

PROJECT MANUAL
FOR
CITY OF LYNCHBURG

Greenwood Pond BMP Retrofit and Blackwater Creek Tributary
Stream Restoration Projects

October 2016



**PROCUREMENT DIVISION
3RD FLOOR CITY HALL
900 CHURCH STREET
LYNCHBURG, VA 24504
TELEPHONE (434) 455-3970
FAX (434) 845-0711**

Table of Contents

<u>Document</u>	<u>Page #</u>
Bidding Requirements	
Advertisement For Bids.....	1
Bid-Form	4
Escrow Account Election.....	6
Equal Opportunity Report Statement.....	7
Statement Of Experience.....	8
Statement Of Available Resources	9
Corporate Status Form.....	11
Questions To Bidders/Offerors	12
Construction Agreement	13
Escrow Agreement	21
Instructions To Bidders	25
General Conditions.....	31

Attachments

TECHNICAL SPECIFICATIONS:

DIVISION 1

01 11 00 Summary of Work

01 29 00 Measurement and Payment

DIVISION 16

16 00 02 Construction Stakeout

16 00 03 PVC Liner

16 00 04 Geotextile Fabric

16 00 05 Coir Fiber Matting and Biodegradable Stakes

16 00 06 Safety Fence (Tree Protection Fence)

16 00 07 Gabions

16 00 08 Temporary Access Path/Deck Mats

16 00 09 Stockpile/Staging Areas

16 00 11 Salvaging and/or Furnishing and Placing Topsoil

16 00 13 Reinforced Stream Bed Material

16 00 14 Rock

16 00 15 Step Pools and Rock Steps

16 00 16 Boulder Pool

16 00 17 Construction Tolerances

16 00 20 As-Built Survey

16 00 21 A/E Services During Construction

DIVISION 31

31 10 00 Site Clearing

31 23 16 Excavation – Earth and Rock

31 23 23 Backfilling

31 25 00 Erosion and Sediment Control

31 80 00 Flow Bypass and Dewatering

DIVISION 32

32 90 00 Landscaping Work

Virginia Clean Water Revolving Loan Fund Contract Inserts

DRAWINGS:

Page 1: Cover

Page 2: Drawing Index, General Notes, and Overall Sequence of Construction

Page 3: Existing Conditions

Page 4: Site Access Plan

Page 5: Grading Plan and Profile

Page 6: Grading Plan and Profile (Cont'd)

Page 7: Sequence of Construction

Page 8: Construction Details

Page 9: Erosion and Sediment Control Plan

Page 10: Erosion and Sediment Control Plan (Cont'd)

Page 11: Erosion and Sediment Control Narrative

Page 12: Erosion and Sediment Control Details

Page 13: Geometry Plan

Page 14: Floodplain Analysis

Page 15: Floodplain Analysis (Cont'd)

Page 16: Floodplain Cross Sections

Page 17: Floodplain Cross Sections (Cont'd)

Page 18: Design Narrative

Page 19: Historic Aerials

Page 20: Watershed Data and FEMA DFIRM

Page 21: Particle Size Data and Shear Stress Analysis

Page 22: Planting Plan

Page 23: Planting Plan (Cont'd)

Page 24: Planting Notes and Details

Page 25: Planting Schedule

Page 26: Seeding Schedule

Page 27: General Notes and Erosion and Sediment Control Details and Tables

Page 28: Erosion and Sediment Control Plan and MS-19 Checklist

Page 29: Drainage Area Plan and Stormwater Calculations

Page 30: New Site Plan and Pilot Channel Profile

Page 31: Sequence of Construction and Details

Page 32: Cross Vane Details

Page 33: Spillway and Pilot Channel Details

Page 34: Planting Plan

Page 35: Details and Plant Schedule

ADVERTISEMENT FOR BIDS

Sealed bids for **Greenwood Pond BMP Retrofit and Blackwater Creek Tributary Stream Restoration Projects** will be received by the City of Lynchburg, Procurement Division, City Hall, Lynchburg, VA, until 3:00 p.m., November 3, 2016, and then publicly opened and read, in the Bidder's Room, Third Floor, City Hall.

The Greenwood Pond BMP Retrofit and Blackwater Creek Tributary Stream Restoration Projects consists of converting a portion of an existing in-stream stormwater detention pond locate at 618 Sherman Drive into a constructed wetland and restoring approximately 850 LF of tributary stream that enters the existing pond from the northeast. The project is part of the City's Chesapeake Bay TMDL Action Plan to improve water quality and meet the urban stormwater pollutant reduction required in the City's MS4 Permit.

The Project Manual and Drawings for this project may be viewed and downloaded from the City's website: <http://www.lynchburgva.gov/current-solicitations>.

An optional Pre-Bid Conference will be held at 10:00 a.m., October 19, 2016, in the Bidder's Room, Third Floor City Hall, 900 Church Street, Lynchburg, VA. Site visit will be held immediately after.

All requests for clarification of or questions regarding this Advertisement for Bids or for additional information must be made in writing, by facsimile (434) 845-0711 or email to melissa.tillman@lynchburgva.gov and received by 2:00 p.m., October 26, 2016. All posted clarifications or addenda must be signed and accompany any bid submitted.

BID FORM

Melissa Tillman
 Buyer-Procurement Division
 City of Lynchburg
 Third Floor, City Hall
 900 Church Street
 Lynchburg, Virginia 24504

Dear Mrs. Tillman:

The undersigned, as bidder, hereby declares that the only persons interested in this bid as principal, or principals, is or are named herein and that no person other than herein mentioned has any interest in this bid or in the Construction Agreement to be entered into; that this bid is made without connection with any other person, company, or parties making a bid; and that it is in all respects fair and in good faith, without collusion or fraud.

The undersigned, having visited and examined the site and having carefully studied all the Contract Documents, including without limitation, all drawings and specifications pertaining to "**Greenwood Pond BMP Retrofit and Blackwater Creek Tributary Stream Restoration Project**" for the City of Lynchburg, Virginia, hereby proposes to furnish all labor, equipment, materials, and services and to perform all operations necessary to execute and complete the Work required for the project, in strict accordance with the Contract Documents together with Addenda numbered ___ through _____ issued during bidding period and hereby acknowledged, subject to the terms and conditions of the Construction Agreement for :

BID FORM

Item	Qty	Description	Unit	Unit Price	Extended Price
Part A					
A-1	1	Greenwood BMP Retrofit	LS	\$ _____	\$ _____
A-2	1	Blackwater Creek Tributary Stream Restoration	LS	\$ _____	\$ _____
TOTAL PART A					\$ _____
Part B					
B-1	600	Additional Earth Excavation	CY	\$ _____	\$ _____
B-2	20	Additional VDOT Class II Rip Rap	TON	\$ _____	\$ _____
B-3	50	Additional VDOT Class AI Rip Rap	TON	\$ _____	\$ _____
B-4	10	Additional VDOT No. 3 Stone	TON	\$ _____	\$ _____
B-5	10	Additional VDOT No. 21A Stone	TON	\$ _____	\$ _____
B-6	5	Additional VDOT No. 57 Stone	TON	\$ _____	\$ _____
B-7	70	Additional Select Cohesive Fill	CY	\$ _____	\$ _____
B-18	20	Additional PVC Liner	SY	\$ _____	\$ _____
B-9	15	Additional Gabions	CF	\$ _____	\$ _____
B-10	50	Additional Reinforced Bed Material	CY	\$ _____	\$ _____
B-11	250	Additional Topsoil	SY	\$ _____	\$ _____
B-12	100	Additional Structure Rock	TON	\$ _____	\$ _____
TOTAL PART B					\$ _____
Total Unit Price Base Bid (equals the sum of Part A and Part B)					\$ _____

It is understood and agreed that the Owner, in protecting its best interests, reserves the right to reject any or all bids or waive any defects. Any changes, erasures, modifications, deletions in the bid form, or alternate proposals not specified in the Advertisement for Bids may make the bid irregular and subject to rejection.

The listed bid items are to contain all necessary costs required for completion of the Work in accordance with the Contract Documents.

If the Construction Agreement is for unit prices and not for a lump sum price, it is understood that all quantities listed on the following pages are estimated quantities, and the Owner reserves the right to raise, lower, or eliminate any quantity or item, and in any case, the unit prices shall be used in determining partial and final payment. It is further understood that costs to cover all components of the Work as described in the Contract Documents are included in this bid, even in cases where specific line items are not identified.

We are properly equipped to execute all work of the character and extent required by the Contract Documents, and we will enter into the Construction Agreement for the execution and completion of the Work in accordance with the Contract Documents; and we further agree that, if awarded the Construction Agreement, we will commence the Work on the date stated in the "Notice to Proceed" and will maintain a work force large enough to execute the Work and all obligations no later than the completion date stated in the Contract Documents.

Attached herewith are completed Statement of Experience and Statement of Resources forms which include the information requested.

The undersigned further certifies that this bid is not the result of, or affected by, any act of collusion with another person engaged in the same line of business, or any act punishable under the Virginia Governmental Frauds Act, or other law.

This bid remains valid and may not be withdrawn for a period of 60 days from this date.

CURRENT VIRGINIA CLASS A CONTRACTOR'S LICENSE/ REGISTRATION NO.: _____

Respectfully submitted,

CONTRACTOR

DATE

ADDRESS

BY: _____

ITS:
(Title)

ELECTION OF ESCROW ACCOUNT PROCEDURE FOR RETAINAGE

If determined to be the successful low bidder(s), the above signed elects to use the Escrow Account Procedure for retainage.

Write "Yes" or "No" on above line

If the successful bidder elects to use the Escrow Account Procedure for Retainage, the "Escrow Agreement" form shall be executed and submitted to the City of Lynchburg Engineering Division within fifteen (15) calendar days after notification. If the "Escrow Agreement" form is not submitted within the fifteen (15) day period, the Contractor shall forfeit his rights to the use of the Escrow Account Procedure.

Company_____

Authorized Signature_____

STATEMENT OF EXPERIENCE

Name and Position of Project Reference:	Date of Completion:
Project Reference Current Contact Information:	Was the Bidder the General Contractor or Subcontractor?
Project Value or Subcontract Value:	Project Manager or Superintendent:
Project Description:	
Applicable Project Elements (check all that were installed by Bidder as part of the referenced project): <ul style="list-style-type: none"><input type="radio"/> Dry Swale Construction<input type="radio"/> Timber Check Dam Construction<input type="radio"/> Landscaping	

Additional Reference Information (to be completed as applicable):

Name and Position of Project Reference:	Date of Completion:
Project Reference Current Contact Information:	Was the Bidder the General Contractor or Subcontractor?
Project Value or Subcontract Value:	Project Manager or Superintendent:
Project Description:	

Applicable Project Elements (check all that were installed by Bidder as part of the referenced project):

- Dry Swale Construction
- Timber Check Dam Construction
- Landscaping

Name and Position of Project Reference:

Date of Completion:

Project Reference Current Contact Information:

Was the Bidder the General Contractor or Subcontractor?

Project Value or Subcontract Value:

Project Manager or Superintendent:

Project Description:

Applicable Project Elements (check all that were installed by Bidder as part of the referenced project):

- Dry Swale Construction
- Timber Check Dam Construction
- Landscaping

STATEMENT OF AVAILABLE RESOURCES

Equipment: _____

Number of Personnel Currently Employed: _____

Number of Personnel Available for Project: _____

Other Pertinent Information: _____

Questions to Bidders/Offerors

Bidders/Offerors are to respond to the following question: Have any of the individual(s), owner(s), and/or principal officer(s) of the firm submitting the bid/proposal ever been convicted of (1) a felony, or (2) a misdemeanor involving moral turpitude?

YES _____ NO _____

If yes, list individual or officer and title and give details.

NOTE: Answering yes to this question will not necessarily exclude your company from consideration but will be used to weigh the relationship between the offense and the contract to be performed.

Is your firm currently involved in litigation or a dispute involving arbitration?

YES _____ NO _____

If yes, for litigation list the litigation by case name, name of court, case number, and jurisdiction, and for arbitration, list the organization administering, if any, its contact information, any case number assigned, the arbitrators, and the location of the arbitration. For litigation and arbitration, briefly describe the claims and status, and give contact information for the opposing party or parties.

CONSTRUCTION AGREEMENT

This Construction Agreement (the "Contract") made and entered into on the ____ day of _____, 2016, by and between _____, party of the first part, hereinafter referred to as Contractor, and the City of Lynchburg, a municipal corporation of the Commonwealth of Virginia, party of the second part, hereinafter referred to as the Owner or City.

That the Contractor, for the consideration hereinafter fully set out, hereby agrees with the Owner as follows:

1. That the Contractor shall furnish all labor, materials, tools, and equipment and perform all Work required by the Contract Documents (as defined in the General Conditions hereto) for the **Greenwood Pond BMP Retrofit and Blackwater Creek Tributary Stream Restoration Project**.

2. That the Contractor shall commence Work within ten (10) days after Notice to Contractor to Proceed with the Work under Contract ("Notice to Proceed"), and shall substantially complete the project within **270 calendar days**. Owner and Contractor recognize that time is of the essence of this Contract and that the Owner will suffer financial loss if the Work is not completed within the times specified in the Notice to Proceed, plus any extensions thereof. They also recognize the delays, expense and difficulties involved in providing the actual loss suffered by Owner if the Work is not completed on time. Accordingly, instead of requiring any such proof, Owner and Contractor agree that as liquidated damages for certain losses Owner is expected to suffer due to delay (but not as a penalty) Contractor shall pay **\$100.00** for each day that expires after the time specified for completion. If the Contractor is subject to liquidated damages, the City has the right, but not the obligation, to withhold the liquidated damages from the Contractor's regular payments or retainage. Rights and obligations relating to these liquidated damages are set out more fully in the General Conditions.

3. The Owner hereby agrees to pay the Contractor for the faithful performance of this Contract in accordance with the Contract Documents, subject to additions and deductions as provided in the Contract Documents, in lawful money of the United States, as follows:

_____ Dollars

(\$ _____)

4. The Owner shall make partial payment on a monthly basis to the Contractor in accordance with the Contract Documents on the basis of a duly certified and approved estimate of work performed during the preceding calendar month by the Contractor, less five percent (5%) of the amount of such estimate which may be retained by the Owner until all Work has been performed strictly in accordance with the Contract Documents and until such Work has been accepted by the Owner.

5. Within ninety (90) days after submission by the Contractor of evidence satisfactory to the Owner that all payrolls, material bills and other costs incurred by the Contractor in connection with the construction of the Work have been paid in full, satisfaction of all the requirements of the Contract Documents, and acceptance of such Work by the Owner, final payment on account of this Contract shall be made.

6. Contractor agrees to fulfill all requirements of state, Federal, and municipal laws which may be applicable to this project.

8. This Contract is subject to the General Conditions accompanying it, and all the documents defined by the General Conditions to be the Contract Documents are a part of this Contract.

This Contract is executed in two counterparts, each of which shall, without proof or accounting for the other counterparts, be deemed an original contract.

IN WITNESS WHEREOF, _____ has caused its name to be subscribed to this Contract by _____, its _____, and its corporate seal to be hereunto affixed and attested by _____, its _____, said officers being duly authorized therefore; and the City of Lynchburg has caused its name to be hereunto subscribed by Bonnie Svrcek, City Manager, and its corporate seal to be hereunto affixed and attested by Valeria Chambers, its Clerk of Council, said officers being duly authorized therefore, all as to the day and year first above written.

CONTRACTOR

BY: _____

ITS: _____

(SEAL)

ATTEST:

CITY OF LYNCHBURG

BY: _____
City Manager

(SEAL)

ATTEST:

Clerk of Council

**CITY OF LYNCHBURG, VIRGINIA
STANDARD PERFORMANCE BOND**

KNOW ALL MEN BY THESE PRESENTS: That _____,
_____, the Contractor ("Principal"), whose principal place
of business is located at _____
_____ and _____
_____ ("Surety"), are held and firmly bound unto the City of Lynchburg, Virginia,
the Owner ("Obligee"), in the amount of

_____ Dollars
(\$ _____) for the payment whereof Principal and Surety bind themselves, their heirs, executors,
administrators, successors and assigns, jointly and severally, firmly by these presents.

WHEREAS,

Principal has, entered into a Construction Agreement with Obligee for certain work on a construction project known as **Greenwood Pond BMP Retrofit and Blackwater Creek Tributary Stream Restoration Projects**, which contract (the "Contract") is by reference expressly made a part hereof;

NOW, THEREFORE, THE CONDITION OF THIS OBLIGATION is such that, if the Principal shall promptly and faithfully perform said Contract in strict conformity with the plans, specifications and conditions of the Contract and its Contract Documents, then this obligation shall be null and void; otherwise it shall remain in full force and effect.

Provided, that any alterations which may be made in the terms of the Contract, or in the Work to be done under it, or the giving by the Obligee of any extension of time for the performance of the Contract, or any other alterations, extensions or forbearance on the part of either or both of the Obligee or the Principal to the other shall not in any way release the Principal and the Surety, or either of them, their heirs, executors, administrators, successors or assigns, from their liability hereunder, notice to the Surety of any such alterations, extensions, or forbearance being hereby waived.

No action shall be brought on this bond unless brought within one year after: (a) completion of the Contract and all Work thereunder, including expiration of all warranties and guarantees, or (b) discovery of the defect or breach of warranty or guarantee if the action be for such.

The Surety represents to the Principal and to the Obligee that it is legally authorized to do business in the Commonwealth of Virginia.

Signed and sealed this _____ day of _____, 2016.

Contractor/Principal (SEAL)

By: _____

Witness: _____

Title: _____

Surety (SEAL)

By: _____
Attorney -in-Fact

My Power of Attorney is recorded in the Clerks Office of the Circuit Court of _____, Virginia in Deed Book _____, Page _____, and has not been revoked.

Attorney-in-Fact

AFFIDAVIT AND ACKNOWLEDGEMENT OF ATTORNEY-IN-FACT

COMMONWEALTH OF VIRGINIA
(or, alternatively, Commonwealth or State of _____)

CITY/COUNTY OF _____ to wit:

I, the undersigned notary public, do certify that _____ personally appeared before me in the jurisdiction aforesaid and made oath that he is the attorney-in-fact of _____, the Surety, that he is duly authorized to execute on its behalf the aforesaid Bond(s) as its act and deed.
Given under my hand this _____ day of _____ 2016.

Notary Public (SEAL)

My Commission expires: _____

APPROVED:

City Attorney/Designee Date

**CITY OF LYNCHBURG
STANDARD LABOR AND MATERIAL PAYMENT BOND**

KNOW ALL MEN BY THESE PRESENTS: That _____
_____, the Contractor ("Principal") whose principal
place of business is located at _____
_____ and _____
_____ ("Surety") are held and firmly bound unto the City of Lynchburg,
Virginia, the Owner ("Obligee") in the amount of _____ Dollars
(\$ _____) for the payment whereof Principal and Surety bind themselves, their heirs,
executors, administrators, successors and assigns, jointly and severally, firmly by these presents.

WHEREAS,

Principal has by written agreement dated _____ entered into a Construction Agreement
with Obligee for **Greenwood Pond BMP Retrofit and Blackwater Creek Tributary Stream
Restoration Projects.**

which contract (the "Contract") is by reference expressly made a part hereof;

NOW THEREFORE, THE CONDITION OF THIS OBLIGATION is such that, if the Principal shall promptly make payment to all claimants as hereinafter defined, for labor performed and material furnished in the prosecution of the Work provided for in the Contract and its Contract Documents, then this obligation shall be void; otherwise it shall remain in full force and effect, subject, however, to the following conditions.

The Principal and Surety, jointly and severally, hereby agree with Obligee as follows:

1. A claimant is defined as one having a direct contract with the Principal or with a subcontractor of the Principal for labor, material, or both for use in the performance of the Contract. A "subcontractor" of the Principal, for the purposes of this bond only, includes not only those subcontractors having a direct contractual relationship with the Principal but also any other contractor who undertakes to participate in the Work which the Principal is to perform under the aforesaid Contract, whether there are one or more intervening subcontractors contractually positioned between it and the Principal (for example, a subcontractor). "Labor" and "material" shall include, but not be limited to, public utility services and reasonable rentals of equipment, but only for periods when the equipment rented is actually used at the Work site.
2. Subject to the provisions of paragraph 3, any claimant who has performed labor or furnished material in accordance with the Contract Documents in the prosecution of the Work provided in

the Contract, who has not been paid in full therefore before the expiration of ninety (90) days after the day on which such claimant performed the last of such labor or furnished the last of such materials for which he claims payment, may bring an action on this bond to recover any amount due him for such labor or material, and may prosecute such action to final judgment and have execution on the judgment. The Obligee need not be a party to such action and shall not be liable for the payment of any costs, fees or expenses of any such suit.

3. Any claimant who has a direct contractual relationship with any subcontractor of the Principal from whom the Principal has not required a subcontractor payment bond, but who has no contractual relationship, express or implied, with the Principal, may bring an action on this bond only if he has given written notice to the Principal within one hundred eighty (180) days from the day on which the claimant performed the last of the labor or furnished the last of the materials for which he claims payment, stating with substantial accuracy the amount claimed and the name of the person for whom the Work was performed or to whom the material was furnished. Notice to the Principal shall be served by registered or certified mail, postage prepaid, in an envelope addressed to the Principal at any place where his office is regularly maintained for the transaction of business. Claims for sums withheld as retainages with respect to labor performed or materials furnished shall not be subject to the time limitations stated in this paragraph 3.
4. No suit or action shall be commenced hereunder by any claimant.
 - a. Unless brought within one year after the day on which the person bringing such action last performed labor or last furnished or supplied materials, it being understood, however, that if any limitation embodied in this bond is prohibited by any law controlling the construction hereof, the limitation embodied within this bond shall be deemed to be amended so as to be equal to the minimum period of limitation permitted by such law.
 - b. Other than in a Virginia court of competent jurisdiction, with venue as provided by statute, or in the United States District Court for the district in which the project, or any part thereof is situated.
5. The amount of this bond shall be reduced by and to the extent of any payment or payments made in good faith hereunder.
6. This bond is intended to comply with the requirements and to afford all the benefits of a payment bond consistent with the requirements of Virginia Code § 2-2-4337 and § 2-2-4341. To the extent that those sections as they are in effect as of the date of issuance of this bond confer any requirements on Principal or Surety, or confer any additional benefits on any claimant (as the term "claimant" is used within either the meaning of those sections or this bond), those requirements and benefits shall be deemed to be incorporated into and be part of this bond.

Signed and sealed this _____ day of _____.

(SEAL)

Contractor/ Principal

By: _____

Witness: _____

Title: _____

(SEAL)

Surety

By: _____

Attorney-in-Fact

Typed Name: _____

My Power of Attorney is recorded in the Clerks Office of the Circuit Court of _____ Virginia in Deed Book _____, Page _____, and has not been revoked.

Attorney-in-Fact

AFFIDAVIT AND ACKNOWLEDGEMENT OF ATTORNEY-IN-FACT

COMMONWEALTH OF VIRGINIA

(or, alternatively, Commonwealth or State of _____)

CITY / COUNTY OF _____

I, the undersigned notary public, do certify that _____ personally appeared before me in the jurisdiction aforesaid and made oath that he is the attorney-in-fact of _____, the Surety, that he is duly authorized to execute on its behalf the foregoing bond pursuant to the Power of Attorney noted above, and on behalf of said Surety, acknowledged the aforesaid bond(s) as its act and deed.

Given under my hand this _____ day of _____.

(SEAL)

Notary Public

My Commission expires: _____

APPROVED:

City Attorney/Designee Date

ESCROW AGREEMENT

THIS AGREEMENT ("Agreement"), made and entered into this ____ day of _____, 2016 by,
between and among the City of Lynchburg ("City"), _____ ("Contractor"), and

(Name of Bank)

(Address of Bank)

a trust company, bank, or savings and loan institution with its principal office located in the Commonwealth of Virginia (hereinafter referred to as "Bank" or "Escrow Agent"), and

("Surety") provides:

I.

The City and the Contractor have entered into the Construction Agreement ("Contract") with respect to City Project No. and Name: _____ ("the Contract"). This Agreement is pursuant to, but in no way amends or modifies, the Contract. Payments made hereunder or the release of funds from escrow shall not be deemed approval or acceptance by the City of performance by the Contractor or Surety.

II.

In order to assure full and satisfactory performance by the Contractor of its obligations under the Contract, the City may, pursuant to the Contract Documents, retain certain amounts otherwise due the Contractor. The Contractor has, with the approval of the City, elected to have these retained amounts held in escrow by the Bank. This Agreement sets forth the terms of the escrow. The Bank shall not be deemed a party to, bound by, or required to inquire into the terms of, the Contract or any other instrument or agreement between the City and the Contractor.

III.

The City may from time to time pursuant to this Agreement pay to the Bank amounts retained by the City under the Contract. Except as to amounts actually withdrawn from escrow by the City, the Contractor shall look solely to the Bank for payment of funds retained under the Contract and paid by the City to the Bank.

The risk of loss by diminution of the principal of any funds invested under the terms of this Agreement shall be solely upon the Contractor.

Funds and securities held by the Bank pursuant to this Agreement shall not be subject to levy, garnishment, attachment, lien, or other process whatsoever. Contractor agrees not to assign, pledge, discount, sell or otherwise transfer or dispose of his interest in the escrow account or any part thereof, except to the Surety.

IV.

Upon receipt of checks or warrants drawn by the City's Director of Finance and made payable to it as escrow agent, the Bank shall promptly notify the Contractor, negotiate the same and deposit or invest and reinvest the proceeds in "Approved Securities" within the meaning of this Agreement in accordance with the written instruction of the Contractor. In no event shall the Bank invest the escrowed funds in any security that is not an "Approved Security."

V.

The following securities, and none other, are Approved Securities for all purposes of this Agreement:

- (1) United States Treasury Bonds, United States Treasury Notes, United States Treasury Certificates of Indebtedness or United States Treasury Bills,
- (2) Bonds, notes and other evidences of indebtedness unconditionally guaranteed as to the payment of principal and interest by the United States,
- (3) Bonds or notes of the City,
- (4) Bonds of any political subdivision of the City, if such bonds carried, at the time of purchase by the Bank or deposit by the Contractor, a Standard and Poor's or Moody's Investors Service rating of at least "A", and
- (5) Certificates of deposit issued by commercial Banks located within the Commonwealth, including, but not limited to, those insured by the Bank and its affiliates,
- (6) Any bonds, notes, or other evidences of indebtedness listed in Section (1) through (3) may be purchased pursuant to a repurchase agreement with a Bank, within or without the City, having a combined capital, surplus and undivided profit of not less than \$25,000,000 provided the obligation of the Bank to repurchase is within the time limitations established for investments as set forth herein. The repurchase agreement shall be considered a purchase of such securities even if title, and/or possession of such securities is not transferred to the Escrow Agent, so long as the repurchase obligation of the Bank is collateralized by the securities themselves, and the securities have on the date of the repurchase agreement a fair market value equal to at least 100 percent of the amount of the repurchase obligation of the Bank, and the securities are held by a third party, and segregated from other securities owned by the Bank.

No security is an Approved Security hereunder if it matures more than five years after the date of its purchase by the Bank or deposit by the Contractor.

VI.

The Contractor may from time to time withdraw the whole or any portion of the escrowed funds by depositing with the Bank Approved Securities in an amount equal to, or in excess of, the amount so withdrawn. Any securities so deposited or withdrawn shall be valued at such time of deposit or withdrawal at the lower of par or market value, the latter as determined by the Bank. Any securities so deposited shall thereupon become a part of the escrowed fund.

Upon receipt of a direction signed by the City's Director of Public Works or the City Engineer, the Director of Finance or the City Accountant shall authorize the Bank to pay the principal of the fund, or

any specified amount thereof, to the account of the City of Lynchburg. Such payment shall be made in cash as soon as is practicable after receipt of the direction.

Upon receipt of a direction signed by the City's Director of Public Works or the City Engineer, the Director of Finance or the City Accountant shall authorize the Bank to pay and deliver the principal of the fund, or any specified amount thereof, to the Contractor, in cash or in kind, as may be specified by the Contractor. Such payment and delivery shall be made as soon as is practicable after receipt of the direction.

VII.

For its services, hereunder the Bank shall be entitled to a reasonable fee in accordance with its published schedule of fees or as may be agreed upon by the Bank and the Contractor. Such fee and any other costs of administration of this Agreement shall be paid from the income earned upon the escrowed fund, and, if such income is not sufficient to pay the same, by the Contractor.

VIII.

The net income earned and received upon the principal of the escrowed fund shall first be paid or applied to pay the Bank's fee and any other costs of administration and such income shall be deemed a part of the principal of the fund. After all of the Bank's fees and other costs of administration have been paid from such income, the net income earned thereafter may then be paid over to Contractor in installments.

IX.

The Surety undertakes no obligation hereby but joins in this Agreement for the sole purpose of acknowledging that its obligations as surety for the Contractor's performance of the Contract are not affected hereby.

WITNESS the following signatures, all as of the day and year first above written.

CITY OF LYNCHBURG

CONTRACTOR: _____

BY: _____
City Manager

BY: _____
Officer, Partner, or Owner (Seal)

SURETY:

By: _____

Its: President (Seal)

ATTEST:

Secretary

By: _____
Attorney-in-Fact

AFFIDAVIT AND ACKNOWLEDGEMENT OF ATTORNEY-IN-FACT

COMMONWEALTH OF VIRGINIA

(or, alternatively, Commonwealth or State of _____)

CITY / COUNTY OF _____

I, the undersigned notary public, do certify that _____ personally appeared before me in the jurisdiction aforesaid and made oath that he is the attorney-in-fact of _____, the Surety, that he is duly authorized to execute on its behalf the foregoing bond pursuant to the Power of Attorney noted above, and on behalf of said Surety, acknowledged the aforesaid bond(s) as its act and deed.

Given under my hand this _____ day of _____.

Notary Public (SEAL)

My Commission expires: _____

APPROVED:

City Attorney/Designee Date

INSTRUCTIONS TO BIDDERS

DESCRIPTION OF WORK

The Work included under this Contract shall consist of all labor, materials, equipment, and the performance of all work necessary to complete the project known as "Greenwood Pond BMP Retrofit and Blackwater Creek Tributary Stream Restoration Project," as described in the Contract Documents. This Work shall be performed in accordance with the Contract Documents.

ACCEPTANCE AND GUARANTEE:

At the completion of the project, a final inspection will be made by the Owner's Project Manager. The Contractor will be notified of the remaining work to be performed. When the work is satisfactorily completed, notification will be given that the project has been accepted. The guarantee period will be one (1) year from date of acceptance.

PROTECTION OF PROPERTY AND PERSONNEL:

The Contractor shall erect traffic control devices, barricades, warning signs, overhead protection, etc. , as required by local codes and laws. Contractor shall observe OSHA regulations and Owner's safety policies.

1. General: Subject to Owner's right to waive informalities, to be valid for consideration, bids must be completed and submitted in accordance with these instructions to bidders. All individual bid unit price items must be filled in, regardless of the quantity shown.
2. Plans and Specifications: The manual and drawings may be downloaded from the City's website: <http://www.lynchburgva.gov/current-solicitations>. The Manual of Specifications and Standard Details, for the City of Lynchburg may be downloaded from the City's website: <http://www.lynchburgva.gov/manual-specifications>.

Bidding documents will be provided as indicated in the Advertisement for Bids.

3. Qualification of Bidders: Each bidder must be prepared to submit within five calendar days of the Owner's request written evidence of his qualifications for the project, including, without limitation, financial data, previous experience, resources, personnel and evidence of authority to conduct business in the jurisdiction where the project is located.

The minimum experience requirement in order to be considered for this project is successful completion in the last 5 years of at least 5 stream restoration / constructed wetland projects (please provide project summaries and references with contact information). In addition, please provide the resume of the proposed site superintendent for the project to provide assurance he/she has sufficient practical experience with stream restoration projects.

4. Examination of Bid Documents and Site:
 - 4.1 Before submitting bids, each bidder must examine bid documents, including, without limitation, all the Contract Documents, thoroughly; familiarize himself with Federal, state and local laws, ordinances, rules, codes, and regulations affecting the Work; and correlate his observations with requirements of the bid documents.
 - 4.2 Bidders are requested and expected to visit the site of the project to alert themselves to local and special conditions which may be encountered during construction of the project such as: labor and transportation, handling and storage of materials, the availability of materials, and site access. Failure to make such investigations shall not relieve the successful bidder from performing and completing the Work in accordance with the Contract Documents.

- a. An optional pre-bid conference will be held at the time and place stated in the Advertisement for Bids.

5. Clarification:

- 5.1 No oral clarification of the bid documents will be made to any bidder. To be given consideration, requests for clarification must be received in time to allow preparation of a written response at least seven (7) days prior to date fixed for opening of bids. Clarifications will be issued in the form of written addenda to the bid documents and posted to the Procurement Website within five (5) days of the bid opening. Only clarifications by formal written addenda will be binding.
- (1) All communications in regard to clarifications and any other matters related to this project shall be addressed to: Melissa Tillman, Procurement Division, 900 Church Street, Lynchburg, VA 24504, Fax: 434-845-0711, email: melissa.tillman@lynchburgva.gov.

6. Substitutions:

- 6.1 Substitutions of material or equipment or both may be offered by the Contractor with his bid, provided that, if approved:
 - a. No major changes in the construction or design intent of the project would be required. Changes required to accommodate substituted items shall be made by the Contractor at no additional cost or time delay.
 - b. Features of quality, capacity, construction, performance, appearance, size, arrangement, and general utility, including economy of operation of substitutes offered, either parallel or exceed those of specified products.
 - c. The provisions of the General Conditions are met, and the provisions of the General Conditions any other guarantees, if required by the specification sections, shall apply in full force and effect to the performance of such substitute products; approved for incorporation into the Work.
- 6.2 Technical data covering the proposed substitution shall be furnished with the bid when possible, and not later than 10 days after bid submission.

7. Bid Submission:

- 7.1 Submit bids using forms furnished in the Project Manual and fill in all blank spaces on the form. Repeat notation "Contractor's Current Virginia License No. _____" on outside of inner envelope containing bid and bid security, and place this envelope within another envelope addressed to:

City of Lynchburg
Procurement Division
900 Church Street
Third Floor, City Hall
Lynchburg, VA 24504

Bidders shall include the following with their bid submission:

- Bid Form
- Statement of Experience
- Statement of Available Resources
- Equal Opportunity Report Statement
- Corporate Status Form
- Questions to Offeror Form

- Bid Bond or Cashiers Check Equivalent

7.2 Both the inner and outer envelopes shall have noted thereon:

- a. “Sealed Bid Enclosed for Greenwood BMP Retrofit & Blackwater Creek Projects”
- b. Bid Number 2017-027;
- c. The bidder’s name and address;
- d. Repeat notation “Current Registered Virginia Contractor No. ____” on the outside envelope.

7.3 Each bid must be accompanied by a cashier’s check payable to the City drawn on a bank satisfactory to the City, or a Bid Bond, in the amount of five percent (5%) of the amount of the total base bid, with the City as obligee, as assurance that the successful bidder will enter into the Contract within ten (10) days after Notice of Award.

If the successful bidder defaults by failure to enter into the Contract and to provide required performance and payment bonds, the certified check or Bid Bond accompanying the successful bid shall be collected by the City, not as a penalty but as liquidated damages for delays and such additional expenses as may be incurred by the City for reasons of such default.

7.4 Contractors will indicate a lump sum bid for on the bid form. The lump sum bid shall contain all necessary costs required for completion of the Work. Any changes, erasures, modifications, or deletions in the bid form, or alternate proposals not specified in the bid proposal may make the proposal irregular and subject to rejection.

7.5 Receipt deadline for bids will be as stated in the Advertisement for Bids. All bids will be received in the Procurement Division Office, Third Floor, City Hall. It is the responsibility of the bidder to ensure bids are received and time stamped by the deadline for bids. Late bids will not be accepted.

7.6 Any bidder may withdraw or modify its bid, by a writing containing the original signature of the bidder, which writing must be received by the City prior to the date and time set for submission of bids. Withdrawal or modification must be in writing and be delivered by one of the following means: (i) hand delivery by the bidder itself, a courier, or other delivery service; (ii) by mail (no consideration shall be given to any postmark); or (iii) by marking(s) on the exterior of the bid submission envelope, but only if the marking is dated and includes the original signature of the bidder.

Written modifications of bids should not reveal the bid price contained in the previously submitted sealed bid, but should simply provide the desired addition, subtraction or modification, so that the final price or terms of the bid will not be known to the City until the sealed bids are opened. Modifications shall be on the interior envelope and sealed prior to submittal.

7.7 Bids will be opened publicly in accordance with the Advertisement for Bids.

7.8 Withdrawal of bid after bid opening: To withdraw a bid after bid opening, a bidder must satisfy the substantive requirements of Va. Code §2.2-4330. In addition, the following procedures shall apply:

- a. The bidder shall give notice in writing of his claim of right to withdraw his bid within two business days after the conclusion of the bid opening procedure and shall submit original work papers with such notice.
- b. The mistake may be proved only from the original work papers, documents and materials used in preparation of the bid and delivered as required herein.

8. Bonds and Damages:

- 8.1 Bonds shall be with a surety company acceptable to the Owner; that is legally authorized to do business in Virginia and in a form acceptable to Owner.
- 8.2 A performance bond and a labor and material payment bond will be required in the amount of 100 percent of the bid.
- 8.3 Liquidated damages shall be as indicated in the Contract Documents.

9. Award of Contract:

- 9.1 The award of the Contract will be the responsible bidder submitting the lowest responsive base bid.

Selection of the apparently successful bidder's responsibility will include a serious evaluation of whether the bidder has conscientiously attempted to meet Minority and Disadvantaged Business Enterprise goals. A requirement of the Contract bidder will be that a genuine concerted effort will be utilized to meet the Contract goal.

