

F. A completed NOI and all necessary attachments should be filed at least sixty (60) days prior to commencement of construction activity. Construction activity shall not commence until an authorization to discharge is issued pursuant to this permit or an individual construction stormwater permit is issued.

2.3 Public Notice of NOI and Public Comments

A. Any person who files a NOI shall at the same time provide a copy of the completed NOI form and a completed Appendix A form to the municipal clerk for posting in the municipality in which the discharge is to be located. If the project and the related discharge(s) are located in different municipalities, than the completed NOI and Appendix A shall be filed with the municipal clerk in each municipality.

B. If the Secretary issues an authorization to discharge under this permit and the Secretary later determines that the applicant failed to provide notice to the municipal clerk in accordance with Subpart 2.3.A of this permit, the Secretary may revoke the permit in accordance with Condition 5 of Appendix D and/or may take any appropriate enforcement action in accordance with Part 11 of this permit.

C. For a period of ten (10) days following receipt and posting of a NOI on DEC's stormwater website, the Secretary shall provide an opportunity for written comments regarding whether the NOI and all necessary attachments comply with the terms and conditions of this permit.

D. Any interested person should file comments with the Secretary during the 10-day notice period. Should the Secretary extend or reopen the public comment period, the Secretary will so notify the applicant and those persons who file comments or a letter of interest.

E. The Secretary may extend the public comment period if additional information is requested pursuant to Subpart 2.2.E of this permit.

2.4 Authorization to Discharge

A. A person who files a NOI shall only be authorized to discharge under the terms and conditions of this permit upon receipt of a written authorization to discharge from the Secretary.

B. An authorization to discharge for a low risk project shall be valid for a period of two (2) years.

C. Each completed NOI and Appendix A is incorporated by reference and included in the terms of this general permit, and each permittee shall undertake its construction activities in accordance with the NOI and Appendix A, as a condition of this permit. Failure to comply with the NOI and Appendix A shall be deemed a violation of this permit and subject to enforcement action.

2.5 Limitations on Land Disturbance for Low Risk Construction Activities

A. A project shall not be considered low risk if it will involve disturbance of greater than seven (7) acres at any one time.

B. For low risk construction activities, all areas of disturbance must have temporary or final stabilization within 21 days of the initial disturbance, unless a shorter duration is selected in the completion of Appendix A. After this time, any disturbance in the area must be stabilized at the end of each work day. The following exceptions apply:

1. Stabilization is not required if work is to continue in the area within the next 24 hours and there is no precipitation forecast for the next 24 hours.

2. Stabilization is not required if the work is occurring in a self-contained excavation (i.e. no outlet) with a depth of 2 feet or greater (e.g. house foundation excavation, utility trenches).

2.6 Recording Authorization to Discharge in Local Land Records

In the case of phased residential or commercial subdivisions, the permittee shall file a one page notice of the issuance of an authorization to discharge under this general permit in the local land records within fourteen (14) days of the issuance of the authorization. A one page notice form is available on-line at www.vtwaterquality.org. A copy of the recording shall be submitted to the Secretary within fourteen (14) days of the permittee's receipt of a copy of the recording from the local land records.

PART 3: AUTHORIZATION FOR DISCHARGES OF STORMWATER FROM MODERATE RISK CONSTRUCTION ACTIVITIES

This Part describes the application and public notice requirements for moderate risk construction activities.

3.1 Permit Applicant

A. An applicant for a moderate risk construction project must prepare and submit a complete and accurate Notice of Intent (NOI). A NOI for moderate risk activities shall contain, at a minimum, the following:

1. Name of owner(s) and principal operator(s) and contact information;

2. Project location information, description of construction project, projected date of construction commencement and final stabilization; total acreage to be disturbed;

3. A copy of a completed Appendix A showing the risk score for the project;

4. Name(s) of receiving water(s);

5. If chosen, the name and contact information of the On-site Coordinator;

6. Indication of whether the discharge is consistent with the requirements of any applicable TMDL;

7. A copy of the EPSC Plan prepared in accordance with Part 4 and Appendix B to this permit; and

8. Certification of accuracy of information submitted.

B. The applicant(s) shall be the person who owns the property and the principal operator(s). For purposes of this permit, "principal operator" means all parties associated with the construction activity that meet either of the following two criteria:

1. The party has operational control over construction plans and specifications, including but not limited to the ability to make modifications to those plans and specifications; or

2. The party has continuous day-to-day operational control of those activities at a project that are necessary to ensure compliance with an Erosion Prevention and Sediment Control Plan (EPSC Plan) for the site or other permit conditions (e.g., they are authorized to direct workers at a site to carry out activities required by the ESCP Plan or comply with other permit conditions).

C. If the owner of the construction site obtains coverage under this general permit and the owner is not the principal operator or is not the sole principal operator, then all principal operators shall obtain coverage as co-permittees in accordance with Subpart 7.2 prior to the commencement of construction activities.

3.2 Submittal of Notice of Intent and Fee

A. The applicant for coverage for moderate risk construction activity shall submit a NOI and all necessary attachments in hard copy, or, if available, through an electronic NOI system.

B. The NOI form and instructions are available at www.vtwaterquality.org/stormwater.htm. The applicant shall submit the NOI and necessary attachments to the address listed in Subpart 3.2.C of this permit. If available, these may be submitted through an electronic NOI system.

C. At the same time that the applicant files the NOI, the applicant shall pay the applicable administrative processing and application review fee by submitting a check made out to the "State of Vermont" to the following address:

Vermont Agency of Natural Resources
Department of Environmental Conservation
Water Quality Division
Building 10 North, 103 South Main Street
Waterbury, Vermont 05671-0408

Applicants may elect to pay the fee through an electronic NOI system, if available.

D. The Secretary reserves the right to return an application that is incomplete o r inaccurate or does not meet the requirements of this permit and/or *The Vermont Standards and Specifications for Erosion Prevention and Sediment Control*.

E. The Secretary may require an applicant to submit additional information that the Secretary considers necessary in order to make a decision on the eligibility for, or the issuance or denial of, an authorization to discharge pursuant to this permit. The Secretary may deny an authorization to discharge pursuant to this permit if the additional information requested is not provided to the Secretary within sixty (60) days of the Secretary's request or if any additional information submitted is inadequate for the Secretary to make a decision on the eligibility for, or the issuance or denial of, an authorization to discharge pursuant to this permit.

F. A completed NOI and all necessary attachments should be filed at least sixty (60) days prior to commencement of construction activity. Construction activity shall not commence until an authorization to discharge is issued pursuant to this permit or an individual construction stormwater permit is issued.

3.3 Public Notice of NOI and Public Comments

A. Any person who files a NOI shall at the same time provide a copy of the completed NOI form and a completed Appendix A to the municipal clerk for posting in the municipality in which the discharge is to be located. If the project and related discharge(s) are located in different municipalities, than the completed NOI and completed Appendix A shall be submitted to the municipal clerk in each municipality.

B. If the Secretary issues an authorization to discharge under this permit and the Secretary later determines that the applicant failed to provide notice to the municipal clerk in accordance with Subpart 3.3.A of this permit, the Secretary may revoke the permit in accordance with Condition 5 of Appendix D and may take any appropriate enforcement action in accordance with Part 11 of this permit.

C. The EPSC Plan that is filed with the NOI shall be made available for public review at the Department's offices during normal business hours.

D. For a period of ten (10) days following receipt and posting of a NOI on DEC's stormwater website, the Secretary shall provide an opportunity for written comments regarding whether the NOI and all necessary attachments, including the EPSC Plan, comply with the terms and conditions of this permit.

E. Any interested person should file comments with the Secretary during the 10-day notice period. Should the Secretary extend or reopen the public comment period, the Secretary will so notify the applicant and those persons who file comments.

F. The Secretary may extend the public comment period if additional information is requested pursuant to Subpart 3.2.E of this permit.

3.4 Authorization to Discharge

A. A person who files a NOI shall only be authorized to discharge under the terms and conditions of this permit upon receipt of a written authorization to discharge from the Secretary.

B. Each completed NOI and Appendix A is incorporated by reference and included in the terms of this general permit, and each permittee shall undertake its construction activities in accordance with the NOI and Appendix A, as a condition of this permit. Failure to comply with the NOI and Appendix A shall be deemed a violation of this permit and subject to enforcement action.

C. An authorization to discharge for a moderate risk project shall be valid for a period of five (5) years.

3.5 Limitations on Land Disturbance for Moderate Risk Construction Activities

A. For moderate risk construction activities, land disturbance at any one time is limited to 5 acres unless:

1. A smaller disturbance limit is specified by the applicant in the completion of Appendix A, in which case the smaller limit applies; or

2. A larger disturbance limit is included in a written authorization from the Secretary, in which case the larger limit applies. If the Secretary determines it is necessary to protect water quality, the Secretary may require applicants seeking coverage for projects as moderate risk to file an application for an Individual Discharge Permit if more than 5 acres of concurrent disturbance is planned.

B. For moderate risk construction activities, all areas of disturbance must have temporary or final stabilization within 21 days of the initial disturbance, unless a shorter duration is selected in the completion of Appendix A. After this time, any disturbance in the area must be stabilized at the end of each work day. The following

exceptions apply:

1. Stabilization is not required if work is to continue in the area within the next 24 hours and there is no precipitation forecast for the next 24 hours.

2. Stabilization is not required if the work is occurring in a self-contained excavation (i.e. no outlet) with a depth of 2 feet or greater (e.g. house foundation excavation, utility trenches)."

3.6 Recording Authorization to Discharge in Local Land Records

In the case of phased multi-lot residential or commercial subdivisions, the permittee shall file a one page notice of the issuance of an authorization to discharge under this general permit in the local land records within fourteen (14) days of the issuance of the authorization. A one page notice form is available on-line at www.vtwaterquality.org. A copy of the recording shall be submitted to the Secretary within fourteen (14) days of the permittee's receipt of a copy of the recording from the local land records.

PART 4: EROSION PREVENTION AND SEDIMENT CONTROL PLANS FOR MODERATE RISK CONSTRUCTION PROJECTS; ON-SITE PLAN CORDINATORS; WINTER CONSTRUCTION; RECORD-KEEPING

This Part describes how to prepare an EPSC Plan for moderate risk construction activities, and describes the On-Site Plan Coordinator, winter construction requirements and recordkeeping.

4.1 Erosion Prevention and Sediment Control Plan

A. An EPSC Plan shall be prepared and submitted with the NOI for moderate risk construction activity. At least one EPSC Plan shall be developed for each moderate risk construction project authorized under this permit.

B. A permittee is responsible for selecting, installing and implementing erosion prevention and sediment controls that minimize or eliminate pollutants in any stormwater discharge from the construction site in accordance with the requirements of this permit.

C. Each EPSC Plan shall be developed in conformance with the most recent edition of *The Vermont Standards and Specifications for Erosion Prevention and Sediment Control* and shall contain, at a minimum, the items listed in Appendix B to this permit. The use of EPSC practices that are different from, or not included in, *The Vermont Standards and Specifications for Erosion Prevention and Sediment Control*, shall be evaluated by the Secretary on a case-by-case basis before the issuance or denial of an authorization to discharge under this permit.

