Contract Documents for

Center Street Marketplace Project – Rutland City STP 3000(20)
City of Rutland, VT

VT Agency of Transportation 2011 Standard Specifications for Construction shall apply to this contract.

Owner:
City of Rutland
1 Strongs Avenue
P.O. Box 969
Rutland, VT 05702

June, 2016

Bid Set No. _____

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Please update. New General Special Provisions were issued April 7, 2016.

INVITATION TO BID
Rutland City STP 3000(20)

Sealed Bids from pre-qualified Contractors shall be accepted until time, prevailing time on day and date at Rutland City Hall – City Clerk's office for construction of the project hereinafter described. Bid opening will occur immediately after the Bid submittal deadline. The time of receiving and opening Bids may be postponed due to emergencies or unforeseen conditions.

Sealed BIDS shall be marked in the lower left hand corner:

Bid Documents:
Center Street Marketplace
Rutland City STP 3000(20)

Each BID must be accompanied by a certified check payable to the City of Rutland for five percent (5%) of the total amount of the BID. A BID bond may be used in lieu of a certified check.

PREQUALIFICATION OF CONTRACTORS: All Bidders on this project shall be on the Agency of Transportation's prequalified list under the category (ies) or shall have submitted a complete prequalification application to the Agency of Transportation, Contract Administration, a minimum of 10 working days prior to the Bid opening. For information contact Jon Winter at 802-828-2643.

All Bidders shall be on the current VTRANS Contract Administration pre-qualified list under the "Drainage (Culverts and Underdrain)", and/or "Curb and Sidewalk" Work Categories.

LOCATION: This project, located in Downtown Rutland, is an integral plaza surrounded by buildings with both public and private uses along the block encompassing Center Street, Wales Street, Washington Street and Merchants Row.

TYPE OF CONSTRUCTION: Work to be performed under this project includes: Leveling the grade to improve its function for public events; re-establish a subgrade and surface that supports expected activity and truck deliveries; upgrade/repair and relocate utilities as necessary; secure space with decorative gates and fencing; and plan for lighting and other features with subgrade features.

CONTRACT COMPLETION DATE: The Contract shall be completed on or before November 30, 2016.

OBTAINING PLANS: Plans may be obtained from the Rutland Regional Planning Commission, 67 Merchants Row, Rutland, Vermont, 05701 Phone: (802) 775-0871 at a

cost of $110 per set made payable to Rutland Regional Planning Commission. Plans are not returnable.

ENGINEERS ESTIMATE: For this Proposal the Engineers Estimate falls between $500,000 and $1,000,000.

PLANS, SPECIFICATIONS AND PROPOSAL MAY BE SEEN AT THE OFFICE OF:

1. City of Rutland, 1 Strongs Avenue, Rutland, Vermont, 05701.
2. Stantec Consulting Services, Inc., 55 Green Mountain Drive, South Burlington, Vermont, 05403-7824

PREBID CONFERENCE: A non-mandatory pre-bid conference will be held for the project on date and time at the site.

STANDARD SPECIFICATIONS: This Contract is governed by the Vermont Agency of Transportation ("VTrans") 2011 Standard Specifications for Construction.

QUESTIONS: During the advertisement phase of this project all questions shall be addressed solely to Municipal Project Manager, Susan Schreibman, Rutland Regional Planning Commission, 802-775-0871 x204.

EQUAL EMPLOYMENT OPPORTUNITY (EEO) CERTIFICATION: Certification is required by the Equal Employment Opportunity regulations of the Secretary of labor (41 CFR 60-1.7(b) (1)) and must be submitted by Bidders and proposed subcontractors only in connection with contracts and subcontracts which are subject to the equal opportunity clause. Generally only contracts and subcontracts of $10,000 or under are exempt as set forth in 41 CFR 60-1.5. See Appendix A for Contractors EEO Certification Form (CA-109).

NON-COLLUSION AFFIDAVIT: All Bidders are required to execute a sworn statement, certifying that the Bidder has not, either directly or indirectly, entered into any agreement, participated in any collusion, or otherwise taken any action in restraint of free competitive bidding in connection with such contract. See Appendix B for Debarment and Non-Collusion Affidavit (CA-91). This affidavit must be submitted with the Bid.

DEBARMENT AFFIDAVIT: All Bidders are required to execute a sworn statement, certifying that the Bidder has not within the last three (3) years been, suspended, debarred, voluntarily excluded or determined ineligible by any Federal or State Agency; does not have a proposed suspension, debarment, voluntary exclusion or ineligibility determination pending; and has not been indicted, convicted or had civil judgment rendered against (it, him, her, them) by a court having jurisdiction in any matter involving fraud or official misconduct within the past three (3) years. See Appendix B for

Debarment and Non-Collusion Affidavit (CA-91). This affidavit must be submitted with the Bid.

NON-DISCRIMINATION IN FEDERALLY ASSISTED CONTRACTS: The City of Rutland hereby notifies all Bidders that it will ensure that any contract entered into pursuant to this advertisement, disadvantaged business enterprises will be afforded full opportunity to submit Bids in response to this invitation and will not be discriminated against on the basis of race, color, religion, sex or national origin for an award. This is consistent with the Town's requirement to comply with provisions of Title VI.

DAVIS BACON WAGE REQUIREMENTS: Bidders agree to abide by the Davis Bacon Wage Rate Schedule, which are appended to these Contract Documents. ***Current wage rates can be obtained from the AOT web site.***

BUY AMERICA REQUIREMENTS: Buy America requirements of 23 CFR 635.410 are applicable to all Federal-aid construction projects. All steel or iron products permanently incorporated into Federal-aid projects, shall be products that have been entirely manufactured within the United States. All manufacturing processes of the steel or iron material, in a product, must occur within the United States to be considered of domestic origin. This includes process such as rolling, extruding, machining, bending, grinding, and drilling. The action of applying a coating to a material is deemed a manufacturing process subject to Buy America. Coating includes epoxy coating, galvanizing, painting, and any other coating that protects or enhances the value of the material.

This requirement does not prevent a minimal use of foreign materials, provided the cost of foreign materials used does not exceed 0.1 percent of the total Contract price or $2,500, whichever is greater. The cost of foreign steel or iron is defined as its value delivered to the project.

INSTRUCTIONS TO BIDDERS
Center Street Marketplace
Rutland City STP 3000(20)

1. Bid Preparation and Submission

a. Bidders are expected to examine the specifications, drawings, all instructions and, the construction site. Failure to do so will be at the Bidders' risk.

b. All Bids must be submitted on the forms provided by the Municipality. Bidders shall furnish all the information required by the solicitation. Bids must be signed and the Bidders name typed or printed on the Bid sheet and each continuation sheet which requires the entry of information by the Bidder. Erasures or other changes must be initialed by the person signing the Bid. Bids signed by an agent shall be accompanied by evidence of the agent's authority. (Bidders should retain a copy of their Bid for their own records.)

c. All Bids shall be sealed in an envelope which shall be clearly marked with the words "Bid Document," the Invitation to Bid number, any project or other identifying number, the Bidder's name, and the date and time for receipt of Bids.

d. This solicitation requires bidding on all items, failure to do so will disqualify the Bid.

e. Unless expressly authorized elsewhere in this solicitation, alternate Bids will not be considered.

f. Unless expressly authorized elsewhere in this solicitation, Bids submitted by telegraph, facsimile (fax) machines, or electronically via the internet or email will not be considered.

g. All blank spaces under the page(s) headed "Bid Form" must be filled in with ink or typewriter in both words and figures indicating the unit price for each respective Bid item. The Bid total shall also be entered in words and figures.

h. In case of a discrepancy between a unit price written in words and one entered in figures, the price written in words shall govern.

i. In case of a discrepancy between the Bid total written in words and that entered as a figure, the adjusted figure shall govern.

j. The estimated quantities are not guaranteed and can be adjusted as needed during the project, but are given as a basis for the comparison of Bids.

k. Electronic Bids are not permitted for Municipal Assistance Bureau Projects at this time.

2. Explanation and Interpretation to Prospective Bidders

a. Any prospective Bidder desiring an explanation or interpretation of the solicitation, specification, drawings, etc., must request it at least 10 days before the scheduled time for Bid opening. Requests may be oral or written. Oral requests must be confirmed in writing. The only oral clarifications that will be provided will be those clearly related to solicitation procedures, i.e., not substantive technical information. No other oral explanation or interpretation will be provided. Any information given to a prospective Bidder concerning this solicitation will be furnished promptly to all other prospective Bidders as a written addendum to the solicitation, if that information is necessary in submitting Bids, or if lack of it would be prejudicial to other prospective Bidders.

b. Any information obtained by, or provided to, a Bidder other than by formal addendum to the solicitation shall not constitute a change to the solicitation.

3. Addendum to Invitation for Bids

a. If this solicitation is amended, then all terms and conditions which are not modified remain unchanged.

b. Bidders shall acknowledge receipt of any addendum to this solicitation by identifying the addendum number and date on the Bid form. Bids which fail to acknowledge the Bidders receipt of any addendum will result in the rejection of the Bid if the addendum (addenda) contained information which substantively changed the Municipality's requirements.

c. Addenda will be on file in the offices of the Municipality at least 5 days before the Bid opening.

4. Responsibility of Prospective Contractor

a. All prospective Contractors shall be pre-qualified under the appropriate work category by the Vermont Agency of Transportation, Contract Administration. For this project a current annual prequalification is necessary. The contact for pre-qualification is Jon Winter, Tel: (802) 828 2643. Please note that applications for pre-qualification must be made at least 10 working days prior to the Bid opening.

b. The VERMONT AGENCY OF TRANSPORTATION "POLICIES AND PROCEDURES FOR PREQUALIFICATION, BIDDING, AND AWARD OF CONTRACTS", latest edition, Sections 1-6 and 9 are hereby incorporated in

these specifications and the contract by reference. Sections 1 through 6 shall not be subject to the changes to the definitions in the Special Provisions.

c. The Method of Measurement and Basis of Payment for all contract items shall follow the Vermont Agency of Transportation's ("VTrans") 2011 Standard Specification for Construction, unless modified in these Contract Documents.

d. If a Bidder submits a unit Bid price of zero for a contract Bid item, the Bid will be declared informal.

e. A Bidder may submit a unit Bid price that is obviously below the cost of the item. If the Municipality awards and enters into a contract with a Bidder that has submitted a unit Bid price that is obviously below cost, the Contractor shall be obligated to perform the work under such item as indicated in the contract documents and/or as directed by the Engineer.

f. When "Optional Bid Items" are indicated in the proposal Bidders shall Bid on only one pay item in each group of options, leaving the other pay items in the group without a Bid price. If a Bidder enters more than one unit price Bid in a group of options, only the lowest total price will be considered as the basis of calculation for determining the low Bidder and used in the contract.

g. When "Alternate Bid Items" are indicated in the Proposal Bidders must Bid on all pay items in each set of "Alternate Bid Items". Failure to Bid on all of the "Alternate Bid Items" in the proposal may result in rejection of the bid.

h. When the schedule of items for a contract contains one or more pay items which have a quantity of one (1) and a unit price and total price entered, the Municipality has set a unit price in the event that such item is used. If such item is determined to be needed by the Engineer, the work will be performed by the Contractor according to the contract documents at the unit price listed.

i. When it is indicated in the contract documents that payment or costs of work and/or materials are incidental to one or more other contract items (but not to specific other items), such costs shall be included by the Bidder in the price bid for all other contract items.

5. Errors and/or Inconsistencies in Contract Documents

a. By submitting a bid, a prospective Bidder/Contractor certifies that it shall assert no claim, cause of action, litigation, or defense against the Municipality unless notice was provided to the Municipality in writing of any error or inconsistency discovered in the plans, proposal, specifications, and/or contract documents immediately upon discovery of such error or inconsistency.

b. By submitting a Bid, a prospective Bidder/Contractor certifies that it shall assert no claim, cause of action, litigation, or defense against the Municipality unless notice was provided to the Municipality in writing of any error or inconsistency found in the plans, proposal, specifications, and/or contract documents immediately upon discovery of such error or inconsistency.

6. Availability of Lands for Work, Etc.

a. The lands upon which the Work is to be performed, rights of way and easement for access thereto and other lands designated for use by the Contractor in performing the Work are identified in the contract documents. All additional lands and access thereto required for temporary construction facilities, construction equipment or storage of materials and equipment to be incorporated in the work are to be obtained and paid for by the Contractor. Easements for permanent structures or permanent changes in the existing facilities are to be obtained and paid for by the Municipality unless otherwise provided for in the contract documents.

7. Familiarity with Laws, Ordinances and Regulations

a. By submitting a bid an entity certifies that it is familiar with all Federal, State and local laws, ordinances and regulations which affect in any way the materials, equipment, haul roads used in or upon the work, the conduct of the work, and the persons engaged or employed in the performance of the work to be performed pursuant to the contract.

b. By submitting a bid an entity certifies that it shall forthwith report in writing to the Municipality any provision in the plans, proposal, specifications or proposed contract that the Bidder/Contractor believes is in conflict with or inconsistent with any Federal, State or local law, ordinance, or regulation.

c. By submitting a bid a prospective Bidder certifies that if, during its investigation of the work in the process of preparing its bid, it discovers or encounters subsurface or latent physical conditions at a project site differing materially from those ordinarily encountered and generally recognized as inherent in the work provided for in the contract, it shall notify in writing the Municipality of the specific differing conditions immediately upon discovering or encountering the differing site conditions.

d. An entity further certifies that if it fails to notify the Municipality of any differing site conditions as described above, it shall waive any and all rights that it might have to additional compensation from the Municipality for additional work as a result of the differing site conditions and that it shall not bring a claim for additional compensation because of differing site conditions.

e. By submitting a bid a prospective Bidder/Contractor certifies that no claim or defense of ignorance or misunderstanding concerning Federal, State or local laws, ordinances and/or regulations will be employed by a Bidder/Contractor or considered by the Municipality in claims, litigation, alternative dispute resolution procedures, or other matters concerning the contract for which the bid is submitted.

8. Late Submissions, Modifications, and Withdrawal of Bids

a. Any bid received at the place designated in the solicitation after the exact time specified for receipt will not be considered**.**

b. Any modification or withdrawal of a bid is subject to the same conditions as in paragraph (a.) of this provision.

c. The only acceptable evidence to establish the time of receipt at the Municipality is the time/date stamp of the Municipality on the proposal wrapper, or other documentary evidence of receipt maintained by the Municipality.

d. Bids may be withdrawn by written notice, or if authorized by this solicitation, by telegram (including mailgram) or facsimile machine transmission received at any time before the exact time set for opening of bids: provided that written confirmation of telegraphic or facsimile withdrawals over the signature of the Bidder is mailed and postmarked prior to the specified bid opening time. A bid may be withdrawn in person by a Bidder or its authorized agent if , before the exact time set for opening of bids, the identity of the person requesting withdrawal is established and the person signs a receipt for the bid.

9. Bid Opening

a. All bids received by the date and time specified in the solicitation will be publicly opened and total bid amounts read aloud. The time and place of opening will be as specified in the solicitation. Bidders and other interested persons may be present. In the event of unforeseen circumstances (severe weather, etc.) the Municipality reserves the right to postpone the reading of the bids for that contract. All bids for a contract will be opened at the same time and location at a later date.

10. Protests

a. This Section sets forth the exclusive protest remedies available with respect to this solicitation. Each Bidder, by submitting its bid, expressly recognizes the limitation on its rights to protest contained herein, expressly waives all other rights and remedies and agrees that the decision on any protest, as provided herein, shall be final and conclusive unless wholly arbitrary. These provisions are included in this solicitation expressly in consideration for such waiver and agreement by the Bidders. Such waiver and agreement by each Bidder are also consideration to each other Bidder for making the same waiver and agreement.

b. A Bidder may protest any determination regarding the proposed award of a Contract by filing a notice of protest by hand delivery or courier to the Board of Aldermen. Such notice shall be provided: (a) no earlier than the day of the City of Rutland's issuance of the Notice of Award; and (b) no later than five (5) business days after the City of Rutland's issuance of the Notice of Award. The notice of protest shall specifically state the grounds of the protest.

c. Within seven (7) calendar days of the notice of protest the protesting Bidder must file with the Municipality a detailed statement of the grounds, legal authorities and facts, including all documents and evidentiary statements, in support of the protest. Evidentiary statements, if any, shall be submitted under penalty of perjury. The protesting Bidder shall have the burden of proving its protest by clear and convincing evidence.

d. Failure to file a notice of protest or a detailed statement within the applicable period shall constitute an unconditional waiver of the right to protest the evaluation or qualified process and decisions there under.

e. Unless otherwise required by law, no evidentiary hearing or oral argument shall be provided, except the Board of Aldermen, in its sole discretion, may decide to permit a hearing or argument if it determines that such hearing or argument is necessary for the protection of the public interest. The Board of Aldermen shall issue a written decision regarding the protest within thirty (30) calendar days after it receives the detailed statement of protest. Such decision shall be final and conclusive.

f. If the Board of Aldermen concludes that the Bidder submitting the protest has established a basis for protest, the Board of Aldermen will determine what remedial steps, if any, are necessary or appropriate to address the issues raised in the protest. Such steps may include, without limitation, withdrawing or revising the decisions, issuing a new solicitation or taking other appropriate actions.

11. Rejection of Proposals

a. The Municipality may declare a Proposal "Informal" and hence rejected if the proposal shows any alteration of form, omissions or additions not called for in the proposal, lacks proper signatures, is a conditional bid, has alternate bids unless required in the proposal, has irregularities of any kind, has changes to the printed content, is submitted on a form not furnished by the Municipality, is incomplete, fails to acknowledge receipt of one or more addendums, or includes a clause in which the Bidder reserves a right to accept or reject the contract award.

b. The Municipality may reject a proposal at the time of bid opening or following analysis to confirm the proposal.

c. The Municipality may reject any or all proposals, waive any or all technicalities, and/or advertise for new proposals if the Municipality, in consultation with VTrans, determines that the best interests of the Municipality, or the awarding authority, will be served.

d. The Municipality will reject a proposal submitted without a completed Debarment and Non-Collusion Affidavit.

e. The Municipality will reject a proposal submitted without a signed Contractors Equal Employment Certification Form.

f. The Municipality will reject a proposal submitted without a Bid Bond.

g. The Municipality will reject bids which fail to acknowledge the Bidder's receipt of any addendum if the addendum (addenda) contained information which substantively changed the Municipality's requirements.

h. The Municipality will decide whether any bid prices are unbalanced above or below a reasonable cost analysis value as determined by its Municipal Project Manager. Proposals in which bid prices are unbalanced, mathematically and/or materially, may be rejected at the sole discretion of the Municipality. For purposes of this subsection "mathematically unbalanced bid" and "materially unbalanced bid" shall have the same meaning as in 23 CFR Part 635 – Construction and Maintenance.

i. Prospective Bidders may be disqualified for various reasons including (a) Submission of more than one proposal for the same work by an entity under the same or different names, (b) Evidence of collusion among Bidders, or (c) Any other cause for suspension or debarment as detailed in the Agency's policy and Procedures on Debarment, Code of Vermont Rules (CVR), Volume 8A, 14 010 004, pages 1-10.

12. Contract Award

a. The Municipality will evaluate bids in response to this solicitation without discussions and will award a contract to the lowest responsive and responsible Bidder whose bid, conforming to the solicitation, will be most advantageous to the Municipality considering only price and any price related factors specified in the solicitation.

b. Opened proposals will be considered and submitted bids confirmed on the basis of the summation of the products of the quantities shown in each proposal's Schedule of Items multiplied by the unit prices bid. In the event of a discrepancy between the written bid amount and the alpha numeric figure, the written amount shall govern. In the event of a discrepancy between a unit price and the calculated extension, the product based on the unit price bid and the mathematically correct summation of the products shall govern.

c. The Municipality may reject any and all bids, waive any or all technicalities, and/or advertise for new proposals if the Municipality, in consultation with VTrans, determines that the best interests of the Municipality will be served.

d. The Municipality may reject any bid as nonresponsive if it is materially unbalanced as to the prices for the various items of work to be performed. A bid is materially unbalanced when it is based on prices significantly less than cost for some work and prices which are significantly overstated for other work.

e. A written award shall be furnished to the successful Bidder within the period for acceptance specified in the bid and shall result in a binding contract without further action by either party.

f. Prior to signing a construction contract, the successful Bidder must submit a current Certificate of Good Standing from the Vermont Secretary of State's office.

13. Bid Guarantee

a. All bids must be accompanied by a negotiable bid guarantee which shall not be less than five percent (5%) of the amount of the bid. The bid guarantee may be a certified check, bank draft, U.S. Government Bonds at par value, or a bid bond secured by a surety company acceptable to the U.S. Government and authorized to do business in the State of Vermont. Certified checks and bank drafts must be made payable to the order of the Municipality. The bid guarantee shall insure the execution of the contract and the furnishing of a method of assurance of completion by the successful Bidder as required by the solicitation. Failure to submit a bid guarantee with the bid shall result in rejection of the bid. Proposal guarantees of the two lowest Bidders that have

submitted proposals that comply with all the provisions required to render them formal will be retained until the contract and bonds have been signed by all parties. Bid guarantees submitted by the remaining unsuccessful Bidders will be returned as soon as practicable after bid opening. Should no award be made within forty-five (45) calendar days following the opening of bids, forty-six (46) if the forty-fifth (45th) day is a state holiday, all proposals may be rejected and all guarantees may be returned.

14. Contract Bonds

a. A successful Bidder entering into a contract for any portion of the work included in a proposal shall provide the Town sufficient surety in the form of; 1) a labor and materials bond, and 2) a compliance bond, both as required by 19 V.S.A. Section 10(8) and (9).

b. Each bond shall be in a sum equal to one hundred percent (100%) of the contract awarded.

c. The labor and materials bond shall guarantee the payment in full of all bills and accounts for materials and labor used in the work as well as other obligations incurred in carrying out the terms of the contract.

d. The compliance bond shall guarantee the faithful performance and completion of the work to be done under the contract as well as compliance with all provisions of the contract.

e. The form of the bond shall be that provided by the Municipality, and the surety shall be acceptable to the State. The bonds shall be procured from an insurance company registered and licensed to do business in the State of Vermont.

15. Signing the Contract

a. The entity to which the Contract has been awarded shall sign the contract documents and return them the Municipality within 30 calendar days from the date of the Notice of Award. No contract shall be considered effective until it has been fully executed by all parties.

b. Failure to comply with any of the requirements of these provisions relative to signing the contract or failure to furnish the required surety within fifteen (15) calendar days after notice of award shall be just cause for the annulment of the award or of the contract and/or forfeiture of the proposal guarantee/bid bond. Further, if the award or the contract is annulled, or if the contract is not awarded due to in(action) of the lowest responsible Bidder that has submitted a proposal that complies with all the provisions required to make it

formal, the proposal guaranty accompanying the proposal shall become the property of the Municipality, not as a penalty but as liquidated damages.

c. If the award or the contract is annulled, the Municipality may award the contract to the next lowest responsible Bidder that has submitted a proposal that complies with all the provisions required to make it formal or advertise a new request for bids for the contract(s).

d. Failure by the Contractor to sign the contract within the time provided by this Subsection shall not be reason for an extension of the contract completion date.

16. Taxes and Insurance Requirements

Taxes and insurance for this project shall be in conformance with Section 103 of the VTrans 2011 Standard Specifications for Construction.. For this project the following limits for Commercial Liability and Automobile coverage apply:

Commercial Liability:

$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

Automobile Liability:

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

17. Prompt Pay Compliance

a. Vermont's Prompt Pay Statute requires payment from primes to subs within 7 days of primes receiving payment. Vermont State Statutes Annotated, Title 9, §4003 provides: "Notwithstanding any contrary agreement, when a subcontractor has performed in accordance with the provisions of its contract, a Contractor shall pay a subcontractor, and each subcontractor shall in turn pay its subcontractors, the full or proportional amount received for each such subcontractor's work and materials based on work completed or service provided under the subcontractor, seven days after receipt of each progress or final payment or seven days after receipt of the subcontractor's invoice, whichever is later."

18. Preconstruction Conference

a. After award of a contract under this solicitation and prior to the start of work, the successful Bidder will be required to attend a preconstruction conference with representatives of the Municipality, Design and/or Resident Engineer, Municipal Project Manager (MPM), and the VTrans Project Supervisor, and other interested parties convened by the Municipality's engineer/representative. The conference will serve to acquaint the participants with the general plan of the construction operation and all other requirements of the contract. The Municipality will provide the successful Bidder with the date, time and place of the conference. Note: If the specific material testing and certification requirements are not included elsewhere in the contract documents, they will be provided by the Design Consultant to the Contractor at the preconstruction conference

19. Waste Borrow and Staging Areas

a. The opening and use of offsite waste, borrow and staging areas shall follow the provisions of Section 105.25 of the VTrans Standard Specifications for Construction, 2011 Edition.

b. The Contractor and/or property owner shall obtain all necessary permits and clearances prior to using off site waste, borrow or staging areas. In addition all off site waste borrow and staging areas must be reviewed and approved by the VTrans Environmental Section prior to use. Application should be made at least 21 calendar days prior to planned utilization. No work will be performed at offsite waste borrow or staging areas without written approval of the Engineer. The forms for either documenting an exempt site or applying for review of a site may be found on the VTrans web site at: http://vtransengineering.vermont.gov/bureaus/pdb/environmental/off-site-activity

20. DBE Requirements

a. There are to be no mandatory Contract goals for DBE compliance on this project.

21. Contaminated Soils

a. If contaminated soils are encountered during the course of construction, the Contractor is directed to contact: Mr. Andy Shively, Hazardous Material and Waste Coordinator, of the Vermont Agency of Transportation at (802) 229-8740.

22. Contract Documents

The following documents are included in this proposal and are effective for this contract. Proposal holders are reminded to check the contents of this proposal against the following index. In the event that you suspect or determine the proposal is incomplete, notify Municipal Project Manager, Susan Schreibman, Rutland Regional Planning Commission, (802) 775-0871 x204.

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- Material Certification List, Forms and Record – Appendix R

Please update.

BID FORM
Center Street Marketplace
Rutland City STP 3000(20)

Proposal of _____ (hereinafter called Bidder), organized and existing under the laws of the State of Vermont doing business as

_____

(a corporation, a partnership, of an individual)

To the City of Rutland, Vermont (hereinafter called Owner)

The Bidder represents that this bid is genuine and not made in the interest of or on behalf of any undisclosed person, firm or corporation and is not submitted in conformity with any agreement or rules of any group, association, organization or corporation. The Bidder has not directly or indirectly induced or solicited any other Bidder to submit a false bid. Bidder has not solicited or induced any person, firm or corporation to refrain from bidding and the Bidder has not sought by collusion to obtain for himself any advantage over any other Bidder or Owner.

It is essential that all forms that require signature as part of the final Bid Submission be signed or the Bid itself will be invalid:

- Contractors EEO Certification Form CA-109 – Appendix A
- Debarment & Non-Collusion Affidavit CA-91 – Appendix B

The undersigned Bidder proposed and agrees, if this bid is accepted, to enter into an agreement with Owner to furnish neccessary materials and to complete all work as specified or indicated in the Contract Documents for the Contract price and within the contract time indicated in this bid and in accordance with the Contract Documents.

Bidder hereby agrees to commence Work under this contract on the date of issuance of the Notice to Proceed and that the Final Completion date for this contract is November 30, 2016.

Bidder acknowledges receipt of the following Addenda:

_____

_____

Rutland City STP 3000(20) February 2016

Bid Form

Bidder agrees to perform all the Work described in the Contract Documents for the following schedule of prices. Unqualified bids will not be accepted.

VTrans Item #	Description	Unit	Quantity	Unit Price	Total Price
203.17	Unclassified Excavation	CY	2,000	$_____	$_____
Unit Price in Words_____					
203.31	Sand Borrow	CY	100	$_____	$_____
Unit Price in Words_____					
204.20	Trench Excavation of Earth	CY	150	$_____	$_____
Unit Price in Words_____					
204.22	Trench Excavation of Earth, Exploratory (N.A.B.I.)	CY	1	$ 75.00	$ 75.00
Unit Price in Words Seventy Five Dollars					
301.15	Subbase of Gravel	CY	1,000	$_____	$_____
Unit Price in Words_____					
301.26	Subbase of Crushed Gravel, Fine Graded	CY	380	$_____	$_____
Unit Price in Words_____					
301.35	Subbase of Dense Graded Crushed Stone	CY	1,000	$_____	$_____
Unit Price in Words_____					
404.65	Emulsified Asphalt	CWT	3	$_____	$_____
Unit Price in Words_____					
604.40	Changing Elevation of Drop Inlets, Catch Basins, or Manholes	EA	7	$_____	$_____
Unit Price in Words_____					

VTrans Item #	Description	Unit	Quantity	Unit Price	Total Price
604.42	Changing Elevation of Sewer Manholes	EA	1	$_____	$_____
Unit Price in Words_____					
608.25	All Purpose Excavator Rental, Type I	HR	8	$_____	$_____
Unit Price in Words_____					
608.31	Power Broom Rental, Type II	HR	8	$_____	$_____
Unit Price in Words_____					
608.37	Truck Rental	HR	8	$_____	$_____
Unit Price in Words_____					
608.40	Loader Rental, Type I	HR	8	$_____	$_____
Unit Price in Words_____					
609.10	Dust Control with Water	MGAL	20	$_____	$_____
Unit Price in Words_____					
609.15	Dust and Ice Control with Calcium Chloride	TON	1	$_____	$_____
Unit Price in Words_____					
616.21	Vertical Granite Curb	LF	150	$_____	$_____
Unit Price in Words_____					
616.40	Removing and Resetting Curb	LF	145	$_____	$_____
Unit Price in Words_____					
616.41	Removal of Existing Curb	LF	50	$_____	$_____
Unit Price in Words_____					

VTrans Item #	Description	Unit	Quantity	Unit Price	Total Price
618.10	Portland Cement Concrete Sidewalk, 5 Inch	SY	325	$_____	$_____
Unit Price in Words_____					
618.11	Portland Cement Concrete Sidewalk, 8 Inch	SY	5	$_____	$_____
Unit Price in Words_____					
619.14	Bollards	EA	7	$_____	$_____
Unit Price in Words_____					
622.10	Insulation Board	MFBM	0.25	$_____	$_____
Unit Price in Words_____					
629.20	Adjust Elevation of Valve Box	EA	1	$_____	$_____
Unit Price in Words_____					
631.16	Testing Equipment, Concrete	LS	1	$_____	$_____
Unit Price in Words_____					
631.17	Testing Equipment, Bituminous	LS	1	$_____	$_____
Unit Price in Words_____					
635.11	Mobilization/ Demobilization	LS	1	$_____	$_____
Unit Price in Words_____					
649.41	Geotextile for Underdrain Trench Lining	SY	2,000	$_____	$_____
Unit Price in Words_____					
653.20	Temporary Erosion Matting	SY	3,000	$_____	$_____
Unit Price in Words_____					

Delete these items. These will be paid for by the RE.

VTrans Item #	Description	Unit	Quantity	Unit Price	Total Price
653.35	Vehicle Tracking Pad	CY	20	$_____	$_____
Unit Price in Words_____					
653.40	Inlet Protection Device, Type I	EA	10	$_____	$_____
Unit Price in Words_____					
653.45	Filter Bags	EA	2	$_____	$_____
Unit Price in Words_____					
656.80	Landscape Backfill, Truck Measurement	CY	260	$_____	$_____
Unit Price in Words_____					
678.21	Electrical Conduit (1¼")(PVC)	LF	20	$_____	$_____
Unit Price in Words_____					
678.21	Electrical Conduit (1")(PVC)	LF	1,320	$_____	$_____
Unit Price in Words_____					
678.21	Electrical Conduit (2")(PVC)	LF	560	$_____	$_____
Unit Price in Words_____					
678.21	Electrical Conduit (3")(PVC)	LF	110	$_____	$_____
Unit Price in Words_____					
678.21	Electrical Conduit (5")(PVC)	LF	600	$_____	$_____
Unit Price in Words_____					
678.24	Electrical Wiring (#10)	LF	4,830	$_____	$_____
Unit Price in Words_____					
678.24	Electrical Wiring (#12)	LF	3,420	$_____	$_____
Unit Price in Words_____					

Rutland City STP 3000(20) February 2016

Bid Form

VTrans Item #	Description	Unit	Quantity	Unit Price	Total Price
678.24	Electrical Wiring (#2)	LF	570	$_____	$_____
Unit Price in Words_____					
678.24	Electrical Wiring (Ground)(#12)	LF	1,540	$_____	$_____
Unit Price in Words_____					
678.24	Electrical Wiring (Ground)(#2)	LF	150	$_____	$_____
Unit Price in Words_____					
678.26	Junction Box	EA	5	$_____	$_____
Unit Price in Words_____					
900.608	Special Provision (Geofoam Fill, Block)	CY	300	$_____	$_____
Unit Price in Words_____					
900.608	Special Provision (Rain Garden Planting Soil)	CY	200	$_____	$_____
Unit Price in Words_____					
900.620	Special Provision (Above Grade Junction Box with Waterproof Cover)	EA	1	$_____	$_____
Unit Price in Words_____					
900.620	Special Provision (GFCI Receptacles Weatherproof In-Use Cover)	EA	2	$_____	$_____
Unit Price in Words_____					

This should be #8 to match Quantity Sheet.

VTrans Item #	Description	Unit	Quantity	Unit Price	Total Price
900.620	Special Provision (Install Owner-Provided Area Drain, All-Inclusive)	EA	5	$_____	$_____
Unit Price in Words_____					
900.620	Special Provision (Install Owner-Provided Downspout Connection, All-Inclusive)	EA	6	$_____	$_____
Unit Price in Words_____					
900.620	Special Provision (Install Owner-Provided Drainage Cleanout, All-Inclusive)	EA	8	$_____	$_____
Unit Price in Words_____					
900.620	Special Provision (Install Owner-Provided M.H. Including Contractor – Provided Top Section, All Inclusive)	EA	6	$_____	$_____
Unit Price in Words_____					
900.620	Special Provision (Install Owner-Provided Precast D.I. Including Contractor – Provided Top Section, All Inclusive)	EA	7	$_____	$_____
Unit Price in Words_____					

VTrans Item #	Description	Unit	Quantity	Unit Price	Total Price
900.620	Special Provision (Site Light, Type 'AW')	EA	1	$_____	$_____
Unit Price in Words_____					
900.640	Special Provision (Decorative Light, Type 'B')	LF	60	$_____	$_____
Unit Price in Words_____					
900.640	Special Provision (Install Owner-Provided 12" PVC Pipe, All-Inclusive)	LF	315	$_____	$_____
Unit Price in Words_____					
900.640	Special Provision (Install Owner-Provided 6" PVC Pipe, All-Inclusive)	LF	66	$_____	$_____
Unit Price in Words_____					
900.640	Special Provision (Install Owner-Provided 6" Underdrain Pipe, All-Inclusive)	LF	725	$_____	$_____
Unit Price in Words_____					
900.640	Special Provision (Install Owner-Provided 8" PVC Pipe, All Inclusive)	LF	140	$_____	$_____
Unit Price in Words_____					
900.640	Special Provision (Pea Stone Strip)	LF	520	$_____	$_____
Unit Price in Words_____					

VTrans Item #	Description	Unit	Quantity	Unit Price	Total Price
900.645	Special Provision (ADA Concrete Ramps for Bardwell House Access)	LS	1	$_____	$_____
Unit Price in Words_____					
900.645	Special Provision (Concrete Pad Installation for New Propane Tank)	LS	1	$_____	$_____
Unit Price in Words_____					
900.645	Special Provision (Electric Demolition)	LS	1	$_____	$_____
Unit Price in Words_____					
900.645	Special Provision (Electric Vault – Electrical Equipment Upgrade)	LS	1	$_____	$_____
Unit Price in Words_____					
900.645	Special Provision (Electrical Event Power Pedestal)	LS	1	$_____	$_____
Unit Price in Words_____					
900.645	Special Provision (New Brick Veneer Wall)	LS	1	$_____	$_____
Unit Price in Words_____					
900.645	Special Provision (Pole with Weatherproof Enclosure, Type 'P')	LS	1	$_____	$_____
Unit Price in Words_____					

VTrans Item #	Description	Unit	Quantity	Unit Price	Total Price
900.645	Special Provision (Retaining Wall, Guardrail, Lighted Handrail, Concrete Steps Paramount Theater)	LS	1	$_____	$_____
Unit Price in Words_____					
900.675	Special Provision (30 MIL Geomembrane Liner)	SY	350	$_____	$_____
Unit Price in Words_____					
900.675	Special Provision (Drainage Mat and Sheet Membrane)	SY	100	$_____	$_____
Unit Price in Words_____					
900.675	Special Provision (Hand-Placed Bituminous Concrete Materials, Drives)	SY	60	$_____	$_____
Unit Price in Words_____					
900.675	Special Provision (Portland Cement Concrete Sidewalk, 5 inch, Colored with Ashlar Slate Pattern)	SY	390	$_____	$_____
Unit Price in Words_____					
900.675	Special Provision (Portland Cement Concrete Sidewalk, 5 inch, Colored)	SY	780	$_____	$_____
Unit Price in Words_____					

VTrans Item #	Description	Unit	Quantity	Unit Price	Total Price
900.675	Special Provision (Portland Cement Concrete Sidewalk, 8 inch, Colored with Ashlar Slate Pattern)	SY	125	$_____	$_____
Unit Price in Words_____					
900.675	Special Provision (Portland Cement Concrete Sidewalk, 8 inch, Colored)	SY	570	$_____	$_____
Unit Price in Words_____					
900.675	Special Provision (Remove and Reset Existing Brick Pavers)	LS	1	$_____	$_____
Unit Price in Words_____					

This needs to match the Quantity Sheet.

Total Base Bid **$**_____

Total Base Bid Written _____

Typo. Should be "prices".

The above unit process shall include all labor, materials, removal, overhead, profit, insurance, etc. to cover the finished work of the several kinds called for on the drawings and specifications.

The following three bid alternatives have been prepared and will be pursued given funding availability. Construction of the items included in the bid alternates will be performed only following written agreement and contract signed by the OWNER and the BIDDER.

Bid Alternate A:

VTrans Item #	Description	Unit	Quantity	Unit Price	Total Price
900.608	Special Provision (Shredded Hardwood Mulch)	CY	50	$_____	$_____

Unit Price in Words_____					
900.620	Special Provision (Granite Bollard) (12”x12”x6’-6”)	EA	2	$_____	$_____
Unit Price in Words_____					
900.620	Special Provision (Bicycle Rack)	EA	7	$_____	$_____
Unit Price in Words_____					
900.620	Special Provision (Wood Pergola)	EA	1	$_____	$_____
Unit Price in Words_____					

Total Bid Alternate A $_____

Total Bid Alternate A Written _____

Bid Alternate B:

VTrans Item #	Description	Unit	Quantity	Unit Price	Total Price
900.640	Special Provision (Ornamental Metal Fence, 6 Feet)	LF	48	$_____	$_____
Unit Price in Words_____					
900.640	Special Provision (Ornamental Metal Fence on Brick Veneer Wall, 6 Feet)	LF	60	$_____	$_____
Unit Price in Words_____					
900.620	Special Provision (Ornamental Metal Gate)	LF	9.5	$_____	$_____
Unit Price in Words_____					
900.640	Special Provision (Ornamental Metal Gate, 8 Feet Wide)	LF	8	$_____	$_____

Unit Price in Words_____					
900.620	Special Provision (Ornamental Metal Gate, 14'-6" Feet Wide) (Washington Street)	LF	14.5	$_____	$_____
Unit Price in Words_____					
900.640	Special Provision (Ornamental Metal Gate, 10 Feet Wide) (Merchants Row)	LF	10	$_____	$_____
Unit Price in Words_____					

Total Bid Alternate B $_____

Total Bid Alternate B Written _____

Bid Alternate C

VTrans Item #	Description	Unit	Quantity	Unit Price	Total Price
900.620	Special Provision (Site Light, Type 'A2')	EA	1	$_____	$_____
Unit Price in Words_____					
900.620	Special Provision (Site Light, Type 'A3')	EA	7	$_____	$_____
Unit Price in Words_____					
900.620	Special Provision (Site Light, Type 'A3NR')	EA	5	$_____	$_____
Unit Price in Words_____					
900.620	Special Provision (Site Light, Type 'A5')	EA	7	$_____	$_____
Unit Price in Words_____					

Total Bid Alternate C $_____

Total Bid Alternate C Written _____

The lowest responsive and responsible Bidder will be determined by the Total Base Bid.

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

THE ABOVE PROPOSAL IS HEREBY RESPECTFULLY SUBMITTED BY:

_____
Contractor

_____
By

_____
Title

_____
Business Address

_____
City State

_____
Date

ATTEST_____

LS = lump sum
EA = each
SY = square yard
SF = square feet
CWT = hundredweight
GAL = gallon
HR = hour

LU = lump unit
CY = cubic yard
LF = linear foot
TON = ton
MGAL = thousand gallons
LB = pound

NOTICE OF AWARD

Project Name/Number: Center Street Marketplace / Rutland City STP 3000(20)

Description of Work:

The Owner has considered the Bid submitted by you for the above described WORK in response to its Invitation to Bid and Instructions to Bidders.

You are hereby notified that your Bid has been accepted in the amount of $_____

You are required by the Instructions to Bidders to execute the contract and provide the Performance Bond, Payment Bond, and certificate of insurance within 15 calendar days from the date of this Notice of Award.

Failure to comply with these conditions will result in the annulment of this award and/or forfeiture of the proposal guarantee/bid bond.

You are required to return an acknowledged copy of this Notice of Award to the Owner.

Dated this _____day of _____, 2016

Town of_____, Vermont

Name _____

Title _____

Signature_____

ACCEPTANCE OF NOTICE

Receipt of the above Notice of Award is hereby acknowledged this the ____ day of _____ _____, 2016

By_____ Name:_____
(Signature)

Title _____

AGREEMENT

THIS AGREEMENT, is made this_____ day of _____, 20___, by and between the City of Rutland, hereinafter called the "OWNER"
and _____, doing business as (an individual) or (a partnership) or (a corporation)
hereinafter called "CONTRACTOR".

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

1. The CONTRACTOR will commence and complete the construction of Center Street Marketplace / Rutland City STP 3000(20) as described in the CONTRACT DOCUMENTS.

2. The CONTRACTOR will furnish all the material, supplies, tools, equipment, labor, traffic control measurements, and other services necessary for the construction and completion of the PROJECT described herein. The CONTRACTOR further covenants and agrees that all of said work and labor shall be done and performed in the best and most workmanlike manner and that all and every of said materials and labor shall be in strict and entire conformity, in every respect, with project specifications and project drawings and shall be subject to the inspection and approval of the OWNER or duly authorized representative. In case any of said material or labor shall be rejected by the OWNER or representative, as defective or unsuitable, then said materials shall be removed and replaced with other approved materials and said labor shall be done anew, to the satisfaction and approval of the OWNER or representative, at the cost and expense of the CONTRACTOR. Project specifications are incorporated herein, made a part of this Contract, and accepted as such.

3. The CONTRACTOR will commence the WORK required by the CONTRACT DOCUMENTS on the date of issuance of the NOTICE TO PROCEED and will complete the same by X 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 liquidated damages, as defined in Section 108.12 of the Standard Specifications for Construction for each consecutive calendar day that the CONTRACTOR shall be in default after the time specified in the Agreement.

4. The CONTRACTOR agrees to perform all the WORK described in the CONTRACT DOCUMENTS and comply with the terms therein as shown in the BID schedule. The CONTRACTOR shall perform a minimum of 50% of the work with their own forces.

5. The OWNER shall pay the CONTRACTOR for the performance of said WORK, subject to additions or deductions provided herein $_____ in conformity with the BID schedule.

6. The term "CONTRACT DOCUMENTS" means and includes each and every one of the following, in their individual entireties:

(A) Invitation to Bid, Instructions for Bidders, Bid Form, Special Provisions

(B) Drawings prepared by Vermont Agency of Transportation, numbered _____ through _____ and dated_____.

(C) ADDENDA:
No. ___, dated_____, 20__.
No.___, dated_____, 20__.
No. ___, dated_____, 20__.

(D) Performance Bond

(E) Payment Bond

(F) VAOT 2011 Standard Specifications for Construction, as modified

(G) Required Contract Provisions for Federal-Aid Construction, FHWA Form 1273

(H) Standard Federal EEO Specifications, (Executive Order 11246)

(I) Contract Compliance (ARRA) dated October 1, 2009

(J) General Special Provisions

(K) Supplemental Specifications

(L) Project Permits

(M) Any approved Project Change Orders

7. The OWNER will pay to the CONTRACTOR in the manner and at such times as set forth in the Standard Specifications for Construction such amounts as required by the CONTRACT DOCUMENTS.

8. The CONTRACTOR agrees that no claim for extra work or materials, not specifically provided for herein, done or furnished by the CONTRACTOR, will be allowed nor shall the CONTRACTOR do any work or furnish any materials not covered by the Specifications and Contract, unless such work is ordered in writing by the OWNER.

9. It is also agreed and understood that the acceptance of the final payment by the CONTRACTOR shall be considered as a release in full of all claims against the OWNER arising out of, or by reason of the work done and materials furnished under this Contract.

10. This Agreement shall be binding upon all parties hereto and their respective heirs, executors, administrators, successors, and assigns.

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

OWNER:

Name _____

Signature _____

Title _____

(SEAL)

Attest _____

Name _____

(Please Type)

Title _____

CONTRACTOR:

Firm _____

Name and Title _____

Signature _____

Address _____

(SEAL)

Attest: _____

Name: _____

(Please Type)

Title _____

NOTICE TO PROCEED

To: _____ Date:_____
(Contractor)

Project Name/Number: Center Street Marketplace / Rutland City STP 3000(20)

You are hereby notified to commence Work in accordance with the Agreement dated ___ _____.

The date of completion of all work is _____.

City of_____Rutland
(Owner)

By_____ Title _____
(Signature)

Name: _____

Dated this _____day of _____, 2016

ACCEPTANCE OF NOTICE

Receipt of the above Notice to Proceed is hereby acknowledged.

Contractor: _____

Name:_____

Title:_____

Signature:_____

Date:_____

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:

_____
(Project Name and Owner)

_____

_____, 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 hereinabove 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) Contractor/Subcontractor

By: _____

(Witness) Title:

CERTIFICATE OF SUBSTANTIAL COMPLETION

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

Project: _____

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)

Date of Substantial Completion:

The Work performed under this contract has been inspected by authorized representatives of the Owner, Contractor and Engineer, and the Project is hereby declared to be substantially completed on the above date.

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	Authorized Representative	Date

Approved by:

Owner	Authorized Representative	Date

The Contractor accepts the above Certificate of Substantial Completion.

Contractor	Authorized Representative	Date

Exceptions as to Guarantees and Warranties:

Attachments:

CERTIFICATION AND ACCEPTANCE LETTER

Date

Local Projects Project Supervisor
Municipal Assistance Bureau
Vermont Agency of Transportation
One National Life Drive
Montpelier, VT 05633-5001

Project: Center Street Marketplace – Rutland City STP 3000(20)

Dear Local Projects Supervisor,

A final inspection of the project noted above has been completed. The work on the Project has been performed within the requirements of all federal, state, and local laws, ordinances and regulations applicable to the Project as certified by

_____ and is hereby accepted by the
Construction Resident

_____ as of this date.
Municipality

We confirm that final total project costs, including costs for which reimbursement

was not sought, are as follows:

Preliminary Engineering	$_____
Right-of-Way	$_____
Construction	$_____
Construction Engineering	$_____

Sincerely,

_____
Signature of Authorized Municipal Official

_____
Title

_____
Date

SPECIAL PROVISIONS

In case of discrepancy, precedence of the Contract Documents will follow be determined by Section 105.05 of the latest edition of the VTrans Standard Specifications for Construction.

STANDARD SPECIFICATIONS. The provisions of the most current VTrans STANDARD SPECIFICATIONS FOR CONSTRUCTION, as modified herein, shall apply to this Contract.

CONTRACT COMPLETION DATE. This Contract shall be completed on or before November 30, 2016

UTILITIES. The Contractor is advised to use caution when working around aerial or underground utilities to protect the facilities from damage.

Employees or agents of utility companies are to be allowed free and full access within the project limits with the tools, materials, and equipment necessary to install, operate, maintain, place, replace, relocate, and remove their facilities.

There shall be no extra compensation paid to the Contractor for any inconvenience caused by working around and with utilities.

Act No. 86 of 1987 (30 VSA Chapter 86)("Dig Safe") requires that notice be given prior to making an excavation. It is suggested that the Permit Holder or his/her Contractor telephone 1-888-344-7233 at least 48 hours before, and not more than 30 days before, beginning any excavation at any location.

Should the Contractor desire additional adjustments of the utility facilities for his/her convenience, proper arrangements shall be made in conformance with Subsection 105.07 of the Standard Specifications for Construction.

NOTICE TO BIDDERS. All temporary construction signs shall meet the following requirements:

A. All sign stands and post installation shall be National Cooperative Highway Research Program Report (NCHRP) 350 compliant.

B. As a minimum, roll up sign material shall have ASTM D 4956-01 Type VI fluorescent orange retroreflective sheeting.

C. All post-mounted signs and solid substrate portable signs shall have ASTM D 4956-01 Type VII, Type VIII, or Type IX fluorescent orange retroreflective sheeting.

D. All retroreflective sheeting on traffic cones, barricades, and drums shall be at a minimum ASTM Type III sheeting.

E. All stationary signs shall be mounted on two 3 lb/ft flanged channel posts or 2 inch square steel inserted in 2 ¼" galvanized square steel anchors. No sign posts shall extend over the top edge of sign installed on said posts.

F. Prior to placing temporary work zone signs on the project, the Contractor must furnish for the Engineer's approval a detail for temporary work zone signs on steel posts showing stubs projecting a maximum of 4 inches above ground level and bolts for sign post.

G. Construction signs shall be installed so as to not interfere with nor obstruct the view of existing traffic control devices, stopping sight distance, and corner sight distance from drives and town highways.

H. Speed zones, if used, should be a maximum of 10 mph below existing posted speeds. Temporary speed limit certificates must be approved by the Police Chief and Board of Aldermen.

NOTICE TO BIDDERS. All retroreflective sheeting on permanent signs (signs to remain after the project is completed) shall be at a minimum ASTM Type III sheeting, unless otherwise shown on the Plans.

HIGHWAY PARKING RESTRICTIONS. Only such trucks and equipment as are necessary for the construction of this project will be permitted to stop or park on the shoulders or right-of-way of the highway. All trucks or equipment so stopped or parked shall be at least 4 feet from the edge of the thru traffic lanes. Parking or stopping on the traveled portion of the roadway will not be permitted unless authorized by the Engineer to meet field conditions.

Private automobiles or workers will not be permitted to stop or park on the shoulders or right-of-way of the highway.

Each of the Contractor's trucks or equipment used for the construction of this project and permitted to park or stop as provided above shall be equipped with flashing light signals on the front and rear and the signals shall be operating at all times when parked or stopped on the highway unless otherwise authorized by the Engineer.

The flashing light signals shall be visibly distinct from and physically separate from the hazard warning system required by Federal and State motor vehicle laws and regulations. At least one of these flashing light signals shall be visible to traffic approaching from any angle at all times.

Qualified traffic control personnel shall be employed whenever the Contractor's vehicles or equipment (including that which belongs to the individual workers) enter or leave the traffic flow. All movement, in or out of the traffic flow, shall be with the flow of traffic.

SECTION 101 – DEFINITIONS

101.02, DEFINITIONS, are hereby modified by deleting the existing following definitions and replacing as follows:

ACTUAL COMPLETION DATE – Date noted in the Completion and Acceptance memorandum on which designated responsible Municipal personnel have reviewed the project and determined that all Contract work is complete and all Contract requirements have been met, generally considered to be the last day the Contractor performed physical work on any contract item.

AGENCY – Wherever the word Agency appears on the plans, in any specification, or in the contract, it shall be read as, and shall mean; the City of Rutland, except when referenced to documents or publications.

BOARD – Wherever the term Board or Transportation Board appears on the plans, in any specification, or in the contract, it shall be read as, and shall mean; the Transportation Board of the State of Vermont or its successor.

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

CHANGE ORDER – A document recommended by the Engineer, signed by the Contractor and the Municipality, and approved by the Agency of Transportation authorizing changes in the plans or quantities or both, establishing the basis of payment and time adjustments for the Work affected by the changes.

CHIEF OF CONTRACT ADMINISTRATION – Wherever the term Chief of Contract administration appears on the plans, in any specification, or in the contract, it shall be read as, and shall mean, the Municipal Project Manager.

CONSTRUCTION ENGINEER – Wherever the term Construction Engineer appears on the plans, in any specification, or in the contract, it shall be read as, and shall mean; the Municipal Project Manager and/or Full Time Employee in Responsible Charge.

COMPLETION – Completion of the project occurs when the Contractor has completed all work required by the Contract and has satisfactorily executed and delivered to the Engineer all documents, certificates and proofs of compliance required by the contract.

CONTRACT – The written agreement between the Municipality and a Contractor setting out the obligations of the parties to the contract for the performance of the work described therein.

CONTRACT BOND(S) – The approved forms of security signed and furnished by the Contractor and the Contractor's surety or sureties, guaranteeing signatures

on the contract, performance of and compliance with the contract, and the payment of all legal debts pertaining to the construction of the contracted project.

CONTRACTOR(S) – An entity that has Annual Prequalification status and/or an entity that has a contract with the Municipality to perform construction work, including but not limited to an individual, partnership, firm, organization, association, corporation, or joint venture; a representative, trustee, or receiver of a Contractor appointed by any court of competent jurisdiction.

DIRECTOR OF PROJECT DEVELOPMENT – Wherever the terms Director of Project Development, director of Engineering and Construction, Director of Construction and Maintenance, Director, or Chief Engineer appear on the plans, in any specification, or in the Contract, they shall be read as and shall mean; the Chief Engineer of the Agency of Transportation.

DIRECTOR OF PROGRAM DEVELOPMENT – Wherever the term Director of Program Development appears on the plans, in any specification, or in the contract it shall read as , and shall mean; The Chief Engineer of the Agency of Transportation.

ENGINEER – Wherever the term Engineer appears on the plans, in any specification, or in the contract, it shall be read as, and shall mean; the Resident Engineer (RE).

FINAL ACCEPTANCE DATE – Wherever the term Final Acceptance Date appears on the plans, in any specification, or in the Contract, it shall mean the date that the Municipality signs the Final Completion Certificate.

GENERAL SPECIAL PROVISIONS – Approved additions and revisions to the Standard Specifications for Construction.

MATERIALS AND RESEARCH ENGINEER – Whenever the term Materials and Research Engineer appears on the plans, in any specification, or in the Contract, it shall be read as, and shall mean; Stantec.

PROPOSAL FORM – Whenever the term Proposal Form appears on the plans, in any specification, or in the Contract it shall be read as, and shall mean; the BID FORM unless specifically referenced otherwise in these Special Provisions.

REGIONAL CONSTRUCTION ENGINEER – Whenever the term Regional Construction Engineer appears on the plans, in any specification, or in the contract, it shall be read as, and shall mean; City Engineer James Rotondo.

RESIDENT ENGINEER – An entity employed by the Municipality to perform supervisory duties including the oversight of testing services on the project.

SECRETARY – Wherever the term Secretary appears on the plans, in any specification, or in the contract it shall be read as, and shall mean; the Board of Aldermen.

SPECIAL PROVISIONS – Additions and revisions to the Standard Specifications for Construction, Supplemental Specifications, General Special Provisions, Plans, or other documents that are part of a particular contract.

SPECIFICATIONS – The compilation of provisions and requirements for the performance of prescribed work including the Standard Specifications for Construction, Supplemental Specifications, General Special Provisions, Special Provisions, Plans, and other documents that are part of a particular contract.

STANDARD SPECIFICATIONS – The Vermont Agency of Transportation book entitled Standard Specifications For Construction and the specifications included therein, as approved for general and repetitive use and application in Agency/Municipal projects.

STATE – Wherever the term State appears on the plans, in any specification, or in the contract, it shall be read as, and shall mean; the Board of Aldermen.

SURETY – An individual or legal entity acceptable to the Town executing the bond or bonds furnished by the Bidder or Contractor.

WORK – The furnishing of all labor, materials, equipment, and incidentals necessary or convenient to the successful completion of a project and the carrying out of all duties and obligations imposed by a contract.

WORKING DAY – A calendar day during which normal construction operations could proceed for a major part of the daylight hours, and specifically excluding Saturdays, Sundays, and those days of the standard work week on which holidays are celebrated.

ADD TO DEFINITION LIST IN 101.02, DEFINITIONS, the following definitions:

ADDENDUM (addenda) – Contract revisions developed after advertisement and before opening bids.

ADVERTISEMENT – A public announcement, inviting bids for work to be performed or materials to be furnished.

AGREEMENT – The written instrument which is evidence of the agreement between the Municipality and the Contractor.

AWARD – The formal acceptance by the Municipality of a proposal.

BID – The offer of a Bidder submitted on the prescribed form setting forth the prices for the Work to be performed.

BID BOND – A proposal guarantee as outlined in the Instructions to Bidders for Contracts.

BIDDER – The individual, partnership, firm, corporation, or any combination thereof, or joint venture, submitting a Bid in accordance with the bidding requirements.

CONTRACT TIME – The time allowed for completion of the contract including authorized time extensions.

INCIDENTAL AND INCIDENTAL ITEM – These terms are used to indicate work for which no direct payment will be made. Such work is considered to be incidental to items having contract prices, and the bid prices submitted by the Contractor shall be sufficient to absorb the cost of all work designated as incidental or as incidental items.

INVITATION FOR BIDS – An advertisement for receiving proposals for all work and/or materials on which bids are invited from prospective Contractors.

MUNICIPAL PROJECT MANAGER – A person or firm employed or appointed by the Municipality to provide administrative services for the project.

NOTICE OF AWARD – The written notice of the acceptance of the Bid from the Owner to the successful Bidder.

OWNER – City of Rutland.

PREQUALIFICATION:

Annual Prequalification – The Agency of Transportation process by which an entity is generally approved to bid on contracts advertised by the Local Project Sponsor. Depending on the project size annual prequalification may be the only prequalification necessary.

Contract Specific Prequalification – The process by which an entity is approved to bid on a specific contract determined by the Municipality to be of a size or scope to warrant more than an Annual Prequalification.

PREQUALIFICATION ADMINISTRATOR – An Agency of Transportation employee charged with administration of the prequalification process for the Prequalification Committee.

PROPOSAL – The offer of a Bidder, on the prescribed form, to perform work and/or provide materials at the price quoted in the offer.

PROPOSAL FORM – The prescribed form on which the Municipality requires the Bid be submitted.

PROPOSAL GUARANTEE – The security furnished with a bid to ensure that the Bidder will enter into a contract if the Bidder's proposal is accepted by the Municipality.

SUBCONTRACTOR – An individual or legal entity to which the Contractor sublets a part of the work included in the contract.

TESTING FIRM – An independent firm employed by the Municipality or Resident Engineer to perform all sampling and testing of materials as specified in the Contract Documents.

SECTION 105 CONTROL OF THE WORK

105.09 CONSTRUCTION STAKES, Part (a) Initial Layout, (b) Layout of Subgrade and (c) Permanent Marking Layout delete these paragraphs in their entirety and replace with the following:

Horizontal and vertical control information for the project is shown on the project plans or shall be based on existing conditions. The information is sufficient to enable the Contractor to stake the project. The Contractor shall perform all staking requirements for the proposed work. The Contractor will be responsible for the accuracy and preservation of the staking.

105.20 CLAIMS FOR ADJUSTMENT , (c) Claims Procedure; Delete the second, third and fourth sentence and replace with the following:

Claims must be evaluated first by the Engineer and then by the Municipal Project Manager. Should a claim be ruled in favor of the Contractor, it will be allowed, in whole or in part, and paid as provided in the Contract. Should a claim be denied in whole or in part by the Municipal Project Manager the Contractor may appeal to the governing body of the project sponsor. Should a claim be denied in whole or in part by the governing body of the project sponsor, the Contractor may appeal to the Chief Engineer.

(d) Claims Documentation Requirements; In the first sentence, replace Construction Engineer with Municipal Project Manager.

SECTION 106 – CONTROL OF MATERIAL

106.03 SAMPLES AND TESTS, add the following two paragraphs to the beginning:

A qualified independent testing firm hired directly by the Municipality *or* indirectly by the Municipality through its Resident Engineer shall be responsible for all acceptance, sampling and testing of materials and completed work.

The Contractor shall be responsible for their Quality Control. The cost of their Quality Control shall be considered incidental to the payment items in the bid. Any sampling, testing, retesting, and submission of reports and certifications by the Contractor as required by the contract documents and plans shall be considered incidental to the payment items in the bid.

Change the last word in the first paragraph from Agency to Municipality.

Delete the first sentence of the second paragraph and replace with the following:

Samples will be taken and testing performed by qualified personnel of the testing firm in accordance with the requirements of the latest edition of the Vermont Agency of Transportation's Quality Assurance Program and Material Sampling Manual for level 3.

Modify the last sentence of the third paragraph to read as follows:

Copies of all test results shall be forwarded directly to the Resident Engineer and the Contractor by the testing firm.

Notice to Bidders

Notice to Bidders: The northern long-eared bat (NLEB) is federally listed as a threatened species under the Endangered Species Act effective April 2015. This project shall be subject to Avoidance and Minimization Measures to protect the habitat and hibernacula of this species. These measures include, but are not limited to, Time of Year (TOY) restrictions for cutting habitat trees.

This project's design does not identify any tree cutting within the project limits as part of the work and therefore neither a habitat assessment nor an acoustic survey has been performed. If during construction cutting trees >3" diameter is deemed necessary, further review will be required and TOY restrictions may apply. In such cases, the Engineer will coordinate further environmental review with the Construction Environmental Engineer.