- 9.2 Before the Contract is awarded, the bidder submitting the lowest responsive bid must satisfy the City that it has the requisite organization, capital, equipment, ability, resources, personnel, management, business integrity, and at least five years experience in the type municipal work for which it has submitted a bid. Each bidder shall, with his bid, submit a list of at least five projects of similar size and dollar value completed within the last five years, giving location, dollar value, year completed, and the name(s) of the owner(s) and architect/engineers(s). The bidder shall verify to the City that it has the sufficient and qualified personnel to provide for the Contract Work. Failure by the lowest responsive bidder to sufficiently satisfy the City of its ability to meet any of the above requirements may serve as grounds for rejection of the bid.

- 9.3 The Owner reserves the right to cancel the Advertisement for Bids, reject any and all bids, waive any and all informalities, and disregard all conforming, nonconforming, conditional bids or counterproposals.

- 9.4 Unless canceled or rejected, a responsive bid from the lowest responsible bidder shall be accepted as submitted, except that if the responsive bid from the lowest responsible bidder exceeds available funds, pursuant to Section 18.1-9 of the Lynchburg Public Procurement Code, the Owner may negotiate with the apparent low bidder to obtain a contract price within available funds.

- a. Procedures for Negotiations: If the Owner wishes to negotiate with the apparent low bidder to obtain a contract price within available funds, negotiations shall be conducted in accordance with the following procedures:

- 1. If the using agency wishes to conduct negotiations pursuant to this section, it shall provide the procurement administrator with a written determination that the bid from lowest responsive, responsible bidder exceeds available funds. This determination shall be confirmed in writing by the director of finance or his designee. The using agency shall also provide the procurement administrator with suggested measures to bring the proposed purchase within budget through negotiations with the lowest responsive, responsible bidder, including reductions in scope, changes in quality, value engineering, changes in terms and conditions, or changes in schedule.
- 2. The procurement administrator shall advise the lowest responsive, responsible bidder, in writing, that the proposed purchase exceeds available funds. He shall further invite proposed measures, such as a reduction in scope, change in quality, value engineering, changes in terms or conditions, or changes in schedule for the proposed purchase, and

invite the lowest responsive, responsible bidder to amend its bid based upon the proposed measures to bring the purchase within available funds.

3. Informal discussions between the City and the lowest responsive, responsible bidder, either in person, by e-mail, by telephone, or by other means, may be used to attempt to obtain a contract within available funds.
4. Following any successful negotiations, the lowest responsive, responsible bidder shall submit a proposed addendum to its bid, which addendum shall include the specific changes in the proposed purchase, the reduction in price, and the new contract value. The addendum shall be reviewed by the purchasing agency, the City Manager, and City Attorney for acceptability.
5. If an addendum is acceptable to the City, the City may award a contract within funds available to the lowest responsive, responsible bidder based upon the amended bid proposal.
6. If the City and the lowest responsive, responsible bidder cannot negotiate a contract within available funds, all bids shall be rejected.

9.5 Protests of Award or Decisions to Award of Contract

- a. The following are the exclusive procedures for a bidder or offeror to protest the City's award or decision to award a contract.
 1. Any protest to award a contract shall be in writing and shall be delivered so that it is received by the City Manager not later than five (5) business days after announcement of the award or decision to award, whichever comes first. Otherwise any such protest shall be deemed to be waived.
 2. Except for a protest of an emergency or sole source procurement, a protest of a City award or decision to award a contract may only be made by a person who submitted a bid or proposal for the procurement at issue and who was reasonably likely to have its bid or proposal accepted but for the City's decision. In the case of an emergency or sole source procurement, a protest may only be made by a person who can show that he was reasonably likely to have submitted a successful bid or proposal if the procurement had been other than emergency or sole source.
 3. Protests shall only be granted if (1) the protester has complied fully with Sec. 18.1-6 of the Lynchburg Public Procurement Code and there has been a violation of law, the Lynchburg Public Procurement Code, or mandatory terms of the solicitation that clearly prejudiced the protestor in a material way, or (2) a statute requires voiding of the decision.
 4. The City Manager shall issue a written decision on a protest within ten (10) days of its receipt by the City Manager.
 5. If the protest is denied, the protestor may only appeal the denial or otherwise contest or challenge the procurement by then filing suit in the Lynchburg Circuit Court, Lynchburg, Virginia, and serving the city with such suit within ten (10) days of such denial. Otherwise, the City Manager's decision shall be final and conclusive, and the protestor's right to appeal the denial or to otherwise contest or challenge the procurement shall be deemed to be waived.
 6. Strictly following these procedures shall be a mandatory prerequisite for protest of the City's award or decision to award a contract. Failure by a bidder to follow these procedures strictly shall preclude that bidder's protest and be deemed to constitute a waiver of any protest.

- b. A protest may not be based upon the alleged non-responsibility of a person to whom the City awards or makes a decision to award a contract.
- 10. Bidders are referred to the General Conditions for the meanings of capitalized terms.

End of Instructions to Bidders

GENERAL CONDITIONS

ARTICLE 1	CONTRACT DOCUMENTS AND DEFINITIONS
ARTICLE 2	ARCHITECT/ENGINEER
ARTICLE 3	OWNER
ARTICLE 4	CONTRACTOR
ARTICLE 5	SUBCONTRACTORS
ARTICLE 6	WORK BY OWNER OR BY SEPARATE CONTRACTORS
ARTICLE 7	MISCELLANEOUS PROVISIONS
ARTICLE 8	CONTRACT TIME
ARTICLE 9	PAYMENTS AND COMPLETION
ARTICLE 10	PROTECTION OF PERSONS AND PROPERTY
ARTICLE 11	INSURANCE FOR CONTRACTS
ARTICLE 12	CHANGES AND MODIFICATIONS IN THE WORK
ARTICLE 13	CLAIMS AND DISPUTE PROCEDURE
ARTICLE 14	UNCOVERING AND CORRECTION OF WORK
ARTICLE 15	TERMINATION OF THE CONTRACT

GENERAL CONDITIONS

ARTICLE 1 CONTRACT DOCUMENTS AND DEFINITIONS

1.1 DEFINITIONS

1.1.1 CONTRACT AND CONTRACT DOCUMENTS:

The Contract Documents include: (1) the Construction Agreement (the "Contract"), its General Conditions, its Special Conditions (if any) and its attachments (if any); (2) the City's Invitation for Bid No. 2017-026 dated October 2016, and any addenda; (3) the Contractor's bid; (4) the Contract plans, drawings, and specifications and any addenda; and (5) any Modifications and any Field Orders. Any soils, geotechnical or other reports, surveys and analyses which may be made available to the Contractor for review or information under this Contract, are not adopted by reference into, nor are they part of the Contract Documents.

1.1.2 MODIFICATION:

A Modification is (1) a written amendment to the Contract signed by both parties (Project Manager for City of Lynchburg and authorized agent for the Contractor), (2) a written Change Order signed by the Project Manager or Owner's authorized representative and an authorized agent for the Contractor, or (3) a written Change Directive signed by the Owner's authorized representative. Modifications may be made to the Contract and Contract Documents without notice to any surety for the performance or payment bonds for the Work. Any Modification that increases the Contract Sum by more than \$50,000 or that causes total expenditures for the Contract to exceed the amount budgeted for the Contract may only be made with the specific approval of the City Manager.

1.1.3 WORK:

"Work" means the construction and services required by the Contract Documents and includes all services, plant, labor, materials, supplies, equipment and other things necessary for Contractor to carry out and complete the requirements of the Contract Documents. "Work" includes material suitably stored and protected. "Work" also includes any portion of the Work, whether completed or not.

1.1.4 PROJECT:

The Project is the total construction of which the Work performed by Contractor under the Contract Documents may be the whole or a part.

1.1.5 FURNISH, INSTALL & PROVIDE:

The terms "Furnish" or "Install" or "Provide", unless specifically limited in context, mean furnishing and incorporating a specified item, product or material into the Work, including all necessary labor, materials, equipment to make the item and the Work ready for use.

1.1.6 EXTRA WORK:

The term "Extra Work" as used herein, refers to and includes work required by the Owner, which, in the judgment of the Owner involves changes in or additions to the Work required by the Contract Documents in their then-existing form.

1.1.7 NOTICE OF AWARD:

"Notice of Award" is the written notice of the Owner's acceptance of the Contractor's bid given by the Owner to Contractor as the successful bidder.

1.1.8 NOTICE:

"Notice" means written notice made in the manner specified in this paragraph.

any conflict or inconsistency in the Contract Documents, upon its discovery, and promptly submit an explanation in writing of the conflict or inconsistency to the A/E, with a copy to the Owner. The A/E's decision thereon shall be final. In case of conflict or inconsistency between the drawings and the specifications, the specifications shall govern.

- 1.2.4 Should any labor, material, or equipment be required which is not denoted in the drawings and specifications, but which is, nevertheless, reasonably necessary for the proper carrying out of the intent of the Work, it is agreed that the labor, material, or equipment is implied, and the Contractor shall provide such labor and furnish such materials and equipment as fully as if they were completely delineated and prescribed, without additional cost to the Owner.
- 1.2.5 The Contractor may be furnished additional instructions and detail drawings to carry out the Work included in the Contract Documents. The additional drawings and instructions thus supplied to the Contractor will coordinate with the Contract Documents and will be so prepared that they can be reasonably interpreted as a part thereof. The Contractor shall carry out the Work in accordance with the additional detail drawings and instructions.
- 1.2.6 The drawings and specifications are divided into sections for convenience and clarity only. The Contractor shall not construe this division as a division of the Work into various subcontractor units. The Contractor may subcontract the Work in such divisions as he sees fit, but he is ultimately responsible for furnishing all Work required by the Contract Documents.
- 1.2.7 The provisions of this Contract cannot be amended, modified, varied or waived in any respect that causes a change to the Contract Sum or Contract Time except by a Modification. **The Contractor is hereby given notice that no person has authority to orally waive, or to release the Contractor from any of the Contractor's duties or obligations under or arising out of the Contract Documents.** Any waiver, approval or consent granted by Modification or Field Order to the Contractor shall be limited to those matters specifically and expressly stated thereby to be waived, approved or consented to and shall not relieve the Contractor of the obligation to obtain any future waiver, approval or consent.

1.3 OWNERSHIP AND USE OF DOCUMENTS

- 1.3.1 All plans, drawings, specifications, and documents relating to the Work are the property of the Owner and are to be used only for the Project.

ARTICLE 2 ARCHITECT/ENGINEER

2.1 DEFINITIONS

- 2.1.1 The term Architect/Engineer, hereinafter "A/E" or "Architect" or "Engineer", shall mean the consulting firm or City Department/Division, or their duly authorized representatives, lawfully licensed to practice in Virginia, that is responsible for the activities specified herein.
- 2.1.2 Although the A/E is referred to throughout the Contract Documents as if singular in number and masculine in gender, A/E includes plural in number and feminine or neuter in gender, as appropriate.

2.2 ARCHITECT/ENGINEER SERVICES

- 2.2.1 The A/E will provide services as described in these General Conditions.
- 2.2.2 The A/E will advise and consult with the Owner. The Owner's instructions to the Contractor may be forwarded through the A/E. The A/E has authority to act on behalf of the Owner only to the extent

provided in the Contract Documents, and the A/E does not have authority to approve a change to the Contract Sum or the Contract Time.

- 2.2.3 The A/E may visit the site at intervals appropriate to the stage of construction to familiarize himself generally with the progress and quality of the Work and to determine in general if the Work is proceeding in accordance with the Contract Documents. Any visits or inspections by the A/E, any Owner's representative, or any consultant retained by the Owner are solely for the Owner's benefit and shall not confer any rights on Contractor or excuse Contractor from any obligation under the Contract Documents.
- 2.2.4 The A/E will immediately inform the Owner and Contractor whenever, in the reasonable opinion of the A/E, any of the Work is proceeding contrary to the requirements of the Contract Documents and will be unacceptable. Such notification by the A/E is solely for the benefit of the Owner and will not be a cause for the Contractor to claim either delay of the Work or any increase in the Contract Sum or Contract Time.
- 2.2.5 The A/E, the Owner and other governmental representatives shall at all times have access to the Project site and the Work regardless of its stage of progress. The Contractor shall provide facilities for such access so that the A/E, the Owner and other governmental representatives may perform their functions under the Contract Documents.
- 2.2.6 Where applicable, based on the A/E's observations and an evaluation of the Contractor's Applications for Payment, the A/E will recommend the amounts owing to the Contractor and will issue Certificates for Payment in such amounts, as provided in Article 99, Payments and Completion.
- 2.2.7 The A/E will be an interpreter of the requirements of the Contract Documents. The A/E will render interpretations necessary for the proper execution and progress of the Work, with reasonable promptness and in accordance with any time limit agreed upon. Either party to the Contract may make written request to the A/E for such interpretations. All interpretations of the A/E shall be consistent with the intent of, and reasonably inferable from, the Contract Documents and will be in writing and/or in the form of drawings.
- 2.2.8 The A/E will recommend to the Owner the rejection of Work that does not conform to the Contract Documents. Whenever, in his opinion, he considers it necessary or advisable for the implementation of the intent of the Contract Documents, he will have authority to require special inspection or testing of the Work in accordance with Subparagraph 7.6.2 whether or not such Work be then fabricated, installed or completed.
- 2.2.9 The A/E will review and approve or take other appropriate action upon Contractor's submittals such as Shop Drawings, Product Data, Samples and Manuals, but only for conformance with the design concept of the Work and with the information given in the plans, drawings, and specifications. Contractor shall ensure that all submittals are complete and have had included with them all correlated items that the A/E requires for his review. In the A/E's and Owner's sole discretion, the A/E may decline to review partial submittals or submittals for which correlated items have not been included. Contractor shall clearly note, both in a cover letter with any submittal and on the submittal itself, any deviation or inconsistency of anything submitted with the requirements of the Contract Documents. The A/E's approval of a specific item shall not indicate approval of an assembly of which the item is a component. The A/E's review and approval is for the sole benefit of the Owner and is not for the benefit of the Contractor. The A/E's review and approval shall in no way excuse Contractor from fully complying with the Contract Documents.
- 2.2.10 The A/E's acceptance of materials or products on behalf of the Owner shall not bar future rejection of such items (a) if they are subsequently found to be defective or inferior in quality or uniformity to the materials or products specified by the Contract Documents, (b) if such materials or products are not as

represented by the Contractor, or (c) if such materials or products do not conform to the requirements of the Contract Documents.

- 2.2.11 As required, the A/E will conduct inspections to assist the Owner in determining the dates of Substantial Completion and Final Completion, will receive and forward to the Owner for the Owner's review written warranties and related documents required by the Contract Documents and assembled and submitted by the Contractor, and will recommend a final Certificate for Payment upon Contractor's full compliance with the requirements of Article 9, Payment and Completion.
- 2.2.12 All claims, disputes, or other matters or questions between the Contractor and Owner arising out of or relating to the A/E's interpretation of the Contract Documents or arising out of any other decisions, communications, or actions of the A/E relating to the performance of the Work shall be resolved as set forth in Article 12, Changes and Modifications in the Work, and Article 13, Claims.
- 2.2.13 In case of the termination of the employment of the A/E, the Owner shall appoint a new A/E, who shall have the same status under the Contract Documents as the former A/E.

ARTICLE 3 OWNER

3.1 DEFINITION

- 3.1.1 The Owner is the City of Lynchburg, Virginia ("City"). The term Owner means the Owner or its authorized representative. The Departmental Director, or his designee, is the authorized Owner's representative for this Contract. Notwithstanding the foregoing, the authority of the Owner's representative is subject to the limitations in the Lynchburg Public Procurement Code.
- 3.1.2 The Departmental Director, will designate a single Owner's representative, with the title of Project Manager (PM), who will have the power to act, within the scope of his delegated authority, for and on behalf of the Owner, in accordance with the terms of the Contract Documents.
- 3.1.3 For purposes of any change in the Work, the term "Owner" or "Owner's representative" specifically excludes any and all inspectors having building code or City ordinance responsibilities or jurisdiction under the requirements of the building permit for the Project.

3.2 INFORMATION POSSESSED BY OWNER

- 3.2.1 The Owner, as a courtesy, may make available for the Contractor's reasonable review, at the Owner's offices or together with the Contract Documents, certain boring logs, geotechnical, soils and other reports, surveys and analyses pertaining to the Project site. Any such information provided to the Contractor is intended to be for the Contractor's convenience only, and its accuracy and completeness are not guaranteed or warranted by the Owner or the A/E, it being the Contractor's sole responsibility to verify the accuracy and completeness of such information. Such information is not incorporated by reference into or made a part of the Contract Documents.
 - 3.2.1.1 Notwithstanding any information provided by Owner or anyone acting on the behalf of Owner, the Contractor assumes full responsibility for inspection of the site and for the means and methods of construction that he employs when performing the Work. The Owner shall not be liable for any additional work or costs arising as a result of any conclusions reached or assumptions derived by the Contractor from or based upon any such information that the Owner makes available for the Contractor's convenience.

3.3 OWNER-PAID PERMITS AND FEES

3.3.1 The Owner will, where applicable, pay for:

.1 Sewer availability fees;

.2 Water availability/meter connection fee;

.3 Electrical, natural gas, telephone, and cable TV permanent installation charges;

.4 Any easements required;

.5 Railroad flagging services; and

.6 Permits for work in Virginia Department of Transportation (VDOT) right-of-way. The Contractor is required to comply with the general requirement for work in the VDOT right-of-way as outlined in the The Manual of Specifications and Standard Details, latest edition, for the City of Lynchburg, and the VDOT Manual for this work. Upon completion of all work in the VDOT right-of-way, the VDOT Personnel will conduct an inspection and issue a punch list. The Contractor shall be responsible for completion of those items on the punch list and for obtaining the written release of the permit.

3.3.2 The Contractor's attention is directed to Article 4.7, Contractor-Paid Taxes, Permits, Fees, and Notices, describing other permits to be obtained and fees to be paid by the Contractor.

3.4 OWNER'S RIGHT TO STOP WORK

3.4.1 If the Contractor fails to correct defective Work as required herein or persistently fails to carry out the Work in accordance with the Contract Documents, the Owner, by a written order, may order the Contractor to stop the Work, or any portion thereof, until the cause for such order has been eliminated; however, this right of the Owner to stop the Work shall not give rise to any duty on the part of the Owner to exercise this right for the benefit of the Contractor or any other person or entity.

3.5 OWNER'S RIGHT TO CARRY OUT THE WORK

3.5.1 If the Contractor defaults or neglects to carry out the Work in accordance with the Contract Documents and fails within seven (7) days after receipt of Notice from the Owner to commence and continue correction of such default or neglect with diligence and promptness, the Owner may, without prejudice to any other remedy he may have, rectify such deficiencies, including without limitation, by performing the Work or having the Work performed by other contractors, as outlined in Section 6.1, Owner's Right to Perform Work and to Award Separate Contracts. In such case, an appropriate Change Order or Change Directive shall be issued by Owner deducting from the payments then or thereafter due the Contractor the cost of correcting such deficiencies, including compensation for the A/E's additional services made necessary by such default, neglect or failure. If the payments then or thereafter due the Contractor are not sufficient to cover such amount, the Contractor shall pay the difference to the Owner.

3.5.2 Neither the Owner nor the A/E nor their officers, agents, assigns or employees are in any way liable or accountable to the Contractor or his surety for the method by which Work performed by the Owner or performed by other contractors pursuant to this Article 3.5, or any portion thereof, is accomplished or for the price paid therefore. Notwithstanding the Owner's exercise of its rights under this Article 3.5, the Contractor and its surety shall have sole responsibility to maintain and protect the Work, including without limitation, that portion of the Work performed by or on behalf of Owner pursuant to this Article 3.5.

3.6 *SUSPENSION OF WORK*

- 3.6.1 The Owner shall have the authority to suspend the Work, in whole or in part, for such periods and such reasons as the Owner may deem necessary or desirable, in its sole discretion, including without limitation:
- .1 Unsuitable weather;
 - .2 Other conditions considered unfavorable for the suitable prosecution of the Work; and/or
 - .3 Other conditions considered adverse to the best interests of the Owner.
- 3.6.2 Any such suspension shall be made by Owner by written order to the Contractor. The Contractor shall obey immediately such order of the Owner and shall not resume the Work until so ordered in writing by the Owner. The Contractor shall be entitled to an extension of the Contract Time, subject to the provisions of Article 8, Contract Time, herein.
- 3.6.3 No such suspension of the Work shall be the basis of a claim by the Contractor for any increase in the Contract Sum or for any other damages, losses, costs or expenses if the suspension is for a reasonable time under the circumstances then existing and the cause thereof is beyond the control and is without the fault or negligence of the Owner or those acting on Owner's behalf.
- 3.6.4 In the event of suspension of Work, the Contractor will, and will cause his Subcontractors and others providing any of the Work through Contractor to, protect carefully his and their materials and Work against damage or injury from the weather and maintain completed and uncompleted portions of the Work as required by the Contract Documents. If, in the opinion of the Owner, any Work is damaged or injured by reason of failure on the part of the Contractor or any of his subcontractors to so protect same, such Work shall be removed and replaced at the expense of the Contractor.

3.7 *USE AND OCCUPANCY PRIOR TO FINAL ACCEPTANCE BY OWNER*

- 3.7.1 The Owner has the right to take possession of and use any completed or partially completed portions of the Work, notwithstanding that the time for completing the entire Work or any portions thereof may, or may not, have expired. The taking of possession and use by the Owner shall be in accordance with the provisions in Article 9.8, Substantial Completion and Guarantee Bond. If such prior use delays the Work, the Contractor may submit a request for a time extension in accordance with the requirements of Article 8, Contract Time.

3.8 *RIGHT TO AUDIT AND PRESERVATION OF RECORDS*

- 3.8.1 The Contractor shall maintain books, records and accounts that completely and accurately account for all of his costs and receipts relating to the Project in accordance with generally accepted accounting principles and practices. The Owner or its authorized representatives shall have the right to review, inspect, audit and/or copy the books, records, accounts and related documents, including without limitation, supporting documents, of the Contractor under any of the following conditions:
- .1 If the Contract is terminated for any reason in accordance with the provisions of these Contract Documents, in order to arrive at equitable termination costs;
 - .2 If the Contractor and the Owner dispute the amount due the Contractor under the terms of this Contract;
 - .3 To check or substantiate any amounts invoiced or paid that are required to reflect the costs of the Contractor, or the Contractor's efficiency or effectiveness under this Contract or in connection with

any extras, changes, claims, additions, backcharges, or other, as may be provided for in this Contract; and/or

.4 If it becomes necessary to determine the Owner's rights and the Contractor's obligations under the Contract or to ascertain facts relative to any Claim.

- 3.8.2 These provisions for review, inspection, audit and copying shall give the Owner unlimited access during normal working hours to the Contractor's books, records, accounts and supporting documents under the conditions stated above.
- 3.8.3 The Contractor shall make all his books, records, accounts, and all other documents relating to his costs and receipts under this Contract, including without limitation any supporting documents, available to the Owner and its representatives for review, audit, inspection and copying at any time during the period from entry into this Contract through three years after Final Payment or termination of this Contract, whichever occurs later.
- 3.8.4 Any payments made under this Contract shall not constitute a waiver of the Owner's rights to review, inspect, copy and audit. Payments shall not constitute a waiver or agreement by the Owner that it accepts as correct the billings, invoices or other charges upon which the payments are based. If the Owner's review and audit produces a claim against the Contractor, the Owner may pursue all its legal remedies, even though Owner has made all or part of the payments required by this Contract.
- 3.8.5 If any review or audit by the Owner or the Owner's representatives discloses an underpayment by the Owner, the Owner shall pay any amounts found by the audit to be owed to the Contractor. If such audit discloses an overpayment, the Contractor reimburse the Owner for the amount of the overpayment.
- 3.8.6 The Owner's right to review, inspect, audit and copy, and the Contractor's duty as to preservation of records shall terminate at the end of three (3) years after Final Payment or termination of this Contract, whichever occurs later. The Contractor shall include this "Right to Audit and Preservation of Records" clause in all his subcontracts, and he shall require the same to be inserted by all Subcontractors and lower-tier subcontractors in their subcontracts, for any portion of the Work. Should Contractor fail to cause this clause to be included in any such subcontract or lower tier subcontract or otherwise fail to ensure the Owner's rights under this Article 3.8, Contractor shall be liable to Owner for all costs, expenses and attorney's fees that Owner may incur in order to obtain the information that would have otherwise been available to Owner under this Article 3.8, and the absence of such information shall create a presumption in the Owner's favor, which Contractor must overcome with clear and convincing evidence, that the missing information does not support the payment to Contractor or Contractor claim at issue.
- 3.8.7 Review, inspection, audit and copying pursuant to this Article 3.8 may be conducted by the Owner or its authorized representatives.
- 3.8.8 Documents subject to this Article 3.8 shall be made available to Owner and its representatives in whatever formats Owner requests, including without limitation, any electronic formats and/or in paper formats.

3.9 RIGHT TO REVIEW OTHER DOCUMENTS AND MATERIALS

- 3.9.1 In addition to the rights granted to the Owner under Article 3.8, Right to Audit and Preservation of Records or Documents, the Owner shall have the right to inspect, review and copy any and all of the Contractor's records or documents pertaining to or relating in any way to the Work, including, but not limited to, correspondence, memoranda, minutes, reports, intra- and inter-office communications, work papers, estimating sheets, progress reports, forecasts, audio or video recordings, computer disks, e-mails, films, or any other materials, regardless of physical form or characteristics, which were prepared by or in

the possession of, or obtainable by, the Contractor. The Contractor shall make all such documents and records available to the Owner upon ten (10) days Notice to the Contractor of the Owner's intent to inspect and review such documents. The Contractor shall include this "Right to Review Documents and Other Materials" clause in all its subcontracts, and Contractor shall cause the same to be inserted by all Subcontractors and lower-tier subcontractors in their subcontracts for any portion of the Work. The Contractor hereby waives any right he may have to additional compensation or time extensions in the event he fails or refuses to preserve and produce records pertaining to any such claim as requested by the Owner pursuant to this paragraph. In addition, the Owner may withhold all or any portion of any progress payments, which may be otherwise due, in the event Contractor refuses to comply with its obligations under this Article 3.9. The review, inspection and copying of documents and other records under this Article 3.9 may be conducted by the Owner or its authorized representatives.

- 3.9.2 Records and documents subject to this Article 3.9 shall be made available to Owner and its representatives in whatever formats Owner requests, including without limitation, any electronic formats and/or in paper formats.

ARTICLE 4 CONTRACTOR

4.1 *DEFINITION*

- 4.1.1 The Contractor is the person or entity identified in the Contract as such, and is generally referred to throughout the Contract Documents as if singular in number and masculine in gender but includes the feminine and neuter in gender, as appropriate. The term Contractor means the Contractor or his authorized representative.
- 4.1.2 This entire Contract is not one of agency by the Contractor for Owner but one in which the Contractor is engaged independently in the business of providing the services and performing the Work herein described as an independent contractor.

4.2 *REVIEW OF CONTRACT DOCUMENTS*

- 4.2.1 The Contractor shall not perform any portion of the Work at any time without having obtained and carefully reviewed the Contract Documents or, where required, approved Shop Drawings, Product. Data, Samples or Manuals for such portion of the Work.
- 4.2.2 The Contractor shall keep at the Project site at least two (2) copies of the drawings and specifications and shall at all times give the A/E, inspectors, and representatives of the Owner access thereto. Further, said drawings and specifications shall be the approved sets issued to the Contractor by the appropriate City permit agencies

4.3 *CONTRACTOR'S REPRESENTATIONS*

By entering into this Contract with the Owner, the Contractor represents and warrants the following, together with all other representations and warranties in the Contract Documents

- 4.3.1 That he is experienced in and competent to perform the type of work required and to furnish the plant, materials, supplies or equipment to be so performed or furnished by him;
- 4.3.2 That he is financially solvent, able to pay his debts as they mature, and possessed of sufficient working capital to initiate and complete the Work required by the Contract Documents;
- 4.3.3 That he is familiar with all federal, state, and local government laws, ordinances, permits, regulations and resolutions that may in any way affect the Work or those employed therein;

- 4.3.4 That such temporary and permanent Work required by the Contract Documents which is to be done by him will be satisfactorily constructed and fit for use for its intended purpose and that such construction will not injure any person, or damage any property;
- 4.3.5 That he has carefully examined the Contract Documents and the site of the Project and the Work and that from his own investigations, he has satisfied himself and made himself familiar with: (1) the nature and location of the Work, (2) the character, quality and quantity of materials likely to be encountered, including, but not limited to, all structures and obstructions on or at the project site, both natural and man-made; (3) the character of equipment and other facilities needed for the performance of the Work, (4) the general and local conditions, including without limitation its climatic conditions, the availability and cost of labor and the availability and cost of materials, tools and equipment; (5) the quality and quantity of all materials, supplies, tools, equipment, labor and professional services necessary to complete the Work in the manner required by the Contract Documents; and (6) all other matters or things which could in any manner affect the performance of the Work;
- 4.3.6 That he will fully comply with all requirements of the Contract Documents;
- 4.3.7 That he will perform the Work consistent with good workmanship, sound business practice, and in the most expeditious and economical manner consistent with the best interests of the Owner;
- 4.3.8 That he will furnish efficient business administration, an experienced superintendent, and an adequate supply of workmen, equipment, tools and materials at all times;
- 4.3.9 That he will complete the Work within the Contract Time;
- 4.3.10 That his Contract Sum is based upon the labor, materials, systems and equipment required by the Contract Documents, without exception; and
- 4.3.11 That he has satisfied himself as to the feasibility and correctness of the Contract Documents for the construction of the Work.

4.4 SUPERVISION AND CONSTRUCTION PROCEDURES

- 4.4.1 The Contractor shall supervise and direct the Work, using his best skill and attention. He shall be solely responsible for all construction means, methods, techniques, sequences and procedures and for coordinating all portions of the Work under the Contract; subject, however, to the Owner's right to reject means and methods proposed by the Contractor which are unsafe or otherwise not in compliance with the Contract Documents.
- 4.4.2 The Contractor shall be responsible to the Owner for the acts and omissions of Contractor's employees, Subcontractors and sub-subcontractors, suppliers, their agents and their employees, and of any other persons providing any of the Work through Contractor, and for their compliance with each and every requirement of the Contract Documents, in the same manner as if they were directly employed by the Contractor.
- 4.4.3 The Contractor understands and agrees that he shall not be relieved of his obligations to perform the Work in accordance with the Contract Documents either by the activities or duties of the Owner or the A/E in their administration of the Contract or by inspections, tests, or approvals required or performed under Article 7 by persons other than the Contractor.
- 4.4.4 Before starting a section of the Work, the Contractor shall carefully examine all preparatory work that has been executed by others to receive his Work to see that it has been completed. He shall check carefully,

by whatever means are required, to ensure that his Work and adjacent, related work will finish to proper quality, contours, planes, and levels.

- 4.4.5 The Contractor understands and agrees that the Owner and A/E will not have any liability for or any responsibility to exercise any control over construction means, methods, techniques, sequences or procedures, or for safety precautions and programs in connection with the Work, and they will not be responsible for the Contractor's failure to carry out the Work in accordance with the Contract Documents. The Owner and the A/E will not have any liability for or any responsibility to exercise any control over the acts or omissions of the Contractor, Subcontractors, sub-subcontractors or any of their agents or employees, or any other persons performing any of the Work.
- 4.4.6 The Contractor shall use no plant, equipment, materials, or persons for this Work to which the Owner objects.
- 4.4.7 The Contractor shall not remove any portion of the Work or stored materials from the site of the Project without the Owner's prior, written approval.

4.5 LABOR, MATERIALS AND EQUIPMENT

- 4.5.1 The Contractor shall furnish all plant, labor, materials, supplies, equipment and other facilities and things necessary or proper for, or incidental to, the Work, and will perform all other obligations imposed on him by the Contract Documents. Final payment will not be made until the Work is so completed.
- 4.5.2 Unless otherwise provided in the Contract Documents, the Contractor shall provide and pay for all labor, materials, equipment, tools, construction equipment and machinery, water, heat, utilities, transportation, and other facilities and services necessary for the proper execution and completion of the Work, whether temporary or permanent and whether or not incorporated or to be incorporated in the Work.
- 4.5.3 Work, materials, and equipment which are necessary in the construction but which are not specifically referred to in the specifications or shown in the drawings but implied by the Contract Documents shall be furnished by the Contractor at his own cost and expense. Such work and materials shall correspond with the general character of the Work as may be determined by the A/E subject to review as provided in Article 2.2.11.
- 4.5.4 The Contractor shall perform at least that percentage of the Work specified in the Contract to be Contractor self performed with forces that are in the direct employment of the Contractor. The Contractor shall submit to the Owner within thirty (30) days after award of the Contract a designation of the Work to be performed by the Contractor with his own forces. The percentage of the Work to be performed under subcontract shall be calculated by adding the amounts of all subcontracts and dividing this sum by the total Contract Sum.
- 4.5.5 The Contractor shall at all times enforce strict discipline, safety and good order among all persons providing any of the Work through him and shall not cause or allow to be used for the Work any unfit person or anyone not skilled in the task assigned to him. If any person providing any of the Work through the Contractor shall appear to the Owner to be incompetent or to act in a disorderly or improper manner, such person shall be removed immediately, at the request of the Owner, and shall not provide any of the Work except on written consent of the Owner.
- 4.5.6 No materials or supplies for the Work shall be purchased by the Contractor or by any Subcontractor subject to any chattel mortgage, or under a conditional sale or other agreement by which an interest is retained by the seller. The Contractor warrants that he has good title to all materials and supplies used by him in the Work.

- 4.5.7 The Contractor shall provide approved and adequate sanitary accommodations. All wastes shall be covered, disinfected, incinerated or otherwise disposed of legally.
- 4.5.8 All equipment, apparatus and/or devices of any kind to be incorporated into the Work that are shown or indicated on the drawings or called for in the specifications or required for the completion of the Work shall be entirely satisfactory to the Owner as regards operation, capacity and/or performance. No approval, either written or verbal, of any drawings, descriptive data or samples of such equipment, apparatus, and/or device shall relieve the Contractor of his responsibility to turn over the same in good working order for its intended purpose at the completion of the Work in complete accordance with the Contract Documents. Any equipment, apparatus and/or device not fulfilling these requirements shall be removed and replaced by Contractor with proper and acceptable equipment, apparatus, and/or device, or put in good working order satisfactory to the Owner by Contractor without additional cost to the Owner.

4.6 WARRANTY

- 4.6.1 The Contractor warrants to the Owner that all materials and equipment furnished under this Contract will be new unless otherwise specified, and that all workmanship will be of first class quality, free from faults and defects and in conformance with the Contract Documents and all other warranties and guaranties specified therein. Where no standard is specified for such workmanship or materials, they shall be the best of their respective kinds. All Work not conforming to these requirements, including substitutions not properly approved and authorized, may be considered defective. If required by the Owner, the Contractor shall furnish satisfactory evidence as to the kind and quality of materials and equipment. This warranty is not limited by the provisions of Article 13, Uncovering and Correction of Work.
- 4.6.2 The Work included in this Contract is specified in the Contract Documents. The Contractor shall be required to complete the Work specified and to provide all items needed for construction of the Work, complete and in good order.

4.7 CONTRACTOR-PAID TAXES, PERMITS, FEES AND NOTICES

- 4.7.1 The Contractor shall pay all sales, consumer, use and other similar taxes for the Work or portions thereof provided by the Contractor which are legally enacted at the time bids are received, whether or not yet effective. Taxes to be paid by the Contractor shall include, but shall not be limited to, the Lynchburg City Business, Professional and Occupational License Tax (a gross receipts tax).
- 4.7.2 Except as provided in Article 3.3, Owner-Paid Permits and Fees, the Contractor will be responsible for obtaining and paying for all other fees, permits and licenses necessary for the proper execution of the Work, including but not limited to:
- .1 Building Permit and inspections (City fees waived);
 - .2 Plumbing, Electrical, Mechanical Permits and inspections (City fees waived);
 - .3 Temporary water meter, temporary electrical and telephone installations and temporary utility usage;
 - .4 Temporary security lighting;
 - .5 All other permits necessary in order to perform the Work shall also be secured by the Contractor, and fees necessary in order to perform the Work shall be paid by him as part of this Contract at no additional cost to the Owner.

4.7.3 The Contractor shall give all notices and comply with all laws, ordinances, rules, regulations, codes, permits, resolutions and lawful orders of any public authority bearing on the performance of the Work; including but not limited to OSHA, Title 40.1 Labor and Employment Chapter 3 of the Code of Virginia, and Title VII of the Civil Rights Act of 1964, as amended. All safety violations shall be corrected immediately upon receipt of notice of violation.

4.8 *COMPLIANCE*

4.8.1 All demolition and excavation shall comply with all laws, ordinances, rules and regulations, and lawful orders of public authority, including without limitation, those for the prevention of accidents as issued by the Department of Labor and Industry of the Commonwealth of Virginia.

.1 IMMIGRATION REFORM AND CONTROL ACT OF 1986

The Contractor certifies that it does not, and will not during the performance of the Contract, employ illegal alien workers or otherwise violate the provisions of the federal Immigration Reform and Control Act of 1986.

4.8.2 To the extent of the Work indicated in the Contract Documents, the Contractor shall comply and the construction shall conform with all applicable and current editions or revisions of the following codes, specifications and standards. In case of conflict, the order of precedence shall be as hereinafter listed:

.1 Lynchburg Public Procurement Code;

.2 Contract Documents;

.3 The Virginia Uniform Statewide Building Code ("USBC"), as amended including, without limitation, The International Building Code ("IBC") and other codes incorporated by the USBC and IBC); and

.4 The Virginia Department of Transportation Road and Bridge Specifications and the Road Designs and Standards.