D. Each EPSC Plan shall be signed by the designer of the Plan.

E. Each EPSC Plan shall be amended and updated in accordance with Subpart 4.4 of this permit.

F. A permittee shall implement the EPSC Plan as written, including all amendments made in accordance with Subpart 4.4 of this permit, from the commencement of construction activity until final stabilization is complete.

G. The goal of an EPSC Plan is to minimize the erosion of disturbed land and to minimize or eliminate the discharge of sediment to waters of the State through the implementation of appropriate erosion prevention and sediment control measures.

H. Each EPSC Plan is incorporated by reference and included in the terms of this general permit, and each permittee shall implement the provisions of the EPSC Plan, and all amendments thereto, as a condition of this permit. Failure to comply with the EPSC Plan, and all amendments thereto, shall be deemed a violation of this permit and subject to enforcement.

I. The permittee is responsible for ensuring that each contractor involved in land disturbance activities is familiar with the terms and conditions of the EPSC Plan and that each contractor's activities are carried out in accordance with the EPSC Plan.

4.2 On-Site Plan Coordinator

A. The permittee shall designate a person as the On-Site Plan Coordinator who shall be directly responsible for on-site implementation of the EPSC Plan. Such person shall be knowledgeable in the principles and practice of erosion and sediment controls and possess the skills to assess conditions at the construction site that could impact stormwater quality and to assess the effectiveness of all sediment and erosion control measures selected to control the quality of stormwater discharges from the construction activity.

B. The On-Site Plan Coordinator shall have the authority to stop and/or modify construction activities as necessary to comply with the EPSC Plan and the terms and conditions of this permit and shall be responsible for inspections and record keeping. The EPSC Plan shall indicate how frequently the On-Site Plan Coordinator will be on site to oversee implementation of the EPSC Plan and to monitor its effectiveness. The On-Site Plan Coordinator or his/her designee shall be on site on a daily basis during active construction. The On-Site Coordinator does not have to be the permit applicant.

C. The name and daytime telephone number of the On-Site Plan Coordinator shall be provided on the NOI or be shall be filed in writing with DEC before the start of

construction if the On-Site Plan Coordinator has not been selected at the time the NOI is filed.

4.3 Winter Construction

A. If a permittee plans to undertake construction activities during the winter season (October 15th –April 15th) and the EPSC Plan does not identify erosion prevention and sediment control measures for use during the winter season, the permittee shall amend the EPSC Plan prior to performing any construction activities during the winter season. The amendment shall specifically identify winter season erosion prevention and sediment control measures to be used consistent with *The Vermont Standards and Specifications for Erosion Prevention and Sediment Control*. The permittee shall also notify the Secretary of the planned winter construction activity prior to the commencement of such activity, either on the original Notice of Intent, or by filing a Notice of Winter Construction form available at www.vtwaterquality.org/stormwater.htm. The Notice of Winter Construction shall be made a part of the EPSC Plan.

4.4 Recordkeeping – Updating EPSC Plan

A. The following records shall be maintained on-site with the EPSC Plan:

1. Inspection reports prepared pursuant to Subpart 6.2.G;

2. Summaries of Runoff, Discharges, Corrective Action and Sampling Reports prepared pursuant to Subpart 6.3;

3. Any Notice of Winter Construction in accordance with Subpart 4.3 ;

4. Any reports of releases of reportable quantities of oils or hazardous substances in accordance with Condition 7 of Appendix D;

5. Notices of Addition or Removal of Co-Permittees submitted to the Secretary in accordance with Subpart 7.2;

6. Any Notices of Termination for portions of an on-going construction project; and

7. Any amendments to the EPSC Plan required by this permit.

4.5 Availability of Documentation On-Site; Posting of Authorization

A. A copy of the authorized EPSC Plan, and all amendments, co-permittee forms, inspections and all other required items described in Section 4.4 of this permit shall be on-site during normal working hours from the date of commencement of construction activities to the date of final stabilization.

B. The On-site Plan Coordinator shall have a copy of the EPSC Plan and all amendments available at a central location on-site for the use of all those identified as having responsibilities under the EPSC Plan whenever they are on the construction site. If an on-site location is unavailable to store the EPSC Plan when no personnel are present, notice of the plan's location shall be posted near the main entrance at the construction site.

C. The permittee shall post a notice, provided by DEC, demonstrating the authorization under this permit. Generally, the notice shall be placed near the construction entrance at a location visible to the public. If displaying near the main entrance is infeasible, the notice shall be posted in a local public building such as the town hall or public library. For linear projects, the notice shall be posted at a publicly accessible location near the active part of the construction project (e.g., where a pipeline project crosses a public road).

D. EPSC Plans shall be made available upon request by DEC representatives. The copy of the EPSC Plan, and all amendments that is required to be kept on-site or locally available shall be made available, in its entirety, to DEC staff for review and copying at the time of an on-site inspection by such staff.

PART 5: PROJECT CHANGES FOR LOW-RISK AND MODERATE RISK PROJECTS

There are many site-specific changes that may occur over the life of a construction project. For example, the limits of the area of disturbance or the phasing of construction activities may need to be modified. This Part describes two categories of project change and the associated process that must be followed by the permittee.

5.1 "Major Changes" to a Project

A. Authorized construction activities at Low Risk or Moderate Risk projects shall be rescored in accordance with Appendix A if there is a "major change" in the construction activities. A "major change" means a change in the construction activities that results in an increase in the risk to water quality, such that the risk category for the project changes from Low Risk to Moderate Risk, Low Risk to Requires Individual Permit, or Moderate Risk to Requires Individual Permit. Permittees are required to reevaluate the risk category of the project using Appendix A in advance of any change that:

   1. Increases areal extent of disturbed land that is open at any one time; or

   2. Increases the length of time that a given area will remain disturbed without temporary or final stabilization; or

3. Reduces the use or effectiveness of vegetated buffers between the construction project and the receiving waters; or

4. Increases the area of disturbance on more erodible soils or steeper slopes.

E. If, after rescoring, a project remains in the same risk category, the proposed changes are deemed minor and the permittee shall amend the EPSC Plan and maintain it on-site as required in Subsection 5.2.

F. If, after reevaluating the risk category, a project moves from the low risk to moderate risk category, a new NOI and an EPSC Plan shall be submitted to the Secretary.

G. If, after reevaluating the risk category, a project moves from the low or moderate risk categories to the category that requires an individual permit, then the permittee shall apply for an individual construction stormwater permit.

H. Any major change to a project is not authorized until a new authorization under this permit or an individual permit is received from the Secretary. However, construction activities that were previously authorized may continue.

5.2 "Minor Changes" to a Project

A. A "minor change" means a change in the construction activities on a Moderate Risk project that affects erosion prevention and sediment control and that does not result in an increase in the risk category of a project. Minor changes include, but are not limited to, changes in grading, limits of disturbance, erosion prevention and sediment control practices, construction sequence, and new construction in the winter period.

B. The On-Site Coordinator is authorized to implement minor changes that involve substituting accepted interchangeable erosion prevention and sediment control practices, as detailed in the *Vermont Erosion Prevention and Sediment Control Field Guide*. The substitution of interchangeable practices shall be noted on the on-site EPSC Plan, and on any forms provided by the Secretary for logging such changes.

C. For minor changes other than substitution of interchangeable practices from the *Vermont Erosion Prevention and Sediment Control Field Guide*, the permittee shall have the EPSC Plan modified to reflect the change by either the original designer, a professional engineer licensed in the State of Vermont or a Certified Professional in Erosion Prevention and Sediment Control. Such modification shall include a certification that the modified EPSC Plan meets the requirements of this general permit and DEC's *The Vermont Standards and Specifications for Erosion Prevention and Sediment Control*. Minor changes involving non-interchangeable practices shall be noted on the on-site EPSC plan, and on any forms provided by the Secretary for logging such changes.

D. Any minor change that involves earth disturbance substantially outside of the originally authorized limits of disturbance requires the submittal of a new NOI.

PART 6: INSPECTIONS, CORRECTIVE ACTION, COMPLIANCE WITH PERMIT FOR LOW RISK AND MODERATE RISK PROJECTS

This Part describes the permittee's responsibility to conduct inspections, sample discharges and take corrective actions necessary to ensure compliance with this permit.

6.1 Inspections, Maintenance and Corrective Action for Low Risk Projects

A. Inspections and BMP maintenance for low risk construction activity shall be conducted in accordance with the *Low Risk Site Handbook for Erosion Prevention and Sediment Control*.

B. A permittee is responsible for inspecting and maintaining erosion prevention and sediment controls that minimize or eliminate pollutants in any stormwater discharge from the construction site in accordance with the requirements of this permit.

C. If visibly discolored stormwater runs off the construction site or runs offs the construction site and discharges to waters of the State, the permittee shall take immediate corrective action. Corrective action is defined as immediate action to inspect and maintain existing BMPs and to install supplemental BMPs necessary to correct the discharge.

D. If, after completing the actions required in Subpart 6.1.C above, there continues to be a discharge of sediment from the construction site to waters of the state, the permittee shall notify DEC by submitting a report within 72 hours of the discharge. The report shall be on a form provided by DEC.

E. If there is a repeated or an ongoing sediment discharge to waters of the state, DEC may determine that the construction project risk category needs to be reevaluated in accordance with Appendix A and/or if alternative or additional BMPs must be implemented. The permittee shall take all corrective actions requested by DEC including, but not limited to, installing and implementing alternative or additional BMPs to correct the discharge.

6.2 General Inspection Requirements at Moderate Risk Sites

A. A permittee is responsible for inspecting and maintaining erosion prevention and sediment controls that minimize or eliminate pollutants in the discharge in accordance with the requirements of this permit.

B. Inspections shall be conducted at least once every seven (7) calendar days and as required in subpart 6.3.A.

C. During the winter construction season (October 15th through April 15th), daily inspections shall be conducted of areas that have been disturbed and are not yet finally stabilized.

D. Inspection frequency may be reduced to not less than one (1) per month if the entire site is temporarily stabilized. Inspections may be postponed indefinitely if the entire site is permanently stabilized.

E. Inspections shall be conducted by, or under the direction of, the On-Site Plan Coordinator.

F. Inspections shall include all areas of the site disturbed by construction activity and all discharge locations, including areas with temporary stabilization.

G. An inspection report shall be completed for each inspection and signed by the On-Site Plan Coordinator or the person acting under the direction of the On-Site Plan Coordinator. At a minimum, each inspection report shall include:

1. The inspection date;

2. Names, titles, and qualifications of personnel making the inspection;

3. A general description of weather information for the period since the last inspection (or since commencement of construction activity if the first inspection) including a description of any precipitation, any runoff of visibly discolored stormwater from the construction site and any discharges of visibly discolored stormwater from the construction site to waters of the state;

4. A description of current weather information and a description of any runoff or discharges of visibly discolored stormwater to waters of the state occurring at the time of the inspection;

5. Location(s) of runoff or discharges of visibly discolored stormwater to waters of the state from the construction site;

6. Location(s) of BMPs that need to be maintained;

7. Location(s) of BMPs that failed to operate as designed or proved inadequate for a particular location;

8. Location(s) where additional BMPs are needed that did not exist at the time of inspection;

9. Any corrective action required including any necessary changes to the EPSC Plan and implementation dates;

10. Description of areas that are currently disturbed and areas that have been stabilized since last inspection;

11. A description of the soil conditions (e.g. dry, wet, saturated); and

12. A certification that the construction activities are now in compliance with the EPSC Plan and this permit.

H. A record of each inspection report and of any actions taken in accordance with this Subpart shall be maintained on-site with the EPSC Plan and shall be made available upon request by DEC representatives.