The Contractor is hereby made aware of the potential for TOY restrictions related to proposed Waste, Borrow and Staging areas. Cutting trees outside of the contract project limits shall require review under Section 105.25 Control of Waste, Borrow, and Staging Areas.

Notice to Bidders: The Contractor is hereby made aware that the City of Rutland has procured material and will provide said material to the Contractor, for installation on this project.

The Contractor shall submit to the Owner, as Working Drawings in accordance with Subsection 105.03, the dimensions required for the needed materials. The Contractor shall provide this information to the Owner with as much advance notice as is necessary for the Owner to have the item fabricated and delivered to the Owner's storage area prior to installation.

The owner-provided item shall be installed by the Contractor to the same lines, grades and dimensions given to the Owner for the item. After the item has been delivered to the Owner's storage area, the Contractor shall provide the Owner at least (2) days' notice prior to the contractor collecting the item from owner.

Notice to Bidders: The City of Rutland will provide certifications for all materials they are providing. It is assumed that most of these items are on the VTrans Advanced Certification List. The City will be responsible for the certification paperwork. This paperwork will need to go to the Resident Engineer prior to the installation of the material.

Notice to Bidders: The City of Rutland will provide all flagging and traffic control signing for the Project. The Contractor is hereby made aware that they will be responsible for all coordination with the City. There shall be no extra compensation paid to the Contractor for any inconvenience caused by working with the City.

Notice to Bidders: The Contractor is hereby made aware that they will be responsible for all coordination, access and on site work with all utilities located with the project limits, such as Green Mountain Power, Suburban Propane, **etc**. This work shall include but is not limited to duct bank construction, propane tank removal and reset while keeping in service and trash removal. Payment for this work will not be made directly but will be considered incidental to the contract.

SECTION 900 – SPECIAL PROVISION is hereby added as a new section to the Vermont Agency of Transportation Standard Specifications for Construction (2011 Edition):

900.608 SPECIAL PROVISION (GEOFOAM FILL, BLOCK)

1. DESCRIPTION. This work shall include furnishing all qualifications, shop drawings, material and equipment, placing and providing approved field quality control personnel to oversee and certify the installation of the Geofoam Fill, referred to in this Specification as expanded polystyrene (EPS), complete, as specified herein, and shown on the approved shop drawings.

   A. Referenced Publications.
   Some or all of the publications referred to hereinafter form a part of this Specification to the extent referenced. The publications are referred to in the text by the basic designation only. The latest edition of the referenced publication shall govern.

AMERICAN SOCIETY OF TESTING MATERIALS (ASTM) PUBLICATIONS

ASTM DESIGNATION	TEST METHOD FOR
C203	Breaking Load and Flexural Properties of Block-Type Thermal Insulation
C578	Rigid Cellular Polystyrene EPS Thermal Insulation
D732	Strength of Plastics by Punch Tool
C272	Water Absorption of Core Materials for Structural Sandwich Construction
D1621	Compressive Properties of Rigid Cellular Plastics
D1622	Apparent Density of Rigid Cellular Plastics
D1623	Tensile and Tensile Adhesion Properties of Rigid Cellular Plastics
D6817	Standard Specification for Rigid Cellular Polystyrene Geofoam

2. MATERIALS. The EPS block supplier shall provide the EPS blocks, mechanical fasteners, shop drawings for installation, and full time on-site supervision of the EPS block installation. Upon completion of the installation, the EPS block supplier shall provide a letter certifying that the EPS blocks were manufactured and installed in accordance with the Plans and Specifications and the approved shop drawings.

   A. EPS Block Supplier Qualifications Submittal.
   - List at least three (3) similar projects using EPS blocks in a load bearing or embankment application.
   - Provide contact reference for each project with telephone number and address.
   - Provide resumes of the Project Manager and the field quality control personnel listing specific geofoam fill project experience. Personnel to be assigned to this Project must be identified by the supplier and approved by the Geotechnical Consultant. Alternate personnel may be used only after their qualifications are reviewed and approved by the Geotechnical Consultant.
   - Provide detailed description of manufacturing and field QA services to be provided for this Project.

   A review of the EPS block supplier's qualifications will be completed by the Geotechnical Consultant within 10 days of receipt.

   B. EPS Block Supplier Shop Drawing Submittal.

   The approved EPS block supplier shall submit complete shop drawings for the installation. The drawings shall indicate a placement pattern for all blocks in each layer. The blocks shall be labeled to match the approved shop drawings.

   A review of the shop drawings or revised shop drawings will be completed by the Geotechnical Consultant within 10 working days of receipt. If revisions are required, the supplier shall submit the revised shop drawings for review. EPS blocks shall not be shipped to the site prior to notification that the shop drawings have been approved for construction.

   C. Geofoam Fill.

   Geofoam Fill shall be ASTM C 578 Type IX (or AASHTO EPS 100), 1.8 pcf minimum, conforming to

this Specification, as supplied by:

Poly Molding Corp. 96 4th Avenue Haskell, NJ 07420 Tel.: 800.229.7161 Fax: 973.835.2438	Insulation Technology, Inc. P.O. Box 578 35 First Street Bridgewater, MA 02324 Tel.: 508.697.6926 Fax: 508.697.6934
Thermal Forms, Inc. P.O. Box 1981 6173 South Bay Road Cicero, NY 13039 Tel.: 315.699.8734 Fax: 315.699.4969	Branch River Plastics 15 Thurber Boulevard Smithfield, RI 02917 Tel.: 401.232.0270 Fax: 401.231.3434

or an approved equal.

EPS shall be fabricated using virgin feedstock manufactured into blocks having no more than five percent regrind content. Blocks shall have a height of at least two feet, a width of at least four feet, and length of at least eight feet except blocks under proposed guardrail which shall be one foot thick. All blocks shall be shop-trimmed as necessary so that all surfaces are smooth and flat, and are within tolerances of 0.5 percent of respective height, width and length dimensions. The blocks shall be labeled to match the approved shop drawings. Additional field and/or shop trimming and cutting will be required as necessitated by the geometry of the fill being constructed.

EPS blocks shall conform to the specified type category in ASTM C-578 and have the following physical properties:

Physical Property	ASTM Test Procedures	Accepted Value	
		Type IX	Units
Density	D1622	1.8 (29)	pcf (Kg/m3)
Compressive Resistance	D1621	25 (173)	psi (kN/m2) Minimum @ yield or 10% Deformation
Flexural Strength	D203	50 (345)	psi (kN/m2) Minimum
Tensile Strength	D1623	23 (159)	psi (kN/m2) Minimum
Water Absorption	C272	2	%, Less than by volume

The EPS shall contain a flame retardant additive and shall have UL Certification of Classification as to External Fire Exposure and Surface Burning Characteristics. EPS should be considered combustible and should not be exposed to open flame or any source of ignition. EPS shall be treated to prevent insect attack and shall be protected from burrowing animals. The manufacturer shall present proposed treatment methods to the Resident for review and approval.

The Contractor shall furnish the Resident with a certified test report from the manufacturer showing all data required to indicate compliance with the Specifications.

Connectors shall be galvanized steel multi-barbed connectors. Each connector shall have a lateral holding strength of at least 60 lbs. when tested with ASTM D 6817 EPS, with a safety factor of two.

D. Sampling and Testing.

Quality assurance testing and sampling, to monitor the conformance of the EPS with the Specification requirements, will be completed as approved by the Resident. Density and geometry (dimensional tolerances) testing shall be conducted using full-size blocks. Blocks in conformance with Contract requirements can be used to make required fills.

Testing to monitor the quality of the EPS shall be done at the discretion of the Geotechnical Consultant. Geotechnical Consultant has the right to randomly sample at the manufacturing plant and/or at the jobsite. If any block does not conform to the physical requirements, or if it is damaged in any way, it may be rejected by the Resident.

E. Protection.

The Contractor shall prevent damage to the EPS during delivery, storage, and construction. Prior to delivery of EPS to the Project site, the Contractor shall review and be thoroughly knowledgeable with the manufacturer's care and handling recommendations. Any EPS to be exposed to sunlight for more than 30 days shall be covered with opaque material which will prevent ultraviolet light degradation.

Placement of embankment will require special procedures and careful selection of appropriate construction equipment to prevent damage to the EPS. No heavy construction equipment or vehicles shall be allowed directly on the EPS. EPS must be protected from petroleum-based solvents such as gasoline and diesel fuel.

Damage to EPS shall be corrected as follows:

Slight damage (less than 0.12 cubic feet) with no linear dimension greater than one foot may be left in place as-is.

Moderate damage (less than 0.35 cubic feet) with no linear dimension greater than 3.3 feet shall be filled with leveling sand.

EPS blocks with excessive damage (i.e., exceeding the "moderate" category) shall be replaced with EPS blocks which meet the damage criteria. EPS blocks not meeting the damage criteria may be cut to eliminate the excessive damage and the remaining undamaged portion of the block may be used within the fill, provided the undamaged portion of the block meets all other requirements.

Leveling sand, HDPE Geomembrane and embankment fill over the side slopes of the EPS shall be placed starting at the bottom of the slope in such a manner as to prevent damage to the EPS. Finished EPS on side slopes shall have a minimum of two feet of embankment fill cover. The embankment fill over the side slopes shall be compacted using approved manually- operated compaction equipment.

F. Subgrade Preparation.

Clear and grub site in accordance with Section 202, Clearing Right-of-Way, and Section 203, Excavation and Embankment. Provide temporary construction dewatering during subgrade preparation, geofoam installation and filling until adequate cover is in place to prevent flotation of geofoam blocks. Temporary construction dewatering shall be provided at no additional cost to the Authority.

Bench into existing slope, as required, to provide a level subgrade to support each layer of geofoam. Recompact subgrade to a minimum of 92 percent of maximum dry density as determined by AASHTO T180. Place a uniform layer of leveling sand over the prepared surface, with a six inch minimum thickness. Level to 1/4 inch per 10 feet horizontal. Compact leveling sand to a minimum of 92 percent of maximum dry density as determined by AASHTO T180.

G. Placement.

EPS shall be placed to the lines and grades shown in the approved shop drawings and as directed by the Geotechnical Consultant. The surface of a layer of EPS blocks to receive additional EPS blocks shall be constructed with a variation in surface tolerance of no more than 1/2 inch in any 10 foot interval. All blocks shall accurately fit relative to adjacent blocks and structures. No gaps greater than 3/4 inch will be allowed on vertical joints. The finished surface of the EPS beneath pavement sections shall be constructed to within the tolerances of zero to minus 0.2 foot of the indicated grade. The finished surface of the EPS on side slopes that receive soil cover shall be constructed to within a tolerance of plus 0.3 feet to minus 0.3 feet of the indicated grade.

Blocks placed in a row in a particular layer shall be offset two feet relative to blocks placed in adjacent rows of the same layer as shown on the approved shop drawings. In order to avoid continuous joints, each subsequent layer of blocks shall be offset two feet relative to blocks placed in the previous layer. The long axis of all blocks will be placed perpendicular to the embankment centerline. Connector plates should be placed between horizontal layers of blocks. Blocks shall be cut using a saw or hot wire, where necessary.

Because of the light unit weight of the EPS, it is the Contractor's responsibility to provide temporary weighing and/or guying as necessary until all blocks are built into a homogeneous mass, and the soil cover and pavement section are in place.

Install a minimum of three connectors for each four foot by eight foot section of geofoam material, as shown on approved shop drawings, or directed by the Geotechnical Consultant. Press firmly into the rigid foam until the connector is flush with the surface. Position the next foam block as specified and set firmly before placing subsequent blocks.

3. METHOD OF MEASUREMENT. The quantity of Special Provision (Geofoam Fill, Block) to be measured for payment will be the number of cubic yards of Geofoam Fill, Block placed in the complete and accepted work.

4. BASIS OF PAYMENT. The accepted quantity of Special Provision (Geofoam Fill, Block) will be paid for at the Contract unit price per cubic yard. Payment will be full compensation for furnishing all qualifications, on-site supervision from supplier, shop drawings, labor, materials, equipment, dewatering and incidentals necessary to complete the work.

Payment will be made under:

Pay Item		Pay Unit
900.608	Special Provision (Geofoam Fill, Block)	Cubic Yard

900.608 SPECIAL PROVISION (SHREDDED HARDWOOD MULCH)

1. DESCRIPTION. This work shall consist of furnishing and placing shredded hardwood mulch as detailed in Plans or as directed by Engineer.

2. GENERAL. The materials shall meet the following requirement:

   A. Shredded hardwood Mulch shall consist of hardwood chips, 3 to 6 mm (1/8 to 1/4 inch) nominal thickness, with 50 percent having an area of not less than 650 mm^2 (1 in^2) or more than 4000 mm2 (6 in^2). All wood chip mulch shall be free from deleterious materials that are injurious to plant growth.

3. SUBMITTALS. Submittals shall be completed in accordance with Section 105.

   A. Samples: Submit adequate quantity of samples showing the complete range of colors and textures available for all components required for construction. The samples shall be submitted at least 10 day prior to any work being performed on this item for Owner's approval.

4. MATERIALS Shredded hardwood mulch shall meet the requirements stated above

5. METHOD OF MEASUREMENT The quantity of Special Provision (Shredded Hardwood Mulch) to be measured for payment will be the number of cubic yards furnished and stockpiled in the complete and accepted work.

6. BASIS OF PAYMENT The accepted quantity of Special Provision (Shredded Hardwood Mulch) will be paid for at the Contract unit price per cubic yard. Payment will be full compensation for furnishing, transporting, handling, and stockpiling the material specified and for furnishing all labor, tools, equipment, and incidentals necessary to complete the work.

SECTION 900 – SPECIAL PROVISION is hereby added as a new section to the Vermont Agency of Transportation Standard Specifications for Construction (2011 Edition):

900.608 SPECIAL PROVISION (GEOFOAM FILL, BLOCK)

1. DESCRIPTION. This work shall include furnishing all qualifications, shop drawings, material and equipment, placing and providing approved field quality control personnel to oversee and certify the installation of the Geofoam Fill, referred to in this Specification as expanded polystyrene (EPS), complete, as specified herein, and shown on the approved shop drawings.

   A. Referenced Publications.
   Some or all of the publications referred to hereinafter form a part of this Specification to the extent referenced. The publications are referred to in the text by the basic designation only. The latest edition of the referenced publication shall govern.

AMERICAN SOCIETY OF TESTING MATERIALS (ASTM) PUBLICATIONS

ASTM DESIGNATION	TEST METHOD FOR
C203	Breaking Load and Flexural Properties of Block-Type Thermal Insulation
C578	Rigid Cellular Polystyrene EPS Thermal Insulation
D732	Strength of Plastics by Punch Tool
C272	Water Absorption of Core Materials for Structural Sandwich Construction
D1621	Compressive Properties of Rigid Cellular Plastics
D1622	Apparent Density of Rigid Cellular Plastics
D1623	Tensile and Tensile Adhesion Properties of Rigid Cellular Plastics
D6817	Standard Specification for Rigid Cellular Polystyrene Geofoam

2. MATERIALS. The EPS block supplier shall provide the EPS blocks, mechanical fasteners, shop drawings for installation, and full time on-site supervision of the EPS block installation. Upon completion of the installation, the EPS block supplier shall provide a letter certifying that the EPS blocks were manufactured and installed in accordance with the Plans and Specifications and the approved shop drawings.

   A. EPS Block Supplier Qualifications Submittal.
   - List at least three (3) similar projects using EPS blocks in a load bearing or embankment application.
   - Provide contact reference for each project with telephone number and address.
   - Provide resumes of the Project Manager and the field quality control personnel listing specific geofoam fill project experience. Personnel to be assigned to this Project must be identified by the supplier and approved by the Geotechnical Consultant. Alternate personnel may be used only after their qualifications are reviewed and approved by the Geotechnical Consultant.
   - Provide detailed description of manufacturing and field QA services to be provided for this Project.

   A review of the EPS block supplier's qualifications will be completed by the Geotechnical Consultant within 10 days of receipt.

   B. EPS Block Supplier Shop Drawing Submittal.

   The approved EPS block supplier shall submit complete shop drawings for the installation. The drawings shall indicate a placement pattern for all blocks in each layer. The blocks shall be labeled to match the approved shop drawings.

   A review of the shop drawings or revised shop drawings will be completed by the Geotechnical Consultant within 10 working days of receipt. If revisions are required, the supplier shall submit the revised shop drawings for review. EPS blocks shall not be shipped to the site prior to notification that the shop drawings have been approved for construction.

   C. Geofoam Fill.

   Geofoam Fill shall be ASTM C 578 Type IX (or AASHTO EPS 100), 1.8 pcf minimum, conforming to

this Specification, as supplied by:

Poly Molding Corp.
96 4th Avenue
Haskell, NJ 07420

Tel.: 800.229.7161
Fax: 973.835.2438

Insulation Technology, Inc.
P.O. Box 578
35 First Street
Bridgewater, MA 02324
Tel.: 508.697.6926
Fax: 508.697.6934

Thermal Forms, Inc.
P.O. Box 1981
6173 South Bay Road
Cicero, NY 13039
Tel.: 315.699.8734
Fax: 315.699.4969

Branch River Plastics
15 Thurber Boulevard
Smithfield, RI 02917

Tel.: 401.232.0270
Fax: 401.231.3434

or an approved equal.

EPS shall be fabricated using virgin feedstock manufactured into blocks having no more than five percent regrind content. Blocks shall have a height of at least two feet, a width of at least four feet, and length of at least eight feet except blocks under proposed guardrail which shall be one foot thick. All blocks shall be shop-trimmed as necessary so that all surfaces are smooth and flat, and are within tolerances of 0.5 percent of respective height, width and length dimensions. The blocks shall be labeled to match the approved shop drawings. Additional field and/or shop trimming and cutting will be required as necessitated by the geometry of the fill being constructed.

EPS blocks shall conform to the specified type category in ASTM C-578 and have the following physical properties:

Physical Property	ASTM Test Procedures	Accepted Value	
		Type IX	Units
Density	D1622	1.8 (29)	pcf (Kg/m3)
Compressive Resistance	D1621	25 (173)	psi (kN/m2) Minimum @ yield or 10% Deformation
Flexural Strength	D203	50 (345)	psi (kN/m2) Minimum
Tensile Strength	D1623	23 (159)	psi (kN/m2) Minimum
Water Absorption	C272	2	%, Less than by volume

The EPS shall contain a flame retardant additive and shall have UL Certification of Classification as to External Fire Exposure and Surface Burning Characteristics. EPS should be considered combustible and should not be exposed to open flame or any source of ignition. EPS shall be treated to prevent insect attack and shall be protected from burrowing animals. The manufacturer shall present proposed treatment methods to the Resident for review and approval.

The Contractor shall furnish the Resident with a certified test report from the manufacturer showing all data required to indicate compliance with the Specifications.

Connectors shall be galvanized steel multi-barbed connectors. Each connector shall have a lateral holding strength of at least 60 lbs. when tested with ASTM D 6817 EPS, with a safety factor of two.

D. Sampling and Testing.

Quality assurance testing and sampling, to monitor the conformance of the EPS with the Specification requirements, will be completed as approved by the Resident. Density and geometry (dimensional tolerances) testing shall be conducted using full-size blocks. Blocks in conformance with Contract requirements can be used to make required fills.

Testing to monitor the quality of the EPS shall be done at the discretion of the Geotechnical Consultant. Geotechnical Consultant has the right to randomly sample at the manufacturing plant and/or at the jobsite. If any block does not conform to the physical requirements, or if it is damaged in any way, it may be rejected by the Resident.

E. Protection.

The Contractor shall prevent damage to the EPS during delivery, storage, and construction. Prior to delivery of EPS to the Project site, the Contractor shall review and be thoroughly knowledgeable with the manufacturer's care and handling recommendations. Any EPS to be exposed to sunlight for more than 30 days shall be covered with opaque material which will prevent ultraviolet light degradation.

Placement of embankment will require special procedures and careful selection of appropriate construction equipment to prevent damage to the EPS. No heavy construction equipment or vehicles shall be allowed directly on the EPS. EPS must be protected from petroleum-based solvents such as gasoline and diesel fuel.

Damage to EPS shall be corrected as follows:

Slight damage (less than 0.12 cubic feet) with no linear dimension greater than one foot may be left in place as-is.

Moderate damage (less than 0.35 cubic feet) with no linear dimension greater than 3.3 feet shall be filled with leveling sand.

EPS blocks with excessive damage (i.e., exceeding the "moderate" category) shall be replaced with EPS blocks which meet the damage criteria. EPS blocks not meeting the damage criteria may be cut to eliminate the excessive damage and the remaining undamaged portion of the block may be used within the fill, provided the undamaged portion of the block meets all other requirements.

Leveling sand, HDPE Geomembrane and embankment fill over the side slopes of the EPS shall be placed starting at the bottom of the slope in such a manner as to prevent damage to the EPS. Finished EPS on side slopes shall have a minimum of two feet of embankment fill cover. The embankment fill over the side slopes shall be compacted using approved manually- operated compaction equipment.

F. Subgrade Preparation.

Clear and grub site in accordance with Section 202, Clearing Right-of-Way, and Section 203, Excavation and Embankment. Provide temporary construction dewatering during subgrade preparation, geofoam installation and filling until adequate cover is in place to prevent flotation of geofoam blocks. Temporary construction dewatering shall be provided at no additional cost to the Authority.

Bench into existing slope, as required, to provide a level subgrade to support each layer of geofoam. Recompact subgrade to a minimum of 92 percent of maximum dry density as determined by AASHTO T180. Place a uniform layer of leveling sand over the prepared surface, with a six inch minimum thickness. Level to 1/4 inch per 10 feet horizontal. Compact leveling sand to a minimum of 92 percent of maximum dry density as determined by AASHTO T180.

G. Placement.

EPS shall be placed to the lines and grades shown in the approved shop drawings and as directed by the Geotechnical Consultant. The surface of a layer of EPS blocks to receive additional EPS blocks shall be constructed with a variation in surface tolerance of no more than 1/2 inch in any 10 foot interval. All blocks shall accurately fit relative to adjacent blocks and structures. No gaps greater than 3/4 inch will be allowed on vertical joints. The finished surface of the EPS beneath pavement sections shall be constructed to within the tolerances of zero to minus 0.2 foot of the indicated grade. The finished surface of the EPS on side slopes that receive soil cover shall be constructed to within a tolerance of plus 0.3 feet to minus 0.3 feet of the indicated grade.

Blocks placed in a row in a particular layer shall be offset two feet relative to blocks placed in adjacent rows of the same layer as shown on the approved shop drawings. In order to avoid continuous joints, each subsequent layer of blocks shall be offset two feet relative to blocks placed in the previous layer. The long axis of all blocks will be placed perpendicular to the embankment centerline. Connector plates should be placed between horizontal layers of blocks. Blocks shall be cut using a saw or hot wire, where necessary.

Because of the light unit weight of the EPS, it is the Contractor's responsibility to provide temporary weighing and/or guying as necessary until all blocks are built into a homogeneous mass, and the soil cover and pavement section are in place.

Install a minimum of three connectors for each four foot by eight foot section of geofoam material, as shown on approved shop drawings, or directed by the Geotechnical Consultant. Press firmly into the rigid foam until the connector is flush with the surface. Position the next foam block as specified and set firmly before placing subsequent blocks.

3. METHOD OF MEASUREMENT. The quantity of Special Provision (Geofoam Fill, Block) to be measured for payment will be the number of cubic yards of Geofoam Fill, Block placed in the complete and accepted work.

4. BASIS OF PAYMENT. The accepted quantity of Special Provision (Geofoam Fill, Block) will be paid for at the Contract unit price per cubic yard. Payment will be full compensation for furnishing all qualifications, on-site supervision from supplier, shop drawings, labor, materials, equipment, dewatering and incidentals necessary to complete the work.

Payment will be made under:

Pay Item		Pay Unit
900.608	Special Provision (Geofoam Fill, Block)	Cubic Yard

900.608 SPECIAL PROVISION (SHREDDED HARDWOOD MULCH)

1. DESCRIPTION. This work shall consist of furnishing and placing shredded hardwood mulch as detailed in Plans or as directed by Engineer.

2. GENERAL. The materials shall meet the following requirement:

   A. Shredded hardwood Mulch shall consist of hardwood chips, 3 to 6 mm (1/8 to 1/4 inch) nominal thickness, with 50 percent having an area of not less than 650 mm^2 (1 in^2) or more than 4000 mm2 (6 in^2). All wood chip mulch shall be free from deleterious materials that are injurious to plant growth.

3. SUBMITTALS. Submittals shall be completed in accordance with Section 105.

   A. Samples: Submit adequate quantity of samples showing the complete range of colors and textures available for all components required for construction. The samples shall be submitted at least 10 day prior to any work being performed on this item for Owner's approval.

4. MATERIALS Shredded hardwood mulch shall meet the requirements stated above

5. METHOD OF MEASUREMENT The quantity of Special Provision (Shredded Hardwood Mulch) to be measured for payment will be the number of cubic yards furnished and stockpiled in the complete and accepted work.

6. BASIS OF PAYMENT The accepted quantity of Special Provision (Shredded Hardwood Mulch) will be paid for at the Contract unit price per cubic yard. Payment will be full compensation for furnishing, transporting, handling, and stockpiling the material specified and for furnishing all labor, tools, equipment, and incidentals necessary to complete the work.

Payment will be made under:

Pay Item		Pay Unit
900.608	Special Provision (Shredded Hardwood Mulch)	Cubic Yard

900.608 SPECIAL PROVISION (RAIN GARDEN PLANTING SOIL)

1. DESCRIPTION. This work shall consist of furnishing, testing mixing and placing the rain garden planting soil, in the rain garden area, as detailed in Plans or as directed by Engineer.

   A. Referenced Publications.

   AASHTO T 194 Standard Method of Test for Determination of Organic Matter in Soils by Wet Combustion.

   ASTM D 4972 Standard Test Method for pH of Soils.

   ASTM D 422-63 Standard Test Method for Particle-Size Analysis of Soils.

   ASTM D 698 Standard Test Method for Laboratory Compaction Characteristics of Soil Using Standard Effort.

   ASTM D 1557 Standard Test Method for Laboratory Compaction Characteristics of Soil Using Modified Effort.

   B. Definitions

   Amended Topsoil: Topsoil that has been uniformly modified with soil amendments to meet the requirements of this section and designed to readily infiltrate runoff water down to either open graded stone layer or subgrade below.

   Rain Garden Area: Shallow vegetated depression whose topsoil is composed of amended topsoil that may or may not be underlain with open graded stone.

   Topsoil: Imported or onsite topsoil

   Open graded stone: Open graded aggregate for drainage within Rain Garden.

2. SUBMITTALS

   Product Data: For the following:
   Sand: Provide gradation: Materials Section for requirements
   Open graded stone: See below Materials Section for requirements

   Amended Rain Garden Area Topsoil Analysis: Furnish soil analysis (three per Rain Garden area) by a qualified soil-testing laboratory or a recognized commercial or governmental agency such as University of Vermont Extension Services:

   Omit classification and compaction curve of on-site soil if geotechnical report will suffice.

   Analysis shall state percentages of organic matter; gradation of sand, silt, and clay content; cation exchange capacity; deleterious material; pH; and mineral and plant-nutrient content of topsoil.

   Report suitability of amended topsoil for Perennial Herbs and Flowers growth. State recommended quantities of nitrogen, phosphorus, and potash nutrients and soil amendments to be added to produce satisfactory amended topsoil.

3. QUALITY ASSURANCE

   Soil-Testing Laboratory Qualifications: An independent accredited laboratory, recognized by the State,

with the experience and capability to conduct the testing indicated and that specializes in types of tests to be performed.

Pre-installation Conference: Conduct conference at Project site to comply with requirements in Section 100.

4. MATERIALS

A. Soil Material.

General: Provide imported borrow soil materials when sufficient satisfactory soil materials are not available from excavations.

Washed Screened Sand: Washed Screened Sand shall consist of material reasonably free from silt, loam, clay, or organic matter. It shall be obtained from approved sources and shall meet the requirements of the following table as determined in accordance with AASHTO T 27:.

Sieve Designation	Percent By Mass (Weight) Passing the Square Mesh Sieves
50 mm (2 inch)	100
37.5 mm (1 ½ inch)	90 to 100
12.5 mm (1/2 inch)	70 to 100
4.75 (No. 4)	60 to 100
150 µm (No.100)	0 to 20
75 µm (No.200)	0 to 8

Open Graded Stone: Open Graded Stone shall be produced from natural gravels or crushed quarried rock and shall consist of clean, hard, sound, and durable material.

(a) Drainage aggregate shall be uniformly graded from coarse to fine and shall meet the gradation requirements of the following table as determined in accordance with AASHTO T 27:

Sieve Designation	Percent By Mass (Weight) Passing the Square Mesh Sieves
25.0 mm (1 inch)	100
19.0 mm (3/4 inch)	90 to 100
9.5 mm (3/8 inch)	20 to 55
4.75 mm (No. 4)	0 to 10
2.36 mm (No.8)	0 to 5

(b) Percent of Wear. Percent of wear shall not be more than 40 percent when tested in accordance with AASHTO T 96.

(c) Soundness. Soundness shall conform to the requirements of Subsection 704.01(d) of the Standard specifications.

B. Amended Soil.

Washed Screened Sand shall be clean and free of toxic materials.

Topsoil: Up to 30% topsoil shall be used within the amended soil, but after mixing of amended soil, clay shall not constitute more than 10% of the amended Rain Garden Area soil mix. Topsoil for use in the amended Rain Garden Area soil mix may be obtained from reused topsoil stockpiled on-site unless otherwise approved by Engineer.

C. Mix.

Amended Topsoil mix shall be thoroughly mixed prior to placement. Topsoil shall be amended with Sand to meet the following organic matter by weight and soil particle size distribution properties in

accordance with ASTM F-1647 and ASTM F-1632 respectively. Tests shall be submitted for three discrete samples per amended topsoil batch and approved by Engineer prior to placement:

Proportion of Sand	70% to 80%
Proportion of Clay	8%Maximum
pH	5% (+/- 0.5%)

The onsite and/or amended Rain Garden Area topsoil mix shall be friable, free of clumps of clay, brush, weed propagules (seeds, rhizomes, and plants) including but not limited to Circium arvense, Arctium minus, Lythrum salicaria, Phalaris arundinacea, Phragmites australis, Typha latifolia, and Typha angustifolia, roots, stones larger than 1", other extraneous or toxic matter harmful to plant growth.

D. Soil Analyses.

The Contractor shall submit representative samples of topsoil he intends to bring onto the site, and samples of topsoil that was stockpiled from on-site stripping, to a Soil Plant Testing Laboratory acceptable to the Owner's Representative. All reports shall be sent to the Owner's Representative for approval. The cost for testing and analysis of the soils shall be borne by the Contractor.

Samples of topsoil to be brought to the site must be approved prior to delivery. Deficiencies in the topsoil shall be corrected by the Contractor.

Testing reports shall include the following tests and recommendations:

Mechanical gradation (sieve analysis) shall be performed and compared to the USDA Soil Classification System;

The silt and clay content shall be determined by a Pipette Test of soil passing the No. 270 sieve;
Tests for gradation shall be performed by a private testing laboratory approved by the Owner's Representative. Tests for soil chemistry and pH may be performed by a public extension service agency;

Chemical analysis shall be undertaken for Phosphorus, Potassium, Calcium, Aluminum, Soluble Salts, and acidity (pH);

Soil analysis tests shall include recommendations for soil additives to correct soils deficiencies as necessary, and for additives necessary to accomplish particular objectives noted;

All tests shall be performed in accordance with the current standards of the Association of Official Agriculture Chemists.

E. Underdrain Pipe.

Refer to SPECIAL PROVISION (Install Owner-Provided 6" Underdrain, All-Inclusive) for requirements.

5. CONSTRUCTION REQUIREMENTS.

A. Rain Garden Area Soil Preparation.

Verify sand, clay, and pH measurement of amended soil mix via field control tests. Refer to Quality Assurance of this Section for required field control tests.

If amended topsoil is placed over an Open Graded Stone, mixing of the amended soil must be done outside of the Rain Garden Area.

B. Rain Garden Area Soil Excavation.

Excavation shall be achieved via backhoe or other similar excavation equipment that shall be situated outside the boundary of the Rain Garden area. If the Rain Garden area scale is too large to accommodate this requirement, use low ground pressure excavation equipment, which shall be

confined to a "one-track" alignment within the Rain Garden area to accomplish the excavation, placement of the amended soil, or reapplication of topsoil into the Rain Garden area basin.

C. Subgrade Inspection.

Notify Owner Representative when excavations have reached required subgrade.

Reconstruct subgrades damaged by freezing temperatures, frost, rain, accumulated water, or construction activities, as directed by Owner Representative, without additional compensation.

D. Storage of Soil Materials.

Stockpile amended soil materials and excavated satisfactory soil materials without intermixing. Place, grade, and shape stockpiles to drain surface water. Cover to prevent windblown dust. Stockpile amended soil materials away from edge of excavations. Do not store within drip line of remaining trees.

E. Open Graded Stone Placement.

Excavate Rain Garden area to indicated depth, cross section, and elevations

Scarify rough grades to a depth of 4 to 6 inches prior to open graded stone placement.

Place open graded stone in maximum 8-inch lifts and compact to 90% to meet indicated depths and elevations. Do not overcompact, which can create fines that may clog subgrade soils.

Open graded stone contaminated by construction site runoff shall be removed and replaced at no additional expense to the owner.

F. Underdrain Pipe.

Perforated pipe shall be provided as indicated in the drawings. Free ends of perforated pipe, where no clean-outs are specified, shall be capped.

G. Fine Grading.

Carefully prepare the amended Rain Garden area soil bed by scarifying and hand raking after amended soil mix has been spread.

H. Protection.

Protecting Graded Areas: Protect newly graded areas from traffic, freezing, and erosion. Keep free of trash and debris.

Repair and reestablish grades to specified tolerances where completed or partially completed surfaces become eroded, rutted, settled, or where they lose compaction due to subsequent construction operations or weather conditions.

Retain paragraph above or paragraph and subparagraph below.

6. METHOD OF MEASUREMENT. The quantity of Special Provision (Rain Garden Planting Soil) to be measured for payment will be the number of cubic yards furnished and stockpiled in the complete and accepted work.

7. BASIS OF PAYMENT. The accepted quantity of Special Provision (Rain Garden Planting Soil) will be paid for at the Contract unit price per cubic yard. Payment will be full compensation for furnishing, transporting, handling, and stockpiling the material specified and for furnishing all labor, tools, equipment, and incidentals necessary to complete the work.

Payment will be made under:

Pay Item	Pay Unit

900.608	Special Provision (Rain Garden Planting Soil)	Cubic Yard

900.620 SPECIAL PROVISION (INSTALL OWNER-PROVIDED AREA DRAIN, ALL-INCLUSIVE)

1. DESCRIPTION. This work shall include furnishing all equipment necessary to install area drain and associated accessories, furnished by the Owner, where indicated on the Plans and as directed by the Engineer, including coordination of delivery and storage of materials furnished by the Owner.

2. MATERIALS.

   All materials including drainage structure, pipes and grates will be furnished by the Owner

3. CONSTRUCTION REQUIREMENTS.

   Twenty four (24) inch area drain shall be installed per the manufacturer's written specifications and as indicated on the drawings.

   The Contractor shall submit to the Owner, as Working Drawings in accordance with Subsection 105.03, the dimensions required to fabricate each area drain. The Contractor shall provide this information to the Owner with as much advance notice as is necessary for the Owner to have the area drains fabricated and delivered to the Owner's storage area prior to installation.

   The owner-provided area drains shall be installed to the lines, grades and dimensions used to fabricate them. After the area drains have been fabricated and delivered to the Owner's storage area, the Contractor shall provide the Owner at least (2) days' notice prior to contractor obtaining material.

4. METHOD OF MEASUREMENT. The quantity of Special Provision (Owner-Provided Area Drain) to be measured for payment will be the number of Area Drain(s) installed in the complete and accepted work.

5. BASIS OF PAYMENT. The accepted quantity of Special Provision (Owner-Provided Area Drain) will be paid for at the Contract unit price per each. Payment will be full compensation for installation. Any accessory to the item shall be considered incidental. Any dewatering required shall be considered incidental and no separate measurement or payment will be made.

   Payment will be made under:

Pay Item		Pay Unit
900.620	Special Provision (Install Owner-Provided Area Drain, All-Inclusive)	Each

900.620 SPECIAL PROVISION (GRANITE BOLLARD (12"x12"x6'-6"))

1. DESCRIPTION. This work shall consist of furnishing and installing granite posts as detailed in the Plans and as directed by the Engineer.

   The work under this Section shall be performed in accordance with these provisions, the Plans, and Section 507, 541 and 619 of the Standard Specifications.

2. MATERIALS. Materials shall meet the following requirements:

   A. Concrete. Concrete shall meet the requirements of Section 541 for Concrete, Class A.

   B. Granite Bollard. Granite Bollards shall consist of hard, durable, quarried granite. Bollards shall be gray in color, free from seams, cracks, or other structural defects, and shall be of a smooth pebbled character. The bollard may contain natural color variations that are characteristic of the granite source.

      1. Source. The source for the granite shall be from Vermont. The Contractor shall submit for

approval the name of the quarry that is the proposed source of the granite for bollard materials. Such submission shall be made sufficiently in advance of ordering so that the Engineer may have the opportunity to judge the stone, both as to quality and appearance. Samples of bollards shall be submitted for approval only when requested by the Engineer.

2. Finish and Surface Dimensions. The individual bollard stones shall be of the dimensions shown in the Plans and shall be of uniform width and depth along the length of the bollard.

   Each arris line along the length of the bollard shall be rounded to a 13 mm (½ inch) radius.

   The finishing of the bollards shall be saw cut and will have a thermal finish on all exposed sides. Each face shall be at right angles to the plane of the adjacent face. Drill holes shall not be permitted in any face unless otherwise shown in the Plans. Each face of each bollard shall have no projections greater than 25 mm (1 inch) or depressions greater than 13 mm (½ inch), measured from the vertical plane of the face.

   The ends of the bollard stones shall be square to the faces of the bollard.

3. CONSTRUCTION REQUIREMENTS. Granite Bollards shall be constructed to the configuration shown in the Plans.

4. METHOD OF MEASUREMENT. The quantity of Special Provision (Granite Bollard (12”x12”x6’-6”)) to be measured for payment will be the number of granite bollards fabricated and installed in the complete and accepted work.

5. BASIS OF PAYMENT. The accepted quantity of Special Provision (Granite Bollard (12”x12”x6’-6”)) will be paid for at the Contract unit price per each. Payment will be full compensation for furnishing, transporting, handling, assembling, and placing the materials specified, including excavation, concrete foundation, steel reinforcing, stainless steel pins, backfill and for furnishing all labor, tools, equipment, and incidentals necessary to complete the work.
   Payment for surface course and subbase materials will be made separately under the appropriate Contract items.

   Payment will be made under:

Pay Item		Pay Unit
900.620	Special Provision (Granite Bollard)(12”x12”x6’-6”)	Each

900.620 SPECIAL PROVISION (BICYCLE RACK)

1. DESCRIPTION. This work shall consist of furnishing and installing a bicycle rack in accordance with the Plans and as directed by the Engineer.

2. PRODUCTS. The acceptable suppliers of the bicycle rack shall be one of the following, or approved equal:

   Cycle-Safe, Inc., 888-950-6531; www.cyclesafe.com.

   Creative Pipe, Inc., 800-644-8467; www.creativepipe.com.

   Huntco, 503-224-8700; www.huntco.com.

3. PAINTING BICYCLE RACK.

   A. General Requirements. The bicycle rack shall be galvanized and powder coated with at least two coats of exterior grade powder coat paint suitable for a low speed traffic environment subject to high levels of salt. The color shall be black.

      All steel components, except for stainless steel and anchor plates, shall be galvanized, pre-treated, and shop painted except as noted. Hardware need not be painted after galvanizing except for the portions exposed to view after installation, such as bolt heads, ends, nuts, and washers, which may

be field painted. Touch-up and repairs shall be made using paint from the same batch run as used for the shop-applied coats and supplied by the shop applicator.

B. Fabrication Drawings and Samples. The following provisions shall be made for hot-dip galvanizing and shop-applied paint for bicycle rack as shown on the Plans or as directed.

The requirements for surface preparation shall conform to Subsection 506.14, except as required herein, or approved otherwise.

The Fabricator shall send the Fabrication Drawings to the galvanizer for review to note considerations particular to the galvanizing process and to coordinate any proposed modifications to the fabricated materials, prior to submission of Fabrication Drawings to the Engineer for approval.

One each 3-inch by 6-inch (approximate size) sample of material to be used in the work shall be galvanized and painted as specified herein and submitted to the Engineer for approval of surface texture and color prior to full production galvanizing and painting. The Fabricator of the material shall provide the galvanizer with samples taken from the same material to be used in the work.

The Fabricator shall notify the galvanizer if the chemical composition of the steel to be galvanized exceeds the following limits, in order to determine its suitability for processing: 0.26% carbon, 0.24% silicon, 0.05% phosphorous, and 1.35% manganese.

C. Coating System Process and Materials. The galvanizing-paint duplex coating system shall consist of the following generic type at the minimum coating thickness shown:

Coating	Description	Thickness
Galvanized	Hot-dip Galvanizing	Per Subsection 726.08
Pre-Treatment	SPl Solvent Cleaning SP7 Brush-off Blast Cleaning Phosphate Cleaning (required when painting is more than 12 hours after galvanizing)	
Intermediate (force-cured)	High Build Epoxy Polyamide	3 mils DFT
Finish (force-cured)	Aliphatic Polyurethane	3 mils DFT

D. Galvanizing. Surfaces to be galvanized shall be zinc coated in conformance with AASHTO M lllM/M 111 or AASHTO M 232M/M 232 utilizing the dry kettle process in a bath of molten zinc containing nickel (0.05% to 0.09% by weight). Hardware may be mechanically galvanized in conformance with AASHTO M 298 (ASTM B 695) Class 50.

The galvanized steel product shall be pre-treated and painted by one of the following methods:

1. Method 1 (Under 12 Hours). The galvanized steel shall be pre-treated. The first coat of paint shall be applied within twelve hours of galvanizing and within eight hours of blast cleaning (or surface abrasion by approved mechanical means).

2. Method 2 (Over 12 Hours). When the galvanized steel is to be painted more than 12 hours after galvanizing, the steel shall be pre-treated followed by a treatment of zinc phosphate applied within eight hours of blast cleaning (or surface abrasion by approved mechanical means). The first coat of paint shall be applied within twelve hours of phosphating.

E. Pre-Treatment. Prior to painting, the galvanized surface shall receive pre-treatment consisting of SSPC-SPl, Solvent Cleaning, and SSPC-SP7, Brush-Off Blast Cleaning or abraded by approved mechanical means, to remove detrimental contaminants and to thoroughly roughen the entire surface and produce a uniform anchor profile of 1-2 mils. The required thickness of the zinc coating

shall be maintained and checked prior to painting. The pre-treatment shall meet the paint manufacturer's requirements.

An additional pre-treatment or tie coat may be considered if required by the paint manufacturer and approved by the Engineer.

Blast cleaning shall be performed prior to the formation of "white rust" on the galvanized surface. If any "white rust" is detected by visual means, the galvanizing shall be stripped off and the steel re-galvanized in conformance with these specifications. "White rust" shall be defined in the Inspection of Products Hot Dip Galvanized After Fabrication, Table IV, by the American Galvanizers Association.

Paint coating shall be shop applied to the galvanized product within 15 days of galvanizing. Painting shall be performed inside a controlled environment meeting applicable atmospheric requirements as recommended by the coating manufacturer. Prior to pre-treatment, rough areas of galvanizing shall be ground smooth to achieve a uniform galvanized surface to accept paint.

Phosphating, when required as described herein, shall conform to zinc phosphate coating (light) of galvanized steel, D.O.D. specification TT-C-49 D, or approved equal, and shall be applied in accordance with the manufacturer's recommendations.

When phosphating is required, the phosphate applicator shall document in writing that the phosphating procedure is acceptable to the galvanizer and coating manufacturer prior to performing the work.

F. Painting. Each coat of paint shall be separately colored to contrast with other coats and to insure complete coverage. The previous coat shall be hidden by a single application of each coat. The final color of the painted product shall be flat black Federal Standard 595 Color #27038.

Intermediate and finish coats shall be shop applied under atmospheric conditions meeting the following minimum requirements: air and steel temperature of 50°F above the dew point. The finish coat shall be spray applied.

The intermediate and finish paint coats shall each be force cured in a heated booth maintained at a minimum temperature of 150°F for 2 to 4 hours.

The finished shop-coated material shall be handled with care using nylon slings, padded cables, etc. as required to protect the finished coating. The paint applicator shall be responsible for the condition of the finished coating until the material arrives at the job site.

G. Field Touch-up and Repairs. Damaged galvanized surfaces shall be repaired by applying an organic zinc repair paint conforming to ASTM A 780 and recommended by the galvanizer. Galvanizing repair paint shall be 65 percent zinc by weight minimum, and shall be brush applied. The thickness of repair shall not be less than the coating thickness required by AASHTO M lllM/M 111 or M 232M/M 232 but not less than 3 mils DFT. Repair touch up shall not be permitted using aerosol spray, silver paint, bright paint, brite paint, or aluminum paints.

Damaged shop applied paint shall be repaired in conformance with the solvent cleaning and abrasion pre-treatment requirements specified above or the paint manufacturer's recommendations, to a minimum thickness of the original system. Touch-ups shall be such that the repair is not noticeable to the Engineer from a distance of six (6) feet.

4. INSTALLATION. The bicycle rack shall be installed at the location shown on the Plans and in accordance with the manufacturer's recommendations.

5. METHOD OF MEASUREMENT. The quantity of Special Provision (Bicycle Rack) to be measured for payment will be the number of each bicycle rack system installed in the complete and accepted work.

6. BASIS OF PAYMENT. The accepted quantity of Special Provision (Bicycle Rack) will be paid for at the Contract unit price for each. Payment will be full compensation for installing a complete bicycle rack system in accordance with the Contract Documents, and for furnishing all labor, materials, equipment, tools, and incidentals necessary to complete the work.

Payment will be made under:

Pay Item		Pay Unit
900.620	Special Provision (Bicycle Rack)	Each

900.645 SPECIAL PROVISION (INSTALL OWNER-PROVIDED DOWNSPOUT CONNECTION, ALL-INCLUSIVE)

1. DESCRIPTION. This work shall consist of installation of owner provided downspout connection at the location(s) specified and in conformance with the Plans or as directed by the Engineer.

2. SUBMITTALS. The Contractor shall submit Working Drawings to the Owner in accordance with Subsection 105.03. The submittal shall include, but not be limited to, connection details, dimensions and quantities. The Contractor shall provide this information to the Owner with as much advance notice as is necessary for the Owner to have the PVC pipes delivered to the Owner's storage area.

   The owner-provided Downspout Connection(s) shall be installed by the Contractor to the same lines, grades and dimensions given to the Owner for the Downspout Connection acquisition. After the Downspout Connection has been delivered to the Owner's storage area, the Contractor shall provide the Owner at least (2) days' notice prior to the contractor collecting PVC pipe from owner.

3. METHOD OF MEASUREMENT. The quantity of Special Provision (Downspout Connection) to be measured for payment will be the number of Downspout Connection(s) installed in the complete and accepted work.

4. BASIS OF PAYMENT. The accepted quantity of Special Provision (Downspout Connection) will be paid for at the Contract unit price per each. Payment will be full compensation for installation. Any accessory to the item shall be considered incidental. Any dewatering required shall be considered incidental and no separate measurement or payment will be made.

   Payment will be made under:

Pay Item		Pay Unit
900.620	Special Provision (Install Owner-Provided Downspout Connection, All-Inclusive)	Each

900.620 SPECIAL PROVISION (INSTALL OWNER-PROVIDED PRECAST D.I. INCLUDING CONTRACTOR-PROVIDED TOP SECTION, ALL-INCLUSIVE)

1. DESCRIPTION. This work shall consist of the installation of owner-provided drop inlets, the construction of drop inlet top sections and the placing of owner-provided cast iron grates. Additionally, the work includes coordination between the Contractor and Owner as describe in this Subsection.

   The work under this Section shall be performed in accordance with these provisions, the Plans, and Section 604 of the Standard Specifications.

2. MATERIALS. Materials shall meet the requirements of the following Subsections:

   Portland Cement 701.02
   Concrete Masonry Block..... 705.02
   Precast Drop Inlets, Catch Basins, and Manholes..... 705.04
   Mortar, Type II..... 707.02
   Bar Reinforcement..... 713.01
   Welded Steel Wire Fabric..... 713.05
   Cast Iron Frame, Grate and Cover..... 715.01(b)

   Unless otherwise specified, cast-in-place concrete shall conform to the requirements in Section 541 for

Concrete, Class B.
Materials for steel grates shall meet the requirements of ASTM A36. For steel grates, a Type D certification shall be furnished in accordance with Subsection 700.02.

The term "cast iron," as used in these Specifications, or in various Contract items, when used in conjunction with covers and frames, shall be understood to mean "cast iron or ductile iron." The Contractor may use ductile iron covers and frames meeting the requirements of Subsection 715.01(c) instead of cast iron covers and frames.

3. GENERAL CONSTRUCTION REQUIREMENTS. The excavation shall be to the depth shown on the Plans or ordered by the Engineer, and carefully shaped and graded.

   For construction of drop inlets, the brick used on top of the concrete to adjust the top to the correct elevation shall meet the requirements of Subsection 705.01(c).

4. CONSTRUCTION OF DROP INLETS.

   a. The Contractor shall submit to the Owner, as Working Drawings in accordance with Subsection 105.03, the dimensions required to precast each drop inlet. The Contractor shall provide this information to the Owner with as much advance notice as is necessary for the Owner to have the drop inlets fabricated and delivered to the Owner's storage area prior to installation.

   b. The owner-provided drop inlets shall be installed on the approved footing to the lines, grades and dimensions used to fabricate the drop inlets. After the drop inlets have been fabricated and delivered to the Owner's storage area, the Contractor shall provide the Owner at least (2) days' notice prior to the contractor collecting the structure.

   c. The required courses of brick shall be placed on the top of the concrete to the elevation shown on the Plans or directed by the Engineer. Brick shall be laid in a professional manner by a competent mason. After the bricks are laid, the joints on the inside of the brick masonry shall be neatly pointed. The outside surface of the bricks shall be covered with mortar of the same quality as used for laying the bricks so that a reasonably smooth surface is obtained.

   d. Fitting frame to final grade may be done with a synthetic riser or with precast concrete grade rings of appropriate thickness (3 courses maximum).

   e. The precast reinforced concrete risers shall be set reasonably close to line and grade on the previously placed concrete footing. The section shall be capped with courses of mortared brick.

   f. The cast iron frame shall be placed in a full mortar bed on the brick masonry and the cast iron grate shall be placed on top of the frame.

   g. Precast sections shall have a tongue and groove joint and be assembled using an approved sealant.

5. CURING AND PROTECTING. After the masonry work is completed, it shall be kept moist and protected from the elements in a satisfactory manner for a period of at least 48 hours. Concrete shall be cured in accordance with Subsection 541.17.

6. PLACING STONE FILL. The specified stone fill shall be placed as shown on the Plans in a manner that will result in a reasonably graded surface.
   The stone shall be so placed and distributed that there will be no accumulation of either the larger or smaller sizes of stone.

   Rearrangement of the stone fill by hand labor or mechanical equipment may be required to obtain the specified result.

7. BACKFILLING. Backfilling shall not begin until the end of the curing period. Backfilling materials shall be approved by the Engineer and placed in layers not exceeding 6 inches in depth. Each layer shall be thoroughly tamped using mechanical tampers. Special care shall be taken to ensure adequate compaction around the inlet and outlet pipes.

8. METHOD OF MEASUREMENT. The quantity of Special Provision (Install Owner-Provided Precast D.I. Including Contractor-Provided Top Section), to be measured for payment will be the number of each drop inlet installed in the complete and accepted work as shown on the Plans or as directed by the Engineer.

9. BASIS OF PAYMENT. The accepted quantities of Special Provision (Install Owner-Provided Precast D.I. Including Contractor-Provided Top Section) will be paid for at the Contract unit price per each.

   Payment will be full compensation for the Contractor's portion of this work only. This work includes furnishing, transporting, handling and placing the materials specified, including cast-in-place concrete, concrete risers, top sections, reinforcing steel, mortar, brick, coatings, pipe stubs, weep holes, curb board and bituminous fillets, crushed stone bedding, geotextile under stone fill, and furnishing all labor, tools, equipment and incidentals necessary to complete the work.

   Precast structure, steps, frames, grates, will be provided to the Contractor by the Owner.

   Excavation for the construction of the new drop inlets, including excavation to place Subbase of Gravel, will be paid for as Trench Excavation of Earth or Unclassified Excavation, as appropriate.

   Payment will be made under:

Pay Item		Pay Unit
900.620	Special Provision (Install Owner-Provided Precast D.I. Including Contractor-Provided Top Section, All-Inclusive)	Each

900.620 SPECIAL PROVISION (INSTALL OWNER-PROVIDED M.H. INCLUDING CONTRACTOR-PROVIDED TOP SECTION, ALL-INCLUSIVE)

1. DESCRIPTION. This work shall consist of the installation of owner-provided manholes, the construction of manhole top sections and the placing of owner-provided cast iron grates. Additionally, the work includes coordination between the Contractor and Owner as describe in this Subsection.

   The work under this Section shall be performed in accordance with these provisions, the Plans, and Section 604 of the Standard Specifications.

2. MATERIALS. Materials shall meet the requirements of the following Subsections:

   Concrete Masonry Block.....705.02
   Precast Drop Inlets, Catch Basins, and Manholes.....705.04
   Crushed Stone Bedding.....704.02
   Mortar, Type II.....707.02
   Reinforced Concrete Pipe.....710.01
   Bar Reinforcement.....713.01
   Welded Steel Wire Fabric.....713.05
   Cast Iron Frame, Grate and Cover.....715.01(b)
   Ductile Iron Frame and Cover.....715.01(c)
   Geotextiles.....720.04

   Unless otherwise specified, cast-in-place concrete shall conform to the requirements in Section 541 for Concrete, Class B.

   Materials for steel grates shall meet the requirements of ASTM A36. For steel grates, a Type D certification shall be furnished in accordance with Subsection 700.02.

   The term "cast iron," as used in these Specifications, or in various Contract items, when used in conjunction with covers and frames, shall be understood to mean "cast iron or ductile iron." The Contractor may use ductile iron covers and frames meeting the requirements of Subsection 715.01(c) instead of cast iron covers and frames.

3. GENERAL CONSTRUCTION REQUIREMENTS. The excavation shall be to the depth shown on the Plans or ordered by the Engineer, and carefully shaped and graded.

   For construction of manholes, the brick used on top of the concrete to adjust the top to the correct elevation shall meet the requirements of Subsection 705.01(c).

4. CONSTRUCTION OF MANHOLES.

   a. The Contractor shall submit to the Owner, as Working Drawings in accordance with Subsection 105.03 and Standard Detail D-16 the dimensions required to precast each manhole. The Contractor shall provide this information to the Owner with as much advance notice as is necessary for the Owner to have the manholes fabricated and delivered to the Owner's storage area prior to installation.

   b. The owner-provided manholes shall be installed on the approved footing to the lines, grades and dimensions used to fabricate the manholes. After the manholes have been fabricated and delivered to the Owner's storage area, the Contractor shall provide the Owner at least (2) days' notice prior to the contractor collecting the structure.

   c. The required courses of brick shall be placed on the top of the concrete to the elevation shown on the Plans or directed by the Engineer. Brick shall be laid in a professional manner by a competent mason. After the bricks are laid, the joints on the inside of the brick masonry shall be neatly pointed. The outside surface of the bricks shall be covered with mortar of the same quality as used for laying the bricks so that a reasonably smooth surface is obtained.

   d. Fitting frame to final grade may be done with a synthetic riser or with precast concrete grade rings of appropriate thickness (3 courses maximum).

   e. The precast reinforced concrete risers shall be set reasonably close to line and grade on the previously placed concrete footing. The section shall be capped with courses of mortared brick.

   f. The cast iron frame shall be placed in a full mortar bed on the brick masonry and the cast iron grate shall be placed on top of the frame.

   g. Precast sections shall have a tongue and groove joint and be assembled using an approved sealant.

5. CURING AND PROTECTING. After the masonry work is completed, it shall be kept moist and protected from the elements in a satisfactory manner for a period of at least 48 hours. Concrete shall be cured in accordance with Subsection 541.17.

6. PLACING STONE FILL. The specified stone fill shall be placed as shown on the Plans in a manner that will result in a reasonably graded surface.

   The stone shall be so placed and distributed that there will be no accumulation of either the larger of smaller sizes of stone.

   Rearrangement of the stone fill by hand labor or mechanical equipment may be required to obtain the specified result.

7. INSTALLATION.

   a. GENERAL. The surfaces receiving the geotextile shall be prepared to a smooth condition free of obstructions, depressions and debris, unless otherwise directed by the Engineer. Where angular aggregate or sharp objects will be in contact with the geotextile, increase the geotextile strength properties will be required as specified in Section 720. The geotextile shall not be dragged on the ground or mishandled in any way. The geotextile shall be placed loosely and without wrinkles so that placement of the overlaying material will not tear the geotextile. The geotextile shall be lapped or sewn as specified at the ends and sides of adjoining sheets. In addition to the above general requirements, the following specific requirements shall be followed:

i. GEOTEXTILE UNDER STONE FILL. Geotextiles under stone fill shall be constructed in accordance with the details shown on the Plans and the following requirements. The Contractor shall demonstrate to the satisfaction of the Engineer that the combination of the stone fill drop height and the thickness of any cushion, when specified or required, are adequate so as not to puncture or damage the geotextile when placing the stone fill. Where a sand cushion is used, it shall be a minimum of 6 inches thick, unless otherwise directed by the Engineer. In addition, the following limits apply:

36 inches of Crushed Stone Bedding, shall have a maximum drop height onto a sand cushion blanket of 36 inches.

After the placement of the stone fill, all voids in the stone face that allows the geotextile to be visible shall be satisfactorily backfilled so that the geotextile is complete covered.

8. BACKFILLING. Backfilling shall not begin until the end of the curing period. Backfilling materials shall be approved by the Engineer and placed in layers not exceeding 6 inches in depth. Each layer shall be thoroughly tamped using mechanical tampers. Special care shall be taken to ensure adequate compaction around the inlet and outlet pipes.

9. METHOD OF MEASUREMENT. The quantity of Special Provision (Install Owner-Provided M.H. Including Contractor-Provided Top Section), to be measured for payment will be the number of each manhole installed in the complete and accepted work as shown on the Plans or as directed by the Engineer.

10. BASIS OF PAYMENT. The accepted quantities of Special Provision (Install Owner-Provided M.H. Including Contractor-Provided Top Section) will be paid for at the Contract unit price per each.

Payment will be full compensation for the Contractor's portion of this work only. This work includes furnishing, transporting, handling and placing the materials specified, including cast-in-place concrete, concrete risers, top sections, reinforcing steel, mortar, brick, coatings, pipe stubs, weep holes, curb board and bituminous fillets, crushed stone bedding, geotextile under stone fill, and furnishing all labor, tools, equipment and incidentals necessary to complete the work.

Precast structure, steps, frames, grates, will be provided to the Contractor by the Owner.

Excavation for the construction of the new manholes, including excavation to place stone fill and install geotextile, will be paid for as Trench Excavation of Earth of Trench Excavation of Rock, as appropriate.

Payment will be made under:

Pay Item		Pay Unit
900.620	Special Provision (Install Owner-Provided M.H. Including Contractor-Provided Top Section, All-Inclusive)	Each

900.620 SPECIAL PROVISION (INSTALL OWNER-PROVIDED DRAINAGE CLEANOUT, ALL-INCLUSIVE)

1. DESCRIPTION. This work shall consist of constructing drainage cleanout at the locations indicated in the Plans and as directed by the Engineer.

The work under this Section shall be performed in accordance with these provisions, the Plans, and Section 204 and 605 of the Standard Specifications.

2. INSTALLATION. This work shall consist of installing drainage cleanouts at the locations indicated in the Plans and as directed by the Engineer.

The Contractor shall submit to the Owner, as Working Drawings in accordance with Subsection 105.03, the lengths of all underdrain pipes needed. The Contractor shall provide this information to the Owner with as much advance notice as is necessary for the Owner to have the drainage cleanouts delivered to the Owner's storage area.

The owner-provided drainage cleanout Castings and Cap shall be installed by the Contractor to the same lines, grades and dimensions given to the Owner for the drainage cleanout acquisition. After the drainage cleanout have been delivered to the Owner's storage area, the Contractor shall provide the Owner at least (2) days' notice prior to the contractor collecting drainage cleanouts from owner.

3. METHOD OF MEASUREMENT. The quantity of Special Provision (Drainage Cleanout) to be measured for payment will be the number of Drainage Cleanout(s) installed in the complete and accepted work.

4. BASIS OF PAYMENT. The accepted quantities of Special Provision (Install Owner-Provided Drainage Cleanout, All-Inclusive) of the size specified will be paid for at the respective Contract unit price of each.

Payment will be full compensation for fabricating, furnishing, transporting, handling, and placing the material specified, including coupling bands and fittings, drainage aggregate, geotextile fabric, concrete and backfill; performing necessary excavation; and for furnishing of all labor, tools, equipment, and incidentals necessary to complete the work. Any dewatering required shall be considered incidental and no separate measurement or payment will be made.

Payment will be made under:

Pay Item		Pay Unit
900.620	Special Provision (Install Owner-Provided Drainage Cleanout, All-Inclusive)	Each

900.620 SPECIAL PROVISION (WOOD PERGOLA)

1. DESCRIPTION. This work shall include furnishing all materials and equipment and do the work necessary to fabricate and install wood pergola and associated accessories where indicated on the Plans and as directed by the Engineer.

2. SUBMITTALS. Submittals shall be completed in accordance with Section 105.

Product Data: Provide manufacturer's data for each item showing installation and limitations in use.