4.8.3 If the Contractor (or any person in a contract with the Contractor relating to the Work) finds an error, inconsistency, omission, ambiguity, discrepancy, conflict or variance in the Contract Documents, or between the Contract Documents and any provisions of law, ordinance, rule, or regulations or any of the codes, specifications and standards set forth in 4.8.2 herein, the Contractor has the obligation to promptly seek in writing a clarification thereof from the A/E, with a copy to the Owner, prior to the time of beginning any of the Work that is affected by such error, inconsistency, omission, ambiguity, discrepancy, conflict or variance. The Owner will welcome such a clarification request, and, if deemed necessary by the Owner, the Owner will issue a written instruction clarifying the matter in question. If the Contractor feels that the written clarification requires additional work, the Contractor shall follow the change process in Article 12, Changes and Modifications in the Work.

Should the Contractor fail to seek such a clarification thereof immediately upon the discovery of the need therefor, prior to the time the said Work is performed, the Contractor thereby assumes all risk of loss related to such error, inconsistency, ambiguity, discrepancy, conflict or variance which the Contractor (and any person in contract with Contractor relating to the Work) knew or should have known, using a normal, professional standard of care, existed prior to the time the Work was performed.

4.8.4 Any material or operation specified by reference to publications, or published specifications of a manufacturer, a society, an association, a code, or other published standard, shall comply with the requirements of the referenced document which is current on the date of receipt of bids. If the Contractor

observes that any of the Contract Documents are at variance with any such referenced publications, codes, published specifications, or published standards in any respect, he shall promptly notify the A/E in writing, with a copy to the Owner. The A/E will make such judgments as are necessary and notify the Contractor prior to the performance of the Work.

- 4.8.5 If the Contractor performs any Work contrary to any law, code, ordinance, regulation, publication, standard, permit, rule, regulation or resolution, he shall assume full responsibility therefore and shall bear all costs attributable thereto.
- 4.8.6 The Contractor is responsible for locating all underground structures such as water, oil and gas mains, water and gas services, storm and sanitary sewers and telephone and electric conduits that may be encountered during construction. The Contractor shall have Miss Utility locate all utilities on the site within the area of the Work and shall dig test holes, to determine the position of the underground structures. The Contractor shall pay the cost of digging test holes and likewise he shall pay the cost of the services of the representatives of the owners of such utilities for locating the said utilities. The cost of determining the location of any and all utilities is to be included in the bid price. The Owner shall pay the owners of such utilities for fees or charges for relocation of gas, electric, telephone, cable or other lines and/or services indicated to be relocated by others.
- 4.8.7 If utilities are marked which are not shown on the plans, the Contractor shall immediately give Notice to the Owner and the A/E of such finding. The Owner and A/E shall provide a direction to the Contractor within a reasonable period of time if additional work is required as a result of the finding. If the Contractor believes that it requires additional work, the Contractor shall follow the change process in Article 12, Changes and Modifications in the Work.

4.9 ALLOWANCES

- 4.9.1 The Special Conditions, if any, will contain provisions for allowances, if applicable to this Contract.

4.10 SUPERINTENDENT

- 4.10.1 The Contractor shall employ and have present at the Project site a competent Superintendent and any necessary assistants to ensure adequate supervision of the Work. The Superintendent shall have full authority to represent the Contractor, and all communications given to the Superintendent shall be as binding as if given to the Contractor.
- 4.10.2 Such Superintendent shall be acceptable to the Owner and shall be one who will be continued in that capacity for duration of this Project, unless he ceases to be on the Contractor's payroll. The Superintendent shall not be employed on any other project during the performance of this Contract.

4.11 CONSTRUCTION SCHEDULE

- 4.11.1 The Contractor shall, within twenty (20) days after issuance of the Notice of Award, prepare and submit to the A/E and Owner for review, a reasonably practicable and feasible Construction Schedule, showing the method by which the Contractor will comply with Completion Date requirements as set forth in the Contract. Unless otherwise agreed in writing by Owner or indicated in the specifications, the Construction Schedule shall use the Critical Path Method ("CPM") and an industry-standard computer software program, such as Primavera, acceptable to Owner and A/E, and shall be provided in electronic and paper format. The Construction Schedule shall show in detail how the Contractor plans to execute and coordinate the Work. The Contractor shall use this schedule in the planning, scheduling, direction, coordination and execution of the Work. The Construction Schedule shall encompass all of the work of all trades necessary for construction of the Project and shall be sufficiently complete and comprehensive to enable progress to be monitored on a day-to-day basis. The Owner and A/E shall each be provided

with a copy of all schedules, updates, reports and other documentation required herein, which shall be suitable for reproduction by the Owner, and, unless otherwise agreed by Owner, shall be in electronic and paper format. When required to assist the A/E with Project staffing requirements for the following week, the Contractor shall provide the A/E, on each Friday, with a detailed work schedule for the following week. The Contractor shall provide the A/E with at least a seventy-two (72) hour notice for the following items: (1) All traffic lane changes, (2) Work ready for inspection or testing, (3) _____. The Contractor may be charged for additional costs of inspection when material and workmanship are found to not be ready for inspection or testing at the time the Contractor calls for inspection or testing.

- 4.11.2 It is the sole responsibility of the Contractor to prepare, maintain, update, revise and utilize the Construction Schedule as outlined in this Article 4.11, Construction Schedule. The Construction Schedule shall be the sole overall schedule utilized by the Contractor in managing this Project; provided, however, that Contractor may, at its option, employ and utilize other schedules based upon and consistent with the Construction Schedule. In general, it is the intent of this paragraph 4.11.2 to allow the Contractor to choose its own means, methods and construction procedures consistent with good practice and the Contract Documents.
- 4.11.3 If the Contractor should express an intention to complete the Work earlier than any required Milestone or Completion Date, including without limitation, in any schedule, the Owner shall not be liable to the Contractor for any delay or associated extra costs based upon the Contractor being unable to complete the Work before such earlier date. The duties, obligations and warranties of the Owner to the Contractor apply only to the completion of the Work on the Milestone and Completion Dates required by the Contract Documents and do not apply to early completion.
- 4.11.4 Submission to the Owner of the Construction Schedule is advisory only, does not satisfy any requirement for any notice required by the Contract Documents or the Lynchburg Public Procurement Code, and such submission shall not relieve the Contractor of the responsibility for accomplishing the Work within each and every required Milestone and Completion Date. Omissions and errors in the approved Construction Schedule shall not excuse performance that is not in compliance with the Contract Documents. Submission to the Owner and/or A/E in no way makes the Owner and/or A/E an insurer of the Construction Schedule's success or makes Owner and/or the A/E liable for time or cost overruns flowing from the Construction Schedule's shortcomings. The Owner hereby disclaims any obligation or liability by reason of Owner and/or A/E approval or failure to object to the Construction Schedule, and any such approval or failure to object shall not be considered an admission by the Owner that the Construction Schedule was reasonably practicable or feasible.
- 4.11.5 Contractor shall consult with and obtain information from principal Subcontractors necessary in preparation of the Construction Schedule, and for updates and revisions required therein. Contractor shall provide each principal Subcontractor with copies of the Construction Schedule and any revisions or updates affecting that Subcontractor's work. Contractor shall hold appropriate progress meetings with Subcontractors and shall direct and coordinate the work of Subcontractors consistent with and as required herein. Owner shall have the right to attend Subcontractor progress meetings but shall not be required to participate in such meetings or provide information to Subcontractors, except through the Contractor. Contractor shall keep up-to-date minutes of subcontractor progress meetings and shall provide same to Owner. The Contractor shall ensure that each Subcontractor, sub-subcontractor or supplier acknowledges and accepts the requirements of the Construction Schedule relating to their part of the Work.
- 4.11.6 If Contractor's Construction Schedule indicates that Owner, the A/E, or a separate contractor is to perform an activity by a specific date, or within a certain duration, Owner, the A/E, or any separate contractor shall not be bound to said date or duration unless Owner expressly and specifically agrees in writing to the same. The Owner's and/or A/E's overall review and acceptance or approval of the schedule does not constitute an agreement to specific dates or durations for activities of the Owner, A/E, or any separate contractor.

- 4.11.7 The Contractor's Superintendent shall maintain at the Project site a current, updated Construction Schedule, indicating actual monthly progress for those portions of the Project on which Work has been or is being performed.
- 4.11.8 If an extension or contraction of any Milestone or Completion Date is authorized by any Change Order, the Contractor shall revise his Construction Schedule, Milestone and Completion Dates accordingly.
- 4.11.9 If, in the opinion of the Owner, the Construction Schedule does not accurately reflect the actual progress and sequence of the Contractor's performance of the Work, the Contractor shall revise the Construction Schedule, upon the Owner's request, and submit a revised Construction Schedule that accurately represents the progress and sequence of the Contractor's performance of the Work.
- 4.11.10 Contractor shall submit to the Owner the name of any scheduling consultant that Contractor may select or retain, prior to using such consultant. Contractor shall not utilize any particular scheduling consultant over the reasonable objection of the Owner to that consultant.
- 4.11.11 Contractor covenants, warrants, and guarantees that Contractor will not:
- .1 Misrepresent to Owner its planning and scheduling of the Work;
 - .2 Utilize schedules materially different from those made available to the Owner or any subcontractors for the direction, execution and coordination of the Work, or which are not feasible or realistic;
 - .3 Prepare schedules, updates, revisions or reports that do not accurately reflect Contractor's actual intent or Contractor's reasonable and actual expectations as to:
 - (a) The sequences of activities,
 - (b) The duration of activities,
 - (c) The responsibility for activities,
 - (d) Resource availability,
 - (e) Labor availability or efficiency,
 - (f) Expected weather conditions,
 - (g) The value associated with the activity,
 - (h) The percentage complete of any activity,
 - (i) Completion of any item of work or activity,
 - (j) Project completion,
 - (k) Delays, slippages, or problems encountered or expected,
 - (l) Subcontractor requests for time extension, or delay claims of subcontractors, and
 - (m) If applicable, the float time available.

- 4.11.12 Contractor's failure to substantially comply with the foregoing covenants, warranties and guarantees of paragraph 4.11.11 shall be a substantial and material breach of contract which will permit Owner to terminate Contractor for default, or withhold payments under the Contract Documents, and shall entitle Owner to the damages afforded by these Contract Documents or applicable law.
- 4.11.13 Should Contractor fail to substantially comply with the provisions of the Contract Documents relating to scheduling and execution of the Work by the overall Construction Schedule, Owner shall have the right, at its option, to retain the services of scheduling consultants or experts (including attorneys if necessary in the opinion of the Owner) to prepare schedules, reports, updates and revisions of the schedule in accordance with the Contract Documents and to review and analyze same, in order to allow Owner and the A/E to evaluate the progress of the Work by Contractor, to determine whether Contractor is substantially complying with the Contract Documents, and to direct such action by the Contractor, as permitted by the Contract Documents, as required to ensure, under the Owner's schedule prepared hereunder, that Contractor will complete the Work within the Contract Time. All costs and expenses and fees incurred by Owner in exercising its rights hereunder shall be charged to Contractor's account. If Contractor fails to substantially comply with the scheduling and execution of the Work requirements of the Contract Documents, Contractor hereby agrees, in such instance, to comply with such Owner-prepared schedules, if any, or directions, activity sequences and durations as Owner may reasonably require, without additional cost to the Owner (subject only to cost adjustments for such changes in the Work as Owner may direct), to ensure completion within the Contract Time.
- 4.11.14 The Construction Schedule shall be utilized by Owner, A/E and Contractor for submission, review and approval of monthly Payment Requests. The schedule must be updated by Contractor monthly with each progress payment application and submitted to the Owner and A/E for review with the progress payment application. Owner shall not be required to process and review Contractor's Application for Payment if Contractor has failed or refused to provide the scheduling update information required herein.
- 4.11.15 The type of schedule to be utilized on this Project, along with its particular elements, shall be as specified in the Contract Documents.

4.12 RESPONSIBILITY FOR COMPLETION

- 4.12.1 The Contractor shall furnish such manpower, materials, facilities and equipment and shall work such hours, including night shifts, overtime operations and Sundays and holidays, as may be necessary to ensure the performance of the Work within the Milestone and Completion dates specified in the Contract. If the Owner notifies the Contractor that it has become apparent that the Work will not be completed within required Milestone or Completion Dates and such is not due solely to circumstances for which Contractor has established entitlement to an extension to the Contract Time, the Contractor agrees that it will assume full responsibility to take some or all of the following actions, at no additional cost to the Owner (except for circumstances beyond the Contractors' control), in order to ensure, in the opinion of the Owner, that the Contractor will comply with all Milestone and Completion Date requirements:
- .1 Increase manpower, materials, crafts, equipment and facilities;
 - .2 Increase the number of working hours per shift, shifts per working day, working days per week, or any combination of the foregoing; and
 - .3 Reschedule activities to achieve maximum practical concurrency of accomplishment of activities.

Failure of the Owner to notify the Contractor of the apparent delay shall not relieve Contractor of the obligation to finish the Work within the required Milestone or Completion date.

- 4.12.2 If the actions taken by the Contractor to remedy delays not due solely to circumstances for which Contractor has established entitlement to a time extension are not satisfactory, the Owner may direct the Contractor to take any and all actions necessary to ensure completion within the required Milestone and Completion Dates, without additional cost to the Owner. In such event, the Contractor shall continue to assume responsibility for his performance and for completion within the required dates.
- 4.12.3 If, in the opinion of the Owner, the actions taken by the Contractor pursuant to this Article or the progress or sequence of Work are not accurately reflected on the Construction Schedule, the Contractor shall revise such schedule to accurately reflect the actual progress and sequence of Work.
- 4.12.4 Failure of the Contractor to substantially comply with the requirements of this Article is grounds for a determination by the Owner, pursuant to Article 15, Termination Of The Contract, that the Contractor is failing to prosecute the Work with such diligence as will ensure its completion within the time specified.
- 4.12.5 The Owner may, at its sole discretion and for any reason, including when it is apparent to the A/E or Owner that the Work will not be completed within the required Milestone or Completion Dates, require the Contractor to accelerate the Construction Schedule by providing overtime, Saturday, Sunday and/or holiday work and/or by having all or any subcontractors designated by the Owner provide overtime, Saturday, Sunday, and/or holiday work. If the Owner requires overtime, Saturday, Sunday or holiday work by the Contractor's or his Subcontractor's own forces, and such requirement is not related in any way to the Contractor's apparent inability to comply with Milestone and Completion Date requirements, the Owner shall reimburse the Contractor for the direct cost to the Contractor of the premium time for all labor utilized by the Contractor in such overtime, Saturday, Sunday or holiday work (but not for the straight time costs of such labor), together with any Social Security and State or Federal unemployment insurance taxes in connection with such premium time. However, no overhead supervision costs, commissions, profit or other costs and expenses shall be payable in connection therewith.
- 4.12.6 This provision does not eliminate the Contractor's responsibility to comply with the City's noise ordinances, all VDOT permit requirements, and all other applicable laws, regulations, rules, ordinances, resolutions, and permit requirements.

4.13 DOCUMENTS AND SAMPLES AT THE SITE

- 4.13.1 The Contractor shall, at the Owner's direction, maintain at the site for the Owner one record copy of all drawings, specifications, addenda, Change Orders and other Modifications, and Field Orders in good order and marked currently to record all changes made during construction, and approved Shop Drawings, Product Data, Samples and Manuals. These shall be available to the A/E. These shall be delivered to the Owner upon completion of the Work.

4.14 SHOP DRAWINGS, PRODUCT DATA, SAMPLES AND MANUALS

- 4.14.1 SHOP DRAWINGS are drawings, diagrams, schedules and other data specially prepared for the Work by the Contractor or any Subcontractor, manufacturer, supplier or distributor to illustrate some portion of the Work.
- 4.14.2 PRODUCT DATA are illustrations, standard schedules, performance charts, instructions, brochures, diagrams and other information furnished by the Contractor to illustrate a material, product or system for some portion of the Work.
- 4.14.3 SAMPLES are physical examples that illustrate materials, equipment or workmanship and establish standards by which the Work will be judged.

- 4.14.4 MANUALS are manufacturer's installation, start-up, operating, maintenance and repair instructions, together with parts lists, pictures, sketches and diagrams that set forth the manufacturer's requirements, for the benefit of the Contractor and the Owner.
- 4.14.5 The Contractor shall review, approve and submit, with reasonable promptness and in such sequence as to cause no delay in the Work or in the work of the Owner or any separate contractor, all Shop Drawings, Product Data, Samples and Manuals required by the Contract Documents.
- 4.14.6 By approving and submitting Shop Drawings, Product Data, Samples and Manuals, the Contractor represents that he has determined and verified all materials, field measurements, and field construction criteria related thereto, and that he has checked and coordinated the information contained within such submittals with the requirements of the Work and of the Contract Documents.

Parts and details not fully indicated on the contract drawings shall be detailed by the Contractor in accordance with standard engineering practice. Dimensions on the drawings, as well as detailed drawings themselves, are subject in every case to measurements of existing, adjacent, incorporated and completed Work, which shall be taken by the Contractor before undertaking any Work dependent on such data.

- 4.14.7 The Contractor shall not be relieved of responsibility for any deviation from the requirements of the Contract Documents by the Owner or A/E's approval of Shop Drawings, Product Data, Samples or Manuals under Article 2, Architect/Engineer unless the Contractor has specifically informed the Owner and A/E in writing of such deviation at the time of submission and the Owner has given specific written approval to the specific deviation. The Contractor shall not be relieved from responsibility for errors or omissions in the Shop Drawings, Product Data, Samples or Manuals by the A/E's approval thereof.
- 4.14.8 The Contractor shall direct specific attention, in writing or on resubmitted Shop Drawings, Product Data or Samples, to revisions other than those requested by the Owner or A/E on previous submittals.

No portion of the Work requiring submission of Shop Drawings, Product Data, or Samples shall commence until the submittal has been approved by the Owner and A/E as provided in Article 2, Architect/Engineer. All such portions of the Work shall be in accordance with approved submittals.

- 4.14.9 For substances that are proposed for use in the Project that may be hazardous to human health, the Contractor shall submit to the A/E, for information only, information on precautions for safely using these substances, including Material Safety Data Sheets and certification of registration by the Contractor with authorities under the respective Virginia and Federal Toxic Substances Control Acts.
- 4.14.10 Unless otherwise modified by the Owner in writing, the Contractor shall label or stamp and number all Shop Drawings, Product Data, Samples or Manuals as prescribed by the Project Manager.
- 4.14.11 The Contractor shall submit a copy of each submittal, including the transmittal sheet (for shop drawings, product data, samples or manuals) to the Owner simultaneously with the Contractor's submission of said drawings, data, samples or manual packages to the A/E.

4.15 EQUAL PRODUCTS:

- 4.15.1 The term "Product" as used in the Contract Documents refers to materials, equipment, supplies, articles, fixtures, devices, types of construction, or products, as appropriate.
- 4.15.2 All products furnished shall, whenever specified and otherwise wherever practicable, be the standard products of recognized, reputable manufacturers. If the manufacturer cannot make scheduled delivery of an approved item, the Contractor may request approval of the A/E to use another brand, make, manufacturer, article, device, product, material, fixture, form or type of construction which the Contractor

judges to be equal to that specified. An item need not be considered by the A/E for approval as equal to the item so named or described unless it (1) it is at least equal in quality, durability, appearance, strength, and design; (2) it will perform at least equally the specific function imposed by the general design for the work being contracted for or the material being purchased; and (3) it conforms substantially, even with deviations, to the detailed requirements for the item in the specifications. Approval shall be at the sole discretion of the A/E and will be based upon considerations of quality, workmanship, economy of operation, suitability for the purpose intended, and acceptability for use on the project. Any such approval must be in writing to be effective, and the decision of the A/E shall be final.

4.15.4 To obtain such approval of equal products other than those specified in Contract Documents, and not previously approved during the bidding, the Contractor's request for approval of any equal product shall include the following:

- .1 Complete data substantiating compliance of the proposed equal product with the Contract Documents;
- .2 Accurate cost data on proposed equal product in comparison with product or method specified;
- .3 Product identification including manufacturer's name, address, and phone number;
- .4 Manufacturer's literature showing complete product description, performance and test data, and all reference standards;
- .5 Samples and colors in the case of articles or products;
- .6 Name and address of similar projects on which the product was used and date of installation;
- .7 All directions, specifications, and recommendations by manufacturers for installation, handling, storing, adjustment, and operation.

4.15.5 The Contractor shall also submit with his request for approval a statement which shall include all of the following representations by the Contractor, namely that:

- .1 He has investigated the proposed equal product and determined that it is equal or better in all respects to that specified and that it fully complies with all requirements of the Contract Documents;
- .2 He will meet all contract obligations with regard to this substitution;
- .3 He will coordinate installation of accepted equal products into the work, making all such changes and any required schedule adjustments, at no additional cost to the Owner, as may be required for the Work to be complete in all respects;
- .4 He waives all claims for additional costs and additional time related to equal products. He also agrees to hold the Owner harmless from claims for extra costs and time incurred by subcontractors and suppliers, or additional services which may have to be performed by the A/E, for changes or extra work that may, at some later date, be determined to be necessary in order for the Work to function in the manner intended in the Contract Documents;
- .5 He will provide the same warranty and guarantee, and perform any work required in accordance therewith, for the equal product that is applicable to the specified item for which the equal product is requested;

- .6 Material will be installed, handled, stored, adjusted, tested, and operated in accordance with the manufacturers' recommendation and as specified in the Contract Documents;
 - .7 In all cases, new materials will be used unless this provision is waived in writing by, the Owner or unless otherwise specified in the Contract Documents;
 - .8 All material and workmanship will be in every respect, in accordance with that which in the opinion of the Owner, is in conformity with approved modern practice; and
 - .9 He has provided accurate cost data on the proposed equal product in comparison with the product or method specified, if applicable.
- 4.15.6 The Owner may require tests of all products proposed as equal products so submitted to establish quality standards, at the Contractor's expense. After approval of an equal product, if it is determined that the Contractor submitted defective information or data regarding the equal product upon which Owner's approval was based, and that unexpected or unanticipated redesign or rework of the Project will be required in order to accommodate the equal product, or that the item will not perform or function as well as the specified item for which equal product was requested, the Contractor will be required to furnish the original specified item or request approval to use another equal product. The Contractor shall pay all costs, expenses or damages associated with or related to the unacceptability of such an equal product and the resultant utilization of another item, and no time extension shall be granted for any delays associated with or related to such an equal product.
- 4.15.7 Equal products will not be considered for approval by the Owner if:
- .1 The proposed equal product is indicated or implied on the Contractor's shop drawing or product data submittals and has not been formally submitted for approval by the Contractor in accordance with the above-stated requirements; or
 - .2 Acceptance of the proposed equal product will require substantial design revisions to the Contract Documents or is otherwise not acceptable to the Owner.
- 4.15.8 Except as otherwise provided for by the provisions of any applicable laws, the Contractor shall not have any right of appeal from the decision of the Owner disapproving any products submitted if the Contractor fails to obtain the approval for an equal product under this Article.
- 4.15.8 If the Contractor proposes a product which the Owner determines is not equal to the product named in Contract Documents but which the Owner nevertheless is willing to accept, Contractor shall provide, upon request by the Owner, an itemized comparison of the proposed substitution with the product specified and the cost differential which shall be credited to the Owner in a Change Order issued in accordance with Article 12, Changes and Modifications in the Work.

4.16 USE OF SITE

- 4.16.1 The Contractor shall confine his operations at the site to areas permitted by law, ordinances, permits, easements, right-of-way agreements and the Contract Documents. The Contractor shall not unreasonably encumber the site, in the opinion of the Owner, with any materials, equipment or trailers, nor shall Contractor block the entrances or otherwise prevent reasonable access to the site, other working and parking areas, completed portions of the Work and/or properties, storage areas, areas of other facilities that are adjacent to the worksite. If the Contractor fails or refuses to move said material, equipment or trailers within 24 hours of Notice by the Owner to so do, the Owner shall have the right, without further Notice, to remove, at the Contractor's expense, any material, equipment and/or trailers which the Owner deems are in violation of this paragraph.

4.17 CUTTING AND PATCHING OF WORK

- 4.17.1 The Contractor shall be responsible for all cutting, fitting or patching that may be required to complete the Work and to make its several parts fit properly and in accordance with the Contract Documents.
- 4.17.2 The Contractor shall not damage or endanger any portion of the Work or the work of the Owner or any separate contractors by cutting, patching or otherwise altering any work, or by excavation. The Contractor shall not cut or otherwise alter the work of the Owner or any separate contractor except with the written consent of the Owner and of such separate contractor. The Contractor shall not unreasonably withhold from the Owner or any separate contractor Contractor's consent to cutting or otherwise altering the Work. The Owner shall not be required to accept Work with a cut, splice, or patch when such cut, splice or patch is not generally accepted practice for the particular work involved or is otherwise unworkmanlike in the opinion of the Owner.

4.18 SITE CLEAN UP

- 4.18.1 The Contractor at all times shall keep the Project site and adjacent areas free from accumulation of waste materials or rubbish caused by his operations. Before final payment is made, the Contractor shall remove all of his waste materials, rubbish, scrap materials, debris, tools, construction equipment, machinery, surplus materials, falsework, temporary structures, including foundations thereof and plant of any description, from the Project site and put the site in a neat, orderly condition.
- 4.18.2 If the Contractor fails to clean up as required herein at any time during the performance of the Work or at the completion of the Work, the Owner may, upon 24 hours notification, clean up the site at the Contractor's expense.

4.19 PATENTS, ROYALTIES, ETC.

- 4.19.1 The Contractor guarantees to save harmless the Owner, its officers, agents, servants and employees from liability of any kind or nature, including without limitation, cost, expense and attorney's fees, on account of suits and claims of any kind for violation or infringement of any patents or patent rights by the Contractor, or by anyone directly or indirectly employed by him, or by reason of the use of any art, process, method, machine, manufacture, or composition of matter patented or unpatented in the performance of this Contract in violation or infringement of any letter or rights. The Contractor agrees to pay all royalties, fees, licenses, etc. required in respect of the Work or any part thereof as part of his obligations hereunder without any additional compensation.

4.20 INDEMNIFICATION

- 4.20.1 It is hereby mutually covenanted and agreed that the relation of the Contractor to the Work to be performed by him under this Contract shall be that of an independent contractor and that as such he will be responsible for all damages, loss or injury, including death, to persons or property that may arise or be incurred in or during the conduct and progress of said work as the result of any action, omission or operation under the Contract or in connection with the Work, whether such action, omission or operation is attributable to the Contractor, subcontractor, any material supplier, or anyone directly or indirectly employed by any of them. The Contractor shall make good any damages that may occur in consequence of the Work or any part of it. The Contractor shall assume all liability, loss and responsibility of whatsoever nature by reason of his neglect or violation of any federal, state, county or local laws, regulations, codes or ordinances.
- 4.20.2 The Contractor shall indemnify, hold harmless and defend the Owner, its employees, agents, servants and representatives from and against any and all claims, suits, demands, actions (regardless of the merits thereof) and damages of whatever nature arising out of or resulting from the performance of the Work or the failure to perform the Work, including without limitation, jurisdictional labor disputes or other labor troubles that may occur during the performance of the Work.
- 4.20.3 The indemnification obligations under this Article shall not be affected in any way by any limitation on the amount or type of damages, compensation or benefits payable by or for the Contractor or any Subcontractor under worker's or workman's compensation acts, disability benefit acts or other employee benefit acts.
- 4.20.4 The obligations of the Contractor under this Article 4.20 shall not extend to the actions or omissions of the A/E, his agents or employees, arising out of the preparation or approval of maps, drawings, opinions, reports, surveys, change orders, designs or specifications.
- 4.20.5 The obligations of the Contractor under this Article 4.20 shall not extend to the proportion of damages, loss or injury, including death, to persons or property that may arise or be incurred as the result of any action, omission or operation of the Owner, or Owner's separate contractor(s), and their employees, agents, servants, and/or representatives.

4.21 NON-DISCRIMINATION IN EMPLOYMENT

4.21.1 During the performance of this Contract, the Contractor agrees as follows:

- .1 The Contractor will not discriminate against any employee or applicant for employment because of race, religion, color, sex, national origin, age, disability, or any other basis prohibited by state law relating to discrimination in employment, except where there is bona fide occupational qualification reasonably necessary to the normal operation of the Contractor. The Contractor agrees to post in conspicuous places, available to employees and applicants for employment, notices setting forth the provisions of this nondiscrimination clause.
- .2 The Contractor, in all solicitations or advertisements for employees placed by or on behalf of the Contractor, will state that such Contractor is an equal opportunity employer.
- .3 Notices, advertisements and solicitations placed in accordance with federal law, rule or regulation shall be deemed sufficient for the purpose of meeting the requirements of this section.

- .4 The Contractor will include the provisions of the foregoing paragraphs 1, 2, and 3 in every subcontract or purchase order of over \$10,000, so that the provisions will be binding upon each subcontractor or vendor.

4.21.2 DRUG-FREE WORKPLACE REQUIRED:

As required by section 2.2-4312 of the Code of Virginia during the performance of the Contract, Contractor agrees to (i) provide a drug-free workplace for the contractor's employees; (ii) post in conspicuous places, available to employees and applicants for employment, a statement notifying employees that the unlawful manufacture, sale, distribution, dispensation, possession, or use of a controlled substance or marijuana is prohibited in the Contractor's workplace and specifying the actions that will be taken against employees for violations of such prohibition; (iii) state in all solicitations or advertisements for employees placed by or on behalf of the Contractor that the Contractor maintains a drug-free workplace; and (iv) include the provisions of the foregoing clauses in every subcontract or purchase order of over \$10,000, so that the provisions will be binding upon each subcontractor or vendor.

For the purposes of this Article 4.21, "drug-free workplace" means a site for the performance of Work done in connection with this Contract where Contractor's employees are prohibited from engaging in the unlawful manufacture, sale, distribution, dispensation, possession or use of any controlled substance or marijuana during the performance of the Contract.

4.22 CONTRACT SECURITY

- 4.22.1 The Contractor shall deliver to the Owner, within ten (10) working days from Notice of Award, two (2) originals of a Performance Bond and a separate Labor and Material Payment Bond, in a form acceptable to the Owner, and each in an amount required by the Contract Documents and the Virginia Public Procurement Act, as security for the faithful performance of the Contract, and the payment of all persons performing labor and furnishing materials in connection with this Contract. The City will not issue Notice to Proceed until the bonds are received. The amount of the Performance and Payment Bonds shall be increased to the same extent the Contract Sum is increased due to Modifications. The form of bonds shall be acceptable to the Owner, and the surety shall be such surety company or companies as are acceptable to the Owner and as are authorized to transact business in the Commonwealth of Virginia. The cost of such bonds shall be included in the Contractor's bid amount.
- 4.22.2 The bonds shall irrevocably obligate the Contractor and surety to the full amount of the bonds unless and until all of Contractor's obligations under the Contract Documents have fully been fulfilled.
- 4.22.3 If, at any time, any surety or sureties for any bond relating to the Work becomes insolvent or is determined by the Owner to be unable to adequately secure the interest of the Owner, the Contractor shall, within (30) days after Notice from the Owner to do so, substitute an acceptable bond(s) in such form and sum and with such other sureties as obligors as may be satisfactory to the Owner. The premiums on such bond(s) shall be paid by the Contractor.

ARTICLE 5 SUBCONTRACTORS

5.1 DEFINITIONS

- 5.1.1 A Subcontractor is a person or entity who has a direct contract with the Contractor to perform or supply any of the Work at the site. Subcontractor means a Subcontractor or his authorized representative. The term Subcontractor does not include any separate contractor performing work pursuant to Article 6 or his subcontractors.

- 5.1.2 A Sub-subcontractor is a person or entity who has a direct or indirect contract with a Subcontractor to perform or supply any of the Work at the site. The term Sub-subcontractor includes a Sub-subcontractor or an authorized representative thereof.
- 5.1.3 The A/E will not deal directly with any Subcontractor or Sub-subcontractor or materials supplier. Subcontractor, Sub-subcontractors or material suppliers shall route requests for information or clarification through the Contractor to the A/E, with a copy to the Owner.

5.2 AWARD OF SUBCONTRACT AND OTHER CONTRACTS FOR PORTIONS OF THE WORK

- 5.2.1 The Contractor shall submit to the Owner with a copy to the A/E prior to the award of any subcontract for Work under this Contract and thirty (30) calendar days after the award of this Contract, the names of the suppliers of principal items, systems, materials, and equipment proposed for the Work; the names and addresses, business and emergency phones of the Subcontractors which he proposes to employ under this Contract, as well as such other information as may be requested by the Owner. The Owner will review each Subcontractor and supplier based upon his apparent financial soundness and responsibility, his known or reported performance on previous similar work, and his available plant, equipment and personnel to perform the Work. The Contractor shall not employ a Subcontractor or supplier to whom the Owner reasonably objects. The Owner's objection to a proposed Subcontractor or supplier shall not affect the Contract Sum.
- 5.2.2 The Contractor shall make no substitutions for any Subcontractor, person or entity previously selected unless first submitted to the Owner for review and approval.

5.3 SUBCONTRACTUAL RELATIONS

- 5.3.1 By an appropriate written agreement, the Contractor shall require each Subcontractor, to the extent of the Work to be performed by the Subcontractor, to be bound to the Contractor by the terms of the Contract Documents, and to assume toward the Contractor all the obligations and responsibilities which the Contractor, by these Contract Documents, assumes toward the Owner and the A/E. Said agreement shall preserve and protect the rights of the Owner and the A/E under the Contract Documents with respect to the Work to be performed by the Subcontractor so that the subcontracting thereof will not prejudice such rights, and shall allow to the Subcontractor, unless specifically provided otherwise in the Contractor-Subcontractor agreement, the benefit of all rights, remedies and redress against the Contractor that the Contractor, by these Contracts Documents, has against the Owner. Where appropriate, the Contractor shall require each Subcontractor to enter into similar agreements with his Sub-subcontractors. The Contractor shall make available to each proposed Subcontractor, prior to the execution of the subcontract, copies of all of the Contract Documents, and identify to the Subcontractor any terms and conditions of the proposed subcontract which may be at variance with the Contract Documents. Each Subcontractor shall similarly make copies of such Contract Documents available to his Sub-subcontractor's. Each subcontract agreement shall insure that all appropriate provisions of the Contract Documents are complied with by the Subcontractor.
- 5.3.2 The provisions herein regarding the City's reasonable objection to any Subcontractor shall in no way affect the liability of the Contractor to Owner regarding performance of all obligations by or payment of Subcontractors. The City's failure to object to any given Subcontractor shall not relieve the Contractor of his obligation to perform or have performed to the full satisfaction of the Owner all of the work required by this Contract.
- 5.3.3 Neither this article nor any other provision of the Contract Documents shall be deemed to make the Owner a joint venture or partner with the Contractor or to place the Subcontractor and materialmen in privity of contract with the Owner.

5.4 QUALIFICATION SUBMITTALS

- 5.4.1 Specific qualification submittals may be required of the Contractor, Subcontractors, installers and suppliers for certain critical items of the Work. Required qualification submittals are set forth in detail in the Instruction to Bidders and shall be provided, collected and submitted by the Contractor to the A/E with copies to the Owner. All information required of a single Subcontractor, installer or supplier shall be contained in a single, complete submittal. The Contractor shall submit the required qualification information within ten (10) days after receipt of the Owner's request.
- 5.4.2 The Owner may reject any proposed Subcontractor, installer or supplier, or any qualification submittals related thereto, for the following reasons:
- .1 The Contractor's failure to submit requested information within the specified time; or
 - .2 The Contractor's failure to provide all of the requested information; or
 - .3 The Contractor's submission of a Subcontractor, installer or supplier, or qualifications thereof, which are unacceptable in the judgment of the Owner.
- 5.4.3 Should the Owner have reasonable objection to any proposed Subcontractor, installer or supplier, the Contractor shall submit another firm for approval by the Owner at no additional cost to the Owner.

ARTICLE 6 WORK BY OWNER OR BY SEPARATE CONTRACTORS

6.1 OWNER'S RIGHT TO PERFORM WORK AND TO AWARD SEPARATE CONTRACTS

- 6.1.1 The Owner reserves the right to perform work related to the Project with his own forces, and to award separate contracts in connection with other portions of the Project or other work on the site.
- 6.1.2 When separate contracts are awarded for different portions of the Project or other work on the site, the term "contractor" in the contract documents in each case shall mean the contractor who executes each separate construction agreement.

6.2 MUTUAL RESPONSIBILITY

- 6.2.1 The Contractor shall afford other contractors and the Owner reasonable opportunity for the introduction and storage of their materials and equipment and the execution of their work and shall properly connect and coordinate the Work with such other work. The Contractor shall coordinate his Work with the Owner and other contractors and store his apparatus, materials, supplies and equipment in such orderly fashion at the site of the Work as will not unduly interfere with the progress of the Work or the work of any other contractors.
- 6.2.1.1 If the execution or result of any part of the Work depends upon any work of the Owner or of any separate contractor, the Contractor shall, prior to proceeding with the Work, inspect and promptly report to the Owner in writing any apparent discrepancies or defects in such work of the Owner or of any separate contractor that render it unsuitable for the proper execution or result of any part of the Work.
- 6.2.1.2 Failure of the Contractor to so inspect and report shall constitute an acceptance of the Owner's or separate contractor's work as fit and proper to receive the Work, except as to defects which may develop in the Owner's or separate contractor's work after completion of the Work and which the Contractor could not have discovered by its inspection prior to completion of the Work.

6.2.2 Should the Contractor cause damage to the work or property of the Owner or of any separate contractor on the Project, or to other work on the site, or delay or interfere with the Owner's work on ongoing operations or facilities or adjacent facilities or said separate contractor's work, the Contractor shall be liable for the same; and, in the case of another contractor, the Contractor shall attempt to settle said claim with such other contractor prior to such other contractor's institution of litigation or other proceedings against the Contractor.