6.3 Discharge Inspection, Sampling and Corrective Action Requirements at Moderate Risk Sites

As soon as reasonably possible, during or after every rainfall event which produces runoff from the construction site, the On-Site Plan Coordinator shall:

A. Inspect for runoff of visibly discolored stormwater leaving the construction site. If there is runoff of visibly discolored stormwater from the construction site, the On-Site Plan Coordinator shall as soon as practicable inspect and maintain BMPs for compliance with the approved EPSC Plan;

B.. If after inspecting and maintaining existing BMPs in accordance with subpart 1, the runoff of visibly discolored stormwater continues, the On-Site Plan Coordinator shall determine whether such runoff of visibly discolored stormwater from the construction site is discharging to waters of the State. If the continuing runoff is not discharging to waters of the State, the On-Site Plan Coordinator shall supplement BMPs as necessary to correct the runoff and shall continue to inspect, maintain and supplement BMPs;

C. If the runoff of visibly discolored stormwater continues after taking the steps in subpart 6.3.B and the runoff is discharging to waters of the State, the On-Site Plan Coordinator shall immediately evaluate the need for supplemental BMPs and install such BMPs as necessary to correct or eliminate the discharge. If after supplementing existing

BMPs, the discharge of visibly discolored stormwater to waters of the State continues, then the On-Site Plan Coordinator shall sample the discharge as follows:

1. Samples shall be representative of the flow and characteristics of the discharge. Sampling shall be conducted in accordance with written guidance available from DEC.

2. If due to unexpected circumstances an On-Site Plan Coordinator or his/her designee is unable to sample during periods of runoff, the monitoring report shall include a brief explanation of such circumstances.

3. Sampling is required at all points where visibly discolored stormwater runoff from disturbed areas that have not been finally stabilized discharges to waters of the State.

4. All sampling points shall be identified on the EPSC Plan site map and be clearly marked in the field with a flag, tape, stake or other visible marker.

D. If the turbidity sample taken is **25 NTU or lower**, no further sampling or action is required.

E. If the turbidity sample taken is **greater than 25 NTU:**

1. the On-Site Plan Coordinator shall as soon as practicable evaluate the need for supplemental BMPs and install such BMPs as necessary to correct the discharge(s).

2. the On-Site Plan Coordinator shall, within 72 hours of first discovering the discharge(s), submit a written report about the discharge(s) and resulting corrective action to the Secretary. The report shall:

a. Be on a form provided by the Secretary;
b. Describe the cause, time and date, and location of the discharge(s);
c. Describe the status of construction and conformance with the EPSC Plan at the time of the discharge(s);
d. Detail the corrective action taken to stop the discharge(s), including a description of the actions taken, their location, and the time and date of the corrective action; and
e. Be copied and a copy retained on-site with the EPSC Plan.

3. The EPSC Plan shall be updated within 72 hours to reflect the actions taken.

F. After taking the actions required in subpart 6.3.E.1 above, the On-Site Plan Coordinator shall again follow the inspection and sampling requirements in subpart 6.3.C. above. If the turbidity sample is less than 25 NTU then no further action is needed. If the turbidity sample is greater than 25 NTU, the On-Site Plan Coordinator shall immediately notify DEC's Stormwater Program. DEC may require the On-Site Plan

Coordinator to reevaluate existing BMPs and install supplemental BMPs as necessary to correct the discharge. At the Secretary's discretion, DEC may also require the On-Site Plan Coordinator to continue sampling discharges when discharges are occurring until:

1. turbidity is 25 NTU or lower or
2. the discharge stops or is eliminated.

6.4 Modifications to the EPSC Plan Identified as Needed by Inspections by DEC Representatives

A. If, based upon inspections or investigations by DEC representatives, it is determined that the EPSC Plan will not be sufficient to prevent discharges of visibly discolored stormwater from the construction site, the permittee shall modify the EPSC Plan as necessary to include additional or modified BMPs designed to correct problems identified. Revisions to the EPSC Plan shall be completed within seven (7) calendar days following the inspection or investigation.

B. At any time after issuing an authorization to discharge, the Secretary may, in his or her sole discretion, determine that a stormwater discharge may cause, has reasonable potential to cause, or contribute to a violation of Vermont's Water Quality Standards. If such a determination is made, the Secretary will require a permittee to:

1. Amend the EPSC Plan to address adequately the identified water quality concerns;

2. Submit valid and verifiable data and information that are representative of ambient conditions and indicate that the receiving water is attaining water quality standards; or

3. Cease discharges of pollutants to surface waters from the construction activity and submit an application for an individual construction permit

C. The Secretary has the sole discretion to order a permittee pursuant to 10 V.S.A. Chapters 47 or 201 to immediately stop all ongoing construction and construction-related activities upon a finding that a discharge or potential discharge from such activities presents a current or potential threat of harm to the environment. The Secretary's stop work order may also require the permittee to take all actions to prevent or correct the discharge or potential discharge. Any appeal of the Secretary's action under this subpart shall not stay the effectiveness of this directive. Any action taken by the Secretary pursuant to this subpart shall not limit the Secretary's authority to pursue other enforcement actions pursuant to 10 V.S.A. Chapters 47 and 201.

D. Each revised EPSC Plan prepared pursuant to this Part shall be maintained on-site with the EPSC Plan.

6.5 Maintenance of Erosion Prevention and Sediment Control Measures at Moderate Risk Sites

A. All erosion prevention and sediment control measures identified in the EPSC Plan shall be maintained in effective operating condition. If site inspections required by Subpart 6.2 identify BMPs that are not operating effectively, maintenance shall be performed as soon as possible and before the next storm event to maintain the continued effectiveness of the measures. If implementing BMPs is impracticable before the next storm event, then the affected area shall be stabilized temporarily until such time that the BMPs can be installed.

B. If existing BMPs need to be modified or if additional BMPs are necessary for any reason, implementation shall be completed before the next storm event. If implementing BMPs is impracticable before the next storm event, then the affected area shall be stabilized temporarily until such time that the BMPs can be installed.

6.6. Presumption of Compliance

A. Compliance with water quality standards shall be presumed, unless site specific information demonstrates that a discharge causes or contributes to a violation of water quality standards, when the permittee is:

1. In full compliance with all permit conditions; and

2. Fully implementing stormwater BMPs as required by the permit.

PART 7: TRANSFERS OF AUTHORIZATIONS, CO-PERMITTEES, TERMINATION AND COMMON PLANS OF DEVELOPMENT

As construction sites develop over time, changes in owners and operators may occur either for the entire site or portions of the site. Changes in ownership occur most frequently in common plans of development (e.g. subdivisions). This Part provides flexibility for modifying, transferring or terminating permit coverage as owners/operators change and specifically allows for partial termination of permit coverage. For example, if the developer of a subdivision sells off an individual lot, the new individual lot owner may obtain permit coverage for its lot only, and the developer may then terminate its permit coverage for that lot.

7.1 Transfer of an Authorization to Discharge

A. A transfer of an authorization to discharge may occur only in connection with the transfer of the entire construction site to a new owner.

B. A notice of transfer must be submitted to the Secretary not later than thirty (30) days after the transfer and shall include the following:

1. The name and address of the present permittee;

2. The name and address of the prospective permittee;

3. The proposed date of transfer; and

4. A statement signed by the prospective permittee, stating that:

a. The conditions of the facility operation that contribute to, or affect, any discharge will not be materially different under the new ownership;

b. He/she has read and is familiar with the terms of the permit and agrees to comply with all the terms and conditions of the permit; and

c. He/she has adequate funding or other means to effect compliance with all the terms of the permit.

7.2 Adding or Subtracting Co-Permittees on Low Risk and Moderate Risk Projects

A. An owner or principal operator may be added as a co-permittee by filing a Notice of Addition of Co-Permittee with the Secretary. The Co-Permittee shall be subject to all the terms and conditions of this permit and the EPSC Plan, if any.

B. If the owner of the construction site obtains coverage under this general permit and the owner is not the principal operator or the sole principal operator, then all principal operators shall obtain coverage as co-permittees in accordance with this Subpart prior to the commencement of construction activities.

C. An owner or principal operator may be terminated as a Co-Permittee by filing a Notice of Termination of Co-Permittee Status with the Secretary. The Co-Permittee shall only be terminated from the permit upon approval by the Secretary.

D. The Notice of Addition of Co-Permittee form and the Notice of Termination of Co-Permittee Status form are available on-line at www.vtwaterquality.org/stormwater.htm.

7.3 Notice of Termination for Portions of an On-going Construction Site

A. A permittee may submit a Notice of Termination (NOT) for a portion of an on-going construction project in the following instances:

1. When final stabilization has been achieved on the portion of the site for which termination is sought;

2. When title to a portion of the construction site has been transferred to a new owner and the new owner has obtained coverage under this permit or an individual construction permit;

3. When another operator has assumed control over the portion of the site for which termination is sought and the new operator has obtained coverage under this permit or an individual construction permit; or

4. For residential construction only, temporary stabilization has been completed and the residence has been transferred to the homeowner.

B. To obtain a notice of termination for a portion of an on-going construction site, the permittee shall follow the requirements of Subpart 7.6 of this permit.

C. A NOT does not need to be filed to terminate permit coverage for low risk construction projects. An authorization to discharge for low risk projects will automatically terminate two years after the date of its issuance. If a low risk construction site has not achieved final stabilization two years after receiving an authorization to discharge then a new NOI shall be filed.

7.4 Notice of Termination for an Entire Construction Site

A. A permittee may submit a NOT for an entire construction site in the following instances:

1. Final stabilization has been achieved on the entire construction site for which the permittee is responsible;

2. Another operator has assumed control over all areas of the site that have not been finally stabilized and has obtained coverage under this permit; or

3. Coverage under an individual or alternative general NPDES permit has been obtained.

B. To obtain a notice of termination for an entire construction site, the permittee shall follow the requirements of Subpart 7.6 of this permit.

7.5 Submitting a Notice of Termination

A. A permittee shall submit a complete and accurate NOT, on a form provided by the Secretary. A copy of a NOT form is available on-line at www.vtwaterquality.org/stormwater.htm.

B. A NOT shall include, at a minimum, the following information:

1. The permit number for which termination is sought;

2. The basis for submission of the NOT;

3. The owner's and operator's name, address and telephone number;

4. The name of the project and address (or a description of location if no street address is available) of the construction site for which the notification is submitted;

5. A certification statement, signed and dated by the On-Site Plan Coordinator and by an authorized representative as defined in the signature requirements in Appendix D, and the name and title of that authorized representative; and

6. If the NOT is for only a portion of an ongoing construction project, a description of the portion of the site to which the NOT will apply.