Shop Drawings: Supply shop drawings at an approved scale for location, installation and erection of all parts of the work.

Samples: Submit samples showing the complete range of colors, textures and finishes available for all components required for construction. Work includes but is not limited to the following:

A. Provide one sample, 6 in. square, of shop-applied finish for each item.

3. QUALITY ASSURANCE.

Source: For each type of product required for the work of this Section, provide products of one manufacturer and source for consistency.

Qualifications of Workers: Use adequate numbers of skilled workers who are trained in the necessary crafts and who are completely familiar with the specified requirements and methods needed for proper performance of the work of this Section.

The work of this Section shall be completely coordinated with the work of other Sections. Verify dimensions and work of other trades that adjoin materials of this Section before installing items specified.

Protect site furnishings from paint spatter, splashed concrete and other construction damage by wrapping and taping in place plastic sheeting or heavy kraft paper until adjacent work is completed. Repair any damage to finish in a manner consistent with manufacturer's recommendations.

4. PROJECT CONDITIONS.

Protection: The Contractor shall use all means necessary to protect the materials of this Section before, during, and after installation. In the event of damage, make all repairs and replacements necessary to approval of the Owner's Representative and at no additional cost to the Owner. All work shall be executed in such a manner as to prevent any damage to existing streets, curbs, paving to remain, existing plant materials, and adjoining properties.

Utilities: Determine location of underground utilities and perform work in a manner which will avoid possible damage. Hand excavate as required. Maintain grade stakes set by others until removal is mutually agreed upon by all parties concerned.

5. DELIVERY, STORAGE, AND HANDLING.

Deliver products and supplies to the job adequately protected from damage during transit.

Store products and supplies off the ground and protected against damage. Damaged products and/or supplies will be rejected and shall not be employed in the work.

6. MATERIALS.

Please add "or approved equal."

A. Pergola shall be one of three selected manufacturers.

1. Model No. CPI by Trellis Structures, www.trellisstructures.com, 888 285-4624, 8' height, and conform to the following :

2. SKU: 795375 by Walpole Woodworkers , www.walpolewoodworkers.com, 800-343-6948, 8' height, and conform to the following :

3. Custom Vinyl Pergola by New England Outdoor, www.neoutdoor.com, 978-705-6480 , 8' height, and conform to the following :

B. All Materials shall conform to the following:

1. All materials (except for columns) shall be Western Red Cedar, Grade A or better, kiln dried, vertical grain.

2. Columns shall be 10" Dia, and constructed from a fiberglass polymer that conforms to manufacturers standards.

3. Beams – Double 2 x8 beams at columns.

4. Rafters – 2 x 6 at 16" oc, with profile selected from full range of options.

5. Perlins – 2 x 2 at 12" oc.

B. Anchors

Anchors for Columns to footings shall be a j-anchor with a coupler to receive a threaded tension rod. Strapping shall be installed to align with inside face of column.

C. Finish

All Red Cedar materials to be left natural.

Fiberglass columns to be primed and painted.

7. CONSTRUCTION REQUIREMENTS. Install pergola per manufacturers and instructions and as noted on the drawings.

8. METHOD OF MEASUREMENT. The quantity of Special Provision (Wood Pergola) to be measured for payment will be the number of Wood Pergola(s) installed in the complete and accepted work.

9. BASIS OF PAYMENT. The accepted quantity of Special Provision (Wood Pergola) will be paid for at the Contract unit price per each. Payment will be full compensation for fabrication, furnishing, and installation. Any accessory to the item shall be considered incidental. Any dewatering required shall be considered incidental and no separate measurement or payment will be made.

Any concrete and/or steel reinforcement required to complete the work as specified herein or as shown on the Drawings shall be considered incidental to the work of this item, and no separate measurement or payment will be made.

Payment will be made under:

Pay Item		Pay Unit
900.620	Special Provision (Wood Pergola)	Each

900.640 SPECIAL PROVISION (INSTALL OWNER-PROVIDED PVC PIPE, ALL-INCLUSIVE)

1. DESCRIPTION. This work shall consist of constructing drainage systems using PVC pipe at the locations indicated on the Plans and as directed by the Engineer.

The work under this Section shall be performed in accordance with these provisions, the Plans, and Section 204 and 601 of the Standard Specifications.

2. INSTALLATION. This work shall consist of installing PVC pipes at the locations indicated on the Plans or as directed by the Engineer.

The Contractor shall submit Working Drawings to the Owner in accordance with Subsection 105.03. Drawings shall include the lengths of all PVC pipes needed. The Contractor shall provide this information to the Owner with as much advance notice as is necessary for the Owner to have the PVC pipes delivered to the Owner's storage area.

The owner-provided PVC pipe shall be installed by the Contractor to the same lines, grades and dimensions given to the Owner for the PVC pipe acquisition. After the PVC pipe has been delivered to the Owner's storage area, the Contractor shall provide the Owner at least (2) days' notice prior to the contractor collecting PVC pipe from owner.

3. METHOD OF MEASUREMENT. The quantities of Special Provision (Install Owner-Provided PVC Pipe, All-Inclusive) of the size specified to be measured for payment will be the number of linear feet installed in the complete and accepted work.

The pay limit for temporary pavement patching material will be measured as the diameter of the pipe plus 2 feet multiplied by the length of the trench.

4. BASIS OF PAYMENT. The accepted quantities of Special Provision (Install Owner-Provided PVC Pipe, All-Inclusive) of the size specified will be paid for at the respective Contract unit price per linear foot.

Payment will be full compensation for fabricating, furnishing, transporting, handling, and placing the material specified, including coupling bands and fittings, drainage aggregate, geotextile fabric, and backfill; performing necessary excavation; and for furnishing of all labor, tools, equipment, and incidentals necessary to complete the work.

Payment will be made under:

Pay Item		Pay Unit
900.640	Special Provision (Install Owner-Provided 6" PVC Pipe, All-Inclusive)	Linear Foot
900.640	Special Provision (Install Owner-Provided 8" PVC Pipe, All-Inclusive)	Linear Foot

900.640	Special Provision (Install Owner-Provided 12"PVC Pipe, All-Inclusive)	Linear Foot

900.640 SPECIAL PROVISION (ORNAMENTAL METAL FENCES AND GATES)

1. DESCRIPTION. This work shall include providing labor, materials and equipment necessary to complete the Work of installing all ornamental fences and/or gates.

   The work under this Section shall be performed in accordance with these provisions, the Plans, and Section 525 and 620 of the Standard Specifications.

2. GENERAL REQUIREMENTS. Contractor is responsible for confirming all measurements on site for all fence and gates located on site.

3. SUBMITTALS.

   A. Product Data: Provide manufacturer's data for each item showing installation and limitations in use.

   B. Shop Drawings: Supply shop drawings at an approved scale for location, installation and erection of all parts of the work.

   C. Material Selection and Samples: Submit samples showing the complete range of colors, textures and finishes available for all components required for construction. Work includes but is not limited to the following:

      (1) Sizes: Provide 12 in. square or 12 in. long samples of each material, as required.

4. QUALITY ASSURANCE.

   A. The Contractor and his Subcontractors shall inspect all subbases for unstable, unsuitable or improperly prepared areas. Do not begin work over unacceptable areas. Beginning work means the Contractor and his Subcontractors accept the subbase, previous work and conditions and shall be held responsible for any corrections required to properly implement the Construction Documents.

   B. Source: For each type of product required for the work of this Section, provide products of one manufacturer and source for consistency.

   C. Qualifications of Workers: Use adequate numbers of skilled workers who are trained in the necessary crafts and who are completely familiar with the specified requirements and methods needed for proper performance of the work of this Section.

   D. The work of this Section shall be completely coordinated with the work of other Sections. Verify dimensions and work of other trades which adjoin materials of this Section before installing items specified.

5. MATERIALS.

   A. Available Products and Manufacturers: Subject to compliance with requirements, products that may be incorporated into the Work include, but are not limited to, the following:

      1. "Imperial - Style B" three rail type with rings and standard flat top, and "Imperial Single Cantilevered Sliding Gate", by Monumental Iron Works, Baltimore, MD; tel. 410-633-6500.

      2. "Aegis Plus Genesis" three rail type, by Ameristar, Tulsa, OK; tel. 800-321-8724.

      3. "#F4009 Commercial 6' Ornamental Fence" by Middlebury Fence, New Haven, VT; tel. 802-388-2225.

B. METAL PICKET FENCE

1. Steel Fencing: All steel will need to comply with 'Buy America' provisions. www.transportation.gov/highlights/buyamerica. Provide ornamental steel fence with gates. 8 ft. high, at locations indicated.

   a. Fence pickets shall be made of hot-rolled structural steel. Tube shall be manufactured per ASTM A513. Tube shall be hot-dipped galvanized per ASTM A525-G90.

Pickets Size	Wall Thickness	Weight Per Ft.	Tensile Strength
1 in. sq.	16 gal	.827 lbs.	45,000 psi

   b. Fence rails shall be made of hot rolled structural steel, rolled into "U" channel measuring 1-" wide x 1-1/2" deep x .120 wall thickness. Manufactured per ASTM A513 and hot-dipped galvanized per ASTM A525-G90.

   c. Fence posts shall be hot-rolled structural steel. Tube shall be manufactured per ASTM A513. Tube shall be hot-dipped galvanized per ASTM A525-G90.

Posts Size	Wall Thickness	Weight Per Ft.	Tensile Strength
3 in. sq.	12 gal.	4.286 lbs.	45,000 psi

End Posts Size	Wall Thickness	Weight Per Ft.	Tensile Strength
3 in. sq.	12 gal.	4.286 lbs.	45,000 psi

Gate Posts Size	Wall Thickness	Weight Per Ft.	Tensile Strength
4 in. sq.	12 gal.	5.77 lbs.	45,000 psi

   d. Fence rail attachment brackets shall be cast of malleable iron per ASTM A47 Grade 32510. Hot-dipped galvanized per ASTM A-48.

   e. Fence finials and rings shall be cast of gray iron with minimum 20,000 psi. Hot-dipped galvanized per ASTM A-48.

   f. Assembly of fencing:

      1. Sections shall be assembled using 3 rails that are punched out to insert pickets through them. Pickets are riveted to rails using a ¼" industrial drive rivet # MIW 381080691.

      2. Rails are attached to posts by means of rail brackets. Rail brackets are attached to rails using a 1/4" industrial drive rivet # MIW 381081191. Brackets attach to post using 1/4" bolt with lock nut.

   g. Coating:

      1. Fence and gate assemblies shall have a galvanized undercoat inside and outside all members to assure maximum corrosion resistance.

      2. All fence components are then given a 4 stage "Power Wash" pre-treatment process that cleans and prepares the galvanized surface to assure complete adhesion of the finish coat.

      3. Preparation:

         a. Stage 1 - All metal is rinsed in warm water so that surface is water break free.

         b. Stage 2 - All metal is given an iron phosphate pre-treatment at 130 mg to insure adhesion.

c. Stage 3 - All metal is then thoroughly rinsed in a de-ionized water rinse to remove chemicals.

d. Stage 4 - All metal receives a chromated seal, baked to assure the best surface for painting.

4. Finish: All metal is given a polyester resin-based powder coating applied by the electrostatic spray process, to a thickness of 2.5 mm. The finish is then baked in a 450 (metal temperature) oven for 20 minutes.

5. Color: Black, unless otherwise indicated.

6. Concrete: Concrete for footings shall meet the requirements of Vermont Construction Standard Specifications Section 501 for Concrete, High performance Class B.

C. DECORATIVE PICKET SWING GATES

A. Gate Frames: Galvanized steel members, ASTM A 787, structural quality steel, 45,000 psi tensile strength, with galvanized G90 coating. Weld frame members using stainless steel welded to form a rigid one piece unit.

1. Vertical Uprights: 2 in. square, 13 gauge (0.095 in.) wall thickness, minimum size.

B. Ornamental Picket Infill: "U" channel rails, formed from hot rolled, structural steel, 1-3 /8 in. wide by 1-1 /2 in. deep, 11 gauge (0.120 in.) wall thickness. Punch rails to receive pickets, and weld inside gate frame.

1. Pickets: Provide galvanized steel, 3 /4 in. square tube of gauge, spacing, and with accessories to match fence. Attach pickets to "U" rails by 1 /4 in. industrial drive rivets, size #4.

C. Bracing: Provide diagonal adjustable length truss rods on gates to prevent sag.

D. Hardware Materials: Provide galvanized steel or malleable iron shapes to suit gate size.

E. Hinges: Structurally capable of supporting gate leaf and allow opening and closing without binding. Non-lift-off type hinge design permits gate to swing 180 degrees.

F. Latch: Capable of retaining gate in closed position, with provision for padlock.

G. Keeper: Provide keeper for each gate leaf over 5 ft. wide. Include mechanical device for securing free end of gate when in full open position.

H. Double Gates: Provide drop rod to hold inactive leaf Provide gate stop pipe to engage center drop rod. Provide locking device and padlock eyes as an integral part of latch, requiring one padlock for locking both gate leaves.

I. Gate Posts: Square members, ASTM A 787, structural quality steel, 45,000 psi tensile strength, with galvanized G90 coating; size as indicated below:

Gate Leaf Single Width	Post Size (square)	Weight
3 ft. to 4 ft.	3 in.	4.286 lb/ft
4 ft. to 8 ft.	4 in.	5.770 lb/ft

J. Polyester Powder Coat Finish: After components have been galvanized to provide maximum corrosion resistance, pretreat, clean, and prepare galvanized surface to assure complete adhesion of finish coat. Apply 2.5 mil thickness of polyester resin based powder coating by electrostatic spray process. Bake finish for 20 minutes at 450 degrees F, metal temperature.

1. Color: To match fence.

6. CONSTRUCTION REQUIRMENTS.

A. METAL PICKET FENCE

1. Fence, gate, and accessories shall be installed in strict accordance with plan specifications and all standard specifications in a workmanlike manner.

2. All line posts shall be spaced no more than 8' o.c. max in line of fence. Posts shall be plumb with tops properly aligned.

3. Post Footings in Earth:

   a. Drill holes in firm, undisturbed or compacted soil. Footings shall be to the size and dimensions shown on the drawings. All excavations shall be incidental to installation of fence or gate.

   b. Place concrete around post in a continuous pour. Trowel finish tops of footings and slope or dome to direct water away from posts as indicated on the drawings. Mechanically vibrate to ensure density and absence of voids.

4. Post Footings in Brick Veneer Wall:

   a. Core and drill holes in existing brick veneer and concrete for fence post as shown in plans. Footings shall be to the size and dimensions shown on the drawings. All excavations shall be incidental to installation of fence or gate.

5. Where grades of adjacent pavement, curb or lawn is less than .0015 feet per foot, rails shall follow grade, and posts and pickets shall be perpendicular to rail. Where grades of adjacent pavement, curb or lawn is greater than or equal to .015 feet per foot, posts and pickets shall be plumb and rails shall follow grade.

6. Touch up paint as per manufacturer's instructions, and as directed by the Owner's Representative.

7. METHOD OF MEASUREMENTS. The quantity of Ornamental Fence, of the type and size specified, to be measured for payment will be the number of linear feet installed in the complete and accepted work. Measurement will be along the top of the fence from outside to outside of end posts for each continuous run of fence. Measurement will include fence at bracing assemblies but not at gates.

   The quantity of Ornamental Metal Gate, of the type and size specified, to be measured for payment will be the number of linear feet of clear distance between gate posts in the complete and accepted work.

8. BASIS OF PAYMENTS. The accepted quantity of Ornamental Fence, of the type and size specified, will be paid for at the respective Contract unit price per linear foot. Payment will be full compensation for detailing, furnishing, transporting, handling, assembling, and placing the materials specified, including posts and concrete for bases; performing drilling necessary for post placement; excavation and disposal of excess material; and for furnishing all labor, tools, equipment, and incidentals necessary to complete the work.

   The accepted quantity of Ornamental Metal Gate, of the type and size specified, will be paid for at the respective Contract unit price per linear foot. Payment will be full compensation for detailing, furnishing, transporting, handling, assembling, and placing the materials specified, including posts and concrete for bases; performing drilling necessary for post placement; excavation and disposal of excess material; and for furnishing all labor, tools, equipment, and incidentals necessary to complete the work.

   Payment will be made under:

Pay Item		Pay Unit
900.640	Special Provision (Ornamental Metal Fence,	Linear Foot

	6 Feet)	
900.640	Special Provision (Ornamental Metal Fence on Brick Veneer Wall, 6 Feet)	Linear Foot
900.640	Special Provision (Ornamental Metal Gate)	Linear Foot
900.640	Special Provision (Ornamental Metal Gate, 8 Feet Wide)	Linear Foot
900.640	Special Provision (Ornamental Metal Gate, 14'-6" Feet Wide) (Washington Street)	Linear Foot
900.640	Special Provision (Ornamental Metal Gate, 10 Feet Wide) (Merchants Row)	Linear Foot

900.640 SPECIAL PROVISION (INSTALL OWNER-PROVIDED 6" UNDERDRAIN, ALL-INCLUSIVE)

1. DESCRIPTION. This work shall consist of constructing drainage systems using underdrains at the locations indicated in the Plans and as directed by the Engineer.

   The work under this Section shall be performed in accordance with these provisions, the Plans, and Section 204 and 605 of the Standard Specifications.

2. Installation of Underdrain. This work shall consist of installing underdrain pipes at the locations indicated in the Plans and as directed by the Engineer.

   The Contractor shall submit to the Owner, as Working Drawings in accordance with Subsection 105.03, the lengths of all underdrain pipes needed. The Contractor shall provide this information to the Owner with as much advance notice as is necessary for the Owner to have the underdrain delivered to the Owner's storage area.

   The owner-provided underdrain shall be installed by the Contractor to the same lines, grades and dimensions given to the Owner for the underdrain acquisition. After the undrains have been delivered to the Owner's storage area, the Contractor shall provide the Owner at least (2) days' notice prior to the contractor collecting underdrain from owner.

3. METHOD OF MEASUREMENT. The quantities of Special Provision (Install Owner-Provided 6" Underdrain, All-Inclusive) of the size specified to be measured for payment will be the number of linear feet installed in the complete and accepted work.

   The pay limit for temporary pavement patching material will be measured as the diameter of the pipe plus 2 feet multiplied by the length of the trench.

4. BASIS OF PAYMENT. The accepted quantities of Special Provision (Install Owner-Provided 6" Underdrain, All-Inclusive) of the size specified will be paid for at the respective Contract unit price per linear foot.

   Payment will be full compensation for fabricating, furnishing, transporting, handling, and placing the material specified, including coupling bands and fittings, drainage aggregate, geotextile fabric, and backfill; performing necessary excavation; and for furnishing of all labor, tools, equipment, and incidentals necessary to complete the work.

   Payment will be made under:

Pay Item		Pay Unit
900.640	Special Provision (Install Owner-Provided 6" Underdrain, All-Inclusive)	Linear Foot

900.640 SPECIAL PROVISION (PEA STONE STRIP)

1. DESCRIPTION. This work shall include furnishing all materials and equipment and do the work necessary to fabricate and install the pea stone strip and associated accessories where indicated on the Plans and as directed by the Engineer.

2. SUBMITTALS. Submittals shall be completed in accordance with Section 105.

   A 50 lb. sample of pea stone proposed for use, and of any on-site, shall be submitted to the Engineer for review and testing at least ten (10) days prior to first use on-site. Samples shall be delivered to office of the Engineer, as directed.

   The Contractor shall provide the location and name of material source.

   The Contractor shall provide manufacturer's data for each item showing installation and limitations in use.

   The Contractor shall supply shop drawings at an approved scale for location, installation and erection of all parts of the work.

   The Contractor shall submit minimum 6" long samples strip of metal edging showing the range of colors available for all components required for construction.

3. QUALITY ASSURANCE.

   The Contractor and his Subcontractors shall inspect all subbases for unstable, unsuitable or improperly prepared areas. Do not begin work over unacceptable areas. Beginning work means the Contractor and his Subcontractors accept the subbase, previous work and conditions and shall be held responsible for any corrections required to properly implement the Construction Documents.

   Source: For each type of product required for the work of this Section, provide products of one manufacturer and source for consistency.

   Qualifications of Workers: Use adequate numbers of skilled workers who are trained in the necessary crafts and who are completely familiar with the specified requirements and methods needed for proper performance of the work of this Section.

   The work of this Section shall be completely coordinated with the work of other Sections. Verify dimensions and work of other trades which adjoin materials of this Section before installing items specified.

4. MATERIALS. 3/8" pea stone gravel shall be locally source and selected from the full range of colors available.

5. METAL EDGING.

   Edging material to be manufactured from steel with interlocking system at joints that are securely fastened with stakes.

   Edging shall be 3/16" thick and 6" high; the finish shall be powder coated enamel in black unless otherwise indicated.

   Stakes shall be steel and minimum 18" long.

   A. Manufacturer.

      Available Products and Manufacturers: Subject to compliance with requirements, products that may be incorporated into the Work include, but are not limited to, the following:

      Sure-loc Edging Corporation, Holland MI; www.surelocedge.com

COL-MET, Garland TX; www.colmet.com

Metal Edging Guys, Burlington, VT; www.metaledgingguys.com

B. Execution.

Check to ensure that all underground lines, irrigation hoses and cables are installed below the maximum depth of the stakes and edging.

Cut the trench for the edging so that the top of edging shall be at finish grade as shown on the plans.

Install edging with stakes on the inside of plant bed edges and drip strips, or on the outside if being used for paver retention.

Backfill both sides of the edging during installation.

6. METHOD OF MEASUREMENT. The quantity of Special Provision (Pea Stone Strip) to be measured for payment will be the number of linear feet of pea stone strip constructed in the complete and accepted work, as shown on the Plans or ordered by the Engineer.

7. BASIS OF PAYMENT. The accepted quantity of Special Provision (Pea Stone Strip) will be paid for at the Contract unit price per linear foot. Payment will be full compensation for fabrication, furnishing, and installation. Any accessory to the item shall be considered incidental. Any dewatering required shall be considered incidental and no separate measurement or payment will be made.

Payment will be made under:

Pay Item		Pay Unit
900.620	Special Provision (Pea Stone Strip)	Linear Foot

900.645 SPECIAL PROVISION (ADA CONCRETE RAMPS FOR BARDWELL HOUSE ACCESS)

1. DESCRIPTION. This work shall consist of excavation, removal and disposal of existing handrail, guardrail and access ramps, backfill, designing, detailing, fabricating, and erecting a new concrete ramp, new guardrail, handrail, concrete columns and any additional work required to install this item at the location specified for the Bardwell House access at the location(s) specified and in conformance with the lines and grades shown on the Plans or as directed by the Engineer.

All accesses to the Bardwell House must be maintained at all times and with coordination with owner and engineer.

2. SUBMITTALS. Working Drawings shall be submitted to the Structures Engineer in accordance with Sections 105. The submittal shall include, but not be limited to, detailed design computations and details, dimensions, quantities, and cross sections necessary to construct the retaining wall, guardrail, lighted handrail and concrete steps.

Contractor shall submit a Schedule of Values for all items associated with this lump sum item to engineer review and approval before any work on this item begins.

All Shop Drawings for this item shall include design calculations and shall be stamped by a Professional Structural Engineer, registered in the State of Vermont.

3. MATERIALS. Materials shall meet the following requirements and any requirements shown in plans and Standard specifications.

1. Concrete. Concrete shall meet the requirements of Section 541 for Concrete, Class A.

2. Reinforcing Steel. All reinforcing steel shall meet the requirements of Section 507 for Reinforcing

steel.

3. Guardrail and Handrail. All Guardrail and Handrail shall meet the requirements of section 506

4. TYPE GUARDRAIL AND HANDRAIL. All Guardrail and Handrail shall be fabricated and installed in accordance with plans or as directed by engineer.

5. METHOD OF MEASUREMENT. The quantity of Special Provision (ADA Concrete Ramps for Bardwell House Access) to be measured for payment will be on a lump sum basis in the complete and accepted work.

6. BASIS OF PAYMENT. The accepted quantity of Special Provision (ADA Concrete Ramps for Bardwell House Access) will be paid for at the Contract lump sum price. Payment will be full compensation for excavation, removal and disposal of existing handrail, guardrail and access ramps, backfill, designing, detailing, fabricating, and erecting a new concrete ramp, new guardrail, handrail, concrete columns and any additional work specified, and for furnishing all materials, labor, tools, equipment, and incidentals necessary to complete the work.

Payment will be made under:

Pay Item		Pay Unit
900.645	Special Provision (ADA Concrete Ramps for Bardwell House Access)	Lump Sum

900.645 SPECIAL PROVISION (RETAINING WALL, GUARDRAIL, LIGHTED HANDRAIL AND CONCRETE STEPS FOR PARAMOUNT THEATER ACCESS)

1. DESCRIPTION. This work shall consist of excavation, removal and disposal of existing handrail and guardrail, backfill, designing, detailing, fabricating, and erecting a new concrete retaining wall, new guardrail, lighted handrail, concrete steps and any additional work required to install this item at the location specified for the Paramount Theater Access and in conformance with the lines and grades shown on the Plans or as directed by the Engineer.

2. SUBMITTALS. Working Drawings shall be submitted to the Structures Engineer in accordance with Sections 105. The submittal shall include, but not be limited to, detailed design computations and details, dimensions, quantities, and cross sections necessary to construct the retaining wall, guardrail, lighted handrail and concrete steps.

   Contractor shall submit a Schedule of Values for all items associated with this lump sum item to engineer review and approval before any work on this item begins.

   All Shop Drawings for this item shall include design calculations and shall be stamped by a Professional Structural Engineer, registered in the State of Vermont.

3. MATERIALS. Materials shall meet the following requirements and any requirements shown in plans and Standard specifications.

   A. Concrete. Concrete shall meet the requirements of Section 541 for Concrete, Class A.

   B. Reinforcing Steel. All reinforcing steel shall meet the requirements of Section 507 for Reinforcing steel.

   C. Guardrail and Handrail. All Guardrail and Handrail shall meet the requirements of section 506

4. TYPE RL LUMINAIRES. LED Handrail shall be complete illuminated handrail system made with extruded aluminum welded and blended joints for a seamless appearance and the luminaire shall consist of a high impact extruded frosted acrylic lens that snaps into place and is further retained by fasteners at each end. Aluminum rails supplied with an anodized finish. Round handrail shall have dimensions that conform to ADA requirements and shall be provided with 30 degree asymmetrical illumination post

mount on each side of the stairway.

LED modules are 24 VDC constant voltage at 4.5 watts and 171 lumens per foot, with 4000˚K color temperatures. LEDs shall be configured to allow uninterrupted illumination. Drivers shall be integral to the posts or railing. Posts shall be provided at a maximum of 6' centers, and direct buried to 6" depth and set with quick-setting grout by contractor.

5. TYPE GUARDRAIL AND HANDRAIL. All Guardrail and Handrail shall be fabricated and installed in accordance with plans or as directed by engineer.

6. METHOD OF MEASUREMENT. The quantity of Special Provision (Retaining Wall, Guardrail, Lighted Handrail and Concrete Steps for Paramount Theater Access) to be measured for payment will be on a lump sum basis in the complete and accepted work.

7. BASIS OF PAYMENT**.** The accepted quantity of Special Provision (Retaining Wall, Guardrail, Lighted Handrail and Concrete Steps for Paramount Theater Access) will be paid for at the Contract lump sum price. Payment will be full compensation for excavation, removal and disposal of existing handrail and guardrail, backfill, designing, detailing, fabricating, and erecting a new concrete retaining wall, new guardrail, lighted handrail, concrete steps and any additional specified, and for furnishing all materials, labor, tools, equipment, and incidentals necessary to complete the work.

Payment will be made under:

Pay Item		Pay Unit
900.645	Special Provision (Retaining Wall, Guardrail, Lighted Handrail and Concrete Steps for Paramount Theater Access)	Lump Sum

900.645 SPECIAL PROVISION (CONCRETE PAD INSTALLATION FOR NEW PROPANE TANK)

1. DESCRIPTION. This work shall consist of designing, detailing, fabricating, and constructing a new concrete pad for the installation of new propane tanks at the location specified and in conformance with the lines and grades shown on the Plans or as directed by the Engineer.

2. MATERIALS. Materials shall conform to the requirements of the propane company specifications.

3. CONSTRUCTION REQUIREMENTS. The concrete pad shall be installed in accordance with the Plans and the propane company specifications. The Contractor shall obtain specifications directly from the propane company.

The Contractor shall install all appurtenances required to provide a fully operational concrete slab for the purposes of setting new propane tanks. The propane company will install all pieces necessary for putting the new tanks into service.

4. METHOD OF MEASUREMENT. The quantity of Special Provision (Concrete Pad Installation for New Propane Tank) to be measured for payment will be on a lump sum basis in the complete and accepted work.

5. BASIS OF PAYMENT. The accepted quantity of Special Provision (Concrete Pad Installation for New Propane Tank) will be paid for at the Contract lump sum price. Payment will be full compensation for designing, detailing, fabricating, and installing the materials specified, and for furnishing all materials, labor, tools, equipment, and incidentals necessary to complete the work.

The Contractor shall not receive any additional compensation for any delays or inconvenience they may incur while working with the propane company.

Payment will be made under:

Pay Item		Pay Unit
900.645	Special Provision (Concrete Pad Installation For New Propane Tank)	Lump Sum

900.645 SPECIAL PROVISION (NEW BRICK VENEER WALL)

1. DESCRIPTION. This work shall consist of designing, detailing, fabricating, and erecting a new brick veneer wall at the location(s) specified and in conformance with the lines and grades shown on the Plans or as directed by the Engineer.

2. DESIGN REQUIREMENTS. The design shall be performed in accordance with the AASHTO LRFD Bridge Design Specifications and the design criteria specified in the Plans.

   Acceptable earth retaining systems are those included in the "VAOT Earth Retaining System Selection Chart", available on the Agency's website at the following address:

   https ://outside.vermont. gov/agency/vtrans/external/docs/construction/03GeotechEng/ Engineering/MandRSoilAPPROVED Retaining Walls 8-2012 Final%20Engineering.pdf

3. MATERIALS. Materials shall meet the following requirements:

   A. Cast-in-Place Concrete. Cast-in-place concrete shall meet the requirements of Section 501 for Concrete, Class A, unless otherwise specified in the Contract Documents.

   B. Reinforcing Steel. Reinforcing Steel shall meet the requirements of Section 507.

   C. Backfill. Backfill shall meet the following requirements:

      1. Gradation Limits. Select granular backfill material used in walls shall be reasonably free from organic and otherwise deleterious materials, and shall conform to the following gradation limits as determined in accordance with AASHTO T 27:

SIEVE SIZE	PERCENT PASSING
101.6 mm (4 inch)	100
75 mm (3 inch)	75 - 100
0.425 mm (40)	0-60
75 µrn (200)	0 - 12

      2. Plasticity Index. The Plasticity Index (P.I.), as determined in accordance with AASHTO T 90, shall not exceed six.

      3. Soundness. The material shall be substantially free of shale or other soft particles with poor durability characteristics. The material shall have a sodium sulfate soundness loss of less than 8 percent after five (5) cycles, as determined in accordance with AASHTO Tl04.

         Select granular backfill shall have a minimum uniformity coefficient, Cu, of 2.

         In addition to these requirements, backfill for walls using metallic soil reinforcing shall meet the following:

PROPERTY	REQUIREMENT	TEST METHOD
Resistivity at 100% saturation	Minimum 3000 ohm-cm	AASHTO T 288
pH	Acceptable Range 5 - 10	AASHTO T 289
Sulfates	Maximum 200 ppm	AASHTO T 290
Chlorides	Maximum 100 ppm	AASHTO T 291
Organic Content	< 1%	AASHTO T 267

         Backfill not conforming to this specification shall not be used unless approved in writing by

the Engineer and wall supplier.

Backfill material shall be compacted in accordance with the manufacturer's recommendations and Contract specifications.

4. SUBMITTALS. Working Drawings shall be submitted to the Structures Engineer in accordance with Section 105. The submittal shall include all detailed design computations and details, dimensions, quantities and cross sections necessary to construct the wall. In addition, the submittal shall include, but not be limited to, all of the following that apply to the particular wall system being constructed:

   A. Complete design calculations substantiating that the proposed design satisfies the design parameters in the Contract Documents. The wall design calculations shall be signed, stamped, and dated by a Professional Engineer. The Contractor shall not start work on any earth retaining system for which Working Drawings are required until the Engineer has approved such drawings.

   B. An elevation view of the wall which shall include the elevation at the top of the wall at all horizontal and vertical break points and at least every 50 feet along the face of the wall, all steps in the leveling pads, the designation as to the type of panel, the length of soil reinforcing elements, the distance along the face of the wall to where changes in length of the soil reinforcing elements occur, and an indication of the final ground line and maximum calculated bearing pressures.

   C. A typical cross section or cross sections showing the elevation relationship between ground conditions and proposed grades.

   D. All details for foundations and leveling pads, including details for steps in the footings or leveling pads, as well as design maximum and minimum bearing pressures.

   E. The details for connection between the wall and the soil reinforcements.

   F. The details for diverting soil reinforcements around obstructions such as piles, catch basins, and other utilities.

   G. All reinforcing details, including reinforcing bar bending details.

   H. Any general notes required for the construction of the wall.

   I. A listing of the summary of quantities on the elevation sheet for each wall.

   Any construction drawings required for elements meeting the requirements of Section 540 shall be submitted and shall meet the requirements or Subsection 540.04.

   All design and construction details will be checked by Stantec Consulting. Approval of the detailed design and plans, and notification to begin the work, will be made by the Structures Section. The Contractor shall allow the Stantec Consulting 30 calendar days to review and approve the Working Drawings.

   Approval of the Contractor's Working Drawings shall not relieve the Contractor of any responsibility under the Contract for the successful completion of the work.

5. METHOD OF MEASUREMENT. The quantity of Special Provision (New Brick Veneer Wall) to be measured for payment will be on a lump sum basis in the complete and accepted work.

6. BASIS OF PAYMENT. The accepted quantity of Special Provision (New Brick Veneer Wall) will be paid for at the Contract lump sum price. Payment will be full compensation for designing, detailing, fabricating, and installing the materials specified, including but not limited to the geotextile fabric, backfill material, concrete, bar reinforcement and welded steel wire fabric, soil reinforcements, attachment devices, fasteners, bearing blocks, shims, geomembrane, geotextile, and expansion material; any excavation, sheeting, bracing, dewatering, and siltation control; preparing and submitting Working Drawings; and for furnishing all labor, tools, equipment, and incidentals necessary to complete the work.

   Payment for sawcutting of existing concrete wall, removal and disposal of existing concrete wall, salvaging of existing brick, construction of wall key, and installation of new brick cap from salvaged brick shall be considered incidental to Special Provision (New Brick Veneer Wall).

Any grouting work, such as fairing out unevenness between adjacent concrete pieces and filling leveling screw holes, shear keys, transverse anchor recesses, and dowel holes, is considered incidental to the work for Special Provision (New Brick Veneer Wall).

Payment for coring and drilling for fence posts including non-shrink grout in existing and new concrete walls shall be shall be considered incidental to Item 900.640, Special Provision (Ornamental Metal Fence on Brick Veneer Wall, 6 Feet).

Payment will be made under:

Pay Item		Pay Unit
900.645	Special Provision (New Brick Veneer Wall)	Lump Sum

900.645 SPECIAL PROVISION (DRAINAGE MAT AND SHEET MEMBRANE)

1. DESCRIPTION. This work shall consist of designing, detailing, fabricating, and erecting a new drainage mat and sheet membrane at the location(s) specified and in conformance with the lines and grades shown on the Plans or as directed by the Engineer.

2. REFERENCES.

   A. American Society for Testing and Materials (ASTM)

      1. ASTM D 1238 Standard Test Method for Melt Flow Rates of Thermoplastics by Extrusion Plastometer

      2. D 1505-98 Standard Test Method for Density of Plastics by the Density-Gradient Technique

      3. ASTM D 4218, Standard Test Method for Determination of Carbon Black Content in Polyethylene Compounds by the Muffle Furnace Technique D 1603-94 Standard Test Method for Carbon Black in Olefin Plastics

      4. D 4355-02 Standard Test Method for Deterioration of Geotextiles by Exposure to Light, Moisture and Heat in a Xenon Arc Type Apparatus

      5. D 4491-99 Standard Test Method for Water Permeability of Geotextiles by Permittivity

      6. D4533 Standard Test Method for Trapezoid Tearing Strength of Geotextiles

      7. D 4716-00 Standard Test Method for Determining the (In-Plane) Flow Rate Per Unit Width and Hydraulic Transmissivity of a Geosynthetic Using a Constant Head

      8. D 4751-99 Standard Test Method for Determining Apparent Opening Size of a Geotextile

      9. D 6241 Standard Test Method for the Static Puncture Strength of Geotextiles and Geotextile-Related Products Using a 50-mm Probe D 4833-88 (1996) Standard Test Method for Index Puncture Resistance of Geotextiles, Geomembranes and Related Products

      10. D 5261-92 (1996) Standard Test Method for Measuring the Mass Per Unit Area of Geotextiles

      11. D7005-03 Determining The Bond Strength (Ply-Adhesion) of Geocomposites

      12. D 7179 Standard Test Method for Determining Geonet Breaking Force

   B. Relevant publications from the Environmental Protection Agency (EPA):

      1. Daniel, D.E. and R.M. Koerner, (1993), Technical Guidance Document: Quality Assurance and Quality Control for Waste Containment Facilities, EPA/600/R-93/182.

3. DEFINITIONS.

A. Construction Quality Assurance Consultant (CONSULTANT) – Party, independent from MANUFACTURER and INSTALLER that is responsible for observing and documenting activities related to quality assurance during the lining system construction.

B. ENGINEER - The individual or firm responsible for the design and preparation of the project's Contract Drawings and Specifications.

C. Geocomposite Manufacturer (MANUFACTURER) – The party responsible for manufacturing the geocomposite rolls.

D. Geosynthetic Quality Assurance Laboratory (TESTING LABORATORY) – Party, independent from the MANUFACTURER and INSTALLER, responsible for conducting laboratory tests on samples of geosynthetics obtained at the site or during manufacturing, usually under the direction of the OWNER.

E. INSTALLER- Party responsible for field handling, transporting, storing and deploying the geocomposite.

F. Lot – A quantity of resin (usually the capacity of one rail car) used to manufacture polyethylene geocomposite rolls. The finished rolls will be identified by a roll number traceable to the resin lot.

4. QUALIFICATIONS.

A. MANUFACTURER

1. MANUFACTURER shall have manufactured a minimum of 10,000,000 square feet of polyethylene geocomposite material during the last year.

B. INSTALLER

1. INSTALLER shall have installed a minimum of 2,000,000 square feet of geocomposite in the last year.

2. INSTALLER shall have worked in a similar capacity on at least 10 projects similar in complexity to the project described in the contract documents, and within at least 1,000,000 square feet of geonet installation on each project.

3. The Installation Supervisor shall have worked in a similar capacity on projects similar in size and complexity to the project described in the Contract Documents.

5. MATERIALS.

A. Labeling – Each roll delivered to the site shall be wrapped and labeled by the MANUFACTURER. The label will identify:

1. Manufacturer's Name

2. Product Identification

3. Length

4. Width

5. Roll Number

6. DELIVERY. Rolls will be prepared to ship by appropriate means to prevent damage to the material and to facilitate off-loading.

7. STORAGE. The on-site storage location provided by the CONTRACTOR to protect the geonet from abrasions, excessive dirt and moisture shall have the following characteristics:

    1. Level (no wooden pallets)
    2. Smooth
    3. Dry
    4. Protected from theft and vandalism
    5. Adjacent to the area being lined

8. HANDLING.

    1. The CONTRACTOR and INSTALLER shall handle all rolls in such a manner to ensure they are not damaged in any way.
    2. The INSTALLER shall take any necessary precautions to prevent damage to underlying layers during placement of the drainage material.

9. WARRANTY.

    A. Material shall be warranted, on a pro-rata basis against defects for a period of 1-year from the date of the geocomposite installation.

    B. Installation shall be warranted against defects in workmanship for a period of 1-year from the date of geocomposite completion.

10. PRODUCTS.

    A. GEOCOMPOSITE PROPERTIES

    1. A geocomposite shall be manufactured by extruding two crossing strands to form a bi-planar drainage net structure with a non-woven geotextile bonded to one or both sides.
    2. The geocomposite specified shall have properties that meet or exceed the values listed in the following data sheets below.

Table 1: Geocomposite Properties

Property	Test Method	Frequency	Value(1)
Geocomposite			
Transmissivity(2), gal/min/ft, Double-Sided Composite	ASTM D4716	1/540,000 ft^3	0.5
Ply Adhesion, lb/in	ASTM D7005	1/50,000 ft^3	1.0
Geonet Core(1,3)			
Geonet Core Thickness, mil	ASTM D 5199	1/50,000 ft^3	200
Transmissivity(2), gal/min/ft	ASTM D 4716		9.6
Density, g/cm^3	ASTM D 1505	1/50,000 ft^3	0.94
Tensile Strength (MD), lb/in	ASTM D 7179	1/50,000 ft^3	45
Carbon Black Content, %	ASTM D 4218	1/50,000 ft^3	2.0
Geotextile(1,3)			
Mass per Unit Area, oz/yd^3	ASTM D 5261	1/90,000 ft^3	6
Grab Tensile Strength, lb	ASTM D 4632	1/90,000 ft^3	160
Grab Elongation	ASTM D 4632	1/90,000 ft^3	50%
CBR Puncture Strength, lb	ASTM D 6241	1/540,000 ft^3	435
Trapezoidal Tear Strength, lb	ASTM D 4533	1/90,000 ft^3	65
AOS, US Sieve(1)	ASTM D 4751	1/540,000 ft^3	70

Permittivity, sec^{-1}	ASTM D 4491	1/540,000 ft^3	1.5
Water Flow Rate, gpm/ft^2	ASTM D 4491	1/540,000 ft^3	110
UV Resistance, % retained	ASTM D 4355 (after 500 hour)	Per formulation	70

NOTES:
(1) All geotextile properties are minimum average roll values except AOS which is maximum average roll value and UV resistance is typical value. Geonet core thickness is nominal value.
(2) Gradient of 0.1, normal load of 10,000 psf, water at 70˚F between steel plates for 15 minutes.
(3) Component properties prior to lamination.

3. Resin

a. Resin shall be new first quality, compounded polyethylene resin.

b. Natural resin (without carbon black) shall meet the following additional minimum requirements:

Table 2: Raw Material Properties

Property	Test Method(1)	Value
Density (g/cm^3)	ASTM D 1505	>0.94
Melt Flow Index (g/10 min)	ASTM D 1238	$\leq$ 1.0

B. MANUFACTURING QUALITY CONTROL

1. The geocomposite shall be manufactured in accordance with the Manufacturer's Quality Control Plan submitted to and approved by the ENGINEER.

2. The geocomposite shall be tested according to the test methods and frequencies listed on Table 1 which has been prepared based on product data sheets.

11. INSTALLATION.

A. FAMILIARIZATION

1. Inspection

a. Prior to implementing any of the work in the Section to be lined, the INSTALLER shall carefully inspect the installed work of all other Sections and verify that all work is complete to the point where the installation of the Section may properly commence without adverse impact.

b. If the INSTALLER has any concerns regarding the installed work of other Sections, he shall notify the Project ENGINEER.

B. MATERIAL PLACEMENT

1. The geocomposite roll should be installed in the direction of the slope and in the intended direction of flow unless otherwise specified by the ENGINEER.

2. If the project contains long, steep slopes, special care should be taken so that only full length rolls are used at the top of the slope.

3. In the presence of wind, all geocomposites shall be weighted down with sandbags or the equivalent. Such sandbags shall be used during placement and remain until replaced with cover material.

4. If the project includes an anchor trench at the top of the slopes, the geocomposite shall be properly anchored to resist sliding. Anchor trench compacting equipment shall not come into direct contact with the geocomposite.

5. In applying fill material, no equipment can drive directly across the geocomposite. The specified fill material shall be placed and spread utilizing vehicles with a low ground

pressure.

6. The cover soil shall be placed in the geocomposite in a manner that prevents damage to the geocomposite. Placement of the cover soil shall proceed immediately following the placement and inspection of the geocomposite.

C. SEAMS AND OVERLAPS

1. Each component of the geocomposite will be secured or seamed to the like component at overlaps.

2. Geonet Components

a. Adjacent edges of the geonet along the length of the geocomposite roll shall be placed with the edges of each geonet butted against each other.

b. The overlaps shall be joined by tying the geonet structure with cable ties. These ties shall be spaced every 5 feet along the roll length.

c. Adjoining geocomposite rolls (end to end) across the roll width should be shingled down in the direction of the slope, with the geonet portion of the top overlapping the geonet portion of the bottom geocomposite a minimum of 12 inches across the roll width.

d. The geonet portion should be tied every 6 inches in the anchor trench or as specified by the ENGINEER.

D. REPAIR

1. Prior to covering the deployed geocomposite, each roll shall be inspected for damage resulting from construction.

2. Any rips, tears or damaged areas on the deployed geocomposite shall be removed and patched. The patch shall be secured to the original geonet by tying every 6 inches with the approved tying devices. If the area to be repaired is more than 50 percent of the width of the panel, the damaged area shall be cut out and the two portions of the geonet shall be cut out and the two portions of the geonet shall be joined.

12. METHOD OF MEASUREMENT. The quantity of Special Provision (Drainage Mat and Sheet Membrane) to be measured for payment will be the number of square yards complete in place in the accepted work.

13. BASIS OF PAYMENT. The measured quantity of Special Provision (Drainage Mat and Sheet Membrane) will be paid for at the Contract unit price per square yard. Payment will be full compensation for furnishing, handling, and placing the materials specified, and for furnishing all labor, tools, equipment, and incidentals necessary to complete the work.

Payment will be made under:

Pay Item	Pay Unit
900.675 Special Provision (Drainage Mat and Sheet Membrane)	Square Yard

900.675 SPECIAL PROVISION (30 MIL GEOMEMBRANE LINER)

1. DESCRIPTION. This work shall include installation of geomembrane liner as shown on the Plans or as approved by the Resident.

The work under this Section shall be performed in accordance with these provisions, the Plans, and Section 649 of the Standard Specifications.

2. GENERAL.

A. Manufacturing. The manufacturer shall have at least five (5) years continuous experience in manufacturing polyethylene geomembrane and/or experience totaling 10,000,000 square feet of manufactured polyethylene geomembrane.

B. Installation. The installation contractor shall be the manufacturer or a dealer trained to install the manufacturer's geomembrane.

Installation shall be performed under the constant direction of a field installation supervisor who shall remain on site and be responsible, throughout the geomembrane installation, for geomembrane layout, seaming, testing, repairs, and all other activities by the Installer. The field installation supervisor shall have installed or supervised the installation of a minimum of 2,000,000 square feet of polyethylene geomembrane. Seaming shall be performed under the direction of a master seamer (who may also be the field installation supervisor) who has seamed a minimum of 2,000,000 square feet of polyethylene geomembrane, using the same type of seaming apparatus specified for this project. The field installation supervisor and/or master seamer shall be present whenever seaming is performed.

3. SUBMITTALS. All submittals shall be in conformance with Section 105.

A. Manufacturer. The manufacturer shall provide the following information:

1. List of material properties.
2. Manufacturing quality control program.
3. Copy of quality control certificates issued by the resin supplier.
4. Copy of quality control certificates for the geomembrane.

B. Installation Contractor. The installer shall provide the following written information:

1. A list of completed facilities, totaling a minimum of 2,000,000 square feet, for which the installer has installed polyethylene geomembrane. For each installation, the following information shall be provided:

   a. Name and purpose of facility, location, and date of installation.
   b. Name of owner, design engineer, manufacturer, and name and telephone number of contact at the facility who can discuss the project.
   c. Thickness and quantity of the installed geomembrane.

2. Proposed installation panel layout.
3. Resume of the field installation supervisor and master seamer.

4. MATERIALS.

1. Gasket material shall be neoprene, closed cell medium, 1/4-inch thick, 2 inches wide with adhesive on one side, or other compatible gasket materials as required.
2. Metal battens or banding and hardware shall be stainless steel.
3. Water cut-off mastic shall be Neoprene Flashing Cement as supplied by Poly-Flex, Inc., APOC or Cen-Pe-Co.
4. Sealant shall be General Electric Silicone, RTV 103, Dow Corning 700 Industrial Grade Silicone Sealant or Loctite SI 50140.
5. The geomembrane shall be High-Density Polyethylene (HDPE) or Linear Low Density Polyethylene (LLDPE), matching the specifications below:

4.1 TEXTURED HDPE GEOMEMBRANE (ENGLISH UNITS)

		Minimum Average Values			
Property	Test Method	40 mil	60 mil	80 mil	100 mil

Thickness, mils	ASTM D 5994				
minimum average		38	57	76	95
lowest individual of 8 of 10 readings		36	54	72	90
lowest individual of 10 readings		34	51	68	85
Asperity Height[1], mils	GRI GM12	10	10	10	10
Sheet Density, g/cc	ASTM D 1505/D 792	0.940	0.940	0.940	0.940
Tensile Properties[2]	ASTM D 6693				
1. Yield Strength, lb/in		84	126	168	210
2. Break Strength, lb/in		60	90	120	150
3. Yield Elongation, %		12	12	12	12
4. Break Elongation, %		100	100	100	100
Tear Resistance, lb	ASTM D 1004	28	42	56	70
Puncture Resistance, lb	ASTM D 4833	60	90	120	150
Stress Crack Resistance[3], hrs	ASTM D 5397 (App.)	300	300	300	300
Carbon Black Content[4], %	ASTM D 1603	2.0 - 3.0	2.0 - 3.0	2.0 - 3.0	2.0 - 3.0
Carbon Black Dispersion	ASTM D 5596	--Note 5--			
Oxidative Induction Time (OIT) Standard OIT, minutes	ASTM D 3895	100	100	100	100
Oven Aging at 85°C High Pressure OIT – % retained after 90 days	ASTM D 5721 ASTM D 5885	80	80	80	80
UV Resistance[6] High Pressure OIT[7] – % retained after 1600 hrs	GR1 GM11 ASTM D 5885	50	50	50	50
Seam Properties	ASTM D 6392 (@ 2 in/min)				
1. Shear Strength, lb/in		80	120	160	200
2. Peel Strength, lb/in - Hot Wedge		60	91	121	151
- Extrusion Fillet		52	78	104	130
Roll Dimensions					
1. Width (feet):		23	23	23	23
2. Length (feet)		750	500	375	300
3. Area (square feet):		17,250	11,500	8,625	6,900
4. Gross weight (pounds, approx.)		3,500	3,500	3,470	3,470

1 Of the I0 readings; 8 must be 2: 7 mils and lowest individual reading must be 2: 5 mils.

2 Machine direction (MD) and cross machine direction (XMD) average values should be on the basis of 5 test specimens each direction.
Yield elongation is calculated using a gauge length of 1.3 inches; Break elongation is calculated using a gauge length of 2.0 inches.

3 The yield stress used to calculate the applied load for the SP-NCTL test should be the mean value via MQC testing.

4 Other methods such as ASTM D 4218 or microwave methods are acceptable if an appropriate correlation can be established.

5 Carbon black dispersion for 10 different views: Nine in Categories 1 and 2 with one allowed in

Category 3.

6 The condition of the test should be 20 hr. UV cycle at 75°C followed by 4 hr. condensation at 60°C.

7 UV resistance is based on percent retained value regardless of the original HP-OIT value.

4.2 TEXTURED LLDPE GEOMEMBRANE (ENGLISH UNITS)

Property	Test Method	Minimum Average Values 40 mil	60 mil	80 mil
Thickness, mils	ASTM D 5994			
minimum average		38	57	76
lowest individual of 8 of 10 readings		36	54	72
lowest individual of 10 readings		34	51	68
Asperity Height[1], mils	GRI GM12	10	10	10
Sheet Density, g/cc	ASTM D 1505/D 792	0.939	0.939	0.939
Tensile Properties[2]	ASTM D 6693			
1. Break Strength, lb/in		60	90	120
2. Break Elongation, %		250	250	250
2% Modulus, lb/in^2 (max.)	ASTM S 5323	60,000	60,000	60,000
Tear Resistance, lb	ASTM D 1004	22	33	44
Puncture Resistance, lb	ASTM D 4833	44	66	88
Axi-Symetric Break Strain, %	ASTM D 5617	30	30	30
Carbon Black Content[3], %	ASTM D 1603	2.0 - 3.0	2.0 - 3.0	2.0 - 3.0
Carbon Black Dispersion[4]	ASTM D 5596	--Note 4--		
Oxidative Induction Time (OIT) Standard OIT, minutes	ASTM D 3895	100	100	100
Oven Aging at 85°C High Pressure OIT – % retained after 90 days	ASTM D 5721 ASTM D 5885	60	60	60
UV Resistance[5] High Pressure OIT[6] – % retained after I600 hrs	GR1 GM11 ASTM D 5885	50	50	50
Seam Properties	ASTM D 6392 (@ 2 in/min)			
1. Shear Strength, lb/in		60	70	120
2. Peel Strength, lb/in - Hot Wedge		50	75	100
- Extrusion Fillet		44	66	88
Roll Dimensions				
1. Width (feet):		23	23	23
2. Length (feet)		750	500	375
3. Area (square feet):		17,250	11,500	8,625
4. Gross weight (pounds, approx.)		3,500	3,500	3,470

1 Of the I0 readings; 8 must be 2: 7 mils and lowest individual reading must be 2: 5 mils.

2 Machine direction (MD) and cross machine direction (XMD) average values should be on the basis of 5 test specimens each direction. Break elongation is calculated using a gauge length of 2.0 inches.

3 Other methods such as ASTM D 4218 or microwave methods are acceptable if an appropriate correlation can be established.

4 Carbon black dispersion for 10 different views: Nine in Categories 1 and 2 with one allowed in Category 3.

5 The condition of the test should be 20 hr. UV cycle at 75°C followed by 4 hr. condensation at 60°C.
6 UV resistance is based on percent retained value regardless of the original HP-OTT value.

5. GEOMEMBRANE INSTALLATION

A. Materials Logistics.

1. Transportation and On-site Storage.

The geomembrane rolls shall be shipped by flatbed trailer to the job site. The geomembrane shall be stored so as to be protected from puncture, dirt, grease, moisture and excessive heat. Damaged material shall be stored separately for repair or replacement. The rolls shall be stored on a prepared smooth surface (not wooden pallets) and should not be stacked more than two rolls high.

B. Earthwork

1. General

The owner or his representative (soil quality assurance inspector) shall inspect the subgrade preparation. Prior to geomembrane installation the subgrade shall be compacted in accordance with the project specifications. Weak or compressible areas which cannot be satisfactorily compacted should be removed and replaced with properly compacted fill. All surfaces to be lined shall be smooth, free of all foreign and organic material, sharp objects, or debris of any kind. The subgrade shall provide a firm, unyielding foundation with no sharp changes or abrupt breaks in grade. Standing water or excessive moisture shall not be allowed.

The installer, on a daily basis, shall approve the surface on which the geomembrane will be installed. After the supporting soil surface has been approved, it shall be the installer's responsibility to indicate to the inspector any changes to its condition that may require repair work.

2. Anchor Trench

The anchor trench shall be excavated to the line, grade, and width shown on the project construction drawings, prior to geomembrane system placement. Slightly rounded corners shall be provided in the trench to avoid sharp bends in the geomembrane.

C. Method of Placement

The rolls shall be deployed using a spreader bar assembly attached to a loader bucket or by other methods approved by the Engineer.

The installer shall be responsible for the following:

1. Equipment or tools shall not damage the geomembrane during handling, transportation and deployment.

2. Personnel working on the geomembrane shall not smoke or wear damaging shoes.

3. The method used to unroll the panels shall not cause scratches or crimps in the geomembrane and shall not damage the supporting soil.

4. Adequate loading (e.g., sand bags or similar items that will not damage the geomembrane) shall be placed to prevent uplift by wind (in case of high winds, continuous loading is recommended along edges of panels to minimize risk of wind flow under the panels).

D. Weather Conditions

Geomembrane deployment shall proceed between ambient temperatures of 32° F and 104° F.

Placement can precede below 32° F only after it has been verified by the inspector that the material can be seamed according to the specification. Geomembrane placement shall not be done during any precipitation, in the presence of excessive moisture (e.g., fog, rain, dew) or in the presence of excessive winds, as determined by the installation supervisor.

E. Field Seaming.

Approved seaming processes are fusion and extrusion welding. On side slopes, seams shall be oriented in the general direction of maximum slope, i.e., oriented down, not across the slope. In corners and odd-shaped geometric locations, the number of field seams shall be minimized.
No base T-seam shall be closer than 5 feet from the toe of the slope. Seams shall be aligned with the least possible number of wrinkles and "fishmouths". If a fishmouth or wrinkle is found, it shall be relieved and cap- stripped.

1. Seam Overlap

Geomembrane panels must have a finished minimum overlap of 4 inches for fusion welding and 6 inches for extrusion welding.

Cleaning solvents may not be used unless the product is approved by the geomembrane manufacturer.

2. Test Seams

Field test seams shall be conducted on the geomembrane to verify that seaming conditions are satisfactory. Test seams shall be conducted at the beginning of each seaming period and at least once every 4 hours, for each seaming apparatus and personnel used that day.

All test seams shall be made in contact with the subgrade. Welding rod used for extrusion welding shall have the same properties as the resin used to manufacture the geomembrane. The test seam samples shall be 10 feet long for fusion welding and 3 feet long for extrusion welding with the seam centered lengthwise. Three specimens shall be cut from each end of the test seams by the inspector. The inspector shall use a tensiometer to test 3 specimens for shear and 3 specimens for peel. Each specimen shall be one inch wide with a grip separation of 4 inches plus the width of the seam. The seam shall be centered between the clamps. The rate of grip separation shall be 2 inches per minute.

3. Assessment of Seam Test Results

For both smooth and textured seams the strength of two out of three 1.0 inch (25 mm) wide strip specimens should meet or exceed values given in this specification. The third must meet or exceed 80% of the given values. The shear percent elongation should exceed 50%. The assumed gauge length is considered to be the unseamed sheet material on either side of the welded area. Elongation measurements should be omitted for field testing. In addition, the peel separation should not exceed 25% based on the proportion of area of separated bond to the area of the original bonding. Regarding the locus-of-break patterns of the different seaming methods in shear and peel, the following are unacceptable break codes per their description in the ASTM D 6392. In this regard, SIP is an acceptable break code.

Unacceptable Break Codes

Hot Wedge: AD and AD-BRK > 25%

Extrusion Fillet: AD1, AD2 and AD-Weld (unless strength is achieved)

4. Non-Destructive Seam Testing

The installer shall non-destructively test all field seams over their full length.

a. Vacuum Box Testing

Equipment for testing extrusion seams shall be comprised of the following:

1. A vacuum box assembly consisting of a rigid housing, a transparent viewing window, a soft rubber gasket attached to the bottom, port hole or valve assembly, and a vacuum gauge.

2. Soapy solution in a plastic bucket with a mop.

The following procedures shall be followed by the installer:

1. Excess sheet overlap shall be trimmed away.

2. Wet a strip of geomembrane approximately 12 inches wide by the length of box with the soapy solution.

3. Place the box over the wetted area and compress.

4. Create a vacuum of 3 - 5 psi.

5. Ensure that a leak tight seal is created.

6. For a period of approximately 10 seconds, examine the geomembrane through the viewing window for the presence of animated soap bubbles.

7. If no animated bubbles appear after 10 seconds, close the vacuum valve and open the bleed valve, move the box over the next adjoining area with a minimum 3 inches overlap and repeat the process.
8. All areas where animated soap bubbles appear shall be marked, repaired and then retested.

The following procedures shall apply to locations where seams cannot be non-destructively tested.

1. If the seam is accessible to testing equipment prior to final installation, the seam shall be non-destructively tested prior to final installation.

2. If the seam cannot be tested prior to final installation, the seams shall be spark tested according to the spark tester manufacturer's procedures.

b. Air Pressure Testing (For Double Fusion Seams Only)

Equipment for testing double fusion seams shall be comprised of the following:

1. An air pump equipped with pressure gauge capable of generating and sustaining a pressure between 25 and 30 psi.

2. A pressure gauge equipped with a sharp hollow needle.

The following procedures shall be followed by the installer:

1. Seal one end of the seam to be tested.

2. Insert needle or other approved pressure feed device through the sealed end of the channel created by the double wedge fusion weld.
3. Energize the air pump to verify the unobstructed passage of air through the channel.

4. Seal the other end of the channel.
5. Energize the air pump to a pressure between 25 and 30 psi, close valve, allow 2 minutes for the injected air to come to equilibrium in the channel, and sustain pressure for approximately 5 minutes.

6. If loss of pressure exceeds 4 psi, or pressure does not stabilize, locate faulty area,

repair and retest.

7. If pressure does not drop below the acceptable value after five minutes, cut the air channel open at the opposite end from the pressure gauge. The air channel should deflate immediately indicating that the entire length of the seam has been tested.

5. Destructive Seam Testing

Destructive seam testing should be minimized to preserve the integrity of the geomembrane. The installer shall provide the inspector with one destructive test sample per project specifications (usually once per 500 feet of seam length) from a location specified by the inspector.

a. Sampling Procedure

In order to obtain test results prior to completion of geomembrane installation, samples shall be cut by the installer as the seaming progresses. The installer shall also record the date, location, and pass or fail description. All holes in the geomembrane resulting from obtaining the seam samples shall be immediately patched and vacuum tested.

b. Size and Disposition of Samples

The samples shall be 12 inches wide by 36 inches long with the seam centered lengthwise. The sample shall be cut into three equal-length pieces, one to be given to the inspector, one to be given to the owner and one to the installer.

c. Field Laboratory Testing

The inspector shall test ten 1-inch wide specimens from his sample, five specimens for shear strength and five for peel strength.

d. Independent Laboratory Testing

The owner, at his discretion and expense, may send seam samples to a laboratory for testing. The test method and procedures to be used by the independent laboratory shall be the same as used in field testing.

e. Procedures for Destructive Test Failure

The following procedures shall apply whenever a sample fails the field destructive test:

1. The installer shall cap strip the seam between the failed location and any passed test locations.

2. The installer can retrace the welding path to an intermediate location (usually 10 feet from the location of the failed test), and take a sample for an additional field test. If this test passes, then the seam shall be cap stripped between that location and the original failed location. If the test fails, then the process is repeated.