If such separate contractor sues the Owner on account of any damage, delay or interference caused or alleged to have been so caused by the Contractor, the Owner shall notify the Contractor, who shall defend the Owner in such proceedings at the Contractor's expense. If any judgment or award is entered against the Owner, the Contractor shall satisfy the same and shall reimburse the Owner for all damages, expenses, and other costs that the Owner incurs as a result thereof.

6.2.3 Should Contractor have a dispute with a separate contractor with whom the Owner has contracted regarding damage to the Work or the property of Contractor or to the Work or property of said separate contractor or with regard to any delays or interferences which either Contractor or said separate contractor has caused to the performance of the other's Work, Contractor agrees to attempt to settle such dispute directly with said separate contractor. Contractor agrees that it will not seek to recover from the Owner any damages, costs, expenses (including, but not limited to, attorney's fees) or losses of profit incurred by the Contractor as a result of any damage to the Work or property of the Contractor or for any delay or interference caused or allegedly caused by any separate contractor.

6.3 OWNER'S RIGHT TO CLEAN UP

6.3.1 If a dispute arises between the Contractor and separate contractors as to their responsibility for cleaning up as required by Article 4, Contractor, the Owner may clean up and charge the cost thereof to the contractor responsible as the Owner shall determine to be just.

ARTICLE 7 MISCELLANEOUS PROVISIONS

7.1 GOVERNING LAW

The provisions of this Contract shall be interpreted in accordance with the laws of the Commonwealth of Virginia.

7.2 PROVISIONS REQUIRED BY LAW DEEMED INSERTED

Each and every provision of law and clause required by law to be inserted in this Contract shall be deemed to be inserted herein, and the Contract shall be read and enforced as though it were included herein and if through mistake or otherwise, any such provision is not inserted or is not correctly inserted, then upon the application of either party, the Contract shall forthwith be physically amended to make such insertion.

7.3 SUCCESSORS AND ASSIGNS

The Owner and the Contractor each binds himself, his partners, successors, assigns and legal representatives to the other party hereto and to the partners, successors, assigns and legal representatives of such other party in respect to all covenants, agreements and obligations contained in the Contract Documents. Neither party to the Contract shall assign the Contract or sublet it without the written consent of the other, nor shall the Contractor assign any monies due or to become due to him hereunder, without the previous written consent of the Owner and the Contractor's surety.

In the event the Contractor desires to make an assignment of all or part of the Contract or any monies due or to become due hereunder, the Contractor shall file a copy of consent of surety, together with a copy of the assignment to the Owner and A/E. In the event the Contractor assigns all or any part of the monies due or to become due under this Contract, the instrument of assignment shall state that the right of assignees in and to any monies due to or to become due to Contractor shall be subject to prior liens and claims of all persons, firms and corporations that provided labor services or furnished material and equipment during the performance of the Work. The rights of assignees shall further be subject to the payment of any liens, claims, or amounts due to Federal, state, or local governments.

7.4 RIGHTS AND REMEDIES

- 7.4.1 The duties and obligations imposed by the Contract Documents and the rights and remedies available thereunder shall be in addition to, and not a limitation of, any duties, obligations, rights and remedies otherwise imposed or available by law, not inconsistent with the Contract Documents. No time limitations described in this Contract shall be construed to alter the applicable statutory period of limitations with regard to the enforcement of the obligations of the parties.
- 7.4.2 No action or failure to act by the Owner, A/E or Contractor shall constitute a waiver of any right or duty afforded any of them under the Contract, nor shall any such action or failure to act constitute an approval of or acquiescence in any breach thereunder, except as may be specifically agreed in writing.
- 7.4.3 Contractor agrees that he can be adequately compensated by money damages for any breach of this Contract which may be committed by the Owner and hereby agrees that, no default, act, or omission of the Owner or the A/E, except for failure to make payments as required by the Contract Documents, shall constitute a material breach of the Contract entitling Contractor to cancel or rescind the provisions of this Contract or (unless the Owner shall so consent or direct in writing) to suspend or abandon performance of all or any part of the Work. Contractor hereby waives any and all rights and remedies to which he might otherwise be or become entitled, saving only its right to money damages.

7.5 SEVERABILITY

In the event that any provision of this Contract shall be adjudged or decreed to be invalid, such ruling shall not invalidate the entire agreement but shall pertain only to the provision in question and the remaining provisions shall continue to be valid, binding, and in full force and effect.

7.6 TESTS

- 7.6.1 If the Contract Documents, laws, ordinances, rules, regulations, codes, permits, resolutions or orders of any public authority having jurisdiction require any portion of the Work to be inspected, tested or approved, the Contractor shall give the Owner at least 24 hours notice of its readiness so that the Owner or the A/E or other representatives of the Owner may observe such inspection, testing or approval. The Contractor shall bear all costs of such inspections, tests or approvals conducted by public authorities. Site inspections, tests conducted on site or tests of materials gathered on site, which the Contract requires to be performed by independent testing entities, shall be contracted and paid for by the Contractor. Examples include, but are not limited to, the testing of cast-in-place concrete, foundation materials, soil compaction, pile installations, caisson bearings, and steel framing connections.
- 7.6.2 All materials and workmanship (if not otherwise designated by the specifications) shall be subject to inspection, examination or test by the Owner, A/E, and other representatives of the Owner, at any and all times during the manufacture and/or construction and at any and all places where such manufacture and/or construction are carried on. Special, full-sized and performance tests shall be as described in the specifications. Without additional charge, the Contractor shall furnish promptly all reasonable facilities, labor and materials necessary to make tests safe and convenient.

- 7.6.3 The selection of bureaus, laboratories and/or agencies for the inspection and tests of supplies, materials or equipment shall be subject to the approval of the Owner. Satisfactory documentary evidence, including but not limited to certificates of inspection and certified test reports that the material has passed the required inspection and tests must be furnished to the Owner, with a copy to the A/E, by the Contractor prior to the incorporation of the supplies, materials or equipment into the Work or at such times as to allow for appropriate action by the Owner.
- 7.6.4 Inspection or testing performed exclusively for the Contractor's convenience shall be the sole responsibility of the Contractor. Tests required by Contractor's or Subcontractor's error, omission or non-compliance with the Contract Documents, shall be paid for by the Contractor.
- 7.6.5 It is specifically understood and agreed that an inspection and approval of the materials by the Owner shall not in any way subject the Owner to pay for the said materials or any portion thereof, even though incorporated in the Work, if said materials shall in fact turn out to be unfit to be used in the Work, nor shall such inspection be considered as any waiver of objection to the Work on account of the unsoundness or imperfection of the material used.

ARTICLE 8 CONTRACT TIME

8.1 DEFINITION

- 8.1.1 Unless otherwise provided, the Contract Time is the period of time specified in the Contract Documents for Substantial Completion of the Work as defined herein, including authorized adjustments thereto. The Contractor shall complete his Work within the Contract Time.
- 8.1.2 The date of commencement of the Work is the date established in the Notice to Proceed
- The Contractor shall not commence Work or store materials or equipment on site until written Notice to Proceed is issued or until the Contractor otherwise receives the Owner's written consent. The Contractor shall commence work no later than ten (10) days after the date established in the Notice to Proceed.
- 8.1.3 The date of Substantial Completion of the Work or designated portion thereof is the date determined by Owner when: (1) construction is sufficiently complete, in accordance with the Contract Documents, so the Owner can occupy or utilize the Work or designated portion thereof for the use for which it is intended; and (2) the Contractor has satisfied all other requirements for Substantial Completion which may be set forth in the Contract Documents.
- 8.1.4 The date of Final Completion of the Work is the date determined by the Owner when the Work is totally complete, to include punch list work, in accordance with the Contract Documents and the Owner may fully occupy and utilize the Work for the use for which it is intended.
- 8.1.5 The term "day" as used in the Contract Documents shall mean calendar days unless otherwise specifically designated.

8.2 PROGRESS AND COMPLETION

- 8.2.1 All time limits stated in the Contract Documents, including without limitation the date of Substantial Completion of the Work, are of the essence of the Contract.
- 8.2.2 The Contractor shall begin the Work on the date of commencement as defined herein. He shall carry the Work forward expeditiously with adequate forces and shall achieve Substantial and Final Completion as required by the Contract Documents.

8.3 CLAIMS FOR TIME EXTENSIONS

- 8.3.1 The time during which the Contractor is delayed in the performance of the Work by the acts or omissions of the Owner, the A/E or their employees or agents, acts of God, unusually severe and abnormal climatic conditions, fires, floods, epidemics, quarantine restrictions, strikes, riots, civil commotion or freight embargoes, or other conditions beyond the Contractor's control and which the Contractor could not reasonably have foreseen and provided against, shall be added to the time for completion of the Work (i.e., the Contract Time) stated in the Agreement; however, no claim by the Contractor for an extension of time for delays will be considered unless made in compliance with the requirements of this Article and other provisions of the Contract Documents.
- 8.3.2 The Owner shall not be obligated or liable to the Contractor for, and the Contractor hereby expressly waives any claims against the Owner on account of, any indirect or direct damages, costs or expenses of any nature which the Contractor, its Subcontractors, or Sub-subcontractor's or any other person may incur as a result of (1) any delays, reasonable or unreasonable, foreseeable or unforeseeable, which are either not caused by the acts or omissions of the Owner, its agents or employees or which arise from or out of (or due to) causes not within the control of the Owner, its agents or employees, or (2) any reasonable delay regardless of its cause, it being understood and agreed that the Contractor's sole and exclusive remedy in any such events shall be an extension of the Contract Time, but only as determined in accordance with the provisions of the Contract Documents.
- 8.3.3 The burden of proof to substantiate a claim for an extension of the Contract Time shall rest with the Contractor, including evidence that the cause was beyond his control. It shall be deemed that the Contractor has control over the supply of labor, materials, equipment, methods and techniques of construction and over the Subcontractors, Sub-contractors, and suppliers, unless otherwise specified in the Contract Documents.
- 8.3.4 In the event of changes in the Work, the Contractor must identify any additional time required in the Proposed Change Order. The Owner need not consider any time extensions for changes in the Work not included in the Proposed Change Order.
- 8.3.5 No time extensions will be granted as a result of the Contractor's improper or unreasonable scheduling or for the Contractor's failure to have Shop Drawings, Product Data, Samples or Manuals submitted in ample time for review under a reasonable and agreed upon schedule.
- 8.3.6 Delays by Subcontractors, Sub-subcontractors or suppliers will not be considered justification for a time extension, except for the same valid reasons and conditions enumerated herein.
- 8.3.7 The Contractor acknowledges and agrees that actual delays due to changes, suspension of work or excusable delays, in activities which, according to the Construction Schedule, do not affect the Contract Time will not be considered to have any effect upon the Contract Time and therefore will not be the basis for a time extension.
- 8.3.8 The Contractor acknowledges and agrees that time extensions will be granted only to the extent that: (1) excusable delays exceed the available flexibility in the Contractor's schedule; and (2) Contractor can demonstrate that such excusable delay actually caused, or will cause, delay to the Contractor's schedule that will extend the Contract Time.
- 8.3.9 With respect to Suspensions of Work under Paragraph 3.6, Suspension of Work, herein, the Contractor shall be entitled to an extension of the Contract Time not to exceed the length of time that the Work was suspended (unless as determined under this Article and the other requirements of the Contract Documents that a further extension is justified and warranted) if the claim is submitted in accordance with the

requirements of this Article, and if the suspension is not due to any act or omission of the Contractor, any Subcontractor or Sub-subcontractor or any other person or organization for whose acts or omission the Contractor may be liable. The Contractor's claim will be evaluated in accordance with the terms of this Article.

- 8.3.10 The Contractor shall not be entitled to any extension of time for delays resulting from any conditions or other causes unless it shall have given written Notice to the Owner, within seven (7) calendar days following the commencement of each such condition or cause, describing the occurrence, the activities impacted and the probable duration of the delay. The Contractor's complete claim submittal for a time extension shall be submitted no later than twenty (20) calendar days after cessation of the delay or within such other longer period as the Owner may agree in writing to allow.
- 8.3.11 No such extension of time shall be deemed a waiver by the Owner of his right to terminate the Contract for abandonment or delay by the Contractor as herein provided or to relieve the Contractor from full responsibility for performance of his obligations hereunder.

8.4 CHANGE ORDER WORK

- 8.4.1 The Contractor shall make every reasonable effort to perform Change Order work within the Contract Time and in such manner as to have minimum delaying effects on all remaining Work to be performed under the Contract. If, however, the Change Order work results in an unavoidable increase in the time required to complete the Work, an extension of the Contract Time may be granted to the Contractor for the Change Order work. The Contractor's request shall be determined in accordance with the provisions of Article 8.3, Claims for Time Extensions, herein and as follows:
- .1 If the time required for performance of the Change Order work has an unavoidable, direct, delaying effect on the primary sequence of Work activities remaining after rescheduling (e.g., the critical path in CPM type scheduling), the overall Contract Time may be extended by the minimum number of days required for the Change Order work as mutually agreed upon by the Owner and the Contractor;
 - .2 If the time required for performance of the Change Order work does not have an unavoidable direct delaying effect on the primary sequence of Work activities but is ordered by the Owner at a time such that insufficient Contract Time remains for completion of the Change Order work (and any limited number of contingent work activities), the Contract Time may be extended by the minimum number of days required for the Change Order work as mutually agreed upon by the Owner and the Contractor but only for the Change Order work and contingent activities, All other unaffected Work shall be performed within the Contract Time;
 - .3 Failure of the Owner and the Contractor to agree on a Contract Time extension as specified in .1 and .2 above shall not relieve the Contractor from proceeding with and performing the Change Order work promptly, as well as in such manner as to have minimal delaying effects on all remaining Work to be performed under the Contract. Such disagreement shall be resolved as soon as practical by negotiation.

8.5 LIQUIDATED DAMAGES FOR DELAY

- 8.5.1 The damages incurred by the Owner due to the Contractor's failure to complete the Work within required Milestone Dates and the Contract Time, including any extensions thereof, shall be in the amount set forth in the Construction Agreement, for each consecutive day beyond the Milestone Dates or the Contract Time (Sundays and all holidays included) for which the Contractor shall fail to complete the Work.

8.5.2 The parties hereby agree that the amount of liquidated damages provided in this Contract is neither a penalty nor a forfeiture and is intended to compensate the Owner solely for the Owner's inability to use the Work for its fully intended purpose, and is not intended to, nor does said amount include: (1) any damages, additional or extended costs, incurred by the Owner for extended administration of this Contract, or by the Owner's agents, consultants or independent contractors for extended administration of this Contract, or (2) any additional services, relating to or arising as a result of the delay in the completion of the Work. Owner shall be entitled to claim against Contractor for its actual damages ~~and~~ for any damages not specifically included within the liquidated damages as set forth herein. Such damages shall be computed separately, and, together with liquidated damages, either deducted from the Contract Sum or billed to the Contractor, at the option of the Owner.

Contractor agrees that it will not challenge the per diem amounts of liquidated damages imposed pursuant to this Article 8.5 except as to whether Contractor is responsible for the delays, themselves, that have resulted in the assessment of liquidated damages. The Contractor waives any challenge as to the validity of any liquidated damages specified on the grounds that such liquidated damages allegedly are void as penalties or allegedly are not reasonably related to Owner's actual damages.

Owner may, in its sole discretion, deduct from any payments otherwise due Contractor amounts of liquidated damages assessable under this Article 8.5. Owner's failure to deduct liquidated damages assessable under this Article 8.5 from payments to Contractor shall not be deemed a waiver by Owner of any entitlement to such liquidated damages.

8.6 TIME EXTENSIONS FOR WEATHER

8.6.1 The Contract Time will not be extended due to inclement weather conditions that are normal to the general locality of Work site. The time for performance of this Contract includes an allowance for workdays (based on a 5-day workweek) which, according to historical data, may not be suitable for construction work.

.1 The following is the schedule of monthly anticipated normal inclement weather workdays for the Project location and will constitute the base line for monthly weather time extension evaluations.

ANTICIPATED NORMAL INCLEMENT WEATHER WORK-DAYS INCLUDED IN THE CONTRACT TIME OF PERFORMANCE											
JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
7	7	7	7	9	7	7	7	6	6	6	7

8.6.2 The Contractor, in his planning and scheduling of the Work as required by the Contract Documents, shall allow for the normal inclement weather for the locality of the Work site. If the Contractor believes that the progress of the Work has been adversely affected and that it will directly result in a failure to meet Substantial Completion within the Contract Time, by weather conditions above and beyond the amount normally expected, he shall submit a written request to the Owner, with a copy to the A/E, for an extension of time, pursuant to Paragraph 8.3, Claims for Time Extensions.

8.6.3 Such request shall be evaluated by the Owner in accordance with the provisions of the Contract Documents and shall include a comparison of actual weather statistics compiled by City of Lynchburg's Department of Public Works, for the time of year, locality of the particular Work site with the days claimed by the Contractor and the anticipated normal inclement weather as stated in subparagraph 8.6.1. The normal inclement weather expected has been included in the designated Contract Time for completion. The decision of the Owner shall be final.

- 8.6.4 The Contractor shall not be entitled to any money damages whatsoever for any delays resulting from inclement weather, whether normal or abnormal, foreseeable or unforeseeable. The Contractor and Owner stipulate and agree that, for delays due to weather as determined in 8.6.3, the Contractor's sole relief is a time extension granted in accordance with this Article 8.6, Time Extensions for Weather.

ARTICLE 9 PAYMENTS AND COMPLETION

9.1 CONTRACT SUM

- 9.1.1 The Contract Sum is stated in the Construction Agreement and, including authorized adjustments thereto, is the total amount payable by the Owner to the Contractor for the performance of the Work under the Contract Documents. The Contract Sum includes, but is not limited to, the Contractor's profit and general overhead and all costs and expenses of any nature whatsoever (including without limitation taxes, labor, equipment and materials), foreseen or unforeseen, and any increases in said costs and expenses, foreseen or unforeseen, incurred by the Contractor in connection with the performance of the Work, all of which costs and expenses shall be borne solely by the Contractor. The Contractor agrees to assume all increases in costs of any nature whatsoever that may develop during the performance of the Work.

9.2 SCHEDULE OF VALUES

- 9.2.1 For Lump Sum Price contracts, before the pre-construction meeting, the Contractor shall submit to the Owner and A/E a schedule of values allocated to the various portions of the Work, prepared on payment forms provided by the Owner and supported by such data to substantiate its accuracy as the Owner may require. This schedule of values, unless rejected by the Owner, shall be used as a basis for the Contractor's Applications for Payment.
- 9.2.2 For Unit Price contracts, the Contractor shall utilize the payment request form provided by the Owner, wherein the schedule of values shall correspond with the individual unit price bid items. When so requested by the Owner, the Contractor shall provide a more detailed cost breakdown of the unit price items.
- 9.2.3 Contractor may include in his schedule of values a line item for "mobilization" which shall include a reasonable amount for mobilization for the Contractor and his Subcontractors. The Contractor shall not front-end load his schedule of values.

9.3 APPLICATION FOR PAYMENT

- 9.3.1 The Contractor shall submit to the A/E three (3) originally executed, itemized Applications for Payment (and one (1) copy to the Owner) by the tenth of each month, along with any authorized change orders for that billing cycle. The Applications for Payment shall be notarized, indicate in complete detail all labor and material incorporated in the Work during the month prior to submission, and supported by such data substantiating the Contractor's payment request as the Owner may require. The Applications for Payment shall also contain Contractor's certification that due and payable amounts and bills have been paid by the Contractor for Work for which previous Certificates of Payment were issued and payments received from the Owner.
- 9.3.2 Payment may be made for the value of materials, which are to be incorporated into the finished Work, and which are delivered to and suitably stored and protected on the Work site. The Contractor shall provide releases or paid invoices from the seller of such materials to establish, to the Owner's satisfaction, that the Owner has title to said material. Stored materials shall be in addition to the Work completed and shall be subject to the same retainage provisions as the completed Work. Material once paid for by the Owner becomes the property of the Owner and may not be removed from the Work site without the Owner's written permission.

- 9.3.3 The requirements for payment for materials stored off-site shall include, but are not limited to, those specified in Paragraph 9.3.2 and the additional requirements hereinafter specified. Material stored off-site under this provision shall be included in the definition of Work, Article 1, Contract Documents.
- 9.3.3.1 The requirements of Paragraph 10.2, Safety of Persons and Property, are fully applicable to materials stored off-site.
- 9.3.3.2 For purposes of administering this provision, the following definitions are provided.
- a. Material stored NEAR the Work site: A storage location shall be considered near the Work site if it is not more than fifty (50) miles (approximately a one-hour drive) from the Work site.
- b. Material stored DISTANT from the Work site: Locations beyond the limit of fifty (50) miles shall be considered distant.
- 9.3.3.3 All proposed off-site locations, regardless of whether they are near or distant, shall be approved by the Owner prior to any payment under this Article. The approval process will include an inspection of the proposed storage site, which may or may not coincide with any inspection of materials stored.
- 9.3.3.4 Prior to payment for any material stored off-site, said material shall be inspected to verify that it is properly stored; i.e., segregated, inventoried, identified as the property of the Owner and Contractor, and duly protected as required in Article 10.2, Safety of Persons and Property. This material shall be clearly identified and physically segregated from any other material or stock, in such a manner that it is clear, from casual observation that said material is not a part of any other stock or stored material.
- 9.3.3.5 For materials stored distant to the Work site, the Contractor shall reimburse the Owner for all reasonable costs incurred by the Owner, to include but not limited to salary, transportation, lodging and per diem, for the Owner's or the A/E's employees to travel to and from the storage locations for the purpose of verifying that the material is properly stored. It is anticipated that such trips would occur whenever additional material is claimed for payment and/or at least every six (6) months until the material is delivered to the Work site.
- 9.3.3.6 Except for unusual circumstances, the Contractor will not be required to reimburse the Owner's costs for visits to storage locations near the Work site.
- 9.3.3.7 The Contractor shall hold the Owner harmless from any and all losses, additional costs, direct or indirect damages and/or delays, whatsoever, which may occur as a result of a failure of the Contractor to deliver (or have delivered), in a timely manner, materials (for which payment has been made) to the Work site for installation and incorporation into the Work.
- 9.3.3.8 The Contractor shall provide to the Owner a release of lien or other suitable certification by the seller of the materials, in addition to paid invoices, verifying that the Contractor has valid title to all materials for which payment is requested. The seller, however, shall not be required to waive his rights for recovery against Contractor or any surety if his contract is breached.
- 9.3.4 The Contractor warrants that title to all Work, materials and equipment covered by an Application for Payment will pass to the Owner, either by incorporation in the construction or upon the receipt of payment by the Contractor, whichever occurs first, free and clear of all liens, claims, security interests or encumbrances, hereinafter referred to as "liens". The Contractor further warrants that no Work, materials or equipment covered by an Application for Payment will have been acquired by the Contractor or by any other person performing Work at the site or furnishing materials and equipment for the Work that is

subject to an agreement under which an interest therein or an encumbrance thereon is retained by the seller or otherwise imposed by the Contractor or such other person.

- 9.3.5 The Contractor's Application for Payment shall provide that the payment request attests that all Work for which the request is made has been completed in full according to all the requirements of the Contract Documents. By submitting his Application for Payment, the Contractor also represents that he has no knowledge that any Subcontractors or suppliers have not been fully and timely paid and that, insofar as he knows, the only outstanding items for payment with respect to the Contract are those to be paid from the funds for which application is being made.

9.4 CERTIFICATES FOR PAYMENT

- 9.4.1 The A/E will, within seven (7) calendar days after the receipt of the Contractor's Application for Payment, recommend a Certificate for Payment to the Owner, for such amount as the A/E determines is properly due, with his reasons for any withholding or adjusting a Certificate as provided in Paragraph 9.6, Payments Withheld.
- 9.4.2 After the Certificate for Payment is recommended by the A/E, the Owner will review it and make any changes deemed necessary by the Owner's representative. The recommendation of the Certificate for Payment by the A/E does not waive or limit the Owner's right to reduce the amount of the payment due to the Contractor as determined to be appropriate by the Owner.
- 9.4.3 The recommendation of a Certificate for Payment will constitute a representation by the A/E to the Owner, based on his observations at the site as provided in Article 2, Architect/Engineer, and the data comprising the Application for Payment, that the Work has progressed to the point indicated; that, to the best of his knowledge, information and belief: (1) the quality of the Work is in accordance with the Contract Documents (subject to an evaluation of the Work for conformance with the Contract Documents upon Substantial or Final Completion, to the results of any subsequent tests required by or performed under the Contract Documents, to minor deviations from the Contract Documents correctable prior to completion, and to any specific qualifications stated in his Certificate); and that (2) the Contractor is entitled to payment in the amount certified. However, by recommending a Certificate for Payment, the A/E shall not thereby be deemed to represent that he has made exhaustive or continuous on-site inspections to check the quality or quantity of the Work or that he has reviewed the construction means, methods, techniques, sequences or procedures, or that he has made any examination to ascertain how or for what purpose the Contractor has used the moneys previously paid on account of the Contract Sum.
- 9.4.3.1.1 The Application for Payment shall be on a form approved by the City. Payment for stored material delivered but not incorporated in the work will be the invoiced amount only. Stored materials drawdown shall be approved by the Owner. Submit applicable invoices with Application for Payment. Monthly partial payment request shall be submitted in **TRIPLICATE** to Owner's representative for approval by the 25th of the month so that the Owner can approve payment request by the first working day of the next month. Partial payments shall be made on a monthly basis on or before the end of the next month for which the Work was performed, in accordance with the Contract Documents.
- 9.4.3.1.2 The Owner shall pay to the Contractor 95 percent of the total amount due and the Owner shall retain five (5) percent of the amount due until all work has been performed strictly in accordance with the Contract Documents and until such work has been accepted by the Owner.
- 9.5.1 The Owner shall make payment in the manner and within thirty (30) calendar days after receipt of the Certificate of Payment from the A/E based upon the Owner's approval or adjustment of said Certificate.

The Contractor shall be paid the amount approved or adjusted by the Owner, less 5% retainage which is being held to assure faithful performance; provided however, that said retainage is not applicable to Time and Material Change Orders.

- 9.5.1.1 In relation to punch list or other uncompleted Work and in lieu of a portion of the above-specified five-percent 5% retainage, the Owner may, at its sole discretion, elect to retain fixed amounts directly relating to the various items of uncompleted Work. All amounts withheld shall be included in the Final Payment.
- 9.5.2 The Contractor shall, within seven (7) days after receiving payment from the Owner, do one of the following:
 - 9.5.2.1 Pay all Subcontractors for the proportionate share of the total payment received from the Owner for Work performed by each Subcontractor under the Contract; or
 - 9.5.2.2 Notify the Owner and Subcontractor(s), in writing, of his intention to withhold all or part of the Subcontractor's payment with the reason for nonpayment.
- 9.5.3 The Contractor shall make payment to Subcontractors as heretofore specified. Each payment shall reflect the percentage actually retained, if any, from payments to the Contractor on account of such Subcontractor's Work.
- 9.5.4 The Contractor shall provide the Owner with his social security number, if an individual, or his federal identification number, if a corporation, partnership, or other entity.
- 9.5.5 The Contractor shall pay unpaid Subcontractors interest on payments that are not made in accordance with this Article 9.5, Progress Payments. The rate of interest shall be in compliance with the Prompt Payment section of the Virginia Public Procurement Act of the Code of Virginia. The Contractor shall, by an appropriate agreement with each Subcontractor, require each Subcontractor to make payments to his Sub-subcontractors according to all the same requirements as provided in this Article 9.5 Progress Payments.
- 9.5.6 The Owner may, upon written request, furnish to any Subcontractor, if practicable, information regarding the percentages of completion or the amounts applied for by the Contractor and the action taken thereon by the Owner on account of Work done by such Subcontractor.
- 9.5.7 Neither the Owner nor the A/E shall have any obligation to pay or to see to the payment of any monies to any Subcontractor except as may otherwise be required by law.
- 9.5.8 No Certificate for Payment, nor any payment, nor any partial or entire use or occupancy of the Project by the Owner, shall constitute an acceptance of any Work not in accordance with the Contract Documents, nor shall it waive any right or claim by Owner based upon the Work, or any portion of the Work, including Work for which payment has been made, not conforming to the requirements of the Contract Documents.

9.6 PAYMENTS WITHHELD

- 9.6.1 The Owner may withhold the payment in whole or in part, if necessary to reasonably protect the Owner. If the A/E is unable to make representations as provided in subparagraph 9.4.3 and to recommend payment in the amount of the application, he will notify the Owner as provided in subparagraph 9.4.1. If the Contractor and the Owner cannot agree on a revised amount, the Owner will promptly issue a Certificate for Payment for the amount for which he is able to make representations with respect to payment, due for Work performed. The Owner may also decline to certify or make payment because of

subsequently discovered evidence or subsequent observations, and the Owner may nullify the whole or any part of any Certificate for Payment previously issued.

- 9.6.2 The Owner may withhold from the Contractor so much of any payment approved by the A/E, as may in the judgment of the Owner be necessary:
- .1 To protect the Owner from loss due to defective work not remedied;
 - .2 To protect the Owner upon receipt of notice of the filing in court or in an arbitration proceeding as may be required in any third party contract, of verified claims of any persons supplying labor or materials for the Work, or other verified third party claims;
 - .3 To protect the Owner upon reasonable evidence that the Work will not be completed for the unpaid balance of the Contract Sum;
 - .4 To protect the Owner upon reasonable evidence that the Work will not be completed within the Contract Time established by this Contract; or
 - .5 To protect the Owner upon the Contractor's failure to properly schedule and coordinate the Work in accordance with or as required by the Contract Documents, or failure to provide progress charts, revisions, updates or other scheduling data as required by the Contract Documents, or upon the Contractor's failure to provide as-built drawings as required herein, or upon Contractor's failure to otherwise substantially or materially comply with the Contract Documents.
- 9.6.3 If required by the Contract Documents, the Contractor shall, concurrent with his submission of the Construction Schedule, submit a practicable and realistic payment schedule showing the dates on which the Contractor will submit each and every Application for Payment and the amount he expects to receive for each and every monthly progress payment. If during the performance of the Work, the Contractor expects to receive an amount for a monthly progress payment larger than that indicated on the payment schedule, the Contractor shall notify the Owner at least thirty (30) days in advance of that payment so that the necessary allocation of funds can be processed. If Contractor fails to submit a practicable and realistic payment schedule, the Contractor's Application for Payment shall be honored only to the extent that the Work is actually performed and that the proportion of payments made to the Contract Sum does not exceed the proportion of the Contract Time expired as of the time of the request.

9.7 FAILURE OF PAYMENT

If the Owner does not make payment to the Contractor within the thirty (30) calendar days after receipt of the Contractor's Application for Payment by the A/E through no fault of Contractor, and the Owner otherwise not being entitled under the Contract Documents or applicable law to withhold payment, then the Contractor may, upon fifteen (15) additional days' written Notice to the Owner and the A/E, stop the Work until payment of the amount owing has been received. In such event, the Contract Sum shall be increased by the amount of the Contractor's reasonable costs of shutdown, delay and start-up, which shall be effected by appropriate Change Order as provided herein.

9.8 SUBSTANTIAL COMPLETION AND GUARANTEE BOND

- 9.8.1 Unless otherwise specified in Article 9.9, Final Completion and Final Payment, when the Contractor considers that the Work, or a designated portion thereof which is acceptable to the Owner, is substantially complete as defined in Article 8, Contract Time, the Contractor shall request in writing that the A/E and the Owner perform a Substantial Completion inspection. Prior to such inspection the Contractor shall:
- .1 If applicable, secure a Certificate of Occupancy for the Project or a designated portion thereof; and

- .2 Submit five (5) copies each of the Operations and Maintenance Manuals to the A/E as specified and one (1) copy to the Owner.
- 9.8.2 The Owner shall determine whether the Work is substantially complete and shall compile a punch list of items to be completed or corrected. The failure to include any items on such list does not alter the responsibility of the Contractor to complete all Work in accordance with the Contract Documents.
- 9.8.3 When the Owner on the basis of his inspection determines that the Work or a designated portion thereof is substantially complete, the A/E will then prepare a Certificate of Substantial Completion which shall establish the Date of Substantial Completion and shall state the responsibilities of the Owner and the Contractor for security, maintenance, heat, utilities, damage to the Work and insurance. The Certificate of Substantial Completion shall be submitted to the Owner and the Contractor for their written acceptance of the responsibilities assigned to them in such Certificate.
- 9.8.4 The Contractor shall have thirty (30) days from the Date of Substantial Completion to complete all items on the punch list to the satisfaction of the Owner. If the Contractor fails to complete all punch list items within the designated time, the Owner shall have the option to correct or conclude any remaining items by utilizing its own forces or by hiring others. The cost of such correction of remaining punch list items by the Owner or others shall be deducted from the final payment to the Contractor, and if the Owner has not retained sufficient funds to cover the cost, Contractor or its surety shall pay the difference within 30 days of a written demand by the Owner to do so.
- 9.8.5 Guarantees and warranties required by the Contract Documents shall commence on the Date of Final Completion of the Work, unless otherwise provided in the Certificate of Substantial or Final Completion, or the Contract Documents. Provided, however, that if Contractor does not complete certain punch list items within the time period, specified in 9.8.4, all warranties and guarantees for such incomplete Punch List items shall become effective upon issuance of final payment for the Work.
- 9.8.5.1 The Contractor shall guarantee for a term of one (1) year from the date of Final Completion or Final Payment, whichever comes later, (unless otherwise provided for in the Certificate(s) of Substantial or Final Completion or the Contract Documents): (1) the quality and stability of all materials equipment and Work; (2) all the Work against defects in materials, equipment or workmanship; and (3) all shrinkage, settlement or other faults of any kind which are attributable to defective materials or workmanship. The Contractor shall remedy at his own expense, when so notified in writing to do so by the Owner, and to the satisfaction of the Owner, the Work or any part thereof that does not conform to any of the warranties and guaranties described in the Contract Documents or that otherwise does not conform to the requirements of the Contract Documents
- 9.8.5.2 In order to make good the guarantee as herein required, the Contractor shall deposit with the Owner, after Substantial Completion but before Final Payment, a Guarantee Bond(s) issued by a surety licensed to do business in Virginia and otherwise acceptable to the Owner, for the faithful performance of the guarantee. Said Bond(s) shall be for a period of one (1) year from the date the guaranties and warranties commence and in the amount of five percent (5%) of the final gross value of the Contract.
- 9.8.5.3 The Contractor shall complete repairs during the guarantee period, within five (5) working days after the receipt of Notice from the Owner, and if the Contractor shall fail to complete such repairs within the said five (5) working days, the Owner may employ such other person or persons as it may deem proper to make such repairs and pay the expenses thereof out of any sum retained by it, provided nothing herein contained shall

limit the liability of the Contractor or his surety to the Owner for non-performance of the Contractor's obligations at any time.

- 9.8.6 The issuance of the Certificate of Substantial Completion does not indicate final acceptance of the Work by the Owner, and the Contractor is not relieved of any responsibility for the Work except as specifically stated in the Certificate of Substantial Completion.
- 9.8.7 Upon Substantial Completion of the Work, or designated portion thereof, and upon application by the Contractor and certification by the A/E, the Owner shall make payment, adjusted for retainage and payments withheld, if any, for such Work or portion thereof, as provided in the Contract Documents.
- 9.8.8 Should the Owner determine that the Work or a designated portion thereof is not substantially complete, he shall provide the Contractor a written Notice stating why the Work or designated portion is not substantially complete. The Contractor shall expeditiously complete the Work and shall re-request in writing that the Owner perform a Substantial Completion inspection.

9.9 FINAL COMPLETION AND FINAL PAYMENT

9.9.1 A Certificate of Final Completion shall be issued by the A/E prior to final payment. At the Owner's sole option, this Final Completion Certificate may be issued without a Certificate of Substantial Completion. The Contractor, prior to application for Final Payment and within the time specified for completion of the Work, shall complete all Work, to include punch list items and provide operation and maintenance manuals and as-built data, for the Work, as completed and in place. Said Certificate of Final Completion shall be issued, even if a Certificate of Substantial Completion has been issued previously and temporary authority to operate the Work has been granted.

9.9.1.1 The Certificate of Final Completion shall certify that all Work has been completed in accordance with Contract Documents and is ready for use by the Owner.

9.9.2 For all projects where Substantial Completion Certificates have been issued for various portions of the Work, at differing times, the Contractor shall request and the Owner shall, prior to final payment, issue a Certificate of Final Completion which certifies that all required Work, including punch list items, has been completed in accordance with the Contract Documents.

9.9.3 Neither the final payment nor any remaining retainage shall become due until the Contractor submits to the A/E the following:

- .1 An Application for Payment for all remaining monies due under the -Contract.
- .2 Consent of surety to final payment;
- .3 If required by the Owner, other data establishing payment or satisfaction of all such obligations, such as receipts, releases and waivers of claims arising out of the Contract, to the extent and in such form as may be designated by the Owner. If any Subcontractor refuses to furnish waiver of claims satisfactory to the Owner, the Contractor may furnish a bond satisfactory to the Owner to indemnify Owner against any such claim. If any such claim remains unsatisfied after all payments are made, the Contractor shall refund to the Owner all monies that the latter may be compelled to pay in discharging such claim, including all costs and reasonable attorneys' fees;
- .4 As-built drawings, operation and maintenance manuals and other project closeout submittals, as required by the Contract Documents;
- .5 Construction releases as required by the Contract Documents from each property owner on whose property an easement for construction of the Work has been obtained by the Owner, such

release to be in the forms to be provided by the Owner. This release is for the purpose of releasing the Owner and the Contractor from liability, claims, and damages arising from construction operations on or adjacent to the easement and includes proper restoration of the property after construction. It shall be the Contractor's sole responsibility to obtain all such releases and furnish them to the Owner; and

.6 A written certification that:

- .1 The Contractor has reviewed the requirements of the Contract Documents,
- .2 The Work has been inspected by the Contractor for compliance with all requirements of the Contract Documents,
- .3 Pursuant to this inspection, the Contractor certifies and represents that the Work complies in all respects with the requirements of the Contract Documents,
- .4 The Contractor further certifies and represents that all equipment and systems have been installed in accordance with the Contract Documents and have been tested in accordance with specification requirements and are operational, and
- .5 The Contractor hereby certifies and represents that the Work is complete in all respects and ready for final inspection.