7.6 Common Plans of Development

A. If portions of a construction site are transferred to a new owner prior to final stabilization then one of two different procedures must be followed:

1. The new owner must apply to be a co-permittee pursuant to Subpart 7.2 above; or

2. The new owner must obtain separate coverage under this permit for the transferred portion of the site and the original permittee must terminate coverage under this permit for that same portion pursuant to Subpart 7.4. In order for the new owner to obtain permit coverage, the transferred portion of the site must first be rescored in accordance with Appendix A.

PART 8: LEGAL AUTHORITIES

The permit is issued in accordance with the following state and federal laws and regulations: the Vermont Water Pollution Control statute, 10 V.S.A. Chapter 47, including Sections 1258, 1259, 1263 and 1264; the Vermont Water Pollution Control Rules, Chapter 13, the federal Clean Water Act, 33 U.S.C. §1251 et. seq., (hereafter CWA or the Act), and related federal regulations.

PART 9: 303(d) LISTED WATERS; TMDLS

If a receiving water is listed on Vermont's 303(d) list and is subject to an EPA-approved TMDL, the erosion prevention and sediment control measures must be consistent with any requirements specified in the TMDL as described in Subpart 9.1.

If a receiving water is listed on the 303(d) list as impaired due to sediment or stormwater, but is not subject to an approved TMDL, both low risk and moderate risk construction activities discharging to the water are eligible for coverage provided that the activities meet the requirements of this permit. This conclusion is warranted given the integrated risk based approach to site controls that is embodied in this permit. The risk scoring system provides extra protection for these waters since it automatically increases the risk score for construction activities discharging to stormwater and sediment impaired waters.

9.1 Discharges into State Waters with an Approved Total Maximum Daily Load

A. An applicant for moderate risk construction activities is eligible for coverage under this permit for discharges of pollutants of concern to waters for which there is a total maximum daily load (TMDL) established or approved by EPA if the ESCP Plan incorporates measures or controls that are consistent with the requirements of such TMDL. If a specific wasteload allocation has been established in the TMDL that would apply to the construction discharge, the ESCP Plan shall incorporate that allocation and include necessary steps to meet that allocation.

B. In a situation where an EPA-approved or established TMDL has specified a general wasteload allocation applicable to construction stormwater discharges, but no specific requirements for construction sites have been identified in the TMDL, the permit applicant for moderate-risk construction activities shall consult with the Secretary to confirm that adherence to an EPSC Plan that meets the requirements of this permit will be consistent with the approved TMDL. Where an EPA-approved or established TMDL has not specified a wasteload allocation applicable to construction stormwater discharges, but has not specifically excluded these discharges, adherence to an EPSC Plan that meets the requirements of this permit will be presumed to be consistent with the approved TMDL. If the EPA-approved or established TMDL specifically precludes such discharges, coverage under this permit is not allowed.

C. For stormwater discharges associated with low risk construction activities (as determined by Appendix A), adherence to the erosion prevention and sediment control measures in DEC's *Low Risk Site Handbook for Erosion Prevention and Sediment Control* and compliance with all applicable terms and conditions of the permit shall be presumed to be consistent with any EPA-approved or established TMDL, with the following limitations:

    1. if an EPA-approved or established TMDL specifically precludes such discharges, coverage under this permit is not allowed; and

    2. if a specific wasteload allocation has been established in the TMDL that would apply to stormwater discharges from authorized construction activities, then the applicant for coverage for low-risk construction activities shall prepare and submit an NOI and EPSC Plan in accordance with the requirements for moderate risk construction activities set out in this permit.

9.2 Discharges into State Waters that are Listed on the EPA-approved State Vermont 303(d) List as Impaired Due to Sediment or Stormwater and that do not have an Approved TMDL

A. An applicant for moderate-risk construction activities is eligible for coverage under this permit for stormwater discharges from construction activities to waters of the State that are listed on the EPA-approved State of Vermont 303(d) List as impaired due to sediment or stormwater and for which there is no approved TMDL, if the EPSC Plan meets the requirements of this permit and the permittee complies with the terms and condition of this permit and any authorization to discharge issued hereunder.

B. An applicant for low-risk construction activities is eligible for coverage under this permit for stormwater discharges from construction activities to waters of the State that are listed on the EPA-approved State of Vermont 303(d) List as impaired due to sediment or stormwater and for which there is no approved TMDL, if the permittee complies with the terms and condition of this permit and any authorization to discharge issued hereunder.

C. Notwithstanding Subparts 9.2.A and B, the Secretary reserves the right to require an individual construction stormwater permit for construction activities in accordance with Part 2 of Appendix D to this permit.

PART 10: ADDITIONAL PERMIT CONDITIONS

Additional permit conditions are contained in Appendix D to this permit.

PART 11: VIOLATION OF PERMIT REQUIREMENTS; ENFORCEMENT

A. This general permit contains eligibility restrictions, as well as permit conditions and requirements. Certain actions may need to be taken to be eligible for coverage under this permit. In such cases, a permittee must continue to satisfy those eligibility provisions to maintain permit authorization. If the requirements that are a pre-condition to eligibility are not met, then resulting discharges constitute unpermitted discharges.

B. A permittee shall comply with all terms and conditions of this permit. Any permit noncompliance constitutes a violation of 10 V.S.A. Chapter 47 and the federal Clean Water Act, and is grounds for an enforcement action, or suspension or revocation of the permittee's authorization to discharge under this permit.

C. Violations subject to enforcement action by the Secretary include, but are not limited to, the following:

1. Failure to apply for coverage under this general permit;

2. Failure to undertake construction activities as described in the NOI and in the project's Appendix A risk scoring;

3. Failure to obtain co-permittee status in accordance with Part 7 of this permit;

4. Failure to provide public notice of an NOI in accordance with this permit;

5. Failure to properly select, install and maintain BMPs in accordance with this permit, the EPSC Plan, if one is required, and the applicable DEC erosion prevention and sediment control manual;

6. Failure to amend the EPSC Plan as required by this permit;

7. Implementing a project change in violation of Part 5 of this permit;

8. Failure to take appropriate corrective action or submit corrective action reports in accordance with Part 6 of this permit; and

9. Failure to inspect or prepare inspection reports in accordance with Part 6 of this permit.

PART 12: APPEALS

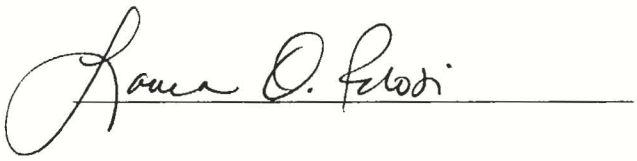
This permit may be appealed to the Vermont Environmental Court in accordance with 10 V.S.A. Section 220.

PART 13: EFFECTIVE DATE OF PERMIT AND PERMIT TERM

This permit shall become effective upon signing and shall expire five (5) years from the date of signing.

Signed this 5th day of February, 2008.

Laura Q. Pelosi, Commissioner
Department of Environmental Conservation



APPENDIX A - RISK EVALUATION

Accurately answering the questions in this appendix will allow you to determine whether a proposed construction project is considered a Low Risk or Moderate Risk project, which defines the application and permit requirements that are applicable to your project.

The risk evaluation procedure consists of two parts. Part I is a Basic Risk Evaluation, which determines if a project is automatically categorized as Low Risk based upon the answers to a few basic questions.

If a project is not automatically categorized as Low Risk based upon the Basic Risk Evaluation, you must complete Part II, Detailed Risk Evaluation, to determine the risk category for your project. This part includes questions on more detailed aspects of the project.

Once the appropriate risk category has been determined, refer to Part III for the application requirements.

You should be aware that each completed Appendix A is incorporated by reference and included in the terms of this general permit, and each permittee shall undertake its construction activities in accordance with the completed Appendix A, as a condition of this permit. Failure to comply with the completed Appendix A shall be deemed a violation of this permit and subject to enforcement action.

APPENDIX A

Part I – Basic Risk Evaluation

A project may automatically be categorized as Low Risk based on a few basic project characteristics. Answer each question below to determine if a project is automatically categorized as Low Risk. For definitions of terms used in the following questions (e.g. disturbance, vegetated buffer) refer to Appendix C.

Basic Risk Evaluation				
Criteria		**Answer**	**Score Direction**	**Enter Score**
1.	Will the proposed independent project alone disturb more than 2 acres of land?	YES / NO	If YES, enter 1, if NO enter 0	___
2.	Is the project within a watershed impaired due to stormwater or sediment as specified on Part A of the Vermont 303(d) list?	YES / NO	If YES, enter 1, if NO enter 0	___
3.	Will the project have any stormwater discharges from the construction site to receiving water(s) that **do not** first pass through a 50 ft vegetated buffer area?	YES / NO	If YES, enter 1, if NO enter 0	___
4.	Will the project have disturbed earth in any one location for more than 14 consecutive calendar days without temporary or final stabilization?	YES / NO	If YES, enter 1, if NO enter 0	___
5.	Will the project have more than five acres of disturbed earth at any one time?	YES / NO	If YES, enter 1, if NO enter 0	___
	Total Score for Low Risk Screen 2 (add score from questions 1-5)			___

If the Total Score for Basic Risk Evaluation is 0, the proposed project is eligible for coverage under this permit as a Low Risk project. Proceed to Part IV of Appendix A for a summary of the application requirements for Low Risk Projects. If not, proceed to Part II.

Criterion 1: Only include the disturbance planned for an independent project. For example, if a lot owner is only building on a single house lot in a residential subdivision, only consider the disturbance associated with that lot, not the entire common plan. Refer to Appendix C for definitions of independent project and disturbance.

Criterion 2: Refer to the following web page for a list of waters in these categories: http://www.vtwaterquality.org/stormwater/htm/sw_cgpeligibility.htm

Criterion 3: Refer to the Appendix C for the definition of vegetated buffer area.

Criterion 4: Refer to Appendix C for definitions of temporary and final stabilization.

Criterion 5: Refer to Appendix C for the definition of disturbed earth.

Part II – Detailed Risk Evaluation

For projects not automatically categorized as Low Risk in Part I, this Detailed Risk Evaluation must be completed to determine if a project is Low Risk, Moderate Risk, or requires an Individual Permit. This evaluation determines the risk category by weighing the balance of factors which contribute to and mitigate against the risk of a discharge of sediment from the construction project. Complete all questions in Part II for the independent project. For definitions of terms used in the evaluation, refer to Appendix C.

Detailed Risk Evaluation – Identify Risk Factors				
Criteria		**Answer**	**Score Direction**	**Enter Score**
A.	Will the proposed project have earth disturbance within 100 ft (horizontal) upslope of any lake or pond or 50 feet (horizontal) upslope of any rivers or stream (perennial or seasonal)?	YES/ NO	If YES, enter 1, if NO enter 0	___
B.	Will the project have stormwater discharges by direct conveyance (tributary, channel, ditch, storm sewer, etc.) to a water of the state listed on the 303 (d) Part A list as being impaired by stormwater or sediment; a Class A Water; or an Outstanding Resource Water?	YES / NO	If YES, enter 1, if NO enter 0	___
C.	Will the project have more than five acres of disturbed earth at any one time?	YES/ NO	If YES, enter 1, if NO enter 0	___
D.	Will the project have disturbed earth in any one location for more than 14 consecutive calendar days without temporary or final stabilization?	YES/ NO	If YES, enter 1, if NO enter 0	___
E.	Will the project include more than one acre of disturbance on soil that is greater than 15% slope?	YES/ NO	If YES, enter 1, if NO enter 0	___
F.	Will the project include more than one acre of disturbance of soils with a high (K>0.36) erodibility rating?	YES/ NO	If YES, enter 1, if NO enter 0	___
G.	**Total Score for Risk Factors (add A through F)**			___

Criterion A: Measure lake distance from mean water level, and stream or river distance from top of bank. Do not include disturbance for the installation of stormwater treatment facilities or road stream crossings if there are no reasonable alternative locations.