3. Over the length of seam failure, the installer shall either cut out the old seam, reposition the panel and reseam, or add a cap strip.

6. Defects and Repairs

All seams and non-seam areas of the geomembrane shall be inspected by the inspector for defects, holes, blisters, undispersed raw materials, and any sign of contamination by foreign matter. The surface of the geomembrane shall be clean at the time of inspection.

a. Evaluation

Each suspect location in seam and non-seam areas shall be non-destructively tested as appropriate in the presence of the inspector. Each location that fails the non-destructive testing shall be marked by the inspector, and repaired accordingly.

b. Repair Procedures

1. Defective seams shall be cap stripped or replaced.

2. Small holes shall be repaired by extrusion welding a bead of extrudate over the hole. If the hole is larger than ¼ inch, it shall be patched.

3. Tears shall be repaired by patching. If the tear is on a slope or an area susceptible to stress and has a sharp end it must be rounded prior to patching.

4. Blisters, large cuts and undispersed raw materials shall be repaired by patches.

5. Patches shall be completed by extrusion welding. The weld area shall be ground no more than 10 minutes prior to welding. No more than 10% of the thickness shall be removed by grinding. Welding shall commence where the grinding started and must overlap the previous seam by at least 2 inches. Reseaming over an existing seam without regrinding shall not be permitted. The welding shall restart by grinding the existing seam and rewelding a new seam.

   Patches shall be round or oval in shape, made of the same geomembrane, and extend a minimum of 6 inches beyond the edge of defects.

c. Verification of Repairs

Each repair shall be non-destructively tested. Repairs that pass the non-destructive test shall be taken as an indication of an adequate repair. Failed tests indicate that the repair shall be repeated and retested until passing test results are achieved.

The inspector shall keep daily documentation of all non-destructive and destructive testing. This documentation shall identify all seams that initially failed the test and include evidence that these seams were repaired and successfully retested.

F. Cover Material and Backfilling of Anchor Trench

The geomembrane shall be covered as soon as possible. The covering operation shall not damage the geomembrane. The cover soil material shall be free of foreign and organic material, sharp objects, or debris of any kind, which could potentially damage the geomembrane. No construction equipment or machinery shall operate directly on the geomembrane. The use of lightweight machinery (i.e., generator, etc.) with low ground pressure is allowed.

The anchor trench shall be backfilled by the earthwork contractor. Trench backfill material shall be placed and compacted in accordance with the project specifications. Care shall be taken when backfilling the trenches to prevent any damage to the geomembrane. If damage occurs, it shall be repaired prior to backfilling.

G. Geomembrane Acceptance

The installer shall retain all ownership and responsibility for the geomembrane until accepted by the owner. Final acceptance is when all of the following conditions are met:

1. Installation is finished.

2. Verification of the adequacy of all field seams and repairs, including associated testing, is complete.

6. METHOD OF MEASUREMENT. The quantity of Special Provision (30 Mil Geomembrane Liner) of the

type specified to be measured for payment will be the number of square yards placed in the complete and accepted work. Slope measurements will be used in computing the area. Measurement will not be made for material used for repairs, seams, or overlaps. Measurement will not be made for material used to replace an installation of fabric that has become damaged, destroyed, lost and washed away or otherwise ineffective unless authorized by the Engineer.

7. BASIS OF PAYMENT. The accepted quantity of Special Provision (30 Mil Geomembrane Liner) of the type specified will be paid for at the Contract unit price per square yard. Payment will be full compensation for furnishing, transporting, storing, handling, placing, repairing, and removing the material specified and for furnishing all labor, tools, equipment, and incidentals necessary to complete the work. All fabrication required for pipe connections and required for installation as depicted on the contract documents shall be considered incidental. Unless otherwise specified in the Contract, payment for the maintenance of Geotextile of the type specified will not be paid for directly, but will be considered incidental to the specific Contract item.

Payment will be made under:

Pay Item		Pay Unit
900.675	Special Provision (30 Mil Geomembrane Liner)	Square Yard

900.675 SPECIAL PROVISION (HAND-PLACED BITUMINOUS CONCRETE MATERIAL, DRIVES)

1. DESCRIPTION. This work shall consist of the placement of one or more courses of bituminous concrete material by hand(non-mechanical) methods on a prepared foundation in conformance with the Plans or as directed by the Engineer.

The work under this Section shall be performed in accordance with these provisions, the Plans and Section 406 of the Standard Specifications, as appropriate.

2. GENERAL. This work will include only that bituminous concrete material placed by hand methods as required at public and/or private drives and permitted drives (such as field drives for agriculture) measured from the outside edge of shoulder to outside limit of drive, within the project limits as identified on the Plans or as directed by the Engineer. Bituminous concrete material placed by mechanical methods at these locations is excluded.

This item will also cover all removal of existing Bituminous Concrete Materials as shown in plans or ordered by the Engineer.

3. MATERIALS. Materials shall meet the requirements of the following Subsections:

Subbase, RAP.....301.02
Aggregate Shoulders, RAP..... ..... 402.02
Performance-Graded Asphalt Binder..... 702.02
Emulsified Asphalt..... 702.04
Crushed Gravel for Subbase.....704.05
Aggregate for Surface Course and Shoulders..... 704 .12

Bituminous concrete material of the type specified in the Contract or as specified by the Engineer shall meet the requirements of Section 406 or Section 490, as applicable. For the purpose of this Section, bituminous concrete material to be used shall be of the type specified in the Contract or, by default, of a matching material to that adjacent material.

4. CONSTRUCTION REQUIREMENTS. The existing surface and/or bed (subbase) upon which the bituminous concrete material is to be placed shall be compacted to the line, grade, and shape shown on the Plans or as directed by the Engineer. All vegetation and soft, yielding, or unsuitable material shall be excavated and replaced with properly compacted material meeting the requirements of Section 301 for Subbase of Crushed Gravel, Fine Graded. Crushed RAP generated from the project may be substituted for Subbase of Crushed Gravel, Fine Graded.

The existing edge of pavement shall be saw cut to provide a vertical edge for placing the hand-placed

bituminous concrete material.

Emulsified asphalt shall be applied uniformly and completely to all vertical and horizontal surfaces to be paved. All surfaces shall be free of moisture, dust, and debris prior to applying emulsified asphalt.

If cross slope allows, as determined by the Engineer, existing paved drives shall be cold planed the entire drive width to the depth of the wearing course, not to exceed 50 mm (2 inches). Unless the drive is to be paved that day, all cold planed vertical edges shall have temporary fillets placed the same day cold planning takes place.

All existing paved drives shall have all temporary fillets removed; any existing joints, cracks, and holes cleaned; all vertical and horizontal surfaces to be paved coated with emulsified asphalt; all holes filled with bituminous concrete material compacted to the level of the existing surf ace; and be thoroughly cleaned and dried prior to any hand-placed bituminous concrete material being placed.

Hand-Placed bituminous concrete material shall be rolled with a 1 ton mechanical roller with steel drums, or approved equal, until compacted to the satisfaction of the Engineer.

5. METHOD OF MEASUREMENT. The quantity of Special Provision (Hand-Placed Bituminous Concrete Material, Drives) to be measured for payment will be the number of square yards complete in place in the accepted work.

Hand-placed bituminous concrete material placed less than 12.5 mm (inch) thick will not be measured for payment.

When any portion or all of Special Provision (Hand-Placed Bituminous Concrete Material, Drives) is removed from the project under any provisions of the Contract or as directed by the Engineer, no payment will be made for the removal, disposal, or replacement of said material.

6. BASIS OF PAYMENT. The measured quantity of Special Provision (Hand-Placed Bituminous Concrete Material, Drives) will be paid for at the Contract unit price per square yard. Payment shall be full compensation for furnishing, mixing, hauling, placing, compacting, and finishing the material specified and for furnishing all labor, tools, equipment, and incidentals necessary to complete the work.

When not specified for payment under separate Contract item(s), the costs of placing subbase material, cleaning existing paved surfaces, including power equipment, and for filling joints, cracks, and holes will not be paid for directly, but will be considered incidental to Special Provision (Hand-Placed Bituminous Concrete Material, Drives).

Payment will be made under:

Pay Item		Pay Unit
900.675	Special Provision (Hand-Placed Bituminous Concrete Material, Drives)	Square Yard

900.675 SPECIAL PROVISION (REMOVE AND RESET EXISTING BRICK PAVERS)

1. DESCRIPTION. This work shall consist of removing and resetting brick pavers at the locations indicated in the Plans and as directed by the Engineer.

2. QUALIFICATIONS.

   A. The installer shall provide their installation history, including installation of brick pavers, to the Engineer.

   B. The installer's foreman shall have a minimum of 5 years of experience in the installation of unit paver systems of similar size and complexity.

3. CONSTRUCTION REQUIREMENTS. The bricks shall be removed and stacked on pallets prior to resetting.

The setting bed aggregate (ASTM No. 8) shall be spread evenly over the base course and screed to a minimum nominal 1-1/2 inch thickness.

ASTM No. 8 Gradation for Bedding Layer

Sieve Size	Percent Passing
1/2" (12.5 mm)	100
3/8" (9.5 mm)	85-100
No. 4 (4.75 mm)	10-30
No. 8 (2.36 mm)	0-10
No. 16 (1.16 mm)	

For installation on setting bed aggregate and soil subgrade, the installer should be aware that the top surface of the pavers shall be flush with the surrounding bricks and surrounding surfaces after compaction.

The bedding material shall not be disturbed or pre-compacted after it has been screed.

Brick pavers shall be free of foreign material prior to resetting installation.

Brick pavers shall be set in accordance with the existing pattern.

Typical joints between the pavers shall be no less than 1/16 inch and no more than 3/16 inch in width.

Brick pavers shall be cut as necessary to accommodate field conditions and to achieve an accurate and consistent fit to the existing pattern. Pavers shall be free from stain, dirt, or dust after cutting. Paver units shall not be cut to a size smaller than one-third of a whole paver.

4. METHOD OF MEASUREMENT. The quantity of Special Provision (Remove and Reset Existing Brick Pavers) to be measured for payment will be the number of square meters (square yard) brick pavers removed and reset in the complete and accepted work.

5. BASIS OF PAYMENT. The accepted quantity of Special Provision (Remove and Reset Existing Brick Pavers) will be paid for at the Contract unit price per square yard. Payment will be full compensation for removing, storing, and resetting brick pavers and for furnishing all materials, labor, tools, equipment, and incidental necessary to complete the work.

Removal of excess pavers not required to be reset will be paid for under Contract Item 203.17.

Payment will be made under:

Pay Item		Pay Unit
900.670	Special Provision (Remove and Reset Existing Brick Pavers)	Square Yard

900.675 SPECIAL PROVISION (STAMPED AND COLORED CONCRETE SIDEWALKS)

1. DESCRIPTION. This work shall consist of furnishing and installing all stamped and colored concrete sidewalks at the locations shown in the Plans and as directed by the Engineer.

The work under this Section shall be performed in accordance with these provisions, the Plans and Section 618 of the Standard Specifications.

2. MATERIALS. Where Stamped and colored concrete sidewalks are specified in the Plans, a pattern that

mimics Ashler Slate Pattern shall be used to stamp the concrete. All cement concrete pavement shall be scored and jointed as shown in plans.

Where integrally colored concrete is specified, color additives shall meet the following requirements:

A. Color Additive.

Final color shall be selected by the Owner's representative from sample panels constructed in three colors to be selected by the City of Rutland from the full range of colors available.

Color additive shall be one of the following:

1. CHROMIX Admixture as manufactured by L. M. Scofield Company, Douglasville, GA 30134 (770) 920-6000

2. GRANUFIN as manufactured by Davis Colors, Los Angeles, CA 90023; 800-356-4848

3. SELECT GRADE INTEGRAL CONCRETE COLORANT as manufactured by Butterfield Color, Aurora, IL; 800-282-3388

B. Curing Compound

Curing Compound for colored concrete pavement surfaces shall be one of the following:

1. LITHOCHROME Colorwax as manufactured by L. M. Scofield Company in the color corresponding to the CHROMIX Admixture.

2. W1000 SEALER as manufactured by Davis Colors, Los Angeles, CA 90023; 800-356-4848

3. CLEAR GUARD PRO 350 CURE AND SEAL as manufactured by Butterfield Color, Aurora, IL; 800-282-3388

C. Pattern and colored concrete sidewalk.

Color hardeners and release agents and sealing agents shall be as required by the manufacturer.

Pattern(s) and color(s) shall be selected by the Owner's Representative/ City of Rutland.

Patterned and Colored Concrete Paving shall be equal to:

1. Bomanite Corporation, 559-673-2411; www.bomanite.com.

2. Cobblecrete International, Inc., 801-380-6369; www.cobblecrete.com.

3. Patterned Concrete Industries, Ltd., Tulsa, 1-800-252-4619; www.patternedconcrete.com.

6" x 6" welded wire fabric will be added. Welded steel wire reinforcement for concrete structures shall be Grade 515 (Grade 75) conforming to the requirements of AASHTO M 55M/M 55 or AASHTO M221M/M 221, including supplementary requirements. A Type A Certification shall be furnished in accordance with Subsection 700.02.

All materials, color, reinforcing, and the stamping pattern shall be approved by the Engineer prior to use.

3. SUBMITTALS. All preparation of the product and mixing shall be in accordance with manufacturer's requirements and the following:

A. Product Data. The Contractor shall submit manufacturer's product data for proposed materials and method of incorporating the pigment into the concrete mix to the Engineer prior to ordering materials or casting the precast concrete retaining wall blocks.

B. Samples. The Contractor shall submit 8 inch by 10 inch by 2 inch samples (or comparable size

approved by the Engineer) of the specified colors indicating color additive number and required dosage rates prior to ordering materials or casting the precast concrete retaining wall blocks. The sample will be reviewed by the Engineer and if any adjustments are needed to the concrete color, they will be requested at that time. Production of integrally colored concrete shall not be advanced until the Engineer has provided written approval of the concrete color.

C. Concrete Mix Designs. Concrete mix designs shall meet the requirements of Special Provision 900.645 (Retaining Wall, Guardrail, Lighted Handrail and Concrete Steps for Paramount Theater Access).

D. Certification. The Contractor shall submit a manufacturer' certification to the Engineer, prior to casting the precast concrete retaining wall blocks, that the color pigment meets the requirements of these specifications.

4. CONSTRUCTION REQUIREMENTS. Stamped and colored concrete sidewalks shall be constructed to the depths and widths shown in the Plans, as recommended by the manufacturer and as directed by the Engineer.

A. Preparation. The Contractor shall plan the pattern layout in order to coordinate slab dimensions and construction joint locations with stamping pattern dimensions where necessary.

The Contractor shall provide a 1.5 foot x 4 foot mock-up to the Engineer to demonstrate methods of obtaining consistent visual appearance. For all stamped and colored sidewalk types, the mock-up shall be constructed a minimum of one month prior to the start of final work, using materials and methods to be used in the final work. The mock-up shall be located on site in a location determined by the Engineer. Samples of materials used in the mock-up shall be retained for comparison with materials used in the final work. The accepted mock-up will constitute a visual standard for the final work. The mock-up shall be removed when no longer required for comparison with the final work.

B. Finishing. A color hardener shall be broadcast evenly over a freshly screeded and floated concrete surface. The color hardener shall be worked into the concrete surface, integrating the color with the concrete. The hardener shall be allowed to be wet out with bleed water prior to floating. If necessary, additional material shall be broadcast and worked into the surface to intensify the final color appearance.

The concrete set time shall be monitored carefully. When concrete is set adequately to support worker's weight, color release shall be broadcast evenly over the slab surface at a rate recommended by the manufacturer. The stamping operation shall be performed using the stamping tool kit, and shall be performed quickly and continuously across the entire pour as recommended by manufacturer or ordered by the Engineer.

5. QUALIFICATIONS. The Contractor shall be ACI certified and have constructed a minimum of 10 concrete stamping projects. The Contractor shall submit a resume, including a minimum of 3 references from concrete stamping projects constructed within 2 years prior to the commencement of this project, to the Engineer for review and approval. The work under this Section shall not commence until the Engineer approves Contractor qualifications.

6. METHOD OF MEASUREMENT. The quantity of the stamped and/or colored concrete sidewalk of the type and depth specified to be measured for payment will be the number of square yards of stamped concrete sidewalk placed in the complete and accepted work.

7. BASIS OF PAYMENT. The accepted quantity of the stamped and/or colored concrete sidewalk of the type and depth specified will be paid for at the Contract unit price per square yard. Payment for all items will be full compensation for furnishing, handling, and placing the materials specified, including concrete, and for furnishing all labor, tools, equipment, and incidentals necessary to complete the work.

Payment will be made under:

Pay Item		Pay Unit
900.675	Special Provision (Portland Cement Concrete	Square Yard

	Sidewalk, 5 inch, Colored with Ashlar Slate Pattern)	
900.675	Special Provision (Portland Cement Concrete Sidewalk, 8 inch, Colored with Ashlar Slate Pattern)	Square Yard
900.675	Special Provision (Portland Cement Concrete Sidewalk, 5 inch, Colored)	Square Yard
900.675	Special Provision (Portland Cement Concrete Sidewalk, 8 inch, Colored)	Square Yard

SPECIAL PROVISION (SITE LIGHT)

1. DESCRIPTION. The Lighting Assemblies shall be as generally shown on the detail sheet and Schedule on the Drawings and as described in these Special Provisions. This work shall be done in accordance with the Standard Specifications and these Special Provisions, and as detailed on the Drawings. The contractor shall furnish all supervision, materials, equipment, accessories, handling, shipping and delivery to provide the specified Lighting Assemblies as detailed herein, complete with all appurtenances. All transportation, handling, shipping costs, manufacturer's storage and other necessary costs shall be included.

   This work shall include providing all labor, equipment, and materials to install the Lighting Assemblies, complete with lamp, wiring, fuses and fuse holders internal to the pole handhole, with ground rod installed, grounding connections and all other items necessary to provide a complete and operational system. This work shall be done in accordance with the Standard Specifications and these Special Provisions, and as detailed on the Drawings.

2. SUBMITTALS. Submit detailed shop drawings with all aspects and dimensions, as well as equipment and material specifications of the proposed pole, luminaire and appurtenances clearly detailed. Shop drawing submittal shall include point-by-point photometric calculations. Calculations shall be in maintained fc. Include light loss factors in report. Point-by-point calculations shall utilize an IES standard grid. To facilitate these calculations the manufacturer may contact the engineer to receive an AutoCad .dwg file of the project area and pole layout. The design of the new street lighting system was completed in general conformance with the VTrans Lighting Design Guide.

3. MATERIALS.

   GENERAL: Note that Buy America requirements apply to street light materials.
   Luminaire shall meet the ANSI C136.31-2001 table 2, American National Standard for Roadway Luminaire Vibration specifications for Bridge/overpass applications. And conform to the UL 1598 and CSA C22.2 No. 250.0-08 standards. Suitable for operation in an ambient temperature up to 40C / 104F - UL certified.

   TYPE A SERIES LUMINAIRES: Luminaire housing shall be made of cast aluminum, and shall be die-cast or formed by a permanent mold. Cast aluminum frames crowned with an ornamental hood, with a flat lens with integral latches and hinges shall provide access to the optical chamber and driver compartments. Embedded one-piece memory retentive gaskets shall ensure weatherproofing. The luminaires shall feature toolless entry to the access the luminaire and LED Driver.

   LIGHT ENGINE: LED and LED Drivers composed of 5 main components: Lens / LED lamp / Optical System / Heat Sink / Driver Electrical components shall be RoHS compliant.

   LENS: Made of flat polycarbonate lens, mechanically assembled and sealed onto the lower part of the heat sink. Flat lens of the luminaire shall have 0% uplight [full cut-off / U=0 (bug rating)]

   LAMP: Composed of high-performance white LEDs, 35 lamp wattage (350mA) to 129w lamp wattage, (530mA) as noted in spec and on plans. Color temperature of 4000 (+/- 350) Kelvin nominal, 70 CRI. System rated life span, 100,000 hours after which the system emits 70% of its original lumen output.

   OPTICAL SYSTEM: I.E.S types II, III, and V as noted on plans. Composed of high performance acrylic refractors lenses to achieve desired distribution. System is rated IP66. Performance shall be tested per

LM63 and LM79 and TM15 (IESNA) certifying its photometric performance. Street-side indicated

HEAT SINK: Made of die cast aluminum optimizing the LEDs efficiency and life. Product does not use any cooling device with moving parts (only passive cooling device)

DRIVER: High power factor of 90%. Electronic driver, operating range 50-60 Hz. Auto-adjusting to a voltage between 120 and 277 volt AC rated for both application line to line or line to neutral, Class II, THD of 20% max. Maximum ambient operating temperature from -40F(-40C) to 130F(55C) degrees. Certified in compliance to cULus requirement. Weather tightness rating IP66. Assembled on a unitized removable tray with quick disconnect plug resisting to 221F (105C) degrees. The current supplying the LEDs shall be reduced by the driver if the internal temperature exceeds 185F (85C), as a protection to the LEDs and the electrical components. Output is protected from short circuits, voltage overload and current overload. Automatic recovery after correction.

SURGE PROTECTOR: LED Driver 3 poles 10KV surge Protectors that protect Line-Ground, Line-Neutral, and Neutral-Ground in accordance with IEEE / ANSI C62.41.2 guidelines.

FITTER: Cast aluminum /w set screws. Fits on a 3" outside diameter by 3" long tenon.

TYPE B LUMINAIRES: Luminaire shall consist of socket with replaceable LED's. LED's shall be Shatterproof, Sealed Globes. Space fixtures 12 inches O/C, attach to Aircraft Cable. System to be 120 volt AC rated for r line to neutral, suitable for wet locations.

Mount fixtures per manufacturer's instructions. Secure with mounting plate to building surfaces fastened at a minimum every 6 feet.

TYPE C LUMINAIRES: Luminaire shall provide general illumination for rough service non-hazardous environments that requires a wet location listing Surface, mounting. Housing shall be made from impact-resistant, UV-resistant fiberglass-reinforced polyester with cold rolled steel enclosed wire way. Painted parts finished with high-gloss, baked white enamel. Polycarbonate diffuser, secured to fully-gasketed housing by captive tamper-resistant cam-action latches. Ballast shall be thermally protected, resetting, Class P, HPF, non-PCB, UL listed. Rapid start lamps are sound rated A. Standard combinations are CBM approved and conform to UL 935. UL listed for 25°C ambient and wet locations covered ceiling installations only.

TYPE RL LUMINAIRES:
LED Handrail shall be complete illuminated handrail system made with extruded aluminum welded and blended joints for a seamless appearance and the luminaire shall consist of a high impact extruded frosted acrylic lens that snaps into place and is further retained by fasteners at each end. Aluminum rails supplied with an anodized finish. Round handrail shall have dimensions that conform to ADA requirements and shall be provided with 30 degree asymmetrical illumination post mount on each side of the stairway.

LED modules are 24 VDC constant voltage at 4.5 watts and 171 lumens per foot, with 4000˚K color temperatures. LEDs shall be configured to allow uninterrupted illumination. Drivers shall be integral to the posts or railing. Posts shall be provided at a maximum of 6' centers, and direct buried to 6" depth and set with quick-setting grout by contractor.

POLES: Pole height shall be as noted on plan and as listed in luminaire assembly number. Poles shall be delivered to the job site with a factory applied shipping wrap of cardboard or other material to fully protect against scratches and coating stain. Poles shall be blocked and bundled in groups of multiple poles, or use other equivalent means to prevent shifting and damage during transport. Pole shall match existing City's style.
Type A Series pole: The 12' Shaft post shall be all cast aluminum construction with a classic double-tapered, fluted base and a gracefully tapered 12-flute cast shaft; minimum 0.125" wall thickness or thicker as required to handle structural loading. The post shall be heavy wall, copper free, cast aluminum produced from certified ASTM 356.1 ingot per ASTM B179-95a or ASTM B26-95. The castings shall be formed true to the pattern with complete detail. Poles shall be structurally designed to AASHTO standards, minimum 100 mph wind loading plus a 1.3 gust factor, and with the loads. The cast shaft shall be circumferentially welded to the base casting and shipped as one piece for maximum structural integrity. All exposed welds below 8' shall be ground smooth. All welding shall be per ANSI/AWS D1.2-90. All welders shall be certified per Section 5 of ANSI/AWS D1.2-90. The post shall be 12'-0" in height

with a 17 or 19" diameter base. The shaft diameter shall taper from 5.5" above the base to 3.5-4" at the top. An integral 3" O.D. x 3" tenon shall be provided at the top for luminaire mounting. The post top shall include a transitional donut between the fluted shaft and the tenon.

Type P pole: The 14' Shaft post shall be all cast aluminum construction with a classic double-tapered, fluted base and a gracefully tapered 12-flute cast shaft; minimum 0.188" wall thickness or thicker as required to handle structural loading. The post shall be heavy wall, copper free, cast aluminum produced from certified ASTM 356.1 ingot per ASTM B179-95a or ASTM B26-95. The castings shall be formed true to the pattern with complete detail. Poles shall be structurally designed to AASHTO standards, minimum 100 mph wind loading plus a 1.3 gust factor, and with the loads. The cast shaft shall be circumferentially welded to the base casting and shipped as one piece for maximum structural integrity. All exposed welds below 8' shall be ground smooth. All welding shall be per ANSI/AWS D1.2-90. All welders shall be certified per Section 5 of ANSI/AWS D1.2-90. The post shall be 14'-0" in height with a 17 or 19" diameter base. The shaft diameter shall taper from min 5.5" above the base to 3.5" at the top. An integral 3" O.D. x 3" tenon shall be provided at the top for luminaire mounting. The post top shall include a transitional donut between the fluted shaft and the tenon. Pole shall include mounting arm for suitable for mounting weatherproof projector housing.

Poles with receptacles shall be mounted at heights as noted on drawings. Receptacles shall be weather-resistant, 20A duplex GFCI, with single-gangweather-proof in-use covers.

Cast Aluminum Posts – Tapered Fluted Shafts

MATERIALS: All hardware shall be tamper resistant stainless steel. Anchor bolts to be completely hot-dip galvanized.

INSTALLATION: The post shall be provided with four, hot-dip galvanized L-type anchor bolts to be installed on a 15" diameter bolt circle. A door shall be provided in the base for anchorage and wiring access. A grounding screw shall be provided inside the base opposite the door.

MAINTENANCE OPENING: Provide pole with a 3.25"x7.5"x6"H maintenance opening top 17" from the bottom of the anchor plate, complete with a weatherproof embossed aluminum cover and a copper ground lug. Secure aluminum handhole cover with stainless steel vandal resistant screws. Pole shaft shall be provided with a dedicated grounding lug easily accessible within the pole's access door prepared to receive a #6 bonding wire.

BASE COVER: Provide two-piece round base cover made from cast aluminum, mechanically fastened with stainless steel screws.

ANCHOR BOLTS: The pole manufacturer shall provide an anchor bolt template for installation and shall provide ¾-inch hot-dipped fully galvanized steel anchor bolts in a configuration that exceeds the maximum wind rating of the pole. Bolt circle shall be within the +/-15".

WIRING: All wiring internal to the pole, except the branch circuit conductors entering the pole base, shall be by the luminaire manufacturer. Luminaires shall be supplied from the factory with a quick-disconnect connector at the luminaire(s), and shall have sufficient length of 3#12 from luminaire(s) THWN, MTW or TEW wire to reach 18" out of the handhole in the pole base.

FASTENERS: All exposed fasteners shall be stainless steel with ceramic primer-seal basecoat to reduce seizing of the parts. All seals and sealing devices are made and/or lined with EPDM and/or silicone. All exposed fasteners below 10 feet above grade shall have vandal-resistant heads. Provide standard vandal-resistant fasteners in the "pinned allen-socket" style requiring a specialized allen wrench to install and remove. The allen wrench contains a hole in the end to allow engagement with the vandal-resistant fasteners. All references to vandal-resistant or tamper-resistant shall imply this standard vandal resistant fastener.

POWDER COATING PROCESS: The manufacturer shall coat luminaires and poles in its own facility. Out-sourcing of the powder coating process is not allowed. Finish of all pole and fixture metallic parts shall be polyester powder coat paint.

Equipment, materials, luminaires and poles that are specified to be "powder coated" shall be polyester powder coated in the manufacturer's standard black "textured" finish with a UV resistant powder

designed for outdoor use without color fade. The chemical composition shall provide a highly durable UV and salt spray resistant finish in accordance to the ASTM-B117-73 standard and humidity proof in accordance to the ASTM-D2247-68 standard.

The polyester powder coating process shall have pre-treatment steps that ensure complete cleaning and adherence of the coating materials including at least the following steps: hot alkaline wash, rinse, hot phosphoric acid etching and final rinse.

In addition, because the project area is in a marine area, the interior of the pole shall be powder coated, all external aluminum parts shall be provided with a special marine environment prime coating prior to powder coating, and all steel parts of the pole (ex. Banner arms) will be galvanized prior to powder coating. The polyester powder coating shall be electrostatically applied thermosetting polyester resin powder coating to a minimum thickness of 4 mils/100 microns.

MECHANICAL RESISTANCE: In order to ensure the mechanical resistance of the poles, the projected area shall be calculated according to AASHTO 2001.

LIGHTING EQUIPMENT WARRANTY: Base Product Warranty shall be full parts and labor at job site for one-year following date of substantial completion. Component warranties shall be as detailed herein.

The manufacturer must provide a written confirmation of its ISO 9001-2008 and ISO 14001-2004 International Quality Standards Certification.

Lenses – Lenses shall be warranted for 2 years from startup.

Powder Coating Finish Warranty – All surfaces featuring a powder-coat finish shall carry a full 5- year Finish Warranty from date of installation. Finish Warranty shall provide for the full cost of refinishing in the event of a coating failure. Along with its Shop Drawing, the manufacturer shall submit full warranty information, detailing the warranty terms and conditions in accordance with this specification.

The Finish Warranty shall provide protection against:

a. Peeling and Cracking.

b. Fading and Tint: UV damage and fading of more than 5% of the original color (tint).

c. Discoloration: Discoloration in excess of 5 E units (CIE 1976 CIELAB) as measured using procedure ASTM D 2244, latest revision, comparing an unexposed sample to an exposed surface after removal of dirt and chalk.

d. Gloss retention: in accordance with procedure ASTM D 523, latest revision, comparing an unexposed sample to an exposed surface after removal of dirt and chalk.

e. Corrosion and lack of adhesion: Corrosion and lack of adhesion as measured using procedure ASTM D 610, latest revision, based on the complete product assembly (for the purpose of this warranty, this procedure applies to both aluminum and steel).

Lamp – Furnish and install in the correct orientation according to manufacturer's specifications for LED in each luminaire.

Fuses – Luminaire and pole mounted fuses shall be current limiting, time delay fuses rated at 100,000 Amps interrupting current.

Fuseholders – for mounting in the pole base for the luminaire fuses shall be rated at 20 amperes and shall have waterproof boots. Provide one two-pole in-line fuse holder per 240/208V circuit, and one single pole fuse holder per 120V circuit. Fuse holders shall allow quick changing of fuses without affecting permanent wiring connections. Wiring connections to fuse holders shall be mechanical compression type ordered specifically for the wire sizes installed. Fuse holders shall have weatherproofing rubber boots supplied by the fuse holder manufacturer installed over all of the wires and terminations.
Ground rods – shall be 5/8-inch diameter by 10 feet long and be copper clad steel.

Ground rod conductor connections – Ground rod connections shall be thermal weld type or shall be made with a UL listed hydraulically applied (12 ton minimum) compression connector. Follow manufacturer's written instructions for installing ground rod connections. Do not exceed the rated wire bundle capacities of the type of ground rod connection used.

Wiring – Exterior and underground wiring in poles, conduit and grounding conductors: 98% conductivity copper 600 volt insulation, XHHW, THHN/THWN, or THWN-2. Streetlight pole internal wiring: 98% conductivity copper 600 volt insulation, MTW, XHHW, THWN-2 or THHN/THWN.

Color code – All conductors shall have color-coded insulation to designate ground, neutral conductor and phases. Colored tape alone is not acceptable. Phases shall be blue and red, receptacle branch circuit shall be black, neutral shall be white and ground shall be green.

Wire markers – shall be plastic cable wrap type with marking tag for permanent tagging. Plastic tag shall have controller and circuit number written on it with permanent ink marking pen per tag manufacturer's directions.

Splices and Junctions:

a. All splices and junctions shall be made waterproof by a UL approved method. Conductor splice shall be made by UL listed compression type butt splice kit. Waterproofing method shall be by heat shrink, by sealant in waterproof splice cap, or by sealant in cold shrink.

b. #10 AWG or Smaller, above grade: UL listed compression type connectors.

c. #8 AWG or Larger, above grade: UL listed mechanical compression connector.

d. Splices and junctions shall not be buried or installed in conduit.

e. Splices in junction boxes shall be UL listed hydraulic compression (12 tons minimum) type butt or two-wire stub splice with UL listed heat shrink waterproof splice cover.

f. End caps shall be used to seal and insulate the ends of 1/C wires. End caps shall be waterproof of thermally stabilized, modified polyolefin heat shrink material with mastic sealant inside UL listed 600 Volt, 90 degrees C.

g. Wet location splices and junctions shall be accomplished with UL listed heat shrink 600 Volt, 90 degrees C, waterproof splice kits.

4. CONSTRUCTION METHODS. Install poles plumb and true on the foundation and in strict accordance with the manufacturer's instructions. If needed, use stainless steel flat washers or stainless steel horseshoe shims to plumb the poles. Do not seal under the pole base (to allow for drainage). Tolerance in plumb: ¼ inch in 8 feet.

Factory applied shipping wrap of cardboard or other material shall remain in place throughout handling and installation to protect pole finish (to be removed only after final pole installation). Pole grips, truck arms, jaws, trailers and any other surfaces that contact poles prior to or during installation shall be fully and thickly padded to prevent scratching poles. Before final acceptance of the Project, provide repair or touch-up on poles that have been damaged during construction, using a method approved by the manufacturer.

Each streetlight pole shall be provided with its own separate ground rod adjacent to its foundation and bonded to the pole's grounding lug as shown on the Drawings.

Install luminaires with the correct optical system orientation, socket position and inclination angle to meet the specified photometric requirements. Align luminaires vertical and perpendicular (or tangent) to the centerline of the street, and clean luminaire components of all construction dirt and dust and fingerprints prior to final completion.

Handle lighting fixtures carefully to prevent breakage, denting or scoring of fixtures' finishes. Do not install damaged lighting fixtures. Replace with undamaged units and return damaged units to equipment manufacturer. Install luminaire, fusing and wiring complete. Install a wattage identification sticker inside

the pole handhole. No other identifying numbers except the manufacturer's nameplate shall be installed on the poles or arms or luminaries.

Splices and junctions shall be made only in pole handholes and underground handhole junction boxes. Perform no more splices than needed. Do not splice or junction any wires that continue through a pole or junction box, in other words, those conductors without a termination to the adjacent pole. Use Junction box as a pulling point only. Cable pulled through poles or junction boxes shall be marked per the following paragraph and shall have sufficient loop to extend 18" beyond handhole or junction box lid for future maintenance but shall not be spliced. All splices in junction boxes shall be made waterproof by a UL listed heat shrink splice cover. All splices and junctions shall be considered incidental to the pay item.

Install a tie wrap type permanent wire marker on each and every pair of conductors passing through every junction box or pole handhole (bundle circuit pairs together). Mark controller number, circuit letter and pole number on each tie wrap and designate home runs as encountered. Install markers in each pole handhole.

5. METHOD OF MEASUREMENT. The quantity to be paid for will be measured as the number of Street Lights by type, provided in accordance with the plans and specifications or as directed by the Engineer.

Light pole bases shall be paid separately as Standard Specification Item 679.21.

Type C fixture shall be paid as part of Item 900.645 Special Provision (Electrical Vault – Electrical Equipment Upgrade).

Type RL fixture shall be paid as part of Item 900.645 Special Provision (Retaining Wall, Guardrail, Lighted Handrail and Concrete Steps for Paramount Theater Access).

6. BASIS OF PAYMENT. The accepted quantity of Special Provision (Site Light) will be paid for at the Contract unit price per each.

Payment for items will be full compensation for the materials and equipment specified, performing the work specified including but not limited to, luminaire, arms/supports, poles, equipment, and incidentals necessary to complete the street light assembly, wired in place, including everything needed for a complete installation, and for furnishing all labor materials, tools, equipment, and incidentals necessary to complete the work.

Light pole bases shall be paid separately as Standard Specification Item 679.21.

Type C fixture shall be paid as part of Item 900.645 Special Provision (Electrical Vault – Electrical Equipment Upgrade).

Type RL fixture shall be paid as part of Item 900.645 Special Provision (Retaining Wall, Guardrail, Lighted Handrail and Concrete Steps for Paramount Theater Access).

Payment will be made under:

Pay Item		Pay Unit
900.620	Special Provision (Site Light, Type 'A2')	Each
900.620	Special Provision (Site Light, Type 'A3')	Each
900.620	Special Provision (Site Light, Type 'A3NR')	Each
900.620	Special Provision (Site Light, Type 'A5')	Each
900.620	Special Provision (Site Light, Type 'AW')	Each
900.620	Special Provision (Pole with Weatherproof Enclosure, Type 'P')	Each
900.640	Special Provision (Decorative Light, Type 'B')	Linear Foot

SPECIAL PROVISION (ELECTRICAL WIRING DEVICES, BOXES, AND DISCONNECTS)

1. DESCRIPTION. The Electrical devices shall be as generally shown on the detail sheet and plans and as described in these Special Provisions. This work shall be done in accordance with the Standard Specifications and these Special Provisions, and as detailed on the Drawings. The contractor shall furnish all supervision, materials, equipment, accessories, handling, shipping and delivery to provide the specified Electrical devices as detailed herein, complete with all appurtenances. All transportation, handling, shipping costs, manufacturer's storage and other necessary costs shall be included.

   This work shall include providing all labor, equipment, and materials to install the Electrical devices, complete with connections and all other items necessary to provide a complete and operational system. This work shall be done in accordance with the Standard Specifications and these Special Provisions, and as detailed on the Drawings.

2. SUBMITTALS. Submit detailed shop drawings with all aspects and dimensions, as well as equipment and material specifications of the proposed junction boxes, disconnects, receptacles and appurtenances clearly detailed. Shop drawing submittal shall include List of legends and description of materials and all manufacturers' packing label warnings and instruction. Include electrical ratings, dimensions, mounting details, materials, enclosure types, and class.

3. MATERIALS.

   Exterior wall mounted junction's boxes used access, pull, and junction boxes shall be as cast-Metal: NEMA FB 1, galvanized, cast iron with gasketed cover.

   Exterior wall mounted outlet and device boxes shall be cast-Metal: NEMA FB 1, galvanized, cast iron with gasketed cover.

   Boxes and Enclosures located aboveground shall be NEMA 250, Type 3R.

   Receptacles shall be duplex GFCI convenience receptacles, 125 V, 20 A straight-blade, feed-through type with indicator light when device is tripped. Device shall comply with NEMA WD 1, NEMA WD 6, UL 498, and UL 943, Class A, device shall be mounted in exterior outlet box with wall plate Wet-Location, Weatherproof Cover Plates: NEMA 250, complying with type 3R weather-resistant, die-cast aluminum with in-use lockable cover.

   Provide weatherproof low voltage disconnect switches rated 30 amperes mounted on pedestal. Provide a disconnect with NEMA classification Heavy Duty (HD), that is horsepower rated, switch mechanism shall be the quick-make, quick-break type, copper blades, visible in the OFF position. External operating handle shall indicate ON and OFF position and shall have lock-open padlocking provisions. Mechanical interlock shall permit opening of the door only when the switch is in the OFF position, defeatable by a special tool to permit inspection. Fuse holders for the sizes and types of fuses specified. Electrically operated switches shall only be installed where shown on the drawings. Solid neutral for each switch being installed in a circuit which includes a neutral conductor. Ground Lugs: One for each ground conductor. Switch enclosures shall be the NEMA types which are most suitable for the environmental conditions where the switches are being installed. Unless otherwise indicated on the plans, all outdoor switches shall be NEMA 3R. Shall be finished with manufacturer's standard gray baked enamel paint over pretreated steel (for the type of enclosure required). Shall be quick-make, quick-break type in accordance with UL 98, NEMA KS 1 and NEC. .

4. CONSTRUCTION METHODS.

   Flush mounted junction boxes shall be sized for the quantity on conduits and wire passing through it and cover shall be waterproof.

   Exterior duplex receptacles shall be GFCI and weather resistant mount in single-gang outlet boxes with weather-proof gasketing and have weather-proof in-use metal lockable covers.

   Exterior quad receptacles locations consist of two duplex receptacles GFCI and weather resistant mount in double-gang outlet boxes with weather-proof gasketing and have weather-proof in-use metal lockable

covers. Electrical Event Power Pedestal, foundation and all equipment contained within. This shall be a scaled drawing indicating dimensions of all equipment.

The Contractor shall allow the City 14 calendar days to review and approve the proposed plans before it is to be implemented.

5. METHOD OF MEASUREMENT. The quantity of Special Provision (Electrical Wiring Devices, Boxes, and Disconnects) to be measured for payment will be on a lump sum basis for providing the panelboard and cabinet in the complete and accepted work.

6. BASIS OF PAYMENT. The accepted quantity of Special Provision (Electrical Wiring Devices, Boxes, and Disconnects) will be paid for at the Contract lump sum price.

Payment will be full compensation for installing the wiring devices, junction boxes, and, including weatherproof enclosures, mounting hardware and devices support pedestals and openings and for furnishing all labor, including, tools, materials, equipment and incidentals necessary to complete the work.

Payment will be made under:

Pay Item		Pay Unit
900.620	Special Provision (GFCI Receptacle Weatherproof In-use Cover)	Each
900.620	Special Provision (Above Grade Junction Box with Weatherproof Cover)	Each

900.645 SPECIAL PROVISION (ELECTRICAL EVENT POWER PEDESTAL)

1. DESCRIPTION. Work under this item shall include furnishing and installing the Electrical Event Power Pedestal and appurtenances, complete and fully operational. The foundation shall be included with this item. At least two 3 inch conduit sweeps with caps shall be installed in the foundation for future use. A PVC sleeve may be used to facilitate the installation of a 10 foot long 5/8 inch copper clad ground rod. The Electrical Event Power Pedestal and associated panelboard, devices, and cabinet and connection costs shall be included.

All work shall be in accordance with the National Electric Code, local codes and requirements. The contractor shall be responsible for all incidental work necessary and associated with providing the Electrical Event Power Pedestal, including coordination of this work with other trades.

2. GENERAL. Any required Electrical Service connection to the Power Board will be provided by the Contractor. The Contractor shall anticipate the problems inherent in coordination of his work with other trades.

Conduits required for the service connection from the Main panelboard and any reducing fittings or couplings required for connections shall be included and sized as shown on plans.

The Electrical Event Power Pedestal enclosure shall be constructed based on NEMA 3R standards or better, and shall be manufactured from minimum 0.125 thick aluminum type 5052-H32 with two adjustable "C" mounting channels on both side walls and back wall. The enclosure(s) shall be suitable for protection of the electrical equipment contained within. The enclosure(s) door shall be double flanged out on all four sides. The enclosure(s) shall be properly ventilated and shall be provided with vent filters. All exterior seams shall be continuously welded. External hardware shall be stainless steel and all internal hardware shall be stainless steel. See detail for conduit stubs and caps at bottom of enclosure. The door mechanism shall be equipped with three point latching system and nylon rollers at top and bottom. The handle shall be ¾ inch diameter stainless steel and shall have provisions for padlocking. The main door shall be sealed with a closed cell neoprene gasket. The main door shall be heavy gauge continuous hinge with ¼ inch diameter stainless steel hinge pin secured with ¼ -20 stainless steel

carriage bolts and stainless steel nylock nuts. The finish shall be natural aluminum per Federal Specifications QQA-250/8. The enclosure shall be UL listed for use in housing electrical equipment. The enclosure shall be the color noted on detail plans.

The interior of the cabinet shall contain a 100 amp. Power Board, with 100A main breaker and branch breakers, sized as noted on plans, grounding equipment, lightning arrestor, duplex G.F.C.I. receptacles and appurtenances necessary to provide a complete and fully operational system. A 10 foot long, 5/8 inch copper clad ground rod shall be installed at the load center cabinet and shall measure 25 ohms to earth ground maximum.

Additional ground rods may be driven in adjacent handholes and bonded together in order to meet this requirement. The short circuit interrupter capacity of all equipment shall be coordinated to meet the requirements of the utility company.

The electric details shown on the drawings are schematic and the Contractor shall install the equipment in accordance to all governing regulations and to the Department's satisfaction.

3. SUBMITTALS. The contractor shall submit a shop drawing of the Electrical Event Power Pedestal, foundation and all equipment contained within. This shall be a scaled drawing indicating dimensions of all equipment.

   The Contractor shall allow the City 14 calendar days to review and approve the proposed plans before it is to be implemented.

4. METHOD OF MEASUREMENT. The quantity of Special Provision (Electrical Event Power Pedestal) to be measured for payment will be on a lump sum basis for providing the panelboard and cabinet in the complete and accepted work.
5. BASIS OF PAYMENT. The accepted quantity of Special Provision (Electrical Event Power Pedestal) will be paid for at the Contract lump sum price.

   Payment will be full compensation for installing the Power Board and Cabinet and required control devices, including cabinet, concrete pad, panelboard, associated conduit and wiring and for furnishing all labor, including, tools, materials, equipment and incidentals necessary to complete the work.

   Payment will be made under:

Pay Item		Pay Unit
900.645	Special Provision (Electrical Event Power Pedestal)	Lump Sum

900.645 SPECIAL PROVISION (ELECTRICAL VAULT - ELECTRICAL EQUIPMENT UPGRADE)

1. DESCRIPTION. Work under this item shall include furnishing and installing the Electrical Vault – Electrical Equipment Upgrade and appurtenances, complete and fully operational. Panelboard mounting backboard shall be included with this item. A PVC sleeve may be used to facilitate the installation of a 10 foot long 5/8 inch copper clad ground rod. The panelboard service connection costs shall be included.

   This item shall include all costs for permits, certificates or inspections. In addition the Utility Company charges from GMP shall be included. All work shall be in accordance with the National Electric Code, local codes and requirements and the requirements of GMP. The contractor shall be responsible for all incidental work necessary and associated with providing the Electrical Vault – Electrical Equipment Upgrade, including coordination of this work with the Utility Company.

2. GENERAL. Any required Electrical Service connection to the Power Board will be provided by the Utility. The Contractor will be responsible for coordinating with GMP for work in the vicinity of the project. The Contractor shall anticipate the problems inherent in coordination of his work with required issuance of work orders and the subsequent scheduling by GMP.

   A 3 inch conduit is required for the service connection and any reducing fittings or couplings required for connections to the meter socket shall be included. Although the schematic wiring diagram may not indicate a service disconnecting means on the line side of the meter, the installation of such shall be in

accordance with the Utility Company's requirements for cold sequence metering of 120/208 or 120/240VAC equipment where necessary. The contractor shall provide all necessary equipment fuses or circuit breaker and meter sockets approved by the Utility Company. The meter sockets shall be mounted on the exterior wall at the existing location and must be completely accessible to the Utility Company.

The Electrical Vault – Electrical Equipment Upgrade shall consist of the new panelboards as shown on one-line and panel schedule on drawings. Upgrade includes a new main 400 amp. Panelboard with 250A main breaker and branch breakers, new lighting 125 amp. Panelboard sized as noted on plans, grounding equipment, lightning arrestor, photoelectric cell, lighting control panel, and appurtenances necessary to provide a complete and fully operational system. In addition, a convenience duplex G.F.C.I. receptacle shall be included adjacent to panel for maintenance and associated conduit and conductors. In addition, 30A, 3P, NEMA 4 Disconnects for Existing Electrical Room Heaters and Exhaust Fan and associated conduit and conductors. In addition, a lighting fixtures and switch for vault lighting and associated conduit and conductors. A 10 foot long, 5/8 inch copper clad ground rod shall be installed and shall measure 25 ohms to earth ground maximum.

The electric details shown on the drawings are schematic and the Contractor shall install the equipment in accordance to all governing regulations and to the Department's satisfaction.

3. SUBMITTALS. The contractor shall submit a shop drawing of the proposed Electrical Vault – Electrical Equipment Upgrade and all equipment contained within. This shall be a scaled drawing indicating dimensions of all equipment.

   The Contractor shall allow the City 14 calendar days to review and approve the plans before it is to be implemented.

4. METHOD OF MEASUREMENT. The quantity of Special Provision (Electrical Vault – Electrical Equipment Upgrade) to be measured for payment will be on a lump sum basis for providing the panelboard and cabinet in the complete and accepted work.

5. BASIS OF PAYMENT. The accepted quantity of Special Provision (Electrical Vault – Electrical Equipment Upgrade) will be paid for at the Contract lump sum price.

   Payment will be full compensation for installing the Electrical Vault Equipment and required control devices, including control panel, panelboards, devices, disconnects, and light fixture, associated conduit and wiring and for furnishing all labor, including, tools, materials, equipment and incidentals necessary to complete the work.

   Payment will be made under:

Pay Item		Pay Unit
900.645	Special Provision (Electrical Vault – Electrical Equipment Upgrade)	Lump Sum

900.645 SPECIAL PROVISION (ELECTRIC DEMOLITION)

1. DESCRIPTION. Removal of existing site lighting systems, electrical vault panelboards and disconnects and associated wireway and conduits, electric cable, connections to or disconnection from existing systems shall be made by the Contractor, removal and salvage of existing service equipment shall be coordinated with the Utility.

2. GENERAL. Remove existing lighting systems or fixtures as noted on plans, by contractor. The Contractor will be responsible for coordinating with Green Mountain Power for work in the vicinity of the project.

3. METHOD OF MEASUREMENT. The quantity of Special Provision (Electric Demolition) to be measured for payment will be on a lump sum basis for Electric Demolition in the complete and accepted work.

4. BASIS OF PAYMENT. The accepted quantity of Special Provision (Electric Demolition) will be paid for at the Contract lump sum price.

Payment will be full compensation for Electric Demolition, electric cable, connections to or disconnection from existing systems and required utility coordination and for furnishing all labor, including, tools, materials, equipment and incidentals necessary to complete the work.

Payment will be made under:

Pay Item		Pay Unit
900.645	Special Provision (Electric Demolition)	Lump Sum

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APPENDIX A

Contractors EEO Certification Form CA-109

Must be submitted by Bidder with completed Bid Form

STATE OF VERMONT
AGENCY OF TRANSPORTATION

November, 1985
CA-109

CONTRACTOR'S EEO CERTIFICATION FORM

Certification with regard to the Performance of Previous Contracts of Subcontracts subject to the Equal Opportunity Clause and the filing of Required Reports.

The bidder ____, proposed subcontractor _____, hereby certifies that he/she has _____, has not _____, participated in a previous contract or subcontract subject to the equal opportunity clause, as required by Executive Orders 10925, 11114, or 11246 as amended, and that he/she has _____, has not _____, filed with the Joint Reporting Committee, the Director of the Office of Federal Contract Compliance, a Federal Government contracting or administering agency, or the President's Committee on Equal Employment Opportunity, all reports due under the applicable filing requirements.

_____	_____	_____
Company	By	Title

NOTE: The above certification is required by the Equal Employment Opportunity regulations of the Secretary of Labor (41 CFR 60-1.7(b) (1)), and must be submitted by bidders and proposed subcontractors only in connection with contracts and subcontracts which are subject to the equal opportunity clause. Contracts and subcontracts which are exempt from the equal opportunity clause are set forth in 41 CFR 60-1.5 (Generally only contracts or subcontracts of $10,000 or under are exempt.) Currently, Standard Form 100 (EEO-1) is the only report required by the Executive Orders or their implementing regulations.

Proposed prime contractors and subcontractors who have participated in a previous contract or subcontract subject to the Executive Orders and have not filed the required reports should note that 41 CFR 60-1.7 (b) (1) prevents the award of contracts and subcontracts unless such contractor submits a report covering the delinquent period or such other period specified by the Federal Highway Administration, or by the Director, Office of Federal Contract Compliance, U.S. Department of Labor.

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APPENDIX B

Debarment & Non-Collusion Affidavit CA-91

Must be submitted by Bidder with completed Bid Form

CA-91

STATE OF VERMONT
AGENCY OF TRANSPORTATION
DEBARMENT AND NON-COLLUSION AFFIDAVIT

I, _____ , representing
(Official Authorized to Sign Contracts)

_____ of _____
(Individual, Partnership or Corporation) (City or State)

being duly sworn, depose and certify under the penalties of perjury under the laws of the State of Vermont and the United States that on behalf of the person, firm, association, or corporation submitting the bid certifying that such person, firm, association, or corporation has not, either directly or indirectly, entered into any agreement, participated in any collusion, or otherwise taken any action, in restraint of free competitive bidding in connection with the submitted bid for the Vermont project:

_____,
(Project Name)

_____project located on _____,
(Project Number) (Route or Highway)

bids opened at _____ ,
(Town or City)

Verrmont on _____, 20___.
(Date)

I further depose and certify under the penalties of perjury under the laws of the State of Vermont and the United States that except as noted below said individual, partnership or corporation or any person associated therewith in any capacity is not currently, and has not been within the past three (3) years, suspended, debarred, voluntarily excluded or determined ineligible by any Federal or State Agency; does not have a proposed suspension, debarment, voluntary exclusion or ineligibility determination pending; and has not been indicted, convicted, or had a civil judgement rendered against (it, him, her, them) by a court having jurisdiction in any matter involving fraud or official misconduct within the past three (3) years.
Exceptions: _____No _____Yes. (If yes, complete back of this form.)

_____

Sworn to before me this

_____day of _____, 20 _____L.S.
(Name of Individual, Partnership or Corporation)

_____L.S.
(Signature of Official Authorized to Sign Contracts)

_____ _____L.S.
(Notary Public) (Name of Individual Signing Affidavit)

(My commission expires_____) _____L.S.
(Title of Individual Signing Affidavit)

Exceptions will not necessarily result in denial of award, but will be considered in determining bidder responsibility. For any exception noted, indicate below to whom it applies, initiating agency, and dates of action. Providing false information may result in criminal prosecution or administration sanctions.

EXCEPTIONS:

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APPENDIX C

Required Contract Provisions for Federal-Aid Construction, FHWA Form 1273

REQUIRED CONTRACT PROVISIONS
FEDERAL-AID CONSTRUCTION CONTRACTS

I. General
II. Nondiscrimination
III. Nonsegregated Facilities
IV. Davis-Bacon and Related Act Provisions
V. Contract Work Hours and Safety Standards Act Provisions
VI. Subletting or Assigning the Contract
VII. Safety: Accident Prevention
VIII. False Statements Concerning Highway Projects
IX. Implementation of Clean Air Act and Federal Water Pollution Control Act
X. Compliance with Governmentwide Suspension and Debarment Requirements
XI. Certification Regarding Use of Contract Funds for Lobbying

ATTACHMENTS

A. Employment and Materials Preference for Appalachian Development Highway System or Appalachian Local Access Road Contracts (included in Appalachian contracts only)

I. GENERAL

1. Form FHWA-1273 must be physically incorporated in each construction contract funded under Title 23 (excluding emergency contracts solely intended for debris removal). The contractor (or subcontractor) must insert this form in each subcontract and further require its inclusion in all lower tier subcontracts (excluding purchase orders, rental agreements and other agreements for supplies or services).

The applicable requirements of Form FHWA-1273 are incorporated by reference for work done under any purchase order, rental agreement or agreement for other services. The prime contractor shall be responsible for compliance by any subcontractor, lower-tier subcontractor or service provider.

Form FHWA-1273 must be included in all Federal-aid design-build contracts, in all subcontracts and in lower tier subcontracts (excluding subcontracts for design services, purchase orders, rental agreements and other agreements for supplies or services). The design-builder shall be responsible for compliance by any subcontractor, lower-tier subcontractor or service provider.

Contracting agencies may reference Form FHWA-1273 in bid proposal or request for proposal documents, however, the Form FHWA-1273 must be physically incorporated (not referenced) in all contracts, subcontracts and lower-tier subcontracts (excluding purchase orders, rental agreements and other agreements for supplies or services related to a construction contract).

2. Subject to the applicability criteria noted in the following sections, these contract provisions shall apply to all work performed on the contract by the contractor's own organization and with the assistance of workers under the contractor's immediate superintendence and to all work performed on the contract by piecework, station work, or by subcontract.

3. A breach of any of the stipulations contained in these Required Contract Provisions may be sufficient grounds for withholding of progress payments, withholding of final payment, termination of the contract, suspension / debarment or any other action determined to be appropriate by the contracting agency and FHWA.

4. Selection of Labor: During the performance of this contract, the contractor shall not use convict labor for any purpose within the limits of a construction project on a Federal-aid highway unless it is labor performed by convicts who are on parole, supervised release, or probation. The term Federal-aid highway does not include roadways functionally classified as local roads or rural minor collectors.

II. NONDISCRIMINATION

The provisions of this section related to 23 CFR Part 230 are applicable to all Federal-aid construction contracts and to all related construction subcontracts of $10,000 or more. The provisions of 23 CFR Part 230 are not applicable to material supply, engineering, or architectural service contracts.

In addition, the contractor and all subcontractors must comply with the following policies: Executive Order 11246, 41 CFR 60, 29 CFR 1625-1627, Title 23 USC Section 140, the Rehabilitation Act of 1973, as amended (29 USC 794), Title VI of the Civil Rights Act of 1964, as amended, and related regulations including 49 CFR Parts 21, 26 and 27; and 23 CFR Parts 200, 230, and 633.

The contractor and all subcontractors must comply with: the requirements of the Equal Opportunity Clause in 41 CFR 60-1.4(b) and, for all construction contracts exceeding $10,000, the Standard Federal Equal Employment Opportunity Construction Contract Specifications in 41 CFR 60-4.3.

Note: The U.S. Department of Labor has exclusive authority to determine compliance with Executive Order 11246 and the policies of the Secretary of Labor including 41 CFR 60, and 29 CFR 1625-1627. The contracting agency and the FHWA have the authority and the responsibility to ensure compliance with Title 23 USC Section 140, the Rehabilitation Act of 1973, as amended (29 USC 794), and Title VI of the Civil Rights Act of 1964, as amended, and related regulations including 49 CFR Parts 21, 26 and 27; and 23 CFR Parts 200, 230, and 633.

The following provision is adopted from 23 CFR 230, Appendix A, with appropriate revisions to conform to the U.S. Department of Labor (US DOL) and FHWA requirements.

1. Equal Employment Opportunity: Equal employment opportunity (EEO) requirements not to discriminate and to take affirmative action to assure equal opportunity as set forth under laws, executive orders, rules, regulations (28 CFR 35, 29 CFR 1630, 29 CFR 1625-1627, 41 CFR 60 and 49 CFR 27) and orders of the Secretary of Labor as modified by the provisions prescribed herein, and imposed pursuant to 23 U.S.C. 140 shall constitute the EEO and specific affirmative action standards for the contractor's project activities under

this contract. The provisions of the Americans with Disabilities Act of 1990 (42 U.S.C. 12101 et seq.) set forth under 28 CFR 35 and 29 CFR 1630 are incorporated by reference in this contract. In the execution of this contract, the contractor agrees to comply with the following minimum specific requirement activities of EEO:

a. The contractor will work with the contracting agency and the Federal Government to ensure that it has made every good faith effort to provide equal opportunity with respect to all of its terms and conditions of employment and in their review of activities under the contract.

b. The contractor will accept as its operating policy the following statement:

"It is the policy of this Company to assure that applicants are employed, and that employees are treated during employment, without regard to their race, religion, sex, color, national origin, age or disability. Such action shall include: employment, upgrading, demotion, or transfer; recruitment or recruitment advertising; layoff or termination; rates of pay or other forms of compensation; and selection for training, including apprenticeship, pre-apprenticeship, and/or on-the-job training."

2. EEO Officer: The contractor will designate and make known to the contracting officers an EEO Officer who will have the responsibility for and must be capable of effectively administering and promoting an active EEO program and who must be assigned adequate authority and responsibility to do so.

3. Dissemination of Policy: All members of the contractor's staff who are authorized to hire, supervise, promote, and discharge employees, or who recommend such action, or who are substantially involved in such action, will be made fully cognizant of, and will implement, the contractor's EEO policy and contractual responsibilities to provide EEO in each grade and classification of employment. To ensure that the above agreement will be met, the following actions will be taken as a minimum:

a. Periodic meetings of supervisory and personnel office employees will be conducted before the start of work and then not less often than once every six months, at which time the contractor's EEO policy and its implementation will be reviewed and explained. The meetings will be conducted by the EEO Officer.

b. All new supervisory or personnel office employees will be given a thorough indoctrination by the EEO Officer, covering all major aspects of the contractor's EEO obligations within thirty days following their reporting for duty with the contractor.

c. All personnel who are engaged in direct recruitment for the project will be instructed by the EEO Officer in the contractor's procedures for locating and hiring minorities and women.

d. Notices and posters setting forth the contractor's EEO policy will be placed in areas readily accessible to employees, applicants for employment and potential employees.

e. The contractor's EEO policy and the procedures to implement such policy will be brought to the attention of employees by means of meetings, employee handbooks, or other appropriate means.

