

**SPECIFICATIONS  
AND  
CONTRACT DOCUMENTS**

**TOWN OF CHINCOTEAGUE  
ROBERT N. REED PARK ANNEX  
CHINCOTEAGUE, VIRGINIA**

**LWCF Project 51-00426**

February 18, 2015



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CONSULTING

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**TOWN OF CHINCOTEAGUE ROBERT N. REED PARK ANNEX  
CHINCOTEAGUE, VIRGINIA  
LWCF Project 51-00426**

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## ADVERTISEMENT FOR BIDS

Project: Town of Chincoteague Robert N. Reed Park Annex, LWCF Project 51-00426  
Chincoteague, Virginia

1. The Town of Chincoteague will receive sealed bids for the furnishing of all equipment, labor, and materials and the performance of all work as specified in the Contract Drawings and Specifications for the above described project until 2:00 p.m. EST prevailing time, on March 13<sup>th</sup>, 2015 at the Chincoteague Town Hall, 6150 Community Drive, Virginia 23336, where bids will be publicly opened and read aloud at that time. Bids are to be submitted on the Bid Proposal form included in the Specifications, in sealed envelopes bearing the Bidder's name and address and clearly marked "Bid on Town of Chincoteague Robert N. Reed Park Annex, Chincoteague, Virginia."
2. The Owner reserves the right to reject any and all bids and to waive any informality so designated by the Code of Virginia in bids received.
3. No bids may be withdrawn for a period of 90 days after scheduled closing time for receipt of bids unless, in accordance with Chapter 7, Section 11-54, Code of Virginia, the bidder gives notice in writing of his claim of right to withdraw his bid within two business days after the conclusion of the bid opening procedure, in the event of unintentional arithmetic or similar mistake made directly in the compilation of the bid.
4. Documents required for bidding purposes, including Drawings and Specifications, may be obtained from the Town of Chincoteague, 6150 Community Drive, Chincoteague, Virginia 23336, at a cost of \$75.00 per set. Plans can be picked up between 9:00 AM and 3:00 PM Monday through Friday. **NO REFUND OR RETURN OF PURCHASE PRICE WILL BE MADE.**
5. Documents may be seen at the following places:

a. Town of Chincoteague 6150 Community Drive Chincoteague, Virginia 23336	c. The Builders Exchange of Richmond 3207 Hermitage Road Richmond, Virginia 23227
b. Accomack-Northampton Planning District Commission 23372 Front Street Accomac, VA 23301	d. Builders and Contractors Exchange of Hampton Roads 1118 Azalea Garden Road Norfolk, VA 23502-5612

6. Bids must be accompanied by a certified check or an acceptable Bidder's Bond of not less than five percent of the bid, made payable to the Owner. Performance and payment bonds, each in the amount of 100 percent of the total base bid price and with a surety company carrying a "Best Rating" of "B+" or higher and authorized to do business in Virginia will be required as a condition precedent to the award of the Contract by the Owner. The Power of Attorney (accompanying the Bid Bond) shall be properly executed with written or facsimile signatures. These signatures shall be attested by a Notary whose commission is still in effect at the date of

bidding. ALL BIDDERS SHALL REVIEW BONDS WITH BONDING COMPANY PRIOR TO BID. BIDS WITH NON-RESPONSIVE POWER OF ATTORNEY WILL NOT BE READ.

7. In addition, Title 54.1, Chapter 11, Code of Virginia requires bidders to show evidence of a certificate of registration before a bid may be received and considered. In compliance with this requirement, the bidder shall place, on the outside of the envelope containing his bid, the following notation: "Registered Virginia Contractor No. \_\_\_\_\_." All blank spaces on the Bid form must be filled in, in ink or typewritten, and must be fully completed. For unit price contracts, the product of each unit price and the bid quantity shall govern in evaluating bids received. The summary of all total item prices is included in the Schedule of Prices for the purpose of convenience only in announcing an apparent low bidder at the time of opening and has no meaning otherwise. All bids are subject to review and checking for completeness and accuracy by the Town of Chincoteague or its agents.
8. Any contract or contracts awarded under this advertisement for bids are expected to be partially funded and made possible through the Federal Land and Water Conservation Fund of the National Park Service administered by the Virginia Department of Conservation and Recreation. If a contract is to be awarded, it shall be awarded to the apparent low responsive bidder determined from bids forwarded by Contractors. Neither the United States nor the State of Virginia or any of their departments, agencies, or employees are or will be party to this contract or subcontract. This procurement will be subject to regulations contained in 40 CFR 35.936, 35.938 and 35.935.
9. Bidders and Contractors performing work under this advertisement are bound by the requirements of the President's Executive Order #11246 which prohibits discrimination in employment regarding race, color, creed, sex or national origin, Federal Labor Standards and other requirements. The project is also subject to the provision of the Davis-Bacon Act, the Contractors Work Hours and Safety standards Act, and the Copeland Act. The Bidder's attention is called to the "Equal Opportunity Clause" and the goal and time tables for minority and female participation in each trade. For this project, the total DBE goal is 0%.
10. An Optional Pre-bid Conference will be held at 2PM on March 2<sup>nd</sup>, 2015 at the Chincoteague Town Hall, 6150 Community Drive, Chincoteague, Virginia.
11. The work includes the furnishing of all labor, material, equipment (as required), and supplies and performing of all work necessary to construct the Town of Chincoteague Robert N. Reed Park Annex, Chincoteague, Virginia. The work includes miscellaneous demolition, construction of open shelter, optional kiosk, walkways, storm drainage, utility systems, miscellaneous concrete work, concrete pavers, landscaping, installation of light foundations, and associated park site furnishings and appurtenances.

END OF ADVERTISEMENT FOR BIDS

## INFORMATION FOR BIDDERS

1. It is the declared and acknowledged intent of this specification to provide and secure the construction of Town of Chincoteague Robert N. Reed Park Annex, Chincoteague, Virginia, LWCF Project 51-00426. The work includes furnishing all labor, equipment (as required), and supplies, and performing of all work necessary to construct the project as described in the Contract Drawings and Specifications. The Bid form has been separated by funding sources. It is the Contractors responsibility to separate and maintain quantities.
2. All proposals must be made upon the Bid form accompanying the specifications and must be signed and acknowledged by the Bidder, in accordance with the directions in the form of proposal. The proposal shall be placed in a sealed envelope bearing the bidder's name and address and clearly marked "Bid on Construction of The Town of Chincoteague Robert N. Reed Park Annex, Chincoteague, Virginia, LWCF Project 51-00426." All blank spaces on the Bid form must be filled in, in ink or typewritten, and must be fully completed. DBE requirements shall be clearly stated. The project goal for this project is a 0% DBE participation.
3. According to Section 2.2-4308.2 of the *Code of Virginia*, any employer with more than an average of 50 employees for the previous 12 months entering into a contract in excess of \$50,000 to provide work or provide services pursuant to such contract shall register and participate in the U.S. Department of Homeland Security's "E-Verify" system to verify information and work authorization of its newly hired employees performing work pursuant to such contract. Contractors are not required to be enrolled with "E-Verify" at the time bids are submitted, however, prior to award, the lowest responsive and responsible bidder must be enrolled with "E-Verify". Contractors may use the following website to enroll in "E-Verify", <http://www.uscis.gov/everify>. Contractors shall expressly require any subcontractors performing work or providing services pursuant to the Contract to likewise utilize the U.S. Department of Homeland Security's "E-Verify" system to verify the employment eligibility of all new employees hired by the subcontractor during the Contract term.
4. Bidders must be responsible parties, regularly and practically engaged in the installation of this class of work and known to possess ample facilities for doing this work.
5. Bidders are expected to visit the site of the proposed work and to satisfy themselves as to the surface and subsurface conditions in and adjacent to the site, the availability of water, electricity, sanitary facilities, railroads and access roads. It is the obligation of the bidder to make his own interpretations of any information shown and to satisfy himself by any means of the depth of ground water and the nature and extent of the various materials required to be excavated.
6. Should a Bidder find discrepancies in, or omission from, the drawings or other documents, or should there be doubt regarding their meaning, he should at once notify the Engineer. Any interpretation of the Contract Documents shall be made only by

- Addenda. Addenda will be mailed to bidders at least five days prior to the date of bid opening. The Owner will not be responsible for any other explanation of the Documents.
7. All bids received in accordance with the terms of the advertisement shall be publicly opened and announced either item by item or by total amount. If any bid received is not read aloud, the name of the bidder and the reason for not reading the bid aloud shall be publicly announced at the letting. Negotiation with contractors, during the period following the opening of bids and before the award of the contract shall not be permitted.
  8. Within 120 days after the opening of proposals, the Owner will act upon them. The acceptance of a proposal shall bind the successful bidder to execute the Agreement when it is presented to him. All terms and conditions of the Agreement shall be effective upon acknowledgment by the Contractor of receipt of the Notice of Award. No bid may be withdrawn within 120 days after the opening of Bids unless an arithmetic mistake has been properly certified.
  9. The bidder is specifically advised that any person, firm or other party to whom it is proposed to award a subcontract under this contract:
    - a. Must be acceptable to the Owner and be approved by the Engineer;
    - b. Must conform to Executive Order 11246, as amended, and to 29 CFR Part 3.
  10. The party to whom the contract is awarded will be required to execute the AGREEMENT and obtain the PERFORMANCE BOND and PAYMENT BOND and provide INSURANCE CERTIFICATES within ten calendar days from the date when NOTICE OF AWARD is delivered to the BIDDER. The NOTICE OF AWARD shall be accompanied by the necessary AGREEMENT and BOND forms. In case of failure of the BIDDER to execute the AGREEMENT, the Owner may consider the BIDDER to be in default, in which case the amount of the BID BOND or CERTIFIED CHECK accompanying the proposal shall become the property of the Owner.
  11. The Town of Chincoteague may make such investigations as it deems necessary to determine the ability of the low Bidder to perform the work. If requested, the low Bidder shall furnish any information pertinent to the determination of his experience and financial capability to perform this work. Should this evidence not satisfy The Town of Chincoteague that such low Bidder is properly qualified to carry out the obligations of the Agreement and the work contemplated therein, the Bid may be rejected. A conditional or qualified Bid will not be accepted. Award will be made to the lowest responsive, responsible Bidder based on the Total Base Bid price submitted.
  12. The Contractor shall commence the work within 10 days following the date of the Notice to Proceed. Notice to Proceed is expected on or about March 23<sup>rd</sup>, 2015. Work shall be completed within 90 consecutive calendar days thereafter.
  13. Damages for delay in completion will be assessed at the rate of **\$250** per calendar day in accordance with the General Conditions.

14. Title 59, Chapter 5, Code of Virginia, requires contractors operating as a partnership or under an assumed or fictitious name to file a certificate of ownership with the State Corporation Commission and to appoint an attorney for service of process.
15. The Contractor will be required to indemnify the Town of Chincoteague and Bowman Consulting Group, Ltd. as named insured, from all claims, damages, accidents, and liabilities which may arise out of or during work under this Contract by anyone directly or indirectly employed on the work. Insurance shall include Workmen's Compensation as required by the laws of the Commonwealth of Virginia; Public Liability and Property Damage Insurance, with a limit of \$2,000,000 for each occurrence for both bodily injury and property damage; Automobile Liability Insurance with a limit of \$500,000 for bodily injury and property damage combined; Owner's Protective Liability; and Contractual Insurance in an amount sufficient to protect the Town of Chincoteague and Bowman Consulting Group, Ltd. from Contingent Liability under this Contract.
16. The Contractor shall be responsible for the payment of all costs for utilities used during construction up to the date of substantial completion of the project.
17. All applicable laws, ordinances, and the rules and regulations of all authorities having jurisdictions over construction of the project shall apply to the contract, throughout.
18. Contractors will be permitted to work as much overtime as desired in order to meet the completion dates required by the Owner. Overtime work hours, if required, shall be included in the bid.
19. The contract drawings accompany this specification and are a part hereof. Drawings are the property of the Engineer and shall not be used for any purpose other than that contemplated by the specifications. The contract drawings include:

<u>Sheet No.</u>	<u>Title</u>
C-1.0	Cover
C-2.0	Existing Conditions, Demolition & Erosion Control
C-3.0	Site Improvements & Grading, Drainage + Utilities
C-4.0	Planting & Irrigation
C-5.0	Notes & Details
C-5.1	Notes & Details
C-5.2	Notes & Details Plan
C-5.3	Notes & Details

END OF INFORMATION FOR BIDDERS

**BID PROPOSAL**  
(CONSTRUCTION CONTRACT)

TO: THE TOWN OF CHINCOTEAGUE  
6150 Community Drive  
Chincoteague, Virginia 23336

PROJECT: Robert N. Reed Park Annex  
Chincoteague, Virginia  
LWCF Project 51-00426

In compliance with your Advertisement for Bids and Information for Bidders, the undersigned hereby proposes to furnish the labor, materials, and the equipment, and perform all work for the above described project in strict accordance with the Specifications and the Drawings, including all addenda thereto, in consideration of the total base bid price set forth in this Bid Proposal. The undersigned further agrees, upon receipt of written notice of award of the Contract within 30 days after the date of opening of bids, that he will execute the Contract in the form stipulated in accordance with his bid as accepted, and will furnish to the Owner a performance bond and a payment bond with good and sufficient surety or sureties, as required by the Specifications, at the time the Contract is executed.

The Bidder agrees that if awarded the Contract, he will commence the work on or before a date to be specified in the written Notice to Proceed and that he will fully complete the work within 90 calendar days thereafter as stipulated in the Specifications. The Bidder further agrees to pay as liquidated damages the sum of **\$250** for each consecutive calendar day thereafter as hereinafter provided in the General Conditions. The Bidder further acknowledges that the Contract Documents and drawings are understood by it and are suitable for construction of the Work outlined therein.