Criterion B: Refer to http://www.vtwaterquality.org/stormwater/htm/sw_cgpeligibility.htm for the listing.

Criterion C: The maximum allowable for Low Risk Projects is 7 acres. **Moderate risk projects over 5 acres may be required to file an Individual Discharge Permit application if determined necessary by the Secretary.**

Criterion D: The maximum allowable for Low Risk Projects is 21 days. **Moderate risk projects over 21 days may be required to file an Individual Discharge Permit application if determined necessary by the Secretary.**

Criterion E: Include disturbance for the duration of the project, not at any one point in time. Slope determinations should be based on a site survey of the future disturbance area.

Criterion F: Include disturbance for the entire individual project, not at any one point in time. The Erosion Factor K, is a measure of the inherent erodibilty of a soil type. Refer to NRCS soil maps for your county. If soils data is not available (e.g. if the site is built on assorted fill material), contact ANR for directions on evaluating soil erodibility.

Part II Continued – Detailed Risk Mitigation Factor Evaluation

Detailed Risk Evaluation – Identify Risk Mitigation Factors				
	Criteria	**Answer**	**Score Direction**	**Enter Score**
H.	Will stormwater leaving the construction site pass through at least 50 feet of established vegetated buffer before entering a receiving water?	YES / NO	If YES, enter 1, if NO enter 0	___
I.	Will the project be limited to two acres or less of disturbed earth at any one time?	YES / NO	If YES, enter 1, if NO enter 0	___
J.	Will the project have a maximum of 7 consecutive days of disturbed earth exposure in any location before temporary or final stabilization is implemented?	YES/ NO	If YES, enter 1, if NO enter 0	___
K.	Will the project disturb less than two acres of soil with an erodibility higher than K=0.17?	YES/ NO	If YES, enter 1, if NO enter 0	___
L.	Will the project include less than two acres of disturbance on soil that is greater than 5% slope?	YES/ NO	If YES, enter 1, if NO enter 0	___
M.	**Total Score for Risk Mitigation Factors (add H through L.)**			___

Criterion H: Refer to Appendix C for a definition of vegetated buffer.
Criterion I: Refer to Appendix C for a definition of earth disturbance.
Criterion J: Refer to Appendix C for definitions of temporary and final stabilization.
Criterion K: Include disturbance for the duration of the project, not at any one point in time. The Erosion Factor K, is a measure of the inherent erodibilty of a soil type. Refer to NRCS soil maps available at USDA-NRCS District Offices. If soils data are not available (e.g. if the site is built on assorted fill material), contact DEC for directions on evaluating soil erodibility.
Criterion L: Include disturbance for the duration of the project, not at any one point in time. Slope determinations should be based on a site survey of the proposed disturbance area.

Total Risk Score		
N.	**Moderate Risk Base Score**	**2**
O.	**Enter Score from Line G above (Risk Factor Total)**	___
P.	**Add lines N and O**	___
Q.	**Enter Score from Line M above (Risk Mitigation Factor Total)**	___
R.	**OVERALL RISK SCORE: Subtract line Q from line P**	___

Part III– Interpreting the Detailed Risk Evaluation

OVERALL SCORE	Risk Category	Directions for Filing for Permits
<1	Low Risk	The proposed project is eligible for the Construction General Permit as a Low Risk project provided that the requirements of Subpart 2 are met. If these requirements cannot be met, contact DEC to determine if the project should seek coverage as a Moderate Risk project or under an Individual Discharge Permit. Refer to Part IV of Appendix A for a summary of the application requirements for Low Risk projects.
1-2	Moderate Risk	The proposed project is eligible for the Construction General Permit as a Moderate Risk project provided that the requirements of Subpart 3 are met. If these requirements cannot be met, contact DEC to determine if the project should seek coverage as a Moderate Risk project or under an Individual Discharge Permit. Refer to Part IV of Appendix A for a summary of the application requirements for Moderate Risk projects.
>2	Requires Individual Permit	The proposed project is not eligible for coverage under the Construction General Permit, and therefore requires coverage under an Individual Discharge Permit. Please refer to Stormwater Section on the Water Quality Division website for more information: www.vtwaterquality.org/stormwater.htm.

Part IV – Filing Directions

1. Low Risk Projects

Projects that qualify as Low Risk are required to implement the applicable practices detailed in the *Low Risk Site Handbook for Erosion Prevention and Sediment Control.* To obtain coverage under General Permit 3-9020 as a Low Risk project, applicants must submit the following to DEC:

1. A completed Notice of Intent form for General Permit 3-9020;
2. A completed Appendix A;
3. The required processing fee.

To satisfy the public comment requirement, **applicants must file a copy of the completed Notice of Intent form, including a copy of Appendix A, with the municipal clerk in the municipalities where the project will occur prior to submitting this information to ANR**. **Details of the public notice process are in Part 2 of the general permit.**

2. Moderate Risk Projects

Projects that qualify as Moderate Risk are required to implement a site-specific Erosion Prevention and Sediment Control (EPSC) Plan that conforms to *The Vermont Standards and Specifications for Erosion Prevention and Sediment Control.* To obtain coverage under General Permit 3-9020 as a Moderate Risk project, applicants must submit the following to DEC:

1. A completed Notice of Intent form for General Permit 3-9020;
2. A completed Appendix A;
3. A site-specific EPSC Plan;
4. A certification by the plan preparer that the EPSC Plan conforms to *The Vermont Standards and Specifications for Erosion Prevention and Sediment Control;*
5. The required processing fee.

To satisfy the public comment requirement, **applicants must file a copy of the completed Notice of Intent form, including a copy of Appendix A, with the municipal clerk in the municipalities where the project will occur prior to submitting this information to ANR. Details of the public notice process are in Part 3 of the general permit.**

APPENDIX B - EROSION PREVENTION AND SEDIMENT CONTROL PLAN REQUIREMENTS

1. General Requirements

A. An Erosion Prevention and Sediment Control (EPSC) Plan that meets the requirements of this permit must be submitted with a Notice of Intent for moderate risk projects. The goal of the EPSC Plan is to provide the On-Site Coordinator and construction site personnel with a thorough strategy tailored to the site conditions for preventing erosion and containing eroded sediment on-site. The EPSC plan must adhere to *The Vermont Standards and Specifications for Erosion Prevention and Sediment Control* (hereafter, "the Standards"), and must satisfy the requirements listed below. The Secretary may promulgate a standard EPSC Plan submission format.

Each EPSC Plan shall contain, at a minimum:

1. Project Description

   An overview of the proposed project. This may be in narrative or point form, may include tables or figures, and must include:

   a. The type of project (e.g., residential subdivision, town road, commercial building, etc.);
   b. A description of the major project components and the anticipated earth disturbance associated with each (e.g. roads, utilities, number of buildings);
   c. The total acreage of anticipated earth disturbance;
   d. The intended sequence and timing of major project components that disturb soils at the site;
   e. The maximum concurrent earth disturbance (if any) used to score this project on Appendix A;
   f. The use of vegetated buffers, if any, used to score this project on Appendix A;
   g. The maximum duration for exposed soils at a given location before requiring temporary stabilization;
   h. The name of the receiving water(s), the number of discrete discharge points to the receiving water(s), the proximity of the proposed earth disturbing activities to each of these discharge points, and a description of how stormwater flows from the construction site to the discharge point (e.g. vegetated swale, culvert, storm sewer). If no discrete discharge points, a description of the length, slope, and vegetative cover of the shortest overland flow path to receiving water from the limits of the proposed disturbance;
   i. For each distinct drainage area that includes 0.5 or more acres of proposed earth disturbance and that discharges to a separate location (whether through channelized flow, sheet or overland flow or artificial drainage) list:
      (1) The contributing drainage area (in acres);
      (2) A list of the soil types that will be disturbed, including the NRCS erodibility index (K) value from Natural Resources Conservation Service Soil Surveys of these soils, and the proposed area of disturbance of each type of soil;
      (3) The average slope of the disturbed area;

(4) The nature of the discharge location (vegetated buffer, storm sewer, waters of the state);

j. The number of proposed stream crossings and whether a stream alteration permit is being obtained;
k. The area of wetlands that will be impacted by the proposed activities, their type, and whether a Conditional Use Permit or Army Corps of Engineers permit is being obtained for wetland impacts;
l. The need for off-site waste or borrow areas, if any, the anticipated amount of borrow or waste material to be transported, the nature of the material, and how these will be permitted (i.e. permitted as a part of the current Notice of Intent or under a separate Notice of Intent); and
m. A statement whether or not earth disturbing activities are anticipated during the winter construction season (October 15- April 15), the nature of these activities, and the area of disturbance associated with these activities.

2. Location Map

A USGS quadrangle map, a portion of a city or county map, or other map with enough detail to identify the location of the construction site, showing the boundaries of the proposed construction activities and identifying the receiving waters for stormwater from the construction site.

3. Pre-Construction Plan

A map or maps of the proposed construction area and conveying the following information:
a. The limits of disturbance for the site, and the methods for their demarcation in the field;
b. Existing contours based on site survey for the construction site and existing contours based on site survey or USGS topographical maps for the surrounding area 300 feet outside of the limits of disturbance;
c. Existing water and drainage features (streams, ponds, wetlands, channels, gullies, etc.).
d. Boundaries and labels of all sub-watersheds with more than 0.5 acres of proposed disturbance;
e. Existing vegetation;
f. Location of soil types corresponding to NRCS Soil Maps;
g. All sediment control measures (silt fence, basins, etc.) to be installed ahead of primary earth disturbance activities;
h. Limits of proposed disturbance and the method for demarcation in the field;
i. Directions to complete installation of sediment control measures ahead of initiating the principal earthwork activities;
j. Directions to complete stabilization of operational stormwater treatment practices (e.g. ponds, grassed lined swales) before directing runoff to them;
k. Identified buffers or setbacks from water bodies and conveyances to water bodies, with directions for avoiding impacts in these areas;
l. North arrow and scale;
m. A legend for all EPSC measures and all other features (e.g. wetlands, streams, property lines, etc.) included on the plan; and
n. Date of last plan revision, name of plan designer, and name of plan.