4. Recruitment: When advertising for employees, the contractor will include in all advertisements for employees the notation: "An Equal Opportunity Employer." All such advertisements will be placed in publications having a large circulation among minorities and women in the area from which the project work force would normally be derived.

a. The contractor will, unless precluded by a valid bargaining agreement, conduct systematic and direct recruitment through public and private employee referral sources likely to yield qualified minorities and women. To meet this requirement, the contractor will identify sources of potential minority group employees, and establish with such identified sources procedures whereby minority and women applicants may be referred to the contractor for employment consideration.

b. In the event the contractor has a valid bargaining agreement providing for exclusive hiring hall referrals, the contractor is expected to observe the provisions of that agreement to the extent that the system meets the contractor's compliance with EEO contract provisions. Where implementation of such an agreement has the effect of discriminating against minorities or women, or obligates the contractor to do the same, such implementation violates Federal nondiscrimination provisions.

c. The contractor will encourage its present employees to refer minorities and women as applicants for employment. Information and procedures with regard to referring such applicants will be discussed with employees.

5. Personnel Actions: Wages, working conditions, and employee benefits shall be established and administered, and personnel actions of every type, including hiring, upgrading, promotion, transfer, demotion, layoff, and termination, shall be taken without regard to race, color, religion, sex, national origin, age or disability. The following procedures shall be followed:

a. The contractor will conduct periodic inspections of project sites to insure that working conditions and employee facilities do not indicate discriminatory treatment of project site personnel.

b. The contractor will periodically evaluate the spread of wages paid within each classification to determine any evidence of discriminatory wage practices.

c. The contractor will periodically review selected personnel actions in depth to determine whether there is evidence of discrimination. Where evidence is found, the contractor will promptly take corrective action. If the review indicates that the discrimination may extend beyond the actions reviewed, such corrective action shall include all affected persons.

d. The contractor will promptly investigate all complaints of alleged discrimination made to the contractor in connection with its obligations under this contract, will attempt to resolve such complaints, and will take appropriate corrective action within a reasonable time. If the investigation indicates that the discrimination may affect persons other than the complainant, such corrective action shall include such other persons. Upon completion of each investigation, the contractor will inform every complainant of all of their avenues of appeal.

6. Training and Promotion:

a. The contractor will assist in locating, qualifying, and increasing the skills of minorities and women who are

applicants for employment or current employees. Such efforts should be aimed at developing full journey level status employees in the type of trade or job classification involved.

b. Consistent with the contractor's work force requirements and as permissible under Federal and State regulations, the contractor shall make full use of training programs, i.e., apprenticeship, and on-the-job training programs for the geographical area of contract performance. In the event a special provision for training is provided under this contract, this subparagraph will be superseded as indicated in the special provision. The contracting agency may reserve training positions for persons who receive welfare assistance in accordance with 23 U.S.C. 140(a).

c. The contractor will advise employees and applicants for employment of available training programs and entrance requirements for each.

d. The contractor will periodically review the training and promotion potential of employees who are minorities and women and will encourage eligible employees to apply for such training and promotion.

7. Unions: If the contractor relies in whole or in part upon unions as a source of employees, the contractor will use good faith efforts to obtain the cooperation of such unions to increase opportunities for minorities and women. Actions by the contractor, either directly or through a contractor's association acting as agent, will include the procedures set forth below:

a. The contractor will use good faith efforts to develop, in cooperation with the unions, joint training programs aimed toward qualifying more minorities and women for membership in the unions and increasing the skills of minorities and women so that they may qualify for higher paying employment.

b. The contractor will use good faith efforts to incorporate an EEO clause into each union agreement to the end that such union will be contractually bound to refer applicants without regard to their race, color, religion, sex, national origin, age or disability.

c. The contractor is to obtain information as to the referral practices and policies of the labor union except that to the extent such information is within the exclusive possession of the labor union and such labor union refuses to furnish such information to the contractor, the contractor shall so certify to the contracting agency and shall set forth what efforts have been made to obtain such information.

d. In the event the union is unable to provide the contractor with a reasonable flow of referrals within the time limit set forth in the collective bargaining agreement, the contractor will, through independent recruitment efforts, fill the employment vacancies without regard to race, color, religion, sex, national origin, age or disability; making full efforts to obtain qualified and/or qualifiable minorities and women. The failure of a union to provide sufficient referrals (even though it is obligated to provide exclusive referrals under the terms of a collective bargaining agreement) does not relieve the contractor from the requirements of this paragraph. In the event the union referral practice prevents the contractor from meeting the obligations pursuant to Executive Order 11246, as amended, and these special provisions, such contractor shall immediately notify the contracting agency.

8. Reasonable Accommodation for Applicants / Employees with Disabilities: The contractor must be familiar with the requirements for and comply with the Americans with Disabilities Act and all rules and regulations established there under. Employers must provide reasonable accommodation in all employment activities unless to do so would cause an undue hardship.

9. Selection of Subcontractors, Procurement of Materials and Leasing of Equipment: The contractor shall not discriminate on the grounds of race, color, religion, sex, national origin, age or disability in the selection and retention of subcontractors, including procurement of materials and leases of equipment. The contractor shall take all necessary and reasonable steps to ensure nondiscrimination in the administration of this contract.

a. The contractor shall notify all potential subcontractors and suppliers and lessors of their EEO obligations under this contract.

b. The contractor will use good faith efforts to ensure subcontractor compliance with their EEO obligations.

10. Assurance Required by 49 CFR 26.13(b):

a. The requirements of 49 CFR Part 26 and the State DOT's U.S. DOT-approved DBE program are incorporated by reference.

b. The contractor or subcontractor shall not discriminate on the basis of race, color, national origin, or sex in the performance of this contract. The contractor shall carry out applicable requirements of 49 CFR Part 26 in the award and administration of DOT-assisted contracts. Failure by the contractor to carry out these requirements is a material breach of this contract, which may result in the termination of this contract or such other remedy as the contracting agency deems appropriate.

11. Records and Reports: The contractor shall keep such records as necessary to document compliance with the EEO requirements. Such records shall be retained for a period of three years following the date of the final payment to the contractor for all contract work and shall be available at reasonable times and places for inspection by authorized representatives of the contracting agency and the FHWA.

a. The records kept by the contractor shall document the following:

(1) The number and work hours of minority and non-minority group members and women employed in each work classification on the project;

(2) The progress and efforts being made in cooperation with unions, when applicable, to increase employment opportunities for minorities and women; and

(3) The progress and efforts being made in locating, hiring, training, qualifying, and upgrading minorities and women;

b. The contractors and subcontractors will submit an annual report to the contracting agency each July for the duration of the project, indicating the number of minority, women, and non-minority group employees currently engaged in each work classification required by the contract work. This information is to be reported on Form FHWA-1391. The staffing data should represent the project work force on board in all or any part of the last payroll period preceding the end of July. If on-the-job training is being required by special provision, the contractor

will be required to collect and report training data. The employment data should reflect the work force on board during all or any part of the last payroll period preceding the end of July.

III. NONSEGREGATED FACILITIES

This provision is applicable to all Federal-aid construction contracts and to all related construction subcontracts of $10,000 or more.

The contractor must ensure that facilities provided for employees are provided in such a manner that segregation on the basis of race, color, religion, sex, or national origin cannot result. The contractor may neither require such segregated use by written or oral policies nor tolerate such use by employee custom. The contractor's obligation extends further to ensure that its employees are not assigned to perform their services at any location, under the contractor's control, where the facilities are segregated. The term "facilities" includes waiting rooms, work areas, restaurants and other eating areas, time clocks, restrooms, washrooms, locker rooms, and other storage or dressing areas, parking lots, drinking fountains, recreation or entertainment areas, transportation, and housing provided for employees. The contractor shall provide separate or single-user restrooms and necessary dressing or sleeping areas to assure privacy between sexes.

IV. DAVIS-BACON AND RELATED ACT PROVISIONS

This section is applicable to all Federal-aid construction projects exceeding $2,000 and to all related subcontracts and lower-tier subcontracts (regardless of subcontract size). The requirements apply to all projects located within the right-of-way of a roadway that is functionally classified as Federal-aid highway. This excludes roadways functionally classified as local roads or rural minor collectors, which are exempt. Contracting agencies may elect to apply these requirements to other projects.

The following provisions are from the U.S. Department of Labor regulations in 29 CFR 5.5 “Contract provisions and related matters” with minor revisions to conform to the FHWA-1273 format and FHWA program requirements.

1. Minimum wages

a. All laborers and mechanics employed or working upon the site of the work, will be paid unconditionally and not less often than once a week, and without subsequent deduction or rebate on any account (except such payroll deductions as are permitted by regulations issued by the Secretary of Labor under the Copeland Act (29 CFR part 3)), the full amount of wages and bona fide fringe benefits (or cash equivalents thereof) due at time of payment computed at rates not less than those contained in the wage determination of the Secretary of Labor which is attached hereto and made a part hereof, regardless of any contractual relationship which may be alleged to exist between the contractor and such laborers and mechanics.

Contributions made or costs reasonably anticipated for bona fide fringe benefits under section 1(b)(2) of the Davis-Bacon Act on behalf of laborers or mechanics are considered wages paid to such laborers or mechanics, subject to the provisions of paragraph 1.d. of this section; also, regular contributions made or costs incurred for more than a weekly period (but not less often than quarterly) under plans, funds, or programs which cover the particular weekly period, are deemed to be constructively made or incurred during such weekly period. Such laborers and mechanics shall be paid the appropriate wage rate and fringe benefits on the wage determination for the classification of work actually performed, without regard to skill, except as provided in 29 CFR 5.5(a)(4). Laborers or mechanics performing work in more than one classification may be compensated at the rate specified for each classification for the time actually worked therein: Provided, That the employer's payroll records accurately set forth the time spent in each classification in which work is performed. The wage determination (including any additional classification and wage rates conformed under paragraph 1.b. of this section) and the Davis-Bacon poster (WH–1321) shall be posted at all times by the contractor and its subcontractors at the site of the work in a prominent and accessible place where it can be easily seen by the workers.

b.(1) The contracting officer shall require that any class of laborers or mechanics, including helpers, which is not listed in the wage determination and which is to be employed under the contract shall be classified in conformance with the wage determination. The contracting officer shall approve an additional classification and wage rate and fringe benefits therefore only when the following criteria have been met:

(i) The work to be performed by the classification requested is not performed by a classification in the wage determination; and

(ii) The classification is utilized in the area by the construction industry; and

(iii) The proposed wage rate, including any bona fide fringe benefits, bears a reasonable relationship to the wage rates contained in the wage determination.

(2) If the contractor and the laborers and mechanics to be employed in the classification (if known), or their representatives, and the contracting officer agree on the classification and wage rate (including the amount designated for fringe benefits where appropriate), a report of the action taken shall be sent by the contracting officer to the Administrator of the Wage and Hour Division, Employment Standards Administration, U.S. Department of Labor, Washington, DC 20210. The Administrator, or an authorized representative, will approve, modify, or disapprove every additional classification action within 30 days of receipt and so advise the contracting officer or will notify the contracting officer within the 30-day period that additional time is necessary.

(3) In the event the contractor, the laborers or mechanics to be employed in the classification or their representatives, and the contracting officer do not agree on the proposed classification and wage rate (including the amount designated for fringe benefits, where appropriate), the contracting officer shall refer the questions, including the views of all interested parties and the recommendation of the contracting officer, to the Wage and Hour Administrator for determination. The Wage and Hour Administrator, or an authorized representative, will issue a determination within 30 days of receipt and so advise the contracting officer or

will notify the contracting officer within the 30-day period that additional time is necessary.

(4) The wage rate (including fringe benefits where appropriate) determined pursuant to paragraphs 1.b.(2) or 1.b.(3) of this section, shall be paid to all workers performing work in the classification under this contract from the first day on which work is performed in the classification.

c. Whenever the minimum wage rate prescribed in the contract for a class of laborers or mechanics includes a fringe benefit which is not expressed as an hourly rate, the contractor shall either pay the benefit as stated in the wage determination or shall pay another bona fide fringe benefit or an hourly cash equivalent thereof.

d. If the contractor does not make payments to a trustee or other third person, the contractor may consider as part of the wages of any laborer or mechanic the amount of any costs reasonably anticipated in providing bona fide fringe benefits under a plan or program, Provided, That the Secretary of Labor has found, upon the written request of the contractor, that the applicable standards of the Davis-Bacon Act have been met. The Secretary of Labor may require the contractor to set aside in a separate account assets for the meeting of obligations under the plan or program.

2. Withholding

The contracting agency shall upon its own action or upon written request of an authorized representative of the Department of Labor, withhold or cause to be withheld from the contractor under this contract, or any other Federal contract with the same prime contractor, or any other federally-assisted contract subject to Davis-Bacon prevailing wage requirements, which is held by the same prime contractor, so much of the accrued payments or advances as may be considered necessary to pay laborers and mechanics, including apprentices, trainees, and helpers, employed by the contractor or any subcontractor the full amount of wages required by the contract. In the event of failure to pay any laborer or mechanic, including any apprentice, trainee, or helper, employed or working on the site of the work, all or part of the wages required by the contract, the contracting agency may, after written notice to the contractor, take such action as may be necessary to cause the suspension of any further payment, advance, or guarantee of funds until such violations have ceased.

3. Payrolls and basic records

a. Payrolls and basic records relating thereto shall be maintained by the contractor during the course of the work and preserved for a period of three years thereafter for all laborers and mechanics working at the site of the work. Such records shall contain the name, address, and social security number of each such worker, his or her correct classification, hourly rates of wages paid (including rates of contributions or costs anticipated for bona fide fringe benefits or cash equivalents thereof of the types described in section 1(b)(2)(B) of the Davis-Bacon Act), daily and weekly number of hours worked, deductions made and actual wages paid. Whenever the Secretary of Labor has found under 29 CFR 5.5(a)(1)(iv) that the wages of any laborer or mechanic include the amount of any costs reasonably anticipated in providing benefits under a plan or program described in section 1(b)(2)(B) of the Davis-Bacon Act, the contractor shall maintain records which show that the commitment to provide such benefits is enforceable, that the plan or program is financially responsible, and that the plan or program has been communicated in writing to the laborers or mechanics affected, and records which show the costs anticipated or the actual cost incurred in providing such benefits. Contractors employing apprentices or trainees under approved programs shall maintain written evidence of the registration of apprenticeship programs and certification of trainee programs, the registration of the apprentices and trainees, and the ratios and wage rates prescribed in the applicable programs.

b.(1) The contractor shall submit weekly for each week in which any contract work is performed a copy of all payrolls to the contracting agency. The payrolls submitted shall set out accurately and completely all of the information required to be maintained under 29 CFR 5.5(a)(3)(i), except that full social security numbers and home addresses shall not be included on weekly transmittals. Instead the payrolls shall only need to include an individually identifying number for each employee (e.g. , the last four digits of the employee's social security number). The required weekly payroll information may be submitted in any form desired. Optional Form WH–347 is available for this purpose from the Wage and Hour Division Web site at http://www.dol.gov/esa/whd/forms/wh347instr.htm or its successor site. The prime contractor is responsible for the submission of copies of payrolls by all subcontractors. Contractors and subcontractors shall maintain the full social security number and current address of each covered worker, and shall provide them upon request to the contracting agency for transmission to the State DOT, the FHWA or the Wage and Hour Division of the Department of Labor for purposes of an investigation or audit of compliance with prevailing wage requirements. It is not a violation of this section for a prime contractor to require a subcontractor to provide addresses and social security numbers to the prime contractor for its own records, without weekly submission to the contracting agency..

(2) Each payroll submitted shall be accompanied by a "Statement of Compliance," signed by the contractor or subcontractor or his or her agent who pays or supervises the payment of the persons employed under the contract and shall certify the following:

(i) That the payroll for the payroll period contains the information required to be provided under §5.5 (a)(3)(ii) of Regulations, 29 CFR part 5, the appropriate information is being maintained under §5.5 (a)(3)(i) of Regulations, 29 CFR part 5, and that such information is correct and complete;

(ii) That each laborer or mechanic (including each helper, apprentice, and trainee) employed on the contract during the payroll period has been paid the full weekly wages earned, without rebate, either directly or indirectly, and that no deductions have been made either directly or indirectly from the full wages earned, other than permissible deductions as set forth in Regulations, 29 CFR part 3;

(iii) That each laborer or mechanic has been paid not less than the applicable wage rates and fringe benefits or cash equivalents for the classification of work performed, as specified in the applicable wage determination incorporated into the contract.

(3) The weekly submission of a properly executed certification set forth on the reverse side of Optional Form WH–347 shall satisfy the requirement for submission of the "Statement of Compliance" required by paragraph 3.b.(2) of this section.

(4) The falsification of any of the above certifications may subject the contractor or subcontractor to civil or criminal prosecution under section 1001 of title 18 and section 231 of title 31 of the United States Code.

c. The contractor or subcontractor shall make the records required under paragraph 3.a. of this section available for inspection, copying, or transcription by authorized representatives of the contracting agency, the State DOT, the FHWA, or the Department of Labor, and shall permit such representatives to interview employees during working hours on the job. If the contractor or subcontractor fails to submit the required records or to make them available, the FHWA may, after written notice to the contractor, the contracting agency or the State DOT, take such action as may be necessary to cause the suspension of any further payment, advance, or guarantee of funds. Furthermore, failure to submit the required records upon request or to make such records available may be grounds for debarment action pursuant to 29 CFR 5.12.

4. Apprentices and trainees

a. Apprentices (programs of the USDOL).

Apprentices will be permitted to work at less than the predetermined rate for the work they performed when they are employed pursuant to and individually registered in a bona fide apprenticeship program registered with the U.S. Department of Labor, Employment and Training Administration, Office of Apprenticeship Training, Employer and Labor Services, or with a State Apprenticeship Agency recognized by the Office, or if a person is employed in his or her first 90 days of probationary employment as an apprentice in such an apprenticeship program, who is not individually registered in the program, but who has been certified by the Office of Apprenticeship Training, Employer and Labor Services or a State Apprenticeship Agency (where appropriate) to be eligible for probationary employment as an apprentice.

The allowable ratio of apprentices to journeymen on the job site in any craft classification shall not be greater than the ratio permitted to the contractor as to the entire work force under the registered program. Any worker listed on a payroll at an apprentice wage rate, who is not registered or otherwise employed as stated above, shall be paid not less than the applicable wage rate on the wage determination for the classification of work actually performed. In addition, any apprentice performing work on the job site in excess of the ratio permitted under the registered program shall be paid not less than the applicable wage rate on the wage determination for the work actually performed. Where a contractor is performing construction on a project in a locality other than that in which its program is registered, the ratios and wage rates (expressed in percentages of the journeyman's hourly rate) specified in the contractor's or subcontractor's registered program shall be observed.

Every apprentice must be paid at not less than the rate specified in the registered program for the apprentice's level of progress, expressed as a percentage of the journeymen hourly rate specified in the applicable wage determination. Apprentices shall be paid fringe benefits in accordance with the provisions of the apprenticeship program. If the apprenticeship program does not specify fringe benefits, apprentices must be paid the full amount of fringe benefits listed on the wage determination for the applicable classification. If the Administrator determines that a different practice prevails for the applicable apprentice classification, fringes shall be paid in accordance with that determination.

In the event the Office of Apprenticeship Training, Employer and Labor Services, or a State Apprenticeship Agency recognized by the Office, withdraws approval of an apprenticeship program, the contractor will no longer be permitted to utilize apprentices at less than the applicable predetermined rate for the work performed until an acceptable program is approved.

b. Trainees (programs of the USDOL).

Except as provided in 29 CFR 5.16, trainees will not be permitted to work at less than the predetermined rate for the work performed unless they are employed pursuant to and individually registered in a program which has received prior approval, evidenced by formal certification by the U.S. Department of Labor, Employment and Training Administration.

The ratio of trainees to journeymen on the job site shall not be greater than permitted under the plan approved by the Employment and Training Administration.

Every trainee must be paid at not less than the rate specified in the approved program for the trainee's level of progress, expressed as a percentage of the journeyman hourly rate specified in the applicable wage determination. Trainees shall be paid fringe benefits in accordance with the provisions of the trainee program. If the trainee program does not mention fringe benefits, trainees shall be paid the full amount of fringe benefits listed on the wage determination unless the Administrator of the Wage and Hour Division determines that there is an apprenticeship program associated with the corresponding journeyman wage rate on the wage determination which provides for less than full fringe benefits for apprentices. Any employee listed on the payroll at a trainee rate who is not registered and participating in a training plan approved by the Employment and Training Administration shall be paid not less than the applicable wage rate on the wage determination for the classification of work actually performed. In addition, any trainee performing work on the job site in excess of the ratio permitted under the registered program shall be paid not less than the applicable wage rate on the wage determination for the work actually performed.

In the event the Employment and Training Administration withdraws approval of a training program, the contractor will no longer be permitted to utilize trainees at less than the applicable predetermined rate for the work performed until an acceptable program is approved.

c. Equal employment opportunity. The utilization of apprentices, trainees and journeymen under this part shall be in conformity with the equal employment opportunity requirements of Executive Order 11246, as amended, and 29 CFR part 30.

d. Apprentices and Trainees (programs of the U.S. DOT).

Apprentices and trainees working under apprenticeship and skill training programs which have been certified by the Secretary of Transportation as promoting EEO in connection with Federal-aid highway construction programs are not subject to the requirements of paragraph 4 of this Section IV. The straight time hourly wage rates for apprentices and trainees under such programs will be established by the particular programs. The ratio of apprentices and trainees to journeymen shall not be greater than permitted by the terms of the particular program.

5. Compliance with Copeland Act requirements. The contractor shall comply with the requirements of 29 CFR part 3, which are incorporated by reference in this contract.

6. Subcontracts. The contractor or subcontractor shall insert Form FHWA-1273 in any subcontracts and also require the subcontractors to include Form FHWA-1273 in any lower tier subcontracts. The prime contractor shall be responsible for the compliance by any subcontractor or lower tier subcontractor with all the contract clauses in 29 CFR 5.5.

7. Contract termination: debarment. A breach of the contract clauses in 29 CFR 5.5 may be grounds for termination of the contract, and for debarment as a contractor and a subcontractor as provided in 29 CFR 5.12.

8. Compliance with Davis-Bacon and Related Act requirements. All rulings and interpretations of the Davis-Bacon and Related Acts contained in 29 CFR parts 1, 3, and 5 are herein incorporated by reference in this contract.

9. Disputes concerning labor standards. Disputes arising out of the labor standards provisions of this contract shall not be subject to the general disputes clause of this contract. Such disputes shall be resolved in accordance with the procedures of the Department of Labor set forth in 29 CFR parts 5, 6, and 7. Disputes within the meaning of this clause include disputes between the contractor (or any of its subcontractors) and the contracting agency, the U.S. Department of Labor, or the employees or their representatives.

10. Certification of eligibility.

a. By entering into this contract, the contractor certifies that neither it (nor he or she) nor any person or firm who has an interest in the contractor's firm is a person or firm ineligible to be awarded Government contracts by virtue of section 3(a) of the Davis-Bacon Act or 29 CFR 5.12(a)(1).

b. No part of this contract shall be subcontracted to any person or firm ineligible for award of a Government contract by virtue of section 3(a) of the Davis-Bacon Act or 29 CFR 5.12(a)(1).

c. The penalty for making false statements is prescribed in the U.S. Criminal Code, 18 U.S.C. 1001.

V. CONTRACT WORK HOURS AND SAFETY STANDARDS ACT

The following clauses apply to any Federal-aid construction contract in an amount in excess of $100,000 and subject to the overtime provisions of the Contract Work Hours and Safety Standards Act. These clauses shall be inserted in addition to the clauses required by 29 CFR 5.5(a) or 29 CFR 4.6. As used in this paragraph, the terms laborers and mechanics include watchmen and guards.

1. Overtime requirements. No contractor or subcontractor contracting for any part of the contract work which may require or involve the employment of laborers or mechanics shall require or permit any such laborer or mechanic in any workweek in which he or she is employed on such work to work in excess of forty hours in such workweek unless such laborer or mechanic receives compensation at a rate not less than one and one-half times the basic rate of pay for all hours worked in excess of forty hours in such workweek.

2. Violation; liability for unpaid wages; liquidated damages. In the event of any violation of the clause set forth in paragraph (1.) of this section, the contractor and any subcontractor responsible therefor shall be liable for the unpaid wages. In addition, such contractor and subcontractor shall be liable to the United States (in the case of work done under contract for the District of Columbia or a territory, to such District or to such territory), for liquidated damages. Such liquidated damages shall be computed with respect to each individual laborer or mechanic, including watchmen and guards, employed in violation of the clause set forth in paragraph (1.) of this section, in the sum of $10 for each calendar day on which such individual was required or permitted to work in excess of the standard workweek of forty hours without payment of the overtime wages required by the clause set forth in paragraph (1.) of this section.

3. Withholding for unpaid wages and liquidated damages. The FHWA or the contacting agency shall upon its own action or upon written request of an authorized representative of the Department of Labor withhold or cause to be withheld, from any moneys payable on account of work performed by the contractor or subcontractor under any such contract or any other Federal contract with the same prime contractor, or any other federally-assisted contract subject to the Contract Work Hours and Safety Standards Act, which is held by the same prime contractor, such sums as may be determined to be necessary to satisfy any liabilities of such contractor or subcontractor for unpaid wages and liquidated damages as provided in the clause set forth in paragraph (2.) of this section.

4. Subcontracts. The contractor or subcontractor shall insert in any subcontracts the clauses set forth in paragraph (1.) through (4.) of this section and also a clause requiring the subcontractors to include these clauses in any lower tier subcontracts. The prime contractor shall be responsible for compliance by any subcontractor or lower tier subcontractor with the clauses set forth in paragraphs (1.) through (4.) of this section.

VI. SUBLETTING OR ASSIGNING THE CONTRACT

This provision is applicable to all Federal-aid construction contracts on the National Highway System.

1. The contractor shall perform with its own organization contract work amounting to not less than 30 percent (or a greater percentage if specified elsewhere in the contract) of the total original contract price, excluding any specialty items designated by the contracting agency. Specialty items may be performed by subcontract and the amount of any such specialty items performed may be deducted from the total original contract price before computing the amount of work required to be performed by the contractor's own organization (23 CFR 635.116).

a. The term “perform work with its own organization” refers to workers employed or leased by the prime contractor, and equipment owned or rented by the prime contractor, with or without operators. Such term does not include employees or equipment of a subcontractor or lower tier subcontractor, agents of the prime contractor, or any other assignees. The term may include payments for the costs of hiring leased employees from an employee leasing firm meeting all relevant Federal and State regulatory requirements. Leased employees may only be included in this term if the prime contractor meets all of the following conditions:

(1) the prime contractor maintains control over the supervision of the day-to-day activities of the leased employees;
(2) the prime contractor remains responsible for the quality of the work of the leased employees;
(3) the prime contractor retains all power to accept or exclude individual employees from work on the project; and
(4) the prime contractor remains ultimately responsible for the payment of predetermined minimum wages, the submission of payrolls, statements of compliance and all other Federal regulatory requirements.

b. "Specialty Items" shall be construed to be limited to work that requires highly specialized knowledge, abilities, or equipment not ordinarily available in the type of contracting organizations qualified and expected to bid or propose on the contract as a whole and in general are to be limited to minor components of the overall contract.

2. The contract amount upon which the requirements set forth in paragraph (1) of Section VI is computed includes the cost of material and manufactured products which are to be purchased or produced by the contractor under the contract provisions.

3. The contractor shall furnish (a) a competent superintendent or supervisor who is employed by the firm, has full authority to direct performance of the work in accordance with the contract requirements, and is in charge of all construction operations (regardless of who performs the work) and (b) such other of its own organizational resources (supervision, management, and engineering services) as the contracting officer determines is necessary to assure the performance of the contract.

4. No portion of the contract shall be sublet, assigned or otherwise disposed of except with the written consent of the contracting officer, or authorized representative, and such consent when given shall not be construed to relieve the contractor of any responsibility for the fulfillment of the contract. Written consent will be given only after the contracting agency has assured that each subcontract is evidenced in writing and that it contains all pertinent provisions and requirements of the prime contract.

5. The 30% self-performance requirement of paragraph (1) is not applicable to design-build contracts; however, contracting agencies may establish their own self-performance requirements.

VII. SAFETY: ACCIDENT PREVENTION

This provision is applicable to all Federal-aid construction contracts and to all related subcontracts.

1. In the performance of this contract the contractor shall comply with all applicable Federal, State, and local laws governing safety, health, and sanitation (23 CFR 635). The contractor shall provide all safeguards, safety devices and protective equipment and take any other needed actions as it determines, or as the contracting officer may determine, to be reasonably necessary to protect the life and health of employees on the job and the safety of the public and to protect property in connection with the performance of the work covered by the contract.

2. It is a condition of this contract, and shall be made a condition of each subcontract, which the contractor enters into pursuant to this contract, that the contractor and any subcontractor shall not permit any employee, in performance of the contract, to work in surroundings or under conditions which are unsanitary, hazardous or dangerous to his/her health or safety, as determined under construction safety and health standards (29 CFR 1926) promulgated by the Secretary of Labor, in accordance with Section 107 of the Contract Work Hours and Safety Standards Act (40 U.S.C. 3704).

3. Pursuant to 29 CFR 1926.3, it is a condition of this contract that the Secretary of Labor or authorized representative thereof, shall have right of entry to any site of contract performance to inspect or investigate the matter of compliance with the construction safety and health standards and to carry out the duties of the Secretary under Section 107 of the Contract Work Hours and Safety Standards Act (40 U.S.C.3704).

VIII. FALSE STATEMENTS CONCERNING HIGHWAY PROJECTS

This provision is applicable to all Federal-aid construction contracts and to all related subcontracts.

In order to assure high quality and durable construction in conformity with approved plans and specifications and a high degree of reliability on statements and representations made by engineers, contractors, suppliers, and workers on Federal-aid highway projects, it is essential that all persons concerned with the project perform their functions as carefully, thoroughly, and honestly as possible. Willful falsification, distortion, or misrepresentation with respect to any facts related to the project is a violation of Federal law. To prevent any misunderstanding regarding the seriousness of these and similar acts, Form FHWA-1022 shall be posted on each Federal-aid highway project (23 CFR 635) in one or more places where it is readily available to all persons concerned with the project:

18 U.S.C. 1020 reads as follows:

"Whoever, being an officer, agent, or employee of the United States, or of any State or Territory, or whoever, whether a person, association, firm, or corporation, knowingly makes any false statement, false representation, or false report as to the character, quality, quantity, or cost of the material used or to be used, or the quantity or quality of the work performed or to be performed, or the cost thereof in connection with the submission of plans, maps, specifications, contracts, or costs of construction on any highway or related project submitted for approval to the Secretary of Transportation; or

Whoever knowingly makes any false statement, false representation, false report or false claim with respect to the character, quality, quantity, or cost of any work performed or to be performed, or materials furnished or to be furnished, in connection with the construction of any highway or related project approved by the Secretary of Transportation; or

Whoever knowingly makes any false statement or false representation as to material fact in any statement, certificate, or report submitted pursuant to provisions of the Federal-aid Roads Act approved July 1, 1916, (39 Stat. 355), as amended and supplemented;

Shall be fined under this title or imprisoned not more than 5 years or both."

IX. IMPLEMENTATION OF CLEAN AIR ACT AND FEDERAL WATER POLLUTION CONTROL ACT

This provision is applicable to all Federal-aid construction contracts and to all related subcontracts.

By submission of this bid/proposal or the execution of this contract, or subcontract, as appropriate, the bidder, proposer, Federal-aid construction contractor, or subcontractor, as appropriate, will be deemed to have stipulated as follows:

1. That any person who is or will be utilized in the performance of this contract is not prohibited from receiving an award due to a violation of Section 508 of the Clean Water Act or Section 306 of the Clean Air Act.
2. That the contractor agrees to include or cause to be included the requirements of paragraph (1) of this Section X in every subcontract, and further agrees to take such action as the contracting agency may direct as a means of enforcing such requirements.

X. CERTIFICATION REGARDING DEBARMENT, SUSPENSION, INELIGIBILITY AND VOLUNTARY EXCLUSION

This provision is applicable to all Federal-aid construction contracts, design-build contracts, subcontracts, lower-tier subcontracts, purchase orders, lease agreements, consultant contracts or any other covered transaction requiring FHWA approval or that is estimated to cost $25,000 or more – as defined in 2 CFR Parts 180 and 1200.

1**. Instructions for Certification – First Tier Participants:**

a. By signing and submitting this proposal, the prospective first tier participant is providing the certification set out below.

b. The inability of a person to provide the certification set out below will not necessarily result in denial of participation in this covered transaction. The prospective first tier participant shall submit an explanation of why it cannot provide the certification set out below. The certification or explanation will be considered in connection with the department or agency's determination whether to enter into this transaction. However, failure of the prospective first tier participant to furnish a certification or an explanation shall disqualify such a person from participation in this transaction.

c. The certification in this clause is a material representation of fact upon which reliance was placed when the contracting agency determined to enter into this transaction. If it is later determined that the prospective participant knowingly rendered an erroneous certification, in addition to other remedies available to the Federal Government, the contracting agency may terminate this transaction for cause of default.

d. The prospective first tier participant shall provide immediate written notice to the contracting agency to whom this proposal is submitted if any time the prospective first tier participant learns that its certification was erroneous when submitted or has become erroneous by reason of changed circumstances.

e. The terms "covered transaction," "debarred," "suspended," "ineligible," "participant," "person," "principal," and "voluntarily excluded," as used in this clause, are defined in 2 CFR Parts 180 and 1200. “First Tier Covered Transactions” refers to any covered transaction between a grantee or subgrantee of Federal funds and a participant (such as the prime or general contract). “Lower Tier Covered Transactions” refers to any covered transaction under a First Tier Covered Transaction (such as subcontracts). “First Tier Participant” refers to the participant who has entered into a covered transaction with a grantee or subgrantee of Federal funds (such as the prime or general contractor). “Lower Tier Participant” refers any participant who has entered into a covered transaction with a First Tier Participant or other Lower Tier Participants (such as subcontractors and suppliers).

f. The prospective first tier participant agrees by submitting this proposal that, should the proposed covered transaction be entered into, it shall not knowingly enter into any lower tier covered transaction with a person who is debarred, suspended, declared ineligible, or voluntarily excluded from participation in this covered transaction, unless authorized by the department or agency entering into this transaction.

g. The prospective first tier participant further agrees by submitting this proposal that it will include the clause titled "Certification Regarding Debarment, Suspension, Ineligibility and Voluntary Exclusion-Lower Tier Covered Transactions," provided by the department or contracting agency, entering into this covered transaction, without modification, in all lower tier covered transactions and in all solicitations for lower tier covered transactions exceeding the $25,000 threshold.

h. A participant in a covered transaction may rely upon a certification of a prospective participant in a lower tier covered transaction that is not debarred, suspended, ineligible, or voluntarily excluded from the covered transaction, unless it knows that the certification is erroneous. A participant is responsible for ensuring that its principals are not suspended, debarred, or otherwise ineligible to participate in covered transactions. To verify the eligibility of its principals, as well as the eligibility of any lower tier prospective participants, each participant may, but is not required to, check the Excluded Parties List System website (https://www.epls.gov/), which is compiled by the General Services Administration.

i. Nothing contained in the foregoing shall be construed to require the establishment of a system of records in order to render in good faith the certification required by this clause. The knowledge and information of the prospective participant is not required to exceed that which is normally possessed by a prudent person in the ordinary course of business dealings.

j. Except for transactions authorized under paragraph (f) of these instructions, if a participant in a covered transaction knowingly enters into a lower tier covered transaction with a person who is suspended, debarred, ineligible, or voluntarily excluded from participation in this transaction, in addition to other remedies available to the Federal Government, the department or agency may terminate this transaction for cause or default.

* * * * *

2. Certification Regarding Debarment, Suspension, Ineligibility and Voluntary Exclusion – First Tier Participants:

a. The prospective first tier participant certifies to the best of its knowledge and belief, that it and its principals:

(1) Are not presently debarred, suspended, proposed for debarment, declared ineligible, or voluntarily excluded from participating in covered transactions by any Federal department or agency;

(2) Have not within a three-year period preceding this proposal been convicted of or had a civil judgment rendered against them for commission of fraud or a criminal offense in connection with obtaining, attempting to obtain, or performing a public (Federal, State or local) transaction or contract under a public transaction; violation of Federal or State antitrust statutes or commission of embezzlement, theft, forgery, bribery, falsification or destruction of records, making false statements, or receiving stolen property;

(3) Are not presently indicted for or otherwise criminally or civilly charged by a governmental entity (Federal, State or local) with commission of any of the offenses enumerated in paragraph (a)(2) of this certification; and

(4) Have not within a three-year period preceding this application/proposal had one or more public transactions (Federal, State or local) terminated for cause or default.

b. Where the prospective participant is unable to certify to any of the statements in this certification, such prospective participant shall attach an explanation to this proposal.

2. **Instructions for Certification - Lower Tier Participants:**

(Applicable to all subcontracts, purchase orders and other lower tier transactions requiring prior FHWA approval or estimated to cost $25,000 or more - 2 CFR Parts 180 and 1200)

a. By signing and submitting this proposal, the prospective lower tier is providing the certification set out below.

b. The certification in this clause is a material representation of fact upon which reliance was placed when this transaction was entered into. If it is later determined that the prospective lower tier participant knowingly rendered an erroneous certification, in addition to other remedies available to the Federal Government, the department, or agency with which this transaction originated may pursue available remedies, including suspension and/or debarment.

c. The prospective lower tier participant shall provide immediate written notice to the person to which this proposal is submitted if at any time the prospective lower tier participant learns that its certification was erroneous by reason of changed circumstances.

d. The terms "covered transaction," "debarred," "suspended," "ineligible," "participant," "person," "principal," and "voluntarily excluded," as used in this clause, are defined in 2 CFR Parts 180 and 1200. You may contact the person to which this proposal is submitted for assistance in obtaining a copy of those regulations. “First Tier Covered Transactions” refers to any covered transaction between a grantee or subgrantee of Federal funds and a participant (such as the prime or general contract). “Lower Tier Covered Transactions” refers to any covered transaction under a First Tier Covered Transaction (such as subcontracts). “First Tier Participant” refers to the participant who has entered into a covered transaction with a grantee or subgrantee of Federal funds (such as the prime or general contractor). “Lower Tier Participant” refers any participant who has entered into a covered transaction with a First Tier Participant or other Lower Tier Participants (such as subcontractors and suppliers).

e. The prospective lower tier participant agrees by submitting this proposal that, should the proposed covered transaction be entered into, it shall not knowingly enter into any lower tier covered transaction with a person who is debarred, suspended, declared ineligible, or voluntarily excluded from participation in this covered transaction, unless authorized by the department or agency with which this transaction originated.

f. The prospective lower tier participant further agrees by submitting this proposal that it will include this clause titled "Certification Regarding Debarment, Suspension, Ineligibility and Voluntary Exclusion-Lower Tier Covered Transaction," without modification, in all lower tier covered transactions and in all solicitations for lower tier covered transactions exceeding the $25,000 threshold.

g. A participant in a covered transaction may rely upon a certification of a prospective participant in a lower tier covered transaction that is not debarred, suspended, ineligible, or voluntarily excluded from the covered transaction, unless it knows that the certification is erroneous. A participant is responsible for ensuring that its principals are not suspended, debarred, or otherwise ineligible to participate in covered transactions. To verify the eligibility of its principals, as well as the eligibility of any lower tier prospective participants, each participant may, but is not required to, check the Excluded Parties List System website (https://www.epls.gov/), which is compiled by the General Services Administration.

h. Nothing contained in the foregoing shall be construed to require establishment of a system of records in order to render in good faith the certification required by this clause. The knowledge and information of participant is not required to exceed that which is normally possessed by a prudent person in the ordinary course of business dealings.

i. Except for transactions authorized under paragraph e of these instructions, if a participant in a covered transaction knowingly enters into a lower tier covered transaction with a person who is suspended, debarred, ineligible, or voluntarily excluded from participation in this transaction, in addition to other remedies available to the Federal Government, the

department or agency with which this transaction originated may pursue available remedies, including suspension and/or debarment.

* * * * *

Certification Regarding Debarment, Suspension, Ineligibility and Voluntary Exclusion--Lower Tier Participants:

1. The prospective lower tier participant certifies, by submission of this proposal, that neither it nor its principals is presently debarred, suspended, proposed for debarment, declared ineligible, or voluntarily excluded from participating in covered transactions by any Federal department or agency.

2. Where the prospective lower tier participant is unable to certify to any of the statements in this certification, such prospective participant shall attach an explanation to this proposal.

* * * * *

XI. CERTIFICATION REGARDING USE OF CONTRACT FUNDS FOR LOBBYING

This provision is applicable to all Federal-aid construction contracts and to all related subcontracts which exceed $100,000 (49 CFR 20).

1. The prospective participant certifies, by signing and submitting this bid or proposal, to the best of his or her knowledge and belief, that:

a. No Federal appropriated funds have been paid or will be paid, by or on behalf of the undersigned, to any person for influencing or attempting to influence an officer or employee of any Federal agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with the awarding of any Federal contract, the making of any Federal grant, the making of any Federal loan, the entering into of any cooperative agreement, and the extension, continuation, renewal, amendment, or modification of any Federal contract, grant, loan, or cooperative agreement.

b. If any funds other than Federal appropriated funds have been paid or will be paid to any person for influencing or attempting to influence an officer or employee of any Federal agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with this Federal contract, grant, loan, or cooperative agreement, the undersigned shall complete and submit Standard Form-LLL, "Disclosure Form to Report Lobbying," in accordance with its instructions.

2. This certification is a material representation of fact upon which reliance was placed when this transaction was made or entered into. Submission of this certification is a prerequisite for making or entering into this transaction imposed by 31 U.S.C. 1352. Any person who fails to file the required certification shall be subject to a civil penalty of not less than $10,000 and not more than $100,000 for each such failure.

3. The prospective participant also agrees by submitting its bid or proposal that the participant shall require that the language of this certification be included in all lower tier subcontracts, which exceed $100,000 and that all such recipients shall certify and disclose accordingly.

ATTACHMENT A - EMPLOYMENT AND MATERIALS PREFERENCE FOR APPALACHIAN DEVELOPMENT HIGHWAY SYSTEM OR APPALACHIAN LOCAL ACCESS ROAD CONTRACTS

This provision is applicable to all Federal-aid projects funded under the Appalachian Regional Development Act of 1965.

1. During the performance of this contract, the contractor undertaking to do work which is, or reasonably may be, done as on-site work, shall give preference to qualified persons who regularly reside in the labor area as designated by the DOL wherein the contract work is situated, or the subregion, or the Appalachian counties of the State wherein the contract work is situated, except:

a. To the extent that qualified persons regularly residing in the area are not available.

b. For the reasonable needs of the contractor to employ supervisory or specially experienced personnel necessary to assure an efficient execution of the contract work.

c. For the obligation of the contractor to offer employment to present or former employees as the result of a lawful collective bargaining contract, provided that the number of nonresident persons employed under this subparagraph (1c) shall not exceed 20 percent of the total number of employees employed by the contractor on the contract work, except as provided in subparagraph (4) below.

2. The contractor shall place a job order with the State Employment Service indicating (a) the classifications of the laborers, mechanics and other employees required to perform the contract work, (b) the number of employees required in each classification, (c) the date on which the participant estimates such employees will be required, and (d) any other pertinent information required by the State Employment Service to complete the job order form. The job order may be placed with the State Employment Service in writing or by telephone. If during the course of the contract work, the information submitted by the contractor in the original job order is substantially modified, the participant shall promptly notify the State Employment Service.

3. The contractor shall give full consideration to all qualified job applicants referred to him by the State Employment Service. The contractor is not required to grant employment to any job applicants who, in his opinion, are not qualified to perform the classification of work required.

4. If, within one week following the placing of a job order by the contractor with the State Employment Service, the State Employment Service is unable to refer any qualified job applicants to the contractor, or less than the number requested, the State Employment Service will forward a certificate to the contractor indicating the unavailability of applicants. Such certificate shall be made a part of the contractor's permanent project records. Upon receipt of this certificate, the contractor may employ persons who do not normally reside in the labor area to fill positions covered by the certificate, notwithstanding the provisions of subparagraph (1c) above.

5. The provisions of 23 CFR 633.207(e) allow the contracting agency to provide a contractual preference for the use of mineral resource materials native to the Appalachian region.

6. The contractor shall include the provisions of Sections 1 through 4 of this Attachment A in every subcontract for work which is, or reasonably may be, done as on-site work.

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APPENDIX D

Standard Federal EEO Specifications, (Executive Order 11246)

CA-26

STANDARD FEDERAL EQUAL EMPLOYMENT OPPORTUNITY CONSTRUCTION CONTRACT SPECIFICATIONS (EXECUTIVE ORDER 11246)

1. As used in these specifications:

   a. "Covered Area" means the geographical area described in the solicitation from which this contract resulted.

   b. "Director" means Director, Office of Federal Contract Compliance Programs, United States Department of Labor, or any person to whom the Director delegates authority.

   c. "Employer Identification Number" means the Federal Social Security Number used on the Employer's Quarterly Federal Tax Return, U.S. Treasury Department Form 941.

   A Minority Group Member is:

   ...American Indian or Alaskan Native
   consisting of all persons having origins in any of the original people of North American and who maintain cultural identification through tribal affiliations or community recognition.

   ...Black
   consisting of all persons having origins in any of the Black racial groups of Africa.

   ...Asian or Pacific Islander
   consisting of all persons having origins in any of the original people of the Far East, Southeast Asia, the Indian Sub-Continent or the Pacific Islands. This area includes China, India, Japan, Korea, the Philippines and Samoa.

   ...Hispanic
   consisting of all persons of Mexican, Puerto Rican, Cuban, Central or South American or other Spanish culture or origin.

   ...Cape Verde an
   consisting of all persons having origins in the Cape Verde Islands.

   ...Portuguese
   consisting of all persons of Portuguese, Brazilian or other Portuguese culture or origin.

2. Whenever the Contractor, or any Subcontractor at any tier, subcontracts a portion of the work involving any construction trade, it shall physically include in each subcontract in excess of $10,000.00 the provisions of these specifications and the notice which contains the applicable goals for minority and female participation and which is set forth in the solicitations from which this contract resulted.

3. If the Contractor is participating (pursuant to 41 CFR 60-4.5) in the Hometown Plan approved by the U.S. Department of Labor in the covered area either individually or through an association, its affirmative action obligations on all work in the Plan area (including goals and timetables) shall be in accordance with that Plan for those trades which have unions participating in the Plan. Contractors must be able to demonstrate their participation in and compliance with the provisions of any such Hometown Plan. Each Contractor or subcontract participating in an approved Plan is individually required to comply with its obligations under the EEO clause, and to make a good faith effort to achieve each goal under the Plan in each trade in which it has employees. the overall good faith performance by other Contractors or subcontractors toward a goal in an approved Plan does not excuse any covered Contractor's or subcontractor's failure to make good faith efforts to achieve the Plan goals and timetables.

4. The Contractor shall implement the specific affirmative action standards provided in Paragraphs 7a through p of these specifications. The goals set for the Contractor in the solicitation from which this contract resulted are expressed as percentages in the total hours of employment and training of minority and female utilization the Contractor should reasonably be able to achieve in each construction trade in which it has employees in the covered area. The Contractor is expected to make substantially uniform progress toward its goals in each craft during the period specified.

5. Neither the provisions of any collective bargaining agreement nor the failure by a union with whom the Contractor has a collective bargaining agreement to refer either minority or women shall excuse the Contractor's obligations under these specifications, Executive Order 11246, or the regulations promulgated pursuant thereto.

6. In order for the non-working training hours of apprentices and trainees to be counted in meeting the goals, such apprentices and trainees must be employed by the Contractor during the training period, and the Contractor must have made a commitment to employ the apprentices and trainees at the completion of their training, subject to the availability of employment opportunities. Trainees must be trained pursuant to training programs approved by the U.S. Department of Labor.

7. The Contractor shall take specific affirmative actions to ensure equal employment opportunity . The evaluation of the Contractor's compliance with these specifications shall be based upon its effort to achieve maximum results from its actions. The Contractor shall document these efforts fully and shall implement affirmative action steps at least as extensive as the following:

   a. Ensure and maintain a working environment free of harassment, intimidation and coercion at all sites, and in all facilities at which the Contractor's employees are assigned to work. The Contractor, where possible, will assign two or more women to each construction project. The Contractor shall specifically ensure that all foremen, superintendents, and other on-site supervisory personnel are aware of and carry out the Contractor's obligation to maintain such a working environment with specific attention to minority or female individuals working at such sites or in such facilities.

   b. Establish and maintain a current list of minority and female recruitment sources, provide written notification to minority and female recruitment sources and to community organizations when the Contractor or its unions have employment opportunities available and maintain a record of the organizations' responses.

c. Maintain a current file of the names, addresses and telephone numbers of each minority and female off-the-street applicant and minority or female referral from a union, a recruitment source or community organization and of what action was taken with respect to each such individual. If such individual was sent to the union hiring hall for referral and was not referred back to the Contractor by the union or, if referred, not employed by the Contractor, this shall be documented in the file with the reason therefor, along with whatever additional actions the Contractor may have taken.

d. Provide immediate written notifications to the Regional Director when the union or unions, with which the Contractor has a collective bargaining agreement, have not referred to the Contractor a minority person or woman sent by the Contractor or when the Contractor has other information that the union referral process has impeded the Contractor's efforts to meet its obligations.

e. Develop on-the-job training opportunities and/or participate in training programs for the area which expressly include minorities and women, including upgrading programs and apprenticeship and trainee programs relevant to the Contractor's employment needs, especially those programs funded or approved by the Department of Labor. The Contractor shall provide notice of these programs to the sources compiled under Paragraph 7b above.

f. Disseminate the Contractor's EEO policy by providing notice of the policy to unions and training programs and requesting their cooperation in assisting the Contractor in meeting its EEO obligations; by including it in any policy manual and collective bargaining agreement; by publicizing it in the company newspaper, annual report, etc.; by specific review of the policy with all management personnel and with all minority and female employees at least once a year; and by posting the company EEO policy on bulletin boards accessible to all employees at each location where construction is performed.

g. Review, at least annually, the company's EEO policy and affirmative action obligations under these specifications with all employees having any responsibility for hiring, assignment, layoff, termination or other employment decisions including specific review of these items with on-site supervisory personnel such as Superintendents, Supervisors etc., prior to the initiation of construction work at any job site. A written record shall be made and maintained identifying the time and place of these meetings, persons attending, subject matter discussed, and disposition of the subject matter.

h. Disseminate the Contractor's EEO policy externally by including it in any advertising in the news media, and providing written notification to, and discussing the Contractor's EEO policy with, other Contractors and subcontractors with whom the Contractor anticipates doing business.

i. Direct its recruitment efforts, both oral and written, to minority, female and community organizations, to schools with minority and female students and to minority and female recruitment and training organizations serving the Contractor's recruitment area and employment needs. Not later than one month prior to the date for the acceptance of applications for apprenticeship or other training by any recruitment source, the Contractor shall send written notifications to organizations such as the above, describing the openings, screening procedures, and tests to be used in the selection process.

j. Encourage present minority and female employees to recruit other minority persons and women and, where reasonable, provide after school, summer and vacation employment to minority and female youth both on the site and in other areas of a Contractor's workforce.

k. Validate all tests and other selection requirements where there is an obligation to do so under 41 CFR Part 60-3.

l. Conduct, at least annually, an inventory and evaluation of all minority and female personnel for promotional opportunities and encourage these employees to seek or to prepare for, through appropriate training, etc., such opportunities.

m. Ensure that seniority practices, job classifications, work assignments and other personnel practices, do not have a discriminatory effect by continually monitoring all personnel and employment-related activities to ensure that the EEO policy and Contractor's obligations under these specifications are being carried out.

n. Ensure that all facilities and company activities are non-segregated except that separate or single-user toilet and necessary changing facilities shall be provided to assure privacy between the sexes.

o. Document and maintain a record of all solicitations of offers for subcontracts from minority and female construction contractors and suppliers, including circulation of solicitations to minority and female contractor associations and other business associations.

p. Conduct a review, at least annually, of all supervisors' adherence to and performance under the Contractor's EEO policies and affirmative action obligations.

8. Contractors are encouraged to participate in voluntary associations which assist in fulfilling one or more of their affirmative action obligations (Paragraph 7a through p). The efforts of a contractor association, joint contractor-union, contractor-community, or other similar group of which the Contractor is a member and participant, may be asserted as fulfilling any one or more of its obligations under Paragraph 7a through p of these Specifications provided that the Contractor actively participates in the group, makes every effort to assure that the group has a positive impact on the employment of minorities and women in the industry, reflected in the Contractor's minority and female workforce participation , makes a good faith effort to meet its individual goals and timetables, and can provide access to documentation which demonstrates the effectiveness of actions taken on behalf of the Contractor. The obligation to comply, however, is the Contractor's, and failure of such a group to fulfill an obligation shall not be a defense for the Contractor's non-compliance.

9. A single goal for minorities and a separate single goal for women have been established. The Contractor, however, is required to provide equal employment opportunity and to take affirmative action for all minority groups, both male and female, and all women, both minority and non-minority. Consequently, the Contractor may be in violation of the Executive Order if a particular group is employed in a substantially disparate manner (for example, even though the Contractor has achieved its goals for women generally, the Contractor may be in violation of the Executive Order if a specific minority group of women is under-utilized).

10. The Contractor shall not use the goals and timetables or affirmative action standards to discriminate against any person because of race, color, religion, sex or national origin.

11. The Contractor shall not enter into any subcontract with any person for firm debarred from Government contracts pursuant to Executive Order 11246.

12. The Contractor shall carry out such sanctions and penalties for violation of these specifications and of the Equal Opportunity Clause, including suspension, terminations and cancellation of existing subcontracts as may be imposed or ordered pursuant to Executive Order 11246, as amended, and its implementing regulations, by the Office of Federal Contract Compliance Programs. Any Contractor who fails to carry out such sanctions and penalties shall be in violation of these specifications and Executive Order 11246, as amended.

13. The Contractor, in fulfilling its obligations under these specifications, shall implement specific affirmative action steps, at least as extensive as those standards prescribed in Paragraph 7 of these specifications, so as to achieve maximum results from its efforts to ensure equal employment opportunity. If the Contractor fails to comply with the requirements of the Executive Order, the implementing regulations or these specifications, the Director shall proceed in accordance with 41 CFR 60-4.8.

14. The Contractor shall designate a responsible official to monitor all employment-related activity to ensure that the company EEO policy is being carried out, to submit reports relating to the provisions hereof as may be required by the Government and to keep records. Records shall at least include for each employee the name, address, telephone numbers, construction trade union affiliation if any, employee identification number when assigned, social security number, race, sex, status (e.g., mechanic, apprentice, trainee, helper or laborer), dates of changes in status, hours worked per week in the indicated trade, rate of pay, and locations at which the work was performed. Records shall be maintained in an easily understandable and retrievable form; however, to the degree that existing records satisfy this requirement, contractors shall not be required to maintain separate records.

15. Nothing herein provided shall be construed as a limitation upon the application of other laws which establish different standards of compliance or upon the application or requirements for the hiring of local or other area residents (e.g., those under the Public Works Employment Act of 1977 and the Community Development Block Grant Program).

NOTICE OF REQUIREMENTS FOR AFFIRMATIVE ACTION TO ENSURE EQUAL EMPLOYMENT OPPORTUNITY (EXECUTIVE ORDER 11246)

1. The Offeror's or Bidder's attention is called to the "Equal Opportunity Clause" and the "Standard Federal Equal Employment Specifications" set forth herein.

2. The goals and timetables for minority and female participation, expressed in percentage terms for the Contractor's aggregate workforce in each trade on all construction work in the covered area, are as follows:

Economic Areas	Timetables	Goals for Minority participation for each trade (%)	Goals for Female Participation in each trade (%)
Entire State of Vermont:			
Vermont 003 Burlington, VT Non-SMSA Counties NH Coos; NH Grafton: NH Sullivan; VT Addison; VT Caledonia; VT Chitten- den; VT Essex; VT Frank- lin; VT Grand Isle; VT Lamoille; VT Orange; VT Orleans; VT Rutland; VT Washington; VT Windsor	Indefinite	0.8	6.9
Connecticut (Mass) 006 Hartford - New Haven Springfield, CT-MA Non-SMSA Counties CT Litchfield; CT Windham; MA Franklin; NH Cheshire; VT Windham	Indefinite	5.9	
New York 007 Albany - Schnec- tady - Troy, NY Non-SMSA Counties NY Clinton; NY Columbia; NY Essex; NY Fulton; NY Greene; NY Hamilton; NY Sohoharie; NY Warren; NY Washington; VT Bennington	Indefinite	2.6	

These goals are applicable to all the Contractor's construction work (whether or not it is Federal or federally assisted) performed in the covered area. If the Contractor performs construction work in a geographical area located outside of the covered area, it shall apply the goals established for such geographical area where the work is actually performed. With regard to this second area, the Contractor also is subject to the goals for both its federally involved and non-federally involved construction.

The Contractor's compliance with the Executive Order and the regulation in CFR Part 60-4 shall be based on its implementation of the Equal Opportunity Clause, specific affirmative action obligations required by the specifications set forth in 41 CFR 60-4.3 (a), and its efforts to meet the goals. The hours of minority and female employment and training must be substantially uniform throughout the length of the contract and in each trade, and the Contractor shall make a good faith effort to employ minorities and women evenly on each of its projects. The transfer of minority or female employees or trainees from Contractor to Contractor or from project to project for the sole purpose of meeting the Contractor's goals shall be a violation of the contract, the Executive Order and the regulations in 41 CFR Part 60-4. Compliance with the goals will be measured against the total work hours performed.

3. The Contractor shall provide written notification to the Director of the Office of Federal Contract Compliance Programs within ten working days of award of any construction subcontract in excess of $10,000.00 at any tier for construction work under the contract resulting from this solicitation. The notifications shall list the name, address and telephone number of the subcontractor; employer identification number of the subcontractor; estimated dollar amount of the subcontract; and the geographical area in which the subcontract is to be performed.

4. As used in this Notice, and in the contract resulting from this solicitation, the "covered area" is (insert description of the geographical areas where the contract is to be performed giving the state, county and city, if any)

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APPENDIX E

Certification of Federal Aid Contracts CA-163

CERTIFICATION FOR FEDERAL-AID CONTRACTS

The prospective bidder, by signing and submitting this bid proposal, certifies, to the best of his or her knowledge and belief, that:

(1) No Federal appropriated funds have been paid or will be paid, by or on behalf of the undersigned, to any person or influencing or attempting to influence an officer or employee of any Federal agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with the awarding of any Federal contract, the making of any Federal grant, the making of any Federal loan, the entering into of any cooperative agreement, and the extension, continuation, renewal, amendment, or modification of any Federal contract, grant, loan, or cooperative agreement.

(2) If any funds other than Federal appropriated funds have been paid or will be paid to any person for influencing or attempting to influence an officer or employee of any Federal agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with this Federal contract, grant, loan, or cooperative agreement, the undersigned shall complete and submit Standard Form-LLL, "Disclosure Form to Report Lobbying," in accordance with its instructions.

This certification is a material representation of fact upon which reliance was placed when this transaction was made or entered to. Submission of this certification is a prerequisite for making or entering into this transaction imposed by Section 1352, Title 31, U.S. Code. Any person who fails to file the required certification shall be subject to a civil penalty of not less than $10,000 and not more than $100,000 for each such failure.

The prospective participant also agrees by submitting his or her bid or proposal that he or she shall require that the language of this certification be included in all lower tier subcontracts, which exceed $100,000 and that all such sub-recipients shall certify and disclose accordingly.

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APPENDIX F

Vermont Minimum Labor & Truck Rates CA-101

APPENDIX F

CA101

Minimum Labor and Truck Rates
Under Title 19, Vermont Statutes
Annotated Section 18, as amended

April 3, 1997
Sheet 1 of 1

STATE OF VERMONT
AGENCY OF TRANSPORTATION
MONTPELIER

FOR OTHER THAN FEDERAL-AID. In accordance with the provisions of Title 19, VSA, Section 18, the following minimum rate for labor shall apply to this project:

> The minimum wage for common labor will not be less than the State or Federal minimum wage, whichever is higher.

ON FEDERAL-AID PROJECTS ONLY.

> The minimum rates for labor for Federal-Aid Projects shall be those set in the Wage Determination Decision of the U.S. Secretary of Labor for each project in accordance with the Federal-Aid Highway Act of 1956. When such wage rates are required they shall be included in the proposal. In the event these rates are lower than the Vermont rates, the Vermont rates shall prevail.

TRUCK RATES. In accordance with the provisions of Title 19, VSA, Section 18, the following minimum rates for trucks shall apply to this project:

Trucks, not Including Driver Water Level Body Capacity	Minimum Rates Per YD per Hr.
Trucks, Equipment Loaded	$1.65

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APPENDIX G

Vermont Agency of Transportation Contractor Workforce
Reporting Requirements CA-26A

VERMONT AGENCY OF TRANSPORTATION
CONTRACTOR WORKFORCE REPORTING REQUIREMENTS

The Contractor/Subcontractor shall submit to the State Resident Engineer assigned to this project, monthly and cumulative workforce information, on reporting forms provided herein. The monthly and cumulative workforce information shall be listed by construction trade category with the percentage of minority and female project hours in each category indicated. Failure to provide this information to the Resident Engineer on a monthly basis will result in suspension of bi-weekly progress payments, or part thereof due under the contract, until such time as the Contractor or Subcontractor demonstrates compliance with these contract terms.

Note: In lieu of using the reporting forms provided herein, the Contractor may use U.S. Department of Labor form CC-257, "Monthly Employment Utilization Report".

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APPENDIX H

Disadvantaged Business Enterprise (DBE) Policy Contract Requirements CA-110

State of Vermont
Agency of Transportation

March 2011
CA-110

DISADVANTAGED BUSINESS ENTERPRISE (DBE) POLICY CONTRACT REQUIREMENTS

Disadvantaged Business Enterprise (DBE) Policy. It shall be the policy of the Vermont Agency of Transportation (VTrans) to ensure nondiscriminatory opportunity for Disadvantaged Business Enterprises (DBEs) to participate in the performance of all contracts and subcontracts financed with Federal funds as specified by the regulations of the United States Department of Transportation (USDOT), Federal Highway Administration and as set forth below.