9.9.4 Upon receipt of the documents required in subparagraph 9.9.3 and upon receipt of a final Application for Payment, the A/E and Owner will promptly make a final inspection. When the A/E finds the Work acceptable under the Contract Documents and the Contract fully performed, he will issue within seven (7) days a final Certificate for Payment and a Final Certificate of Completion.

The Certificate of Completion will state that to the best of his knowledge, information and belief, and on the basis of his observations and inspections, the Work has been completed in accordance with the terms and conditions of the Contract Documents and that the entire balance designated in the final Certificate for Payment is due and payable. The final Certificate for Payment will constitute a further representation that the conditions precedent to the Contractor's being entitled to final payment as set forth in Subparagraph 9.9.3 have been fulfilled. The Owner shall review the Certificate of Payment and shall accept it and issue final acceptance, or reject it and notify the Contractor, within ten (10) days. Final payment to the Contractor shall be made within thirty (30) days after final acceptance. All prior estimates and payments, including those relating to Change Order work, shall be subject to correction by this final payment.

9.9.5 The making of Final Payment shall constitute a waiver of all claims by the Owner, except those arising from:

- .1 Unsettled claims;
- .2 Faulty, defective, or non-conforming Work discovered or appearing after Substantial or Final Completion;
- .3 Failure of the Work to comply with the requirements of the Contract Documents;
- .4 Terms of any warranties or guarantees required by the Contract Documents; or
- .5 Fraud or bad faith committed by the Contractor or any subcontractor or supplier during performance of Work but discovered by Owner after Final Payment.

9.9.6 The acceptance of Final Payment shall constitute a waiver of all claims by the Contractor, except those previously made in writing and so identified by the Contractor; as unsettled at the time of the final Application for Payment. No payment, however, final or otherwise, shall operate to release the Contractor or his sureties from any obligations under this Contract or the Performance, Payment, or Guarantee Bonds.

ARTICLE 10 PROTECTION OF PERSONS AND PROPERTY

10.1 SAFETY PRECAUTIONS AND PROGRAMS

10.1.1 The Contractor shall be responsible for initiating, maintaining and supervising all safety precautions and programs in connection with the Work. The requirement applies continuously throughout the Contract performance, until Final Payment is made, and is not limited to regular working hours.

10.2 SAFETY OF PERSONS AND PROPERTY

10.2.1 The Contractor shall take all reasonable precautions for the safety of, and shall provide all reasonable protection to prevent damage, injury or loss to:

- .1 All persons performing any of the Work and all other persons who may be affected thereby;
- .2 All the Work and all materials and equipment to be incorporated therein, whether in storage on or off the site, under the care, custody or control of the Contractor or any of his Subcontractors or Sub-subcontractor's. Machinery, equipment and all hazards shall be guarded or eliminated in accordance with the safety provisions of the Manual of Accident Prevention in Construction published by the Associated General Contractors of America, to the extent that such provisions are not in contravention of applicable law; and
- .3 Other property at the site or adjacent thereto, including trees, shrubs, lawns, walks, pavements, roadways, structures and utilities not designated for removal, relocation or replacement in the course of construction.

10.2.2 The Contractor shall give all notices and comply with all applicable laws, ordinances, codes, rules, regulations, permits, resolutions and lawful orders of any public authority bearing on the safety of persons or property or their protection from damage, injury or loss.

The Contractor shall at all times safely guard the Owner's property from injury or losses in connection with the Contract. Contractor shall at all times safely guard and protect his Work and adjacent property as provided by law and the Contract Documents, from damage. All passageways, guard fences, lights and other facilities required for protection by local authorities or local conditions must be provided and maintained without additional cost to the Owner.

10.2.3 The Contractor shall erect and maintain, as required by existing conditions and progress of the Work, all reasonable safeguards for safety and protection, including posting danger signs and other warnings against hazards, promulgating safety regulations and notifying owners and users of adjacent utilities.

10.2.4 When the use or storage of explosives or other hazardous materials or equipment is necessary for the execution of the Work, the Contractor shall exercise the utmost care and shall carry on such activities under the supervision of properly qualified personnel.

10.2.5 The Contractor is responsible for the proper packing, shipping, handling and storage (including but not limited to shipment or storage at the proper temperature and humidity) of materials and equipment to be

incorporated in the Work, so as to insure the preservation of the quality and fitness of the materials and equipment for proper installation and incorporation in the Work, as required by the Contract Documents.

For example, but not by way of limitation, Contractor shall, when necessary, place material and equipment on wooden platforms or other hard and clean surfaces and not on the ground and/or place such material and equipment under cover or in any appropriate shelter or facility. Stored materials or equipment shall be located so as to facilitate proper inspection. Material and equipment that is delivered crated shall remain crated until ready for installation. Lawns, grass plots or other private property shall not be used for storage purposes without the written permission of the owner or lessee unless otherwise within the terms of the easements obtained by the Owner.

- 10.2.6 In the event of any indirect or direct damage to public or private property referred to in Paragraphs 10.2.1.2 and 10.2.1.3, caused in whole or in part by an act, omission or negligence on the part of the Contractor, any Subcontractor, any Sub-subcontractor, or anyone directly or indirectly employed by any of them or by anyone for whose acts any of them may be liable, the Contractor shall at his own expense and cost promptly remedy and restore such property to a condition equal to or better than existing before such damage was done. The Contractor shall perform such restoration by underpinning, replacing, repairing, rebuilding, replanting, or otherwise restoring as may be required or directed by the Owner, or shall make good such damage in a satisfactory and acceptable manner. In case of failure on the part of the Contractor to promptly restore such property or make good such damage, the Owner may, upon two (2) calendar days written Notice, proceed to repair, replace, rebuild or otherwise restore such property as may be necessary and the cost thereof, or a sum sufficient in the judgment of the Owner to reimburse the owners of property so damaged, will be deducted from any monies due or to become due the Contractor under the Contract. If insufficient monies remain due or will become due to pay such sum, Contractor or its surety shall, within 30 days of receipt of a written demand from Owner to do so, pay Owner such sum.
- 10.2.7 The Contractor shall designate a responsible member of his organization at the site whose duty shall be the prevention of accidents and the protection of material, equipment and other property. This person shall be the Contractor's superintendent unless otherwise designated by the Contractor in writing to the Owner.
- 10.2.8 The Contractor shall not load or permit any part of the Work to be loaded so as to endanger the safety of any portion of the Work.
- 10.2.9 The Contractor shall give notice in writing at least forty-eight (48) hours before breaking ground, to all persons, Public Utility Companies, owners of property having structures or improvements in proximity to site of the Work, superintendents, inspectors, or those otherwise in charge of property, streets, water pipes, gas pipes, sewer pipes, telephone cables, electric cables, railroads or otherwise, who may be affected by the Contractor's operation, in order that they may remove any obstruction for which they are responsible and have representative(s) on site to see that their property is properly protected. Such notice does not relieve the Contractor of responsibility for any damages and claims. Nor does such notice relieve the Contractor from his responsibility to defend and indemnify the Owner from actions resulting from the Contractor's performance of such work in connection with or arising out of the Contract.
- 10.2.10 The Contractor shall protect all utilities encountered while performing its work, whether indicated on the Contract Drawings or not. The Contractor shall maintain utilities in service until moved or abandoned. The Contractor shall exercise due care when excavating around utilities and shall restore any damaged utilities to the same condition or better as existed prior to starting the Work, at no cost to the Owner. The Contractor shall maintain operating utilities or other services, even if they are shown to be abandoned on the drawings, in service until new facilities are provided, tested and ready for use.

- 10.2.11 The Contractor shall return all improvements on or about the site and adjacent property which are not shown to be altered, removed or otherwise changed to conditions which existed prior to starting the Work.
- 10.2.12 The Contractor shall protect the Work, including but not limited to, the site, stored materials and equipment, excavations, and excavated or stockpiled soil or other material, intended for use in the Work, and shall take all necessary precautions to prevent or minimize damage to same and to prevent detrimental effect upon his performance or that of his Subcontractors, caused by or due to rain, snow, ice, run-off, floods, temperature, wind, dust, sand and flying debris. For example, but not by way of limitation, Contractor shall, when necessary, utilize temporary dikes, channels or pumping to carry-off, divert or drain water, and shall as necessary tie-down or otherwise secure the Work and employ appropriate covers and screens.

10.3 OBLIGATION OF CONTRACTOR TO ACT IN AN EMERGENCY

- 10.3.1 In case of an emergency that threatens immediate loss or damage to property and/or safety of life, the Contractor shall act to prevent threatened loss, damage, injury or death. The Contractor shall notify the Owner of the situation and all actions taken immediately thereafter. If the Contractor fails to act and any loss, damage, injury or death occurs that could have been prevented by the Contractor's prompt and immediate action, the Contractor shall be fully liable to the Owner or any other party for all costs, damages, claims, actions, suits, costs of defense, and all other expenses arising therefrom or relating thereto.
- 10.3.2 Prior to commencing the Work and at all times during the performance of the Work, the Contractor shall provide the Owner two, twenty-four hour (24) emergency phone numbers where his representatives can be contacted at any time.

ARTICLE 11 INSURANCE FOR CONTRACTS

11.1 CONTRACTOR'S INSURANCE

- 11.1.1 During the term of this Contract, the Contractor shall procure and maintain insurance coverages with insurance companies rated by A. M. Best Company as A – VIII or better. The company(ies) shall be authorized to do business under the laws of the Commonwealth of Virginia and be acceptable to the City of Lynchburg and shall provide the following minimum types of insurance:
- a. **Commercial General Liability Insurance** – This will cover claims for Bodily Injury, Property Damage, Personal and Advertising Injury, Products and Completed Operations, which may arise from operations under the Contract, whether such operations be performed by the Contractor or by any Subcontractor or Independent Contractor, or by anyone directly or indirectly employed by any of them. Such insurance shall include coverages "X", "C" and "U" for explosion, collapse of other structures and underground utilities, as well as Contractual Liability Insurance covering the requirements outlined in the General Conditions. This insurance shall name the City, the City Council and its employees as additional insureds *by endorsement* to the Commercial General Liability policy. Such policy shall not have a restriction on the limits of coverage provided to the City of Lynchburg as an additional insured. The City of Lynchburg shall be entitled to protection up to the full limits of the Contractor's policy regardless of the minimum requirements specified in this Contract. If endorsements to the Commercial General Liability insurance policies cannot be made, then separate policies providing such protection shall be purchased by the Contractor.

1. The Policy shall have the following *minimum* limits:

\$1,000,000 Each Occurrence Limit
\$1,000,000 General Aggregate Limit
\$1,000,000 Personal and Advertising Injury Limit
\$1,000,000 Products and Completed Operations Aggregate Limit
\$5,000 Medical Expense Limit

This insurance shall include the following provisions and /or endorsements:

- 1) The General Aggregate limit shall apply on a “per project” and on a “per location” basis;
- 2) Coverage shall apply to all liability arising from all premises and operations conducted by the Contractor, Subcontractors and independent contractors;
- 3) The Contractor agrees that liability arising from Products and Completed Operations will be covered. Such liability coverage will be maintained for two years after completion of the Work.
- 4) The Contractor shall require each of his Subcontractors to procure and maintain Commercial General Liability Insurance of the type specified in these Contract Documents in the minimum amounts required by the Owner and the Contractor (which shall be the amounts required by this paragraph 11.1.1. of Contractor unless otherwise agreed in writing by Owner), during the term of their subcontracts.

b. **Worker's Compensation and Employer's Liability Insurance** for the Contractor's employees engaged in the Work under this Contract, in accordance with statutory requirements of the Commonwealth of Virginia. The Contractor shall require each of his Subcontractors to provide Worker's Compensation and Employer's Liability Insurance for all of the Subcontractor's employees engaged on such subcontracts. If any class of employees engaged on Work under the Contract is not protected under the Worker's Compensation statute, the Contractor shall provide similar protection for these employees in amounts not less than the legal requirements. The amount of Employer's Liability Insurance for the Contractor and each of his Subcontractors shall be not less than:

\$100,000 per employee for Bodily Injury.
\$100,000 per employee for disease
\$500,000 per policy for disease

The Worker's Compensation and Employer's Liability Insurance policy shall include an "all states" or "other states" endorsement.

c. **Commercial Automobile Liability Insurance**, including coverage for owned, hired, non owned and borrowed vehicles used in the work with *minimum* limits of \$1,000,000 Combined Single Limit per occurrence. This insurance shall name the City, the City Council and its employees as additional insureds *by endorsement* to the Commercial Automobile Liability policy. Such policy shall not have a restriction on the limits of coverage provided to the City of Lynchburg as an additional insured. The City of Lynchburg shall be entitled to protection up to the full limits of the Contractor's policy regardless of the minimum requirements specified in this Contract.

d. **Umbrella Liability or Excess Liability Insurance** with the following minimum limits of:

\$5,000,000 Each Occurrence
\$5,000,000 Annual Aggregate

The following policies shall be scheduled as underlying policies:

Commercial General Liability
Commercial Automobile Liability
Employers Liability

This insurance shall name the City, the City Council and its employees as additional insureds **by endorsement** to the Umbrella or Excess Liability policy. Such policy shall not have a restriction on the limits of coverage provided to the City of Lynchburg as an additional insured. The City of Lynchburg shall be entitled to protection up to the full limits of the Contractor's policy regardless of the minimum requirements specified in this Contract.

- 11.1.2 Proof of insurance for each type of coverage listed herein shall be provided within 10 days after issuance of the award letter for the Contract, and no Work shall proceed unless all such insurance is in effect. The Contractor shall not allow any Subcontractor to commence work on his subcontract until all such insurance of the Subcontractor has been so obtained and approved by the Contractor and found to be in accordance with the requirements set forth herein. The Contractor certifies by commencement of the Work that his insurance and that of Subcontractors is in effect and meets the requirements set forth herein.
- 11.1.3 The Contractor shall purchase and maintain required liability and all other insurance as is appropriate for the Work being performed and furnished. The insurance shall provide protection from claims which may arise out of or result from Contractor's performance and furnishing of the Work and Contractor's other obligations under the Contract Documents, whether it is to be performed or furnished by Contractor, any Subcontractor or Supplier, or by anyone directly or indirectly employed by any of them to perform or furnish any of the Work, or by anyone for whose acts any of them may be liable:
- a. claims under Worker's Compensation, Employers Liability, disability benefits, and other similar employee benefit acts;
 - b. claims for damages because of bodily injury, occupational sickness or disease, or death of Contractor's employees;
 - c. claims for damages because of bodily injury, sickness or disease, or death of any person other than Contractor's employees;
 - d. claims for damages insured by personal injury liability coverage which are sustained: (1) by any person as a result of an offense directly or indirectly related to the employment of such person by Contractor; or (2) by any other person for any other reason;
 - e. claims for damages, other than to the Work itself, because of injury to or destruction of tangible property wherever located, including loss of use resulting therefrom; and
 - f. claims for damages because of bodily injury or death of any person or property damage arising out of the ownership, maintenance, or use of any motor vehicle.
- 11.1.4 The insurance required to be purchased and maintained by the Contractor shall:
- a. include completed operations insurance;
 - b. with respect to any other insurance coverage written on a claims-made basis, remain in effect for at least 2 years after final payment (and Contractor shall furnish the City and A/E evidence satisfactory to the City of continuation of such insurance at final payment and 1 year thereafter);

- c. contain a cross liability or severability of interest clause or endorsement. Insurance covering the specified additional insureds shall be primary insurance, and all other insurance carried by the additional insureds shall be excess insurance.

11.1.5 All of the aforesaid insurance policies must be endorsed to provide that the insurance company *shall give 30 days written notice to the City* if the policies are to be terminated or if any changes are made during the Contract period which will affect in any way the insurance provided pursuant to such policy. Before starting the Work, the Contractor shall provide the City with a copy of each policy that he and each of his Subcontractors is required to carry in accordance with this Article 11, together with receipted bills evidencing proof of premium payment. These policies shall contain endorsements to the policies naming the City of Lynchburg as an additional insured as required.

11.1.6 Nothing contained herein shall effect, or shall be deemed to affect, a waiver of the City's sovereign immunity under law.

ARTICLE 12 CHANGES AND MODIFICATIONS IN THE WORK

12.1 CHANGES IN THE WORK

12.1.1 The Owner, without invalidating the Contract and without notice to the surety, may order a change to the Work consisting of additions, deletions or other revisions to the general scope of the Contract, or changes in the sequence of the performance of the Work. The Contract Sum and the Contract Time shall be adjusted accordingly. All such changes in the Work shall be authorized by Change Order, Modification, or Change Directive, and all Work involved in a change shall be performed in accordance with the terms and conditions of the Contract Documents. If the Contractor should proceed with a change in the Work upon an oral order, by whomsoever given, it shall constitute a waiver by the Contractor of any claim for an increase in the Contract Sum and/or Contract Time, on account thereof.

12.2 FIELD ORDER

12.2.1 A Field Order is a written order to the Contractor signed by the Owner's designated representative, interpreting or clarifying the Contract Documents or directing the Contractor to perform minor changes in the Work. Any work relating to the issuance of a Field Order shall be performed promptly and expeditiously and without additional cost to the Owner and within the Contract Time, unless the Contractor submits a Proposed Change Order, defined below, which is approved by the Owner. Field Orders shall be numbered consecutively by date of issuance by the Owner.

12.3 OWNER CHANGE REQUEST

12.3.1 An Owner Change Request is a written request from the Owner to the Contractor that describes a proposed change in the Work. The Contractor is required to submit a complete proposal for the total cost and additional time, if any, necessary to perform the proposed change in the Work. Owner Change Requests shall be numbered consecutively by date of issuance by the Owner.

12.4 CONTRACTOR'S PROPOSED CHANGE ORDER

12.4.1 A Contractor's Proposed Change Order is a written request from the Contractor to the Owner requesting a change in the Contract Sum and/or Contract Time. A Contractor's Proposed Change Order is submitted as a proposal in response to a Owner Change Request or as a claim for an increase in the Contract Sum or Contract Time pursuant to the issuance of a Field Order, or as a result of unforeseen circumstances, such as an unknown site conditions.

Change Orders for unforeseen site conditions will only be entertained if the Contractor has not accepted responsibility for the unforeseen site conditions pursuant to other provisions in the Contract Documents. A Contractor's Proposed Change Order must be submitted within twenty (20) calendar days of the issuance of a Owner Change Request or a Field Order or the discovery of an unforeseen circumstance. The Contractor shall not be entitled to any adjustment to the Contract Time or Contract Sum if Contractor fails to comply strictly with the requirements of the preceding sentence. Contractor's Proposed Change Orders shall be numbered consecutively by date of issuance by the Contractor. The Contractor shall also indicate on the Proposed Change Order the number of the Owner Change Request or the Field Order to which it responds. The Contractor understands and agrees to the City's provisions and policy regarding Change Orders as outlined in Article 1, section 1.1.2 of these General Conditions.

- 12.4.2 In the case of unit price items, it is understood and agreed by the Contractor that the estimates of the quantities in unit price items are approximate only and are presented solely for the purpose of comparing bids and may not represent the actual amount of work to be performed. The Contractor, therefore, understands and agrees that the Owner reserves the right to increase, decrease or eliminate entirely the quantity of work to be done under any item. If called upon to do more work under any unit price item named in the Bid Documents, he will perform all such additional work and accept as payment the unit price named in the proposal, subject to the 20% deviation limitations specified in subparagraph 12.4.2.2.
- 12.4.2.1 The Contractor's Proposed Change Order shall be determined by applicable unit prices, if any, as set forth in the Contract.
- 12.4.2.2 However, if changes in quantities are of an item increase the actual work to more than twenty percent (20%) of the original bid quantity for that item, or decrease quantities of that item more than 20% of the original bid quantity for that item, then the Owner or the Contractor shall have the right to request a decrease or an increase in the unit price for the item for quantities greater than 120% or less than 80% of the original bid quantity for that item.
- 12.4.2.3 It shall be understood that such unit prices shall constitute full payment for the extra work performed, including, but not limited to, "general conditions" costs, plant, materials, labor, equipment, overhead, profit, and safety requirements.
- 12.4.3 If no such unit prices are set forth, the Contractor's proposal shall be on a lump sum basis and shall be itemized and segregated by labor, equipment, and materials for the various components of the change in the Work (no aggregate labor total will be acceptable) and shall be accompanied by signed proposals of any Subcontractors who will perform any portion of the change in the Work and of any persons who will furnish materials or equipment for incorporation therein.
- 12.4.3.1 The portion of the proposal relating to labor, whether by the Contractor's forces or the forces of any of its Subcontractors, may include reasonably anticipated gross wages of job site labor, including foremen, who will be directly involved in the change in the Work (for such time as they will be so involved), plus separately identified payroll costs (including premium costs of overtime labor, if overtime is authorized, Social Security, Federal or State unemployment insurance taxes and fringe benefits required by collective bargaining agreements entered into by the Contractor or any such Subcontractor in connection with such labor).
- 12.4.3.2 The portion of the proposal relating to materials may include the reasonably anticipated direct costs to the Contractor or to any of its Subcontractors of materials to be purchased

for incorporation in the change in the Work, plus transportation and applicable sales or use taxes.

12.4.3.3 The proposal may further include the Contractor's and any of his Subcontractor's reasonably anticipated equipment rental costs, except small hand tools, in connection with the change in the Work.

12.4.4 Base Cost is defined as the total of labor, material and equipment rentals as described in subparagraphs 12.4.3.1, 12.4.3.2 and 12.4.3.3. The actual net cost in money to the Owner for the change in the Work shall be computed as follows:

- .1 If the Contractor performs the change in the Work without use of Subcontractors or sub-subcontractors, his compensation will be the Base Costs as described above, plus a maximum mark-up of 15% for overhead and profit.
- .2 If the work is performed by a bona fide Subcontractor, the Subcontractor's compensation will be the Base Costs as described above plus a maximum mark-up of 15% for overhead and profit. The Contractor's compensation will be a maximum mark-up of five percent (5%) of the Subcontractors Base Costs for his overhead and profit.
- .3 If the Work is performed by a bona fide Sub-subcontractor, the Subcontractor's compensation will be the Base Costs as herein described, plus a maximum mark-up of 15% for overhead profits. The mark-up of any Sub-subcontractor's work by the Contractor and all intervening tiers of Subcontractors shall not exceed a total of 10%.

12.4.5 The mark-up on the cost of labor, materials, and equipment described in Paragraphs 12.4.4.1, 12.4.4.2, and 12.4.4.3 shall be all the compensation to which the Contractor, Subcontractors and Sub-subcontractor are entitled for all indirect costs associated with or relating to the change in the Work including, but not limited to, labor and/or equipment inefficiency, changes in sequence, delays, interferences, impact on unchanged work, gross receipts tax, superintendent, small tools, reproduction, administration, insurance, unrelated safety requirements, temporary structures and offices, all other general and administrative, home office and field office expenses.

12.4.6 The Proposed Change Order may also include the cost of increases in premiums for the Payment Bond and the Performance Bond, provided coverage for the cost of the change in Work results in such increased costs. At the Owner's request, the Contractor shall provide proof of his notification to the surety of the change in the Work and of the surety's agreement to include such change in its coverage. The cost of the increase in premiums shall not be marked up.

12.4.7 In the event that it is necessary to increase the Contract Time in order to perform the change in the Work, the Contractor shall provide an estimate of the increase in the Contract Time as part of the Proposed Change Order. The Contractor's request for a time extension shall be evaluated in accordance with the criteria described in Article 8.3, Claims for Time Extensions.

12.4.8 If the Contractor's Proposed Change Order is rejected by the Owner as being within the scope of the Work required by the Contract Documents, the Owner may, at its sole option and discretion, direct the Contractor to perform the Work which is the subject of the said Proposed Change Order, with claimed compensation to be accounted for pursuant to 12.6 and to be subject to the procedures of Article 13. The Contractor shall then promptly proceed with said Work. Nothing herein shall excuse the timely performance by the Contractor of the Work because any Proposed Change Order is pending.

12.5 CHANGE ORDER

12.5.1 A Change Order is a written order to the Contractor signed by the Owner, issued after execution of the Contract, authorizing a change in the Work or an adjustment in the Contract Sum and/or the Contract Time. The Contract Sum and the Contract Time may be changed only by Change Order. A Change Order signed by the Contractor indicates his agreement therewith, including the adjustment in the Contract Sum and/or the Contract Time. Change Orders shall be numbered consecutively by date of issuance by the Owner and shall, if applicable, indicate the number of the Field Order(s), Request for Proposal(s) and/or Proposed Change Order(s) to which they relate.

12.5.1.1 If the Owner determines that the Contractor's Proposed Change Order, submitted pursuant to Article 12.4 for a change in the Contract Sum or Contract Time, is acceptable, the Owner shall prepare and issue a Change Order which will authorize the Contractor to proceed with the change in the Work with the adjustment to Contract Sum and Contract Time stated in the Proposed Change Order, or as otherwise may be agreed upon by the parties. The amounts stated in the Change Order for the adjustment to Contract Sum and Contract Time for the change in the Work shall be binding on the parties.

12.5.2 After issuance of the Change Order, the Contractor shall ensure that the amount of the Performance and Payment Bond coverage has been revised to reflect the increase in the Contract Sum due to the Change Order. Notwithstanding the foregoing, Contractor's failure to do so shall not release any surety from its obligations under any bonds.

12.6 CHANGE DIRECTIVE

12.6.1 If Owner and Contractor cannot agree as to whether something constitutes a change to the Work originally contemplated by the Contract Documents, or if they cannot agree as to the adjustment to the Contract Sum or Contract Time required for what Owner acknowledges to be a change to the Work constituting Extra Work, Owner may, in his sole discretion, issue a written Change Directive directing Contractor to perform such work. Contractor shall then promptly proceed with the work at issue. Owner may elect, in its sole discretion, to have the compensation or claimed compensation for such work accounted for on either a time and material basis or lump sum basis as described in 12.6.2 and 12.6.3.

12.6.2 If Owner elects to have the compensation and/or claimed compensation accounted for on a time and materials basis, the following procedures apply:

12.6.2.1 Change Directive work, the compensation or claimed compensation for which is being accounted for on a time and material basis shall be performed, whether by the Contractor's forces or the forces of any of its Subcontractors' or Sub-subcontractors', at actual cost to the entity performing the Work (without any charge for administration, clerical expense, supervision or superintendent of any nature whatsoever). The percent mark-ups for the Contractor, Subcontractors and Sub-subcontractor's shall be as described in subparagraphs 12.4.4 and 12.4.5.

12.6.2.2 Prior to starting the Change Directive work on a time and material basis, the Contractor shall notify the Owner in writing as to what labor, materials, equipment or rentals are to be used for the change or claimed change in the Work. During performance, the Contractor shall submit to the Owner daily time and material tickets, which shall list the categories and amounts of labor and equipment for which Change Directive compensation is to be charged for the previous work day. Such tickets shall specifically include the following information: location and description of the change in the Work, the classification of labor employed, including names and social security numbers of laborers, labor trades used, man hours, wage rates, insurance, taxes and

fringe benefits, equipment and materials suppliers' quotations with detailed break-out and pricing, rental equipment hours and rates, and materials quantities and unit prices and such other evidence of cost as the Owner may require.

12.6.2.3 The Contractor shall commence submission of daily time and material tickets immediately upon commencement of the Change Directive work and continue to submit them until completion of the Change Directive work. The Owner may require authentication of all time and material tickets and invoices by persons designated by the Owner for such purpose.

12.6.2.4 No payment will be made to the Contractor for any portion of the Change Directive work that Owner acknowledges to be Extra Work unless and until such daily time and material tickets and invoices are submitted. The submission of any such ticket or invoice shall not constitute an acknowledgment by the Owner that the items thereon were reasonably required for the Change Directive work.

12.6.2.5 For any work performed on a time and material basis, the Contractor shall submit its complete submission of the reasonable actual cost and time to perform the change in the Work within twenty (20) days after such Work has been completed. If Change Directive work includes both Work that Owner acknowledges to be Extra Work and work that Owner disputes to be Extra Work, Contractor shall clearly segregate its accounting for the two. The Owner shall review the costs and time submitted by the Contractor on the basis of reasonable expenditures and savings of those performing the Change Directive work. If such costs and time are acceptable to the Owner, or if the parties otherwise agree to the actual reasonable cost to perform the Change Directive work, a Change Order will be issued for the cost and time agreed upon. The amounts stated in the Change Order for the cost and time to perform the Change Directive work shall be binding upon the parties.

12.6.3 If Owner elects to have the compensation or claimed compensation accounted for on a lump sum basis, Owner may make a unilateral determination of a reasonable adjustment in Contract Sum and Contract Time due to the Change Directive. Any unresolved dispute about the reasonableness of Owner's unilateral determination shall be subject to Article 13, Claims and Dispute Procedure.

12.7 DECREASES AND WORK NOT PERFORMED (Deductive Change Orders)

12.7.1 Should it be deemed expedient by the Owner to decrease the dimensions, quantity of material or Work, or vary in any other way the Work required by the Contract Documents, the Owner may direct by written Change Order, such decreases to be made or performed without in any way affecting the validity of the Contract. The Contractor shall comply with the Change Order from the Owner. The difference in expense occasioned by such decrease shall be deducted from the amount payable under this Contract.

12.7.2 When Work is deleted from the Contract by Owner, the amounts to be credited to the Owner shall reflect the same current pricing as if the Work were being added to the Contract at the time the deletion is ordered, and Contractor shall provide documentation for a credit as specified in Article 12.5.4. If such deleted materials and equipment shall have already been purchased and stored on site and cannot be used in other projects, cannot be returned for credit or cannot be returned for credit at the price paid by the Contractor at the time of purchase, the Contractor shall be entitled, upon proper documentation and certification, to an adjustment in the pricing of the credit to avoid hardship to the Contractor. If necessary in order to establish such reasonable value, the Contractor may be required to submit a detailed breakdown of his original bid and all documents upon which Contractor's bid was based for the items or Work involved.

12.7.3 If Work is not performed, and such deletion of Work was not directed or approved by the Owner, the Owner shall ascertain the amount of the credit due.

12.8 CHANGES IN LINE AND GRADE

12.8.1 The Owner reserves the right to make such alterations in the line and grade of various structures or pipe lines shown on the drawings, as may be necessitated by conditions found during construction or that in the judgment of the Owner appears advisable. Such alterations shall in no way affect the validity of the Contract

12.8.1.1 In case of a unit price contract, if such changes increase the amount of the Work or materials, the Contractor will be paid according to the quantity of Work actually done at the prices established for such Work under the Contract.

12.8.1.2 In case of a lump sum contract, the price for the Work shall be determined as specified in Article 12.4, Proposed Change Order.

12.9 SUBSURFACE CONDITIONS FOUND DIFFERENT

12.9.1 Should the Contractor encounter subsurface and/or latent conditions at the site materially differing from those shown on the drawings or indicated in the specifications, he shall immediately give Notice to the Owner of such conditions before they are disturbed. The Owner shall thereupon promptly investigate the conditions and if he finds that they materially differ from those shown on the drawings or indicated in the specifications, he shall at once make such changes in the drawings and/or specifications as he may find necessary. Any increase or decrease of cost resulting from such changes shall be adjusted in the manner provided herein for adjustments as to extra and/or additional work and changes. Notwithstanding the foregoing, if the Contract Documents indicate elsewhere that excavation is to be on an unclassified basis, Contractor shall not be entitled to any adjustment to the Contract Sum or Contract Time based upon this 12.9.

12.10 OTHER CLAIMS

If the Contractor claims that additional cost or time is involved because of, but not limited to, (1) any written interpretation pursuant to Article 2, Architect/Engineer, (2) any order by the Owner to stop the Work pursuant to Article 3, Owner, where the Contractor was not at fault, (3) failure of payment by the Owner pursuant to Article 9 Payments and Completion, or (4) any written order for a minor change in the Work issued pursuant to Article 12.8, Changes in Line and Grade, the Contractor shall make such claim as provided in Section 12, Changes and Modification in the Work, and Article 13, Claims and Dispute Procedure.

ARTICLE 13 CLAIMS AND DISPUTE PROCEDURE

Any Claims by the Contractor arising under or relating to the Contract or the Contract Documents shall only be resolved as follows:

13.1. INITIAL NOTICE, SUBMISSION OF CLAIM, AND CONSIDERATION.

a. The Contractor shall give the Owner and the A/E written notice of any Claim within ten (10) days of the beginning of the occurrence of the event leading to the Claim. The written notice shall be a document from the Contractor addressed to the Owner's and A/E's officials or employees designated by the Contract Documents to receive such notice, or if no one is so designated, to the Owner's City Manager and to the A/E. The written notice shall clearly state the Contractor's

intention to make a claim, shall describe the occurrence involved, and shall be transmitted in a manner to ensure receipt by the Owner and A/E within the ten (10) days. The Contractor shall submit the Claim and any supporting data to the Owner and A/E within thirty (30) days after the occurrence giving rise to the Claim ends. The burden shall be on the Contractor to substantiate that it has given written notice and submitted its Claim in accordance with this provision.

- b. The Claim must (i) be certified under oath as true and correct by a principal of Contractor; (ii) must be for specific relief; (iii) if any money is sought, must specify the dollar amount sought; and (iv) must contain sufficient supporting documentation to reasonably allow its consideration, including without limitation, any documentation required by the Contract Documents. The burden shall be on the Contractor to substantiate the Claim.
- c. The Contractor shall comply with all other terms and conditions of the Contract Documents, including without limitation, those in Articles 8 and 12, as applicable. No decision by the A/E on a claim shall be binding on the Owner, but such decision shall have whatever effect on the Contractor that the Contract Documents provide.
- d. Following consideration by the A/E, and following initial, informal consideration by the Owner's City Manager or his designee, the parties shall endeavor to resolve any Claim through direct negotiations, and if such direct negotiations fail, and if the Owner requests, by non-binding mediation conducted pursuant to the Rules of the American Arbitration Association, with the site of the mediation being Lynchburg, Virginia.
- e. Should the Claim remain unresolved for more than 60 days after it is submitted, then the City Manager or his designee shall, within no later than 90 days after the Claim's submission, render a written decision on the Claim on behalf of the Owner. The Contractor may not institute any legal action with respect to the Claim until after the City Manager or his designee renders his written decision or 90 days from its receipt by the City Manager has passed, whichever comes first. The only effect of the failure by the City Manager or his designee to render a decision within this 90-day period is to allow the Contractor to institute a legal action pursuant to this provision without having to wait for a decision on the Claim concerned.

13.2 APPEAL OF DENIAL OF CLAIM.

- a. If the Owner denies in whole or part a Claim by Contractor or more than 90 days have passed since the Claim was received by the City Manager but no written decision has been issued, the Contractor may appeal denial of the claim by instituting an action in the Lynchburg Circuit Court, Lynchburg, Virginia, or if the subject or amount in controversy is within its jurisdiction, the Lynchburg General District Court, Lynchburg, Virginia, and may thereafter pursue all available appeals in Virginia state courts, to the extent they have jurisdiction.
- b. The Contractor must initiate its appeal of the Claim within 180 days of the date it first has the right to do so or the Claim will be barred and the Owner's decision will be binding and conclusive.
- c. The Contractor may not amend its Claim on appeal to increase the amount of money sought.
- d. In the event of any Claim arising, Contractor shall continue its performance diligently during such Claim's pendency and thereafter as if no Claim had arisen. During the pendency of any Claim in connection with the payments of moneys, Contractor shall be entitled to receive payments for non-disputed items, subject to any right of set-off by Owner.

13.3 Notwithstanding anything in the Contract Documents to the contrary, the Owner may, in its discretion, assert a Claim without first resorting to any procedures contained in the Contract Documents.

- 13.4 "Claim" means a "claim" as defined in the Lynchburg Public Procurement Code.
- 13.5 Notwithstanding anything in the Contract Documents to the contrary, Owner shall not be liable to Contractor for any damages or increase in the Contract Sum due to delays to Contractor, any Subcontractor, or any other person except due to extent required by Virginia Code § 2.2-4335.

ARTICLE 14 UNCOVERING AND CORRECTION OF WORK

14.1 UNCOVERING OF WORK

- 14.1.1 If any portion of the Work should be covered contrary to: (1) the request of the A/E or Owner; (2) requirements specifically expressed in the Contract Documents; or (3) the requirements of applicable permits, it must, if required in writing by the Owner, be uncovered for the Owner's and A/E's observation and shall be replaced at the Contractor's expense.
- 14.1.2 If any other portion of the Work has been covered which the Owner has not specifically requested to observe prior to being covered, the Owner may request to see such Work and it shall be uncovered by the Contractor. If such Work be found in accordance with the Contract Documents, the cost of uncovering and replacement shall, by appropriate Change Order, be charged to the Owner. If such Work be found not in accordance with the Contract Documents, the Contractor shall pay such costs unless it is found that this condition was caused solely by the Owner, in which event the Owner shall be responsible for the payment of such costs. If such Work be found not in accordance with the Contract Documents and the condition was caused by a separate contractor, Contractor may proceed against said separate contractor as provided in Article 6, Work by Owner or by Separate Contractors.