4. Construction Plan

   The Construction Plan shall include all information related to erosion prevention, as well as sediment control measures to be implemented during the principal construction activities. These must be consistent with limits specified on the Notice of Intent (e.g. vegetated buffer, limited concurrent disturbance). It must include, where applicable:

   a. Property lines of the project;
   b. Boundaries and labels of all sub-watersheds with more than 0.5 acres of proposed disturbance, corresponding to the Project Description (for phased plans, modify for any phase where site drainage has been altered by construction activities);
   c. The proposed phase boundaries, the order of phases to be constructed, and the required items to complete before initiating the subsequent phase (e.g. complete stabilization of the prior phase);
   d. The limits of disturbance;
   e. Identified buffers or setbacks from water bodies and discrete conveyances to water bodies, with directions for avoiding impacts in these areas;
   f. Specific directions for limiting concurrent earth disturbance;
   g. Existing and planned contours;
   h. Location of all runoff control measures;
   i. Location of all sediment control measures to be installed during the construction phase, as well as sediment control measures implemented in the pre-construction phase;
   j. Consistent with Appendix A, directions for stabilization of a given area within a specified timeframe following initial disturbance: “All areas of disturbance must have temporary or final stabilization within __ days of the initial disturbance. After this time, any disturbance in the area must be stabilized at the end of each work day. The following exceptions apply: i) Stabilization is not required if work is to continue in the area within the next 24 hours and there is no precipitation forecast for the next 24 hours. ii) Stabilization is not required if the work is occurring in a self-contained excavation (i.e. no outlet) with a depth of 2 feet or greater (e.g. house foundation excavation, utility trenches).”
   k. Directions and location of practices employed for construction outside of the growing season (October 15- April 15), consistent with the Standards, if earthwork during this period is anticipated;
   l. The location of all existing and proposed structures (roads, utilities, buildings, drainage inlets, etc.);
   m. The location of all proposed stockpiles and directions for stabilizing and protecting stockpile areas consistent with the Standards;
   n. The location of all proposed staging areas;
   o. Directions for inspection frequency consistent with the permit;
   p. North arrow and scale;
   q. A legend for all EPSC measures included on the plan; and
   r. Date of last plan revision, name of plan designer, and name of plan.

5. Stabilization Plan
   The Stabilization Plan shall convey to contractors all the information necessary to implement final stabilization for the entire construction site. It shall include the following, consistent with the Standards:

a. Property lines of the project;
b. Finish grade contours;
c. The location of all structures, existing and proposed;
d. Final stabilization measures required for all areas of disturbance where structures are not installed, including areas requiring stone, rolled erosion control products, hydromulching, seeding and mulching, etc.;
e. Specifications for seed mixes, fertilization, and other soil amendments for areas to be stabilized with vegetation;
f. Directions for completing seeding after April 15 and before September 15 for areas where final stabilization is through vegetation;
g. Directions for inspection frequency consistent with the permit, including an indication of when inspections may be discontinued;
h. A legend for all EPSC measures included on the plan;
i. Date of last plan revision, name of plan designer, and name of plan; and
j. North arrow and scale.

2. Special Requirements for Linear Projects

A. Requirements 1-5 in section 1 above also apply to linear projects such as roads, pipelines, utility installations, except that:

1. The Pre-Construction, Construction Plan, and Stabilization Plan may be combined into one plan.

2. A Phasing Plan shall be developed in accordance with the Standards.

3. The location of all staging areas away from the project shall be shown with appropriate EPSC measures and accompanying location map.

3. Certifications

1. The EPSC Plan shall contain the following certifications:

a. Certification Relating to the Accuracy of Information Submitted

I hereby certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gathered and evaluated the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

_____*
Name of Preparer of EPSC Plan *

b. Certification Relating to Compliance with General Permit and *The Vermont Standards and Specifications for Erosion Prevention and Sediment Control*.

I hereby certify that this Erosion Prevention and Sediment Control Plan was prepared in conformance with the requirements of DEC's General Permit for Stormwater Runoff from Construction Sites (General Permit 3-9020 (2006)) and *The Vermont Standards and Specifications for Erosion Prevention and Sediment Control*. I also certify that I am knowledgeable in the principles and practices of erosion prevention and sediment control and possess the skills to assess conditions at the construction site that could impact stormwater quality and to assess the effectiveness of any sediment and erosion control measures selected to control the quality of stormwater discharges from the construction activity.

_____*
Name of Preparer of EPSC Plan *

* Signatures must conform to the signature requirements in Condition 15 in Appendix D.

APPENDIX C - DEFINITIONS

"Agency" means the Vermont Agency of Natural Resources.

"Applicant" means a person applying for permit coverage.

"Best Management Practices" (BMPs) means schedules of activities, prohibitions of practices, maintenance procedures, and other management practices to prevent or reduce the discharge of pollutants to waters of the State.

"Commencement of Construction Activities" means the initial disturbance of soils associated with clearing, grading, or excavating activities or other construction-related activities (e.g. stockpiling of fill material).

"Common Plan of Development" means a development that is completed in phases or stages when such phases or stages share a common state or local permit related to the regulation of land use, the discharge of wastewater or a discharge to surface waters or groundwater, or a development designed with shared common infrastructure. Common plans include, but are not limited to, subdivisions, industrial and commercial parks, university and other campuses and ski areas. Construction activities or portions of construction activities that have achieved final stabilization as of the effective date of this permit shall not be considered for purposes of determining what constitutes disturbance under a common plan of development that requires coverage under this permit. Following completion of the common plan components on a parcel of land, any additional development of the parcel shall be considered as separate from the original common plan for the purposes of evaluating whether 1 or more acres of land will be disturbed.

"Construction and Construction-related Activities" means all clearing, grading, excavation, and stockpiling activities that will result in the disturbance of one or more acres of land area. Earth disturbance that is a normal part of the long-term use or maintenance of a property is not covered by the construction general permit (e.g. mining operations, dirt road regrading, routine road resurfacing). For mining operations, "construction and construction-related activities" means the construction or exploration phase, not the active mining phase.

"Construction site" means the land or water area where any facility or activity is physically located or conducted, including adjacent land used in connection with the facility or activity or the area of earth disturbance directly associated with the permitted construction activity.

"Control Measure" as used in this permit, refers to any BMP or other method used to prevent or reduce the discharge of pollutants to waters of the State.

"Conveyance" as used in this permit, refers to any mode of transfer of stormwater, whether natural or man-made, from one location to another. This includes, but is not limited to, drainage swales, ditches, natural channels, and stormwater collection and distribution structures.

"CWA" means the Clean Water Act or the Federal Water Pollution Control Act, 33 U.S.C. section 1251 et seq.

“DEC” means the Vermont Department of Environmental Conservation.

“Disturbed earth” means any soil on a construction site or associated support activities (e.g. staging area, borrow area, disposal site for excess fill) that is exposed to the erosive effects of wind, rain, or runoff due to construction or construction related activities.

“Eligible” means qualified for authorization to discharge stormwater under this general permit.

“Facility” or “Activity” means any “point source” or any other facility or activity (including land or appurtenances thereto) that is subject to regulation under the NPDES program.

“Federal Facility” means any buildings, installations, structures, land, public works, equipment, aircraft, vessels, and other vehicles and property, owned by, or constructed or manufactured for the purpose of leasing to, the Federal government.

“Final Stabilization” means that:

1. All soil disturbing activities at the site have been completed and either of the two following criteria are met:

a. a uniform (e.g,, evenly distributed, without large bare areas) perennial vegetative cover with a density of 70 percent of the native background vegetative cover for the area has been established on all unpaved areas and areas not covered by permanent structures, or

b. equivalent final stabilization measures (such as the use of gravel, riprap, gabions, or geotextiles) have been employed.

2. When background native vegetation will cover less than 100 percent of the ground (e.g., arid areas, beaches), the 70 percent coverage criteria is adjusted as follows: if the native vegetation covers 50 percent of the ground, 70 percent of 50 percent (0.70 X 0.50 = 0.35) would require 35 percent total cover for final stabilization. On a beach with no natural vegetation, no stabilization is required.

3. For individual lots in residential construction, final stabilization means that either:

a. The homebuilder has completed final stabilization as specified above, or

b. The homebuilder has established temporary stabilization including perimeter controls for an individual lot prior to occupation of the home by the homeowner and informing the homeowner of the need for, and benefits of, final stabilization.

4. For construction projects on land used for agricultural purposes (e.g., pipelines across crop or range land, staging areas for highway construction, etc.), final stabilization may be accomplished by returning the disturbed land to its preconstruction agricultural use. Areas disturbed that were not previously used for agricultural activities, such as buffer strips immediately adjacent to ‘‘water of the United States,’’ and areas which are not being returned to their preconstruction agricultural use must meet the final stabilization criteria (1) or (2) above.

"General Permit Rules" means the October 7, 1991 Amendment to the Vermont Water Pollution Control Regulations, Chapter 13.

"Independent Project" means phases of a construction project where any of the following applies:

i. Each phase is constructed separately, with no construction of phases overlapping in time; or

ii. Phases do not share a common landowner nor a common principal operator; or

iii. One of the phases is an off-site waste or borrow area that is completely separate from the main construction site.

"Large Construction Activity" is defined at 40 CFR §122.26(b)(14)(x) and incorporated here by reference. A large construction activity includes clearing, grading, and excavating resulting in a land disturbance that will disturb equal to or greater than five acres of land or will disturb less than five acres of total land area but is part of a larger common plan of development or sale that will ultimately disturb equal to or greater than five acres. Large construction activity does not include routine maintenance that is performed to maintain the original line and grade, hydraulic capacity, or original purpose of the site.

"Principal operator" for the purpose of this permit and in the context of stormwater associated with construction activity, means any party associated with a construction project that meets either of the following two criteria:

1. The party has operational control over construction plans and specifications including, but not limited to, the ability to make modifications to those plans and specifications; or

2. The party has day-to-day operational control of those activities at a project which are necessary to ensure compliance with a EPSC Plan for the site or other permit conditions (e.g., they are authorized to direct workers at a site to carry out activities required by the EPSC Planner comply with other permit conditions).

"Person" means any individual, partnership, company, corporation, association, joint venture, trust, municipality, the state of Vermont or any agency, department or subdivision of the state, any federal agency, or any other legal or commercial entity.

"Project Area" means:

1. The areas on the construction site where stormwater discharges originate and flow toward the point of discharge into the receiving waters (including areas where excavation, site development, or other ground disturbance activities occur) and the immediate vicinity. (Example: 1. Where bald eagles nest in a tree that is on or bordering a construction site and could be disturbed by the construction activity or where grading causes stormwater to flow into a small wetland or other habitat that is on the site that contains listed species.)

2. The areas where stormwater discharges flow from the construction site to the point of discharge into receiving waters. (Example: Where stormwater flows into a ditch, swale,

or gully that leads to receiving waters and where listed species (such as amphibians) are found in the ditch, swale, or gully.)

3. The areas where stormwater from construction activities discharge into receiving waters and the areas in the immediate vicinity of the point of discharge. (Example: Where stormwater from construction activities discharges into a stream segment that is known to harbor listed aquatic species.)

4. The areas where stormwater BMPs will be constructed and operated, including any areas where stormwater flows to and from BMPs. (Example: Where a stormwater retention pond would be built.)

5. The areas upstream and /or downstream from construction activities discharges into a stream segment that may be affected by the said discharges. (Example: Where sediment discharged to a receiving stream settles downstream and impacts a breeding area of a listed aquatic species.)