1. **Policy.** It is the policy of USDOT that DBEs as defined in 49 Code of Federal Regulation (CFR) Part 26 shall have the maximum opportunity to participate in the performance of contracts financed in whole or in part with Federal funds. Consequently, the DBE requirements of 49 CFR Part 26 and 23 CFR, Chapter 1, Part 230, Subpart b apply to this contract.

2. **DBE Obligation.** The State and its Contractors agree to ensure that DBEs as defined in 49 CFR Part 26, have the maximum opportunity to participate in the performance of contracts and subcontracts financed in whole or in part with Federal funds. **Each subcontract the prime contractor signs with a subcontractor must include this assurance:** *The contractor, sub recipient or subcontractor shall not discriminate on the basis of race, color, national origin, or sex in the award and performance of this contract. The contractor shall carry out applicable requirements of 49 CFR Part 26 in the award and administration of USDOT-assisted contracts. Failure by the contractor to carry out these requirements is a material breach of this contract, which may result in the termination of this contract or such other remedy, as VTrans deems appropriate.*

3. **Sanctions for Noncompliance.** The Contractor is hereby advised that failure of the Contractor, or any Subcontractor performing work under this contract, to carry out the requirements set forth in paragraphs 1 and 2 above shall constitute a breach of contract and after the notification of the Vermont Agency of Transportation, Secretary of Transportation, may result in termination of this contract by the State or such remedy as the State deems necessary.

4. **Inclusion in Subcontracts.** The Contractor shall insert in each of its subcontracts this Disadvantaged Business Enterprise (DBE) Policy and also a clause requiring its subcontractors to include this same Policy in any lower tier subcontracts which they may enter into, together with a clause requiring the inclusion of the Policy in any further subcontract that may in turn be made. This Policy shall not be incorporated by reference.

Disadvantaged Business Enterprise (DBE) Program Goals. The Vermont Agency of Transportation (VTrans) is required to set an overall DBE goal for participation in all transportation related Federal-aid projects. The goal is determined following guidelines set forth in 49 CFR 26.45, and based on the availability of ready, willing and able DBEs who submitted bids and quotes for transportation related projects, compared as a percentage of all available contractors who submitted bids and quotes for transportation related projects during the same time period. The DBE goal may be adjusted to take into account other factors impacting DBE utilization, in an effort to narrowly tailor the overall DBE goal. The detailed goal setting methodology and current overall DBE goal may be viewed on the VTrans website at: http://www.aot.state.vt.us/CivilRights/DBEGoals.htm .

VTrans currently utilizes a race/gender neutral policy to fulfill its overall DBE goals, and relies on the voluntary participation of contractors to utilize certified DBEs on every project sufficient to obtain the Agency's overall DBE goal. In order for this practice to continue, contractors must be proactive and solicit bids and quotes from certified DBEs for use when submitting their own bids, and employ certified DBEs when participating on transportation related projects. Otherwise, VTrans may have to implement specified contract goals on projects to ensure the overall DBE goals are met. VTrans may include specific DBE contract goals in certain cases to ensure DBE participation, if failure to obtain the project DBE goal would negatively impact the Agency's overall DBE goal because of the size of the contract.

Disadvantaged Business Enterprise (DBE) Definition. A DBE is defined as a business that is owned and controlled by one or more socially and economically disadvantaged person(s). For the purposes of this definition:

(1) "Socially and economically disadvantaged person" means an individual who is a citizen or lawful permanent resident of the United States and who is a Woman, Black, Hispanic, Portuguese, Native American, Asian American, or a member of another group, or an individual found to be disadvantaged by the Small Business Administration pursuant to Section 3 of the Small Business Act.

(2) "Owned and controlled" means a business which is:

a. A sole proprietorship legitimately owned and controlled by an individual who is a disadvantaged person.

b. A partnership, joint venture or limited liability company in which at least 51% of the beneficial ownership interests legitimately is held by a disadvantaged person(s).

c. A corporation or other entity in which at least 51% of the voting interest and 51% of the beneficial ownership interests legitimately are held by a disadvantaged person(s).

The disadvantaged group owner(s) or stockholder(s) must possess control over management, interest in capital, and interest in earnings commensurate with percentage of ownership. Disadvantaged participation in a joint venture must also be based on the sharing of real earnings, as above. If the disadvantaged group ownership interests are real, substantial and continuing and not created solely to meet the requirements of the program, a firm is considered a bona fide DBE.

Certified DBE Directory. The current Vermont Unified Disadvantaged Business Enterprise (DBE) Directory is available online at: http://www.aot.state.vt.us/CivilRights/DBEDirectory.htm . This directory contains all currently certified DBEs available for work in Vermont, and is updated continuously. Only firms listed in this directory are eligible for DBE credit on Vermont Federal-aid projects. If you have questions about DBE certification, or do not have access to the Internet, please call the DBE Program Manager at (802) 828-5858 for assistance.

Counting DBE Participation Towards Project Goals. In order for payments made to DBE contractors to be counted toward DBE goals, the DBE contractors must perform a commercially useful function (CUF). The DBE must be responsible for execution of the work of the contract and must carry out its responsibilities by actually performing, managing, and supervising the work involved, consistent with standard industry practices.

This means that:

- The DBE must also be responsible for ordering its own materials and supplies, determining quantity and quality, negotiating price, installing (where applicable) and paying for the material itself;
- The DBE must perform work commensurate with the amount of its contract;
- The DBE's contribution cannot be that of an extra participant or a conduit through which funds are passed in order to obtain the appearance of DBE participation;
- The DBE must exercise responsibility for at least fifty percent of the total cost of its contract with its own workforce;
- None of the DBE's work can be subcontracted back to the prime contractor, nor can the DBE employ the prime's or other subcontractor's supervisors currently working on the project;
- The DBE's labor force must be separate and apart from that of the prime contractor or other subcontractors on the project. Transferring crews between primes, subcontractors, and DBE contractors is not acceptable;
- The DBE owner must hold necessary professional or craft license(s) or certification(s) for the type of work he/she performs on the project;
- The DBE may rent or lease, at competitive rates, equipment needed on the project from customary leasing sources or from other subcontractors on the project.

Allowable credit for payments made to DBEs for work performed. A contractor may take credit for payments made to a certified DBE that satisfies CUF requirements at the following rate:

- A DBE Prime Contractor: Count 100% of the value of the work performed by own forces, equipment and materials towards the DBE goals.

- An approved DBE subcontractor: Count 100% of the value of work performed by the DBE's own forces, equipment and materials, excluding the following:

    - The cost of materials/supplies purchased from a non-DBE Prime Contractor.

    - The value of work provided by non-DBE lower tier subcontractors, including non-DBE trucking to deliver asphalt to a DBE contractor.

- A DBE owner-operator of construction equipment: Count 100% of expenditures committed.

- A DBE manufacturer: Count 100% of expenditures committed. The manufacturer must be a firm that operates or maintains a factory or establishment that produces on the premises the materials or supplies obtained by the Contractor.

- A regular DBE dealer/supplier: Count 60% of expenditures committed. A regular dealer/supplier is defined as a firm that owns, operates, or maintains a store, warehouse or other establishment, in which the materials or supplies required for the performance of the contract are bought, kept in stock, and regularly sold or leased to the public in the usual course of business. A person may be a dealer in such bulk items as petroleum products, steel, cement, gravel, stone or asphalt without owning, operating or maintaining a place of business, if the person both owns and operates distribution equipment for the products, by the means of a long term agreement, and not by a contract by contract basis.

- A DBE broker: Count for DBE credit only the fees or commissions charged for assistance in the procurement, and, fees and transportation charges for the delivery of materials or supplies required at the job site, but not the cost of materials procured. A broker is defined as any person(s) or firm who arranges or expedites transactions for materials or supplies, and does not take physical possession of the materials or supplies at their place of business for resale.

- A DBE renter of construction equipment to a contractor: Count 20% of expenditures committed, with or without operator.

- A bona fide DBE service provider: Count 100% of reasonable fees or commissions. Eligible services include professional, technical, consultant, or managerial, services and assistance in the procurement of essential personnel, facilities, equipment, materials or supplies required for the performance of the contract. Eligible services also include agencies providing bonding and insurance specifically required for the performance of the contract.

- A trucking, hauling or delivery operation: Count 100% of expenditures committed when trucks are owned, operated, licensed and insured by the DBE and used on the contract and, if applicable, includes the cost of the materials and supplies. 100% of expenditures committed when the DBE leases trucks from another DBE firm including an owner-operator. 100% of reasonable fees, or commissions, the DBE receives as a result of a lease arrangement for trucks from a non-DBE, including an owner-operator.

- Any combination of the above.

Removal of Approved DBE From Transportation Related Project. Contractors may not terminate for convenience, any approved DBE subcontractor and perform the work with their own forces, without prior written consent from the VTrans DBE Program Manager or VTrans Chief of Civil Rights.

Federal-aid projects which specify a DBE contract goal. The provisions of the Vermont Agency of Transportation Supplemental Specification – Disadvantaged Business Enterprise (DBE) Utilization (CA 160) shall apply to all VTrans Federal-aid projects which specify a DBE contract goal.

Compliance With Prompt Payment Statute. In accordance with Vermont's Prompt Payment Act and VTrans Standard Specifications for Construction, Section 107.01(g), the Contractor shall fully comply with the provisions of 9 V.S.A. Chapter 102, also referred to as Act No. 74 of 1991 or the Prompt Payment Act, as amended.

Subcontractor Payments. In accordance with VTrans Standard Specifications for Construction, Section 107.01(h), on all federal-aid and state funded contracts, the Contractor, during the life of the Contract and on a monthly basis, shall submit electronically, a listing of payments to subcontractors on the form specified by the State and made available at: http://apps.vtrans.vermont.gov/dbe/. Electronic reports shall be filed with the Agency Office of Civil Rights by an authorized representative and received in the Agency Office of Civil Rights on or before the tenth working day after month end. Contractors without access to the internet shall obtain and submit manual reports to the Agency Office of Civil Rights. Manual reports shall be signed by an authorized representative, sent to the Agency Office of Civil Rights, and postmarked on or before the tenth working day after month end. There shall be no direct compensation allowed the Contractor for this work, but the cost thereof shall be included in the general cost of the work. In accordance with 9 V.S.A. Section 4003, notwithstanding any contrary agreement, payments made to subcontractors after seven days from receipt of a corresponding progress payment by the State to the Contractor, or seven days after receipt of a subcontractor's invoice, whichever is later, violate this agreement. Violations shall be reported to the Agency Office of Civil Rights for review. Failure to resolve disputes in a timely manner may result in a complaint made to the Agency Pre-qualification Committee. In this Committee's judgment, appropriate penalties may be involved for failure to comply with this specification. Penalties may include suspension, reduction or revocation of the Contractor's pre-qualification rating. This clause shall be included in the prime Contractor's Contract made with all if its subcontractors.

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APPENDIX I

VTrans General Special Provisions for All Projects dated April 7th, 2015

GENERAL SPECIAL PROVISIONS FOR ALL PROJECTS
2011 STANDARD SPECIFICATIONS

SECTION 101 – DEFINITIONS AND TERMS

1. 101.01 ABBREVIATIONS, is hereby modified by adding the following new abbreviation directly after "ABS":

ACL	Advanced Certification List

2. 101.01 ABBREVIATIONS, is hereby further modified by adding the following new abbreviation directly after "ANSI":

APL	Approved Products List

3. 101.01 ABBREVIATIONS, is hereby still further modified by adding the following new abbreviation directly after "CPM":

CPPP	Corrugated Polypropylene Pipe

4. 101.02 DEFINITIONS, HOLIDAYS, is hereby modified by deleting the ninth row in the listing (for "Columbus Day").

5. 101.02 DEFINITIONS, HOLIDAYS, is hereby further modified by adding the following as the twelfth row in the listing (directly after "Thanksgiving Day"):

Day After Thanksgiving	Fourth Friday in November

SECTION 103 – TAXES AND INSURANCE

6. 103.04 INSURANCE REQUIREMENTS, part (e) General Insurance Conditions, is hereby modified by deleting the second paragraph in its entirety.

SECTION 105 – CONTROL OF THE WORK

7. 105.03 PLANS AND WORKING DRAWINGS, part (a) Contract Plans, is hereby modified by deleting the second paragraph in its entirety.

8. 105.03 PLANS AND WORKING DRAWINGS, part (a) Contract Plans, is hereby further modified by deleting the first sentence of the third paragraph.

9. 105.03 PLANS AND WORKING DRAWINGS, part (a) Contract Plans, is hereby still further modified by adding the phrase "in an accessible format" at the end of the third paragraph.

10. 105.03 PLANS AND WORKING DRAWINGS, part (b) Working Drawings, subpart (4) List of Working Drawings, is hereby modified by deleting the phrase "Roadway, Traffic, and Safety Engineer" and replacing it with the phrase "Project Manager" in the twenty-third row (beginning "641").

11. 105.14 SUNDAY AND HOLIDAY WORK, part (b) Holidays, is hereby corrected by deleting punctuation "," at the end of the paragraph and replacing it with punctuation ".".

12. 105.16 LOAD RESTRICTIONS, part (a) General, is hereby modified by being deleted in its entirety and replaced with the following:

    (a) General. All Contractors, subcontractors, suppliers, or others involved in any project-related activities shall comply with all legal load restrictions specified in Title 23 VSA § 1392 in the hauling of equipment or material on public roads, including that beyond the limits of the project. The application for and possession of any hauling or related permit will not relieve the Contractor or others involved in any project-related activities of any liability that may arise due to any damage resulting from the use or moving of equipment, vehicles, or any other project-related activity.

13. 105.16 LOAD RESTRICTIONS, part (b) Limitations or Use of Equipment and Vehicles, is hereby modified by being deleted in its entirety and replaced with the following:

    (b) Limitations on Use of Equipment and Vehicles. Use of equipment and vehicles is subject to the following:

        (1) No vehicle or equipment exceeding the load restrictions cited in Title 23 VSA § 1392 will be permitted on any structure as defined by the Engineer.

        (2) The operation of any equipment or vehicle of such mass (weight) or any other project-related equipment loaded so as to cause damage to structures, the roadway, or to any other type of active construction will not be permitted, regardless of the limits set forth in Title 23.

        (3) Hauling or operation of said vehicles or equipment over any permanent course of any bituminous pavement or any structure during active construction will not be permitted.

        (4) No loads of any category will be permitted on a concrete pavement or concrete structure prior to expiration of the curing period and until the concrete reaches its specified 28-day compressive strength.

        (5) Notwithstanding those restrictions above, the Contractor shall be responsible for any and all damages incurred to any public roadway as defined in Title 23 due to the use of any equipment or vehicles related to project activities.

14. 105.26 OPENING WASTE, BORROW, AND STAGING AREAS, part (f), is hereby corrected by deleting punctuation "." at the end of the paragraph.

SECTION 108 – PROSECUTION AND PROGRESS

15. 108.09 TEMPORARY SUSPENSION OF THE WORK, part (d) Seasonal Closure, is hereby modified by deleting the phrase "of the Engineer, and only under such conditions as specified therein" and replacing it with the phrase "from the Regional Construction Engineer".

16. 108.09 TEMPORARY SUSPENSION OF THE WORK, part (d) Seasonal Closure, is hereby further modified by adding the following:

Permission will only be granted for work which will result in a direct benefit to the State or the traveling public. Items which may be considered as a benefit include but are not limited to shorter Contract duration, a cost savings, increased safety for the traveling public, and an ability to ensure the quality of work. The Contractor shall request permission in writing, detailing what Contract items may be affected, a schedule of work, and the benefits to the State or traveling public.

17. 108.11 DETERMINATION OF EXTENSION OF CONTRACT TIME FOR COMPLETION, part (b) Determination of Contract Completion Date Extension, subpart (8), is hereby modified by deleting the phrase ", delays in submittals, errors in submittals, and the Contractor's means and methods of construction".

18. 108.11 DETERMINATION OF EXTENSION OF CONTRACT TIME FOR COMPLETION, part (b) Determination of Contract Completion Date Extension, subpart (9), is hereby modified by deleting the phrase ", including but not limited to the Contractor's means and methods of construction".

19. 108.11 DETERMINATION OF EXTENSION OF CONTRACT TIME FOR COMPLETION, part (b) Determination of Contract Completion Date Extension, subpart (11), is hereby modified by being deleted in its entirety.

20. 108.11 DETERMINATION OF EXTENSION OF CONTRACT TIME FOR COMPLETION, part (b) Determination of Contract Completion Date Extension, subpart (13), is hereby modified by adding the following as the first sentence:

Industry-wide material or supply shortages not reasonably anticipated by the Contractor at the time the Contract was entered.

21. 108.11 DETERMINATION OF EXTENSION OF CONTRACT TIME FOR COMPLETION, part (b) Determination of Contract Completion Date Extension, subpart (13), is hereby further modified by changing the word "Delay" to the word "Delays" at the beginning of the first sentence.

22. 108.12 FAILURE TO COMPLETE WORK ON TIME, part (c) Liquidated Damages; General; Days Charged, is hereby modified by deleting the DAILY CHARGE FOR LIQUIDATED DAMAGES FOR EACH WORKING DAY OF DELAY table in its entirety and replacing it with a new table as follows:

DAILY CHARGE FOR LIQUIDATED DAMAGES
FOR EACH WORKING DAY OF DELAY

Original Contract Amount		
From More Than ($)	To And Including ($)	Daily Charge Per Day of Delay ($)
0	500,000	1,200.00
500,000	1,000,000	1,300.00
1,000,000	1,500,000	1,400.00
1,500,000	3,000,000	1,800.00
3,000,000	5,000,000	2,300.00
5,000,000	10,000,000	3,500.00
10,000,000	20,000,000	5,900.00
20,000,000+	---------	10,700.00

SECTION 109 – MEASUREMENT AND PAYMENT

23. SECTION 109 – MEASURMENT AND PAYMENT, is hereby corrected by deleting pages 1-141 and 1-142 in their entirety.

SECTION 203 – EXCAVATION AND EMBANKMENTS

24. 203.01 DESCRIPTION, is hereby modified by adding the phrase "performing test borings for the purpose of determining areas of roadway and embankment subsurface voids;" after the phrase "trimming and shaping of slopes;" in the first sentence of the first paragraph.

25. 203.01 DESCRIPTION, is hereby further modified by adding the following new part (l):

    (l) Test Borings. Test Borings shall consist of an investigative and planned approach to determining areas of roadway and embankment subsurface voids and repairing bored areas.

26. 203.02 MATERIALS, is hereby modified by adding the following to the Subsection listing:

    PVC Plastic Pipe……710.06

27. 203.02 MATERIALS, is hereby further modified by adding the following paragraphs:

    Concrete for backfilling subsurface voids shall meet the requirements of Controlled Density (Flowable) Fill of Section 541.

    Bituminous concrete pavement shall conform to the requirements of Section 406 or 490, as applicable for the Contract, with the exception that the mix design submittal and plant inspection requirements set forth in Section 406 or 490 will not apply.

28. 203.03 GENERAL CONSTRUCTION REQUIREMENTS, is hereby modified by adding the following as the eighth paragraph:

    Prior to the construction of Test Borings and the placement of Controlled Density (Flowable) Fill, the Contractor shall submit to the Engineer site-specific plans, detailing the schedule of work (for these two items), type and location of drilling, sleeve installation, pumping system, confirmatory boring operation, method of filling bore hole (with or without voids being encountered), and repair of the roadway section (sand, gravel, and pavement).

29. 203.11 EMBANKMENTS, is hereby modified by adding the following new part (e):

    (e) Test Borings. Test borings shall be performed at the approximate locations indicated in the Plans and/or as directed by the Engineer.

    When used adjacent to culverts, test borings shall extend to a depth equal to the bottom of the culvert using casing advanced drilling methods. Alternate drilling equipment that provides a suitably clean, open hole may be submitted to the Engineer for approval.

If void(s) are encountered, Controlled Density (Flowable) Fill shall be placed to completely fill the void(s). Confirmatory borings shall be performed in these locations as directed by the Engineer.

The roadway surface at boring hole locations shall be backfilled and then patched using Bituminous Concrete Pavement.

30. 203.13 METHOD OF MEASUREMENT, is hereby modified by adding the following new part (e):

(e) Test Borings. The quantity of Test Borings to be measured for payment will be the number of meters (linear feet) of test boring performed in the complete and accepted work.

31. 203.14 BASIS OF PAYMENT, is hereby modified by adding the phrase "and Test Borings" after the phrase "Shoulder Berm Removal" in the first sentence of the first paragraph.

32. 203.14 BASIS OF PAYMENT, is hereby further modified by adding the phrase "submitting site-specific plans as required, performing test borings, installing sleeves, backfilling, patching with bituminous concrete pavement," after the phrase "work specified," in the second sentence of the first paragraph.

33. 203.14 BASIS OF PAYMENT, is hereby corrected by adding a period at the end of the sixth paragraph.

34. 203.14 BASIS OF PAYMENT, is hereby still further modified by adding the following paragraph and pay item:

Filling of subsurface voids encountered in performing Test Borings will be paid for under Contract item 541.45.

Payment will be made under:

Pay Item	Pay Unit
203.45 Test Borings	Meter (Linear Foot)

SECTION 310 - RECLAIMED STABILIZED BASE

35. 310.04 CONSTRUCTION, is hereby modified by deleting the phrase "or dust control" after the word "stabilizing" in the third paragraph.

36. 310.04 CONSTRUCTION, is hereby further modified by adding the following sentence to the third paragraph:

When a dust control agent is not exclusively specified on the Plans, water and/or Calcium Chloride shall be used as that agent to meet all requirements of this Section.

37. 310.10 BASIS OF PAYMENT, is hereby modified by adding the following as the fourth paragraph:

Calcium Chloride used for dust control after the reclamation will not be paid for directly, but will be considered incidental to the Reclaimed Stabilized Base item.

SECTION 406 – MARSHALL BITUMINOUS CONCRETE PAVEMENT

38. 406.03 COMPOSITION OF MIXTURE, part (d) Control of Mixtures, TABLE 406.03D – MINIMUM QUALITY CONTROL GUIDELINES, is hereby modified by deleting footnote designation "(1)" after "Cold Feed Gradation" in the fourth row.

39. 406.03 COMPOSITION OF MIXTURE, part (d) Control of Mixtures, TABLE 406.03D – MINIMUM QUALITY CONTROL GUIDELINES, is hereby further modified by adding the following as the fifth row:

Cold Feed % Fractured Face & Thin and Elongated Particles(1)	Day of initial paving and 1 per week(4)	ASTM D5821 ASTM D4791

40. 406.03 COMPOSITION OF MIXTURE, part (d) Control of Mixtures, TABLE 406.03D – MINIMUM QUALITY CONTROL GUIDELINES, is hereby still further modified by deleting footnote 1 in its entirety and replacing it as follows:

1 – "Fractured faces" (for gravel sources only). "Thin and elongated" of particles retained on the No. 4 (4.75 mm) sieve and above.

41. 406.03 COMPOSITION OF MIXTURE, part (f) Boxed Samples, is hereby corrected by adding the word "Engineer" to the end of the second (last) sentence.

42. 406.05 BITUMINOUS MIXING PLANT AND TESTING, part (a) Requirements for All Plants, subpart (12) Testing Facilities, is hereby modified by adding the following as the fourth paragraph:

The laboratory shall be equipped with a monitoring system readout that provides real-time access to active Agency project(s) production status. The system shall accumulate and provide the following information via digital display: Project name and number, truck number, ticket number, product description, and accumulated project daily quantity and load quantity accurate to the nearest metric ton (ton). The display shall be continually updated by the plant's recording system. Waivers may be considered for plants with production capacities not capable of exceeding 150 metric tons (tons) per hour.

43. 406.16 SURFACE TOLERANCE, is hereby modified by adding the phrase ", with the exception of all limited access highway on and off ramps," after the phrase "miscellaneous mix" in the second (last) sentence of the sixth (last) paragraph.

SECTION 490 – SUPERPAVE BITUMINOUS CONCRETE PAVEMENT

44. 490.03 COMPOSITION OF MIXTURE, part (b) Design Criteria, TABLE 490.03B – DESIGN CRITERIA is hereby modified by deleting the fourth row (for "Dust Proportion") in its entirety and replacing it with the following:

Dust Proportion (Filler/Asphalt Ratio)	0.60 – 1.20 (Wet Sieve) (Dry Sieve for Production – Types IS and IIS: 0.50 – 1.20 Types IIIS, IVS, and VS: 0.50 – 1.00)

45. 490.03 COMPOSITION OF MIXTURE, part (b) Design Criteria, TABLE 490.03B – DESIGN CRITERIA is hereby further modified by deleting the sixth row (for "Voids in Mineral Aggregate") in its entirety and replacing it with the following:

Voids in Mineral Aggregate (VMA)%	12.5 min.	13.5 min.	14.5 min	15.5 min.	16.5 min.	17.5 min.

46. 490.03 COMPOSITION OF MIXTURE, part (b) Design Criteria, TABLE 490.03B – DESIGN CRITERIA is hereby still further modified by deleting the ninth row (for "Voids Filled With Asphalt") in its entirety.

47. 490.03 COMPOSITION OF MIXTURE, part (b) Design Criteria, TABLE 490.03B – DESIGN CRITERIA is hereby still further modified by deleting footnotes (3), (4), and (5) in their entirety.

48. 490.03 COMPOSTION OF MIXTURE, part (b) Design Criteria, is hereby modified by deleting the heading "Voids Filled With Asphalt (VFA)" and the equation "VFA = 100 x ((VMA – V_a)/VMA)" in the second paragraph.

49. 490.03 COMPOSITION OF MIXTURE, part (c) Mix Design, is hereby modified by deleting the phrase ", and a single percentage for VFA" in the first sentence of the third paragraph.

50. 490.03 COMPOSITION OF MIXTURE, part (d) Control of Mixtures, TABLE 490.03C – PRODUCTION TESTING TOLERANCES is hereby modified by deleting the seventh (last) row (for "VFA") in its entirety.

51. 490.03 COMPOSITION OF MIXTURE, part (d) Control of Mixtures, TABLE 490.03C – PRODUCTION TESTING TOLERANCES is hereby further modified by deleting footnote 2 in its entirety.

52. 490.03 COMPOSITION OF MIXTURE, part (d) Control of Mixtures, TABLE 490.03D – MINIMUM QUALITY CONTROL GUIDELINES, is hereby modified by deleting footnote designation "(1)" after "Cold Feed Gradation" in the fourth row.

53. 490.03 COMPOSITION OF MIXTURE, part (d) Control of Mixtures, TABLE 490.03D – MINIMUM QUALITY CONTROL GUIDELINES, is hereby further modified by adding the following as the fifth row:

Cold Feed % Fractured Face & Thin and Elongated Particles(1)	Day of initial paving and 1 per week(4)	ASTM D5821 ASTM D4791

54. 490.03 COMPOSITION OF MIXTURE, part (d) Control of Mixtures, TABLE 490.03D – MINIMUM QUALITY CONTROL GUIDELINES, is hereby still further modified by deleting footnote 1 in its entirety and replacing it as follows:

1 – "Fractured faces" (for gravel sources only). "Thin and elongated" of particles retained on the No. 4 (4.75 mm) sieve and above.

55. 490.05 BITUMINOUS MIXING PLANT AND TESTING, part (a) Requirements for All Plants, subpart (12) Testing Facilities, is hereby modified by adding the following as the third paragraph:

The laboratory shall be equipped with a monitoring system readout that provides real-time access to active Agency project(s) production status. The system shall accumulate and provide the following information via digital display: Project name and number, truck number, ticket number, product description, and accumulated project daily quantity and load quantity accurate to the nearest metric ton (ton). The display shall be continually updated by the plant's recording system. Waivers may be considered for plants with production capacities not capable of exceeding 150 metric tons (tons) per hour.

56. 490.14 COMPACTION, part (c) Coring Protocol, is hereby corrected by deleting text "0" and replacing it with text ")" in the first sentence of the seventh paragraph.

57. 490.16 SURFACE TOLERANCE, is hereby modified by adding the phrase ", with the exception of all limited access highway on and off ramps," after the phrase "miscellaneous mix" in the second (last) sentence of the sixth (last) paragraph.

SECTION 501 – HPC STRUCTURAL CONCRETE

58. 501.03 CLASSIFICATION AND PROPORTIONING, TABLE 501.03A (Metric), is hereby modified by deleting the fourth column (with header "Max. Slump (mm)") in its entirety and replacing it with the following:

Max.[7] Slump (mm)

N/A
---

59. 501.03 CLASSIFICATION AND PROPORTIONING, TABLE 501.03A (Metric), is hereby further modified by adding the following footnote:

[7] The mix shall not exhibit segregation at the slump/spread used at placement. If the Engineer suspects there is segregation, the Engineer will require a slump/spread test be performed by the Contractor to visually observe the characteristics of the mix. If in the opinion of the Engineer the mix does exhibit segregation, the load will be rejected and subsequent load(s) shall be tested, at a minimum of 3 loads or until the problem is corrected.

If the Contractor needs a concrete with a slump greater than 200 mm, the Contractor shall propose to the Engineer to use an SCC mix, which shall be submitted to the Engineer for review and acceptance.

60. 501.03 CLASSIFICATION AND PROPORTIONING, TABLE 501.03A (English), is hereby modified by deleting the fourth column (with header "Max. Slump (in)") in its entirety and replacing it with the following:

Max.[7] Slump (mm)

N/A
---

61. 501.03 CLASSIFICATION AND PROPORTIONING, TABLE 501.03A (English), is hereby corrected by deleting text "700 mm" and replacing it with text "28 inches" in footnote 4.

62. 501.03 CLASSIFICATION AND PROPORTIONING, TABLE 501.03A (English), is hereby further modified by adding the following footnote:

[7] The mix shall not exhibit segregation at the slump/spread used at placement. If the Engineer suspects there is segregation, the Engineer will require a slump/spread test be performed by the Contractor to visually observe the characteristics of the mix. If in the opinion of the Engineer the mix does exhibit segregation, the load will be rejected and subsequent load(s) shall be tested, at a minimum of 3 loads or until the problem is corrected.

If the Contractor needs a concrete with a slump greater than 8 inches, the Contractor shall propose to the Engineer to use an SCC mix, which shall be submitted to the Engineer for review and acceptance.

63. 501.03 CLASSIFICATION AND PROPORTIONING, ninth paragraph (beginning "A minimum of thirty (30)…"), is hereby corrected by deleting the phrase "1716 Barre-Montpelier Rd., Berlin, Vermont 05602" and replacing it with the phrase "2178 Airport Road Unit B, Berlin, Vermont 05641" in the second sentence.

64. 501.11 DEPOSITING CONCRETE UNDERWATER, part (a) General, subpart (1), is hereby corrected by deleting the phrase "1716 Barre-Montpelier Rd., Berlin, Vermont 05602" and replacing it with the phrase "2178 Airport Road Unit B, Berlin, Vermont 05641" in the second sentence of the second paragraph.

SECTION 505 - PILING

65. 505.09 BASIS OF PAYMENT, is hereby modified by adding the following pay item:

Pay Item	Pay Unit
505.12 Steel Piling, HP 250 x 85 (HP 10 x 57)	Meter (Linear Foot)

SECTION 506 - STRUCTURAL STEEL

66. 506.19 BOLTING AND CONNECTIONS, part (c) Installation, is hereby modified by deleting the tenth paragraph (Beginning "Bolts shall be tightened…") in its entirety and replacing it with the following:

Bolts shall be tightened to develop a tension not less than 5 percent in excess of the minimum bolt tension specified in Table 506.19A. Bolts shall not be tightened to more than the maximum tension specified in Table 506.19A.

67. 506.19 BOLTING AND CONNECTIONS, part (c) Installation, is hereby further modified by deleting subparts (1) Calibrated Wrench Method, (2) Turn of the Nut Method, and (3) Torque Method in their entirety.

68. 506.19 BOLTING AND CONNECTIONS, part (c) Installation, subpart (4) Tension Control Assembly Method, is hereby modified by being re-designated as part (1).

69. 506.19 BOLTING AND CONNECTIONS, part (c) Installation, subpart (5) Direct Tension Indicator Method, is hereby modified by being re-designated as part (2).

70. 506.19 BOLTING AND CONNECTIONS, part (c) Installation, is hereby still further modified by deleting TABLE 506.19B (including associated paragraphs) in its entirety.

71. 506.19 BOLTING AND CONNECTIONS, part (d) Acceptance of Bolt Tensioning, is hereby modified by deleting the second and third sentences of the first paragraph.

72. 506.19 BOLTING AND CONNECTIONS, part (d) Acceptance of Bolt Tensioning, is hereby further modified by deleting the fourth, fifth, ninth, eleventh, and twelfth paragraphs in their entirety.

SECTION 507 - REINFORCING STEEL

73. 507.01 DESCRIPTION, is hereby modified by adding the phrase "of the level specified" after the phrase "bar reinforcement".

74. 507.01 DESCRIPTION, is hereby further modified by adding the following paragraphs:

Levels and associated types of reinforcing steel are specified as follows:

(a) Level I (Limited Corrosion Resistance). Level I reinforcing includes plain, low alloy, and epoxy coated reinforcing steel.

(b) Level II (Improved Corrosion Resistance). Level II reinforcing includes stainless clad and dual-coated reinforcing steel.

(c) Level III (Exceptional Corrosion Resistance). Level III reinforcing includes solid stainless reinforcing steel.

The location, level, and when specified, type of reinforcing shall be as indicated in the Plans. Reinforcing supplied shall meet the requirements of the level specified or any higher level. Only one type of reinforcing steel shall be used for each level for the Contract work, unless permitted in writing by the Engineer.

75. 507.02 MATERIALS, is hereby modified by deleting the sixth (final) entry in the Subsection listing.

76. 507.03 FABRICATION AND SHIPMENT, part (a) General, is hereby modified by adding the phrase "deformed bar" after the phrase "shall be" in the first paragraph.

77. 507.03 FABRICATION AND SHIPMENT, part (a) General, is hereby corrected by deleting punctuation ".." and replacing it with punctuation "." at the end of the first paragraph.

78. 507.04 PROTECTION OF MATERIAL, is hereby modified by adding the following as the second sentence in the first paragraph:

    When multiple levels of reinforcing steel are used on a project, they shall be stored separately, including during transport in order that there is no direct contact between the bars.

79. 507.04 PROTECTION OF MATERIAL, is hereby further modified by deleting the phrase "The epoxy coating" and replacing it with the word "Coatings" in the third sentence of the third paragraph.

80. 507.04 PROTECTION OF MATERIAL, is hereby still further modified by deleting the phrase "as required for damaged areas" and replacing it with the phrase "per the coating manufacturer's recommendations and to the satisfaction of the Engineer" in the third sentence of the fifth (last) paragraph.

81. 507.04 PROTECTION OF MATERIAL, is hereby still further modified by adding the following paragraph:

    Ends of Level II reinforcing steel where the mild steel is exposed shall be repaired in the following manner:

    (a) Cut ends of dual-coated reinforcing steel shall be coated with a two-part epoxy patching material as specified by the coating manufacturer. The materials and procedures shall be approved by the Engineer prior to the repairs being performed.

    (b) Cut ends of stainless clad reinforcing steel shall be epoxied and capped in accordance with the manufacturer's recommendations with either stainless steel caps or plastic caps. Caps shall be sealed to prevent the intrusion of moisture.

82. 507.05 PLACING AND FASTENING REINFORCING STEEL, is hereby modified by deleting the sixth paragraph in its entirety and replacing it with the following:

    Tie wires and supports used for installation of reinforcement shall be composed of the same material as any steel being contacted or shall be plastic. When forms are to be removed in their entirety, uncoated steel chairs equipped with snug-fitting, high-density, polyethylene tips which provide 3 mm (1/4 inch) clearance between the metal and any exposed surface may be used.

83. 507.10 METHOD OF MEASUREMENT, is hereby modified by deleting the phrase ", Epoxy Coated Reinforcing Steel, and Galvanized Reinforcing Steel" and replacing it with the phrase "of the type and size specified" in the first paragraph.

84. 507.10 METHOD OF MEASUREMENT, is hereby further modified by adding the phrase "of the type specified" at the end of the second paragraph (beginning "The quantity of Drilling and Grouting Dowels…").

85. 507.11 BASIS OF PAYMENT, is hereby modified by deleting the following pay items:

Pay Item	Pay Unit
507.15 Reinforcing Steel	Kilogram (Pound)
507.17 Epoxy Coated Reinforcing Steel	Kilogram (Pound)
507.18 Galvanized Reinforcing Steel	Kilogram (Pound)

86. 507.11 BASIS OF PAYMENT, is hereby further modified by adding the following pay items:

Pay Item	Pay Unit
507.11 Reinforcing Steel, Level I	Kilogram (Pound)
507.12 Reinforcing Steel, Level II	Kilogram (Pound)
507.13 Reinforcing Steel, Level III	Kilogram (Pound)

SECTION 509 – LONGITUDINAL DECK GROOVING

87. 509.03 CONSTRUCTION DETAILS, is hereby modified by deleting the last line of the second paragraph (beginning "Depth: 4 mm…") and replacing it with the following:

Depth: 6 mm (±2 mm)((1/4")(±1/16"))

SECTION 510 – PRESTRESSED CONCRETE

88. 510.12 INSTALLATION, part (a) Prestressed Concrete, subpart (2) Initial Post-tensioning, is hereby modified by deleting the first sentence in its entirety.

SECTION 516 – EXPANSION DEVICES

89. 516.01 DESCRIPTION, is hereby modified by adding the phrase ", or partially removing and modifying," after the word "installing".

90. 516.05A PARTIAL REMOVAL AND MODIFICATION, is hereby made a new Subsection of the Standard Specifications as follows:

516.05A PARTIAL REMOVAL AND MODIFICATION. The Contractor shall partially remove and modify the existing bridge joint at the locations indicated in the Plans and as directed by the Engineer.

Steel for new joint plates shall meet the requirements of Subsection 714.02.

The Contractor shall remove and dispose of existing joint plates, drain troughs, and associated hardware.

The Contractor shall grind existing steel plates and/or shoulder concrete to the configuration shown on the Plans. The final surface shall be to the satisfaction of the Engineer.

91. 516.06 METHOD OF MEASUREMENT, is hereby modified by adding the following paragraph:

The quantity of Partial Removal and Modification of Bridge Joint to be measured for payment will be the number of meters (linear feet) of bridge joint removed and modified in the complete and accepted work, measured along its centerline.

92. 516.07 BASIS OF PAYMENT, is hereby modified by adding the following paragraph and pay item:

The accepted quantity of Partial Removal and Modification of Bridge Joint will be paid for at the Contract unit price per meter (linear foot). Payment will be full compensation for partially removing and modifying the existing joint as specified and as detailed in the Plans, and for furnishing all labor, tools, equipment, and incidentals necessary to complete the work.

Payment will be made under:

Pay Item	Pay Unit
516.20 Partial Removal and Modification of Bridge Joint	Meter (Linear Foot)

SECTION 525 - BRIDGE RAILINGS

93. 525.02 MATERIALS, is hereby modified by adding the following as the third entry in the Subsection listing:

Structural Steel……714.02

94. 525.06 INSTALLATION, part (a) General, is hereby modified by adding the following as the sixth (last) paragraph:

Concrete railing shall receive an aesthetic finish in accordance with Subsection 501.16. Cracks in concrete railing shall be repaired by a method approved by the Engineer. Cracks in concrete greater than 0.25 mm (0.01 inch) may be cause for rejection.

95. 525.08 BASIS OF PAYMENT, is hereby modified by adding the phrase "for furnishing all forms, joint filler, admixtures, trial batches, and connection plates for approach railing terminal connectors; for satisfactory completion of any necessary repairs, surface finishing, and curing;" after the phrase "for all work necessary for verifying and adjusting post height and/or bolt spacing of existing posts;" in the second (last) sentence of the third paragraph.

96. 525.08 BASIS OF PAYMENT, is hereby further modified by adding the following pay item:

Pay Item	Pay Unit
525.45 Bridge Railing, Galvanized Steel Tubing/ Concrete Combination	Meter (Linear Foot)

SECTION 531 – BRIDGE BEARING DEVICES

97. 531.04 FABRICATION, part (b) Surface Protection, is hereby corrected by deleting punctuation ",." at the end of the paragraph and replacing it with punctuation ".".

SECTION 540 – PRECAST CONCRETE

98. 540.02 MATERIALS, is hereby modified by deleting the fourteenth entry (beginning "Coated Bar Reinforcement…") in the Subsection listing.

99. 540.02 MATERIALS, is hereby further modified by adding the following as the twenty-ninth entry in the Subsection listing:

Sheet Membrane Waterproofing, Preformed Sheet……726.11

100. 540.07 FABRICATION, part (e) Placing Concrete, is hereby modified by deleting the phrase "done with care" and replacing it with the phrase "performed in accordance with Subsection 501.10(f)" in the third (last) sentence.

101. 540.10 INSTALLATION, is hereby modified by adding the following new part (c):

(c) Sheet Membrane Waterproofing. A reinforced asphalt, synthetic resin, or coal-tar based preformed sheet membrane shall be placed over the joints of precast concrete units in accordance with the Contract Documents. All work performed shall be in accordance with the manufacturer's recommendations.

Material for membrane shall meet the requirements of Subsection 726.11.

Waterproofing shall not be performed in wet weather or when the temperature is below 5°C (40°F), without the authorization of the Engineer.

The concrete surfaces that are to be waterproofed shall be reasonably smooth and free from projections or holes and shall be cleaned of dust and loose material. The surfaces shall be visibly dry prior to and during application of the membrane system.

102. 540.14 BASIS OF PAYMENT, is hereby modified by adding the following paragraph:

Furnishing and placing preformed sheet membrane waterproofing, including primer, mastic, polyurethane membrane sealant, and surface preparation, is considered incidental to the work for Precast Concrete Structure.

SECTION 541 – STRUCTURAL CONCRETE

103. 541.03 CLASSIFICATION AND PROPORTIONING, TABLE 541.03A (Metric), is hereby modified by deleting footnote designation "*" in the first and fourth entries of the third row (for "Class A" concrete).

104. 541.03 CLASSIFICATION AND PROPORTIONING, TABLE 541.03A (Metric), is hereby further modified by deleting footnote "*" and associated text (beginning "* When this class of concrete…").

105. 541.03 CLASSIFICATION AND PROPORTIONING, TABLE 541.03A (Metric), is hereby still further modified by deleting the fourth (with header "Range in Slump (mm)") and fifth (with header "Air Cont. (%)") columns in their entirety and replacing them with the following:

Range* in Slump (mm)	Air Content (%)
---	7.0 ± 1.5
---	7.0 ± 1.5
---	7.0 ± 1.5
---	5.5 ± 1.5
---	5.5 ± 1.5
---	7.0 ± 1.5

106. 541.03 CLASSIFICATION AND PROPORTIONING, TABLE 541.03A (Metric), is hereby still further modified by adding the following footnote:

* The mix shall not exhibit segregation at the slump/spread used at placement. If the Engineer suspects there is segregation, the Engineer will require a slump/spread test be performed by the Contractor to visually observe the characteristics of the mix. If in the opinion of the Engineer the mix does exhibit segregation, the load will be rejected and subsequent load(s) shall be tested, at a minimum of 3 loads or until the problem is corrected.

If the Contractor needs a concrete with a slump greater than 200 mm, the Contractor shall propose to the Engineer to use an SCC mix, which shall be submitted to the Engineer for review and acceptance.

107. 541.03 CLASSIFICATION AND PROPORTIONING, TABLE 541.03A (Metric) is hereby still further modified by adding the following as the eighth (bottom) row with the included footnotes:

Controlled Density (Flowable) Fill	To be designed ***	To be designed ****	To be designed *****	10 min.	704.01 (Fine Aggregate)	0.85 max. ******	---

*** A mineral admixture may be used to replace a portion of the cement.

**** The minimum amount of water shall be used to produce the desirable flow for the intended use without showing segregation.

***** The slump (flowability) shall be such that material is able to completely fill the voids or area as needed without segregation.

******A minimum of 3 cylinders per test age required to constitute a test. If average strength at 28 days exceeds 115% of max. strength, then payment for Contract item 541.45 will be 85% of the Contract bid price.

108. 541.03 CLASSIFICATION AND PROPORTIONING, TABLE 541.03A (English), is hereby modified by deleting footnote designation "*" in the first and fourth entries of the third row (for "Class A" concrete).

109. 541.03 CLASSIFICATION AND PROPORTIONING, TABLE 541.03A (English), is hereby further modified by deleting footnote "*" and associated text (beginning "* When this class of concrete…").

110. 541.03 CLASSIFICATION AND PROPORTIONING, TABLE 541.03A (English), is hereby still further modified by deleting the fourth (with header "Range in Slump (in.)") and fifth (with header "Air Cont. (%)") columns in their entirety and replacing them with the following:

Range* in Slump (mm)	Air Content (%)
---	7.0 ± 1.5
---	7.0 ± 1.5
---	7.0 ± 1.5
---	5.5 ± 1.5
---	5.5 ± 1.5
---	7.0 ± 1.5

111. 541.03 CLASSIFICATION AND PROPORTIONING, TABLE 541.03A (English), is hereby still further modified by adding the following footnote:

* The mix shall not exhibit segregation at the slump/spread used at placement. If the Engineer suspects there is segregation, the Engineer will require a slump/spread test be performed by the Contractor to visually observe the characteristics of the mix. If in the opinion of the Engineer the mix does exhibit segregation, the load will be rejected and subsequent load(s) shall be tested, at a minimum of 3 loads or until the problem is corrected.

If the Contractor needs a concrete with a slump greater than 8 inches, the Contractor shall propose to the Engineer to use an SCC mix, which shall be submitted to the Engineer for review and acceptance.

112. 541.03 CLASSIFICATION AND PROPORTIONING, TABLE 541.03A (English) is hereby modified by adding the following as the eighth (bottom) row with the included footnotes:

Controlled Density (Flowable) Fill	To be designed ***	To be designed ****	To be designed *****	10 min.	704.01 (Fine Aggregate)	125 max. ******	---

*** A mineral admixture may be used to replace a portion of the cement.
**** The minimum amount of water shall be used to produce the desirable flow for the intended use without showing segregation.
***** The slump (flowability) shall be such that material is able to completely fill the voids or area as needed without segregation.
******A minimum of 3 cylinders per test age required to constitute a test. If average strength at 28 days exceeds 115% of max. strength, then payment for Contract item 541.45 will be 85% of the Contract bid price.

113. 541.10 PLACING CONCRETE, part (c) Placement Limitations, is hereby modified by adding the following paragraphs:

Flowable fill shall be applied to voids and other locations as specified in the Contract Documents and as directed by the Engineer. Flowable fill shall be able to completely fill the existing voids.

If voids are discovered, the Engineer may direct the Contractor to submit a plan for filling the remaining voids. This work, including preparing and submitting the plan and filling any remaining voids, will be at the Contractor's expense.

114. 541.11 DEPOSITING CONCRETE UNDERWATER, part (a) General, subpart (1), is hereby corrected by deleting the phrase "1716 Barre-Montpelier Rd., Berlin, Vermont 05602" and replacing it with the phrase "2178 Airport Road Unit B, Berlin, Vermont 05641" in the second sentence of the second paragraph.

115. 541.19 METHOD OF MEASUREMENT, is hereby modified by deleting the phrase "or LW" and replacing it with the phrase "LW, or Flowable Fill" in the first sentence of the first paragraph.

116. 541.20 BASIS OF PAYMENT, is hereby modified by adding the following pay item:

Payment will be made under:

Pay Item	Pay Unit
541.45 Controlled Density (Flowable) Fill	Cubic Meter (Cubic Yard)

SECTION 580 - STRUCTURAL CONCRETE REPAIR

117. 580.02 MATERIALS, is hereby modified by adding the following to the Subsection listing:

Polymer Concrete Repair Material……780.05

118. 580.03 PROPORTIONING AND MIXING, is hereby modified by deleting the last sentence of the first paragraph in its entirety and replacing it with the following:

The product shall not be extended with sand or gravel, except for Rapid Setting Concrete Repair Material with Coarse Aggregate and Polymer Concrete Repair Material when mixed with approved aggregates in conformance with the manufacturer's recommendations.

119. 580.04 SURFACE PREPARATION FOR REPAIRS, OVERLAYS AND MEMBRANES, is hereby modified by adding the word "abrasive" after the phrase "shall be" and before the phrase "blast cleaned" in the first sentence of the third paragraph.

120. 580.04 SURFACE PREPARATION FOR REPAIRS, OVERLAYS AND MEMBRANES, is hereby further modified by adding the phrase ", or Polymer Concrete Repair Material," after the word "Aggregate" in the sixth paragraph.

121. 580.08 METHOD OF MEASUREMENT, is hereby modified by deleting the phrase "and not for new patches, which will be the responsibility of the Contractor" and replacing it with the phrase ", with no deductions made for areas of new patches" in the second sentence of the ninth paragraph.

122. 580.08 METHOD OF MEASUREMENT, is hereby further modified by adding the phrase ", and Polymer Concrete Repair Material" after the word "Aggregate" in the first sentence of the tenth paragraph.

123. 580.09 BASIS OF PAYMENT, is hereby modified by adding the phrase ", and Polymer Concrete Repair Material" after the word "Aggregate" in the seventh paragraph.

124. 580.09 BASIS OF PAYMENT, is hereby further modified by adding the following pay item:

Payment will be made under:

Pay Item	Pay Unit
580.21 Polymer Concrete Repair Material	Cubic Meter (Cubic Yard)

SECTION 601 – CULVERTS AND STORM DRAINS

125. 601.02 MATERIALS, is hereby modified by adding the following as the sixth entry in the Subsection listing:

Corrugated Polypropylene Pipe……710.07

126. 601.07 JOINING PIPE, is hereby modified by adding the following new part (d) as follows:

(d) Corrugated Polypropylene Pipe. Corrugated Polypropylene pipe shall be joined by a system designed and approved by the pipe manufacturer. Couplings and fittings shall provide sufficient longitudinal strength to preserve pipe alignment and prevent separation at the joints.

127. 601.11 BASIS OF PAYMENT, is hereby modified by changing the end of the pay item number range for CPEP Elbow from 601.5999 to 601.5899.

128. 601.11 BASIS OF PAYMENT, is hereby further modified by adding the following pay items:

Payment will be made under:

Pay Item	Pay Unit
601.2800 to 601.2999 CPPP(SL)	Meter (Linear Foot)
601.5900 to 601.5999 CPPP Elbow	Each
601.7100 to 601.7199 CPPPES	Each

SECTION 608 – EQUIPMENT RENTAL

129. 608.02 GENERAL REQUIREMENTS, is hereby modified by adding the following new part (i):

(i) Truck-Mounted Attenuator, Advanced Warning Vehicle/Protection Vehicle (AWV/PV). Truck-Mounted Attenuator, AWV/PV shall consist of a Truck-Mounted Attenuator meeting the requirements of Subsection 608.02(h) and be equipped with a Changeable Message Sign in accordance with the MUTCD. The Changeable Message Sign shall be mounted so as to be clearly visible to the traveling public and shall be capable of being controlled from inside the cab of the vehicle, with capable controls including but not limited to turning the sign on and off, changing between preset messages, and inserting new messages when approved by the Engineer. Phases of signing shall have the ability to change automatically when required.

130. 608.04 BASIS OF PAYMENT, is hereby modified by changing the word "item" to "items" and by adding the phrase "and Truck-Mounted Attenuator, AWV/PV" after the phrase "Truck-Mounted Attenuator" in the second (last) paragraph.

131. 608.04 BASIS OF PAYMENT, is hereby further modified by adding the following pay item:

Payment will be made under:

Pay Item	Pay Unit
608.50 Truck-Mounted Attenuator, AWV/PV	Hour

SECTION 613 – STONE FILL, RIPRAP, AND SLOPE PAVING

132. 613.02 MATERIALS, is hereby modified by adding the following to the Subsection listing:

Rock Fill for Gabions……706.06
Gabion Baskets……712.04

133. 613.04 PLACING, is hereby modified by adding the following new part (d):

(d) Rock Fill for Gabions. The furnishing and installing of gabion baskets shall be performed in accordance with the manufacturer's recommendations.

The Contractor should expect to perform some manual stone placement to minimize voids and to create a neat, flat vertical surface of gabions.

134. 613.05 METHOD OF MEASUREMENT, is hereby modified by adding the following paragraph:

The quantity of Gabion Wall to be measured for payment will be the number of cubic meters (cubic yards) of Rock Fill for Gabions placed in the complete and accepted work.

135. 613.06 BASIS OF PAYMENT, is hereby modified by adding the phrase "and Gabion Wall" after the word "specified" in the first sentence of the first paragraph.

136. 613.06 BASIS OF PAYMENT, is hereby modified by adding the phrase ", including gabion baskets," after the word "material" in the third (last) sentence of the first paragraph.

137. 613.06 BASIS OF PAYMENT, is hereby still further modified by adding the phrase "or rock" after the word "stone" in the first sentence of the second paragraph.

138. 613.06 BASIS OF PAYMENT, is hereby still further modified by adding the following paragraph:

Geotextile fabric and bedding material for Gabion Wall will be paid for under the appropriate Contract items.

139. 613.06 BASIS OF PAYMENT, is hereby still further modified by adding the following pay item:

Payment will be made under:

Pay Item	Pay Unit
613.25 Gabion Wall	Cubic Meter (Cubic Yard)

SECTION 616 - CURBS AND GUTTERS

140. 616.05 REPOINTING GRANITE BRIDGE CURB, is hereby made a new Subsection of the Standard Specifications as follows:

616.05 REPOINTING GRANITE BRIDGE CURB. The existing mortar bed and vertical curb joints shall be repointed as shown on the Plans. Mortar shall meet the requirements of Subsection 707.01.

141. 616.14 METHOD OF MEASUREMENT, is hereby modified by adding the following as the second paragraph:

The quantity of Repointing Granite Bridge Curb to be measured for payment will be the number of liters (gallons) of mortar applied in the completed and accepted work, measured to the nearest liter (gallon).

142. 616.14 METHOD OF MEASUREMENT, is hereby corrected by changing the word "portland" to "Portland" in the fifth (last) paragraph.

143. 616.15 BASIS OF PAYMENT, is hereby modified by adding the following as the second paragraph:

The accepted quantity of Repointing Granite Bridge Curb will be paid for at the Contract unit price per liter (gallon). Payment will be full compensation for furnishing, transporting, handling, and placing the material specified and for furnishing all labor, tools, equipment, and incidentals necessary to complete the work.

144. 616.15 BASIS OF PAYMENT, is hereby corrected by changing the word "portland" to "Portland" in the fourth paragraph.

145. 616.15 BASIS OF PAYMENT, is hereby further modified by adding the following pay item:

Payment will be made under:

Pay Item	Pay Unit
616.225 Repointing Granite Bridge Curb	Liter (Gallon)

SECTION 621 - TRAFFIC BARRIERS

146. 621.01 DESCRIPTION, is hereby modified by adding the phrase "repairing," after the phrase "removing,".

147. 621.02 MATERIALS, is hereby modified by adding the following as the fifth entry in the Subsection listing:

Wire Rope or Cable……713.03

148. 621.13 REPLACEMENT, ADJUSTMENT, REMOVAL, AND DISPOSAL OF GURADRAIL OR GUIDE POSTS, is hereby modified by deleting the phrase "post assemblies and panel units" and replacing it with the phrase "guardrail components" in the second sentence of the first paragraph.

149. 621.13 REPLACEMENT, ADJUSTMENT, REMOVAL, AND DISPOSAL OF GURADRAIL OR GUIDE POSTS, is hereby further modified by deleting the first sentence of the second paragraph in its entirety and replacing it with the following:

Those sections in which height over an extensive portion of the section is greater than 760 mm (30 inches) or less than 675 mm (26 ½ inches) shall be adjusted to a nominal height of 735 mm ±25 mm (29 inches ± 1 inch).

150. 621.13 REPLACEMENT, ADJUSTMENT, REMOVAL, AND DISPOSAL OF GUARDRAIL OR GUIDE POSTS, is hereby still further modified by deleting the phrase "post assembly replacement or guardrail beam replacement occur" and replacing it with the phrase "guardrail component replacement occurs" in the fourth paragraph.

151. 621.13 REPLACEMENT, ADJUSTMENT, REMOVAL, AND DISPOSAL OF GURADRAIL OR GUIDE POSTS, is hereby still further modified by adding the following as the sixth and seventh paragraphs:

Offset blocks designated for replacement shall be replaced in-kind. Materials shall be in conformance with the applicable requirements of Subsection 728.01 for either wood, steel, or alternative blockouts.

Cable guardrail repair shall be performed in accordance with VTrans Standard Drawing G-6 and as directed by the Engineer.

152. 621.14 METHOD OF MEASUREMENT, is hereby modified by adding the following as the fourth and fifth paragraphs of the Subsection text:

The quantities of Cable Guardrail J-Bolt, Galvanized and Cable Guardrail Splice Unit to be measured for payment will be the number of units installed in the complete and accepted work.

The quantity of Replacement of Guardrail Cable to be measured for payment will be the number of meters (linear feet) installed in the complete and accepted work.

153. 621.14 METHOD OF MEASUREMENT, is hereby further modified by adding the following as the sixth paragraph of the Subsection text:

The quantities of Steel Beam Guardrail Delineator and Steel Beam Guardrail Offset Block to be measured for payment will be the number of each component replaced in the complete and accepted work.

154. 621.15 BASIS OF PAYMENT, is hereby modified by adding the following as the second, third, and fourth paragraphs of the Subsection text:

The accepted quantities of Cable Guardrail J-Bolt, Galvanized and Cable Guardrail Splice Unit will be paid for at the Contract unit price for each.

The accepted quantity of Replacement of Cable Guardrail will be paid for at the Contract unit price per meter (linear foot).

The accepted quantities of Steel Beam Guardrail Delineator and Steel Beam Guardrail Offset Block will be paid for at the Contract unit price for each.

155. 621.15 BASIS OF PAYMENT, is hereby further modified by adding the phrase "removing and disposing of damaged guardrail component(s)," after the phrase "specified," in the first sentence of the seventh paragraph.

156. 621.15 BASIS OF PAYMENT, is hereby still further modified by adding the following pay items:

Payment will be made under:

Pay Item	Pay Unit
621.173 Cable Guardrail J-Bolt, Galvanized	Each
621.174 Cable Guardrail Splice Unit	Each
621.175 Replacement of Guardrail Cable	Meter (Linear Foot)
621.218 Steel Beam Guardrail Delineator	Each
621.219 Steel Beam Guardrail Offset Block	Each
621.70 Guardrail Approach Section, Galvanized Type I	Each
621.71 Guardrail Approach Section, Galvanized Type II	Each
621.726 Guardrail Approach Section, Galvanized 3 Rail Box Beam w/Curb	Each
621.735 Guardrail Approach Section, Steel Beam	Each
621.736 Guardrail Approach Section, Steel Beam w/2.4 m (8 feet) Posts	Each
621.737 Guardrail Approach Section, Galvanized HD Steel Beam	Each
621.738 Guardrail Approach Section, Galvanized HD Steel Beam w/2.4 m (8 feet) Posts	Each
621.748 Guardrail Approach Section to Concrete Combination Bridge Railing, TL-3	Each

SECTION 630 – UNIFORMED TRAFFIC OFFICERS AND FLAGGERS

157. 630.03 CLOTHING AND EQUIPMENT, part (b) For Flaggers, subpart (1), is hereby modified by replacing the phrase "ANSI 107-1999" with the phrase "ANSI 107-2004" in the first sentence.

158. 630.03 CLOTHING AND EQUIPMENT, part (d) For All Traffic Control Personnel, subpart (2), is hereby modified by deleting the word "The" and replacing it with the phrase "When deemed necessary by the Engineer, or when noted in the Plans, the" at the beginning of the first sentence.

SECTION 641 - TRAFFIC CONTROL

159. 641.02 GENERAL CONSTRUCTION REQUIREMENTS, is hereby modified by adding the phrase "implement that plan or" after the phrase "the Contractor may" in the first sentence of the fourth paragraph.

160. 641.02 GENERAL CONSTRUCTION REQUIREMENTS, is hereby further modified by adding the following as the second sentence of the fourth paragraph:

When the Contractor will implement an Agency-designed traffic control plan, written certification shall be submitted to the Engineer indicating that traffic control will be performed in accordance with the Agency design.

161. 641.02 GENERAL CONSTRUCTION REQUIREMENTS, is hereby still further modified by changing the word "This" to the word "An" in the second sentence of the fourth paragraph.

162. 641.02 GENERAL CONSTRUCTION REQUIREMENTS, is hereby still further modified by adding the following paragraph:

When the Contract Documents specify that a site-specific traffic control plan be submitted by the Contractor, Construction Drawings shall be submitted in accordance with Section 105. The submitted site-specific plan shall include, for each phase of construction requiring a significant change in temporary traffic control, a narrative description of the proposed temporary traffic control for each phase (including pedestrian accommodations where appropriate) and the major work activities to be completed in each phase; and a layout for each phase of construction showing existing lane configurations, existing traffic control devices (signs, signals, and pavement markings), driveways, ramps, and highway intersections, and the location of all proposed temporary traffic control devices, flaggers, and UTO's. All pertinent dimensions, such as taper lengths, sign spacing, temporary lane widths, and distance(s) from existing traffic control devices shall be labeled.

163. 641.03 TRAFFIC CONTROL DEVICES, is hereby modified by deleting the phrase "have three (3) lines of eight (8) characters per line and conform to Section 6F.55 of the MUTCD" and replacing it with the phrase "be used with a maximum of two phases, each consisting of a maximum of 3 lines of 8 characters" in the sixth paragraph.

164. 641.03 TRAFFIC CONTROL DEVICES, is hereby further modified by deleting the phrase "requirements in Section 6F.56 of" and replacing it with the phrase "Portable Arrow Board requirements in" in the seventh paragraph.