The Bidder further declares that no person or persons, firm or corporation, other than the undersigned, is interested in the proposal, as a principal, and that this proposal is made without collusion with any person, firm, corporation, or Town of Chincoteague official.

Finally, the undersigned Bidder hereby understands that all excavation for the work contained herein is unclassified and that the cost of removal of each and every kind of material encountered in the work shall be included in the price bid. With the execution of this Bid, the Bidder affirms that there are no circumstances under which it can make any request for extra payment against the Town of Chincoteague or Bowman Consulting Group, Ltd. should hard material or excess ground water be encountered in the execution of this work by the Bidder. If a conflict occurs between the elements of the contract and the standard reference documents, the Bidder agrees to abide by the federal aid or most conservative approach. The Bidder covenants that it has not relied upon any information compiled by or available to the Town of Chincoteague or Bowman Consulting Group, Ltd. and that it has made its own determination of subsurface conditions and the effect of such conditions on the price bid as required by the Technical Specifications.

Receipt is hereby acknowledged to Addenda Numbers \_\_\_\_ to \_\_\_\_, inclusive.

The undersigned hereby declares that the Bidder has / has not performed work subject to the President's Executive Order No. 11246.

Respectfully submitted:

Signature \_\_\_\_\_  
Title \_\_\_\_\_  
License No. \_\_\_\_\_  
Name and Address \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Seal-if BID is by a Corporation

Attest \_\_\_\_\_ Date \_\_\_\_\_

**BIDDER agrees to perform all work described in the CONTRACT DOCUMENTS for the following Lump Sum Amounts:**

**Lump Sum Base Price:** \_\_\_\_\_ ; \$ \_\_\_\_\_  
Words Numerals

**Additive Bid Item #1**  
**Lump Sum Price:** \_\_\_\_\_ ; \$ \_\_\_\_\_  
Words Numerals

## AGREEMENT

THIS AGREEMENT made the \_\_\_\_\_ day of \_\_\_\_\_ in the year Two Thousand Fifteen (2015) by and between the Town of Chincoteague, hereinafter called the Owner, and \_\_\_\_\_ or his, its, or their Successors, Executors, Administrators, and Assigns, hereinafter called the Contractor.

WITNESSETH, that the Contractor and the Owner for the considerations hereinafter named, agree as follows:

ARTICLE 1. SCOPE OF WORK. The Contractor shall furnish all of the materials and perform all of the work shown on the Drawings and described in the Specifications entitled "Town of Chincoteague Robert N. Reed Park Annex, Chincoteague, Virginia, LWCF Project 51-00426, and shall do everything required by this Agreement and the conditions and terms as set forth in the Contract Documents.

In this Agreement, the firm of Bowman Consulting Group, Ltd. is entitled the Designer of Record.

ARTICLE 2. TIME OF COMPLETION. The work required by these Contract Documents shall be commenced by the date stipulated in the Notice to Proceed and shall be completed within 120 calendar days thereafter unless the period for completion is extended by CHANGE ORDER.

In the event that the Contractor does not complete the work by the time stipulated, or authorized extensions thereof, liquidated damages in the amount of \$250 per calendar day will be assessed in accordance with the General Conditions.

ARTICLE 3. THE CONTRACT SUM. The Owner shall pay the Contractor for the performance of the Work, subject to additions and deductions provided therein, in current funds as set forth in the Schedule of Prices at the sum of \_\_\_\_\_ and \_\_\_/100 Dollars (\$\_\_\_\_\_).

ARTICLE 4. PROGRESS PAYMENTS. The Owner will pay the Contractor in the manner and at such times as set forth in the General Conditions, progress payments for the work accomplished through the first of each month.

ARTICLE 5. ACCEPTANCE AND FINAL PAYMENT. Upon receipt of written notice that the work is ready for final inspection and acceptance, the Designer shall promptly make such inspection. Upon the determination that the work is acceptable under the Contract Documents, the Designer shall promptly notify the Owner that the work provided for in this Agreement has been completed and is acceptable to him. Within 30 days after date of said notification, the Owner shall pay the Contractor the entire balance due.

Before issuance of the notification of acceptance, the Contractor shall submit evidence satisfactory to the Designer that all payrolls, material bills, and other indebtedness connected with the work have been paid.

If after the work has been substantially completed, and the Designer so certifies, the Owner may without terminating the Contract, make payment of the balance due for that portion of the work fully completed and accepted. Such payment shall be made under the terms and conditions governing final payment, except that it shall not constitute a waiver of recorded claims.

**ARTICLE 6. THE CONTRACT DOCUMENTS.** The term Contract Documents which comprise the entire agreement between Owner and Contractor are attached hereto and include the following: Advertisement for Bids; Information for Bidders; Bid Including Bid Bond; Performance and Payments Bonds; Federal Statement Form C-104, Federal Affidavit Form C-105, General and Supplemental General Conditions; Specifications; Notice of Award; Notice to Proceed; and, the Drawings numbered C-1.0, C-2.0, C-3.0, C-4.0, C-5.0, C-5.1, C-5.2 & C-5.3 (8 Sheets Total)

IN WITNESS WHEREOF the parties hereto have executed this Agreement as of the date first above mentioned.

**THE TOWN OF CHINCOTEAGUE**

Attest: \_\_\_\_\_  
Title: \_\_\_\_\_

By: \_\_\_\_\_  
Title: \_\_\_\_\_

**Contractor** \_\_\_\_\_

Attest: \_\_\_\_\_  
Title: \_\_\_\_\_

By: \_\_\_\_\_  
Title: \_\_\_\_\_

# **TECHNICAL SPECIFICATIONS**

## SECTION 01000 – SPECIAL PROVISIONS

### 1.0 PURPOSE AND SCOPE OF PROJECT:

The purpose of this contract is to obtain the services of a qualified contractor, to complete, as expeditiously as possible, the Town of Chincoteague Robert N. Reed Park Annex, Chincoteague, Virginia, as identified in the contract documents. The Contractor will furnish all labor, equipment, materials, erosion and sedimentation control for the project undertaken under the contract. It is the Contractors' responsibility to invoice Client with accurate quantities.

### 2.0 GENERAL:

- 2.01 All work performed under the contract shall conform to the following standards and specifications unless otherwise modified in these special provisions, the project plans or in writing by the Town Manager or his/her designee.
- A. 2007 or Current Addition Virginia Department of Transportation (VDOT) Road and Bridge Specifications with all applicable revisions.
  - B. 2008 or Current Addition Virginia Department of Transportation (VDOT) Road and Bridge Standards, Volume I and II, with all applicable revisions.
  - C. The Virginia Erosion and Sediment Control Handbook, Third Edition, 1992.
- 2.02 The Contractor is responsible for all field engineering and surveying required to complete any project. The cost for all field engineering and surveying will be included in the bid price of the contract and no additional compensation will be made. Upon request, the Engineer will provide a computer AutoCAD file of the plans.
- 2.03 The Contractor shall schedule all work to be undertaken only on Monday through Saturday between the hours of 7:00 a.m. and 6:00 p.m.
- 2.04 Upon completion of a project, the Contractor shall request a final inspection in writing. The Town has ten (10) working days from the receipt of the written request to perform the final inspection. The Town has five (5) working days after the final inspection to notify the Contractor in writing of all discrepancies noted during the final inspection. Upon receipt of the written notice of discrepancies noted during the final inspection, the Contractor will commence work and work continuously until all discrepancies are corrected. The Contractor will be subjected to the liquidated damages as stated in this Contract.

- 2.05 The condition and protection of all completed work will be the sole responsibility of the Contractor until the project is accepted by the Town. Any damage that occurs prior to acceptance by the Town to any portion of the work that was performed by the Contractor will be repaired and/or replaced by the Contractor at no additional cost to the Town.
- 2.06 The Contractor will be responsible for contacting “Miss Utilities” prior to any excavation. The Contractor will be responsible for the repair and/or replacement of any damage to any overhead or underground utility at no additional cost to the project.
- 2.08 Trenches opened in the vicinity of walks and/or streets shall be provided with suitable barriers. The work area will be further protected from sunset until sunrise with a sufficient number of lights or flares to fully protect the general public.
- 2.09 Any damage to new or existing structures caused by the Contractor will be repaired at the Contractor’s expense.
- 2.10 The Contractor will have a copy of the project plan and the contract special provisions on the project site at all times.

### 3.0 TRAFFIC CONTROL:

The Contractor shall provide and maintain, as required, all necessary traffic control in accordance with the 2009 Federal Manual on Uniform Traffic Control Devices (or latest edition), and the 2011 Virginia Work Area Protection Manual (or latest edition). A 7:00 a.m. to 6:00 p.m. work schedule is permitted for any work occurring on the Town streets. Any deviation from this work schedule must be approved in writing by the Town Manager or his designee.

### 4.0 CONSTRUCTION:

Work will be conducted in such a manner and with sufficient materials, equipment, tools and labor as are necessary to ensure its completion in accordance with the project plans, within the time limit specified in this contract, these specifications, and/or the Notice to Proceed letter. Once the work begins said work shall be performed continuously and to the fullest extent possible except for interruptions caused by weather and/or delays authorized and/or ordered by the Director of Public Works or his designee. If approval is given for temporary discontinuance of work, the Contractor shall notify the Engineer in writing at least 24 hours in advance of resuming operations.

## 5.0 MATERIALS AND CONSTRUCTION METHODS:

All materials will conform to the following unless otherwise specified on the project plans or in a written letter from the Director of Public Works or his designee. Unless otherwise stated, all referenced specifications will conform to the VDOT Road and Bridge Specifications, dated 2007.

- 5.01 Portland cement concrete shall be A-3 General conforming to the provisions of Sections 217 and 316.
- 5.03 Crusher Run Stone (ROC) shall conform to the provisions of Sections 205 and 309.
- 5.04 Aggregate bedding material shall be #57 aggregate and conform to the provisions of Sections 302.03b.
- 5.05 VDOT Class 21B shall conform to the provisions of Sections 208 and 309.
- 5.06 Select fill materials shall be Type 1 and conform to the provisions of Sections 207 and 305.
- 5.11 Filter fabric shall conform to the provisions of Page III-171, Table 3.19-D of the Virginia Erosion and Sediment Control Handbook, Third Edition, 1992.

## 6.0 REFERENCES:

- 6.01 All references in the technical specifications to include the following:
  - A. ANSI- American National Standards Institute
  - B. ASTM- American Society of Testing Materials.

END OF SECTION

## SECTION 01010 – SUMMARY OF WORK

### 1.0 GENERAL:

#### 1.01 CONTRACT DOCUMENTS:

- A. The general conditions, supplementary general conditions, and applicable requirements of the contract documents apply to the work of this contract.

#### 1.02 SCOPE:

- A. Provide labor, materials, equipment, and services and perform all operations required for completion of work on this contract or as indicated on the drawings.
- B. The work of this contract includes, but is not limited to the following:
  - 1. Demolition
  - 2. Installation of utility conduits and storm drainage
  - 3. Reconstruction of the roadways and walkways
  - 4. Landscaping

#### 1.03 ADDITIONAL COSTS RESULTING FROM SUBSTITUTE MATERIAL OR EQUIPMENT:

Additional costs resulting from installation of approved substitute material or equipment including alterations in connecting piping or conduit, changes or alterations in foundations, anchor bolts, or other additional costs attributed to use of the substitute material or equipment shall be the sole responsibility of the Contractor.

#### 1.04 AS-BUILT DATA:

Promptly after completion of any portion of the work provided for in this contract, the Contractor shall deliver to the Engineer all data necessary to revise the plans and specifications to the as-built conditions. The Contractor will be held responsible for the accuracy of such data and shall bear any cost incurred as a result of incorrect as-built data furnished by the Contractor.

#### 1.05 MATERIALS APPROVED:

All materials furnished by the Contractor shall be new and as indicated in the applicable specifications or shown on the drawings. The Contractor shall, if required, furnish satisfactory evidence for the approval of the Engineer, as to the kind and quality of materials. Copies of specific tests called for in the specifications shall be furnished in six (6) copies. Before beginning work, the Contractor shall advise and shall obtain the approval of the Engineer in writing of any optional materials allowable under the various headings which he proposes to use.

1.06 STORAGE OF MATERIALS:

Suitable facilities shall be furnished by the Contractor. The Owner shall make available an area in the Town Parking Lot near the boat ramp and in Bridge Street right-of-way for material storage. All materials, supplies and equipment intended for use in the work shall be stored by the Contractor to prevent damage from exposure, admixture with foreign substances, or vandalism. The Engineer will refuse to accept or sample for testing materials, supplies, or equipment that have been improperly stored. Materials found unfit for use shall not be incorporated in the work and shall immediately be removed from the construction or storage site.

1.07 PROGRESS OF WORK:

If at any time the materials and appliances to be used appear to the Engineer as insufficient or improper for securing the quality of work required or the required rate of progress, he may order the Contractor to increase his efficiency to such an order; but the failure of the Engineer to demand any increase of such efficiency or any improvement shall not release the Contractor from his obligation to secure the quality of work or the rate of progress necessary to complete the work within the time limits imposed by the Contract. Prior to beginning work the Contractor shall provide a work schedule to be approved by the design team. See Section 02000 – Sequence of Construction. This schedule shall be used to assess the progress of work.

1.08 MISPLACED MATERIAL:

Should the Contractor during the progress of work lose or misplace any material, plant, machinery, or appliance outside the construction limits, which in the opinion of the Town may be a hindrance, the Contractor shall recover and remove the same with the utmost dispatch. Should he refuse, neglect, or delay compliance with the above requirements, such misplaced material may be removed from the Owner, and the cost of such removal may be deducted from any money due or to become due the Contractor.