"Secretary" means the Secretary of the Agency of Natural Resources or the Secretary's duly authorized representative.

"Small Construction Activity" is defined at 40 CFR §122.26(b)(15) and incorporated here by reference. A small construction activity includes clearing, grading, and excavating resulting in a land disturbance that will disturb equal to or greater than one (1) acre and less than five (5) acres of land or will disturb less than one (1) acre of total land area but is part of a larger common plan of development that will ultimately disturb equal to or greater than one (1) acre and less than five (5) acres. Small construction activity does not include routine maintenance that is performed to maintain the original line and grade, hydraulic capacity, or original purpose of the site.

"Stormwater" means stormwater runoff, snowmelt runoff, and surface runoff and drainage.

"Stormwater Discharge-Related Activities" as used in this permit, include: activities that cause, contribute to, or result in stormwater point source pollutant discharges, including but not limited to: excavation, site development, grading and other surface disturbance activities; and measures to control stormwater including the siting, construction and operation of BMPs to control, reduce or prevent stormwater pollution.

"Temporary Stabilization" means protecting soils in areas where additional soil disturbance activities from erosion by rainfall, runoff, or wind, with a surface cover, including, but not limited to, establishment of ground vegetation, application of mulch, rolled erosion control products, gravelling or paving.

"Total Maximum Daily Load" or "TMDL" means the calculations and plan for meeting water quality standards approved by the U.S. Environmental Protection Agency (EPA) and prepared pursuant to 33 U.S.C. Section 1313(d) and federal regulations adopted under that law.

"Vegetated Buffer" means any undisturbed area between a construction site and a receiving water that consists of a naturally vegetated ground surface (e.g. trees, shrubs, duff layer, grasses and other ground plants). This does not include lawns or any area of concentrated flow (e.g. ditches, swales).

“Waters of the State” means all rivers, streams, creeks, brooks, reservoirs, ponds, lakes, springs, and all bodies of surface waters, artificial or natural, which are contained within, flow through or border upon the state of Vermont or any portion of it.

APPENDIX D – ADDITIONAL PERMIT CONDITIONS

1. Continuation of the Expired General Permit

A. If this permit is not reissued or replaced prior to its expiration date, it will be administratively continued and remain in force and effect. If a permittee was granted permit coverage prior to the expiration date, the permittee shall automatically remain covered by the continued permit until the earliest of:

1. Reissuance or replacement of this permit, at which time the permittee must comply with the conditions of the new permit to maintain authorization to discharge; or

2. Submittal of a Notice of Termination; or

3. Issuance of an individual permit for the project's discharges; or

4. A formal permit decision by the Secretary to not reissue this general permit, at which time the permittee must seek coverage under an alternative general permit or an individual permit.

2. Requiring an Individual Permit

A. The Secretary may require a person with proposed construction activities to apply for an individual NPDES construction stormwater permit. Any interested person may petition the Secretary to take action under this paragraph. Cases where an individual permit may be required include the following:

1. The discharge(s) is a significant contributor of pollution as determined by the following factors:

   a. the location of the discharge with respect to waters of the State;

   b. the size of the discharge;

   c. the quantity and nature of the pollutants reaching waters of the State and the impacts of the pollution on the receiving water;

   d. other relevant factors.

2. The discharger is not in compliance with the terms and conditions of the general permit or does not qualify for a general permit.

3. A change has occurred in the availability of demonstrated technology or practices for the control or abatement of wastes applicable to the discharge.

4. Federal effluent limitation guidelines are promulgated for discharges covered by the general permit.

5. If necessary to implement a waste management strategy contained in any applicable basin plan.

6. If the Secretary finds that a permittee authorized by a general permit is required to apply for an individual permit, the Secretary shall so notify the permittee. This notice shall include a brief statement of the reasons for this decision, an application form, a statement setting a time for the permittee to file the application, and a statement that on the effective date of the individual permit the general permit as it applied to the individual permittee shall automatically terminate. The Secretary may grant additional time upon request of the applicant.

B. When an individual permit is issued to a person otherwise subject to a general permit, the applicability of the general permit to the individual permittee is automatically terminated on the effective date of the individual permit.

C. Any permittee authorized by a general permit may request to be excluded from coverage of the general permit provided the permittee submits information supporting the request. If the Secretary finds that the terms and conditions of the general permit do not apply to the discharge, or that the discharge is more appropriately covered by an individual permit, the Secretary shall grant the request and shall so notify the permittee in writing of his/her decision. Upon receipt of such notification, the permittee shall submit to the Secretary an application for an individual permit. The applicability of the general permit is not terminated until the effective date of the individual permit.

3. Requiring Coverage under General Permit

A. The Secretary may require any person applying for issuance of an individual permit to be subject to NPDES general permit coverage provided the Secretary finds the discharge complies with all conditions of the general permit and the discharge is more appropriately covered under the general permit.

B. Any permittee subject to an individual permit and wishing to discharge subject to a general permit may file a notice on forms provided by the Secretary. Upon the request of the Secretary, any person who files a notice shall submit such additional information that may be necessary to enable the Secretary to authorize the discharge under the terms of a general permit. Each notice shall be accompanied by a fee as specified by the Secretary and established by law.

C. Any permittee subject to an individual permit shall be authorized to discharge under the terms of a general permit upon:

1. the issuance of a notice by the Secretary authorizing the discharge under the terms of the general permit, and;

2. expiration of the individual permit under which the permittee was previously authorized to discharge.

D. The Secretary may require a person to obtain coverage under this general permit as either a low or moderate risk project based on a consideration of site specific factors, which modify the assessment of risk in addition to the factors currently evaluated in Appendix A.

4. Inclusion of Permit Requirements in Another NPDES Permit

A. The requirements of this general permit may be included in an alternative NPDES general permit or NPDES individual permit issued for a facility provided that the requirements of the alternative NPDES general permit or individual permit are at least as stringent as this permit. If the requirements of this general permit are included in an alternative general or individual NPDES permit, and a permittee obtains such coverage, then coverage under this permit is not required.

5. Revocation of an Authorization to Discharge

A. The Secretary may, after notice and opportunity for public hearing pursuant to 3 V.S.A. Section 814 revoke or suspend, in whole or in part, authorization to discharge under a general permit for cause, including but not limited to:

1. Violation of any terms or conditions of the general permit;

2. Obtaining a general permit by misrepresentation or failure to disclose fully all relevant facts;

3. A change in any condition that requires either a temporary or permanent reduction or elimination of the permitted discharge; and

4. Violations of the Vermont Water Quality Standards.

6. Limitations

A. This general permit conveys no vested rights or exclusive privileges. The general permit conveys no title to land nor authorizes any injury to public or private property. The general permit does not authorize infringement of any applicable federal, state or local laws or regulations nor obviate the necessity of obtaining such additional permits as may be required.

B. Nothing in this permit shall be construed as having relieved, modified, or in any manner affected the permittee's ongoing obligation to comply with all other federal, state or local statutes, regulations or directives applicable to the permittee in the operation of its business, nor does it relieve the permittee of the obligation to obtain all necessary federal, state and local permits.

7. Prohibitions

A. This permit does not relieve any person of the federal reporting requirements of 40 CFR Part 110, 40 CFR Part 117 and 40 CFR Part 302 relating to spills or other releases of oils or

hazardous substances. This permit does not authorize the discharge of hazardous substances or oil resulting from an on-site spill.

B. If a release in excess of reportable quantities occurs, the permittee must modify the EPSC Plan required under Part 6 within 7 calendar days of knowledge of the release to: provide a description of the release, the circumstances leading to the release, and the date of the release. The EPSC Plan must identify measures to prevent the reoccurrence of such releases and to respond to such releases.

C. Discharges of any material other than stormwater, such as vehicle and equipment maintenance spills, fuels, wash water, construction debris, oil, wet concrete (including washout water from concrete batch trucks or equipment used to mix concrete), and other substances, are prohibited.

D. Sediments and other pollutants collected and removed in the course of treatment of stormwater runoff shall be disposed in a manner that will not result in the sediments and pollutants entering waters of the State.

8. Right of Entry

A permittee shall allow the Secretary and his/her authorized representatives, at reasonable times, and upon presentation of credentials, to enter upon and inspect the property on which the construction activities are occurring and to sample any construction-related discharges and to have access to and copy any records required to be kept pursuant to the permit.

9. Modification of General Permit

After notice and opportunity for public hearing, this permit may be modified in accord with DEC's General Permit Rules Section 13.12.C.7.

10. Historic Properties

Each permittee must comply with any applicable state and local laws concerning the protection of historic properties and places.

11. Retention of Records

Copies of the EPSC Plan, all amendments thereto, and all documentation required by this permit, including records of all data used to complete the NOI to be covered by this permit, must be retained for at least three years from the date that permit coverage expires or is terminated. This period may be extended by request of the Secretary at any time.

12. Reopener Clause

If there is evidence indicating that the stormwater discharges authorized by this permit cause, have the reasonable potential to cause or contribute to a violation of the Vermont Water Quality Standards, a permittee that has obtained an authorization to discharge under this permit may be required to obtain an individual construction permit, or the Secretary may modify the authorization

to discharge to include different limitations and/or requirements in accordance with Subpart 6.4.B of this permit.

13. Need to Halt or Reduce Activity Not a Defense

It shall not be a defense in an enforcement action that it would have been necessary to halt or reduce the permitted activity in order to maintain compliance with the conditions of this permit.

14. Duty to Mitigate

A permittee must take all reasonable steps to minimize or prevent any discharge or sludge use or disposal in violation of this permit which has a reasonable likelihood of adversely affecting human health or the environment.

15. Signatory Requirements

A. All applications, including NOIs, must be signed as follows:

1. For a corporation: By a responsible corporate officer. For the purpose of this Part, a responsible corporate officer means: (i) a president, secretary, treasurer, or vice-president of the corporation in charge of a principal business function, or any other person who performs similar policy- or decision-making functions for the corporation, or (ii) the manager of one or more manufacturing, production, or operating facilities, provided, the manager is authorized to make management decisions which govern the operation of the regulated facility including having the explicit or implicit duty of making major capital investment recommendations, and initiating and directing other comprehensive measures to assure long term environmental compliance with environmental laws and regulations; the manager can ensure that the necessary systems are established or actions taken to gather complete and accurate information for permit application requirements; and where authority to sign documents has been assigned or delegated to the manager in accordance with corporate procedures.

2. For a partnership or sole proprietorship: By a general partner or the proprietor, respectively; or

3. For a municipality, state, federal, or other public agency: By either a principal executive officer or ranking elected official. For purposes of this Part, a principal executive officer of a federal agency includes (i) the chief executive officer of the agency, or (ii) a senior executive officer having responsibility for the overall operations of a principal geographic unit of the agency (e.g., Regional Administrator of EPA).

B. All reports required by this permit, including EPSC Plans, must be signed by a person described above or by a duly authorized representative of that person. A person is a duly authorized representative only if:

1. The authorization is made in writing by a person described above;

2. The authorization specifies either an individual or a position having responsibility for the overall operation of the regulated facility or activity such as the position of plant manager, operator of a well or a well field, superintendent, position of equivalent responsibility, or an individual or position having overall responsibility for environmental matters for the company. (A duly authorized representative may thus be either a named individual or any individual occupying a named position); and

3. The signed and dated written authorization is included in the EPSC Plan. A copy must be submitted to DEC, if requested.