SECTION 646 - RETROREFLECTIVE PAVEMENT MARKINGS

165. 646.02 MATERIALS, is hereby modified by deleting the Subsection listing in its entirety and replacing it with the following:

Polyurea Pavement Markings.....708.08(a)
Low VOC Chlorinated Rubber Traffic Paint.....708.08(b)
Low VOC Acetone Based Traffic Paint.....708.08(b)
Epoxy Paint.....708.08(c)
Waterborne Traffic Paint.....708.08(d)
Methyl-methacrylate Paint.....708.08(e)
Glass Beads.....708.09(a)
Premium Optics.....708.09(b)
Wet Recoverable and Wet Reflective Optics.....708.09(c)
Thermoplastic Pavement Markings, Type A.....708.10(a)
Thermoplastic Pavement Markings, Type B.....708.10(b)
Raised Pavement Markers, Type I.....708.11
Pavement Marking Tape, Type A.....708.12(a)
Pavement Marking Tape, Type B.....708.12(b)
Pavement Marking Tape, Type C.....708.12(c)
Pavement Marking Tape, Type D.....708.12(d)
Line Striping Targets.....708.13(a)
Raised Pavement Markers, Type II.....708.13(b)
Temporary Pavement Marking Tape.....708.13(c)
Pavement Marking Mask.....708.13(d)

166. 646.04 APPLICATION OF MARKINGS, GENERAL, part (a) Placement of Markings, is hereby modified by deleting the first paragraph in its entirety.

167. 646.04 APPLICATION OF MARKINGS, GENERAL, part (a) Placement of Markings, is hereby further modified by deleting the seventh paragraph in its entirety.

168. 646.04 APPLICATION OF MARKINGS, GENERAL, part (a) Placement of Markings, is hereby still further modified by deleting the word "interim" and replacing it with the phrase "permanent or temporary" in the first sentence of the eighth paragraph.

169. 646.04 APPLICATION OF MARKINGS, GENERAL, part (a) Placement of Markings, is hereby still further modified by adding the phrase "edgeline," after the phrase "centerlines," in the first sentence of the eighth paragraph.

170. 646.04 APPLICATION OF MARKINGS, GENERAL, part (a) Placement of Markings, is hereby still further modified by deleting the ninth paragraph in its entirety.

171. 646.04 APPLICATION OF MARKINGS, GENERAL, part (c) Weather Limitations, subpart (2), is hereby modified by being deleted in its entirety and replaced as follows:

(2) At the time of application of durable pavement markings, the pavement surface and ambient air temperatures shall be as per the manufacturer's published specified application temperatures, and the dew point shall be 5°F or more below the ambient air temperature. If the manufacturer's published recommendations are unavailable, the pavement surface and ambient air temperatures shall be a minimum of 10°C (50°F).

172. 646.04 APPLICATION OF MARKINGS, GENERAL, part (c) Weather Limitations, subpart (3), is hereby modified by being the word "October" and replacing it with the word "November".

173. 646.04 APPLICATION OF MARKINGS, GENERAL, part (d) Layout and Control, subpart (1) Centerline Markings, is hereby modified by deleting the number "100" and replacing it with the phrase "the same width as the lines" in the fourth sentence of the first paragraph.

174. 646.04 APPLICATION OF MARKINGS, GENERAL, part (d) Layout and Control, subpart (1) Centerline Markings, is hereby further modified by deleting the second (last) paragraph in its entirety.

175. 646.04 APPLICATION OF MARKINGS, GENERAL, part (d) Layout and Control, subpart (2) Edgeline Markings, is hereby modified by deleting the second (last) paragraph in its entirety.

176. 646.04 APPLICATION OF MARKINGS, GENERAL, part (d) Layout and Control, subpart (3) Dotted Line, is hereby modified by deleting the second (last) paragraph in its entirety.

177. 646.06 PAINT PAVEMENT MARKINGS, is hereby modified by being re-named WATERBORNE AND LOW VOC CHLORINATED RUBBER AND ACETONE BASED PAINT PAVEMENT MARKINGS.

178. 646.06 WATERBORNE AND LOW VOC CHLORINATED RUBBER AND ACETONE BASED PAINT PAVEMENT MARKINGS, is hereby modified by changing the word "Retroflective" to "Retroreflective" in the first sentence of the first paragraph.

179. 646.06 WATERBORNE AND LOW VOC CHLORINATED RUBBER AND ACETONE BASED PAINT PAVEMENT MARKINGS, is hereby further modified by deleting the phrase "shall have a dry film thickness of 380 ±25 µm (15 ±1 mil) for paint, unless otherwise specified, and" in the third (last) sentence of the first paragraph.

180. 646.06 WATERBORNE AND LOW VOC CHLORINATED RUBBER AND ACETONE BASED PAINT PAVEMENT MARKINGS, is hereby still further modified by adding the following as the third paragraph:

The markings shall be applied at a rate to create a uniform wet film thickness of 558.8 µm (22 mils) with an allowable range of ±50.8 µm (±2 mils) unless otherwise specified in the Contract Documents. Minimum application rates are 1.7 square meters per liter (70 square feet per gallon) with glass beads applied at a rate of 960 grams per liter (8.0 lb per gallon) of paint. The Contractor shall provide the Engineer and the Materials Section with the optic drop on rates of all optic materials and daily binder application rates.

181. 646.06 WATERBORNE AND LOW VOC CHLORINATED RUBBER AND ACETONE BASED PAINT PAVEMENT MARKINGS, is hereby still further modified by deleting the fourth and fifth (last) paragraphs in their entirety.

182. 646.07 DURABLE PAVEMENT MARKINGS, is hereby modified by adding the following as the third sentence of the first paragraph:

Durable pavement markings shall be installed within two weeks of the placement of the wearing course.

183. 646.07 DURABLE PAVEMENT MARKINGS, is hereby further modified by changing punctuation at the end of the third sentence of the first paragraph from ":" to ".".

184. 646.07 DURABLE PAVEMENT MARKINGS, is hereby still further modified by adding the following at the end of the first paragraph:

The Contractor shall select optics that conform with Subsections 708.09(a), 708.09(b), and 708.09(c). The Contractor shall provide the Engineer and the Materials Section with the daily optic drop on rates of all optic materials and daily binder application rates. The Contractor shall perform all quality control activities and provide to the Engineer on a daily basis all retroreflectivity measurements collected. The Agency will perform all acceptance testing activities. The Engineer will select an evaluation section(s) for the purpose of collecting pavement marking retroreflectivity measurements. Retroreflectivity measurements shall be performed in accordance with ASTM D7585, as modified by Table 646.07A.

TABLE 646.07A – EVALUATION SECTION CRITERIA

PAVEMENT MARKING TYPE	EVALUATION SECTION(S) REQUIRED*	EVALUATION SECTION LENGTH m (feet)	MEASUREMENTS REQUIRED
Long Lines	1 per 3.2 km (2 miles)	120 (400)	20
Dashed Lines	1 per 3.2 km (2 miles)	120 (400)	20 (2 per dashed line)

*Projects less than 3.2 km (2 miles) in length shall have a minimum of one (1) evaluation section.

Each spot measurement for all yellow centerline retroreflectivity shall be performed in both directions at each spot location and averaged for acceptance. For long lines and dashed lines, if the average retroreflectivity as determined in accordance with ASTM D7585 fails to meet the minimum retroreflectivity requirements, or if 25% of the individual tests fail to meet the minimum retroreflectivity requirements, the entire length represented by the evaluation section shall be re-marked and re-tested until in compliance, at no additional cost to the Agency.

185. 646.07 DURABLE PAVEMENT MARKINGS, part (a) Pavement Marking Tape, Type I, is hereby modified by being deleted in its entirety and replaced as follows:

(a) Pavement Marking Tape, Type A. Type A tape for pavement markings is classified as high performance or high durable, and non-removable. Type A tape shall conform to the requirements of Subsection 708.12(a).

Type A tapes, when used as a final durable marking, shall be applied only by being inlaid in the bituminous pavement during the rolling operation or in a recess as defined in Subsection 646.09, and shall be applied in accordance with the manufacturer's requirements. Initial dry retroreflectivity minimums shall be 300 mcdl/lx/m^2 for yellow markings and 400 mcdl/lx/m^2 for white markings.

186. 646.07 DURABLE PAVEMENT MARKINGS, part (b) Epoxy Paint, is hereby modified by being re-designated as part (e).

187. 646.07 DURABLE PAVEMENT MARKINGS, part (c) Thermoplastic, is hereby modified by being re-designated as part (f) Extruded Thermoplastic.

188. 646.07 DURABLE PAVEMENT MARKINGS, part (d) Polyurea Paint, is hereby modified by being re-designated as part (h).

189. 646.07 DURABLE PAVEMENT MARKINGS, part (e) Methyl-methacrylate Paint, is hereby modified by being re-designated as part (i).

190. 646.07 DURABLE PAVEMENT MARKINGS, is hereby further modified by adding the following new parts (b), (c), and (d):

(b) Pavement Marking Tape, Type B. Type B tape for pavement markings is classified as non-removable, used in long line applications. Type B tape shall conform to the requirements of Subsection 708.12(b).

Type B tapes, when used as a final durable marking, shall be applied only by being inlaid in the bituminous pavement during the rolling operation or in a recess as defined in Subsection 646.09, and shall be applied in accordance with the manufacturer's requirements. Initial dry retroreflectivity minimums shall be 300 mcdl/lx/m^2 for yellow markings and 400 mcdl/lx/m^2 for white markings.

(c) Pavement Marking Tape, Type C. Type C tape for pavement markings is classified as non-removable, used in intersection applications. Type C tape shall conform to the requirements of Subsection 708.12(c).

Type C tapes, when used as a final durable marking, shall be applied only by being inlaid in the bituminous pavement during the rolling operation or in a recess as defined in Subsection 646.09, and shall be applied in accordance with the manufacturer's requirements.

(d) Pavement Marking Tape, Type D. Type D tape for pavement markings is classified as non-removable, used for symbols and legends applications. Type D tape shall conform to the requirements of Subsection 708.12(d).

Type D tapes, when used as a final durable marking, shall be applied only by being inlaid in the bituminous pavement during the rolling operation or in a recess as defined in Subsection 646.09, and shall be applied in accordance with the manufacturer's requirements. Initial dry retroreflectivity minimums shall be 300 mcdl/lx/m^2 for yellow markings and 400 mcdl/lx/m^2 for white markings.

191. 646.07 DURABLE PAVEMENT MARKINGS, part (e) Epoxy Paint, is hereby modified by deleting the fifth (last) sentence in its entirety.

192. 646.07 DURABLE PAVEMENT MARKINGS, part (e) Epoxy Paint, is hereby further modified by adding the following sentences:

Epoxy paint shall be applied at a rate to create a uniform wet film in place thickness of 558.8 µm (22 mils) with an allowable range of ±50.8 µm (±2 mils) unless otherwise specified in the Contract Documents. Minimum application rates are 1.7 square meters per liter (70 square feet per gallon). Initial dry retroreflectivity minimums shall be 300 mcdl/lx/m^2 for yellow markings and 400 mcdl/lx/m^2 for white markings.

193. 646.07 DURABLE PAVEMENT MARKINGS, part (f) Extruded Thermoplastic, is hereby modified by replacing the phrase "708.10" with the phrase "708.10(a)" at the end of the first paragraph.

194. 646.07 DURABLE PAVEMENT MARKINGS, part (f) Extruded Thermoplastic, is hereby further modified by adding the following as the third paragraph:

Thermoplastic markings shall be applied at a rate to create a uniform hot film in place thickness of 2667 µm (105 mils) with an allowable range of ± 127 µm (±5 mils) unless otherwise specified in the Contract Documents. Minimum application rates are 0.36 square meters per liter (15 square feet per gallon).

195. 646.07 DURABLE PAVEMENT MARKINGS, part (f) Extruded Thermoplastic, subpart (1) Thermoplastic Application Equipment, a. Mobile Applicator Equipment, is hereby modified by deleting the phrase ", between 2.4 and 2.5 mm (96 and 100 mils) thick" and replacing it with the phrase "with a uniform hot film in place thickness of 2667 µm (105 mils), with an allowable range of ± 127 µm (±5 mils)" in the second sentence of the second paragraph.

196. 646.07 DURABLE PAVEMENT MARKINGS, part (f) Extruded Thermoplastic, subpart (1) Thermoplastic Application Equipment, b. Portable Applicator Equipment, is hereby modified by deleting the phrase "between 2 and 2.5 mm (80 and 100 mils) thick" and replacing it with the phrase "with a uniform hot film in place thickness of 2667 µm (105 mils) with an allowable range of ± 127 µm (±5 mils)" in the fourth sentence.

197. 646.07 DURABLE PAVEMENT MARKINGS, part (f) Extruded Thermoplastic, subpart (2) Application Requirements, b. Thermoplastic Composition, is hereby modified by replacing the phrase "708.10" with the phrase "708.10(a)".

198. 646.07 DURABLE PAVEMENT MARKINGS, part (f) Extruded Thermoplastic, subpart (2) Application Requirements, d. Extruded Markings, is hereby modified by deleting the phrase "thickness between 2.4 and 2.5 mm (96 and 100 mils)" and replacing it with the phrase "uniform hot film in place thickness between 2.54 and 2.794 mm (100 and 110 mils)".

199. 646.07 DURABLE PAVEMENT MARKINGS, part (f) Extruded Thermoplastic, subpart (2) Application Requirements, e. Beads, is hereby modified by being re-named Optics.

200. 646.07 DURABLE PAVEMENT MARKINGS, part (f) Extruded Thermoplastic, subpart (2) Application Requirements, e. Optics, subpart 1., is hereby modified by adding the phrase "shall be" after the phrase "Type I".

201. 646.07 DURABLE PAVEMENT MARKINGS, part (f) Extruded Thermoplastic, subpart (2) Application Requirements, e. Optics, subpart 1., is hereby further modified by adding the phrase "intermix of the" after the phrase "incorporated into the".

202. 646.07 DURABLE PAVEMENT MARKINGS, part (f) Extruded Thermoplastic, subpart (2) Application Requirements, e. Optics, subpart 1., is hereby still further modified by deleting the numbers "28" and "30" and replacing them with the numbers "30" and "40", respectively.

203. 646.07 DURABLE PAVEMENT MARKINGS, part (f) Extruded Thermoplastic, subpart (2) Application Requirements, e. Optics, subpart 2., is hereby modified by being deleted in its entirety and replaced as follows:

> 2. Initial dry retroreflectivity minimums shall be 300 $mcdl/lx/m^2$ for yellow markings and 400 $mcdl/lx/m^2$ for white markings.

204. 646.07 DURABLE PAVEMENT MARKINGS, is hereby still further modified by adding the following new part (g):

(g) Preformed Thermoplastic. Approved preformed thermoplastic marking materials shall be one of the preformed thermoplastic markings listed on the Approved Products List on file with the Agency's Research and Development Section under Subsection 708.10(b).

205. 646.07 DURABLE PAVEMENT MARKINGS, part (h) Polyurea Paint, is hereby modified by deleting the second sentence in its entirety.

206. 646.07 DURABLE PAVEMENT MARKINGS, part (h) Polyurea Paint, is hereby further modified by adding the following sentences:

Polyurea paint shall be applied at a rate to create a uniform wet film in place thickness of 558.8 µm (22 mils) with an allowable range of ±50.8 µm (±2 mils) unless otherwise specified in the Contract Documents. Minimum application rates are 1.7 square meters per liter (70 square feet per gallon). Initial dry retroreflectivity minimums for surface-applied polyurea shall be 300 mcdl/lx/m^2 for yellow markings and 400 mcdl/lx/m^2 for white markings. Initial dry retroreflectivity minimums for recessed polyurea shall be 600 mcdl/lx/m^2 for yellow markings and 800 mcdl/lx/m^2 for white markings.

207. 646.07 DURABLE PAVEMENT MARKINGS, part (i) Methyl-methacrylate Paint, is hereby modified by deleting the second sentence in its entirety.

208. 646.07 DURABLE PAVEMENT MARKINGS, part (i) Methyl-methacrylate Paint, is hereby further modified by adding new subpart (1) as follows:

(1) Application Requirements.

a. Spray Applied Markings. All spray applied markings shall be applied at a rate to create a uniform wet film in place thickness of 762 µm (30 mils) with an allowable range of ±50.8 µm (±2 mils) unless otherwise specified in the Contract Documents. Minimum application rates are 1.4 square meters per liter (55 square feet per gallon). Initial dry retroreflectivity minimums for surface spray applied methyl-methacrylate shall be 300 mcdl/lx/m^2 for yellow markings and 400 mcdl/lx/m^2 for white markings. Initial dry retroreflectivity minimums for recessed methyl-methacrylate shall be 300 mcdl/lx/m^2 for yellow markings and 400 mcdl/lx/m^2 for white markings.

b. Extruded Markings. All extruded markings shall be applied at a rate to create a uniform wet film in place thickness of 2286 µm (90 mils) with an allowable range of ±127 µm (±5 mils) unless otherwise specified in the Contract Documents. Minimum application rates are 0.45 square meters per liter (18.3 square feet per gallon). Initial dry retroreflectivity minimums shall be 300 mcdl/lx/m^2 for yellow markings and 400 mcdl/lx/m^2 for white markings.

c. Structured Markings. All structured markings shall be applied at a rate to create a uniform wet film in place thickness as per the manufacturer's recommendations unless otherwise specified in the Contract Documents. Initial dry retroreflectivity minimums shall be 300 mcdl/lx/m^2 for yellow markings and 400 mcdl/lx/m^2 for white markings.

209. 646.08 TEMPORARY PAVEMENT MARKINGS, is hereby modified by deleting the phrase "Type II" (first entry) and replacing it with the phrase "Temporary Pavement Marking" in the first sentence.

210. 646.08 TEMPORARY PAVEMENT MARKINGS, part (a) Pavement Marking Tape, Type II, is hereby modified by being re-named Temporary Pavement Marking Tape.

211. 646.08 TEMPORARY PAVEMENT MARKINGS, part (a) Temporary Pavement Marking Tape, is hereby modified by deleting the first sentence in its entirety and replacing it as follows:

This tape for pavement markings is classified as temporary and is removable.

212. 646.08 TEMPORARY PAVEMENT MARKINGS, part (a) Temporary Pavement Marking Tape, second sentence, is hereby modified by deleting the phrase "Type II" and replacing it with the word "The" and by deleting the phrase "Subsection 708.12(b)" and replacing it with the phrase "Subsection 708.13(c)".

213. 646.08 TEMPORARY PAVEMENT MARKINGS, part (b) Pavement Marking Mask, is hereby modified by deleting the phrase "Subsection 708.12(c)" and replacing it with the phrase "Subsection 708.13(d)" in the second sentence.

214. 646.08 TEMPORARY PAVEMENT MARKINGS, part (c) Raised Pavement Markers, Type II, is hereby modified by adding the following sentence to the second (last) paragraph:

They shall conform to the requirements of Subsection 708.13(b) and shall be installed in accordance with the manufacturer's requirements.

215. 646.08 TEMPORARY PAVEMENT MARKINGS, part (d) Line Striping Targets, is hereby modified by being deleted in its entirety and replaced as follows:

(d) Line Striping Targets. Line striping targets are intended to be substitutes for pavement markings for not longer than 14 calendar days. Line striping targets shall be maintained and replaced as needed or as directed by the Engineer, until replaced by a temporary or permanent pavement marking.

Line striping targets of the color shown on the Plans or directed by the Engineer shall be installed as described below or as directed by the Engineer.

For solid longitudinal pavement markings, line striping targets shall be placed at 3 m (10 foot) intervals. For double centerline markings, line striping targets shall be paired. For dashed pavement markings, line striping targets shall be placed in groups of 3 spaced at 1.5 m (5 feet), with the groups separated by 10 m (30 foot) spaces, or as determined by the Engineer.

Line striping targets shall not be used to delineate passing zones on two lane non-divided highways.

Line striping targets shall conform to the requirements of Subsection 708.13(a) and shall be installed in accordance with the manufacturer's requirements.

216. 646.08 TEMPORARY PAVEMENT MARKINGS, is hereby further modified by deleting the first sentence of the last paragraph in its entirety and replacing it as follows:

Temporary markings on the wearing course of pavement that remain in place for fewer than fourteen calendar days shall be Temporary Pavement Marking Tape, Type II raised pavement markers, or line striping targets.

217. 646.08 TEMPORARY PAVEMENT MARKINGS, is hereby still further modified by deleting the word "seven" and replacing it with the word "fourteen" in the second (last) sentence of the last paragraph.

218. 646.09 OTHER RELATED MARKINGS, part (a) Pavement Marking Recess, is hereby modified by deleting the phrase "provided is 125% of the material marking thickness" and replacing it with the phrase "meets the requirements of Table 646.09A" in the first sentence.

219. 646.09 OTHER RELATED MARKINGS, part (a) Pavement Marking Recess, is hereby further modified by deleting the last sentence in its entirety.

220. 646.09 OTHER RELATED MARKINGS, part (a) Pavement Marking Recess, is hereby still further modified by adding the following paragraphs and Table:

The bottom of the recess shall have a smooth, flat finished surface. The use of gang stacked Diamond cutting blades is required for asphalt pavement surfaces. The spacers between blade cuts shall be such that there will be less than a 254 µm (10 mil) rise in the finished groove between the blades.

Recesses shall be clean, dry, and free of laitance, oil, dirt, grease, paint, or other foreign contaminants prior to application of the pavement markings. The Contractor shall re-clean grooves, as necessary, prior to application of any primer or permanent markings. Depth plates shall be provided by the Contractor to assure that desired groove depth is achieved.

TABLE 646.09A - PAVEMENT MARKING RECESS DEPTH

MARKING MATERIAL	STANDARD GLASS BEAD RECESS DEPTH µm (mils)	PREMIUM OPTIC RECESS DEPTH µm (mils)
Permanent Waterborne Paint	762-1016 (30-40)	762-1016 (30-40)
Spray Applied Methyl-methacrylate	1016-1270 (40-50)	1778-2286 (70-90)
Extruded Methyl-methacrylate	2540-2794 (100-110)	2540-2794 (100-110)*
Structured Methyl-methacrylate	As recommended by manufacturer	As recommended by manufacturer*
Thermoplastic	2540-2794 (100-110)	2540-2794 (100-110)*
Polyurea	762-1270 (30-50)	1778-2286 (70-90)
Epoxy	762-1270 (30-50)	1778-2286 (70-90)
Permanent Tape	As recommended by manufacturer	As recommended by manufacturer
*Thermoplastic and Methyl-methacrylate with wet recoverable or wet reflective elements shall have a recess depth of 3048-3302 µm (120-130 mils).		

221. 646.14 BASIS OF PAYMENT, part (a) Paint Pavement Markings, is hereby modified by adding the following pay item ranges:

646.200 to 646.209 100 mm (4 inch) White Line	Meter (Linear Foot)
646.2110 to 646.2119 100 mm (4 inch) Yellow Line	Meter (Linear Foot)
646.2140 to 646.2149 150 mm (6 inch) White Line	Meter (Linear Foot)
646.2150 to 646.2159 150 mm (6 inch) Yellow Line	Meter (Linear Foot)
646.221 to 646.229 200 mm (8 inch) White Line	Meter (Linear Foot)
646.231 to 646.239 200 mm (8 inch) Yellow Line	Meter (Linear Foot)
646.241 to 646.249 300 mm (12 inch) White Line	Meter (Linear Foot)
646.251 to 646.259 300 mm (12 inch) Yellow Line	Meter (Linear Foot)
646.261 to 646.269 600 mm (24 inch) Stop Bar	Meter (Linear Foot)
646.300 to 646.309 Letter or Symbol	Each
646.311 to 646.319 Crosswalk Marking	Meter (Linear Foot)
646.321 to 646.329 Railroad Crossing Symbol	Each

SECTION 653 – EROSION PREVENTION AND SEDIMENT CONTROL MEASURES

222. 653.15 BIOTECHNICAL SLOPE PROTECTION, part (a) Erosion Logs, is hereby modified by being deleted in its entirety and replaced with the following:

(a) Erosion Logs. Erosion logs shall be installed to intercept water flow and collect sediment and associated pollutants by settling and filtering. Erosion logs may be placed over bare or mulched soils or rolled erosion control products; around inlet and outlets; as check dams in unvegetated ditches, slope interrupters on steep slopes, and perimeter control; and along stream banks as a base for plantings. Some types of erosion logs (typically those with a heavier filtering medium such as compost) can be used in applications where underlying conditions are unsuitable (frozen ground, paved surfaces, sensitive plantings areas, etc.) for trenching.

Prior to placing erosion logs, the ground surface shall be properly graded and compacted and free of depressions or obstructions such as tree roots, protruding stones, or other foreign matter.

Erosion logs shall be installed in accordance with the manufacturer's installation guidelines, staking pattern guide, and details based upon the intended use on the construction site.

The Contractor shall remove accumulated sediment when it has reached 1/2 of the effective height of the log, or as directed by the Engineer. Alternatively, a new erosion log may be placed on top of and slightly behind the original one creating more sediment storage capacity. Erosion logs shall be maintained until disturbed area above the device has been permanently stabilized and construction activity has ceased.

When used as a temporary erosion prevention and sediment control measure, erosion logs may be cut open and left in place, but only if the fill material and netting are 100% biodegradable and the material is spread or graded flat so as to not cause concentration of future surface runoff.

SECTION 656 – PLANTING TREES, SHRUBS, AND VINES

223. 656.02 MATERIALS, is hereby modified by deleting the first entry in the Subsection listing (for "Barrier Fence") in its entirety.

224. 656.02 MATERIALS, is hereby further modified by adding the following as the second paragraph (directly below the Subsection listing):

Barrier Fence shall meet the requirements of Section 653.

SECTION 677 – OVERHEAD TRAFFIC SIGN SUPPORTS

225. 677.01 DESCRIPTION, is hereby modified by adding the phrase "and removing and disposing of existing overhead traffic sign supports," after the phrase "supports,".

226. 677.03 GENERAL, is hereby modified by adding the following paragraph:

Where existing overhead traffic sign supports are to be removed, the Contractor shall remove and dispose of the entire sign assembly, including concrete footings, to a depth of 450 mm (18 inches) below existing grade. Areas of ground disturbance shall be restored to the satisfaction of the Engineer.

227. 677.05 METHOD OF MEASUREMENT, is hereby modified by adding the following paragraph:

The quantity of Remove Existing Overhead Sign Assembly of the type specified to be measured for payment will be the number of each assembly removed in the complete and accepted work.

228. 677.06 BASIS OF PAYMENT, is hereby modified by adding the following paragraphs and pay items:

The accepted quantity of Remove Existing Overhead Sign Assembly of the type specified will be paid for at the Contract unit price per each. Payment will be full compensation for removing and disposing of assembly components, including concrete footings; for performing any excavation necessary; for restoring areas of ground disturbance; and for furnishing all labor, tools, equipment, and incidentals necessary to complete the work.

Costs associated with providing traffic control and/or flaggers for performing the work will be paid under the appropriate Contract item(s).

Payment will be made under:

Pay Item	Pay Unit
677.30 Remove Existing Overhead Sign Assembly, Cantilever	Each
677.35 Remove Existing Overhead Sign Assembly, Multi-Support	Each

SECTION 678 – TRAFFIC CONTROL SIGNALS

229. 678.01 DESCRIPTION, is hereby modified by adding the phrase ", and removing existing traffic control systems" after the word "system" in the first paragraph.

230. 678.02 MATERIALS, is hereby corrected by deleting "convers" and replacing it with the word "covers" in the second sentence of the last paragraph of the Subsection text.

231. 678.07 – DETECTORS AND CONTROLLERS, is hereby corrected by deleting "maufacturer" and replacing it with the word "manufacturer" in the first sentence of the second (last) paragraph.

232. 678.11 INSTALLATION, sixteenth paragraph, part (a), is hereby modified by adding the following:

The Contractor shall remove any equipment to be salvaged or reused in such a manner that the equipment is not damaged.

233. 678.13 METHOD OF MEASUREMENT, is hereby modified by adding the following paragraph:

The quantity of Removal of Existing Traffic Control Signal System to be measured for payment will be for each traffic control signal system removed in the complete and accepted work.

234. 678.14 BASIS OF PAYMENT, is hereby modified by adding the phrase "all removal, disposal, and salvage and/or reuse of existing system equipment and components," after the phrase "Electrical Wiring," in the second sentence of the first paragraph.

235. 678.14 BASIS OF PAYMENT, is hereby further modified by adding the following paragraph and pay item:

The accepted quantity of Removal of Existing Traffic Control Signal System will be paid for at the Contract unit price per each. Payment will be full compensation for removing and handling the existing traffic control signal system components as specified in the Contract Documents and for furnishing all labor, materials, tools, equipment, and incidentals necessary to complete the work.

Payment will be made under:

Pay Item	Pay Unit
678.45 Removal of Existing Traffic Control Signal System	Each

SECTION 700 GENERAL

236. 700.01 GENERAL STATEMENT, is hereby corrected by deleting punctuation ".,." at the end of the first sentence of the fourth paragraph and replacing it with punctuation ".".

237. 700.02 MATERIALS CERTIFICATIONS, part (a) General, is hereby modified by deleting subpart (3) in its entirety.

238. 700.02 MATERIALS CERTIFICATIONS, part (a) General, is hereby further modified by adding the following as the seventh paragraph:

All certifications shall be forwarded to the Vermont Agency of Transportation Materials Section.

SECTION 702 - BITUMINOUS MATERIALS

239. 702.02 PERFORMANCE-GRADED ASPHALT BINDER (PREPARED FROM PETROLEUM), part (a) Properties, is hereby modified by adding the abbreviation "(PGB)" after the word "binder" in the first sentence.

240. 702.02 PERFORMANCE-GRADED ASPHALT BINDER (PREPARED FROM PETROLEUM), part (a) Properties, is hereby further modified by deleting the second sentence of the first paragraph in its entirety and replacing it with the following:

PGB shall be asphalt prepared solely by the refining of crude petroleum and shall meet the requirements of AASHTO M 320 from facilities compliant with AASHTO R 29 without the addition of modifiers.

241. 702.02 PERFORMANCE-GRADED ASPHALT BINDER (PREPARED FROM PETROLEUM), part (a) Properties, is hereby still further modified by adding the following as the third and fourth (last) sentences of the second paragraph:

If additives are used for the modification of asphalt, preapproval is required. The addition of any material not normally obtained during the initial refining process shall constitute modified asphalt and shall be labeled appropriately.

242. 702.02 PERFORMANCE-GRADED ASPHALT BINDER (PREPARED FROM PETROLEUM), part (a) Properties, is hereby still further modified by adding the following as the third (last) paragraph:

The performance graded binder shall be manufactured in accordance with the approved Quality Control Plan. The manufacturer shall remain in compliance with the plan, including all notifications, sampling, testing, and reporting requirements.

243. 702.02 PERFORMANCE-GRADED ASPHALT BINDER (PREPARED FROM PETROLEUM), part (b) Pretest, is hereby modified by being re-designated as part (c).

244. 702.02 PERFORMANCE-GRADED ASPHALT BINDER (PREPARED FROM PETROLEUM), part (c) Certification, is hereby modified by being re-designated as part (d).

245. 702.02 PERFORMANCE-GRADED ASPHALT BINDER (PREPARED FROM PETROLEUM), is hereby modified by adding the following new part (b):

(b) Effect of Approval. VTrans reserves its right to remove its approval of any PGB lot if, in the sole discretion of the Agency, such approval was based on a material non-disclosure by the PGB supplier.

SECTION 704 – AGGREGATES

246. 704.10 AGGREGATE FOR BITUMINOUS CONCRETE PAVEMENT, part (a) Aggregate for Marshall Bituminous Concrete Pavement, subpart (1) Grading, c. Recycled Asphalt Pavement (RAP), is hereby modified by deleting the word "four" and replacing it with the word "two" in the seventh sentence of the fifth paragraph.

247. 704.10 AGGREGATE FOR BITUMINOUS CONCRETE PAVEMENT, part (b) Aggregate for Superpave Bituminous Concrete Pavement, subpart (1) Grading, c. Recycled Asphalt Pavement (RAP), is hereby modified by deleting the word "four" and replacing it with the word "two" in the seventh sentence of the sixth paragraph.

SECTION 708 – PAINTS, STAINS, AND TRAFFIC MARKING MATERIALS

248. 708.01 GENERAL REQUIREMENTS, part (c) Sampling, Testing, and Certification, subpart (2) Testing, is hereby modified by adding the following:

All other materials may be required to be tested on a cold weather AASHTO National Transportation Product Evaluation Program (NTPEP) pavement marking test deck.

249. 708.08 PAINT FOR PAVEMENT MARKINGS, part (b) Low VOC Traffic Paint, is hereby modified by adding the following as the first paragraph:

Ready-mixed Low VOC Chlorinated Rubber Traffic Paint shall consist of 100% chlorinated rubber type, fast drying traffic paint that shall contain properly formulated pigment and vehicle to give the desired results.

250. 708.08 PAINT FOR PAVEMENT MARKINGS, part (b) Low VOC Traffic Paint, subpart (1) Materials, is hereby modified by adding the following new subpart d.:

d. The paint shall contain a maximum of 0.005% w/w (50 ppm w/w) lead. The EPA Method 1311 (TCLP) extract of the paint shall not contain amounts of cadmium, mercury, hexavalent chromium, or other toxic heavy metals in excess of the limits specified in SW-846.

251. 708.08 PAINT FOR PAVEMENT MARKINGS, part (b) Low VOC Traffic Paint, subpart (2) Composition, is hereby modified by deleting the phrase "and shall be a 100% acrylic binder" in the first sentence.

252. 708.08 PAINT FOR PAVEMENT MARKINGS, part (b) Low VOC Traffic Paint, subpart (2) Composition, is hereby further modified by deleting the phrase "Table 708.08A" and replacing it with the phrase "the following:" in the second (last) sentence.

253. 708.08 PAINT FOR PAVEMENT MARKINGS, part (b) Low VOC Traffic Paint, subpart (2) Composition, is hereby still further modified by deleting TABLE 708.08A in its entirety and replacing it with the following:

TABLE 708.08A – LOW VOC CHLORINATED RUBBER TRAFFIC PAINT COMPOSITION

PERFORMANCE CHARACTERISTIC	WHITE	YELLOW/BLUE/ GREEN
Pigment Content, % by Mass (Weight) (ASTM D3723)	55% min. 59% max.	55% min 59% max.
Vehicle Content, % by Mass (Weight)	38% min. 42% max.	38% min. 42% max.
VOC Content, Mass (Weight) per Unit Volume (ASTM D3960)	150 g/L (1.25 lb/gal) max.	150 g/L (1.25 lb/gal) max.
Lead Content, %	0.005% max.	0.005% max.
Yellow Pigment	N/A	Yellow #65 or #75
Titanium Dioxide, Rutile Type II, (ASTM D1394)	120 g/L (1.00 lb/gal) max.	25 g/L (0.21 lb/gal) max.
Total Non-Volatile Content, % by Mass (Weight) (ASTM D2369)	70.0% min.	69.0% min.
Density, (ASTM D1475)	1.50 ± 0.04 kg/L (12.5 ± 0.33) lb/gal	1.46 ± 0.04 kg/L (12.2 +/- 0.33 lb/gal)
Close Cup Flash Point (ASTM D 3278)	4°C (39 °F) min.	4°C (39°F) min.

TABLE 708.08B - LOW VOC ACETONE BASED TRAFFIC PAINT COMPOSITION

PERFORMANCE CHARACTERISTIC	WHITE	YELLOW/BLUE/ GREEN
Pigment Content, % by Mass (Weight) (ASTM D3723)	53% min. 57% max.	51% min 56% max.
Vehicle Content, % by Mass (Weight)	37% min. 42% max.	37% min. 42% max.
VOC Content, Mass (Weight) per Unit Volume (ASTM D3960)	150 g/L (1.25 lb/gal) max.	150 g/L (1.25 lb/gal) max.
Lead Content, %	0.005% max.	0.005% max.
Yellow Pigment	N/A	Yellow #65 or #75
Titanium Dioxide, Rutile Type II, (ASTM D1394)	120 g/L (1.00 lb/gal) max.	25 g/L (0.21 lb/gal) max.
Total Non-Volatile Content, % by Mass (Weight) (ASTM D2369)	70.0% min.	69.0% min.
Density, (ASTM D1475)	1.415 ± 0.04 kg/L (11.8 ± 0.33) lb/gal	1.367 ± 0.04 kg/L (11.4 +/- 0.33 lb/gal)
Close Cup Flash Point (ASTM D 3278)	-20°C (-4°F) min.	-20°C (-4°F) min.

254. 708.08 PAINT FOR PAVEMENT MARKINGS, part (b) Low VOC Traffic Paint, subpart (3) Laboratory Tests, subpart a. Viscosity, is hereby modified by being deleted in its entirety and replaced as follows:

a. Viscosity.

1. Chlorinated Rubber Traffic Paint. The paint viscosity shall not be less than 74 nor more than 90 Krebs units at 25°C (77°F) when tested according to ASTM D562.

2. Acetone Based Traffic Paint. The paint viscosity shall not be less than 70 nor more than 88 Krebs units at 25°C (77°F) when tested according to ASTM D562.

255. 708.08 PAINT FOR PAVEMENT MARKINGS, part (b) Low VOC Traffic Paint, subpart (4) Sampling and Testing, subpart a. Sampling Size, is hereby modified by deleting the phrase "per batch of each type and color of traffic paint" and replacing it with the phrase "of each traffic paint per batch," in the first sentence.

256. 708.08 PAINT FOR PAVEMENT MARKINGS, part (b) Low VOC Traffic Paint, subpart (4) Sampling and Testing, subpart c. Sample Delivery, is hereby modified by deleting the first paragraph in its entirety and replacing it as follows:

> All samples shall be delivered to the Materials Engineer, Vermont Agency of Transportation, Materials Section, 2178 Airport Road Unit B, Berlin, Vermont 05641.

257. 708.08 PAINT FOR PAVEMENT MARKINGS, part (d) Waterborne Traffic Paint, subpart (3) Laboratory Tests, d. Drying Time (No Pick Up Time), is hereby modified by deleting the phrase "380 microns" and replacing it with the phrase "381 µm".

258. 708.08 PAINT FOR PAVEMENT MARKINGS, part (d) Waterborne Traffic Paint, subpart (3) Laboratory Tests, e. No Track Time (Field Test), is hereby modified by deleting the phrase "508 microns" and replacing it with the phrase "508 µm" in the second sentence.

259. 708.08 PAINT FOR PAVEMENT MARKINGS, part (d) Waterborne Traffic Paint, subpart (4) Sampling and Testing, c. Sample Delivery, is hereby corrected by deleting the phrase "1716 Barre-Montpelier Road, Berlin, VT 05602" and replacing it with the phrase "2178 Airport Road Unit B, Berlin, Vermont 05641" in the first paragraph.

260. 708.09 GLASS BEADS, is hereby modified by being re-named OPTICS.

261. 708.09 OPTICS, is hereby modified by adding new part (a) heading Glass Beads.

262. 708.09 OPTICS, part (a) Properties, is hereby modified by being re-designated as subpart (1) under part (a) heading Glass Beads.

263. 708.09 OPTICS, part (b) Certification, is hereby modified by being re-designated as subpart (2) under part (a) heading Glass Beads.

264. 708.09 OPTICS, is hereby further modified by adding the following new parts (b) and (c):

(b) Premium Optics. Approved premium optics shall be one of the premium optics listed on the Approved Products List on file with the Agency's Research and Development Section.

(c) Wet Recoverable and Wet Reflective Optics. Approved wet recoverable and wet reflective optics shall be one of the wet recoverable and wet reflective optics listed on the Approved Products List on file with the Agency's Research and Development Section.

265. 708.10 THERMOPLASTIC PAVEMENT MARKINGS, is hereby modified by being deleted in its entirety and replaced as follows:

708.10 THERMOPLASTIC PAVEMENT MARKINGS.

(a) Thermoplastic Pavement Markings, Type A. Type A Thermoplastic Pavement Markings shall be one of the Thermoplastic Pavement Markings on the Approved Products List on file with the Agency's Research and Development Section. These markings shall be used in long line applications or as specified in the Contract Documents. Thermoplastic composition shall comply with Table 708.10A.

TABLE 708.10A – THERMOPLASTIC PAVEMENT MARKING COMPOSITION
(by mass (weight)

Binder	18% Minimum
Filler	40% Maximum
Glass Beads	30 ±5-40%

(b) Thermoplastic Pavement Markings, Type B. Type B Thermoplastic Pavement Markings shall be one of the Preformed Thermoplastic Pavement Markings on the Approved Products List on file with the Agency's Research and Development Section. These markings shall be used in intersection applications for legends, stopbars, or symbols or as specified in the Contract Documents.

266. 708.11 RAISED PAVEMENT MARKERS, is hereby modified by being re-named RAISED PAVEMENT MARKERS, TYPE I.

267. 708.12 PAVEMENT MARKING TAPE, is hereby modified by deleting parts (a) Pavement Marking Tape, Type I, (b) Pavement Marking Tape, Type II, and (c) Pavement Marking Mask in their entirety and replacing them as follows:

(a) Pavement Marking Tape, Type A. Type A Pavement Marking Tape shall be one of the non-removable permanent pavement marking tapes on the Approved Products List on file with the Agency's Research and Development Section that exhibit high adhesion, high durability, and high retroreflectivity. These markings shall be used in high AADT locations in long line applications as specified in the Contract Documents.

(b) Pavement Marking Tape, Type B. Type B Pavement Marking Tape shall be one of the non-removable pavement marking tapes on the Approved Products List on file with the Agency's Research and Development Section. These markings shall be used in lower AADT locations in long line applications as specified in the Contract Documents.

(c) Pavement Marking Tape, Type C. Type C Pavement Marking Tape shall be one of the non-removable pavement marking tapes on the Approved Products List on file with the Agency's Research and Development Section. These markings shall be used at intersection locations only as specified in the Contract Documents.

268. 708.12 PAVEMENT MARKING TAPE, is hereby further modified by adding the following new part (d):

(d) Pavement Marking Tape, Type D. Type D Pavement Marking Tape for legends and symbols shall be one of the non-removable pavement marking tapes on the Approved Products List on file with the Agency's Research and Development Section. These markings shall be used for preformed traffic markings made of the same material as that of an approved permanent Type A, B, or C tape.

269. 708.13 PREFORMED TRAFFIC MARKINGS AND SYMBOLS, is hereby modified by being deleted in its entirety and replaced as follows:

708.13 TEMPORARY DELINEATION SYSTEMS.

(a) Line Striping Targets. Line Striping Targets shall be one of the Line Striping Targets on the Approved Products List on file with the Agency's Research and Development Section.

(b) Raised Pavement Markers, Type II. Acceptable Raised Pavement Markers shall be one of the Raised Pavement Markers on the Approved Products List on file with the Agency's Research and Development Section.

(c) Temporary Pavement Marking Tape. Pavement Marking Tape shall be one of the removable pavement marking tapes on the Approved Products List on file with the Agency's Research and Development Section.

(d) Pavement Marking Mask. Pavement Marking Mask shall be one of the Masking Marking Tapes on the Approved Products List on file with the Agency's Research and Development Section.

270. 708.14 LINE STRIPING TARGETS, is hereby modified by being deleted in its entirety.

SECTION 710 – CULVERTS, STROM DRAINS, AND SEWER PIPES, NONMETAL

271. 710.03 CORRUGATED POLYETHYLENE PIPE, is hereby modified by adding the following as the last sentence:

In order to maintain approval status, polyethylene pipe manufacturers must participate in, and maintain compliance with, the AASHTO National Transportation Product Evaluation Program (NTPEP), which audits producers of the pipe.

272. 710.07 CORRUGATED POLYPROPYLENE PIPE, is hereby made a new Subsection of the Standard Specifications as follows:

273. 710.07 CORRUGATED POLYPROPYLENE PIPE. Corrugated polypropylene pipe and fittings shall conform to the latest revisions of AASHTO M 330, Type S. Acceptable corrugated polypropylene pipe shall be one of the corrugated polypropylene pipe products on the Approved Products List on file with the Agency's Materials and Research Section. In order to maintain approval status, polypropylene pipe manufacturers must participate in, and maintain compliance with, the AASHTO National Transportation Product Evaluation Program (NTPEP), which audits producers of the pipe.

SECTION 712 - CRIBBING MATERIALS

274. 712.04 GABION BASKETS, part (a) Wire for Gabion Baskets, is hereby modified by changing the word "shall" to the word "may" and by adding the phrase "or welded panels" after the phrase "woven wire mesh" in the first sentence of the first paragraph.

275. 712.04 GABION BASKETS, part (a) Wire for Gabion Baskets, is hereby further modified by adding the following as the third sentence of the first paragraph:

Welded panels shall be coated by hot dip galvanizing after fabrication.

276. 712.04 GABION BASKETS, part (b) PVC Coating for Gabion Baskets, is hereby modified by adding the following new subpart (7):

(7) Punch Test. The mesh shall achieve satisfactory performance on the Punch Test, as described in ASTM A975 13.1.4. This requirement applies to both woven and welded gabion baskets.

SECTION 713 - REINFORCING STEEL, WELDED WIRE REINFORCEMENT, AND REINFORCING STRAND

277. 713.01 BAR REINFORCEMENT, is hereby modified by deleting the phrase "conforming to AASHTO M 31M/M 31, including supplementary requirements" and replacing it with the phrase ", unless otherwise specified in the Contract Documents" in the first paragraph.

278. 713.01 BAR REINFORCEMENT, is hereby further modified by adding the following new parts (a)-(f) and associated paragraphs:

(a) Plain Reinforcing Steel. Plain reinforcing steel shall conform to AASHTO M 31M/M 31, including supplementary requirements.

(b) Low Alloy Reinforcing Steel. Low alloy reinforcing steel shall conform to ASTM A 706/A 706M.

(c) Epoxy Coated Reinforcing Steel. Epoxy coated reinforcing steel shall have an electrostatically applied organic epoxy protective coating, which has been prequalified, fabricated, tested, and installed in accordance with AASHTO M 284M/M 284.

(d) Stainless Clad Reinforcing Steel. Stainless clad reinforcing steel shall meet the requirements of AASHTO M 329M/M 329.

(e) Dual-Coated Reinforcing Steel. Dual-coated reinforcing steel shall meet the requirements of ASTM A 1055/A 1055M.

(f) Solid Stainless Reinforcing Steel. Solid stainless reinforcing steel shall meet the requirements of ASTM A 955/A 955M with one of the following UNS designations: S24100, S30400, S31603, S31653, S32101, S32201, S32205, or S32304. Different designations shall not be mixed within the same project.

Where no core steel requirements are specified in the above specifications, the steel core of the bar reinforcement shall meet the requirements of plain reinforcing steel.

Certification. A Type D Certification shall be furnished in accordance with Subsection 700.02. Certification for Epoxy Coated Reinforcing Steel shall include the coating and coating process.

279. 713.07 COATED BAR REINFORCEMENT, is hereby modified by being deleted in its entirety.

280. 713.02 MECHANICAL SPLICES FOR BAR REINFORCEMENT, is hereby modified by adding the phrase ", except that epoxy coated mechanical splices shall be allowed when Level II reinforcing steel is required" after the phrase "intended to splice" in the second sentence of the first paragraph.

SECTION 714 - STRUCTURAL STEEL

281. 714.08 ANCHOR BOLTS, BEARING DEVICES, is hereby corrected by deleting ".F" and replacing it with "F" in the first sentence of the first paragraph.

282. 714.08 ANCHOR BOLTS, BEARING DEVICES, is hereby further corrected by deleting punctuation "." and replacing it with punctuation "." at the end of the second sentence of the first paragraph.

SECTION 726 - PROTECTIVE COATINGS AND WATERPROOFING MATERIALS

283. 726.10 CONCRETE STAINING AND SEALING SYSTEMS, is hereby made a new Subsection of the Standard Specifications as follows:

726.10 CONCRETE STAINING AND SEALING SYSTEMS. Approved Concrete Staining and Sealing Systems shall be one of the Concrete Staining and Sealing Systems on the Approved Products List on file with the Agency's Materials and Research Section.

284. 726.11 SHEET MEMBRANE WATERPROOFING, PREFORMED SHEET, is hereby made a new Subsection of the Standard Specifications as follows:

726.11 SHEET MEMBRANE WATERPROOFING, PREFORMED SHEET. Approved Preformed Sheet Membrane Waterproofing Systems shall be one of the Preformed Sheet Membrane Waterproofing Systems on the Approved Products List on file with the Agency's Materials and Research Section.

SECTION 731 - BEARING PADS FOR STRUCTURES

285. 731.03 ELASTOMERIC MATERIAL, is hereby modified by deleting the second and third paragraphs in their entirety and replacing them with the following:

Unless noted otherwise, elastomer shall have a design hardness of 50 points and a design shear modulus of 0.8 MPa (110 psi).

Testing of elastomeric material shall be waived for bearings that will be encased in concrete in the final work. All other bearings shall be tested in accordance with the following table:

TABLE 731.03A – REQUIRED TESTS

Material Property	Test Method	Required Result
Hardness	ASTM D 2240	design hardness +/- 5 points
	or	
Shear Modulus	ASTM D 412 with AASTHO M 251 Section 8.8.4	design shear modulus +/- 15%
Low Temperature Brittleness	ASTM D 746 Procedure B	Pass Grade 4 test
Shear Bond Strength	AASHTO M 251 Annex A2 or Appendix X2	Pass
Min Tensile Strength	ASTM D 412	15.6 MPa (2250 psi)
Min Ultimate Elongation	ASTM D 412	(650 - 5 X design hardness)%

SECTION 755 – LANDSCAPING MATERIALS

286. 755.17 EROSION LOGS, is hereby modified by being deleted in its entirety and replaced with the following:

Erosion logs are available in varying diameters. The Contractor shall follow the manufacturer's recommendations for the material type and size based on the intended use.

Erosion logs shall be composed of weed-seed-free coir, straw, excelsior, compost, or other biodegradable filtering medium encased in a photo-degradable and/or biodegradable netting or mesh.

Netting shall have openings of 13 to 25 mm (1/2 to 1 inch), with the exception of compost filled logs which should be 3 to 10 mm (1/8 to 3/8 inch) or as recommended by the manufacturer and accepted by the Engineer.

Anchors for erosion logs shall be wooden stakes, U-shaped wire or earth anchors, or rebar stakes; the size and length shall be as recommended by the manufacturer.

Compost shall meet the requirements of Table 755.05A, with the exception that particle size shall be 99% < 50 mm (2 inches) and maximum 30% < 10 mm (3/8 inch).

SECTION 780 – CONCRETE REPAIR MATERIALS

287. 780.05 POLYMER CONCRETE REPAIR MATERIAL, is hereby made a new Subsection of the Standard Specifications as follows:

780.05 POLYMER CONCRETE REPAIR MATERIAL. Approved Polymer Concrete Repair Materials shall be one of the Polymer Concrete Repair Materials on the Approved Products List on file with the Agency's Materials and Research Section.

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APPENDIX J

Example Bid, Performance and Payment Bond Forms

BID BOND

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

_____

as Principal, and _____ as _____

Surety, are hereby held and firmly bound unto Rutland City

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

Signed this_____day of_____ , 20__.
The Condition of the above obligation in such that whereas the

Principal has submitted to Rutland City a certain
BID, attached hereto and hereby made a part hereof to enter into a
contract in writing, for Rutland City STP 3000(20)

_____

_____

NOW, THEREFORE,

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

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

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

_____ (L.S.)
Principal

_____
Surety

By:_____

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

PERFORMANCE BOND

KNOW ALL MEN AND WOMEN BY THESE PRESENTS: that

_____
(Name of Contractor)

_____
(Address of Contractor)

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

and _____
(Name of Surety)

_____
(Address of Surety)

hereinafter called Surety, are held and firmly bound unto

Rutland City
(Name of Owner)

81 Main Street, Essex Junction, Vermont 05452
(Address of Owner)

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

Rutland City STP 3000(20)

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

Provided, further, that the said Surety for value received hereby stipulates and agrees that no change, extension of time, alteration or addition to the terms of the contract or to the Work to be

performed thereunder or the Specifications accompanying the same shall in any 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 contact to the Work or to the Specifications.

Provided, further, that no final settlement between the Owner and the Contractor shall abridge the right of any beneficiary hereunder, whose claim may be unsatisfied.

IN WITNESS WHEREOF, this instrument is executed in _____ (number) counterparts, each one of which shall be deemed an original, this the ___ day of _____, 20__.

ATTEST:

_____
Principal

_____
(Principal Secretary)

(SEAL)

By: _____(s)

Address: _____

_____

_____
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 located.

PAYMENT BOND

KNOW ALL MEN OR WOMEN BY THESE PRESENTS: that

_____
(Name of Contractor)

_____
(Address of Contractor)

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

and _____
(Name of Surety)

_____
(Address of Surety)

hereinafter called Surety, are held and firmly bound unto

Rutland City
(Name of Owner)

81 Main Street, Essex Junction, VT 05452
(Address of Owner)

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

Rutland City STP 3000(20)

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 for 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 thereunder or the Specifications accompanying the same shall in any way affect its obligation on this Bond, and it does hereby waive notice of any such change, extension of time, alteration or addition to the terms of the contract or to the Work or to the Specifications.

Provided, further, that no final settlement between the Owner and the Contractor shall abridge the right of any beneficiary hereunder, whose claim may be unsatisfied.

IN WITNESS WHEREOF, this instrument is executed in _____ (number) counterparts, each one of which shall be deemed an original, this the ___ day of _____ 20_____.

ATTEST:

_____
(Principal Secretary)

(SEAL)

_____
Witness as to Principal

Address: _____

_____
Principal

By: _____(s)

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 Bond 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.

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APPENDIX K

Project Change Order Form

CHANGE ORDER

Date: _____

Change Order No: _____

Name of Project: _____

Municipality: _____

Contractor: _____

The following changes are hereby made to the Contract:

Justifications:

Change to Contract Price: $ _____

Original Contract Price: $ _____

Current Contract Price adjusted by previous Change Order: $ _____

The Contract Price due to this Change Order will be (increased) decreased by: $ _____

New Adjusted Contract Price: $ _____

Change to Contract Time: _____

The Contract Time will be (increased) decreased by _____Calendar days

The date for completion of all work will be _____

APPROVALS

Contractor: _____

Construction Inspector: _____

Municipality: _____

VTrans Project Manager: _____

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APPENDIX L

VTrans Work Zone Safety and Mobility Guidance Document

WORK ZONE SAFETY & MOBILITY GUIDANCE DOCUMENT

August 2007

Prepared by:

Vermont Agency of Transportation

The following document was drafted in response to updates made to the work zone regulations at 23 CFR 630 Subpart J, published by the Federal Highway Administration. This document applies to all federal aid projects that have a pre-final contract administration/step submittal date after January 1, 2008.

Work Zone Safety and Mobility Vision

Current and future work zone safety and mobility issues mean that transportation practitioners need to minimize and manage the work zone impacts of transportation projects. In order to meet safety and mobility needs during highway maintenance and construction, and to meet the expectations of the traveling public, it is important to systematically analyze and assess the work zone impacts of projects and take appropriate action to manage these impacts.

The following has been adopted as the Vermont Agency of Transportation's (VTrans) work zone safety and mobility vision statement: *To provide optimum safety for workers and the traveling public while maintaining acceptable levels of mobility in an efficient environment for the contractors to complete the project work in accordance with their contracts.*

Work Zone Safety and Mobility Goals and Strategies

Goal: To provide a safe work zone for motorists, pedestrians, bicyclists (the traveling public) and construction personnel.

> Strategy: Development of site-specific traffic control plans, while ensuring compliance with the Manual on Uniform Traffic Control Devices (MUTCD) and state design standards and specifications.

Goal: To minimize construction-related delays.

> Strategy: Construction-related delays will be monitored. A change to the traffic management plan will be considered for construction-related delays greater than ten minutes.

Goal: To gain further knowledge of work zone procedures applicable to the State of Vermont.

> Strategy: Summarize the work zone field evaluations to identify the effectiveness of implemented safety measures and to improve future Transportation Management Plans (TMP).

Goal: To ensure that the appropriate personnel have the necessary knowledge, skills, and abilities to design and/or implement a TMP.

Strategy: Management will be responsible for ensuring that their personnel has been provided appropriate training in accordance with their defined roles. Training to include but not limited to: flagger certification, NHI courses, AGC training, and the Vermont Local Roads Program courses.

Project Classification

The purpose of the Work Zone Safety and Mobility Guidance document is to allow VTrans to better anticipate the impacts associated with individual projects. Examples of impacts include internal project coordination, project scheduling and overall cost. Every federally funded project will require a TMP. The classification of the project will determine the complexity of the TMP. All transportation projects must be classified into one of three types of projects: significant, moderate, or minor projects. To accurately classify a project, several design characteristics must be analyzed to provide **guidance** in determining the appropriate project classification. The following characteristics should be evaluated when determining any project classification. These characteristics include but are not limited to:

- Project Location (Urban/Rural Setting)
- Primary Network (Interstate, Interchanges, Major State Roads, Major Intersections, NHS, Truck Network)
- Construction Duration (Months, Years)
- Access Management Category (Driveway Density, Business/Industry Density)
- Traffic Volumes (Average Annual Daily Traffic, Peak Hour Traffic, Existing Crash Rates, Car-Truck-Pedestrian-Bicycle Volumes)
- Proximity To Other Construction Projects
- Available Detour Routes

A project classification should be identified by the appropriate Project Manager[1], and confirmed by their respective Program Manager as early as the scoping process. This classification should be analyzed periodically throughout the design process to ensure that any design changes or site characteristic changes will not require a classification modification. Project classification is used to help identify the impacts associated with different types of transportation projects. This classification is used to determine what TMP should be applied to the project. The following definitions closely follow FHWA's Work Zone Self Assessment, http://www.ops.fhwa.dot.gov/wz/docs/wz-sa-docs/sa_guide_s4.htm.

[1] Please note that the position titles used in this document are typical Program Development Division titles. Applicable Operations Division titles as well as alternate VTrans Division titles may be substituted as necessary.

Significant Projects: Significant projects have a high level of public interest and will likely impact a large number of travelers. This impact must be analyzed individually and also in combination with concurrent active projects. It will have moderate to high user-cost impacts and the duration is usually moderate to long. These characteristics create work zone impacts that fall outside of the typical work zone safety and mobility thresholds. Examples of this work type may include: major corridor reconstruction, high impact intersection reconstruction, full closures on high volume facilities, major bridge reconstruction or repair, repaving projects that require long term lane closures, etc (e.g. Shelburne-South Burlington US 7 Reconstruction Project). It is important to note that significant projects are unique in that they have considerable impacts to the project area as well as the surrounding community.

Moderate Projects: Moderate projects have the potential to affect the level of public interest and may impact a modest number of commuters. These projects would include typical roadway, bridge, and paving projects.

Minor Projects: Minor projects have a minimal impact to the traveling public and a short duration. Typical projects within this category include sign installation, bridge inspection, pavement marking, and various maintenance activities.

Transportation Management Plans (TMPs)

TMPs are strategies/methodologies that will be implemented to ensure safe and mobile work zones within transportation projects. The project classification will determine the detail level required for the TMP. There are three major components of a TMP;

Temporary Traffic Control Plan (TTC): A TTC plan describes temporary traffic control measures to be used for facilitating road users through a work zone or an incident area. The TTC plan plays a vital role in providing continuity of reasonably safe and efficient road user flow and highway worker safety when a work zone, incident, or other event temporarily disrupts normal road user flow. The TTC plan shall be consistent with the provisions of the MUTCD and AASHTO Roadside Design Guide.

Transportation Operations Component (TO): The TO component shall include the identification of strategies to mitigate impacts of the work zone on the operation of the transportation system within the work zone impact area. The work zone impact area consists of the immediate work zone as well as affects to the surrounding roadways and communities. Examples of practices that may be used to satisfy the TO component may be found at http://www.ops.fhwa.dot.gov/wz/rule_guide/sec6.htm#sec63.

Public Information Component (PI): The PI component shall include communication strategies that seek to inform the general public of work zone impacts and the changing condition of the project. The general public may

include road users, area residences and businesses, and other public entities. Examples of communications strategies that may be used to satisfy the PI component may be found at http://www.ops.fhwa.dot.gov/wz/rule_guide/sec6.htm#sec63.

Significant Projects: The TMP for significant projects shall consist of a TTC, a TO, and a PI.

Moderate/Minor Projects: The TMP for moderate and minor projects shall consist of a TTC. A TO and a PI are not required, but may be applicable to certain projects as determined by the Project Manager.

Design Strategies

The development of a TMP is an iterative process that may vary significantly between projects. Work on a TMP should begin early in the project development process. There are numerous resources available to the designer to assist in the development of this plan: several of these are listed in the reference section of this document. The following outlines the key components of the TMP development process.

Preliminary Data Collection: As early as scoping, the project design team collects, analyzes, and documents all applicable project data.

Determine Project Classification: A project classification is determined based on the initial data that was collected. The project classification defines what components are required in the TMP.

Develop TMP: Work zone management strategies should be identified based on the project characteristics and used to develop all necessary aspects of the TMP. Applicable resources should be contacted during this step to obtain their input. This may include utilization of previous work zone feedback provided by the Construction Section. Plans and contract documents shall be based on standard specifications and include necessary pay items.

Update/Revise TMP: As a project progresses through all of the design stages the TMP should be re-evaluated to ensure that any project changes do not affect the TMP. It is possible that the project classification could change during the project design stages.

Finalize TMP: Ensure that the contract plans, special provisions, and estimate include all of the applicable elements of the TMP and allow the flexibility to develop or modify a TMP.

Roles and Responsibilities

Step 1: A preliminary analysis will be performed by the ***Design Team*** to determine project classification. This preliminary analysis will be documented in the project's design file.

Step 2: The ***Project Manager*** will have the responsibility of monitoring the project and proposed classification and informing the respective ***Program Manager***.

Step 3: The ***Design Team*** will develop a transportation management plan. The ***Project Manager*** will monitor the classification status. If there are significant changes, the project classification may be modified.