2.0 INSTALLATION AND EXECUTION:

2.01 Work and execution of same shall be completed in a first class workmanlike manner and shall conform to the best practice of the trade. The Engineer shall, if he deems necessary, reject and cause to be redone or replaced any work or manufactured item regardless of any prior approval of data or method of such reconstruction, or replacement shall be completed at the sole expense of the Contractor.

END OF SECTION

## SECTION 01020 – ALLOWANCES

### 1.0 GENERAL:

#### 1.01 RELATED DOCUMENTS:

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division – 1 Specification Sections, apply to this Section.

#### 1.02 SUMMARY:

- A. This section specifies administrative and procedural requirements governing handling and processing allowances.
- B. Types of allowances required include the following:
  - 1. Inspection and testing Allowances
  - 2. Undercut Allowance
  - 3. Crusher Run Aggregate

#### 1.03 ALLOWANCES:

- A. Inspection and testing allowances include the cost of engaging the inspection or testing agencies and costs for reporting the results as well as costs for the actual inspections and tests.
- B. The allowance does not include incidental labor required to assist the testing agency, or costs for retesting upon failure of previous tests and inspections. The allowance also does not include costs of services not required by the contract documents.
- C. The allowance for undercut excavation, crusher run and extra pipe bedding replacement shall be as described in the specifications.
- D. At Project Closeout, credit unused amounts remaining in the inspection and testing, undercut excavation, and crusher run allowances to Owner by Change Order.

#### 1.04 SCHEDULE OF ALLOWANCES:

- A. Include the sum of \$2,500.00 for testing concrete, inspecting and testing soil compaction, and other inspections to be paid by the Owner in the Total Base Bid.
- B. Undercut Excavation Allowance: 20 Cubic Yards for additional undercut and backfill with select material shall be included in the base bid. (Refer to Section 02200.)
- C. For use of any of the Allowance items, written approval shall be obtained by the Contractor from the Town prior to use of the material or the material will not be considered for payment.

END OF SECTION

## SECTION 01300 - SHOP DRAWINGS AND SUBMITTALS

### 1.0 GENERAL:

1.01 The Contractor shall provide shop drawings, samples and catalog data as specified.

1.02 ITEMS INCLUDED IN SHOP DRAWINGS: Shop drawings shall include all pertinent data required for the proper fabrication and installation of the materials specified.

2.0 PRODUCTS: Not Applicable.

### 3.0 EXECUTION:

#### 3.01 SHOP DRAWINGS:

A. Original Submittal. One reproducible copy and five copies of all shop drawings shall be submitted for approval in ample time to coordinate necessary features of construction with all fabrication and installation requirements. Not less than fifteen (15) working days shall be allowed to permit checking and appropriate action.

B. Resubmittal. When a resubmittal is required, one print so indicating will be returned to the Contractor. After revision of the original, a new reproducible and three copies shall be submitted for approval.

#### 3.02 SAMPLES:

A. Original Submittal. Two samples, unless otherwise specified, of each item for which samples are required shall be furnished for approval. Approval shall be obtained prior to delivery of the material to the project site. Such samples shall be representative of the actual material proposed for use in the project and of sufficient size to demonstrate design, color, texture, and finish when these attributes will be exposed to view in the finished work.

B. Resubmittals. All rejected samples will be returned upon request, and any or all resubmittals required shall consist of two new samples.

#### 3.03 CATALOG DATA:

A. Submittals. Four copies of catalog data are required for the original submittal and each subsequent resubmittal that may become necessary. Catalog data shall be submitted along with shop drawings. Two copies will be returned as noted.

B. Catalog Data:

1. Catalogs or brochures submitted containing multiple items for approval need identification only on the exterior. In such instances the identification shall include page and catalog numbers of items that are submitted for approval.
2. In the event that one or more of the multiple items are not approved in any submittal, additional copies will be required until all items are approved.

3.04 CONTRACTOR'S RESPONSIBILITY:

- A. Representation: By his submittal of any shop drawings or catalog data, the Contractor thereby represents that he has determined and verified all field measurements, field construction criteria, materials, dimensions, catalog numbers, and similar data, or will do so, and that he has checked and coordinated each item with other applicable approved shop drawings and the contract requirements.
- B. Deviations: Approval of shop drawings, samples, or catalog data by the Owner shall not authorize any deviation from the requirements of the contract documents, unless such deviations are called to the Owner's attention at the time of the submittal, nor shall such approval relieve the Contractor from responsibility for errors or omissions therein.

3.05 PROHIBITIONS: No portion of the work requiring a shop drawing, sample, or catalog data shall be started nor shall any materials be fabricated or installed prior to the approval of such item, except at the Contractor's sole risk.

3.06 In the event that referenced specifications or standards contain general requirements in conflict with the General or Special Conditions, or the scope of work of individual sections of these specifications, the provisions of these specifications shall govern.

3.07 STANDARD OF DESIGN AND WORKMANSHIP: The intent of the specifications is to obtain for the Owner first class workmanship in all respects. All components shall be manufactured, fabricated, assembled, and finished in accordance with the best of recognized trade standards. All materials shall be new and suitable for the conditions specified.

3.08 CODES AND STANDARDS: The Virginia Uniform Statewide Building Code shall be the basis for minimum requirements not otherwise specified.

4.0 APPROVAL OF SUBSTITUTIONS:

4.01 BEFORE BID DATE: If the bidder proposes to use a product other than one specified, he shall notify the owner at least ten (10) days prior to the bid date. The Owner will confirm whether the alternate proposed is acceptable by issuing a written addendum to the specifications.

- 4.02 FOLLOWING AWARD: After award of the contract, substitutions will not be considered unless evidence is submitted to the Owner that each of the following circumstances exist:
- A. The specified material is unavailable for reasons beyond the control of the Contractor. Such reasons consist of strikes, bankruptcy, discontinuance of manufacture, or acts of God.
  - B. The Contractor placed, or attempted to place, orders for the specified material within seven (7) days of the date of the signing of the contract.
  - C. Sufficient data to permit complete analysis of the proposed substitution are submitted with the request.
  - D. A price adjustment, if any in the contract cost is equitable under the circumstances. No increase in price will be acceptable if the order was not placed within 30 days of the signing of the contract and the specified material was available within that 30-day period.

5.0 WARRANTY:

- 5.01 The guarantee and warranty period for all items, unless specifically listed otherwise, shall commence on the date of the Certificate of Substantial Completion certified and accepted by the Owner.
- 5.02 In all cases, prior to beginning of the warranty period, equipment that has been used for any reason whatsoever shall be placed in first class operating condition.
- 5.03 The extent of a guarantee and warranty shall be the requirement to repair or replace, without cost to the Owner, all equipment or workmanship which shall be found to be defective during the guaranteed period, exclusive of repairs due to improper maintenance or operation, or to normal wear, tear and usage, and to pay for all damages resulting from defects.

6.0 MEASUREMENT AND PAYMENT:

- 6.01 Shop drawings will not be measured and paid and will be included in the price of other items.

END OF SECTION

## SECTION 01600 - PRODUCT REQUIREMENTS

### PART 1 - GENERAL

#### 1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 1 Specification Sections, apply to this Section.

#### 1.2 SUMMARY

- A. This Section includes the following administrative and procedural requirements: selection of products for use in Project; product delivery, storage, and handling; manufacturers' standard warranties on products; special warranties; product substitutions; and comparable products.
- B. Related Sections include the following:
  - 1. Division 1 Section "References" for applicable industry standards for products specified.
  - 2. Division 1 Section "Closeout Procedures" for submitting warranties for contract closeout.
  - 3. Divisions 2 through 16 Sections for specific requirements for warranties on products and installations specified to be warranted.

#### 1.3 DEFINITIONS

- A. Products: Items purchased for incorporating into the Work, whether purchased for Project or taken from previously purchased stock. The term "product" includes the terms "material," "equipment," "system," and terms of similar intent.
  - 1. New Products: Items that have not previously been incorporated into another project or facility, except that products consisting of recycled-content materials are allowed, unless explicitly stated otherwise. Products salvaged or recycled from other projects are not considered new products.
- B. Substitutions: Changes in products, materials, equipment, and methods of construction from those required by the Contract Documents and proposed by Contractor.
- C. Basis-of-Design Product Specification: Where a specific manufacturer's product is named and accompanied by the words "basis of design," including make or model number or other designation, to establish the significant qualities related to type, function, dimension, in-service performance, physical properties, appearance, and other characteristics for purposes of evaluating comparable products of other named manufacturers.

- D. **Manufacturer's Warranty:** Preprinted written warranty published by individual manufacturer for a particular product and specifically endorsed by manufacturer to Owner.
- E. **Special Warranty:** Written warranty required by or incorporated into the Contract Documents, either to extend time limit provided by manufacturer's warranty or to provide more rights for Owner.

#### 1.4 SUBMITTALS

- A. **Product List:** Submit a list, in tabular form, showing specified products. Include generic names of products required. Include manufacturer's name and proprietary product names for each product.
  - 1. Coordinate product list with Contractor's Construction Schedule and the Submittals Schedule.
  - 2. Form: Tabulate information for each product under the following column headings:
    - a. Specification Section number and title.
    - b. Generic name used in the Contract Documents.
    - c. Proprietary name, model number, and similar designations.
    - d. Manufacturer's name and address.
    - e. Supplier's name and address.
    - f. Installer's name and address.
    - g. Projected delivery date or time span of delivery period.
    - h. Identification of items that require early submittal approval for scheduled delivery date.
  - 3. Completed List: Within 30 days after date of commencement of the Work, submit 3 copies of completed product list. Include a written explanation for omissions of data and for variations from Contract requirements.
  - 4. Engineer's Action: Engineer will respond in writing to Contractor within 15 days of receipt of completed product list. Engineer's response will include a list of unacceptable product selections and a brief explanation of reasons for this action. Engineer's response, or lack of response, does not constitute a waiver of requirement that products comply with the Contract Documents.
- B. **Substitution Requests:** Submit three copies of each request for consideration. Identify product or fabrication or installation method to be replaced. Include Specification Section number and title and Drawing numbers and titles.
  - 1. Substitution Request Form: Use CSI Form 13.1A.
  - 2. Documentation: Show compliance with requirements for substitutions and the following, as applicable:
    - a. Statement indicating why specified material or product cannot be provided.

- b. VOC content, recycled content and additional sustainable product requirements specified.
  - c. Coordination information, including a list of changes or modifications needed to other parts of the Work and to construction performed by Owner and separate contractors, that will be necessary to accommodate proposed substitution.
  - d. Detailed comparison of significant qualities of proposed substitution with those of the Work specified. Significant qualities may include attributes such as performance, weight, size, durability, visual effect, and specific features and requirements indicated.
  - e. Product Data, including drawings and descriptions of products and fabrication and installation procedures.
  - f. Samples, where applicable or requested.
  - g. List of similar installations for completed projects with project names and addresses and names and addresses of Engineers and owners.
  - h. Material test reports from a qualified testing agency indicating and interpreting test results for compliance with requirements indicated.
  - i. Research/evaluation reports evidencing compliance with building code in effect for Project, from a model code organization acceptable to authorities having jurisdiction.
  - j. Detailed comparison of Contractor's Construction Schedule using proposed substitution with products specified for the Work, including effect on the overall Contract Time. If specified product or method of construction cannot be provided within the Contract Time, include letter from manufacturer, on manufacturer's letterhead, stating lack of availability or delays in delivery.
  - k. Cost information, including a proposal of change, if any, in the Contract Sum.
  - l. Contractor's certification that proposed substitution complies with requirements in the Contract Documents and is appropriate for applications indicated.
  - m. Contractor's waiver of rights to additional payment or time that may subsequently become necessary because of failure of proposed substitution to produce indicated results.
3. Engineer's Action: If necessary, Engineer will request additional information or documentation for evaluation within one week of receipt of a request for substitution. Engineer will notify Contractor through Construction Manager of acceptance or rejection of proposed substitution within 15 days of receipt of request, or 7 days of receipt of additional information or documentation, whichever is later.
- a. Form of Acceptance: Change Order.
  - b. Use product specified if Engineer cannot make a decision on use of a proposed substitution within time allocated.

- C. Basis-of-Design Product Specification Submittal: Comply with requirements in Division 1 Section "Submittal Procedures." Show compliance with requirements.

## 1.5 QUALITY ASSURANCE

- A. Provide products with energy efficient designs and with materials complying with environmental protection considerations.
- B. Compatibility of Options: If Contractor is given option of selecting between two or more products for use on Project, product selected shall be compatible with products previously selected, even if previously selected products were also options.

## 1.6 PRODUCT DELIVERY, STORAGE, AND HANDLING

- A. Deliver, store, and handle products using means and methods that will prevent damage, deterioration, and loss, including theft. Comply with manufacturer's written instructions.
  - 1. Schedule delivery to minimize long-term storage at Project site and to prevent overcrowding of construction spaces.
  - 2. Coordinate delivery with installation time to ensure minimum holding time for items that are flammable, hazardous, easily damaged, or sensitive to deterioration, theft, and other losses.
  - 3. Deliver products to Project site in an undamaged condition in manufacturer's original sealed container or other packaging system, complete with labels and instructions for handling, storing, unpacking, protecting, and installing.
  - 4. Inspect products on delivery to ensure compliance with the Contract Documents and to ensure that products are undamaged and properly protected.
  - 5. Store products to allow for inspection and measurement of quantity or counting of units.
  - 6. Store materials in a manner that will not endanger Project structure.
  - 7. Store products that are subject to damage by the elements, under cover in a weathertight enclosure above ground, with ventilation adequate to prevent condensation.
  - 8. Comply with product manufacturer's written instructions for temperature, humidity, ventilation, and weather-protection requirements for storage.
  - 9. Protect stored products from damage.
- B. Storage: Provide a secure location and enclosure at Project site for storage of materials and equipment by Owner's construction forces. Coordinate location with Owner.