C. Any person signing documents required under the terms of this permit must include the following certification:

"I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gathered and evaluated the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations."

APPENDIX E - THREATENED AND ENDANGERED SPECIES PROTECTION

You are eligible for coverage under this permit for the stormwater discharges from your construction related activities if the discharge or activity is not likely to jeopardize the continued existence of a State or federally listed threatened or endangered species or result in the destruction or adverse modification of critical habitat. In order to determine whether your construction activities will cause such jeopardy, thereby making you ineligible for coverage, the following process should be followed.

I. APPLICABLE CRITERIA FOR EVALUATING IMPACT OF CONSTRUCTION DISCHARGES

You should use the process outlined in Part II below to evaluate your project in light of one or more of the following six criteria (A-F):

Criterion A. No state or federally-listed threatened or endangered species or their federally-designated critical habitat are in the Project Area as defined in Appendix F; or

Criterion B. Formal consultation with the Fish and Wildlife Service under section 7 of the ESA has been undertaken and that consultation:

i. Addressed the effects of the project's stormwater discharges and stormwater discharge-related activities on federally-listed threatened or endangered species and federally-designated critical habitat, and

ii. The consultation resulted in either:

a. a biological opinion finding no jeopardy to federally-listed species or destruction/adverse modification of federally-designated critical habitat, or

b. written concurrence from the Service with a finding that the stormwater discharges and stormwater discharge related activities are not likely to adversely affect federally-listed species or federally-designated critical habitat; or

Criterion C. Informal consultation with the Fish and Wildlife Service under section 7 of the ESA has been undertaken and that consultation:

i. Addressed the effects of the project's stormwater discharges and stormwater discharge-related activities on federally-listed threatened or endangered species and federally-designated critical habitat, and

ii. The consultation resulted in either:

a. a biological opinion finding no jeopardy to federally-listed species or destruction/adverse modification of federally-designated critical habitat, or

b. written concurrence from the Service with a finding that the stormwater discharges and stormwater discharge related activities are not likely to adversely affect federally-listed species or federally-designated critical habitat; or

Criterion D. In the case that a state listed species is identified, the stormwater discharges and stormwater discharge related activities are authorized through the issuance of an Endangered and Threatened Species permit under 10 V.S.A. Section 5408 and that authorization addresses the effects of the stormwater discharges and stormwater discharge related activities on state-listed species. In the case that a federally listed species is identified, the stormwater discharges and stormwater discharge related activities are authorized through the issuance of a permit under section 10 of the ESA, and that authorization addresses the effects of the stormwater discharges and stormwater discharge-related activities on federally-listed species and federally-designated critical habitat; or

Criterion E. Stormwater discharges and storm water discharge-related activities are not likely to adversely affect any state or federally-listed threatened or endangered species or result in the destruction or adverse modification of state or federally-designated critical habitat; or

Criterion F. The project's stormwater discharges and stormwater discharge-related activities were already addressed in another permittee's determination, or in another permitting action, under Criteria A-E which included the construction activities and there is no reason to believe that state and federally-listed species or state and federally-designated critical habitat not considered in the prior determination or action may be present or located in the Project Area.

II. PROCESS TO FOLLOW TO ASSESS YOUR CONSTRUCTION DISCHARGES

You should follow this process to assess the potential effects of your stormwater discharges and stormwater related discharge activities on state and federally listed species and the critical habitat of any federally-listed species. When evaluating these potential effects, you should evaluate the entire Project Area, as that term is defined in Appendix D. Note that dischargers who meet Criterion B, C, D, or F because they have both a previously issued ESA section 10 permit and an Endangered and Threatened Species permit under 10 VSA section 5408 , a previously completed ESA section 7 consultation and consultation with the Vermont Department of Fish and Wildlife, or because their activities were already addressed in another discharger's determination, may proceed directly to Step Four.

Step One: Determine if Listed Threatened or Endangered Species and Federally Designated Critical Habitat are Present On or Near Your Construction Site.

You must first determine whether state or federally-listed species reside in the Project Area or if there is critical habitat in the Project Area. The Vermont Agency of Natural Resources maintains a web site showing the location of all State and Federally listed species in Vermont. If you know the location or the latitude and longitude of your facility, you can visit: http://www.anr.state.vt.us/site/html/maps.htm and obtain the necessary information. If there are no listed species or habitat within the Project Area, you are eligible for coverage under this general permit. If there are listed species or critical habitat in your Project Area you should contact the Vermont Department of Fish and Wildlife and you will need to do one or more of the following: 1) conduct visual inspections; 2) conduct a formal biological survey (typically performed by

environmental consulting firms); or 3) if applicable, conduct an environmental assessment under the National Environmental Policy Act (NEPA).

Step Two: Determine if your Construction Related Stormwater Discharges Are Likely to Adversely Affect Listed Threatened or Endangered Species or Designated Critical Habitat

You should assess whether your construction related stormwater discharges or stormwater discharge related activities are likely to adversely affect listed threatened or endangered species or designated critical habitat. Potential adverse effects from construction related stormwater discharges include:

Hydrological. Stormwater discharges may cause siltation, sedimentation or induce other changes in receiving waters such as temperature, salinity or pH. These effects will vary with the amount of stormwater discharged and the volume and condition of the receiving water. Where a stormwater discharge constitutes a minute portion of the total volume of the receiving water, adverse hydrological effects are less likely. Construction activity itself may also alter drainage patterns on a site where construction occurs that can impact listed species or critical habitat.

Habitat. Site development, grading or other surface disturbances from construction activities, including storage of materials and the installation or placement of stormwater BMPs, may adversely affect listed species or their habitat. Stormwater may drain or inundate listed species habitat.

Toxicity. In some cases pollutants in stormwater may have toxic effects on listed species.

The scope of effects to consider will vary with each construction site. If you are having difficulty determining whether your project is likely to adversely affect listed species or critical habitat, or the State of Vermont Department of Fish and Wildlife or a Federal agency has already raised concerns with your discharge, you must contact the appropriate office for assistance. If adverse effects are not likely, you have satisfied Criterion E and can apply for coverage under the construction permit. If your stormwater discharge may adversely affect listed species or critical habitat, you must follow Step Three.

Step Three: Determine if Measures Can Be Implemented to Avoid Adverse Effects.

If you make a preliminary determination that adverse effects to listed species and/or critical habitat are likely to occur, you are still eligible for permit coverage if appropriate measures are undertaken to avoid or eliminate the likelihood of adverse effects prior to applying for construction permit coverage. These measures may be relatively simple, e.g., re-routing a stormwater discharge to bypass an area where species are located, relocating BMPs, or changing the "footprint" of the construction activity. If you cannot ascertain which measures to implement to avoid the likelihood of adverse effects, you must follow Step Four.

Step Four: Determine if Criterion B, C, D or F Can Be Met.

Where adverse effects are likely and you are uncertain about how to avoid or eliminate the likelihood of adverse effects, you must contact the Vermont Department of Fish and Wildlife and/or a Federal agency. However, you may still be eligible for construction permit coverage if likely adverse effects can be addressed follows:

i. A consultation under ESA Section 7 has been performed for your construction activity (see Criteria B and C).

ii. In the case that a State listed species is identified, an Endangered and Threatened Species permit under 10 VSA § 5408 has been issued (see Criterion D). Construction related stormwater discharges may be authorized by this construction permit if some activity is authorized through the issuance of a permit under 10 VSA § 5408 and that authorization addressed the effects of your stormwater discharges on state-listed species and any designated habitat.

In the case that a Federally listed species is identified, you must have both the Endangered and Threatened Species permit under 10 VSA § 5408 listed above and an incidental taking permit under Section 10 of the ESA that has been issued for your activity (see Criterion D). Construction related stormwater discharges may be authorized by this construction permit if some activity is authorized through the issuance of a permit under both 10 VSA § 5408 and section 10 of the ESA. These authorizations must address the effects of your stormwater discharges on state and federally-listed species and federally designated critical habitat. You must follow Fish and Wildlife Service procedures when applying for an ESA Section 10 permit (see 50 CFR §17.22(b)(1)). Application instructions for section 10 permits for Fish and Wildlife Service can be obtained by accessing the Service website (http://www.fws.gov) or by contacting the appropriate Service regional office.

iii. In the case of a state-listed species you have coordinated your activities with the Vermont Department of Fish and Wildlife (see Criterion E). In the absence of any other conditions set forth in Step Four, you may still be covered under this construction permit if the Vermont Department of Fish and Wildlife provides a letter or memorandum concluding that the direct and indirect effects of your stormwater discharges will be unlikely to adversely affect listed species or to adversely modify designated critical habitat. If you adopt measures to avoid or eliminate adverse effects, per the Vermont Department of Fish and Wildlife requirements or recommendations, you must abide by those measures as a condition of coverage under this general permit.

In the case of a federally listed species, you must have coordinated your activities with the Vermont Department of Fish and Wildlife as stated above and you must have coordinated your activities with the appropriate Federal agency (see Criterion E). In the absence of any other conditions set forth in Step Four, you may still be covered under this construction permit if a Federal agency provides a letter or memorandum concluding that the direct and indirect effects of your stormwater discharges will be unlikely to adversely affect listed species or to adversely modify designated critical habitat. If you adopt measures to avoid or eliminate adverse effects, per the Service's requirements or recommendations, you must abide by those measures as a condition of coverage under this general permit.

iv. You are covered under the compliance determination of another operator for the Project Area (see Criterion F). Your stormwater discharges were already addressed in another discharger's determination under Criteria A through E, which also

included your construction project and determined that state and federally listed endangered or threatened species or federally designated critical habitat would not be jeopardized. You must comply with any measures or controls upon which the other discharge determination under Criterion B, C, or D was based.

You must comply with any terms and conditions imposed under Criterion A through F to ensure that your stormwater discharges and stormwater discharge related activities are protective of listed species and/or federally-designated critical habitat. If the requirements cannot be met, then you may not be covered under this construction permit. In these instances, you may consider applying to DEC for an individual construction permit.

Aldrich + Elliott
WATER RESOURCE ENGINEERS

FACSIMILE COVER SHEET

DELIVER TO: Bidders/Plan Holders	DATE: 4/4/19	TIME:
COMPANY:	FROM: Aldrich + Elliott, PC	
LOCATION: Town of Northfield/ CVRPC	RE:/JOB NO.: Water Street Stormwater Improvements	
FAX NO.:	NO. PAGES: (Incl. cover sheet)	

Message:

Attached is Addendum No. 1 for:

CVRCP/Town of Northfield
Water Street Stormwater Improvements

Please acknowledge receipt of this fax by signing below and faxing sheet back to A+E at 802-879-1742. A scanned copy can also be returned to AArsenault@AEengineers.com.

_____
Company Name

_____ Date: _____
Signature

Original ☐ has ☒ has not been mailed

IF THIS FACSIMILE IS RECEIVED POORLY OR IF INCOMPLETE, PLEASE CALL 802-879-7733, THANK YOU.