Step 4: The ***Construction Resident Engineer*** will be responsible for identifying and documenting deficiencies in the TMP that compromise the effectiveness of the work zone and coordinating any improvements with the Contractor/State safety representative. Examples of data that may be included in the work zone documentation includes; crashes or other traffic incidents, traffic delay, traffic conflicts, and public comments. The ***Project Manager*** may assist in addressing any proposed modifications to the TMP during the construction process.

Step 5: The ***Regional Construction Engineer*** will complete a work zone summary of TMP effectiveness based on the work zone documentation and any applicable work zone reviews performed by Traffic Operations.

Step 6: The ***Work Zone Safety and Mobility Committee*** will consist of representatives from multiple sections within VTrans. This committee will review the work zone summary and will be responsible for updating the Work Zone Safety and Mobility Guidance document based on feedback from the year's construction projects. This committee will be responsible for sharing all applicable information throughout the Agency as well as with additional working groups and committees.

Application/Feedback

The Construction Engineer will submit a summary of TMP effectiveness and recommendations for improvements at the end of the construction season based on the work zone documentation provided by the Regional Engineers. The Work Zone Safety and Mobility Committee will meet annually to discuss these summaries. These summaries will serve to identify common TMP practices that are not working effectively, and will also assist in identifying TMP practices that are successful. The Work Zone Safety and Mobility Guidance document and supporting documentation will be revised to reflect the field evaluation summaries.

References

A Policy on Geometric Design of Highways and Streets. American Association of State Highway and Transportation Officials, Current Edition.

Developing and Implementing Transportation Management Plans for Work Zones. U.S. Department of Transportation Federal Highway Administration, December 2005.

Engineering Operations Manual. Vermont Agency of Transportation, Current Edition.

Highway Capacity Manual. Transportation Research Board of the National Academies, Current Edition.

Implementing the Rule on Work Zone Safety and Mobility. U.S. Department of Transportation Federal Highway Administration, September 2005.

Manual on Uniform Traffic Control Devices for Streets and Highways. U.S. Department of Transportation Federal Highway Administration, Current Edition.

Road Design Manual. Vermont Agency of Transportation, Current Edition.

Roadside Design Guide. American Association of State Highway and Transportation Officials, Current Edition.

Standard Specifications for Construction. Vermont Agency of Transportation, Current Edition.

Structures Manual. Vermont Agency of Transportation, Current Edition.

The State of Vermont Agency of Transportation Safety Manual. Vermont Agency of Transportation, Current Edition.

Traffic Design Manual. Vermont Agency of Transportation, Current Edition.

"Vermont Agency of Transportation Standard Drawings." Vermont Agency of Transportation, Current Edition.

Work Zone Impacts Assessment: An Approach to Assess and Manage Work Zone Safety and Mobility Impacts of Road Projects. U.S. Department of Transportation Federal Highway Administration, May 2006.

Work Zone Public Information and Outreach Strategies. U.S. Department of Transportation Federal Highway Administration, November 2005.

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APPENDIX M

Davis-Bacon Wage Rates for Chittenden County

>

General Decision Number: VT150045 01/02/2015 VT45

Superseded General Decision Number: VT20140045

State: Vermont

Construction Type: Highway

County: Chittenden County in Vermont.

HIGHWAY CONSTRUCTION PROJECTS (excluding tunnels; building structures in rest areas; railroad construction; bascule, suspension & spandrel arch bridges; bridges designed for commercial navigation; bridges involving marine construction; and other major bridges)

Note: Executive Order (EO) 13658 establishes an hourly minimum wage of $10.10 for 2015 that applies to all contracts subject to the Davis-Bacon Act for which the solicitation is issued on or after January 1, 2015. If this contract is covered by the EO, the contractor must pay all workers in any classification listed on this wage determination at least $10.10 (or the applicable wage rate listed on this wage determination, if it is higher) for all hours spent performing on the contract. The EO minimum wage rate will be adjusted annually. Additional information on contractor requirements and worker protections under the EO is available at www.dol.gov/whd/govcontracts.

Modification Number	Publication Date
0	01/02/2015

* SUVT2011-030 09/14/2011

	Rates	Fringes
CARPENTER, Includes Form Work....	$ 19.40	3.58
ELECTRICIAN includes Traffic Signalization and Installation...	$ 20.51	0.00
IRONWORKER, STRUCTURAL.....	$ 21.17	0.00
LABORER: Common or General.....	$ 13.40	0.24
LABORER: Flagger.....	$ 11.11	0.00
LABORER: Traffic Control-Cone Setter.....	$ 14.34	5.77
OPERATOR: Bobcat/Skid Steer/Skid Loader.....	$ 17.10	0.00
OPERATOR: Broom.....	$ 15.80	6.34
OPERATOR: Cold Planer/Milling Machine.....	$ 23.60	0.00

OPERATOR: Excavator	$ 18.60	0.67
OPERATOR: Loader	$ 18.93	0.00
OPERATOR: Paver	$ 17.56	0.38
OPERATOR: Roller (All Types)	$ 16.38	0.00
OPERATOR: Screed	$ 19.02	2.98
PAINTER (Parking Lot and Highway Striping Only)	$ 15.50	3.75
TRUCK DRIVER, Includes All Dump Trucks	$ 15.85	0.00

WELDERS - Receive rate prescribed for craft performing operation to which welding is incidental.

==========

Unlisted classifications needed for work not included within the scope of the classifications listed may be added after award only as provided in the labor standards contract clauses (29CFR 5.5 (a) (1) (ii)).

The body of each wage determination lists the classification and wage rates that have been found to be prevailing for the cited type(s) of construction in the area covered by the wage determination. The classifications are listed in alphabetical order of "identifiers" that indicate whether the particular rate is a union rate (current union negotiated rate for local), a survey rate (weighted average rate) or a union average rate (weighted union average rate).

Union Rate Identifiers

A four letter classification abbreviation identifier enclosed in dotted lines beginning with characters other than "SU" or "UAVG" denotes that the union classification and rate were prevailing for that classification in the survey. Example: PLUM0198-005 07/01/2014. PLUM is an abbreviation identifier of the union which prevailed in the survey for this classification, which in this example would be Plumbers. 0198 indicates the local union number or district council number where applicable, i.e., Plumbers Local 0198. The next number, 005 in the example, is an internal number used in processing the wage determination. 07/01/2014 is the effective date of the most current negotiated rate, which in this example is July 1, 2014.

Union prevailing wage rates are updated to reflect all rate changes in the collective bargaining agreement (CBA) governing

this classification and rate.

Survey Rate Identifiers

Classifications listed under the "SU" identifier indicate that no one rate prevailed for this classification in the survey and the published rate is derived by computing a weighted average rate based on all the rates reported in the survey for that classification. As this weighted average rate includes all rates reported in the survey, it may include both union and non-union rates. Example: SULA2012-007 5/13/2014. SU indicates the rates are survey rates based on a weighted average calculation of rates and are not majority rates. LA indicates the State of Louisiana. 2012 is the year of survey on which these classifications and rates are based. The next number, 007 in the example, is an internal number used in producing the wage determination. 5/13/2014 indicates the survey completion date for the classifications and rates under that identifier.

Survey wage rates are not updated and remain in effect until a new survey is conducted.

Union Average Rate Identifiers

Classification(s) listed under the UAVG identifier indicate that no single majority rate prevailed for those classifications; however, 100% of the data reported for the classifications was union data. EXAMPLE: UAVG-OH-0010 08/29/2014. UAVG indicates that the rate is a weighted union average rate. OH indicates the state. The next number, 0010 in the example, is an internal number used in producing the wage determination. 08/29/2014 indicates the survey completion date for the classifications and rates under that identifier.

A UAVG rate will be updated once a year, usually in January of each year, to reflect a weighted average of the current negotiated/CBA rate of the union locals from which the rate is based.

WAGE DETERMINATION APPEALS PROCESS

1.) Has there been an initial decision in the matter? This can be:

* an existing published wage determination
* a survey underlying a wage determination
* a Wage and Hour Division letter setting forth a position on a wage determination matter
* a conformance (additional classification and rate) ruling

On survey related matters, initial contact, including requests for summaries of surveys, should be with the Wage and Hour Regional Office for the area in which the survey was conducted because those Regional Offices have responsibility for the Davis-Bacon survey program. If the response from this initial contact is not satisfactory, then the process described in 2.)

and 3.) should be followed.

With regard to any other matter not yet ripe for the formal process described here, initial contact should be with the Branch of Construction Wage Determinations. Write to:

Branch of Construction Wage Determinations
Wage and Hour Division
U.S. Department of Labor
200 Constitution Avenue, N.W.
Washington, DC 20210

2.) If the answer to the question in 1.) is yes, then an interested party (those affected by the action) can request review and reconsideration from the Wage and Hour Administrator (See 29 CFR Part 1.8 and 29 CFR Part 7). Write to:

Wage and Hour Administrator
U.S. Department of Labor
200 Constitution Avenue, N.W.
Washington, DC 20210

The request should be accompanied by a full statement of the interested party's position and by any information (wage payment data, project description, area practice material, etc.) that the requestor considers relevant to the issue.

3.) If the decision of the Administrator is not favorable, an interested party may appeal directly to the Administrative Review Board (formerly the Wage Appeals Board). Write to:

Administrative Review Board
U.S. Department of Labor
200 Constitution Avenue, N.W.
Washington, DC 20210

4.) All decisions by the Administrative Review Board are final.

==========

END OF GENERAL DECISION

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APPENDIX N

Environmental Documentation: Categorical Exclusion and Extension

VERMONT

State of Vermont
Environmental Section
One National Life Drive
Montpelier, VT 05633-5001
www.aot.state.vt.us

[phone] 802-828-3978
[fax] 802-828-2334
[tdd] 800-253-0191

Agency of Transportation

Matthew Hake, Division Administrator
Federal Highway Administration
P.O. Box 568, Montpelier, VT 05601

July 6, 2012

Attn: Kenneth R. Sikora, Environmental Program Manager
Re: Rutland STP 3000 (20); Center Street Marketplace; multi-use pedestrian improvement project

Dear Mr. Hake:

Rutland STP 3000 (20) Center Street Marketplace project is located on the back alley areas bordering Washington, Wales, Center Streets and Merchants Row beginning at the alley of Merchants Row and extending toward the alley entrance at Washington Street across from City Hall. The other direction, northward, extends to the free standing retaining wall at the back alley parking and loading dock of the Paramount Theater and existing Glove Factory.

Construction will consist of full depth reconstruction, excavating soils and removing the old pavers, walls and associated utilities, installing new drainage, new concrete surfacing, landscaping, lighting and a new wall fountain feature. The existing underground electrical, sewer, telephone and connections to drainage will remain or be updated during demolition.

The Vermont Agency of Transportation (VTrans) has considered the potential environmental consequences of the project in accordance with the National Environmental Policy Act (NEPA). VTrans has determined that this project meets all of the criteria specified in the Programmatic Agreement entitled "Processing of Projects Eligible for Categorical Exclusion," executed 06/25/99. The project qualifies for Categorical Exclusion pursuant to 23 CFR 771.117(d)(4) "Environmental Impact and Related Procedures - Categorical Exclusions" as the project consists of construction near a transportation corridor and parking facility.

This project will not involve substantial planning, resources, or expenditures; nor is it likely to induce significant alterations in land use, planned growth, development patterns, traffic volumes, or traffic patterns. The project will have no significant effect upon natural and cultural resources. No significant environmental impact is expected to result from construction or maintenance of this facility.

Please contact James Brady, Environmental Specialist @ 802-828-3978 if you require additional information.

Respectfully,

John T. Narowski, P.E.
Environmental Services Engineer

Attachments
cc:
Scott Gurley, Project Manager
Project File

PROGRAMMATIC CATEGORICAL EXCLUSION CRITERIA

VTrans has determined that this project will **NOT**:

A. X Require a temporary detour outside existing right-of-way, or a temporary wetland or stream crossing which will require non-routine mitigation, or a ramp closure, unless the following conditions are met :
   (1) provisions are made for access by local traffic and the facility is posted accordingly,
   (2) businesses dependent upon through traffic will not be unduly affected,
   (3) the temporary detour or ramp closure will not interfere with local special events,
   (4) the temporary detour, ramp closure, wetland or stream crossing will not substantially increase the environmental consequences of the action (project).

B. X Involve construction in wetlands totaling more than 5,000 square feet of permanent impacts, requiring the Army Corp of Engineers to coordinate with resource agencies per General Permit NAE 2007-24.

C. X Require a Risk Analysis for an increase in 100-year flood water surface elevations, per EO 11988.

D. X Involve construction within, or alter drainage patterns so as to adversely affect, a Sole Source Aquifer.

E. X Require coordination with the US Fish and Wildlife Service for the preparation of a Biological Assessment for Threatened and Endangered Species, per 16 CFR Section 7.

F. X Require acquisition of additional right-of-way (including permanent or temporary construction easements) involving: more than three acres of land per mile of roadway, or a total of 10 acres or more for a non-linear improvement (such as a bridge or an intersection), or any relocation of residences or businesses.

G. X Require FHWA approval for changes in access control.

H. X Involve acquisition of, or impacts upon Prime or Unique Farmland, unless a USDA Farmland Conversion Impact Rating Part VI Site Assessment has been completed and indicates Total Site Assessment Points less than 160 (doesn't apply to designated urban areas).

I. X Adversely Effect a historic or archaeological resource on, or eligible for inclusion on, the National Register of Historic Places.

J. X Require use (permanent or temporary) of a Section 4(f) resource, unless that use meets the criteria for a de minimis or Programmatic 4(f); or involve the use of a Section 6(f) resource when compensation is required (property acquired or improved using Land and Water Conservation Funds).

K. X Involve hazardous or residual waste liabilities subject to CERCLA and/or RCRA requirements.

L. X Require a bridge permit from the US Coast Guard, per 23CFR 650 Subpart H.

M. X Qualify as a Type I project and require analysis of noise abatement measures, per 23 CFR 772 and the FHWA approved VTrans Noise Policy.

(NOTE: If coordination with the FHWA was required to reach this determination attach concurrence memo)

Categorical Exclusion
Environmental Analysis Sheet

Town Rutland **Project No.** STP 3000(20) **Route** N/A

Project Setting: Urban X Village ____ Rural ____
Traffic N/A Year N/A Typical See attached plans
AASHTO Functional Classification N/A

Project Purpose & Need:
The purpose of the project is creating a smooth and stable surface to accommodate heavy emergency and delivery vehicles while at same time provide a pedestrian friendly and sustainable environment that's easier to maintain, use for public and semi-private activities. The project updates the original failing design eliminating the multi-levels, steps and ramps and poor foundation, provide opportunities for public gathering, commercial venues and create a destination space with City control.

The need for the project is due to failing surfaces due to poorly prepared foundation, expansive soils and heavy vehicular traffic causing undulating surface elevation and causing significant rutting thereby causing an unsafe pedestrian environment. Other issues are consistent vandalism, poor maintenance practices and inability to have adequate policing and control of space after hours.

Project Description:
Rutland STP 3000 (20) Center Street Marketplace project is located on the back alley areas bordering Washington, Wales, Center Streets and Merchants Row beginning at the alley of Merchants Row and extending toward the alley entrance at Washington Street across from City Hall. The other direction, northward, extends to the free standing retaining wall at the back alley parking and loading dock of the Paramount Theater and existing Glove Factory.

Construction will consist of full depth reconstruction, excavating soils and removing the old pavers, walls and associated utilities, installing new drainage, new concrete surfacing, landscaping, lighting and a new wall fountain feature. The existing underground electrical, sewer, telephone and connections to drainage will remain or be updated during demolition.

CRITERIA OF 23 CFR771.117 (C) APPLICABLE? ____ **YES** X **NO**
NOTE: PROJECTS THAT MEET THE CRITERIA OF 23 CFR771.17 (C) NEED ONLY ADDRESS THOSE ISSUES MARKED WITH AN ASTERISK (*). THIS DOES NOT PRECLUDE THE NEED TO OBTAIN APPLICABLE STATE & FEDERAL CONCURRENCES & PERMITS.

1. **Air Quality**
   Ten year increase in ADT <10,000 (10,000 allowed maximum per MOA)
   Urban intersection improvement Yes ____ No X

2. **Noise**
   Type I Project (VTrans Noise Policy) Yes ____ No X
   If yes, number of receptors impacted N/A
   Mitigation Requirements N/A

3. **Water Quality**
   Lakes or Ponds
   VANR Lakes & Ponds permit Yes ____ No X Acquired ____
   Rivers or Streams
   VANR Title 19 Consultation Yes ____ No X Completed ____
   Wetlands

* Wetland Impact area Temporary 0 Permanent 0

* Buffer Impact area Temporary 0 Permanent 0

* VANR Wetland Permit Yes ____ No X Acquired ____

401 Water Quality Certification Yes ____ No X Acquired ____

Stormwater Discharge Permit Yes ____ No X Acquired ____

Flood plains Encroachment Yes ____ No X Volume ____

Describe Hydraulic Changes N/A

Ground Water/Surface Water/Well Impacts Yes ____ No X

(Describe) N/A

ANR Comments N/A

4. **U.S. Army Corps of Engineers**

Section 10 and/or Section 404 Permit Required Yes ____ No X Acquired ____

Permit Type N/A

COE Comments N/A

5. **U.S. Coast Guard**

Navigable Waters Yes ____ No X Involved Waterway ____

Rivers & Harbors Act Section 9 and/or

Bridge Act of 1946 Permit(s) Required Yes ____ No X Acquired ____

Section 144(h) "Exemption" Yes ____ No X Acquired ____

USCG Comments N/A

* 6. **Threatened and Endangered Species and Habitat**

Present in Project Area Yes ____ No X

ANR Non-Game and Natural Heritage Program comments N/A

USF&WS comments N/A

7. **Agricultural Land**

Prime/secondary/locally important soils affected Yes ____ No X

Current land use Paved alley way

Form 1006 Parts 1, III, VI, VII, completed (FHWA) Yes ____ No X

Form 1006 Parts II, IV, V completed (NRCS) Yes ____ No X

Vermont Department of Agriculture comments N/A

8. **Hazardous/ Residual Waste Liabilities**

Present in project area Yes ____ No X

Determination from VANR list Yes ____ No X

Determination from field visit Yes ____ No X

Borings completed Yes X No ____

Petroleum related wastes Yes ____ No X

CERCLA involvement Yes ____ No X

Remediation required Yes ____ No X

Describe A Geotechnical Engineering Report has been prepared, December 16, 2011, attached

* 9. **Historical or Archaeological Resources (Section 106)**

Historic Resources: Present in project area Yes X No ____

Archeological Resources: Present in project area Yes ____ No X

Section 106 determination No Adverse Effect – July 5, 2012

Memorandum of Agreement needed Yes ____ No X Executed ____

SHPO coordination completed N/A per Deputy SHPO PA
Advisory Council coordination completed N/A

* 10. **Section 4(f) and 6(f) Resources**

Section 4(f) Resource(s) present in project area Yes _____ No X
Nature of Section 4(f)
Parks/Rec. Areas _____ Wildlife and Waterfowl Refuge _____ Historic Property _____
Temporary use of 4(f) resource Yes _____ No X
Permanent use of 4(f) resource Yes_____ No X
Section 4(f) Approval (check one)
Negative Declaration ____ de minimis 4(f) ____ Programmatic 4(f) ____ Circulated 4(f) _____
Section 4(f) Comments N/A

Section 6(f) involvement (LWCF Funding) Yes _____ No X
National Park Service Conversion Approval N/A
Section 6(f) Comments N/A

* 11. **Right of Way**

New ROW Acquisition fee simple Yes _____ No X
permanent easement Yes X No _____
temporary easement Yes _____ No X
Description of taking City has right-of-way and development easements within project area.
Improved properties acquired Yes _____ No X
Displacements Rental Units _____ Private Homes _____ Businesses _____
Relocation services to be provided N/A
Properties available for relocation N/A

12. **Public Participation Opportunity**

Pre-Design Site MeetingYes X No _____ Date May 4, 2011
Public Information Meeting Yes X No _____ Date November 15, 2007
Public Hearing Required (502) Yes X No _____ Date February 27, 2012
Comments by Local Officials/RPC's maintenance considerations and schedule coordination

13. **Social and Economic Concerns**

Project consistent with Local and Regional Land Use Plans Yes X No _____
Describe Chris Louras, City of Rutland's Mayor is the primary contact and administrator for the project. City Aldermen accepted project and had no objections to development; presentation held March 5, 2012.(Attach correspondence from officials)
Neighborhood and Community Concerns Yes X No _____

_____Churches	_____ Elderly
_____Schools	X Handicapped
_____Low Income Housing	_____ Environmental Justice Exec. Order 12898
X Emergency Services	_____ Other

Describe coordinating space requirements with City of Rutland Fire Department utilizing tower truck access, discussing with area landowners of creating handicapped ramp to Bardwell House and providing site fully accessible for handicapped, wheel chair use.
Effect on local business Yes _____ No X (Describe) _____
Temp. effect on business Yes X No _____ (Describe) Potential construction delays
Loss of parking Yes X No _____ (Describe) Approximately six unmarked parking spaces
Pedestrian Facilities Sidewalk Widths Existing N/A Proposed N/A

Bicycle Facilities Paved Shoulder Widths Existing N/A Proposed N/A
If not minimum standard (sidewalk 5ft, paved shoulder 4ft), explain This is not a roadway project

14. **Aesthetic Concerns**
Scenic Byway/VT Scenic Highway Yes _____ No X
Describe N/A

15. **Effects of Temporary Detour/ Bridge**
Detour required Yes _____ No X Length _____ (Attach Plans)
Temporary bridge required Yes _____ No X (Attach Plans)
Impacts of Detour/ Bridge N/A
Public notification of detour N/A

Field Inspection Comments: See attached supporting documentation

Prepared by: _____ 07-06-2012 Reviewed by: _____ 7.6.12
Signature Date Signature Date

Summary of Commitments and Mitigation

Describe There are no commitments or mitigation measures for this project.

Document Template Last Revised 06/14/11

Historic Resource Group, Environmental Section
Vermont Agency of Transportation
National Life Building, Drawer 33
Montpelier, VT 05633

Archaeology 802-828-3981 (fax) 828-2334 jeannine.russell@state.vt.us
Historic Preservation 802-595-5119 (fax) 828-2334 scott.newman@state.vt.us

MEMORANDUM

To: Rob Sikora, FHWA

Date: July 5, 2012

Subject: NO ADVERSE EFFECT

Project Name: Rutland Pedestrian Park

Project Number: Rutland STP3000(20)RECM

Location: Rutland City pedestrian park bounded by Merchants Row, Center St, Washington St, and Wales St.

Distribution: State Historic Preservation Officer
Jeff Ramsey, VTrans Environmental Specialist
Environmental Files via John Narowski

The Vermont Agency of Transportation has reviewed this undertaking according to the standards and procedures detailed in the 4/5/99 Programmatic Agreement to implement the Federal-Aid Highway Program in Vermont and, the PA Manual of Standards and Guidelines. Project review consists of identifying the project's potential impacts to historic buildings, structures, historic districts, historic landscapes, and settings, and to known or potential archeological resources.

The following details the VAOT Officers' findings supporting our effect determination of NO ADVERSE EFFECT for the above-subject project. Completion of this document evidences that FHWA has satisfied its obligations under Section 106 for this undertaking.

Project Description:
This project will be constructed in downtown Rutland and will involve full depth reconstruction, excavating 36-48 inches of poor soils, adding new subbase, concrete surfacing, rain gardens, new drainage, coordination with existing utilities, sustainable landscaping, lighting, recycled site amenities and a new fountain water wall with lighting and opportunities during off-season for outdoor movies.

Above-Ground Historic Resources:
This project will be undertaken entirely within the Rutland City Downtown Historic District which is listed in the National Register of Historic Places. Specifically, the project takes place in an open space bounded by Merchants Row, Washington St., Wales St., and Center St. in the heart of downtown. The area was developed as a park in the early 1980s with brick pavers, landscaping, and lighting. However, due to poor design and improper construction the area degraded and has only sporadic use and it being completely rebuilt.

Archaeological Resources:
The VTrans Archaeology Officer has reviewed this project and has concluded that it will not impact archaeological resources.

Above Ground Historic Resource Stipulations:

1. Final project plans and any subsequent changes thereto will be subject to review and written approval by the VTrans Historic Preservation Officer before work begins.

	7-5-12		07/05/2012
Archaeology Officer	Date	Historic Preservation Officer	Date

State of Vermont
Program Development Division
One National Life Drive
Montpelier, VT 05633-5001
www.aot.state.vt.us

[phone] 802-828-3979
[fax] 802-828-2334
[ttd] 800-253-0191

Agency of Transportation

To: James Brady, VTrans Environmental Specialist

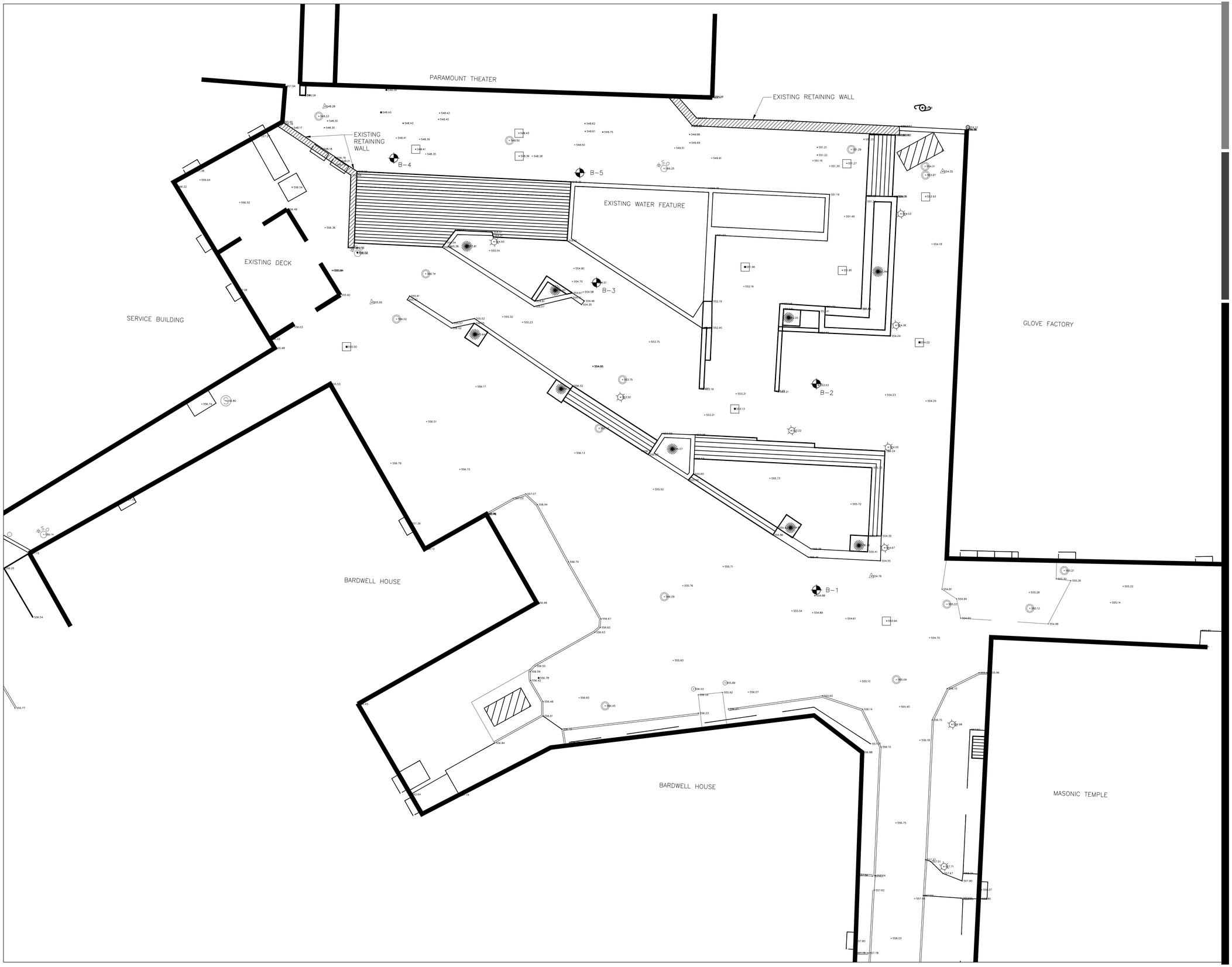
From: Glenn Gingras, VTrans Environmental Biologist

Date: 4/9/12

Subject: Rutland STP 3000(20)
Natural Resource Clearance

I have reviewed project plans and supporting documentation involving the Rutland STP 3000 (20) Center Street Marketplace project for potential natural resource impacts. The project is located on various streets within the City of Rutland. Construction will consist of full depth reconstruction, excavating soils and removing the old pavers, walls and associated utilities, installing new drainage, new concrete surfacing, landscaping, lighting and a new wall fountain feature. The existing underground electrical, sewer, telephone and connections to drainage will remain or be updated during demolition.

As proposed, the project will not have any significant impact to any regulated natural resource as the project involves modifications to existing streets. No further review is required from me.



Stantec Consulting Services Inc.
5 Dartmouth Drive, Suite 101
Auburn NH U.S.A.
03032-3984
Tel. 603.669.8672
Fax. 603.669.7636
www.stantec.com

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Consultants

Legend

B-5 – APPROXIMATE LOCATION AND DESIGNATION OF TEST BORING

Notes

1. BASE PLAN WAS DEVELOPED FROM A TOPOGRAPHIC SURVEY PERFORMED BY DANIELS SURVEY, P.C.
2. TEST BORINGS WERE DRILLED BY SEABORD DRILLING OF CHICOPEE, MA ON JULY 21, 2011 UNDER THE DIRECTION OF STANTEC PERSONNEL.

Revision	By	Appd.	YY.MM.DD

Issued	By	Appd.	YY.MM.DD

File Name: RUTLAND092611.dwg

Dwn.	Chkd.	Dsgn.	YY.MM.DD

Permit-Seal

Client/Project

CITY OF RUTLAND, VERMONT

CENTER STREET MARKETPLACE

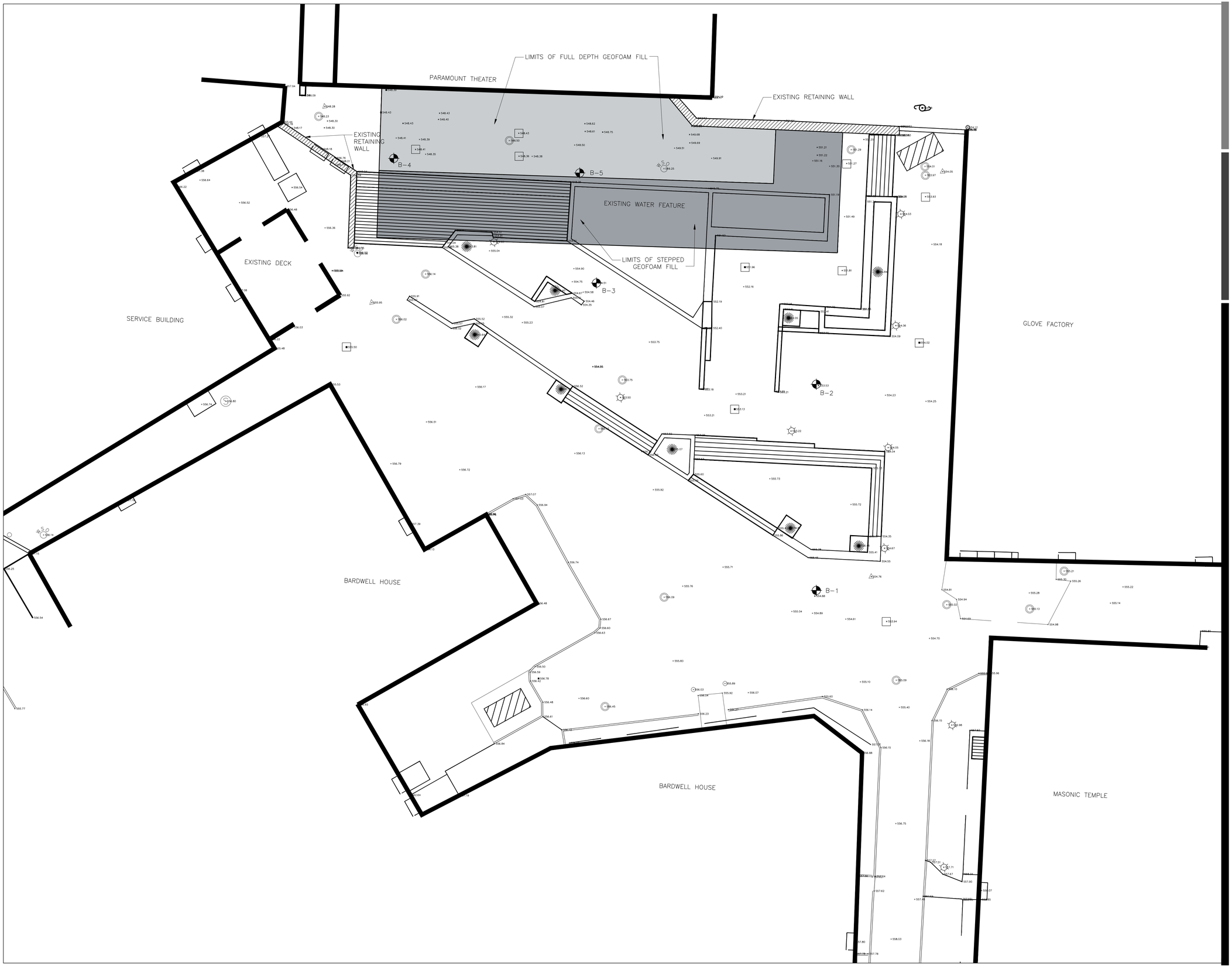
RUTLAND, VERMONT

Title

BORING LOCATION PLAN

Project No.	Scale
210800759	1" = 10'

Drawing No.	Sheet	Revision
FIGURE 2.0	of	0



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5 Dartmouth Drive, Suite 101
Auburn NH U.S.A.
03032-3984
Tel. 603.669.8672
Fax. 603.669.7636
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Legend

B-5 — APPROXIMATE LOCATION AND DESIGNATION OF TEST BORING

Notes

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Revision	By	Appd.	YY.MM.DD

Issued	By	Appd.	YY.MM.DD

File Name: RUTLAND092611.FIG3.dwg

Dwn.	Chkd.	Dsgn.	YY.MM.DD

Permit-Seal

Client/Project
CITY OF RUTLAND, VERMONT

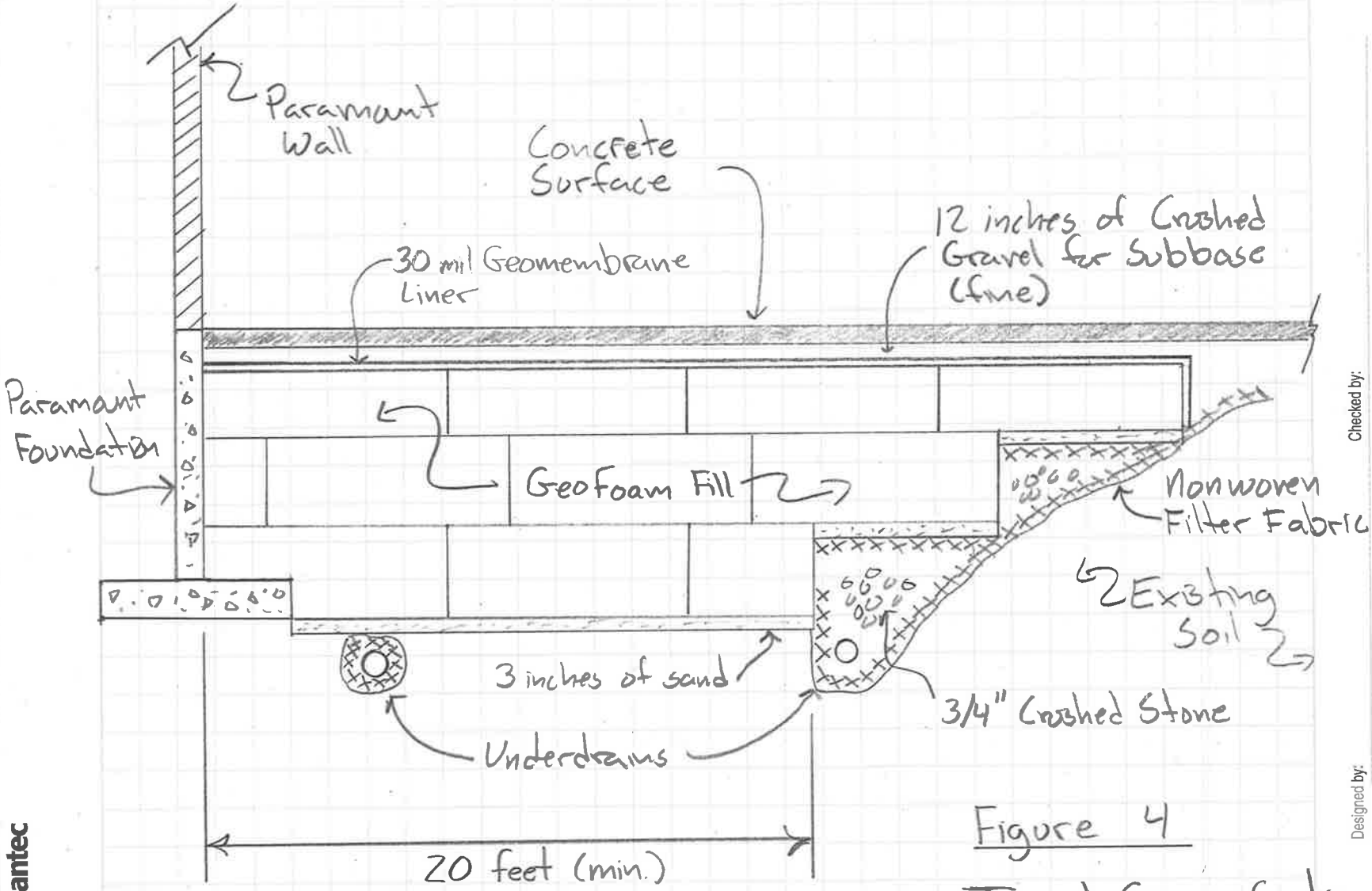
CENTER STREET MARKETPLACE

RUTLAND, VERMONT

Title
GEOFOAM AREA PLAN

Project No.	Scale
210800759	1" = 10'

Drawing No.	Sheet	Revision
FIGURE 3.0	of	0



Not to Scale

Figure 4

Typical Cross Section of Geofoam Fill

Stantec

Designed by:

Checked by:

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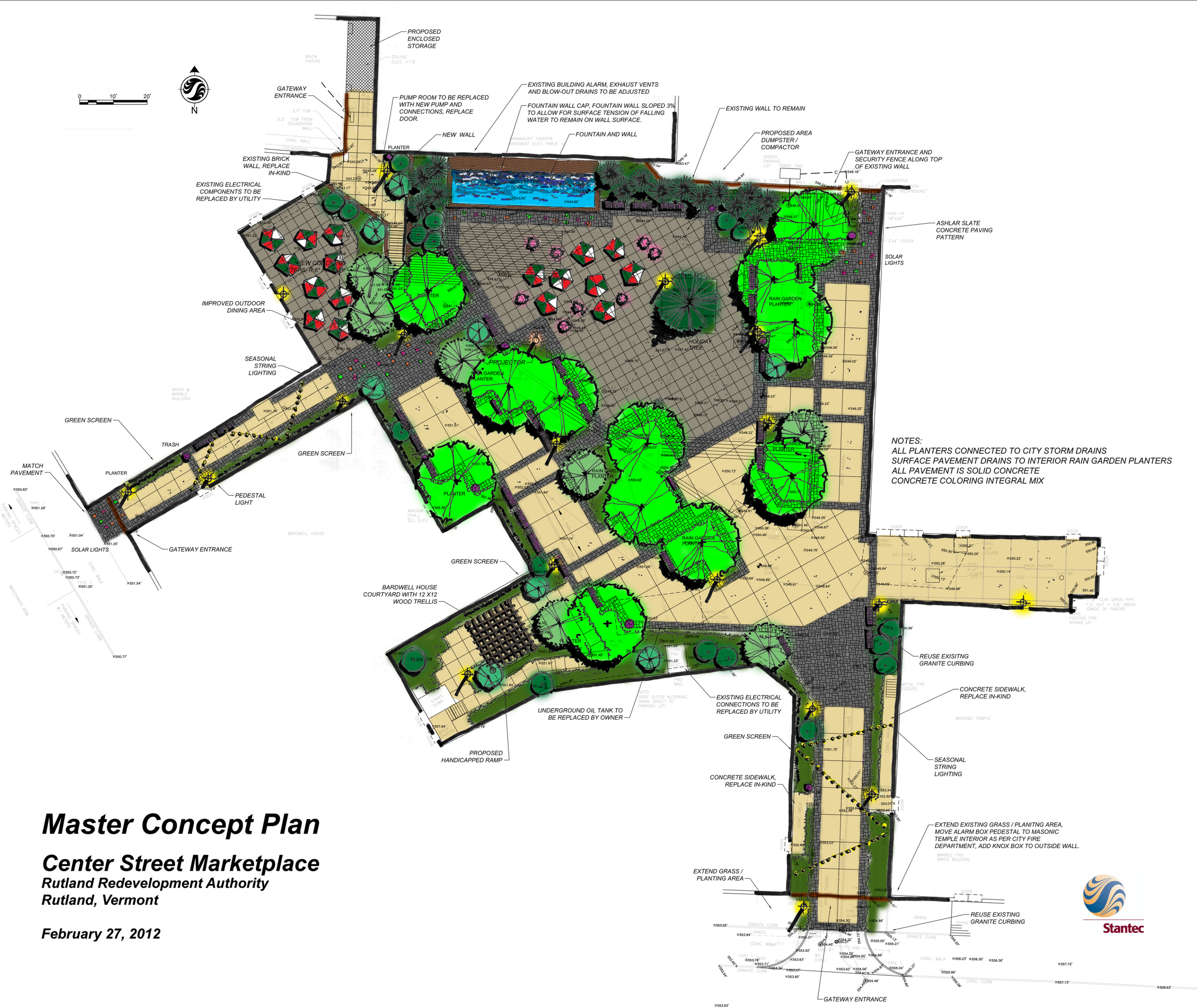

Master Concept Plan

Center Street Marketplace

Rutland Redevelopment Authority
Rutland, Vermont

February 27, 2012

OFFICE MEMORANDUM

AOT - PROJECT DELIVERY BUREAU
ENVIRONMENTAL SECTION

TO: Project File
COPY: Kenneth R. Sikora, Environmental Program Manager
Scott Gurley, Project Manager

FROM: James Brady, Environmental Specialist

DATE: August 25, 2015

SUBJECT: 3-Year PACE Re-Evaluation Per VTrans/ FHWA Programmatic Agreement

PROJECT: **Rutland STP 3000 (20)**

A Programmatic Categorical Exclusion (PACE) for the above-mentioned project, per 23 CFR 771.117(d)(4), was issued on July 6, 2012 for full depth reconstruction, excavating soils and removing the old pavers, walls and associated utilities, installing new drainage, new concrete surfacing, landscaping, lighting and a new fountain feature along with incidental items. The current status of the project is construction.

Based upon re-evaluation of the proposed project, it has been determined that there have been no substantive changes in the project scope, design footprint, anticipated impacts, or proposed mitigation measures and the determination that the project qualifies for Programmatic Categorical Exclusion remains valid. This Memorandum serves to document that the PACE was re-evaluated on August 25, 2015.

Please contact James Brady at 802-828-3978 if you require additional information.

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APPENDIX O

Right of Way and Utility Clearances

Agency of Transportation **Office Memorandum**

To: **Distribution**

From: **Robert M. White, Chief of Right-of-Way**

Date: **July 10, 2015**

Subject: **Rutland STP 3000 (20)**
10D126

Right-of-Way Certificate

This is to certify that:

1. All necessary rights-of-way have been acquired including legal and physical possession; the Town of Rutland has the right to enter on all lands. Therefore the right-of-way is clear.

2. All acquisitions were in accordance with current Federal Highway Administration Directives and Title III of the Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970, as amended.

3. No acquisition required compliance with the provisions of Title II of the Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970, as amended.

4. There were no items in mitigation of right-of-way damages.

5. There are no Right-of-Way Special Agreements on this project.

Robert M. White

Digitally signed by Robert M. White
DN: cn=Robert M. White, o=Right of Way Chief, ou=Vermont Agency of Transportation, email=rob.white@state.vt.us, c=US
Date: 2015.07.15 15:08:43 -04'00'

Robert M. White, Right of Way Chief

RMW:bam

Distribution
Marvin D. Kingsbury, Federal Funds Administrator, Federal Programs Section
Scott Gurley, Project Supervisor, Municipal Assistance Bureau, Design Build Consultant Section
Craig Keller, Chief of Utilities & Permits Section
Martin Churchill, Financial Manager, Finance & Administration Section
Kenneth R. Sikora, Jr., FHWA
Acquisition (1)
ROW General File (original)

Stantec Consulting Services Inc.
55 Green Mountain Drive, South Burlington VT 05403-7824

June 10, 2016
File: 210800759

Attention: Mr. Ed Bove
Rutland Regional Planning Commission
The Opera House
67 Merchants Row
P.O. Box 965
Rutland, VT 05702

Dear Ed,

Reference: Center Street Marketplace – Rutland City STP 3000(20) – Designer Certification

The noted project plans, calculations and notes have been reviewed by our personnel and are substantially free from errors and omissions and are in conformance with the appropriate standards and specifications.

Regards,

STANTEC CONSULTING SERVICES INC.

Robert Corning
Senior Principal
Phone: 617-226-9238
Email: Bob.Corning@stantec.com

Attachment: Contract Plans, Project Manual, Estimate

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APPENDIX P

Material Sampling Manual Level 3

Material Sampling Manual Level 3

Type of Construction	Pay Item Number	Materials Specification Number	Material Name	Test	Minimum Acceptance Sampling Frequency	Acceptance Sampling Location	Sample Size (2)	Procedures: Sampling	Procedures: Testing (1)
Embankments[3]	203.30	703.02	Earth Borrow	Identification	Visual Classification	Stockpile/in place	1		ASTM D2488
				Moisture-Density	1/Soil type	Stockpile/in place	50		T99
				Moisture	1/2000 cy	In place	2		T255 or T310
				Density	1/2000 cy	In place			T191 or T310
	203.31	703.03	Sand Borrow	Gradation	1 / Project	In place	22	T2	T27 and T11
				Moisture-Density	1 / Project	Stockpile	50	T2	T99
				Moisture	1 / Project	In place	20		T255 or T310
				Density	1 / Project	In place			T191 or T310
	203.32	703.04	Granular Borrow	Gradation	1 / Project	In place	22	T2	T27 and T11
				Moisture-Density	1 / Project	Stockpile	50	T2	T99
				Moisture	1 / Project	In place	2		T255 or T310
				Density	1 / Project	In place			T191 or T310
	203.35	704.07	Gravel Backfill for Slope Stabilization	Gradation	1 / Project	In place	see note 2	T2	T27 and T11
				Moisture-Density	1 / Project	Stockpile	250	T2	T99
				Moisture	1 / Project	In place	20		T255 or T310
				Density	1 / Project	In place			T191 or T310
Excavation for Structures	204.30	704.08	Granular Backfill for Structures	Gradation	1 / Project	In place	see note 2	T2	T27 and T11
				Moisture-Density	1/10,000 cy/source	Stockpile/in place	250	T2	T99
				Moisture	1/500 cy	In place	30		T255 or T310
				Density	1/500 cy	In place			T191 or T310
Subbase[3]	301.15	704.04	Gravel for Subbase	Gradation	1 / Project	Stockpile on project	see note 2	T2	T27 and T11
				Percent of Wear	1 / Source / Year	Stockpile	150	T2	T96
				Moisture-Density	See Note 10	Stockpile	250	T2	AOT-MRD 54
				Moisture	1 / Project	In place			AOT-MRD 55
				Density	1 / Project	In place			AOT-MRD 55
	301.25	704.05	Crushed Gravel for Subbase	Gradation	1 / Project	Stockpile on project	see note 2	T2	T27 and T11
	301.26			Percent of Wear	1 / Source / Year	Stockpile	150	T2	T96
				Fractured Faces	1 / Project	Stockpile		T2	AOT-MRD 23
				Moisture-Density	See Note 10	Stockpile	250		AOT-MRD 54
				Moisture	1 / Project	In place			AOT-MRD 55
				Density	1 / Project	In place			AOT-MRD 55
	301.35	704.06	Dense Graded Crushed Stone for Subbase	Gradation	1 / Project	Stockpile on project	see note 2	T2	T27 and T11
				Percent of Wear	1 / Source / Year	Stockpile	150	T2	T96
				Fractured Faces	1 / Project	Stockpile		T2	AOT-MRD 23
				Moisture-Density	See Note 10	Stockpile	250		AOT-MRD 54
				Moisture	1 / Project	In place			AOT-MRD 55
				Density	1 / Project	In place			AOT-MRD 55
Reclaimed Stabilized Base	310.20	310.02	Reclaimed Base	Gradation	1/2500 sy for first 10,000 sy 1/10,000 sy thereafter	In place	165	T2	T27
				Moisture	1/4000 sy for first 10,000 sy 1/10,000 sy thereafter	In place			T310
				Density	1/4000 sy for first 10,000 sy 1/10,000 sy thereafter	in place			T310
Aggregate Surface Course	401.10	704.12	Aggregate for Surface Course and Shoulders	Gradation	1/Project	In place	100	T2	T27 and T11
				Percent of Wear	1/source/year	Stockpile	100	T2	T96

Material Sampling Manual Level 3

Type of Construction	Pay Item Number	Materials Specification Number	Material Name	Test	Minimum Acceptance Sampling Frequency	Acceptance Sampling Location	Sample Size (2)	Procedures: Sampling	Procedures: Testing (1)
Aggregate Shoulders	402.10 402.11 402.12 402.13	704.12	Aggregate for Surface Course and Shoulders	Gradation Percent of Wear	1/Project 1/source/year	In place Stockpile	100 100	T2 T2	T27 and T11 T96
Surface Treatments					See Specifications				
Bituminous Concrete Pavement **Mainline Paving and Shoulders**	406.25 406.27	406.03	Bituminous Concrete Pavement	AC Content /Gradation	1/1000 tons for first 1,000 tons, 1/day thereafter	Truck @ plant	Dependent on mix type - see note 11	T168	T164 or T308 & T30
		406.03	Medium Duty Bituminous Concrete Pavement	Air voids, VMA & VFA	1/1000 tons for first 1,000 tons, 1/day thereafter	Truck @ plant			T166A, T209, T269, PP19
				Marshall Flow & Stability	1/1000 tons for first 1,000 tons, 1/day thereafter	Truck @ plant			T245
				Mixing Temperature	1/1000 tons for first 1,000 tons, 1/day thereafter	Truck @ plant			
				Density-mat	Project less than 0.5 miles 4 cores. Project greater than 0.5 miles 6 cores.	In place	6" core		T166
				Density-joint	See Specifications	In place	6" core		T166
		702.04	Emulsified Asphalt	Distillation, Penetration @ 25 °C	1/Project	Truck on Project	2 Quarts	T40	Certification T49, T59
	490.30	490.03	Superpave Bituminous Concrete Pavement	AC Content / Gradation	1/1000 tons for first 1,000 tons, 1/day thereafter	Truck @ plant	Dependent on mix type - see note 11	T168	T164 or T308 & T30
				Air voids, VMA & VFA	1/1000 tons for first 1,000 tons, 1/day thereafter	Truck @ plant			T312,T166,T209,T269, R35
				Mixing Temperature	1/1000 tons for first 1,000 tons, 1/day thereafter	Truck @ plant			
				Density-mat	Project less than 0.5 miles 4 cores per day production. Project greater than 0.5 miles 6 cores per day production at the rate of 2 per lane mile	In place	6" core	T168	T166
				Density-joint	See Specifications	In place	6" core	T168	T166
		702.04	Emulsified Asphalt	Distillation, Penetration @ 25 °C	1/Project	Truck on Project	2 Quarts	T40	Certification T49, T59
Bituminous Concrete Pavement **Non Mainline Paving** **Side roads, Traffic Islands, Gutters, Curbs, Side Walks, Handwork, Drives & Aprons**	406.25 406.27 490.30	406.03	Bituminous Concrete Pavement	AC Content /Gradation	Type D Certification	For certification-verification (C-V) purposes: Box Sample on Project	Dependent on mix type - see note 11	T168	T164 or T308 & T30
		406.03	Medium Duty Bituminous Concrete	AC Content /Gradation	Type D Certification				
		490.30	Superpave Bituminous Concrete Pavement	Mixing Temperature	Type D Certification			T168	
		702.04	Emulsified Asphalt	Distillation, Penetration @ 25 °C	Type A Certification	For C-V purposes: Truck on Project	2 Quarts	T40	Certification T49, T59

Material Sampling Manual Level 3

Type of Construction	Pay Item Number	Materials Specification Number	Material Name	Test	Minimum Acceptance Sampling Frequency	Acceptance Sampling Location	Sample Size (2)	Procedures: Sampling	Procedures: Testing (1)
Bituminous Concrete Pavement Non Mainline Paving	616.30 616.31 616.47	616.13	Bituminous Concrete Gutters and Traffic Islands	AC Content / Gradation	Type D Certification	For certification-verification (C-V) purposes: Box Sample on Project	Dependent on mix type - see note 11	T168	T164 or T308 & T30
Side roads, Traffic Islands, Gutters, Curbs, Side Walks, Handwork, Drives & Aprons		406.03	Bituminous Concrete Curb Type A	AC Content / Gradation	Type D Certification				
		406.03a	Bituminous Concrete Pavement	AC Content / Gradation	Type D Certification				
		702.04	Emulsified Asphalt	Distillation, Penetration @ 25 °C	Type A Certification	For C-V purposes: Truck on Project	2 Quarts	T40	Certification T49, T59
Structural Concrete	501.32	501.03	HPC Structural Concrete	Air Slump	1 per 50 cy (See Note 4)	on project, as close to point of deposit as possible	1 ft^3 for cylinders or wheelbarrow needed for all tests	T141	T152 T119
Superstructure	501.33 501.34 541.21 541.22 541.25 541.40	580.10 580.11 580.12 580.19	Structural Concrete	Temp Unit weight(light weight) Cylinders				T141 T141 T23	T309 T196 T22
Substructure	501.32 501.33	501.03	HPC Structural Concrete	Air Slump	1 per 75 cy (See Note 5)	on project	1 ft^3 for cylinders or wheelbarrow needed for all tests	T141	T152 T119
Approach Slabs/Retaining Walls/Drilled Shafts/Mast Arm Supports/Overhead Sign Supports	501.34 541.21 541.22 541.25	541.03	Structural Concrete	Temp Unit weight (light weight Cylinders				T141 T141 T23	T309 T196 T22
Note: For Mast Arm Supports and Overhead Sign Supports the bolt requirements below may also apply.	580.13 580.14 580.15 677.12	677.13 677.22 677.23 678.15	678.17 679.21 679.22						
Prestress/Precast Concrete[9]/Median Barriers	510.21 510.22 510.23 540.10	510.05	Concrete	Cylinder strength Air content Temperature Slump (specified on approved mix design)	per casting bed (note 7) per casting bed (note 8) per casting bed (note 8) per casting bed (note 8)	point of placement	1 ft^3 for cylinders or wheelbarrow needed for all tests	T 23 T141 T141 T141	T22 T152 T309 T119
			Reinforcing Steel		See Reinforcing Steel Section				
Structural Concrete	616.27 616.28	541.03	Structural Concrete	Air Slump	1/Project	on project	wheelbarrow	T141	T152 T119
Sidewalks/Curbs/Gutters[6]	616.45 618.10 618.11 621.45								

Material Sampling Manual Level 3

Type of Construction	Pay Item Number	Materials Specification Number	Material Name	Test	Minimum Acceptance Sampling Frequency	Acceptance Sampling Location	Sample Size (2)	Procedures: Sampling	Procedures: Testing (1)
Structural Steel	506.50 506.55 506.56 506.57 506.60 506.75	Project Special Provisions 714.05 714.06 714.12 714.13	High Strength Bolts for Structural Steel	Rotational Capacity Test Wedge Test	4 - Each combination of bolt production lot, nut lot, and washer lot (4 - Each combination Tension Control Assembly Bolt production lot or Direct Tension Indicator production lot if used) to be incorporated into the project for main member connections as designated in the Contract.	Original Manufacturer Shipping Container at the project or at fabrication facility	N/A		Rotational Capacity Test Specified in AASHTO M 164 M as modified in 714.05 Wedge Test per ASTM F 606
Bridge Railing	525.22 525.23 525.31 525.33 525.34 525.40 525.41 525.42 525.43 525.44	Project Special Provisions 714.07	Anchor Bolts for Bridge Railing	Wedge Test	2 - Each combination of anchor bolt production lot, nut lot, and washer lot to be incorporated into the project.	Original Manufacturer Shipping Container at the project or at fabrication facility	N/A		Tensile Strength Test ASTM F606 Verification Testing ASTM F606
Reinforcing Steel	507.15 507.17	713.01 713.07	Reinforcing Steel, Epoxy Coated Reinforcing Steel	Tensile testing, elongation	1/100,000 lb/size/grade	Stockpile on Project	5 ft		AASHTO T244
Mechanical Bar Connectors	507.19	713.02	Mechanical Splices for Bar Reinforcement	Tensile testing, elongation	3 per size	Stockpile on Project	Connector length plus 12 inches of bar on each end		AASHTO T244
Over Head Traffic Sign Supports & **Note:** For Mast Arm Supports and Overhead Sign Supports the concrete requirements above may also apply.	677.12 677.13 677.22 677.23 677.25 679.xx	Project Special Provisions 714.09	Anchor Bolts for Sign and Luminaire Poles	Tensile Proof Load Test Elongation Test	2 - Each combination of anchor bolt production lot, nut lot, and washer lot to be incorporated into the project.	Original Manufacturer Shipping Container at the project or at fabrication facility	N/A		Tensile Strength Test ASTM F606 Verification Testing ASTM F606
			High Strength Bolts for Structural Steel	Rotational Capacity Test Wedge Test	4 - Each combination of bolt production lot, nut lot, and washer lot (4 - Each combination Tension Control Assembly Bolt production lot or Direct Tension Indicator production lot if used) to be incorporated into the project for main member connections as designated in the Contract.	Original Manufacturer Shipping Container at the project or at fabrication facility	N/A		Rotational Capacity Test Specified in AASHTO M 164 M as modified in 714.05 Wedge Test per AASHTO M 164M

Material Sampling Manual Level 3

Type of Construction	Pay Item Number	Materials Specification Number	Material Name	Test	Minimum Acceptance Sampling Frequency	Acceptance Sampling Location	Sample Size (2)	Procedures: Sampling	Procedures: Testing (1)
Paint for Pavement Markings	646.20 to 646.32	708.08	Waterborne Traffic Paint	Drying time Viscosity Density	1 / Batch	Original Container (tote)	2, 1 pint (500ml) containers		ASTM D711 ASTM D562 ASTM D1475
Underdrains	605.10 to 605.23	704.16	Drainage Aggregate		1 / Project	On Project	55	T2	T27

Notes: (1) Testing procedures are AASHTO procedures unless otherwise noted.

(2) Sample size is in pounds unless otherwise noted. The sample size should be selected based on the maximum nominal aggregate size (See AASHTO T27, Section 7.1). For example, if the material visually passes a 2", 1.5", or 1" sieve then the sample size is 220 lbs, 165 lbs, and 110 lbs, respectively.

(3) For projects with more than 200 CY.

(4) Total placement for day split into equal sublots not to exceed 50 CY, test yardage chosen randomly. The test yardage is used to determine which load to test with proper sample collection techniques followed Check first load for temperature, slump and air content, **this will not be counted as the acceptance test for the first sublot**. If the first load is determined to be out-of-specification then the Contractor must test each consecutive load until 3 consecutive passing loads are tested. VTrans will check 4th consecutive load to verify.

(5) Check first load for temperature, slump and air content as an initial check. Acceptance sampling will be done every 75 CY, including the first load in the yardage count. If the first load, or any acceptance test, does not comply with VTrans' specifications then the Contractor must test each load until 3 consecutive passing loads are achieved. VTrans will check 4th consecutive load or last load, which ever happens first, to verify compliance.

(6) These materials are only required to be tested for Level 1 projects. Those items not identified are considered incidental have no materials testing requirements.

(7) Tests are to be performed by qualified plant personnel and witnessed by VTrans personnel. Minimum of six cylinders for determining detensioning, to be cured with the piece. Four specimens to determine 28 day and shipping strengths and are to be cured with the piece until it is stripped and then standard cured.

(8) Tests are to be performed by qualified plant personnel and witnessed by VTrans personnel. As a minimum, the first load as well as the load that the cylinders are fabricated from should be tested.

(9) Non-prestressed precast elements are exempt from acceptance testing and shall be furnished with a Type D certification.

(10) For projects less than 1250 CY of subbase material the Agency shall be responsible for the testing and projects over 1250 CY the Contractor is responsible for the determination of the target density. For each material source; subbase materials shall be sampled and tested once for the first 1250 CY and then once every 3000 CY thereafter.

(11) The sample size for HMA depends upon the nominal maximum aggregate in the mix, see following table. Minimum sample sizes are in accordance with AASHTO T168 and are suitable for routine testing. However, actual sample size is dependent upon the type and number of tests to which the material is to be subjected.

Mix Type:	MS	I / IS	II / IIS	III / IIIS	IV / IVS	V / VS
Maximum Nominal Aggregate Size, in:	1 1/2"	1"	3/4"	1/2"	3/8"	3/16"
Minimum Sample Size, lbs:	25	20	16	12	8	4

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APPENDIX Q

Material Certification List, Forms and Record