## 1.7 PRODUCT WARRANTIES

- A. Warranties specified in other Sections shall be in addition to, and run concurrent with, other warranties required by the Contract Documents. Manufacturer's disclaimers and limitations on product warranties do not relieve Contractor of obligations under requirements of the Contract Documents.

- B. Special Warranties: Prepare a written document that contains appropriate terms and identification, ready for execution. Submit a draft for approval before final execution.
  - 1. Manufacturer's Standard Form: Modified to include Project-specific information and properly executed.
  - 2. Specified Form: Forms are included with the Specifications. Prepare a written document using appropriate form properly executed.
  - 3. Refer to Divisions 2 through 16 Sections for specific content requirements and particular requirements for submitting special warranties.
- C. Submittal Time: Comply with requirements in Division 1 Section "Closeout Procedures."

## PART 2 - PRODUCTS

### 2.1 PRODUCT OPTIONS

- A. General Product Requirements: Provide products that comply with the Contract Documents, that are undamaged, and unless otherwise indicated, that are new at time of installation.
  - 1. Provide products complete with accessories, trim, finish, fasteners, and other items needed for a complete installation and indicated use and effect.
  - 2. Standard Products: If available, and unless custom products or nonstandard options are specified, provide standard products of types that have been produced and used successfully in similar situations on other projects.
  - 3. Owner reserves the right to limit selection to products with warranties not in conflict with requirements of the Contract Documents.
  - 4. Where products are accompanied by the term "as selected," Engineer will make selection.
  - 5. Where products are accompanied by the term "match sample," sample to be matched is Engineer's.
  - 6. Descriptive, performance, and reference standard requirements in the Specifications establish "salient characteristics" of products.
  - 7. Or Equal: Where products are specified by name and accompanied by the term "or equal" or "or approved equal" or "or approved," comply with provisions in "Comparable Products" Article to obtain approval for use of an unnamed product.
- B. Product Selection Procedures: Procedures for product selection include the following:
  - 1. Product: Where Specification paragraphs or subparagraphs titled "Product" name a single product and manufacturer, provide the product named.
    - a. Substitutions may be considered, unless otherwise indicated.

2. Manufacturer/Source: Where Specification paragraphs or subparagraphs titled "Manufacturer" or "Source" name single manufacturers or sources, provide a product by the manufacturer or from the source named that complies with requirements.
  - a. Substitutions may be considered, unless otherwise indicated.
3. Products: Where Specification paragraphs or subparagraphs titled "Products" introduce a list of names of both products and manufacturers, provide one of the products listed that complies with requirements.
  - a. Substitutions may be considered, unless otherwise indicated.
4. Manufacturers: Where Specification paragraphs or subparagraphs titled "Manufacturers" introduce a list of manufacturers' names, provide a product by one of the manufacturers listed that complies with requirements.
  - a. Substitutions may be considered, unless otherwise indicated.
5. Basis-of-Design Products: Where Specification paragraphs or subparagraphs titled "Basis-of-Design Products" are included and also introduce or refer to a list of manufacturers' names, provide either the specified product or a comparable product by one of the other named manufacturers. Drawings and Specifications indicate sizes, profiles, dimensions, and other characteristics that are based on the product named. Comply with provisions in "Comparable Products" Article to obtain approval for use of an unnamed product.
  - a. Substitutions may be considered, unless otherwise indicated.
6. Visual Matching Specification: Where Specifications require matching an established Sample, select a product (and manufacturer) that complies with requirements and matches Engineer's sample. Engineer's decision will be final on whether a proposed product matches satisfactorily.
  - a. If no product available within specified category matches satisfactorily and complies with other specified requirements, comply with provisions of the Contract Documents on "substitutions" for selection of a matching product.
7. Visual Selection Specification: Where Specifications include the phrase "as selected from manufacturer's colors, patterns, textures" or a similar phrase, select a product (and manufacturer) that complies with other specified requirements.
  - a. Standard Range: Where Specifications include the phrase "standard range of colors, patterns, textures" or similar phrase, Engineer will select color, pattern, or texture from manufacturer's product line that does not include premium items.

- b. Full Range: Where Specifications include the phrase "full range of colors, patterns, textures" or similar phrase, Engineer will select color, pattern, or texture from manufacturer's product line that includes both standard and premium items.
8. Allowances: Refer to individual Specification Sections and "Allowance" provisions in Division 1 for allowances that control product selection and for procedures required for processing such selections.

## 2.2 PRODUCT SUBSTITUTIONS

- A. Timing: Engineer will consider requests for substitution if received within 30 days after commencement of the Work. Requests received after that time may be considered or rejected at discretion of Engineer.
- B. Conditions: Engineer will consider Contractor's request for substitution when the following conditions are satisfied. If the following conditions are not satisfied, Engineer will return requests without action, except to record noncompliance with these requirements:
  - 1. Requested substitution offers Owner a substantial advantage in cost, time, energy conservation, or other considerations, after deducting additional responsibilities Owner must assume. Owner's additional responsibilities may include compensation to Engineer for redesign and evaluation services, increased cost of other construction by Owner, and similar considerations.
  - 2. Requested substitution does not require extensive revisions to the Contract Documents.
  - 3. Requested substitution is consistent with the Contract Documents and will produce indicated results.
  - 4. Substitution request is fully documented and properly submitted.
  - 5. Requested substitution will not adversely affect Contractor's Construction Schedule.
  - 6. Requested substitution has received necessary approvals of authorities having jurisdiction.
  - 7. Requested substitution is compatible with other portions of the Work.
  - 8. Requested substitution has been coordinated with other portions of the Work.
  - 9. Requested substitution provides specified warranty.
  - 10. If requested substitution involves more than one contractor, requested substitution has been coordinated with other portions of the Work, is uniform and consistent, is compatible with other products, and is acceptable to all contractors involved.
  - 11. Requested substitution complies with specified VOC and recycled materials requirements.

## 2.3 COMPARABLE PRODUCTS

- A. Where products or manufacturers are specified by name, submit the following, in addition to other required submittals, to obtain approval of an unnamed product:
1. Evidence that the proposed product does not require extensive revisions to the Contract Documents that it is consistent with the Contract Documents and will produce the indicated results, and that it is compatible with other portions of the Work.
  2. Detailed comparison of significant qualities of proposed product with those named in the Specifications. Significant qualities include attributes such as performance, weight, size, durability, visual effect, and specific features and requirements indicated.
  3. Evidence that proposed product provides specified warranty.
  4. List of similar installations for completed projects with project names and addresses and names and addresses of Engineers and owners, if requested.
  5. Samples, if requested.

PART 3 - EXECUTION (Not Used)

END OF SECTION 01600

## SECTION 01700 - PROJECT CLOSEOUT

### 1.0 GENERAL:

#### 1.01 DESCRIPTION OF REQUIREMENTS:

- A. Definitions: Project closeout is the term used to describe certain collective project requirements, indicating completion of the Work that are to be fulfilled near the end of the Contract time in preparation for final acceptance and occupancy of the Work by the Owner, as well as final payment to the Contractor and the normal termination of the Contractor.

#### 1.02 PREREQUISITES TO PRE-ACCEPTANCE INSPECTION:

- A. General: Complete the following before requesting the Owner's pre-inspection inspection for the entire Work.
1. Prepare and submit to the Owner list of items remaining to be completed in accordance with General Conditions, the value of incomplete work, and reasons for the Work being incomplete.
  2. Obtain and submit releases enabling the Owner's full, unrestricted use of the work and access to services and utilities. Where required, include occupancy permits, operating certificates and similar releases.
  3. Touch-up and otherwise repair and restore marred exposed finishes.
  4. Complete final cleaning up requirements, including touch-up painting of marred surfaces.
  5. Submit specific warranties, workmanship/maintenance bonds, maintenance agreements, final certifications and similar documents.
- B. Upon receipt of the contractors list and request for Owner's verification, the Owner will either proceed with verification inspection or advise the Contractor of unfilled prerequisites.
1. Following initial verification inspection the Owner will either prepare a certificate of substantial completion, or will advise the Contractor of work that must be performed before the certificate will be issued. The Owner will repeat the inspection when requested, but only when assured that the work has been substantially completed.
  2. Results of the completed inspection will form the initial "punch-list" for final acceptance.

1.03 PREREQUISITES TO THE FINAL ACCEPTANCE:

- A. General: Complete the following before requesting the Owner final inspection for certification of final acceptance, and final payment as required by the General Conditions. List known exceptions, if any, in the request.
  - 1. Submit Record Documents.
  - 2. Submit an updated final statement, accounting for final additional changes to the Contract Sum.
  - 3. Submit an updated final statement, accounting for final additional changes to the Contract Sum.
  - 4. Submit a certified copy of the Owner's final punch-list of itemized work to be completed or corrected, stating that each item has been completed or otherwise resolved for acceptance and has been endorsed and dated by the Engineer.
  - 5. Submit evidence of final, continuing insurance coverage complying with insurance requirements.

1.04 WARRANTY:

- A. The guarantee and warranty period for all items, unless specifically listed otherwise, shall commence on the date of the Certificate of Substantial completion certified by the Engineer and accepted by the Owner.
- B. In all cases, prior to beginning of the warranty period equipment, that has been used for any reason whatsoever shall be placed in first class operating condition.
- C. The extent of a guarantee and warranty shall be the requirement to repair or replace, without cost to the Owner, all equipment or workmanship which shall be found to be defective during the guaranteed period, exclusive of repairs due to improper maintenance or operation, or to normal wear, tear and usage, and to pay for all damage resulting from defects.

2.0 PRODUCTS: NOT APPLICABLE

3.0 EXECUTION:

3.01 FINAL CLEANING:

- A. General: Special cleaning requirements for specific units of work are included in the appropriate sections of the Technical Specifications. General Cleaning during the regular progress of the work is required by the General Conditions.

- B. Cleaning: Provide final cleaning of the work at the time indicated. Clean each surface or unit of work to the condition expected from a normal, commercial building cleaning and maintenance program. Comply with the manufacturer's instructions for operations.
  - 1. Clean the project site, including landscape development areas, of rubbish, litter and other foreign substances. Sweep paved areas to a broom clean condition; remove stains, spills and other foreign deposits. Rake grounds that are neither paved nor planted, to a smooth even textured surface.
- C. Removal of Protection: Except as otherwise indicated or requested by the Owner remove temporary protection devices and facilities which were installed during the course of the work to protect previously completed work during the remainder of the construction period.
- D. Compliance: Comply with safety standards and governing regulations for cleaning operations. Do not burn waste materials at the site. Do not bury debris or excess materials on the Owner's property. Do not discharge volatile or other harmful or dangerous materials into drainage systems. Remove waste materials from the site and dispose of in a lawful manner.

END OF SECTION

## SECTION 01710 - CLEANING

### 1.0 GENERAL:

- 1.01 SCOPE: Provide all labor and materials to fully and properly complete the work indicated on the drawings and/or specified. Unless otherwise specified this work includes cleaning during and at the completion of the project.
- 1.02 RELATED WORK SPECIFIED ELSEWHERE: Cleaning-up required for specific trades or work is specified in sections pertaining to that trade or work.
- 1.03 REQUIREMENTS OF REGULATORY AGENCIES:
  - A. Safety and Insurance Standards: Maintain project in accordance with all applicable Federal, State and Local codes and ordinances and in accordance with any applicable insurance company regulations or standards.
  - B. Fire Protection: Store volatile waste in covered metal containers and remove from premises daily.
  - C. Pollution Control: Conduct clean-up and disposal operations to comply with local ordinances and anti-pollution laws.
  - D. Burning or burying of rubbish and waste materials on the project site is not permitted.
  - E. Disposal of volatile fluid wastes (such as mineral spirits, oils, paint thinner) in storm or sanitary sewer systems or into streams or waterways are not permitted.

### 2.0 PRODUCTS:

- 2.01 CLEANING MATERIALS: Use only cleaning materials recommended by manufacturer of surface to be cleaned and cleaning materials only on surfaces recommended by cleaning material manufacturer.

### 3.0 EXECUTION:

#### 3.01 DURING CONSTRUCTION:

- A. Oversee cleaning and ensure that worksite is maintained free from accumulations of waste materials and rubbish.
- B. Sprinkle dusty debris with water.
- C. Provide on site containers for collection of waste materials, rubbish and debris.

- D. Do not allow waste materials, rubbish and debris to accumulate and become an unsightly or hazardous condition.
- E. Remove waste materials, rubbish and debris from the site and legally dispose of at public or private dumping areas off the Owner's property.
- F. The Contractor is responsible for the removal of all paint and marks on the concrete and concrete pavers which are caused by the Contractor or by others, such as utility companies marking lines for Miss Utility, graffiti, or other. A method of removal must be approved by the Owner.
- G. Lower waste materials in controlled manner with as few handlings as possible; do not drop or throw materials from heights.
- H. Schedule cleaning operations so that dust and other contaminants resulting from cleaning process will not fall on recently prepared surfaces.