14.2 WARRANTY AND CORRECTION OF WORK

- 14.2.1 The Contractor guarantees and warrants to the Owner all Work as follows:
- .1 That all materials and equipment furnished under this Contract will be new and the best of its respective kind unless otherwise specified;
 - .2 That all Work will be of first-class quality and free of omissions and faulty, imperfect or defective material or workmanship;
 - .3 That the Work shall be entirely watertight and leakproof in accordance with all applicable industry customs and practices, and shall be free of shrinkage and settlement which are attributable to defective materials or workmanship;
 - .4 That the Work, including but not limited to, mechanical and electrical machines, devices and equipment shall be fit and fully usable for its intended and specified purpose and shall operate satisfactorily with ordinary care;
 - .5 That consistent with requirements of the Contract Documents the Work shall be installed and oriented in such a manner as to facilitate unrestricted access for the operation and maintenance of fixed equipment; and
 - .6 That the Work will be free of abnormal or unusual deterioration which occurs because of poor quality materials or workmanship.
- 14.2.2 All Work not conforming to guarantees and warranties specified in the Contract Documents, including substitutions not properly approved and authorized, may be considered defective. If required by the

Owner, the Contractor shall furnish satisfactory evidence as to the kind and quality of materials and equipment furnished and installed.

- 14.2.3 The Contractor shall within five (5) working days after receipt of written Notice from the Owner during the performance of the Work, reconstruct, replace or correct all Work rejected by the A/E or Owner as defective, as failing to conform to the Contract Documents, or as not in accordance with the guarantees and warranties specified in the Contract Documents, whether observed before or after Substantial Completion and whether or not fabricated, installed or completed. The Contractor shall bear all costs of reconstructing, replacing or correcting such rejected Work, including compensation for the A/E's additional services made necessary thereby.
- 14.2.4 If, within one (1) year after the Date of Final Completion of the Work or designated portion thereof or within one (1) year after acceptance by the Owner of designated equipment or within such longer period of time as may be prescribed by law or by the terms of any applicable special warranty required by the Contract Documents, any of the Work is found to be defective, not in accordance with the Contract Documents, or not in accordance with the guarantees and warranties specified in the Contract Documents, the Contractor shall correct it within five (5) working days after receipt of a written Notice from the Owner to do so unless the Owner has previously given the Contractor a written acceptance of such condition pursuant to 14.3, Acceptance of Faulty, Defective or Non-Conforming Work. This obligation shall survive termination of the Contract. The Owner shall give such Notice within a reasonable time after discovery of the condition.
- 14.2.5 Subject to limitation as prescribed by law, if at any time deficiencies in the Work are discovered which are found to have resulted from fraud or misrepresentation, or an intent or attempt to defraud the Owner by the Contractor, any Subcontractor or supplier, the Contractor will be liable for replacement or correction of such Work and any damages which Owner has incurred related thereto, regardless of the time limit of any guarantee or warranty.
- 14.2.6 Any materials or other portions of the Work, installed, furnished or stored on site which are not of the character or quality required by the specifications, or are otherwise not acceptable to the Owner, shall be immediately removed and replaced by the Contractor to the satisfaction of the Owner, when notified to do so by the Owner.
- 14.2.7 If the Contractor fails to correct defective or nonconforming Work as required by Articles 13.2.3 and 13.2.4, or if the Contractor fails to remove defective or nonconforming Work from the site, as required by Article 13.2.6, the Owner may elect to either correct such Work in accordance with Article 3.5, Owner's Right to Carry Out the Work, or remove and store materials and equipment at the expense of the Contractor. If the Contractor does not pay the cost of such removal and storage within ten (10) days thereafter, the Owner may, upon ten additional days written Notice, sell such Work at auction or at public or private sale and shall account for the net proceeds thereof, after deducting the costs of the sale and all of the costs that should have been borne by the Contractor, including compensation for the A/E's additional services made necessary thereby. If such proceeds of sale do not cover all costs indicated in the previous sentence, the difference shall be charged to the Contractor and an appropriate Change Order shall be issued. If the payments then or thereafter due the Contractor are not sufficient to cover such amount, the Contractor or its surety shall pay the difference to the Owner.
- 14.2.8 The Contractor shall bear the cost of making good all work of the Owner, separate contractors or others, destroyed or damaged by such correction or removal required under this Article.

14.3 ACCEPTANCE OF FAULTY, DEFECTIVE OR NON-CONFORMING WORK

If the Owner prefers to accept faulty, defective or nonconforming Work, he may do so instead of requiring its removal and correction, in which case a Change Order will be issued at Owner's option, to reflect a reduction in the Contract Sum in an amount to be determined by the Owner.

ARTICLE 15 TERMINATION OF THE CONTRACT

15.1 *CONTRACTOR'S RIGHT TO STOP WORK OR TERMINATE CONTRACT*

If the Work should be stopped under an order of any court or other public authority for a period of ninety (90) days through no fault of the Contractor or anyone providing services, materials or equipment through him, or if the Owner should fail to pay to the Contractor within thirty (30) days any sum for which a Certificate of Payment has been certified when no dispute exists as to the sum due and Owner has no right to withhold payment under any provision of the Contract Documents, then the Contractor may, upon ten (10) days written Notice to the Owner, stop Work or terminate the Contract and recover from the Owner payment for the cost of the Work actually performed, together with overhead and profit thereon, but profit on the Work performed shall be recovered only to the extent that the Contractor can demonstrate that he would have had profit on the entire Contract if he had completed the Work. The Contractor may not receive profit or any other type of compensation for parts of the Work not performed. The Contractor may recover the reasonable cost of physically closing down the Site, but no other costs of termination. The Owner may offset any claims it may have against the Contractor against the amounts due to the Contractor. In no event shall termination of the Contract by the Contractor terminate the obligations of the Contractor's surety on its payment and performance bonds.

15.2 *OWNER'S RIGHT TO TERMINATE CONTRACT FOR CAUSE*

15.2.1 The Owner may terminate the Contract for cause based upon any of the following grounds:

- .1 If the Contractor should be adjudged as bankrupt, or if he should make a general assignment for the benefit of his creditors, or if a receiver should be appointed on account of his insolvency.
- .2 If the Contractor should refuse or should repeatedly fail, except in cases for which extension of time is provided, to supply enough properly skilled workmen or proper materials and equipment.
- .3 If the Contractor should fail to make prompt payment to subcontractors or suppliers of material of labor.
- .4 If the Contractor should disregard laws, ordinances, codes, regulations, or the written instructions of the Architect/Engineer or the Owner.
- .5 If the Contractor be in substantial violation of any provision of the Contract Documents.

15.2.2 For termination for cause based upon the grounds in 15.2.1.1, Owner may terminate without prior notice and without giving Contractor any opportunity to rectify the basis for termination. For termination for cause based upon any other grounds, prior to termination of the Contract, the Owner shall give the Contractor and his surety Notice followed by a ten (10) day period during which the Contractor and/or his surety may rectify the basis for the Notice. If rectified to the satisfaction of the Owner within said ten (10) days, the Owner may rescind its notice of termination. If not, the termination for cause shall become effective at the end of the ten (10) day notice period. Notwithstanding the foregoing, the Owner may, in writing, postpone the effective date of the termination for cause, at its sole discretion, if it should receive reassurances from the Contractor and/or his surety that the basis for the termination will be remedied within a time and in a manner which the Owner finds acceptable. If at any time after such postponement, the Owner determines that Contractor and/or his surety has not or is not likely to rectify the causes of termination in an acceptable manner or within the time allowed, then the Owner may immediately terminate the Contract for cause, without the necessity of allowing any further opportunity by the

Contractor and/or surety to rectify the basis for the Notice, by notifying the Contractor and his surety in writing of the termination. In no event shall termination for cause terminate the obligations of the Contractor's surety on its payment and performance bonds.

- 15.2.3 Upon termination of the Contract, the Contractor shall immediately cease Work, and the Owner may take possession of the site and of all materials, tools and equipment thereon and finish the Work by whatever method he may deem expedient. In such case, the Contractor shall not be entitled to receive any further payment until the Owner has finally completed the Work through its own resources or those of a subsequent contractor. If the Owner's damages, including the expense of finishing the Work, compensation for additional design, managerial and administrative services, any liquidated damages, and any claims by the Owner, shall exceed the unpaid balance of the Contract Sum, the Contractor shall pay the difference to the Owner, together with any other expenses of terminating the Contract and having it completed by others. If the unpaid balance of the Contract Sum exceeds Owner's damages, including the costs of finishing the Work, compensation for additional design, managerial and administrative services, any liquidated damages and any claims by Owner, together with any other expenses of terminating the Contract and having it completed by others, such excess shall be paid to the Contractor.
- 15.2.4 If it should be judicially determined that the Owner improperly terminated this Contract for cause, then the termination shall be deemed to be a termination for the convenience of the Owner, with Contractor's recovery limited to what is allowed for a termination for convenience under the Contract Documents.
- 15.2.5 Termination of the Contract under this Section is without prejudice to any other right or remedy of the Owner.

15.3 OWNER'S RIGHT TO TERMINATE CONTRACT FOR CONVENIENCE

- 15.3.1 Owner may terminate this Contract, in whole or in part, at any time without cause upon giving the Contractor written Notice of such termination. Upon such termination, the Contractor shall immediately cease Work and remove from the site all of its labor forces and such of its materials and equipment as Owner elects not to purchase or to assume in the manner hereinafter provided. Upon such termination, the Contractor shall take such steps as Owner may require to assign to the Owner the Contractor's interest in all subcontracts and purchase orders designated by Owner. After all such steps have been taken to Owner's satisfaction, the Contractor shall receive as full compensation for termination and assignment the following:
- .1 Amounts due for Work performed in accordance with the Contract through the date of termination.
 - .2 Reasonable compensation for the actual cost of demobilization incurred by the Contractor as a direct result of such termination. The Contractor shall not be entitled to any compensation or damages for lost profits or for any other type of contractual compensation or damages other than those provided by the preceding sentence. Upon payment of the foregoing, Owner shall have no further obligations to Contractor of any nature.
- 15.3.2 In no event shall termination for the convenience of the Owner terminate the obligations of the Contractor's surety on its payment and performance bonds.
- 15.3.3 After receipt of a Notice of termination, the Contractor shall promptly submit to the Owner his termination claim. Such claim shall be submitted no later than forty-five (45) days from the effective date of termination. Upon failure of the Contractor to submit his termination claim within the time allowed, the Owner may determine, on the basis of information available to it, the amount, if any, due to the Contractor by reason of the termination.

15.4 CONTRACTOR'S RESPONSIBILITIES UPON TERMINATION

- 15.4.1 After receipt of a notice of termination pursuant to 15.3, Owner's Right to Terminate Contract for Convenience, the Contractor shall mitigate any damages to the extent reasonably possible.
- 15.4.2 In addition to the provisions of 15.4.1, the Contractor shall:
- .1 At the option of the Owner, assign to the Owner, in the manner, at the time, and to the extent directed by the Owner, all of the right, title, and interest of the Contractor under the orders and subcontracts so terminated, in which case the Owner shall have the right, in its discretion, to settle or pay any or all claims arising out of the termination of such orders and subcontracts;
 - .2 Transfer title and deliver to the Owner in the manner, at the times, and to the extent, if any, directed by the Owner:
 - a) The fabricated or un-fabricated parts, work in process, completed Work, supplies, and other material and equipment procured as a part of, or acquired in connection with the performance of the Work terminated by the Notice of Termination, and
 - b) The completed or partially completed drawings, releases, information, manuals and other property which, if the Contract had been completed, would have been required to be furnished to the Owner;
 - .3 Complete performance of such part of the Work as shall not have been terminated by the Notice of Termination; and
 - .4 Take such action as may be necessary, or as the Owner may direct, for the protection and preservation of the property related to this Contract which is in the possession of the Contractor and in which the Owner has or may acquire an interest.

SECTION 01 11 00

SUMMARY OF WORK

PART 1 GENERAL

1.1 SECTION INCLUDES

- A. Description of Work
- B. CONTRACTOR's Use of Site
- C. Work Sequence
- D. Owner Occupancy

1.2 DESCRIPTION OF WORK

- A. General: The Work to be done under this Contract consists of the converting a portion of an existing in-stream stormwater detention pond locate at 618 Sherman Drive into a constructed wetland and restoring approximately 850 LF of tributary stream that enters the existing pond from the northeast.
- B. The Work includes:
 - 1. Furnishing of all labor, material, superintendence, power, light, heat, fuel, water, tools, appliances, equipment, supplies, services and other means of construction necessary or proper for performing and completing the Work.
 - 2. Sole responsibility for adequacy of constructed Work.
 - 3. Maintaining the Work area and site in a clean and acceptable manner.
 - 4. Maintaining existing facilities in service at all times except where specifically provided for otherwise herein.
 - 5. Protection of finished and unfinished Work.
 - 6. Repair and restoration of Work damaged during construction.
 - 7. Furnishing as necessary proper equipment and machinery, of a sufficient capacity, to facilitate the Work and to handle all emergencies normally encountered in Work of this character.

8. Furnishing, installing, and protecting all necessary structures needed for the installation of the Work.
- C. Implied and Normally Required Work: It is the intent of these Specifications to provide the OWNER with complete operable systems and other items of Work. Any part or item of Work which is reasonably implied or normally required to make each installation satisfactorily and completely operable is deemed to be included in the Work and the Contract Amount. All miscellaneous appurtenances and other items of Work incidental to meeting the intent of these Specifications are included in the Work and the Contract Amount even though these appurtenances may not be specifically called for in these Specifications.
 - D. Quality of Work: Regard the apparent silence of the Contract Documents as to any detail, or the apparent omission from them of a detailed description concerning any Work to be done and materials to be furnished as meaning that only the best general practice is to prevail and that only materials and workmanship of the best quality are to be used. Interpretation of these specifications will be made upon this basis.

1.3 CONTRACTOR'S USE OF SITE

- A. In addition to the requirements of Article 6 of the General Conditions, limit use of site and premises for work and storage to allow for the following:
 1. Coordination of the Work under this CONTRACT with the work of the other contractors where Work under this CONTRACT encroaches on the Work of other contractors.
 2. OWNER occupancy and access to operate existing facilities.
 3. Coordination of site use with ENGINEER.
 4. Responsibility for protection and safekeeping of products under this CONTRACT.
 5. Providing additional off site storage at no additional cost to OWNER as needed.

1.4 WORK SEQUENCE

- A. Construct Work in stages to accommodate OWNER's use of premises during construction period and in accordance with the limitations on the sequence of construction specified. Coordinate construction schedules and operations with ENGINEER.
- B. Coordinate Work of all subcontractors.

1.5 OWNER OCCUPANCY

- A. OWNER may occupy premises during construction in order to maintain normal operations. Cooperate with OWNER's representative in all construction operations to minimize conflict, and to facilitate OWNER usage.
- B. Conduct operations so as to inconvenience the general public in the least.

PART 2 PRODUCTS

Not Used

PART 3 EXECUTION

- A. Not Used

END OF SECTION

(NO TEXT FOR THIS PAGE)

SECTION 01 29 00

MEASUREMENT AND PAYMENT

PART 1 GENERAL

1.1 SCHEDULE OF CONTRACT ITEMS

A. Contract Item A-1: Greenwood Pond BMP Retrofit

1. Description:

- a. Under the Contract Item for Greenwood Pond BMP Retrofit, the CONTRACTOR shall provide all labor, services, specialists, materials and equipment, and do all work for the construction, maintenance, testing, and startup of the BMP and other systems and structures for a complete and functional installation.
- b. The Work includes erosion control measures, maintenance of traffic, adjacent property owner coordination, site clearing, excavation – earth and rock, flow bypass and dewatering, surveys, removal of surfaces and spoil where required, disposal of surplus excavated material, disposal and handling of contaminated soil and water, furnishing and installing all equipment, placing all backfill and embankment, installation of all structures, landscaping of new facility, and all general and structural Work complete and in place, together with all appurtenant Work as shown on the Contract Documents, or as specified and directed by the OWNER.

2. Payment: Payment for Greenwood Pond BMP Retrofit will be made at the Lump Sum Price for Contract Item A-1.

B. Contract Item A-2: Blackwater Creek Tributary Stream Restoration

1. Description:

- a. Under the Contract Item for Blackwater Creek Tributary Stream Restoration, the CONTRACTOR shall provide all labor, services, specialists, materials and equipment, and do all work for the construction, maintenance, testing, and startup of the stream restoration and other systems and structures for a complete and functional installation.
- b. The Work includes erosion control measures, maintenance of traffic, adjacent property owner coordination, site clearing, excavation –

earth and rock, flow bypass and dewatering, surveys, removal of surfaces and spoil where required, disposal of surplus excavated material, disposal and handling of contaminated soil and water, furnishing and installing all equipment, placing all backfill and embankment, installing all structures, landscaping of new facility, and all general and structural Work complete and in place, together with all appurtenant Work as shown on the Contract Documents, or as specified and directed by the OWNER.

2. Payment: Payment for Blackwater Creek Tributary Stream Restoration will be made at the Lump Sum Price for Contract Item A-2.

C. Contract Item B-1: Additional Earth Excavation

1. Description

- a. Under the Contract Item for Additional Earth Excavation, the CONTRACTOR shall make any additional earth excavation, which may be ordered by the OWNER in writing.

The work includes all clearing, grubbing, care of structures and adjacent property, and other work appurtenant to the additional earth excavation as specified and directed.

2. Measurement for Payment: The quantity of Additional Earth Excavation, in cubic yards, to be measured for payment under this Contract Item B-1 will be the total excavation measured in place, as ordered and approved by the OWNER, beyond and outside the established lines and grades which would have controlled and been maintained had not the additional excavation been ordered. Unauthorized additional earth will not be measured or paid for.
3. Payment: Payment for Additional Earth Excavation ordered in writing by the OWNER will be made at the Contract Unit Price per cubic yard for Contract Item B-1.

D. Contract Item B-2: Additional VDOT Class II Rip Rap

1. Description:

- a. Under the Contract Item for Additional VDOT Class II Rip Rap, the CONTRACTOR shall furnish, transport, and place riprap material as ordered by the OWNER in writing and not specifically included under other Contract Items. Excavation for placement of rip rap material will be paid for under other Contract Items.

2. Measurement for Payment: The quantities of Additional VDOT Class II Rip Rap, in Tons, to be measured for payment will be the actual tons of dry rip rap placed in the Work and accepted, measured in the limits specified and/or directed by the OWNER.
 3. Payment: Payment for Additional VDOT Class II Rip Rap, ordered by the OWNER in writing, will be made at the Contract Unit Price per ton for Contract Item B-2.
- E. Contract Item B-3: Additional VDOT Class AI Rip Rap
1. Description:
 - a. Under the Contract Item for Additional VDOT Class AI Rip Rap, the CONTRACTOR shall furnish, transport, and place riprap material as ordered by the OWNER in writing and not specifically included under other Contract Items. Excavation for placement of rip rap material will be paid for under other Contract Items.
 2. Measurement for Payment: The quantities of Additional VDOT Class AI Rip Rap, in Tons, to be measured for payment will be the actual tons of dry rip rap placed in the Work and accepted, measured in the limits specified and/or directed by the OWNER.
 3. Payment: Payment for Additional VDOT Class AI Rip Rap, ordered by the OWNER in writing, will be made at the Contract Unit Price per ton for Contract Item B-3.
- F. Contract Item B-4: Additional VDOT No. 3 Stone
1. Description:
 - a. Under the Contract Item for Additional VDOT No. 3 Stone, the CONTRACTOR shall furnish, transport, and place stone material as ordered by the OWNER in writing and not specifically included under other Contract Items. Excavation for placement of stone will be paid for under other Contract Items.
 2. Measurement for Payment: The quantities of Additional VDOT No. 3 Stone, in Tons, to be measured for payment will be the actual tons of stone placed in the Work and accepted, measured in the limits specified and/or directed by the OWNER.
 3. Payment: Payment for Additional VDOT No. 3 Stone, ordered by the OWNER in writing, will be made at the Contract Unit Price per ton for Contract Item B-4.

G. Contract Item B-5: Additional VDOT No. 21A Stone

1. Description:
 - a. Under the Contract Item for Additional VDOT No. 21A Stone, the CONTRACTOR shall furnish, transport, and place stone material as ordered by the OWNER in writing and not specifically included under other Contract Items. Excavation for placement of stone will be paid for under other Contract Items.
2. Measurement for Payment: The quantities of Additional VDOT No. 21A Stone, in Tons, to be measured for payment will be the actual tons of stone placed in the Work and accepted, measured in the limits specified and/or directed by the OWNER.
3. Payment: Payment for Additional VDOT No. 21A Stone, ordered by the OWNER in writing, will be made at the Contract Unit Price per ton for Contract Item B-5.

H. Contract Item B-6: Additional VDOT No. 57 Stone

1. Description:
 - a. Under the Contract Item for Additional VDOT No. 57 Stone, the CONTRACTOR shall furnish, transport, and place stone material as ordered by the OWNER in writing and not specifically included under other Contract Items. Excavation for placement of stone will be paid for under other Contract Items.
2. Measurement for Payment: The quantities of Additional VDOT No. 57 Stone, in Tons, to be measured for payment will be the actual tons of stone placed in the Work and accepted, measured in the limits specified and/or directed by the OWNER.
3. Payment: Payment for Additional VDOT No. 57 Stone, ordered by the OWNER in writing, will be made at the Contract Unit Price per ton for Contract Item B-6.

I. Contract Item B-7: Additional Select Cohesive Fill

1. Description:
 - a. Under the Contract Item for Additional Select Cohesive Fill, the CONTRACTOR shall furnish, transport, place and compact fill material as ordered by the OWNER in writing and not specifically included under other Contract Items. Excavation for placement of fill will be paid for under other Contract Items.

2. Measurement for Payment: The quantities of Additional Select Cohesive Fill, in Cubic Yards, to be measured for payment will be the actual cubic yards of stone placed in the Work and accepted, measured in the limits specified and/or directed by the OWNER.
3. Payment: Payment for Additional Select Cohesive Fill, ordered by the OWNER in writing, will be made at the Contract Unit Price per cubic yard for Contract Item B-7.

J. Contract Item B-8: Additional PVC Liner

1. Description:
 - a. Under the Contract Item for Additional PVC Liner, the CONTRACTOR shall furnish, transport, test and place PVC Liner as ordered by the OWNER in writing and not specifically included under other Contract Items. Excavation for placement of the liner will be paid for under other Contract Items.
2. Measurement for Payment: The quantities of Additional PVC Liner, in Square Yards, to be measured for payment will be the actual square yards of PVC liner placed in the Work and accepted, measured in the limits specified and/or directed by the OWNER.
3. Payment: Payment for Additional PVC liner, ordered by the OWNER in writing, will be made at the Contract Unit Price per square yard for Contract Item B-8.

K. Contract Item B-9: Additional Gabions

1. Description:
 - a. Under the Contract Item for Additional Gabions, the CONTRACTOR shall furnish, transport, and install gabions as ordered by the OWNER in writing and not specifically included under other Contract Items. Excavation for placement of the gabions will be paid for under other Contract Items.
2. Measurement for Payment: The quantities of Additional Gabions, in Cubic Feet, to be measured for payment will be the actual cubic feet of gabions placed in the Work and accepted, measured in the limits specified and/or directed by the OWNER.
3. Payment: Payment for Additional Gabions, ordered by the OWNER in writing, will be made at the Contract Unit Price per cubic feet for Contract Item B-9.

L. Contract Item B-10: Additional Reinforced Bed Material

1. Description:

a. Under the Contract Item for Additional Reinforced Bed Material, the CONTRACTOR shall furnish, transport, and install Reinforced Stream Bed Material as ordered by the OWNER in writing and not specifically included under other Contract Items. Excavation for placement of the Reinforced Bed Material will be paid for under other Contract Items.

2. Measurement for Payment: The quantities of Additional Reinforced Bed Material, in Cubic Yards, to be measured for payment will be the actual cubic yards of Reinforced Bed Material placed in the Work and accepted, measured in the limits specified and/or directed by the OWNER.

3. Payment: Payment for Additional Reinforced Bed Material, ordered by the OWNER in writing, will be made at the Contract Unit Price per cubic yard for Contract Item B-10.

M. Contract Item B-11: Additional Topsoil

1. Description:

a. Under the Contract Item for Additional Topsoil, the CONTRACTOR shall furnish, transport, and install topsoil as ordered by the OWNER in writing and not specifically included under other Contract Items. Excavation for placement of topsoil will be paid for under other Contract Items.

2. Measurement for Payment: The quantities of Additional Topsoil, in Square Yards at plan specified depth, to be measured for payment will be the actual square yards of topsoil placed in the Work and accepted, measured in the limits specified and/or directed by the OWNER.

3. Payment: Payment for Additional Topsoil, ordered by the OWNER in writing, will be made at the Contract Unit Price per square yard at plan specified depth for Contract Item B-11.

N. Contract Item B-12: Additional Structure Rock

1. Description:

a. Under the Contract Item for Additional Structure Rock, the CONTRACTOR shall furnish, transport, and install Structure Rock as ordered by the OWNER in writing and not specifically included under

other Contract Items. Excavation for placement of the Structure Rock will be paid for under other Contract Items.

2. Measurement for Payment: The quantities of Additional Structure Rock, in Tons, to be measured for payment will be the actual tons of Structure Rock placed in the Work and accepted, measured in the limits specified and/or directed by the OWNER.
3. Payment: Payment for Additional Structure Rock, ordered by the OWNER in writing, will be made at the Contract Unit Price per ton for Contract Item B-12.

PART 2 PRODUCTS

Not Used

PART 3 EXECUTION

Not Used

END OF SECTION

(NO TEXT FOR THIS PAGE)

SECTION 16 00 02

CONSTRUCTION STAKEOUT

PART 1 GENERAL

1.1 SUMMARY

- A. This work shall consist of furnishing, placing, and maintaining construction layout stakes and installing monuments for the purpose of post-construction monitoring efforts, as specified in the Contract Documents or as directed by the OWNER.
1. The CONTRACTOR shall provide and have available to the project, an adequate engineering staff which is competent and qualified to set all lines and grades needed to construct the stream restoration and wetland pilot channel.
 2. The CONTRACTOR shall make all field measurements necessary to stakeout the baseline of construction and layout the lines and grades called for in the Contract Documents or as directed by the ENGINEER. As described in Contract Documents, the CONTRACTOR shall use the horizontal and vertical survey controls provided by the OWNER to lay out the lines of work, limits of grading, planting, fill placement, and to stake out the location of all proposed structures.
 3. Only those benchmarks established by the OWNER and shown on the drawings shall be used for construction. The CONTRACTOR shall furnish the assistance for their preservation after being set. The CONTRACTOR shall be held responsible for their preservation. If, in the opinion of the OWNER, the benchmarks are willfully or carelessly disturbed or destroyed by the CONTRACTOR or his/her employees, the entire cost of replacing them shall be charged against the CONTRACTOR and the cost shall be deducted from the CONTRACTOR'S final payment.
 4. The CONTRACTOR shall, as part of the construction stakeout operation and before the mandatory pre-construction meeting and commencement of any clearing operations, demarcate the Limit of Disturbance (LOD) and/or wetlands and buffers, Waters of the U.S., and tree protection areas, to the satisfaction of the OWNER. These areas will be verified by the OWNER during the pre-construction meeting.
 5. Trees to be protected during construction will be identified by the OWNER and the CONTRACTOR during the pre-construction meeting. All tree protection devices shall be installed before clearing and grubbing commences.

6. The CONTRACTOR shall notify the OWNER once the stakeout or any phase of the stakeout is completed. The OWNER will inspect the construction stakeout prior to the CONTRACTOR beginning clearing and grubbing activities. The purpose of the inspection is not to verify the stakeout, but to allow the OWNER an opportunity to assess the lines established by the CONTRACTOR, prior to the start of construction. If there are obvious errors with the stakeout, the CONTRACTOR shall remedy all errors prior to the CONTRACTOR proceeding with construction. **This inspection shall in no way relieve the CONTRACTOR of his/her/its responsibilities to construct the site as specified in the Contract Documents.**
7. The existing elevations and contours shown on the plans, cross sections, stream bottom profiles, and/or bank alignment shown on the Contract drawings were correct when surveyed prior to plan development. However, because of interim stream erosion, sediment accretion, and possible fill, existing elevations and grades may have changed since the original survey was completed. It is the CONTRACTOR'S responsibility to confirm existing grades and adjust quantities, earthwork and work efforts as necessary at no additional cost to the OWNER.

PART 2 PRODUCTS

Not Used

PART 3 EXECUTION

3.1 STREAM AND PILOT CHANNEL BASELINE STAKEOUT

- A. The CONTRACTOR will provide a staked baseline of construction for the proposed location of the stream and tributaries or parallel offset baseline, as depicted on the plans, with the spacing of stations (stakes, nails, crosses, etc.) not to exceed 50 feet in straight sections and 25 feet in curves.
- B. The CONTRACTOR will provide appropriately spaced benchmarks and the necessary references including all points of curvature (P.C.) and points of tangency (P.T.) for the preservation and control of the baseline of construction.

3.2 STRUCTURE STAKEOUT

- A. The CONTRACTOR will provide appropriately spaced benchmarks and the necessary references required to locate all in-stream structures noted in the Contract Documents.

3.3 CONTROL MARKERS

- A. The CONTRACTOR shall preserve the baseline of construction, working lines, and benchmarks set by the CONTRACTOR at the beginning of the project.

3.4 CONTROL STAKES

- A. For the stream and pilot channel baseline of construction, as specified above, the CONTRACTOR shall furnish, set, and preserve stakes at each station along each side of the proposed channel. Additional stakes as needed for horizontal and vertical controls necessary for the correct layout of the work shall be set by the CONTRACTOR.

3.5 LAYOUT

- A. For structures specified in the Contract Documents, the CONTRACTOR shall ensure that structures are fully staked at least two (2) days prior to construction in order to allow review by the OWNER. From the field layouts, the CONTRACTOR shall check the proposed structure lengths by electronic distance measurement or chaining. When chaining is used, the measurements shall be compensated for horizontal alignment. The CONTRACTOR shall also check the location of the structure to verify its correct location with relation to existing on-site features and conditions that are to remain in the original positions. If any discrepancies are found, the CONTRACTOR shall notify the OWNER at once in writing; otherwise, all planned dimensions, grades, and field measures will be deemed correct. All lines established on the ground shall be preserved or referenced, marked, and kept available at all times.

END OF SECTION

(NO TEXT FOR THIS PAGE)

SECTION 16 00 03

PVC LINER

PART 1 GENERAL

1.1 SUMMARY

Section Includes: Requirements for properly installing the PVC liner along the gabion wall as specified in the Contract Documents.

1.2 WARRANTY

- A. The CONTRACTOR shall guarantee against defect the installation of the PVC liner.
- B. The warranty period shall begin after final inspection and approval of the initial installation.
- C. Warranty replacements shall be performed in accordance with the Contract Documents and these specifications.

PART 2 PRODUCTS

2.1 PVC LINER

- A. The PVC liner shall be watertight and resistant to tearing or puncture by the gabions and supporting stone, such as ACF Environmental PVC Geomembrane (30 mil) or approved equal. The fabric shall be protected from direct sunlight at all times prior to installation.

PART 3 EXECUTION

3.1 SUBGRADE PREPARATION

- A. The subgrade shall be prepared in accordance with Section 31 23 16 and shall be smooth and free of all rocks, stones greater than 1/2" in diameter, stick, sharp objects, or debris of any kind. The surface shall be smooth, flat, firm, unyielding, and with no sudden or abrupt changes in grade.
- B. The area where the liner will be placed shall be sufficiently dewatered in accordance with Section 31 80 00 to prevent the liner from coming into contact with water during installation.

3.2 LINER INSTALLATION

- A. Sandbags or equivalent ballast shall be used as necessary to temporarily hold the liner in position.
- B. The liner shall be seamed in accordance with the manufacturer's recommendations where liner panels overlap.
- C. A 1-foot thick layer of VDOT 21A Stone sub-base shall be placed on top of the liner as shown in the Contract Documents.
- D. Gabions shall be installed above the 21A sub-base in accordance with Section 16 00 07.
- E. After the gabions have been successfully installed and accepted by the OWNER, the CONTRACTOR shall pull the liner flush with the downstream face of the gabion wall and backfill against it to final grade.

END OF SECTION

SECTION 16 00 04

GEOTEXTILE FABRIC

PART 1 GENERAL

1.1 SUMMARY

- A. This work shall consist of furnishing, transporting, maintaining, stockpiling, and properly installing geotextile fabric in the stream channel as specified in the Contract Documents, or as directed by the OWNER.

PART 2 PRODUCTS

2.1 GEOTEXTILE FABRIC

- A. Geotextile fabric shall be woven or non-woven polypropylene geotextile, such as Mirafi 700x, Mirafi 70/20, Filterweave 500, n060, or approved equal. The fabric shall have puncture resistance greater than 100 lbs, apparent opening size greater than U.S. 70 sieve, and 30 lbs. of tensile strength at 20% (maximum).

PART 3 EXECUTION

Not Used

END OF SECTION

(NO TEXT FOR THIS PAGE)

SECTION 16 00 05

COIR FIBER MATTING AND BIODEGRADABLE STAKES

PART 1 GENERAL

1.1 SUMMARY

- A. This work shall consist of furnishing, transporting, maintaining, stockpiling and properly installing coir fiber matting (secured with biodegradable stakes) on all stream bank slopes which will not receive additional stabilization techniques and at other locations designated in the Contract Documents, or as directed by the OWNER.

PART 2 PRODUCTS

2.1 GENERAL

- A. Coir fiber matting shall consist of 100% coconut fiber matting having a weight of at least 700 g/m². Acceptable products are Ecomesh CM700, CF-700 (Coir Fiber Matting 700) by SKB India Co., BioD-Mat70 by Rolanka International, Coir Fiber Mats 700 by Pinelands Nursery, or approved equal. Biodegradable stakes used to secure coir matting shall be EcoStakes by ACF West or approved equal. Source of coir fiber matting and stakes shall be submitted to the OWNER for review and approval prior to beginning construction. Installation shall be in accordance with the Contract Documents, or as directed by the OWNER.

PART 3 EXECUTION

3.1 INSTALLATION

- A. All materials and construction techniques shall be inspected and approved by the OWNER prior to installation.
- B. Install in-stream structures, grade stream bed and banks, and place reinforced stream bed material and topsoil to the contours specified in the Contract Documents. After placement of reinforced stream bed material, topsoil, permanent seed mix (**SEED MUST GO UNDER MATTING**), and straw mulch, in accordance with the Contract Documents, the CONTRACTOR shall install the coir fiber matting as specified in the Contract Documents or as directed by the OWNER.

- C. The CONTRACTOR shall place coir fiber matting along the stream edge as shown in the Contract Documents or as directed by the OWNER. The coir fiber matting shall be unrolled along the top of bank and across the full width of any bankfull or low flow benches, if present. Matting shall be placed in full contact with the soil. All exterior edges (those edges not overlapping with an adjacent coir fiber matting roll) shall be "keyed" into the ground a minimum of 6 inches in such a way that a seamless grade is created (no humps or bulges in fabric will be permitted).
- D. Coir fiber matting edges (matting installed side by side at any given elevation) shall be overlapped a minimum of 6 inches and staked down using biodegradable stakes at 2 foot on center.
- E. Coir fiber matting ends (where upstream roll abuts downstream roll) shall be placed such that the upstream roll overlaps the downstream roll a minimum of 6 inches and staked down using biodegradable stakes at 2 foot on center.
- F. Coir fiber matting ends (matting installed where ends of matting abut in-stream structures) shall be 'keyed-in' a minimum of 6 inches in such a way that a seamless grade, or transition, is created. (No humps or bulges will be accepted.) These edge areas shall be staked down using biodegradable stakes at 2 foot on center.
- G. Biodegradable stakes shall be arrayed 2 feet on center across coir fiber matting, so that there shall be approximately 2 biodegradable stake pairs per square yard of coir fiber matting.

3.2 CLEAN-UP

- A. During installation of coir fiber matting, all areas shall be kept neat, clean and free of all trash and debris, and all reasonable precautions shall be taken to avoid damage to existing plants, turf, structures, and private property.
- B. The CONTRACTOR shall be responsible for off-site removal and disposal of all trash, excess backfill and any materials incidental to the project and disposing of them off-site.

END OF SECTION

SECTION 16 00 06

SAFETY FENCE (TREE PROTECTION FENCE)

PART 1 GENERAL

1.1 SUMMARY

- A. This work shall consist of the installation of safety fence (tree protection fence) in areas specified in the Contract Documents, or as directed by the OWNER. CONTRACTOR shall be responsible for maintaining the safety fence throughout the duration of the project. This shall include, but is not limited to, re-securing fallen fence and replacing damaged fence.

PART 2 PRODUCTS

2.1 SAFETY FENCE (TREE PROTECTION FENCE)

- A. Fence shall be international orange, high-density polyethylene diamond mesh with a mesh opening of 1.5 inch. The fence shall be 4 feet in height with a roll weight of 20 pounds per roll and roll size of 4 feet by 50 feet.

2.2 POSTS

- A. Posts shall be conventional metal "T" or "U" posts.

2.3 TIES

- A. Tension wire, zip-ties, or rope.

PART 3 EXECUTION

3.1 INSTALLATION

- A. Posts shall be spaced every 6 feet and installed to a minimum of 18 inches.
- B. Ties shall be wrapped around a horizontal fence strand and post and are for securing the fence to the post.
- C. Tension wire or rope may be used as a top stringer woven through the top row of strands to prevent potential sagging.

- D. The safety fence and posts shall be removed (off-site) at the end of the contract and with the approval of the OWNER. The fence and posts shall become the property of the CONTRACTOR at the completion of the project.

3.2 CLEAN-UP

- A. During installation of safety fence, all areas shall be kept neat, clean and free of all trash and debris, and all reasonable precautions shall be taken to avoid damage to existing plants, turf, structures, and private property.
- B. The CONTRACTOR shall be responsible for off-site removal and disposal of all trash, excess backfill and any materials incidental to the project and disposing of them off-site.

END OF SECTION

SECTION 16 00 07

GABIONS

PART 1 GENERAL

1.1 SUMMARY

- A. Section Includes: Requirements for properly installing the Gabion Wall as specified in the Contract Documents, or as directed by the OWNER.