### 3.02 FINAL CLEANING

- A. Use experienced workmen for final cleaning.
- B. At completion of construction and just prior to acceptance, conduct a final inspection of exposed surfaces.
- C. Remove grease, dust, dirt, stains, labels, finger-prints and other foreign materials from surfaces.
- D. Repair, patch and touch-up marred surfaces to match adjacent finishes.
- E. Broom clean paved surfaces; rake clean other surfaces of grounds.
- F. Definitions: Project closeout is the term used to describe certain collective project requirements, indicating completion of the work that are to be fulfilled near the end of the Contract time in preparation for final acceptance of the work and occupancy by the Owner, as well as final payment to the Contractor and the normal termination of the Contractor.
  - 1. Specific requirements for individual units of work are included in the appropriate sections in the Technical Specifications.

### 3.03 PREREQUISITES TO SUBSTANTIAL COMPLETION:

- A. General: Complete the following before requesting the Owner's inspection for certification of substantial completion for the entire work.
  - 1. Prepare and submit to the Owner list of items remaining to be completed in

accordance with General Conditions, the value of incomplete work, and reasons for the work being incomplete.

2. Obtain and submit releases enabling the Owner's full, unrestricted use of the work and access to services and utilities. Where required, include occupancy permits, operating certificates and similar releases.
  3. Touch-up and otherwise repaint and restore marred exposed finishes.
  4. Complete final cleaning up requirements, including touch-up painting of marred surfaces.
  5. Submit specific warranties, workmanship/maintenance bonds, maintenance agreements, final certifications and similar documents.
- B. Upon receipt of the contractors list and request for Owner's verification, the Owner will either proceed with verification inspection or advise the Contractor of unfilled prerequisites.
1. Following initial verification inspection the Owner will either prepare a Certificate of Substantial Completion, or will advise the Contractor of work that must be performed before the certificate will be issued. The Owner will repeat the inspection when requested, but only when assured that the work has been substantially completed.
  2. Results of the completed inspection will form the initial "punch-list" for final acceptance.

#### 4.0 MEASUREMENT AND PAYMENT

All cleaning as required by the Owner and as specified in these contract documents shall not be measured and paid. All manpower, work, equipment and incidentals necessary to complete the cleaning shall be considered incidental for the contract.

END OF SECTION

## SECTION 01900 – RECORD DRAWINGS

### 1.0 GENERAL:

The Contractor shall at the end of the construction provide Owner with one complete set of drawings recording the installation of the project. Upon request, the Engineer will supply a complete set of drawings to the Contractor for the purpose of keeping Record Drawings. During the course of the construction, the Records shall be updated daily by the end of each working day. Progress payments may be withheld for failure to keep neat, accurate, and complete Record Drawings. The Owner may elect to prepare the Record Drawings at the cost of the Contractor should the Contractor fail to perform under this provision of the contract.

1.01 As-built information shall include the following as a minimum, where applicable:

- A. Size, horizontal and vertical location of any existing utilities uncovered during the course of the work. This shall include telephone cables and conduits, TV cables, electrical cables, conduits, and duct banks, gas lines, water lines, sewer force mains, sanitary sewers, storm sewers, etc.
- B. Horizontal and vertical location of all water mains and force mains installed at every 100 foot station and significant bends or deflections.
- C. Location and size of all water main taps made, including corporation used for testing and chlorinating purposes, pluses, and offsets to all meter boxes, new and existing, size of service lines installed, etc.
- D. Location of any lines plugged or capped.
- E. Pluses and offsets to all structures installed as such as storm drainage structures, manholes, air vents, hydrants, valve boxes, blow-offs, water meters, cleanouts, etc.
- F. Depth from rim of valve box to top of operating nut on all valves, and length of valve extensions installed.
- G. Rims and inverts for all storm drainage inlets and manholes installed.
- H. Sizes and types of materials used and changes in sizes and types of materials.
- I. Horizontal and vertical location of all utility company conduits installed at every 100 foot stations and significant bends or deflections.
- J. Pluses and offsets and shapes to all non-linear sidewalk construction joints which differ from plan locations.
- K. Pluses and offsets to all locations of site furnishings to include benches, trash receptacles, and signage where the locations differ from the plans.

2.0 RECORD DRAWINGS:

- 2.01 Record drawings shall not be measured and paid under this contract. All work associated with the specified record drawings shall be considered incidental to other items in these specifications.

END OF SECTION

## SECTION 02000 - SEQUENCE OF CONSTRUCTION

### 1.0 GENERAL

- 1.01 The Contract shall extend from Notice to Proceed for 150 days. To abide by the restrictions created by this schedule, the Contractor shall sequence his construction to incorporate, but not be limited to, the items contained below. Prior to beginning work the Contractor shall provide a work schedule to be approved by the design team.
- 1.02 The Contractor shall sequence his construction demolition in a continuous manner to begin and complete demolition expeditiously. Limits of demolition are as shown on the plans.
- 1.03 Existing water, sanitary facilities and drainage shall be maintained by the Contractor during construction and until the proposed items have been properly connected and tested by the Contractor and approved by the Town.
- 1.04 Contractor shall maintain pedestrian access along all adjacent streets including access to all parcels adjacent to the project site.
- 1.05 Contractor to coordinate all work with the Chincoteague Fire Department to insure adequate access is maintained at all times.

### 2.0 METHOD OF MEASUREMENT AND BASIS OF PAYMENT

- 2.01 Sequence of construction shall not be measured and paid under this contract. All work associated with the specified sequence of construction shall be considered incidental to other items in these specifications.

END OF SECTION

## SECTION 02200 - EARTHWORK

### 1.0 GENERAL:

#### 1.01 WORK INCLUDED, BUT NOT LIMITED TO:

- A. Excavation, trenching, backfill, rough and finish grading, together with placement and preparation of topsoil for lawns and plantings.

#### 1.02 DEFINITIONS:

- A. Excavation: consists of removal of material encountered to subgrade elevations indicated and subsequent disposal of materials removed.
- B. Subgrade: the undisturbed earth or the compacted soil layer immediately below structure or topsoil materials.

#### 1.03 QUALITY ASSURANCE:

- A. Perform excavation work in compliance with applicable requirements of governing authorities having jurisdiction.
- B. Unless otherwise indicated comply with Virginia Department of Transportation (VDOT) Current Specifications and Standards for Road and Bridge Construction.

#### 1.04 SUBMITTALS:

- A. One optimum moisture-maximum density curve for each type of soil encountered will be provided on the site.

#### 1.05 PROJECT CONDITIONS:

- A. Existing Utilities: Locate existing underground utilities in areas of work.

Should uncharted or incorrectly charted utilities be encountered, consult Utility Owner and Owner's Representative immediately for directions. Cooperate with Owner and utility companies in keeping respective services and facilities in operation.

Repair damaged utilities to the satisfaction of utility company and Owner. Provide minimum 48-hour notice to the Owner and utility company prior to interruption of the utility. Contractor shall not proceed with utility interruption until receiving written notification to proceed.

Use of Explosives: The use of explosives is not permitted.

- B. Protection of Persons and Property: Barricade open excavations and post warning signs and lights.
- C. Operate warning lights as required by authorities having jurisdiction.

Protect all existing structures, utilities, sidewalks, pavements, lawns, and other facilities from damage caused by settlement, lateral movement, undermining, washout, and other hazards created by earthwork operations.

Dust Control: Control dust on and near the work, and on and near all off-site borrow areas. Thoroughly moisten all surfaces to prevent dust from being a nuisance to the public, and operation of existing facilities.

## 2.0 PRODUCTS:

### 2.01 SOIL MATERIALS:

- A. Satisfactory soil materials are defined as those complying with ASTM D2487 soil classification groups GW, GP, GM, SM, SW, and SP.
- B. Unsatisfactory soil materials are defined as those complying with ASTM D2487 soil classification groups ML, MH, CL, CH, OL, OH, and PT.
- C. Backfill and Fill Materials: Satisfactory soil materials free of clay, rock or gravel larger than 3/4 inches in any dimension (unless required by approved material gradation), debris, waste, frozen materials, vegetation and other deleterious matter.
- D. Topsoil shall meet the following physical and chemical criteria:

- a. Soil Texture: USDA Sandy Loam approximating the following particle size distribution:

#### Approximate Particle Distribution

Gravel	Trace
Coarse to medium sand	40 - 65%
Fine to very fine sand	10 - 20%
Silt	10 - 15%
Clay	10 - 20%

- b. Soluble Salt Level: Less than 844 ppm (.67 mmho/cm).
- c. Percent Organic Matter: 4- 8%, by weight\*.
- d. Soil pH: 5.5 - 6.5\*.
- e. Additionally, any borrow topsoil brought from outside sources should be tested by an independent laboratory to determine it's suitability for landscape use.

## 3.0 EXECUTION:

3.01 EXCAVATION:

- C. Excavation is unclassified and includes excavation to required subgrade elevations, regardless of character of materials and obstructions encountered.
- D. Stability of Excavations: Slope sides of excavations to comply with local codes, ordinances and requirements of agencies having jurisdiction. Shore and brace where sloping is not possible because of space restrictions or stability of material being excavated. Maintain side slopes of excavations in safe condition until completion of backfilling.
- E. Cold Weather Protection: Protect excavation bottoms against freezing.

3.02 DE-WATERING: Prevent surface water and ground water from flowing into excavations and from flooding project site and surrounding area.

Do not allow water to accumulate in excavations. Remove water to prevent softening of trenches, foundation bottoms, undercutting structures, and soil changes detrimental to stability of subgrades and foundations. Provide and maintain pumps, well points, sumps and discharge lines, and other de-watering system components necessary to convey water away from excavations.

Establish and maintain temporary drainage ditches and drainage ways or other diversions outside excavation limits to convey rain water and water removed from excavations to natural water course or storm system in accordance with local codes and ordinances. Do not use trench excavations as temporary drainage ditches.

3.03 MATERIAL STORAGE: Stockpile satisfactory excavated materials where indicated or directed. Place, grade and shape stockpiles for proper drainage. Do not store within drip line of trees.

3.04 EXCAVATION FOR FOUNDATIONS: Trim bottoms to required lines and grades to leave solid base free from loose materials. Excavate by hand to final grade just before concrete reinforcement is placed. Concrete may be placed without the use of forms, provided the sides of the excavations are stable and the minimum cross sectional area and shape of footing can be maintained. Concrete for footings shall be placed the same day as the bearing surface is prepared.

3.05 COMPACTION:

- A. Percentage of Maximum Density Requirements: Compact each layer of fill, backfill and granular materials to not less than the following percentages of the maximum density at +/-3% optimum moisture content as determined by [ASTM D698 (Standard Proctor)].

1. 98 Percent within building area and extending five feet beyond building face;
2. 95 Percent beneath pavement, walks, utility trenches;
3. 90 Percent for all other areas including landscaping and planting beds.

- B. Equipment: Use power-driven hand tampers for compacting materials adjacent to structures and in trenches. Provide equipment capable of adding moisture to the soil material or for aerating the soil as determined necessary by moisture-density tests.
- C. Moisture Conditioning: Uniformly apply water in such manner as to prevent free water appearing on the surface, either during or subsequent to compaction operations. Compaction by flooding is prohibited.
- D. Re-fill, re-grade and re-finish any area that becomes unsatisfactory due to settling. All areas or portions thereof that do not meet minimum density requirements shall be reworked and compacted until they meet the project density requirements.

### 3.06 BACKFILL AND FILL EXCLUDING TRENCHES:

- A. Remove and replace, or scarify and air dry, soil material that is too wet to permit compaction to specified percentage. Do not place or compact material that is frozen.
- B. Soil material that has been removed as too wet to permit compaction may be stockpiled or spread to dry and reused when moisture content is reduced to a satisfactory value.
- C. Place backfill and fill materials in layers not more than 4 inches in loose depth. Compact each layer to the required density.
- D. Fill shall not be dropped on any structure. Do not place fill or backfill around, against or upon any structures until the structure has attained sufficient strength to withstand the loads imposed thereon.

### 3.07 GRADING:

- A. General: Grade areas adjacent to wall to drain away from structures and to prevent ponding.

B. Grading Tolerances:

Lawn and grass areas: Plus or minus 0.1 foot of subgrade elevations.

- C. Placing Topsoil and Fine Grading: Scarify sub-grade to depth of 2 inches before placing topsoil. Topsoil shall be evenly spread and compacted to a minimum thickness of 6 inches. Do not handle topsoil in a wet or muddy state, or dump or spread in areas where subgrade is not in proper condition.

### 3.08 EROSION AND SEDIMENT CONTROL:

#### A. General:

1. Coordinate with Owner to guarantee installation of erosion and sediment control devices as required by State or local authorities prior to proceeding with construction.
2. Maintain erosion control during construction until permanent pavement, plantings and restoration of natural areas is effective in controlling erosion.

### 3.09 MAINTENANCE:

Protect newly graded areas from traffic and erosion. Keep free of trash and debris. Repair and re-establish grades in settled, eroded, and rutted areas to specified tolerances.

Where settlement is noticeable during general project warranty period, remove surface pavement, lawn or other finish, add backfill material, compact and replace surface treatment. Restore appearance, quality and condition of surface or finish to match adjacent work, and eliminate evidence of restoration to greatest extent possible.

### 3.10 DISPOSAL OF EXCESS AND WASTE MATERIALS:

- A. Remove excess excavated materials, including topsoil, waste materials, trash and debris to off-site disposal areas as directed by the Town.
- B. Burning on site is prohibited.

## 4.0 MEASUREMENT AND PAYMENT:

- 4.01 Earthwork including planting soil mix shall be measured and paid as noted. The contract price will include full payment for all material, equipment labor, removal, disposal, and all incidentals necessary to complete the following work.
  - A. Regular excavation will not be measured and paid as a lump sum plan quantity as earthwork. The Owner must approve additional quantities as determined by field evaluation. Regular excavation will not be considered for additional compensation unless approved by the Engineer or classified by the Owner's Representative as undercut excavation as described herein.
  - b. Incidentals such as performing CBR tests, embankments, minor structure excavation, disposal of surplus and unsuitable material, and shaping, compacting, sloping, dressing and maintenance of roadway entrances, temporary erosion control work and all other items of work incidental thereto, will not be measured

for payment. These costs shall be included in the unit bid price.

- F. Disposal of undercut material shall be considered incidental to the contract and included in the unit price and the schedule of values for undercut excavation.

END OF SECTION

## SECTION 02270 - SLOPE PROTECTION AND EROSION CONTROL

### 1.0 GENERAL:

#### 1.1 RELATED DOCUMENTS:

- A. Drawings and general provisions of Contract, including General and Supplemental Conditions of the construction contract, Commonwealth of Virginia, and other sections of Division 1 specification sections (General Requirements) apply to work of this section.

#### 1.2 DESCRIPTION:

- A. This section includes furnishing materials, labor and equipment to provide erosion and sedimentation control.
- B. Related work specified elsewhere includes, but may not be limited to:

Section 02200	Earthwork
Section 02300	Site Drainage

#### 1.3 QUALITY ASSURANCE:

- A. Applicable Reference Specifications:
  - 1. Virginia Department of Transportation (VDOT) Road and Bridge Specifications
  - 2. Virginia Erosion and Sediment Control Handbook (VESCH).
- B. Comply with requirements of authorities having jurisdiction. Except where more stringent requirements are indicated on the Drawings or specified, comply with applicable recommendations of the VEC prepared by the Virginia State Soil and Water Conservation Commission.
- C. All existing erosion and sediment control (E&S) measures which do not interfere with constructions shall be maintained providing they are in acceptable condition. Erosion control measures (E&S) shall be established at the beginning of construction in accordance with plans, notes, and details in accordance with VEC standards, and to the extent required by the Virginia Department of Environmental Quality (DEQ). The E&S shall be maintained during the entire length of construction. The Specifications and Drawings are not represented as being comprehensive, but rather convey the intent to provide complete slope protection and erosion control for both the Owner's property and adjacent property and waters.

- D. Contractor is responsible to provide and maintain slope protection and erosion controls to the satisfaction of the Owner and the DNR.
- E. Contractor shall schedule construction in a manner to best provide slope protection and erosion controls. Install grass slopes, ditches and other areas to be disturbed by construction at the earliest possible time during the construction sequence.
- F. Damage to a stream, other natural areas is herein defined as the addition of soil, rock and topsoil, whether deposited by poor construction practice, sedimentation, wind, or other means; vegetable matter such as whole trees or any part thereof, or remnants from burning or other clearing processes; waste construction materials such as concrete, broken pipe, etc.; waste from construction equipment or parts thereof, or any other additions which can be classified or detrimental to said areas.
- G. Damage will be specified by the Owner, by actual site inspections. If it is determined that damage has been caused by the Contractor through negligence, carelessness, by intention, or other, the Contractor will act as directed by the Owner to correct said damage as quickly as possible and to take steps to prevent further damage. Damage correction will be at no cost to the Owner. The Owner reserves the right to independently hire damage correction services if the Contractor does not perform in a timely or complete manner. The cost of such independent services shall be deducted from the Contractor's payment(s) and fees.

## 2.0 PRODUCTS

### 2.1 MATERIALS

- A. Rip-Rap: VDOT Class I (man sized stone).
- B. Hay or straw bales.
- C. Anti-Erosion Mulch: Provide clean, seed-free salt, hay or threshed straw of wheat, rye, oats or barley.
- D. Filtration Fabric or Geotextile Fabric: Shall comply with Section 245 of VDOT Specifications.
- E. Geotextile Fabric: Shall be woven, porous, and suitable for road construction. Minimum weight shall be 4.0 oz. per square yard.

### 3.0 EXECUTION

#### 3.1 EROSION CONTROL

- A. Establish and maintain erosion control and slope protection work as required by the Drawings, Notes, Details, and Specifications and Virginia Erosion and Control Handbook, 1992 or latest edition.
- B. Remove and dispose of off site all temporary erosion control systems at the completion of the Project when directed by the Owner. At the discretion of the Owner, and in writing, erosion and sedimentation control systems may be requested to remain in place. If such circumstances occur, the Contractor will be absolved of all responsibilities for removal and disposal of the erosion control systems identified to remain.
- C. Clean sediment out of all temporary and permanent erosion control facilities and the storm drainage system. Dispose of all material legally, off-site at Contractor's expense.

#### 4.0 MEASUREMENT AND PAYMENT

- A. The cost of all erosion control measures including temporary silt fence, inlet protection, construction entrance, temporary seeding and stabilization, including installing and removal and all maintenance and cleanup required throughout the life of the contract shall be included in the contract price.

END OF SECTION

SECTION 02300 - SITE DRAINAGE

1.0 GENERAL

1.01 DESCRIPTION: This work shall consist of the installation of storm drains and drop inlets in accordance with these specifications.

1.02 Reference specifications are referred to by abbreviations as follows:

A. Virginia Department of Transportation.....VDOT

2.0 MATERIALS

2.01 All drainage pipes shall be schedule 40 PVC.

2.02 All inlets shall be Nyloplast 18" Drain Basin (or approved equal) as specified on the construction drawings.

3.0 EXECUTION

3.01 Work in this section shall be in accordance with VDOT Specifications for the installation of plastic pipe.

3.02 Inlets shall be installed in accordance with manufacturer's specifications.

4.0 MEASUREMENT AND PAYMENT:

4.01 Cost of all work shall be included in the contract price.

END OF SECTION

SECTION 02500 - PAVEMENTS

1.0 GENERAL

1.01 Related work specified elsewhere includes the following:

A. Section 02300 - Site Drainage

1.02 Reference specifications where applicable to work under this Section are referred to by abbreviation as follows:

A. American Association of State Highway and Transportation Officials ..AASHTO

B. Virginia Department of Transportation .....VDOT

1.03 Establish and maintain required lines and elevations.

1.05 Concrete mixture for all concrete surfaces (curbs, walks, etc.) shall be from the same supplier. Mixture shall be of natural crushed riverbed stone and light Portland Cement. Cement shall be from one source or mill. Mixture and color shall be approved by the Engineer.

2.0 PRODUCTS

2.01 Aggregate base course shall be Type II, Size 21B graded aggregate base material as defined in VDOT Road and Bridge Specifications, Section 209, "Subbase and Aggregate Base Material."

2.04 Concrete

A. Concrete base and/or base for utility pavement replacement shall be VDOT Specifications, Section 219, Class A-3.

B. Concrete for exposed aggregate slabs shall be VDOT Specifications, Section 219, Class A-3, air-entrained.

C. Curing materials for concrete shall be VDOT Specifications, Section 223.

D. Joint materials shall be VDOT Specifications, Section 213. Expansion material shall be placed at all R/W line adjacent to buildings and or walls.

2.05 Select Material: Select Material shall be Type 1 and conform to VDOT Specifications, Section 208.

3.0 EXECUTION

3.01 Subgrade Preparation: Subgrade preparation shall consist of the final machining of the subgrade immediately prior to placing the aggregate base course. The surface

shall be true to line and grade. Construction methods and equipment shall conform to applicable portions of Section 305 "Subgrade and Shoulders" of VDOT Road and Bridge Specifications.

3.02 Aggregate base course construction methods and equipment shall conform to requirements of Section 309, "Aggregate Base Course" VDOT Road and Bridge Specifications.

3.03 Plain and exposed concrete shall be constructed in accordance with VDOT Specifications, Section 504 and as follows:

A. A test panel for each type of concrete section shall be poured for approval by the Owner prior to the remainder of placement of concrete walks on the project.

B. Execution

1. Cement for the entire project should be the same type, brand and mill.
2. All aggregate, fine or coarse, should be from one source.
3. The mix design must remain constant.
4. Water or slump must remain constant. No water to be added at the site.
5. Avoid calcium chloride.
6. Air entrainment admixtures - determined by concrete producers. Do not use carbon black pigment.
7. Minimize moving or spreading concrete. Do not over trowel.
8. Cement dusting, sprinkling or fogging of water not to be permitted.
9. Broom or texture finish required for plain concrete.

#### 4.0 MEASUREMENT AND PAYMENT

4.01 Cost of all work shall be included in the contract price.

END OF SECTION

## SECTION 02514 – CLAY PAVERS

### 1.0 GENERAL

#### 1.01 SECTION INCLUDES

- A. Clay paver units
- B. Sand setting bed and joint sand.

#### 1.02 REFERENCES

- A. American Society of Testing Materials (ASTM):
  - 1. C902 Standard Specification for Pedestrian and Light Traffic Paving Brick.
  - 2. C1272 Standard Specification for Heavy Vehicular Paving Brick.
  - 3. C136 Method for Sieve Analysis for Fine and Coarse Aggregate.
  - 4. C67 Method of Sampling and Testing Brick and Structural Clay Tile.
  - 5. C33 Specification for Concrete Aggregates.
  - 6. C144-89 Standard Specification for Aggregate for Masonry Mortar.

#### 1.03 QUALITY ASSURANCE

- A. Installation shall be by an installer with at least two years experience and who has installed at least 200,000 sq. Ft. of sand set pavers in commercial projects. Confirmation of experience will be provided at beginning of project with schedule and shop drawings.

#### 1.04 SUBMITTALS

- A. Submit shop or product drawings and product data.
- B. Submit samples of brick paving units to indicate color and size selections. Color will be selected by Engineer from manufacturer's available colors and intended to match existing pavers used in previous phases in color, size, banding and other distinguishing items.
- C. Submit sieve analysis for grading of bedding and joint sand.
- D. Submit test results for compliance of paving unit requirements to ASTM C 902 or ASTM C 1272 from an independent testing laboratory.
- E. Submit installer qualifications: provide satisfactory evidence that the installer complies with the qualifications set out in section 1.03.
- F. Schedule & Work Plan: submit a detailed schedule and work plan.

#### 1.05 MOCK UPS

- A. Install a 10 ft. x 10 ft. paver area. This area will be used to determine surcharge of the sand layer, joint sizes, lines, laying pattern(s), color(s), and texture of the job. This area shall be the standard from which the work will be judged.

#### 1.06 DELIVERY, STORAGE AND HANDLING

- A. Deliver brick pavers to the site in steel banded, plastic banded, or plastic wrapped cubes or on pallets capable of transfer by fork lift or clamp lift. Unload pavers at job site in such a manner that no damage occurs to the product.
- B. Sand shall be covered with waterproof covering to prevent exposure to rainfall or removal by wind. The covering shall be secured in place.

#### 1.07 ENVIRONMENTAL CONDITIONS

- A. Do not install sand or pavers during heavy rain or snowfall.
- B. Do not install frozen sand.

### 2.0 PRODUCTS

#### 2.01 MANUFACTURED UNITS

- A. Brick pavers may have spacer bars on each unit. These insure a minimum joint width between each unit in which the sand is placed. Spacer bars help prevent contact of the edges with adjacent pavers and subsequent chipping. Manually installed pavers may be installed with or without spacer bars.
- B. Brick pavers shall be A Grade pavers manufactured/supplied by a member of the Brick Institute of America (BIA). Brick pavers shall have a minimum 10,000 psi compressive strength. The BIA manufacturer/supplier in previous projects has been:

Name: **PINE HALL BRICK, Witacre Greer or Glen-Gery Corporation**

- C. Pavers shall meet the following requirements set forth in ASTM C 902, Specification for Pedestrian and Light Traffic Paving Brick or C 1272 Specification for Heavy Vehicular Paving Brick and shall conform to the PX standard.
  1. Minimum average compressive strength of 10,000 psi.
  2. The average cold water absorption shall not be greater than 6% with no individual unit testing greater than 7%. Absorption test results may not be achieved through the use of sealers or other products applied to the clay paver. (Sealer protection degrades over time requiring re-application after several years.)
  3. Resistance of 50 freeze-thaw cycles, when tested in accordance with ASTM C67. In addition the clay paver must pass CSA-A231.2 freeze thaw test in

saline solution without the use of sealers or other products applied to the paver. A test report must be submitted by the manufacturer. (Salt is the most common substance used for de-icing during the winter months.)

4. Dimensional tolerances should meet the PX standard. The dimensional tolerances around the mean values for length, width, and depth shall be 1/16". (Studies show that dimensional tolerances are directly linked to joint width size and proper interlock.)
5. The pavers should be solid units without core holes or other perforations.
6. The contractor shall ensure that the manufacturer conducts a test sampling of 24 pavers every 50,000 pavers manufactured to determine the pavers compliance with dimensional and water absorption characteristics. The 24 paver samples shall be representative of the color mix in the typical finished package and chosen on a consistent basis from one kiln car. (Proper control procedures and testing are standard operating procedure for high quality manufacturers.)

## 2.02 BEDDING AND JOINT SAND

The type of sand used for bedding is often called concrete sand. Sands vary regionally. Contact paver installers local to the project and confirm sand(s) successfully used in previous similar applications.

- A. Bedding and joint sand shall be clean, non-plastic, free from deleterious or foreign matter. The sand shall be natural or manufactured from crushed rock. Grading of samples shall be done according to ASTM C136. The particles shall be sharp and conform to the grading requirements of ASTM C33 as shown in Table 1.