1.2 WARRANTY

- A. The CONTRACTOR shall guarantee against defect the installation and of the gabion wall.
- B. The warranty period shall begin after final inspection and approval of the initial installation.
- C. Warranty replacements shall be performed in accordance with the Contract Documents and these specifications.

PART 2 PRODUCTS

2.1 WIRES

- A. Gabions shall be fabricated, assembled, and installed in accordance with the nominal wire sizes and dimensions shown below.

<u>Type of Wire</u>	<u>Mesh Size</u> <u>(in)</u>	<u>Wire</u> <u>Diameter (in)</u>	<u>PVC Coating</u> <u>(in)</u>	<u>Galvanized</u> <u>Coating</u> <u>(oz./sf)</u>
Woven Mesh	3.25 x 4.5	0.118	None	0.8
Selvage		0.153	None	0.8
Lacing and Internal Connecting Wire		0.086	None	0.7
Welded Mesh	3 x 3	0.118	None	0.8
Spiral Binder			0.02	

- B. Spiral binders are the standard fastener for welded-mesh gabion baskets and mattresses, and shall be formed from wire meeting the same quality and coating thickness requirements as specified for the gabion baskets and mattresses.

- C. Alternate fasteners for use with wire mesh gabions, such as ring fasteners, shall be formed from wire meeting the same quality and coating thickness requirements as specified for the gabions and, as a minimum, shall conform to the manufacturer's recommendations.
- D. Standard fasteners and alternate fasteners must provide a minimum strength of 1,400 pounds per lineal foot for gabion baskets and 900 pounds per lineal foot for gabion mattresses. When used to interconnect gabion baskets or mattresses with PVC coating, ring fasteners shall be made of stainless steel and spiral fasteners will be PVC coated. All fasteners shall meet all of the closing requirements of the gabion manufacturer.

2.2 ROCK

- A. The rock placed in the gabions shall be of a gradation such that 85% of particles (by weight) have an intermediate diameter between 4 and 8 inches. All rock used in the gabions require approval by the OWNER prior to placement.

PART 3 EXECUTION

3.1 GABIONS

- A. Rotate the gabion panels into position and join the vertical edges with fasteners for gabion assembly. Where lacing wire is used, wrap the wire with alternating single and double half-hitches at 4- to 5-inch intervals. Where spiral fasteners are used for welded-wire mesh, crimp the ends to secure the spirals in place. Where ring type alternate fasteners are used for basket assembly, install the fasteners at a maximum spacing of 6 inches. Use the same fastening procedures to install interior diaphragms where they are required. Interior diaphragms are required where any inside dimension exceeds 3 feet.
- B. Place the empty gabions on the foundation and interconnect the adjacent gabions along the top, bottom, and vertical edges using lacing wire. Wrap the wire with alternating single and double half-hitches at 4 to 6-inch intervals. Lacing wire will be the only fastener allowed for interconnecting woven mesh gabions.
- C. Interconnect each layer of gabions to the underlying layer of gabions along the front, back, and sides.
- D. After adjacent empty woven wire gabion units are set to line and grade and common sides properly connected, they shall be placed in straight line tension and stretched to remove any kinks from the mesh and to gain a uniform alignment. Welded-mesh gabions do not require stretching. The gabions may be staked to maintain the established proper alignment before the rock is placed. No stakes shall be placed through the PVC liner. Connecting lacing wire and other fasteners

(as allowed) shall be attached during the filling operation to preserve the strength and shape of the structure.

- E. Internal connecting crosstie wires shall be placed in each unrestrained gabion cell of more than 18 inches in height, including gabion cells left temporarily unrestrained. Two internal connecting wires shall be placed concurrently with rock placement at each 12-inch interval of depth. All crosstie wires shall be looped around two mesh openings and each wire end shall be secured by a minimum of five 180-degree twists around itself after looping.
- F. The gabions shall be carefully filled with rock by machine or hand methods to ensure alignment, avoid bulges, and provide a compact mass that minimizes voids. Machine placement requires supplementing with hand work to ensure the desired results. The cells in any row shall be filled in stages so that the depth of rock placed in any one cell does not exceed the depth of rock in any adjoining cell by more than 12 inches. Along the exposed faces, the outer layer of stone shall be carefully placed and arranged by hand to ensure a neat, compact placement with a uniform appearance.
- G. The last layer of rock shall be uniformly leveled to the top edges of the gabions. Lids shall be stretched tight over the rock filling using only approved lid closing tools as necessary. The use of crowbars or other single point leverage bars for lid closing is prohibited as they may damage the baskets. The lid shall be stretched until it meets the perimeter edges of the front and end panels. The gabion lid shall then be secured to the sides, ends, and diaphragms with spiral binders, approved alternate fasteners, or lacing wire wrapped with alternating single and double half-hitches in the mesh openings.
- H. Any damage to the wire or coatings during assembly, placement, and filling shall be repaired promptly in accordance with the manufacturer's recommendations or replaced with undamaged gabion baskets.

END OF SECTION

(NO TEXT FOR THIS PAGE)

SECTION 16 00 08

TEMPORARY ACCESS PATH/DECK MATS

PART 1 GENERAL

1.1 SUMMARY

- A. This work shall consist of installing, maintaining and removing a temporary access path constructed of Deck Mats by Carolina Mat Incorporated (or the OWNER approved equal) or stone for the purpose of maintaining a stable access path to active construction areas as specified in the Contract Documents, or as directed by the OWNER.

PART 2 PRODUCTS

2.1 GENERAL

- A. Woven filter fabric as specified in the Contract Documents.

2.2 DECK MATS

- A. Deck Mats shall be "Deck Mat" by Carolina Mat Incorporated, or the OWNER approved equal. Deck Mats shall be 4 inches thick by 10 feet in length by 10 feet in width. Each Deck Mat is approximately 1,200 pounds.

2.3 STONE

- A. VDOT #1 Stone

PART 3 EXECUTION

3.1 INSTALLATION

- A. Deck Mats shall be installed by the CONTRACTOR along the temporary access path as depicted in the contract documents. Deck Mats shall be installed concurrently with tree removal along the temporary access path, as specified in the Contract Documents, or as directed by the OWNER. Installation of Deck Mats shall be installed concurrently so that equipment used for specified tree removal along the temporary access path shall travel on top of installed Deck Mats. Alternatively, a stone construction road shall be constructed per guidelines set forth in the latest manual of the Virginia Erosion and Sediment Control Handbook, at locations as outlined in the Contract Documents.

- B. Deck Mats shall be installed according to detail provided in Contract Documents. Woven filter fabric must be installed under the deck mats and extend a minimum of 4 feet on both sides of all mats.
- C. Install Deck Mats starting at the point along the access path that is closest to the construction entrance and work in to the project site. Mats shall be placed such that the timbers run parallel with the vehicle tread. Subsequent mats shall be installed such that the ends abut one another.
- D. Deck Mats shall in all areas depicted in the Contract Documents (temporary access path, stockpile areas, and active cut-ins) and as directed by the OWNER.
- E. Deck Mats shall not be required over existing gravel road and asphalt trails as shown in Contract Documents, unless conditions change and warrant installation as determined by the OWNER. The CONTRACTOR may elect to use Deck Mats in trail areas to prevent damage to the trail surface. Trail damage and associated replacement/repair is the sole responsibility of the CONTRACTOR, unless otherwise noted in the Contract Documents.

3.2 CLEAN-UP

- A. Remove Deck Mats starting with the mat farthest into the project site and work back to the construction entrance.
- B. As Deck Mats are removed grade shall be returned to the pre-construction contours. The area shall be stabilized and planted according to the planting plan and vegetation schedule provided in the Contract Documents. Any roads or trails shall be returned to pre-construction conditions or better.
- C. Portions of the access path constructed with stone shall be remain following construction (serving as base material for a future trail), unless otherwise directed by the OWNER.

END OF SECTION

SECTION 16 00 09

STOCKPILE/STAGING AREAS

PART 1 GENERAL

1.1 SUMMARY

- A. This work shall consist of installing, maintaining, and removing stockpile/staging areas for the purpose of maintaining stable materials and equipment storage areas as specified in the Contract Documents, or as directed by the OWNER.

PART 2 PRODUCTS

2.1 GENERAL

- A. Woven filter fabric as specified in the Contract Documents.
- B. Super Silt Fence as specified in the Contract Documents.

2.2 DECK MATS

- A. Deck Mats shall be "Deck Mat" by Carolina Mat Incorporated, or the OWNER approved equal. Deck Mats shall be 4 inches thick by 10 feet in length by 10 feet (typ.) in width. Each Deck Mat is approximately 1,200 pounds.

PART 3 EXECUTION

3.1 INSTALLATION

- A. Deck Mats shall be installed by the CONTRACTOR within active stockpile/staging areas during the tree removal stage as specified in the Contract Documents, or as directed by the OWNER. Installation of Deck Mats shall be installed concurrently so that equipment used for specified tree removal within active stockpile/staging areas shall travel on top of installed Deck Mats.
- B. Deck Mats shall be installed according to the detail provided in Contract Documents. Woven filter fabric must be installed under and extend a minimum of 4 feet around all active stockpile/staging areas.
- C. Install Deck Mats starting closest to the entrance of the stockpile/staging area and work into the project site. Place the deck mats such that the timbers run parallel with the vehicle tread (to increase durability). Subsequent mats shall be installed such that the ends and sides abut one another.

- D. Super silt fence shall be installed around the downhill end of the stockpile/staging areas as specified in the Erosion and Sediment Control Plan and Details presented in the Contract Documents, or as directed by the OWNER.
- E. Any erodible materials left in stockpile areas shall be mulched or covered prior to rain events.

3.2 CLEAN-UP

- A. Remove deck mats starting with the mat farthest into the stockpile/staging areas and work back to the temporary access path.
- B. As mats are removed grade shall be returned to the pre-construction grade and areas of vegetation shall be replanted according to the planting plan and vegetation schedule presented in the Contract Documents.

END OF SECTION

SECTION 16 00 11

SALVAGING AND/OR FURNISHING AND PLACING TOPSOIL

PART 1 GENERAL

1.1 SUMMARY

- A. This work shall consist of salvaging topsoil, placing salvaged topsoil, furnishing topsoil and placing furnished topsoil as specified in the Contract Documents, or as directed by The OWNER. Furnished topsoil shall be approved by the OWNER.

PART 2 PRODUCTS

2.1 SALVAGED TOPSOIL

- A. Salvaged topsoil shall be existing topsoil salvaged from the project site where excavation or filling is required. Salvaging and placing topsoil shall consist of stripping and stockpiling existing topsoil and shall include removal of clay lumps, brush litter, roots, stones 3 inches and larger, and other foreign materials. Stockpiling shall occur in stockpile areas as specified in the Contract Documents or as directed by the OWNER.

2.2 FURNISHED TOPSOIL

- A. Furnished topsoil shall be natural, friable surface soil uniform in color and texture and not supplied from the project. Furnished topsoil shall mimic native project area soils as described in local soil survey data based on the U.S.D.A. classification system. It shall be of uniform composition, without mixture of subsoil. Furnished topsoil shall be free from species present on State and Federal noxious plant lists or invasive species. It shall be from a local well drained site with a history of satisfactory vegetative growth.

Furnished topsoil to be used in stream restoration shall meet the following criteria:

<u>Characteristic:</u>	<u>Criteria:</u>
pH	From 6.0 to 7.5
Cation-exchange capacity	From 5 to 25 cmol+ /kg (meq/100g)
Organic Matter (OM)	From 2 to 10% by wt. (ODS)
Nutrient content	Normal contents of nitrogen, phosphorus, potassium, calcium, magnesium, sulfur, proper micronutrient levels
Soluble salts	Less than 200 ppm
Contaminants	Should contain no toxic substances

Grading analysis shall be as follows:

<u>Sieve Size</u>	<u>Minimum % Passing by Weight</u>
2 inches	100
No. 4	90
No. 10	80

Textural analysis shall be as follows:

<u>Soil Particle Size (mm)</u>	<u>% Passing By Weight</u>
Sand (2.0 – 0.050)	20-75
Silt (0.050 – 0.002)	10-60
Clay (less than 0.002)	5-30

Excess topsoil shall become the responsibility of the CONTRACTOR and shall be completely removed from the project site prior to final site inspection and approval of the project.

2.3 STRAW MULCH

- A. Straw mulch shall be un-rotten small grain straw.

PART 3 EXECUTION

3.1 SALVAGING TOPSOIL

- A. When soil or weather conditions are unsuitable, the CONTRACTOR shall cease topsoil operations until directed by the OWNER to resume.
- B. Topsoil and subsoil shall be removed from all areas to be graded as specified in the Contract Documents or as directed by the OWNER. Prior to removing topsoil, the CONTRACTOR shall mow or remove all surface vegetation over the areas where topsoil is to be salvaged. Topsoil shall be removed to a depth of 4 to 6 inches. Topsoil shall be transported and stockpiled in separate storage piles and kept separated from other materials.
- C. Storage areas for topsoil shall be constructed on well drained land, away from streams, in specified stockpile areas. Prior to stockpiling, the CONTRACTOR shall install silt fence around the perimeter of the stockpile area and maintain the silt fence until the stockpile is removed. Topsoil shall be kept in neat and separate piles from other excavated material.
- D. Topsoil piles shall NOT be seeded. Topsoil piles shall be immediately and thoroughly covered with wood cellulose or straw mulch. The piles shall be occasionally re-mulched in order to maintain a consistent cover until they are removed.

3.2 PLACING SALVAGED TOPSOIL

- A. Verify that any utilities have been field located and/or installed and accepted; if there is to be a drainage system, verify that it has been installed and accepted.
- B. Verify that all required soil tests have been submitted and accepted by the OWNER.
- C. Do not handle topsoil or subsoil if it is wet or frozen.
- D. The CONTRACTOR shall completely prepare and finish the surface of all areas to be covered with topsoil as specified in the Contract Documents.
- E. Immediately prior to being covered with topsoil, the prepared sub grade shall be loosened to a depth of 3 inches and be free from rocks or other foreign material 3 inches or greater.
- F. Prior to the start of placing salvaged topsoil, all grass, weeds, brush, stumps, and other objectionable material shall be removed from the surface of stockpiles.
- G. Salvaged topsoil shall be placed, spread, and maintained over the areas designated to a depth of at least 4 inches, that after settlement, the completed work shall be in conformance with the thickness, lines, grades, and elevations specified in the Contract Documents.
- H. Rocks and other foreign material larger than 3 inches shall be removed and disposed of by the CONTRACTOR.
- I. Slopes 4:1 to 2:1 shall be tracked with cleated tracked-type equipment operated perpendicular to the slope.
- J. Loosening of compacted soils or amending poorly drained subsoils:
 - 1. Loosen subgrade with a backhoe bucket to a depth of 18 inches. After gathering subsoil in backhoe bucket, drop soil onto the ground from a height of 6 feet to break up soil clumps. Position backhoe during work to prevent re-compaction of soils by beginning the work in corners or against walls, or the center of isolated beds, and progressing outward towards the borders.
 - 2. After subgrade has been broken up, rototill entire area to a minimum depth of 8 inches.
- K. Backfill areas to the specified grades. No additional compaction is necessary to the broken-up subgrade, the weight of the fill will compact the existing subgrade.

- L. Seeding of topsoil and planting of plant material should be carried out simultaneously to prevent excessive traffic over soil lifts and the final grade and create undesirable soil compaction.
- M. The CONTRACTOR shall place barricades as required to prevent any unnecessary compaction of soil from vehicles, equipment, or personnel.

3.3 PLACING FURNISHED TOPSOIL

- A. The CONTRACTOR shall refer to Section 3.2, Placing Salvaged Topsoil, above, in addition to the following:
 - 1. The CONTRACTOR shall make all arrangements and assume all responsibility for consents, agreements, and payments involved in furnished topsoil and subsoil operations.
- B. If furnished topsoil is stockpiled upon delivery for future use on the project, the stockpiling shall conform to Section 3.1, Salvaging Topsoil, above.

END OF SECTION

SECTION 16 00 13

REINFORCED STREAM BED MATERIAL

PART 1 GENERAL

1.1 SUMMARY

- A. This work shall consist of furnishing, transporting, stockpiling, maintaining and placing reinforced stream bed material to be utilized for construction of the proposed channel and protection of in-stream structures and at other locations as specified in the Contract Documents or as directed by the OWNER. Stream bed material shall be placed along the full length of the stream channel and tributaries unless otherwise indicated in the Contract Documents, and along the width of the channel and tributaries as indicated in the Contract Documents, or as directed by the OWNER. Salvaged stream bed material shall be used to supplement reinforced stream bed material, as specified in the Contract Documents, or as directed by the OWNER.

PART 2 PRODUCTS

2.1 GENERAL

- A. Reinforced stream bed material shall consist of natural field rock or natural river rock. Crushed rock from a quarry shall not be permitted (exceptions noted below). The stream bed material shall be sound, tough, dense, resistant to the action of air and water, and suitable in all respects for the purpose intended.
- B. Source of stream reinforced bed material shall be from an approved mining operation with up-to-date regulatory permits. Stream bed material shall NOT be indiscriminately mined from active streams and rivers.
- C. Reinforced stream bed material¹ shall be a mixture containing approximately the following size distribution:
- 35-40% Rock² - D50 = 6.7 inches (17 cm)
 - 35-40% Bank Run Gravel³ - 0.08 to 2.5 inch (0.2 – 6.4 cm) diameter
 - 12-17% Coarse Sand⁴ - 0.04 to 0.08 inch (1 – 2 mm) diameter
 - 7-12% Topsoil – Loam or silt loam with 3-5% organic content
- D. All reinforced stream bed material shall meet the approval of the OWNER. While no specific gradation is required, the various sizes of the rock shall be equally distributed within the required size range. The size of an individual rock particle shall be determined by measuring its diameter across the intermediate axis.

- E. Samples of reinforced stream bed material shall be delivered to project site for approval by the OWNER, prior to its use in the project. Any unsuitable material shall be removed at the CONTRACTOR'S expense.

PART 3 EXECUTION

3.1 GENERAL

- A. The CONTRACTOR shall install reinforced stream bed material to a minimum depth of one (1) foot in restored channel areas unless otherwise specified in the Contract Documents, and as directed by the OWNER. Salvaged Stream bed material shall be used to top-dress the furnished reinforced stream bed material as specified in the Contract Documents and as directed by the OWNER.

¹ Unless specified otherwise, the reinforced bed shall be a minimum of 12" in depth in all restoration areas. See longitudinal profile for location and thickness.

² The rock portion of the mixture shall consist of rock (min. allowable $D_{50} = 6.7$ inches) of color white, tan, yellow, or brown. The voids will be filled with a mixture of sand, gravel, and topsoil. This composition will result in a very resistant, armored substrate that will be capable of withstanding much greater shear stress than the computation of the required D_{50} would suggest. Class A1 riprap shall be an acceptable alternate, subject to Town approval, as long as it meets the specified size requirements.

³ Bank run gravel may include up to 5% clay, silt, and/or sand, and up to 25% cobble ($D_{50} = 3"$ to 8"). Gravel must have natural color (white, tan, yellow, or brown).

⁴ The sand portion of the mixture shall consist of well-mixed sand predominantly 1.0 millimeters to 2.0 millimeters in size; subject to engineer approval (i.e. washed concrete sand is not required). Sand must be white, tan, yellow, or brown in color.

END OF SECTION

SECTION 16 00 14

ROCK

PART 1 GENERAL

1.1 SUMMARY

- A. This work shall consist of furnishing, transporting, stockpiling, maintaining and placing of rock for rock steps, modified cross vanes, imbricated rock walls, boulder pools, cross vane woody debris, log vane/j-hooks, and other structures as specified in the Contract Documents, or as directed by the OWNER.

PART 2 PRODUCTS

2.1 GENERAL

- A. Rock shall consist of angular flat rock of appropriate color (e.g., green/gray, brown/gray, dark gray, and/or dark brown in color) obtained from an approved source. Rock shall not be harvested from streams or rivers outside a commercial quarry operation. All rock shall be free from laminations, weak cleavages and shall not disintegrate from the action of air, salt water and in handling and placing. Granular sedimentary rock shall generally be unacceptable. Concrete shall not be considered as an alternative for rock. White rock is not acceptable.
- B. Rock sizes shall be as specified in the Contract Documents for step pools, rock steps, modified cross vanes, imbricated rock walls, stone bike crossings, boulder riffles, in-stream habitat logs, in-stream woody debris, log j-hooks, and other structures. Rock sizes are shown in the table below.
- C. The rock shall have a minimum unit weight of 160 lbs. per cubic foot.
- D. The CONTRACTOR shall obtain from the quarry and submit to the OWNER a certificate verifying the following
 1. Rock,
 2. Classification,
 3. Weight per cubic foot,
 4. Weight of rock being supplied, and
 5. Rock quantity shall meet all the above specifications.

Rock Size Requirements

Structure	X-Axis Dimension	Y-Axis Dimension	Z-Axis Dimension
Rock Step	2-3 ft (footer rock) 2-3 ft (spillway) 2-3 ft (top rock)	2-3 ft (footer rock) 2-3 ft (spillway) 2-3 ft (top rock)	1-2 ft (footer rock) 1-2 ft (spillway) 1-2 ft (top rock)
Cross Vane	3-5 ft (footer rock) 3-5 ft (top rock) 1-2 ft (sill rock)	2-4 ft (footer rock) 2-4 ft (top rock) 1-2 ft (sill rock)	1-2 ft (footer rock) 1-2 ft (top rock) 1-2 ft (sill rock)
Step Pool/ Boulder Pool	2-3 ft (top rock) 2-3 ft (sill rock) 1-2 ft (sill rock) 2-4 ft (armor)	2-3 ft (top rock) 2-3 ft (sill rock) 1-2 ft (sill rock) 2-4 ft (armor)	1-2 ft (top rock) 1-2 ft (sill rock) 1-2 ft (sill rock) 2-4 ft (armor)

- E. Samples shall be delivered to project site for approval by the OWNER, prior to its use in the project. Any unsuitable material shall be removed at the CONTRACTOR'S expense.
- F. The CONTRACTOR shall not be granted an extension of time or extra compensation due to delay caused by sampling, testing, approval or disapproval of rock protection material under the requirements of these Specifications.
- G. Due to the anticipated quarry preparatory time, and/or demand for the rock as specified in the contract documents, it shall be the CONTRACTOR'S responsibility to make all necessary arrangements with the source of supply in a timely fashion, so that the CONTRACTOR shall maintain an adequate supply of rock material and that work shall not be unnecessarily delayed due to insufficient supply.

PART 3 EXECUTION

3.1 GENERAL

- A. The CONTRACTOR shall install rock in accordance with the Contract Documents.

END OF SECTION

SECTION 16 00 15

STEP POOLS AND ROCK STEPS

PART 1 GENERAL

1.1 SUMMARY

- A. This work shall consist of furnishing, stockpiling, transporting, installing and maintaining step pools and rock step structures within the stream channel as specified in the Contract Documents, or as directed by the OWNER.

PART 2 PRODUCTS

2.1 FOOTER ROCK

- A. Footer rock shall meet the specifications for 'Rock' contained in the Contract Documents. Footer rock consists of rock placed below the invert of the proposed channel to provide support for the step/top rock and prevent downstream scour.

2.2 TOP ROCK (HEADER)

- A. Top rock (header rock) shall meet the specifications for 'Rock' contained in the Contract Documents. Top rock consists of rock placed upon the footer rock.

2.3 GEOTEXTILE FABRIC

- A. Geotextile fabric shall meet the Specifications for 'Geotextile Fabric' contained in the Contract Documents

2.4 REINFORCED STREAM BED MATERIAL

- A. Reinforced Stream bed material shall meet the Specifications for 'Reinforced Stream Bed Material' contained in the Contract Documents.

PART 3 EXECUTION

3.1 STEP POOL & ROCK STEP INSTALLATION

- A. Step Pools and Rock Steps shall be constructed so that rocks are placed as indicated in the Construction Details of the Contract Documents. The top weir rocks shall be placed at the stations and elevations, as specified in the Contract Documents, or as directed by the OWNER. Adjoining rocks shall taper up in elevation towards bankfull or top of bank.

- B. The footer rocks shall be installed by excavating a trench to accommodate both the footer rocks and a 2-foot area upstream.
- C. If bedrock is present at the channel invert, footer rock shall still be required unless approval for elimination of footer rock is obtained from the OWNER. For example, where bedrock is friable and weathered and can be trenched, footer rock will be required. In areas where bedrock is resistant and blasting would be required, the OWNER shall determine whether or not to eliminate footer rock.
- D. Geotextile fabric shall be placed in the bottom and upstream side of the trench to the bankfull width. Footer rocks shall be placed at the bottom and downstream side of the trench so that at least one (1) foot of geotextile fabric lies under the rock. The rocks shall abut one another. The top elevation of the footer rock placed at the centerline of the stream shall be flush with the proposed stream grade immediately below the step structure. Footer rocks shall be firmly embedded into the trench bottom.
- E. In the event that installation of the structure may damage tree roots, excavation shall be minimized. This may include reducing the length of the structure or eliminating trenching for footer rocks and reinforced stream bed material. This decision shall be field determined and authorized by the OWNER.
- F. Top rocks shall be placed tightly together (touching) on top of the footer rocks, but offset slightly upstream (approx. 1/3rd of the rock diameter), as shown in the construction details of the Contract Documents. Care should be taken when placing top rocks that the seams between top rocks do not line up with the seams between footer rocks. The top elevation of the top rock placed at the centerline of the stream shall be flush with the proposed stream grade immediately upstream of the step structure. Starting at the thalweg, adjacent rocks shall taper up to the bankfull elevation. The outermost top rocks shall be installed with the rock keyed into the bank and oriented so that the top face is flush with the surrounding proposed grade.
- G. The trench behind the top rocks shall be backfilled with reinforced stream bed material with the geotextile fabric between the reinforced stream bed material and top rocks. The geotextile fabric shall be left so that it is visible above the top rocks until the rocks and reinforced stream bed material have been installed and inspected.
- H. Reinforced stream bed material shall be placed a minimum of one (1) foot deep along the entire restored channel upstream and downstream of structures, as specified in the Contract Documents. Reinforced bed material shall be placed to the proposed invert elevation shown in the Contract Documents.
- I. After inspection, the geotextile fabric shall be trimmed flush with the top rocks and reinforced stream bed material.

3.2 CLEAN-UP

- A. Upon completion of work, reshape slopes and stream bottom to elevations specified in the Contract Documents.
- B. Remove unsuitable and surplus rock, reinforced stream bed material, salvaged stream bed material and excavated materials to fill areas or approved off-site locations.

END OF SECTION

(NO TEXT FOR THIS PAGE)

SECTION 16 00 16

BOULDER POOL

PART 1 GENERAL

1.1 SUMMARY

- A. This work shall consist of furnishing, transporting, stockpiling, installing and maintaining boulder pools along the stream channel, as specified in the Contract Documents, or as directed by the OWNER.

PART 2 PRODUCTS

2.1 FOOTER ROCK

- A. Footer rock shall meet the specifications for 'Rock' contained in the Contract Documents. Footer rock consists of rock placed below the invert of the proposed channel to provide support for top rocks and prevent downstream scour.

2.2 TOP ROCK (HEADER)

- A. Top rock (header rock) shall meet the specifications for 'Rock' contained in the Contract Documents. Top rock consists of the rows of rock placed upon and above the footer rock.

2.3 REINFORCED STREAM BED MATERIAL

- A. Reinforced Stream bed material shall meet the Specifications for 'Reinforced Stream Bed Material' contained in the Contract Documents.

2.4 GEOTEXTILE FABRIC

- A. Geotextile fabric shall meet the Specifications for 'Geotextile Fabric' contained in the Contract Documents.

PART 3 EXECUTION

3.1 INSTALLATION

- A. Boulder Pools shall be constructed at stations and grades as specified in the Contract Documents.

- B. Fill/excavate the channel bed to a depth equal to twice the D50 of the reinforced stream bed material.
- C. Geotextile fabric shall be placed in the bottom and upstream side of the trench across the entire weir section. Footer rocks shall be placed at the bottom and downstream side of the trench so that a minimum of 1-foot of geotextile fabric lies under the rock.
- D. Place weir footers on the edge of fabric as shown in the construction detail of the Contract Documents. Vary outer and inner weir arm angles to avoid symmetry and create variation in pool location. Weir rocks should be placed at 30-50 degree angles from the flow direction in order to create an alternating thalweg/pool configuration. Tilting the top face of footer rocks upstream is encouraged to enhance stability of top rock placement (especially in the center third of the channel where gaps in top rocks may be desirable).
- E. Place top rocks on footer rocks to create sloping weir arms, the ends of which extend into and are buried in the adjacent banks. The lowest weir rock may vary laterally from the centerline within the middle third of bankfull width.
- F. Optional gaps in center header rocks (middle 1/3rd) should be incorporated occasionally to create protrusion heights of approximately half the rock diameter, with the invert of the gap at design elevation and rocks adjacent to the gap placed such that they are pinned or leaning upstream, partially resting on footers and partially on reinforced bed material behind (upstream of) the weir.
- G. Pool depths within the Boulder Pool feature should be approximately twice the riffle bankfull depth. Variation in pool depth and location is encouraged.
- H. Top rocks shall be placed so that they lean on the footer rocks and fit tightly against each other (with the exception of optional gaps in the center of the weir). With footer rocks extending at least 12" further downstream than header rocks. The seams between top rocks shall not line up with the seams between the footer rocks.
- I. The outermost top rocks on each end of the weir arm shall be installed with at least one top rock buried into the stream bank. The trench behind the top rocks shall be backfilled with reinforced stream bed material, taking care to chink/fill all voids underneath and between the rocks.
- J. The trench behind the top rocks shall be backfilled with reinforced stream bed material with the geotextile fabric between the reinforced stream bed material and top rocks. The geotextile fabric shall be left so that it is visible above the top rocks until the rocks and reinforced stream bed material have been installed and inspected. After inspection, trim the geotextile flush with the top rocks and reinforced stream bed material.

- K. Sill rock consists of a single row of rock, underlain by geotextile fabric, beginning at the ends of the weir sections, extending into the floodplain or bankfull bench a minimum of 5 feet unless otherwise noted on the plan sheets or directed by the OWNER, aligned perpendicular to the stream, with each rock abutted tightly against each other with tops set at proposed grade.
- L. After inspection, trim the geotextile flush with the top rocks and reinforced stream bed material.

3.2 CLEAN-UP

- A. Upon completion of work, reshape slopes and stream bottom to specified elevations.
- B. Remove unsuitable and surplus rocks and excavated materials to fill areas or approved off-site locations.

END OF SECTION

(NO TEXT FOR THIS PAGE)

SECTION 16 00 17

CONSTRUCTION TOLERANCES

PART 1 GENERAL

1.1 SUMMARY

- A. All stream work shall be performed such that the finished product adheres to the stream restoration construction tolerances contained herein. The CONTRACTOR is solely responsible for ensuring the finished product meets the tolerances. Should the project be subject to third party oversight, the third party reviewer is responsible for advising the CONTRACTOR of compliance or deviation from design drawings, documenting the installation of plan elements, and communicating the details of construction progress to the OWNER. Third party oversight in no way relieves the CONTRACTOR of the duties associated with checking grades and ensuring all aspects of the restored stream meet the specified tolerances. Only the OWNER can issue final approval and acceptance.

1.2 SPECIFICATIONS

- A. During construction, the CONTRACTOR shall adhere to the construction grading tolerances noted as follows:
1. Locations, elevations, and dimensions of all STRUCTURES and all associated structure stakeout points shall be as follows:
 - a. For channels where the bankfull width is $\geq 25'$ and the bankfull maximum depth $\geq 2'$:
 - Vertical tolerance: +/- 0.2' maximum; and,
 - Horizontal tolerance: +/- 1.0' maximum:
 - b. For channels where the bankfull width is $< 25'$ and/or the bankfull maximum depth is $< 2'$:
 - Vertical tolerance: +/- 0.1' maximum; and,
 - Horizontal tolerance: +/- 0.5' maximum:
 - c. For Wetland Pilot Channel
 - Vertical tolerance: +/- 0.1' maximum; and
 - Horizontal tolerance: +/- 0.5' maximum:

- d. In channel areas of low slope, deviation from design (even if within the above specified tolerances) shall not create conditions which prevent positive drainage (stream flow) in the downstream direction. (i.e. Structure inverts must drop or remain flat when progressing in the downstream direction unless specifically noted otherwise in the Contract Documents.)
2. Locations, elevations, and dimensions of all CHANNEL features (as specified on the grading plan, longitudinal profile, geometry plan, and detailed cross sections) shall be as follows. Typical riffle cross section dimensions apply to all fully shaped channel areas.
 - a. For channels where the bankfull width is $\geq 25'$ and the bankfull maximum depth $> 2'$:
 - Vertical tolerance: $\pm 0.3'$ maximum; and,
 - Horizontal tolerance: $\pm 1.0'$ maximum:
 - b. For channels where the bankfull width is $< 25'$ and/or the bankfull maximum depth $< 2'$:
 - Vertical tolerance: $\pm 0.2'$ maximum; and,
 - Horizontal tolerance: $\pm 0.5'$ maximum:
 - c. For Wetland Pilot Channel
 - Vertical tolerance: $\pm 0.1'$ maximum; and
 - Horizontal tolerance: $\pm 0.5'$ maximum:
 - B. Should the CONTRACTOR encounter a situation where they believe tolerances overlap and/or conflict, the CONTRACTOR shall request clarification of the tolerance priority from the OWNER (or their designated representative) at least one (1) week prior to working in any area which may be affected by the tolerance in question.
 - C. It is recognized that field conditions may warrant adjustments to design elements (such an adjustment requires the prior written approval of the OWNER). In addition, certain design elements that fail to meet the above listed tolerances may be acceptable. Such acceptance will be on a case-by-case basis by the OWNER.

If a tolerance is adjusted all points within a given structure and/or cross section must be shifted equally to maintain dimensional integrity. The restored dimensions cannot vary from the design dimensions beyond the values specified below without prior written approval of the OWNER:

- Restored stream bank slopes do not exceed 3:1, unless otherwise noted;
- Cross section width remains within 10% of the design;
- Riffle depth remains within 10% of the design;
- Restored riffle slopes remain with 1% of design (and maintains positive drainage);
- Vane arm slopes remain between 2% and 7%;
- Vane arm deflection angles remain between 20° and 30°;
- Pool depths remain within 10% of the design depth;

Any such change shall be noted on the final as-built drawing as well as on the preliminary as-built forms with justification for the change. Acceptance of field changes and/or areas outside of tolerances does not relieve the CONTRACTOR of liability for the structures or channel features during the warranty period.

D. Adherence to the tolerances shall be documented as specified in Section 16 00 20.

PART 2 PRODUCTS

Not Used

PART 3 EXECUTION

Not Used

END OF SECTION

(NO TEXT FOR THIS PAGE)

SECTION 16 00 20
AS-BUILT SURVEY

PART 1 GENERAL

1.1 SUMMARY

- A. The CONTRACTOR shall prepare and submit a certified as-built survey of the entire project to fully illustrate all completed construction within the established LOD. The CONTRACTOR shall also submit daily, non-certified, as-built surveys and field construction notes for all in-stream structures and channel dimensions at each proposed cross section extended from the channel to the LOD on both sides of the proposed channel.

- B. **Survey and preparation of final certified as-built documents may be contracted with a third-party consultant. This does not relieve the CONTRACTOR of daily non-certified as-built survey obligations/grade check notes and notifications as described in the Construction section below.**

PART 2 PRODUCTS

2.1 GENERAL

- A. During construction, the CONTRACTOR shall adhere to tolerances noted in the Section 16 00 17.

- B. The as-built survey shall be a reproducible mylar copy of the approved Contract Documents (existing base files to be obtained electronically from the OWNER). The as-built survey shall be certified by a Land Surveyor licensed to practice in the Commonwealth of Virginia. The as-built survey shall include the following features:
 - 1. Verification of information in geometry plan and new site plan and notation of any changes.

 - 2. Verification of information in structure tables to include horizontal and vertical as-built condition of all in-stream structures, including perimeter of each structure, 3 dimensional location (x, y, and z) of each node called out on design plans (as per the structure placement tables) of each in-stream structure, and any difference between the proposed and as-built vertical and horizontal condition.

3. Topographic as-built survey over the extent of all construction and grading. Shots shall be sampled and reported at no less density than 50' grid, and sufficient to show break lines and grade changes at 1 foot contour intervals.
 4. Vertical as-built survey of the proposed longitudinal profile of the stream thalweg (or design centerline alignment) at grade breaks to show the as-built riffle, run, pool, and glide elevations of the restored channel, as shown in the proposed longitudinal profile and cross sections, and at design stations and locations of revisions approved during construction.
 5. Vertical as-built survey of the proposed longitudinal profile of the pilot channel centerline.
 6. Horizontal and vertical as-built survey of each proposed cross section, to include all proposed in-channel grading and structures, top of bench and bench limits (if in bench section), top of stream bank, and all topographic features outside of the stream channel extended to the LOD on both sides of the channel at the station of every proposed cross section and at a minimum of every fifty (50) feet along the proposed stream stationing.
- C. The signed, sealed and certified reproducible mylar of the as-built survey drawings along with 3 print copies shall be generated by the CONTRACTOR and submitted to the OWNER.