**Table 1**  
**Grading Requirements for Bedding and Joint Sand**

<u>Sieve Size</u>	<u>Percent Passing</u>
3/8 in.	100
No. 4	95 to 100
No. 8	80 to 100
No. 16	50 to 85
No. 30	25 to 60
No. 50	10 to 30
No. 100	2 to 10

## 2.03 EDGE RESTRAINTS

- A. Edge restraints are required on all installations. Edge restraints are to be pre-cast

or cast-in-place concrete, plastic, or steel as specified in the drawings. Install as per manufacturer's specifications.

#### 2.04 JOINT SAND STABILIZERS (IF APPLICABLE)

Joint sand stabilizers prevent sand loss and maintain interlock which is critical in situations where sand loss could be a problem. Some situations typically requiring joint sand stabilizers are at the bottom of a grade, areas where rain water runoff is not caught by gutters, and crosswalks. Please consult the allied products section on our web site for information on joint sand stabilizers. Always follow the manufacturer's recommendations for installation of these products.

#### 2.05 FILTER GEOTEXTILE (IF APPLICABLE)

- A. The woven geotextile fabric shall be subgrade stabilization fabric in accordance with VDOT Specifications, Section 245.

### 3.0 EXECUTION

For installations on a compacted gravel base the subgrade shall be compacted to a minimum of 95% modified proctor density. Compacted aggregate shall be applied in even lifts of 4" and also compacted to a minimum of 95% modified proctor density. The specifier should be aware that the top surface of the pavers may be 1/8 to 1/4 inch above the final elevations after compaction. This difference in initial and final elevations is to compensate for possible minor settling.

#### 3.01 EXAMINATION

- A. Verify that base is dry, uniform, even and ready to support sand, pavers and imposed loads.
- B. Verify gradients and elevations of base are correct.
- C. Verify location, type, installation and elevations of edge restraints around the perimeter area to be paved.
- D. Beginning of installation means acceptance of base and edge restraints.

#### 3.02 INSTALLATION

- A. Provide edge restraints as indicated - install edge restraints prior to placing unit pavers.
- B. Lay Filter Geotextile (if applicable) along edges where indicated in the drawings. Place geotextile over the compacted base course overlapping ends and edges at least 12 inches.

- C. Spread the sand evenly over the base course and screed to 1 - 1½ inches thickness. The screened sand should not be disturbed. Sufficient sand shall be placed to ensure that no delay occurs in laying pavers. The screened bedding sand shall not be subjected to any traffic by either mechanical or pedestrian use.
- D. Ensure that pavers are free of foreign material before installation. The installer shall take the pavers from the pallet by row consisting of 18 pavers. Each row shall be installed together to ensure proper color mix.
- E. Lay the pavers in the pattern(s) as shown on the drawings. Full pavers are to be laid first. The pavers should be laid hand tight. Maintain straight pattern lines and adjust as necessary.
- F. Joints between the pavers shall be between 1/16 inch and 1/8 inch (2 to 3 mm) wide.
- G. Fill gaps at the edges of the paved area with cut pavers or edge units. Cut pavers to be placed along the edge using a masonry saw and in such a manner that no segment is smaller than one quarter of a full paver.
- H. Use a low amplitude, high frequency plate vibrator capable of 3000 to 5000 lbs. centrifugal compaction force to vibrate the pavers into the sand. Vibrate the pavers, sweeping dry sand into the joints and vibrating until they are full. This will require at least two or three passes with the vibrator. Do not vibrate within three feet of the unrestrained edges of the paving units. (A plate vibrator is not recommended for straight edge pavers, instead use a hand tamp and board method for compaction.)
- I. All work to within three feet of the laying face must be left fully compacted with sand-filled joints at the completion of each day.
- J. Sweep off excess sand when the job is complete. Contractor shall return to the site one month after installation is complete to inspect sand in joints. Contractor is responsible for adding additional sand to fill joints where necessary.
- K. The final surface elevations shall not deviate more than 3/8 inch under a 10 foot long straightedge.
- L. The surface elevation of pavers shall be 1/8 to 1/4 inch above adjacent drainage inlets, concrete collars or channels.

### 3.03 JOINT SAND STABILIZER APPLICATION (if applicable)

- A. The surface shall be made clean and free from oil, dust from cutting and any loose material prior to the application of an epoxy joint sand stabilizer. (Any sand or

dirt left on the pavers during sealing WILL BE SEALED TO THE PAVER. It is extremely difficult to correct this mistake!) The surface and joint sand shall be dry for its full depth prior to commencing work.

- B. The treated area shall be protected from rain or moisture and shall not be trafficked for 24 hours after the completion of the stabilizer application.

Please consult the allied products section on our web site for information on joint sand stabilizers. Always follow the manufacturer's recommendations for installation of these products.

### 3.04 FIELD QUALITY CONTROL

- A. After removal of excess sand, check final elevations for conformance to the drawings.

### 3.05 PROTECTION AND CLEAN UP

- A. Protection:

1. Protect work from damage, discoloration and theft.
2. All vehicles and equipment operating on the completed pavers before and after application of the joint sand stabilizer shall be maintained in a clean condition, so that oil, tar, rubber or other matter is not deposited on the surface of the pavers or adjacent paving and features.

- B. Clean up:

1. All materials generated by construction work in this section shall be removed at the end of each section of the work and the site shall be left in a clean and safe condition.
2. After completion of any repair work, clean all exposed surfaces with clean water and stiff brushes until all stains and dirt are removed. Use cleaning solutions only that are recommended by the paver and stabilizer manufacturers and do not use wire brushes.

### 3.06 MAINTENANCE

#### A. Repairs:

1. Repair or replace any damaged work to the original specified condition prior to handover.
2. Where lateral displacement of the pavers has occurred adjacent to edge restraints the cut pavers shall be replaced with new pavers of the correct size to comply with the specified joint widths and the surface shall be re-established.

- B. Maintenance: The installer shall return to the site at the Owners request over a period of one year from handover to rectify any problems in the work caused by its failure to adequately align the pavers, compact the bedding sand or fill the joints.

### 3.07 MEASUREMENT AND PAYMENT

- A. Cost of all work shall be included in the contract price.

END OF SECTION

## SECTION 02800 - MISCELLANEOUS SITE IMPROVEMENTS

### 1.0 GENERAL

#### 1.01 DESCRIPTION:

A. This section specifies materials and work required to install site furnishings.

#### 1.02 RELATED WORK:

A. Earthwork: Section 02200.

B. Pavements: Section 02500.

C. Concrete Footings: Section 02500

#### 1.03 STANDARDS / REFERENCES:

A. Standard Specification for Architectural Precast Concrete by Architectural Precast Association (APA).

B. Steel Tubing:

1. ASTM A513 Standard Specification for Electric Welded Carbon Steel Mechanical Tubing

C. Hot-Dipped Galvanized Finish:

1. ASTM A123 Standard Specification for Zinc (Hot-Dipped Galvanized) Coating on Iron and Steel Products

#### 1.04 QUALITY ASSURANCE:

A. Installer Qualifications: An experienced installer who has completed installation of various components similar in material, design and extent to that indicated for this project with a construction record of successful in-service performance.

B. Manufacturer Qualifications: A firm experienced in manufacturing components similar to those required for this project with a record of successful in-service performance.

#### 1.05 SUBMITTALS:

A. Submit manufacturers descriptive literature and installation instructions for the following:

1. Trash Receptacle.
2. Bench.

3. Bike Rack
4. Picnic Tables
5. Grills
6. Prefabricated steel structures
7. Materials for wood structures

B. Submit shop drawings for work showing dimensions and arrangement and provisions for joining, anchoring, fastening, and supporting the following:

1. Trash Receptacle.
2. Bench.
3. Bike Rack
4. Picnic Tables
5. Grills
6. Prefabricated steel structures
7. Wood structures

C. Submit finish color samples for the following:

1. Trash Receptacle.
2. Bench.
3. Bike Rack
4. Picnic Tables
5. Grills
6. Prefabricated steel structures

D. Submit Maintenance Data for the following:

1. Trash Receptacle.
2. Bench.
3. Bike Rack
4. Picnic Tables
5. Grills
6. Prefabricated steel structures
7. Wood structures

#### 1.06 PRODUCT DELIVERY, STORAGE AND HANDLING:

A. Delivery:

1. Schedule operations to avoid unnecessary rehandling.

B. Storage:

1. General:

- a. Store in accordance with manufacturer's recommendations.
- b. Store in original undamaged packages and containers until ready for installation.

C. Handling:

1. General:

- a. Comply with manufacturer's recommendations.
- b. Handle powder coated materials with sufficient care to prevent any scratches or damage to the finish.

1.07 PROJECT CONDITIONS:

- A. Do not begin miscellaneous site improvements work before completion of submittal requirements and approvals.

2.0 PRODUCTS

2.01 TRASH RECEPTACLE:

- A. Basis of Design - Plainwell litter receptacle with rotomolded plastic top. Painted black using powder coated finish as supplied by one of the following manufactures or approved equal.

- Landscape Forms, Inc.: 431 Lawndale Avenue, Kalamazoo, MI 49048. Phone: 800-521-2546 or [www.landscapeforms.com](http://www.landscapeforms.com)
- Country Casual: 7601 Rickenbacker Drive, Gaithersburg, MD 20879. Phone: 800-289-8325 or [www.countrycasual.com](http://www.countrycasual.com)
- Victor Stanley, Inc.: PO Drawer 330, Dunkirk, MD 20754. Phone: 800-368-2573 or [www.victorstanley.com](http://www.victorstanley.com)

- B. Other - Requests for substitutions will be considered in accordance with provisions of Section 01600.

- C. Concrete: As per plans and specifications.

2.02 BENCH:

- A. Basis of Design – Seventy-two (72) inch bench with one center arm. Seat shall be ipe wood. Painted black using powder coated finish as supplied by one of the following manufactures or approved equal.

- Landscape Forms, Inc.: 431 Lawndale Avenue, Kalamazoo, MI 49048. Phone: 800-521-2546 or [www.landscapeforms.com](http://www.landscapeforms.com)
- Country Casual: 7601 Rickenbacker Drive, Gaithersburg, MD 20879. Phone: 800-289-8325 or [www.countrycasual.com](http://www.countrycasual.com)

- Victor Stanley, Inc.: PO Drawer 330, Dunkirk, MD 20754.  
Phone: 800-368-2573 or [www.victorstanley.com](http://www.victorstanley.com)

B. Other - Requests for substitutions will be considered in accordance with provisions of Section 01600.

C. Concrete: As per plans and specifications.

## 2.03 BIKE RACK

A. Basis of Design - Gridrac Style: The bicycle parking rack shall have all members of the grid sections welded. Finish shall be black powder coated. Racks shall be constructed of ASTM A513, 1-5/8" (42.2mm) O.D. - 14 gauge (.083" wall (2.1mm)) and 3/4" O.D. (19.1mm) – 14 gauge (.083" wall (2.1mm)) steel tube or better. As supplied by one of the following manufactures or approved equal.

- Madrax, a division of Trilary, Inc.: 1080 Uniek Drive, Waunakee, WI 53597  
Phone: 800-448-7931 or [www.madrax.com](http://www.madrax.com)
- Victor Stanley, Inc.: PO Drawer 330, Dunkirk, MD 20754.  
Phone: 800-368-2573 or [www.victorstanley.com](http://www.victorstanley.com)
- South Bay Foundry, Inc.: 9444 Abraham Way, Santee, CA 92071.  
Phone: 619-956-2780 or [www.southbayfoundry.com](http://www.southbayfoundry.com)

B. Other – Requests for substitutions will be considered in accordance with provisions of Section 01600..

## 2.04 PICNIC TABLE:

A. Basis of Design – Victor Stanley Model CRPR-3 (or approved equal) as shown on the contract drawings.

- Victor Stanley, Inc.: PO Drawer 330, Dunkirk, MD 20754.  
Phone: 800-368-2573 or [www.victorstanley.com](http://www.victorstanley.com)

B. Other - Requests for substitutions will be considered in accordance with provisions of Section 01600.

C. Concrete: As per plans and specifications.

## 2.05 GRILL:

A. Basis of Design – Grill model as shown on the contract drawings.

B. Other - Requests for substitutions will be considered in accordance with provisions of Section 01600.

C. Concrete: As per plans and specifications.

## 2.06 PREFABRICATED STEEL STRUCTURES

A. Basis of Design – Prefabricated steel structures by Classic Recreation Systems, Inc. (or approved equal) as shown on the contract drawings.

- Regional Dealer Representative:  
Tom Mertl, Vice President  
Leisure Lines, Inc.  
2025 Pennsylvania Ave.  
McDonough, Ga 30253  
770.968.4000, 800.227.4016

B. Other - Requests for substitutions will be considered in accordance with provisions of Section 01600.

C. Concrete: As per plans and specifications.

## 2.07 WOOD STRUCTURES

A. Structures to be constructed with pressure treated lumber and all fasteners/metal products to be stainless steel. Design and construction will match to substantial conformity to existing structures.

## 3.0 EXECUTION

### 3.01 PROTECTION AND RESTORATION:

- A. Protect completed miscellaneous site improvements from damage.
- B. Restore damaged improvements as directed by Owner's Representative.
  - 1. Restoration: Approved by Owner's Representative.
- C. Keep materials dry during delivery and storage.

### 3.02 TRASH RECEPTACLE:

- A. Install trash receptacle in accordance with manufacturer's installation instructions and as noted.
  - 1. Trash receptacle locations: As indicated.

### 3.03 BENCH:

- A. Install bench in accordance with manufacturer's installation instructions and

as noted.

1. Bench locations as indicated on the Drawings.

#### 3.04 BIKE RACKS

A. Install bike racks with manufactures' installation instructions and as noted.

1. Bike rack locations as indicated on the Drawings.

B. Foundation excavation and concrete foundations: noted.

1. Install rack anchors plumb to 1/4" in 10 feet and brace to avoid dislocation during concrete installation.
2. Finish concrete surfaces to lines and grades indicated with smooth troweled finish. Use 3/4 inches radius edging tool to finish concrete edges. Set bicycle parking racks secured to construction, level and true to line, in correct relationship to adjacent materials.

#### 3.05 PICNIC TABLE

A. Install table and chairs with manufactures' installation instructions and as noted.

#### 3.06 PREFABRICATED STEEL STRUCTURES

A. Install shelter and kiosk (additive bid item #1) in strict accordance with manufactures' approved plans and installation instructions.

B. Foundation excavation and concrete foundations: noted.

1. Finish concrete surfaces to lines and grades indicated with medium broom finish. Use 3/4 inches radius edging tool to finish concrete edges.

#### 4.0 MEASUREMENT AND BASIS FOR PAYMENT

A. Cost of all work shall be included in the contract price.

END OF SECTION

## SECTION 02920 - FINISH GRADING OF LANDSCAPE AREAS

### 1.0 GENERAL

#### 1.01 DESCRIPTION:

- A. Provide finish grading of landscape areas as shown on the drawings, inferable therefrom and as specified herein.

#### 1.02 RELATED WORK:

- A. Section 02924      Seeding  
    Section 02200      Earthwork

#### 1.03 QUALITY ASSURANCE:

##### A. General:

1. This section specifies materials, equipment and work required to perform finish grading operations in landscape areas.
2. Completely coordinate work as required.
3. Although such work is not specifically indicated, furnish and install all supplementary or miscellaneous items, appurtenances and devices incidental to or necessary for a sound, secure and complete installation.

### 2.0 PRODUCTS

#### 2.01 MATERIALS:

##### A. Topsoil:

1. Section 02200      Earthwork

### 3.0 EXECUTION

#### 3.01 INSPECTION:

- A. Verify suitability of substrate to accept installation and assure proper subgrade drainage.
- B. Installation constitutes acceptance of responsibility of performance.

3.02 PROTECTION AND RESTORATION:

A. General:

1. Restore damage, to any existing structure or utilities resulting from lack of protection or improper installation of protection. The contractor shall be responsible for damage to the waterproofing and protection system resulting from the soil installation.
  - a. Restoration: Approved by the Owner's Representative.

3.03 GRADING:

A. General:

1. Grade unpaved and paved areas as follows:
  - a. To smooth and uniform surfaces.
  - b. To prevent surface water ponding.

B. Unpaved Areas:

1. Finished grades and subgrades: Not to exceed half an inch above or below elevation indicated or specified.

C. Paved Areas:

1. Grade paved area subgrades to the lines, elevations indicated or specified.
  - a. Finished subgrades: Not to exceed one inch above or below elevation indicated or specified.

3.04 MAINTENANCE:

A. Maintain completed areas and project site as follows:

1. Keep free of trash and debris.
2. Re-grade and recompact subgrades damaged or disturbed by the following:
  - a. Adverse weather.
  - b. Soil erosion.
  - c. Settlement.
  - d. Subsequent construction operations.

4.0 MEASUREMENT AND BASIS FOR PAYMENT:

A. Cost of all work shall be included in the contract price.

END OF SECTION

## SECTION 02924 - SEEDING

### PART 1 - GENERAL

#### 1.1 RELATED DOCUMENTS

- A. The provisions of the Contract documents apply to the work of this section.

#### 1.2 QUALITY ASSURANCE

- A. Seeding work shall be performed by a single firm specializing and experienced in landscape work.
- B. Ship materials with certificates of inspection required by governing authorities. Comply with regulations applicable to landscape materials.
- C. Seed shall comply with standards outlined in the U.S. Department of Agriculture Rules and Regulation under the Federal Seed Act.
- D. Topsoil Analysis: The Contractor shall provide for the services of a testing agency to perform an analysis of topsoil to be used, and a determination of nutritional requirements of soil for establishment of lawns as specified below.
- E. Submit analysis for soil amendments and fertilizer materials, in accordance with methods established by the Association of Official Agricultural Chemists. Testing shall be performed by an acceptable agency to the Owner employed by the Contractor. The Contractor shall furnish one (1) copy of the soil analysis and recommended amendments prepared (to meet requirements for topsoil as specified in Section 2950-2.1) to the Owner's Representative prior to application of any amendments or fertilizers.

#### 1.3 SUBMITTALS

- A. Submit seed vendor's certified statement for each grass seed mixture required, stating botanical and common name, percentage by weight, and percentages of purity, germination, and weed seed for each grass seed species.
- B. Submit to the Owner or the Owner's Representative reports by soil testing laboratory, along with recommended types and amounts of soil amendments and fertilizer additives necessary to establish lawn.
- C. Qualification Data: for seeding installer.
- D. Planting Schedule indicating anticipated planting dates.

#### 1.4 DELIVERY, STORAGE AND HANDLING

- A. Deliver fertilizer, soil amendments, and seed to the site in the original, unopened containers bearing the manufacturer's guaranteed analysis, name, trade name, trademark, and statement of conformance to state and federal laws. In lieu of containers, fertilizer and soil amendments may be furnished in bulk with a certificate indicating the above information accompanying each delivery.
- B. During delivery and storage, keep seed, fertilizer and soil amendments in a dry storage away from contaminants. Take precautions to protect containers from rupture prior to use.

#### 1.5 PROJECT CONDITIONS

- A. Prior to beginning the work of this section, verify that the Site Work Contractor has completed the finish grading. At this point, rough grades shall be at 2" below finish grade levels, in all landscape areas including areas to be established in turf.
- B. Determine location of underground utilities and perform work in a manner which will avoid damage. All utilities are not necessarily shown on Drawings. Maintain grade stakes set by others until removal is mutually agreed upon by parties concerned.
- C. When conditions detrimental to lawn growth and maintenance are encountered, such as rubble fill, adverse drainage conditions or obstructions, notify Owner before beginning work.

#### 1.6 WARRANTY LAWS

- A. Warranty laws through the specified lawn establishment period, and until final acceptance. See paragraph 3.6 and 3.8.

### PART 2 - PRODUCTS

#### 2.1 TOP SOIL:

- A. See Section 02200.

#### 2.2 SOIL AMENDMENTS:

- A. Lime: To pH balance soil, natural dolomitic limestone containing not less than 95% of total carbonates with a minimum of 30% magnesium carbonates, ground so that not less than 98% passes a 20-mesh sieve and not less than 50% passes a 100-mesh sieve.
- B. Aluminum Sulfate: To pH balance soil, commercial grade in dry powder form.
- C. Compost: Well-composted, stable, and weed-free organic matter, pH range of 5.5 - 7

### 2.3 FERTILIZER:

- A. Granular or pellet form, commercial grade, dry and free-flowing, uniform in composition, and suitable for application by approved equipment. The fertilizer shall contain a minimum percentage by weight of 8 percent nitrogen (of which 50 percent shall be water insoluble), 4 percent available phosphoric acid, and 10 percent potash, unless recommended otherwise by soil test.

### 2.4 SEED

- A. State-certified seed of the latest season's crop, labeled in conformance with U.S. Department of Agriculture rules and regulations under the Federal Seed Act and applicable State seed laws. Seed that has become wet, moldy, or otherwise damaged will not be acceptable. Seed mixture(s) shall be proportioned by weight as follows:
  - Lawn Mixture
  - Rate: 6 lbs./1000 SF
  - Sowing Dates: 4/1-5/31 or 9/1-12/30
- B. Seed shall be Common Bermuda, and be labeled in accordance with the U.S. Department of Agriculture and Regulations under the Federal Seed act. Seed shall be furnished in sealed standard containers. No seed, which has become wet, moldy or otherwise, damages in transit or in storage, will be acceptable. In no case shall the weed seed content exceed 1% by weight.

### 2.5 WOOD CELLULOSE MULCH

- A. Mulch supplied for use with hydraulic application of grass seed and fertilizer (hydro-seed) shall consist of Silva-Fiber Mulch by Weyerhaeuer Company, Tacoma, WA (800) 443-9174 or equal. Do not use wood cellulose fiber from 6/1 to 8/15. During this time, use straw mulch only.
- B. Process wood cellulose fiber in such a manner that it will not contain germination or growth inhibiting elements.
- C. Dye wood cellulose fiber an appropriate color to allow visual metering of its application.
- D. Wood cellulose fiber shall have the property of becoming evenly dispersed and suspended when agitated in water.
- E. When sprayed uniformly on the surface of the soil, the fibers shall form a blotter-like ground cover which readily absorbs water and allows infiltration to the underlying soil.
- F. Weight specifications from suppliers and for applications shall refer to air-dry weight of the fiber, a standard equivalent to 10 percent moisture.

## 2.6 WATER

- A. The Contractor shall make whatever arrangements may be necessary to ensure an adequate supply of water to meet the needs of this contract. He shall also furnish all necessary hose, equipment, attachments and accessories necessary for the adequate irrigation of seeded areas as required.
- B. Water shall be potable and shall be provided from on site sources or in accordance with the specifications. Water shall not contain elements toxic to plant life.

## 2.7 LIQUID MULCH BINDER:

- A. Per VDOT Specifications, Section 244. NOTE: Asphaltic tackifiers are not permitted.

## PART 3 - EXECUTION

### 3.1 GENERAL

- A. Do not proceed with seeding when the ground is frozen, snow covered, saturated, or in any other condition which would make establishment and survival of lawns unlikely.
- B. At the time of beginning seed bed preparation, topsoil shall be in a loose, friable condition, free from stones in any dimension, sticks, roots and other extraneous matter. If topsoil has become crusty, hardened or eroded since being spread, restore the soil to the loose condition described above.
- C. Prior to preparation of undisturbed areas, remove vegetation and debris and dispose of such material off-site; do not turn under into soil being prepared for seed bed. Apply a 2" layer of compost to all areas to be seeded. Loosen existing grade to a depth of 4", remove all debris which surfaces.

### 3.2 SEED BED PREPARATION – HYDRO-SEEDING AREAS

- A. Add pH balancing agents at rate recommended by soil test reports to achieve a pH of 5.5 to 6.8 for turf grass seeding. Blend additives thoroughly into upper 4" of topsoil.
- B. Work and roll all areas to create a smooth even surface free from surface irregularities, ridges or depressions. Prepared areas shall meet required finish grade elevations and shall drain adequately.

### 3.3 HYDROSEEDING NEW LAWNS

- A. Prepare and apply the slurry to yield the following rates:
  - 1. Seed: 200 lbs. per acre or as specified in 2.4B
  - 2. Fertilizer: 25 lbs. per 1000 sq. ft.
  - 3. Mulch: 35 lbs. per 1000 sq. ft.
- B. Hydroseed mulch is to be an integral part of the slurry mix; add hydroseeded mulch after the seed and fertilizer have been thoroughly mixed, and apply uniformly to all seeded areas.
- C. Mulch areas which are hydroseeded from 6/1 to 9/1 or 12/1 to 3/1 with straw. Wood fiber mulch shall not be used during these times.

### 3.4 MAINTENANCE DURING ESTABLISHMENT PERIOD

- A. The establishment period for lawns shall be the time from installation until the third cutting of an established lawn. An established stand shall be uniform in coverage and of the specified mixture. No individual lawn area shall have unacceptable portions in excess of one percent 1% of the individual lawn area.
- B. The Contractor shall be responsible for all maintenance during the establishment period and until final acceptance. Maintenance shall include watering, fertilizing, removal of straw mulch, weed eradication, mowing, trimming, clipping removal, the reconstruction of all areas failing to yield vital stands, and the reconstruction of all area damaged by erosion or other occurrence.
- C. Mow stands in lawn areas whenever the average height reaches 3½" inches. Mowing height shall be 2½" inches.
- D. Remove waste material from the site daily, except as specified herein for materials subject to the Construction Waste Management Plan.

### 3.5 COMPLETION AND ACCEPTANCE

- A. The completion of the contract will be accepted and Notice of Completion recorded only when the entire contract is completed to the satisfaction of the Owner's Representative.
- B. Within ten (10) days of the Contractors notification that the installation is complete, the Owner's Representative will inspect the installation and, if final acceptance is not given will prepare a "punch list".
- C. Final Acceptance: Work under this section will be accepted by the Owner's Representative upon satisfactory completion of all work including "punch list" items.

## PART 4 - MEASUREMENT AND PAYMENT

4.1 Cost of all work shall be included in the contract price. The seeding will include all maintenance during the warranty period.

END OF SECTION 02924

## SECTION 16521 – SITE LIGHTING

### PART 1 - GENERAL

#### 1.01 SUMMARY

- A. Scope: Extent of site lighting required is indicated on the drawings and schedules.

#### 1.02 QUALITY ASSURANCE

- A. Codes and Standards: ANEC will provide all lights, luminaires, wiring and ballast. Contractor to install foundation and conduit as indentified on the plans.

#### 1.03 SUBMITTALS

- A. Product Data: Submit manufacturers data including the following:
  - 1. Dimensioned and detailed drawings.

### PART 2 – PRODUCTS

#### 2.01 LUMINAIRES

- A. Luminaires to be provided by ANEC.

#### 2.02 POLES AND STANDARDS

- A. Light poles to be provided by ANEC.

### PART 3 – EXECUTION

#### 3.01 LIGHTING POLE INSTALLATION

- A. Light poles to be provided by ANEC.

### PART 4 – MEASUREMENT AND PAYMENT

- 4.01 Site lighting will be provided by ANEC. Contractor to supply concrete foundations, and 1¼" conduit with pull rope as specified on the plans. Concrete foundations, lighting junction boxes and conduit cost shall be included in the contract price.

END OF SECTION 16521