PART 3 EXECUTION

3.1 GENERAL

- A. The CONTRACTOR shall provide daily, non-certified, as-built surveys in the form of "Construction Foreman's GRADE CHECK NOTES" to the CMD Inspector and/or the OWNER on site. The GRADE CHECK NOTES shall show the as-built elevations are in conformance (within specified tolerances) with the proposed elevations at all nodes shown in the structure tables and all proposed in-channel grading, top of bench and bench limits (if in bench section), top of stream bank, and all proposed topographic features outside of the stream channel extended to the LOD on both sides of the channel, as shown in the grading plans, proposed cross sections and longitudinal profile.
- B. The CONTRACTOR shall notify the OWNER a minimum of 2 weeks prior to completion of construction activities.
- C. The CONTRACTOR shall document the certified as-built condition of the constructed design concurrent with construction so that the certified as-built survey is complete and submitted to the OWNER for approval prior to demobilization, no longer than four (4) weeks following final construction activities.

- D. Any errors or omissions found during the course of the as-built survey and determined by the OWNER, who shall be the sole judge, to have occurred during construction shall be repaired by the CONTRACTOR to the satisfaction of the OWNER at no additional expense to the OWNER. The CONTRACTOR shall make any necessary repairs or corrections required by the OWNER including grading, adjustment of stream restoration structures, etc. Upon completion of corrective action, the CONTRACTOR shall re-survey the problem area showing the original as-built information and any modification highlighted and noted. A Land Surveyor licensed to practice in the Commonwealth of Virginia shall also seal the re-survey.

- E. Final acceptance of the project by the OWNER shall not occur until the certified as-built has been completed for the entire project and approved by the OWNER.

PART 4 MAINTENANCE

4.1 GENERAL

- A. The CONTRACTOR will be held fully responsible for maintaining the project during the course of the construction including the period of the as-built certification.

- B. The CONTRACTOR shall be held responsible for maintaining the integrity of the project until final acceptance of the as-built survey and a determination by the OWNER that no errors or omissions have been made by the CONTRACTOR during the course of construction. The OWNER shall make every effort to notify the CONTRACTOR within 3 weeks of receipt of the as-built survey as to the acceptability or rejection of the construction of the stream restoration project; however, lapse of this time frame does not relieve the CONTRACTOR of responsibility for maintaining the integrity of the project or for correcting any errors/omissions until final acceptance of the certified as-built for the entire stream restoration project.

END OF SECTION

(NO TEXT FOR THIS PAGE)

SECTION 16 00 21

A/E SERVICES DURING CONSTRUCTION

PART 1 GENERAL

1.1 DESCRIPTION

- A. Construction shall be inspected by both the OWNER and the ENGINEER. The CONTRACTOR shall not restrict the ENGINEER'S access to the project area for the purpose of inspection, data collection and documentation, surveying, as-built survey review, inspection meetings, and all other activities required to fulfill their separate contract, and as directed by the OWNER. As part of their inspections, the ENGINEER will evaluate aspects of the WORK such as the compaction of the earthen embankment, seeding coverage, and other items. If inspectors find items to be inadequate in certain areas, the CONTRACTOR shall rectify the observed inadequacies to the satisfaction of the OWNER at his or her own expense. The ENGINEER shall comply with the CONTRACTOR'S safety program. The ENGINEER shall report construction inspection observations to the OWNER. All changes in Contract scope and project approvals shall come from the OWNER.

PART 2 MATERIALS

Not Used

PART 3 EXECUTION

Not Used

END OF SECTION

(NO TEXT FOR THIS PAGE)

SECTION 31 10 00

SITE CLEARING

PART 1 GENERAL

1.1 SUMMARY

- A. Section Includes: Requirements for clearing of all areas within the Contract limits and other areas shown, including work designated in permits and other agreements, in accordance with the requirements of the Contract Documents.
- B. Related Work Specified in Other Sections Includes, But is Not Limited to, the Following:
 - 1. Section 31 23 16 - Excavation - Earth and Rock
 - 2. Section 31 23 23 - Backfilling
 - 3. Section 32 90 00 - Landscape Work

1.2 DEFINITIONS

- A. Clearing: Clearing is the removal from the ground surface and disposal, within the designated areas, of trees, brush, shrubs, down timber, decayed wood, other vegetation, rubbish and debris.
- B. Grubbing: Grubbing is the removal and disposal of all stumps, buried logs, roots larger than 2 inches, matted roots and organic materials.

PART 2 PRODUCTS

Not Used

PART 3 EXECUTION

3.1 TREE REMOVAL

- A. Tree removal shall only be done in accordance with Contract Documents or as directed by the OWNER. The CONTRACTOR shall only clear and grub as much of the proposed grading areas that the CONTRACTOR can complete the construction on and have stabilized in the same day as the clearing and grubbing. The CONTRACTOR shall install tree protection fencing and matting, as described in the Contract Documents, prior to any disturbance.

- B. Tree Removal Within Limits of Disturbance (LOD): Remove trees and shrubs as needed for grading and landscaping up to the LOD, as shown on the plans, unless otherwise indicated.
 - 1. Remove trees and shrubs in a manner that avoids damage to trees and shrubs designated to remain. The trees and shrubs designated to remain shall be determined during a pre-construction site visit with the OWNER.
 - 2. Grub and remove tree stumps and shrubs felled within the limits of disturbance to an authorized disposal site. Fill depressions created by such removal with material suitable for backfill as specified in Section 31 23 23.
- C. Tree Removal Outside LOD: Do not cut or damage trees outside the LOD unless shown to be removed or unless written permission has been obtained from the OWNER.

3.2 TREES AND SHRUBS TO BE SAVED

- A. The CONTRACTOR shall be responsible for any and all damage to trees, shrubs, herbaceous plants and wetlands located beyond the limit of disturbance which occurs from his/her operations during the life of the Contract. The CONTRACTOR shall fully restore, at his/her own expense, and to the satisfaction of the OWNER, any trees, shrubs, herbaceous plants, and wetlands that have been damaged or destroyed. Wetland restoration shall be in accordance with regulatory agency conditions.
- B. Protection: Protect trees and shrubs within the project site that are so delineated or are marked in the field to be saved from defacement, injury and destruction during a pre-construction site visit with the OWNER.
 - 1. Work within the limits of the tree drip line with extreme care using either hand tools or equipment that will not cause damage to trees.
 - a. Do not disturb or cut roots unnecessarily. Do not cut roots 2 inches and larger unless approved.
 - b. Immediately backfill around tree roots after completion of construction in the vicinity of trees.
 - c. Do not operate any wheeled or tracked equipment within drip line.
 - 2. Protect vegetation from damage caused by emissions from engine-powered equipment.
 - 3. During working operations, protect the trunk, foliage and root system of all trees to be saved with boards or other guards placed as shown in Section 16

00 06 or as directed by the OWNER and as required to prevent damage, injury and defacement.

- a. Do not pile excavated materials within the drip line or adjacent to the trunk of trees.
 - b. Do not allow runoff to accumulate around trunk of trees.
 - c. Do not fasten or attach ropes, cables, or guy wires to trees without permission. When such permission is granted, protect the tree before making fastening or attachments by providing burlap wrapping and softwood cleats.
 - d. The use of axes or climbing spurs for trimming will not be permitted.
 - e. Provide climbing ropes during trimming.
4. Remove shrubs to be saved, taking a sufficient earth ball with the roots to maintain the shrub.
- a. Temporarily replant if required, and replace at the completion of construction in a condition equaling that which existed prior to removal.
 - b. Replace in kind if the transplant fails. Provide transplanting, planting, and watering and guarantee as specified in Section 32 90 00.
5. Have any tree and shrub repair performed by a tree surgeon properly licensed by the State of Virginia and within 24 hours after damage occurred.

3.3 CLEARING AND GRUBBING

- A. Clearing: Clear all items required to install the new work and remove cleared and grubbed materials from the site.
1. Do not start earthwork operations in areas where clearing and grubbing is not complete, except that stumps and large roots may be removed concurrent with excavation.
 2. Comply with erosion, sediment control and storm management measures as specified in the Contract Documents.
- B. Grubbing: Clear and grub areas to be excavated, areas receiving less than 3 feet of fill and areas upon which structures are to be constructed.
1. Remove stumps and root mats in these areas to a depth of not less than 1 foot below the subgrade of sloped surfaces.

2. Fill all depressions made by the removal of stumps or roots with material suitable for backfill as specified in Section 31 23 23.
- C. Limited Clearing: Clear areas receiving more than 3 feet of fill by cutting trees and shrubs as close as practical to the existing ground. Grubbing will not be required.
 - D. Burning: No burning is permitted.

END OF SECTION

SECTION 31 23 16

EXCAVATION - EARTH AND ROCK

PART 1 GENERAL

1.1 SUMMARY

- A. Section Includes: Requirements for performing all operations necessary to excavate and transport material as required to establish the grades shown on the plans, including excavation of any material necessary for any purpose pertinent to the construction of the Work or as directed by the OWNER.
- B. Related Work Specified In Other Sections Includes, But is Not Limited to, the Following:
 - 1. Section 31 10 00 - Site Clearing
 - 2. Section 31 23 23 - Backfilling
 - 3. Section 31 80 00 - Flow Bypass and Dewatering

1.2 DEFINITIONS

- A. Earth: "Earth" includes all materials which, in the opinion of the ENGINEER, do not require blasting, barring, or wedging for their removal from their original beds. Specifically excluded are all ledge and bedrock and boulders or pieces of masonry larger than one cubic yard in volume.
- B. Rock: "Rock" includes all materials which, in the opinion of the ENGINEER, require blasting, barring or wedging for removal from their original beds and which have compressive strengths in their natural undisturbed state in excess of 300 psi. Boulders or masonry larger than one cubic yard in volume are classed as rock excavation.

1.3 SITE CONDITIONS

- A. No geotechnical investigation has been performed for this project. The CONTRACTOR shall be responsible for verifying the suitability of subsoils during construction for the purpose of supporting structures including but not limited to the drivable earthen embankment and gabion wall.
- B. The existing elevations and contours shown on the plans, cross sections, and profiles were surveyed prior to plan development. Existing elevations and grades may have changed since the original survey was completed due to stream erosion,

sediment accretion, or fill. It is the Contractor's responsibility to confirm existing grades and adjust earthwork as necessary at no additional cost to the OWNER.

- C. Actual Conditions: Make any geotechnical investigations deemed necessary to determine actual site conditions.
- D. Existing Structures and Underground Utilities: Locate and identify all existing structures and underground utilities prior to the commencement of Work. The CONTRACTOR shall protect all existing structures and underground utilities in accordance with this section.
- E. Quality and Quantity: Make any other investigations and determinations necessary to determine the quality and quantities of earth and rock and the methods to be used to excavate these materials.

PART 2 PRODUCTS

Not Used

PART 3 EXECUTION

3.1 GENERAL

- A. All earthwork shall be performed in accordance with permit requirements.
- B. Grading operations shall be conducted so that material outside construction limits will not be disturbed.
- C. Erosion and Sediment Control: Setup erosion and sediment control measures prior to excavation in accordance with Section 31 25 00 and Contract Documents.
- D. Flow Bypass and Dewatering: Divert or bypass stream and stormwater flows away from excavation sites and dewater excavation sites in accordance with Section 31 80 00.
- E. Clearing: Clear opencut excavation sites of obstructions preparatory to excavation. Clearing in accordance with Section 31 10 00, includes removal and disposal of vegetation, trees, stumps, roots and bushes, except those specified to be protected during trench excavation.
- F. Banks: Shore or slope banks to the angle of repose to prevent slides or cave-ins in.

- G. Protection of Existing Structures and Underground Utilities: The CONTRACTOR shall be responsible for protecting all existing structures and underground utilities including but not limited to the rip rap dam, concrete riser structure, 15” stormwater outfall, and sanitary sewer and manholes (active and abandoned). Any damage to existing structures and underground utilities shall be repaired to the satisfaction of the OWNER by the CONTRACTOR at no additional expense to the OWNER.

3.2 STRUCTURE EXCAVATION

- A. Excavation Size: Provide excavations of sufficient size and only of sufficient size to permit the Work to be economically and properly constructed in the manner and of the size specified.
- B. Excavation Shape: Shape and dimension the bottom of the excavation in earth or rock to the shape and dimensions of the underside of the structure.
- C. Compaction: Before placing foundation backfill, proof roll the bottom of the excavations to detect soft spots.
 - 1. For accessible areas, proof roll with a ten wheel tandem axle dump truck loaded to at least 15 tons or similarly loaded construction equipment.
 - 2. For small areas, proof roll with a smooth-faced steel roller filled with water or sand, or compact with a mechanical tamper.
 - 3. Make one complete coverage, with overlap, of the area.
 - 4. Overexcavate soft zones and replace with compacted select cohesive fill in accordance with Section 31 23 16.

3.3 ROCK EXCAVATION

- A. Rock Excavation: Excavate rock within the boundary lines and grades as shown, specified or required.
 - 1. Rock removed from the excavation becomes the property of the CONTRACTOR. Transport and dispose of excavated rock at an off site disposal location. Obtain the off site disposal location.
 - 2. Remove all shattered rock and loose pieces.
- B. Structure Depths: Excavate the rock only to the bottom of the structure.

- C. Payment: Rock excavation, including placing, compacting and shaping of the select fill material, will be paid for under the appropriate Contract Items or where no such items exist, as a change in the Work.

3.4 FINISHED EXCAVATION

- A. Finish: Provide a reasonably smooth finished surface for all excavations, which is uniformly compacted and free from irregular surface changes.
- B. Finish Methods: Provide a degree of finish which is ordinarily obtainable from blade-grade operations, except as otherwise specified in Section 31 23 23.

3.5 PROTECTION

- A. Traffic and Erosion: Protect newly graded areas from traffic and from erosion.
- B. Repair: Repair any settlement or washing away that may occur from any cause, prior to acceptance. Re-establish grades to the required elevations and slopes.
- C. Other Requirements: Conduct all Work in accordance with the environmental protection requirements specified in the Contract Documents.

3.6 AUTHORIZED ADDITIONAL EXCAVATION

- A. Additional Excavation: Carry the excavation to such additional depth and width as authorized in writing, for the following reasons:
 - 1. In case the materials encountered at the elevations shown are not suitable.
 - 2. In case it is found desirable or necessary to go to an additional depth, or to an additional depth and width.
- B. Refill Materials: Refill such excavated space with compacted select fill material.
- C. Compaction: Where necessary, compact fill materials to avoid future settlement.
- D. Payment: Additional earth excavations so authorized and select fill materials authorized for filling such additional excavation and compaction of select fill materials will be paid for under the appropriate Contract Items or where no such items exist, as a change in the Work.

3.7 UNAUTHORIZED EXCAVATION

- A. Stability: Refill any excavation carried beyond or below the lines and grades shown, except as specified in the subsection headed "Authorized Additional

Excavation", with such material and in such manner as may be approved in order to provide for the stability of the various structures.

- B. Refill Materials: Refill spaces beneath all structures excavated without authority with compacted select fill material, as approved.
- C. Payment: Refill for unauthorized excavation will not be measured and no payment will be made therefor.

3.8 SEGREGATION STORAGE AND DISPOSAL OF MATERIAL

- A. Stockpiling Suitable Materials: Stockpile topsoil suitable for final grading and landscaping and excavated material suitable for backfilling or embankments separately on the site in approved locations.
- B. Stockpile Locations: Store excavated and other material a sufficient distance away from the edge of any excavation to prevent its falling or sliding back into the excavation and to prevent collapse of the wall of the excavation. Provide not less than 2 feet clear space between the top of any stockpile and other material and the edge of any excavation.
- C. Excess Materials: Transport and dispose of surplus excavated material and excavated material unsuitable for backfilling or embankments at an off site disposal location. Obtain the off site disposal location.

END OF SECTION

(NO TEXT FOR THIS PAGE)

SECTION 31 23 23

BACKFILLING

PART 1 GENERAL

1.1 SUMMARY

- A. Section Includes: Backfill all excavation to subgrade or final grade as may be shown or required. For areas to be covered by topsoil, leave or stop backfill 4 – 6 inches below the finished grade or as shown. Obtain approval before backfilling against concrete structures. Remove from all backfill, any compressible, putrescible, or destructible rubbish and refuse and all lumber and braces from the excavated space before backfilling is started. Leave sheeting and bracing in place or remove as the work progresses.
- B. Related Work Specified In Other Sections Includes, But is Not Limited to, the Following:
 - 1. Section 31 10 00 - Site Clearing
 - 2. Section 31 23 16 - Excavation – Earth and Rock

1.2 REFERENCES

- A. Codes and standards referred to in this Section are:
 - 1. ASTM D 1557 - Standard Test Method for Laboratory Compaction Characteristics of Soil Using Modified Effort (56,000 ft-lbf/ft³ (2,700 kN-m/m³))

1.3 SUBMITTALS

- A. Provide all submittals, including the following in accordance with the Contract Documents.
 - 1. Certified laboratory reports of all proposed backfill material.

PART 2 PRODUCTS

2.1 BACKFILL MATERIAL - GENERAL

- A. General: Backfill with sound materials, free of rock greater than 3 inches, waste, organic matter, vegetation, invasive species, pathogens, rubbish, boggy or other unsuitable materials.

- B. General Materials Requirements: Conform materials used for backfilling to the requirements specified. Determine and obtain the approval of the appropriate test method where more than one compaction test method is specified.
- C. Frozen Materials: Do not use frozen material for backfilling.

2.2 SELECT FILL

- A. Materials for Select Fill: Use excavated material obtained within the limits of the project to raise the site elevations to those specified in the grading plan. Soils sufficient for use as select fill include ASTM D 2487 Soil Classification Groups GW, GP, GM, GC, SW, SP, SM, and SC, or combination of these groups or as approved by OWNER.
- B. Material Approval: All material used as select fill is subject to approval. If there is insufficient on-site material, import whatever additional off-site material is required which conforms to the specifications and at no additional cost.

2.3 SELECT COHESIVE FILL

- A. Materials for Select Cohesive Fill: Use clean clay from a borrow site, as approved, which can be readily and thoroughly compacted to 95 percent of the maximum dry density obtainable by ASTM D 1557.
 - 1. Select fill shall have a UCS classification of “CL”, a liquid limit less than or equal to 40, and a plasticity index less than or equal to 20.

2.4 COMMON FILL

- A. Materials for Common Fill: Material from on-site excavation may be used as common fill provided that it can be readily compacted to 90 percent of the maximum dry density obtainable by ASTM D 1557, and does not contain unsuitable material. Select fill may be used as common fill at no change in the Contract Price.
- B. Granular Materials On-Site: Granular on-site material, which is fairly well graded between the following limits may be used as granular common fill:

U.S. Standard Sieve	Percent Passing by Weight
3 inch	100
#10	50-100
#60	20-90
#200	0-20

PART 3 EXECUTION

3.1 STRUCTURE BACKFILL

- A. Use of Select Cohesive Fill: Where over-excavation is required to remove unsuitable materials beneath new structures, backfill the over-excavation with select cohesive fill.
 - 1. Place backfill in uniform layers not greater than 8 inches in loose thickness and thoroughly compact in place with suitable approved mechanical or pneumatic equipment.
 - 2. Compact backfill to not less than 95 percent of the maximum dry density as determined by ASTM D 1557.
- B. Use of Common Fill: Where needed to achieve finished grades, use common granular fill adjacent to structures in all areas not specified above, unless otherwise shown or specified.
 - 1. Extend such backfill from the bottom of the excavation to the bottom of subgrade within the footprint of the constructed wetland to be planted, and to final grade for all other areas.
 - 2. Place backfill in uniform layers not greater than 8 inches in loose thickness and thoroughly compact in place with suitable equipment, as specified above.
 - 3. Compact backfill to not less than 90 percent of the maximum dry density as determined by ASTM D 1557.

3.2 EARTH EMBANKMENTS

- A. Use of Cohesive Materials: Make all earth embankments of approved cohesive select fill material. The use of cohesive materials from onsite excavation will not be permitted, unless approved in writing by the OWNER.
 - 1. Place fill in uniform layers not greater than 6 inches in loose thickness. Compact in place with suitable approved mechanical equipment.
 - 2. Compact earth embankments to not less than 95 percent of the maximum dry density as determined by ASTM D 1557.
 - 3. Do not use cohesionless, granular material as earth embankment backfill, unless otherwise shown or required.

3.3 COMPACTION EQUIPMENT

- A. Equipment and Methods: Carry out all compaction with suitable approved equipment and methods.
 - 1. Compact select cohesive fill with sheep's-foot rollers or similar equipment where practicable. Use hand held pneumatic tampers elsewhere for compaction of select cohesive fill material.
 - 2. Compact select fill using the equipment bucket and tracks.

3.4 FINISH GRADING

- A. Final Contours: Perform finish grading in accordance with the completed contour elevations and grades shown and blend into conformation with remaining natural ground surfaces.
 - 1. Bring finish grades to elevations within plus or minus 0.10 foot of elevations or contours shown or as specified in Section 16 00 17.

3.5 RESPONSIBILITY FOR AFTERSETTLEMENT

- A. Aftersettlement Responsibility: Take responsibility for correcting any depression which may develop in backfilled areas from settlement within one year after the work is fully completed. Provide as needed, backfill material, stone roadway surface replacement, and gabion wall replacement, and perform the necessary reconditioning and restoration work to bring such depressed areas to proper grade as approved.

3.6 INSPECTION AND TESTING OF BACKFILLING

- A. Sampling and Testing: Sampling and testing of all in-place backfill will be provided by the OWNER as specified in the Contract Documents. If initial testing reveals non-compliance with Contract requirements, all additional testing will be made at the Contractor's expense.
- B. Correction of Work: Correct any areas of unsatisfactory compaction by removal and replacement, or by scarifying, aerating or sprinkling as needed and recompaction in place prior to placement of a new lift.

END OF SECTION

SECTION 31 25 00

EROSION AND SEDIMENT CONTROL

PART 1 GENERAL

1.1 SUMMARY

- A. Section Includes: The requirements for providing slope protection and erosion control practices for all areas within the contract limits and other area indicated, including work designated in permits and other agreements, as specified in the Contract Documents.
- B. Related Work Specified in Other Sections Includes, But is Not Limited to, the Following:
 - 1. Section 31 10 00 - Site Clearing
 - 2. Section 31 23 16 - Excavation - Earth and Rock
 - 3. Section 31 23 23 - Backfilling
 - 4. Section 32 90 00 - Landscaping Work

1.2 QUALITY ASSURANCE

- A. Reference Codes and Standards: CONTRACTOR shall reference the latest edition of the code or standard at the time of project advertisement or assignment. Comply with applicable provisions and recommendations of the following, except as otherwise shown or specified:
 - 1. Virginia Erosion and Sediment Control Handbook, Latest Edition.
 - 2. Virginia Erosion and Sediment Control Regulations.
 - 3. Virginia Erosion and Sediment Control Law.
 - 4. Virginia Storm Water Management Regulations.

1.3 SUBMITTALS

- A. General: Provide all submittals, including the following, as specified in the Contract Documents.
- B. Shop Drawings:
 - 1. Submit Erosion and Sediment Control plan showing details of erosion and sediment control devices and locations. Submittal information shall comply with requirements of regulatory agency which has jurisdiction over erosion and sediment control in the area in which the project is located. Submit

technical data, manufacturers literature and catalog information for the products specified.

2. Submit copies of approved Erosion and Sediment Control permits from appropriate governing jurisdictions.

PART 2 PRODUCTS

Not Used

PART 3 EXECUTION

3.1 EROSION AND SEDIMENT CONTROL PLAN

- A. General: Prepare an Erosion and Sediment Control Plan to include erosion control practices as specified in the most current edition of the Virginia Erosion and Sediment Control Handbook.
- B. Contents: Prepare the Erosion and Sediment Control Plan to include but not limited to the following information:
 1. Total square area disturbed by excavation.
 2. Quantity of erosion control practices to be provided.
 3. Approximate square feet of area controlled by the erosion control practices as specified in the Erosion and Sediment Control Plan, and the type of erosion control practices, whether permanent or temporary.
 4. Topographical or plan maps of construction area with areas marked to indicate erosion control practices used.
- C. Availability: Keep the Erosion and Sediment Control Plan at the construction site at all times available for inspection for the entire construction period.
- D. Ordinances: Comply with all erosion and siltation control ordinances in effect and required by governing bodies having jurisdiction over the construction site and provide appropriate control measures as required.
- E. Payment: Include the cost of the erosion control in the Contract Price. No separate payment will be made for these items unless otherwise specified.

3.2 EROSION AND SEDIMENT CONTROL

- A. Erosion and sediment control practices and measures shall be constructed prior to any land disturbing activity. They shall be maintained in accordance with the "Virginia Erosion and Sediment Control Handbook" and local ordinances. They shall be removed only upon completion of all land disturbing activities.
- B. All disturbed areas including but not restricted to stock piles, dams, banks of sediment basins and temporary road banks left unprotected for more than 30 days shall be temporarily seeded at the CONTRACTOR'S expense. All disturbed areas shall be protected to control erosion and prevent sedimentation of adjacent properties, storm sewers and/or streams.
- C. Sediment control devices such as diversion berms, sediment raps, filter berms, vegetation stabilization, etc., shall be used to prevent off-site sedimentation at all times.
- D. All borrow and/or spoil materials shall only be stockpiled within the limits of the permitted site.
- E. The proposed grading shall not impair existing surface drainage, constitute a potential erosion hazard, or source of sedimentation to any adjacent property, drainage system or right-of-way.
- F. All points of construction ingress and egress shall be protected to prevent tracking of mud on the public streets.
- G. Storm drainage pipe discharges shall be diverted away from the work area.
- H. Upon completion of all construction activities, and upon stabilizing all areas disturbed by construction activities, remaining temporary sediment control devices shall be removed. Silt fencing shall be installed downhill of sediment traps prior to their removal. Sediment trap areas shall be restored to pre-existing grades and stabilized prior to removing silt fencing.
- I. Upon removal of temporary erosion and sediment control features, the construction site shall be inspected for remaining disturbed areas. Stabilize any remaining disturbed areas.

END OF SECTION

(NO TEXT FOR THIS PAGE)

SECTION 31 80 00

FLOW BYPASS AND DEWATERING

PART 1 GENERAL

1.1 SUMMARY

- A. Section Includes: Requirements for bypassing stream flow to isolate work areas and dewater the work areas as necessary to keep excavations dry.
- B. Related Work Specified In Other Sections Includes, But is Not Limited to, the Following:
 - 1. Section 31 10 00 - Site Clearing
 - 2. Section 31 23 16 - Excavation – Earth and Rock
 - 3. Section 31 23 23 - Backfilling

1.2 DEFINITIONS

- A. Flow Bypass: “Flow Bypass” constitutes any means and methods of redirecting flow from a stream around the work area including the use of pumps and/or diversion pipes.

1.3 SUBMITTALS

- A. General: Provide all submittals, including the following, as specified in the Contract Documents.
- B. Flow Bypass Plan: A plan for redirecting stream flow and stormwater flow away from the work area and a sequence of construction shall be submitted to the OWNER for approval. The plan shall include a description of all equipment to be used, the arrangement of equipment, and a calculated estimate of the bypass capacity for each phase of the construction sequence. The CONTRACTOR shall take into consideration the fact that portions of the work area fall within the existing pond footprint and are subject to inundation during wet weather events in developing the flow bypass plan. No excavation shall be started until approval of the flow bypass plan and equipment has been obtained. Maintain one copy of the flow bypass plan at the project site to be available for inspection while construction is underway.
- C. Dewatering Plan: A dewatering plan for the control of groundwater, including a description of the equipment to be used, the arrangement of equipment and the method of disposal of the groundwater shall be submitted for approval. No

excavation shall be started until approval of the dewatering plan and equipment has been obtained. Maintain one copy of the dewatering plan at the project site to be available for inspection while all dewatering operations are underway.

PART 2 PRODUCTS

- A. Sandbags shall consist of materials which are resistant to ultraviolet radiation, tearing, and puncture and woven tightly enough to prevent leakage of fill material (i.e. sand, fine gravel, etc.).
- B. Sheeting shall consist of polyethylene plastic, which is impervious and resistant to puncture and tearing.
- C. Pump(s) shall be large enough to maintain uninterrupted base flow to the channel downstream of the work area. The pump around shall include a hose suitable to convey water overland to the downstream section. Minimum linear feet of hose required is equivalent to the maximum estimate for one workday provided by the Contractor. The pump shall be shut off at night and baseflow shall flow through the completed and stabilized portion of the project into the existing downstream channel unless otherwise noted in the Contract Documents.
- D. Filter bags made of non-woven geotextile as specified in the Contract Documents shall be used for dewatering the turbid water within the active work area

PART 3 EXECUTION

3.1 GENERAL

- A. Installation of sand bags, sheeting, and pump around shall be in accordance with the approved erosion and sediment control plan in the Contract Documents, or as directed by the OWNER.
- B. The diversion structure shall be installed from upstream to downstream
- C. The height of the sand bag diversion structure shall be a minimum of baseflow depth plus one foot, and a minimum of 2 feet. Further, the sand bag diversion shall be of sufficient height as to provide a pool deep enough to maintain pumping operations
- D. Sheeting shall overlap the sandbags such that the upstream portion covers the downstream sandbag face with at least an 18 inch overlap
- E. When dewatering the work area the pump shall discharge into a non-woven geotextile filter bag of adequate size to accommodate the incoming flow as

specified in the Contract Documents. The filter bag must be placed within the Limits of Disturbance on a flat surface to allow dewatering without creating erosive conditions in the area of the outfall

- F. All structures installed to pool water for diversion or pumping shall be constructed to overflow in a non-erosive manner in the event of a high-intensity wet weather event that exceeds the capacity of the flow bypass operation.

3.2 REMOVAL OF WATER

- A. Water Removal: At all times during the excavation period and until completion and acceptance of the WORK at final inspection, provide ample means and equipment with which to remove promptly and dispose of properly all water entering any excavation or other parts of the WORK.
- B. Dry Excavations: Keep the excavation dry.
- C. Water Contact: Allow no water to rise over or come in contact with masonry and concrete until the concrete and mortar have attained a set and, in any event, not sooner than 12 hours after placing the masonry or concrete.
- D. Discharge of Water: Dispose of water pumped or drained from the Work in a safe and suitable manner without damage to adjacent property or streets or to other work under construction.
- E. Protection: Provide adequate outfall protection for water discharged into streams.
- F. Sanitary Sewers: Discharge no water into sanitary sewers.
- G. Storm Sewers: Discharge no water containing settleable solids into storm sewers.
- H. Repair: Promptly repair any and all damage caused by dewatering the Work.

END OF SECTION

(NO TEXT FOR THIS PAGE)

SECTION 32 90 00

LANDSCAPING WORK

PART 1 GENERAL

1.1 SUMMARY

- A. Section Includes: Soil, soil preparation, soil tests, excavation, planting, seeding, pruning, edging, fertilizing and maintenance.
- B. Related Work Specified in Other Sections Includes, But is Not Limited to, the Following:
 - 1. Section 16 00 11 - Salvaging Furnishing & Placing Topsoil
 - 2. Section 31 23 16 - Excavation, Earth and Rock
 - 3. Section 31 23 23 - Backfilling
- C. Prior to start of work, the CONTRACTOR shall submit a proposed planting schedule, including species and quantities, anticipated planting dates, and the source of plant material to the OWNER for review. No work shall be performed until this information has been reviewed and approved by the OWNER.
- D. The OWNER may request the CONTRACTOR to stake the location of individual plants within the approved Planting Zones

1.2 SUBMITTALS

- A. General: Provide all submittals, including the following, as specified in the Contract Documents.
- B. Soil Tests: After preparation and prior to installation of the plants in the constructed wetland, samples of the planting soil shall be tested in a laboratory to verify that they contain an acceptable level of nutrients and organic matter to promote the vigorous growth of the plants specified in the Contract Documents. A separate sample from each planting bed shall be tested. The CONTRACTOR shall submit the test results to the OWNER for acceptance of the planting soil prior to installing the plants. Soil amendments and addition of additional organic matter may be required at the discretion of the OWNER based on the laboratory test results.
- C. Soil Amendments: Prior to use, labels of all soil amendments shall be presented to the OWNER to verify compliance with the design specifications. Samples may be requested for laboratory analysis.

- D. Additional Organic Matter: A sample of the organic matter specified shall be submitted to the OWNER for approval prior to use. A laboratory analysis may be requested if deemed necessary
- E. Plant Labels and Written Maintenance Procedures: Each separately containerized plant brought to the site shall be labeled within reason. Flats of the same plants may have one label per flat. Each bundle of bare root plants shall be labeled. These labels must show the botanical name of the plant. The plants and labels shall be presented to the OWNER for inspection and acceptance prior to installation. Upon acceptance of the plants by the OWNER, the CONTRACTOR shall provide written maintenance procedures for maintenance of the plants.

1.3 WARRANTY

- A. The CONTRACTOR shall maintain a 1 year care and replacement warranty of all plants and seeding.
- B. The period of care and replacement shall begin after final inspection and approval of the initial installation of all plants and seeding continue for 1 year, with a potential plant replacement period after the year warranty inspection.
- C. Warranty replacements shall be performed in accordance with the Contract Documents and these specifications.

1.4 MAINTENANCE

- A. General: The CONTRACTOR is responsible for the maintenance of the herbaceous perennials from the time they are brought onto the job site until they are planted and accepted by the OWNER.
 - 1. Plants shall be watered often enough to prevent wilting prior to planting. After planting, they shall be watered initially to settle the soil, then to prevent wilting and to allow them to become established on the site.
 - 2. The beds shall be free of weeds at planting time and shall be maintained weed free by the CONTRACTOR until the planting is accepted by the OWNER.
 - 3. Should insects or diseases attack the plants after installation and prior to acceptance of the planting, appropriate pesticides shall be properly applied to correct the situation.
 - 4. The beds should be checked regularly for soil settling which may expose the root balls or otherwise endanger the health of the planting. Should this occur, the CONTRACTOR shall correct the settling problems.
 - 5. Newly planted herbaceous perennials may be heaved out of the ground by alternate freezes and thaws. Should this occur prior to acceptance of the planting, the CONTRACTOR shall re-set those affected plants.

6. Any noted defects, such as reversions, errant growth or color not typical for the species or cultivar, shall be brought to the attention of the OWNER. The CONTRACTOR shall take whatever action is necessary to correct the situation to the satisfaction of the OWNER, which may include removal of the entire plant.

PART 2 PRODUCTS

2.1 CONSTRUCTED WETLAND SOIL AMENDMENTS

- A. All existing topsoil salvaged for use in the constructed wetland shall be amended in accordance with the Contract Drawings.
- B. Soil for herbaceous perennials should be prepared 4 - 6 inches deep, unless otherwise noted. Top soil should be dry, loose, and free of debris. Where hardpan exists beneath the prepared bed, deeper preparation may be specified.
- C. Organic matter can be from peat moss, compost, or locally available organic waste. Organic matter should be free from debris, weed seeds, and insects or diseases which may be harmful to the intended planting.
- D. Synthetic fertilizers, if preferred by the CONTRACTOR, should be specified to provide the nutrients as required by the soil test. They should be delivered to the job site in their original packaging with legible, intact labels indicating nutrient content and source. Labels should be checked prior to use and a sample may be requested for laboratory analysis.
- E. Natural fertilizers include minerals, such as rock phosphate or greens and as well as those usually marketed as "organic". When these sources of nutrients are preferred, they shall be specified in type and quantity to provide the nutrients as shown necessary by the laboratory soil test. Standardized, commercial fertilizers shall be delivered to the site in their original packaging with legible intact labels showing nutrients analysis. Non-commercially processed manure or other organic waste will not be permitted.

2.2 PLANT MATERIALS

- A. All plant material shall conform to the current issue of the American Standard for Nursery Stock published by the American Association of Nurserymen.
- B. Plant materials must be selected from certified nurseries that have been inspected by state and/or federal agencies. Nursery inspection certificates shall be furnished to the OWNER upon request.
- C. The nursery supply source shall certify that the origin of the seeds from which the trees and shrubs were produced is from Hardiness Zones 6 or 7. Stock from colder zones may be accepted, subject to approval by OWNER.

- D. Plant material collected from the wild is prohibited.
- E. Container grown stock shall have been grown in a container long enough for the root system to have developed sufficiently to hold its soil. Roots shall visibly extend to the inside face of the growing container. All container grown plants shall be grouped and kept moist and cool until they are planted. Plants left to dry in the sun prior to planting may be rejected on-site by the Inspector.
- F. The OWNER may reject plants damaged in handling or transportation.
- G. No plants shall be installed unless the OWNER approves both the condition of the plantings and the process of installation.

2.3 SUBSTITUTE PLANT MATERIAL

- A. Prior to NOTICE-TO-PROCEED, the OWNER must approve all plant substitutions.
- B. If a substitute is selected, it must be native to the OWNER and of the same size, value, and quality as the original plant.

2.4 SEED MIX

- A. Seed Mix shall consist of the varieties specified in the vegetation schedule and planting plan sheets of the Contract Documents for all planting zones.
- B. Seed shall be certified that the Pure Live Seed (PLS) percentage is equal to or greater than that which is specified on the Plant Schedules. If the PLS is less than specified, the CONTRACTOR shall increase the seeding rate to compensate for the PLS difference at his/her own expense.
- C. All seed and seed varieties shall be free from State and Federal prohibited noxious weed seeds and the following:

Annual bluegrass	Corn cockle	Spurred anoda
Bermuda grass	Dodder	Wild garlic
Bindweed	Giant foxtail	Wild onion
Cocklebur	Horse nettle	Johnson grass
Japanese stilt grass	Japanese knotweed	Mile-a-minute
Wavy basket grass	Multiflora rose	

2.5 WATER

- A. Water used in the establishment or caring of plants and seed shall be free from any substance that is injurious to plant life.

2.6 FERTILIZER

- A. No broadcast fertilization shall be permitted unless specifically noted in Contract Documents.
 - 1. Fertilize each bare root, plug, tuber, and pint container plant with a 5 gram tablet of controlled release fertilizer. Fertilize each quart container with a 10 gram tablet of controlled release fertilizer. Fertilize each 1 gallon and 2 gallon container with a 20 gram tablet of controlled release fertilizer. Generally for each 12 to 18 inches of plant height or for each ½” of tree diameter at the base, use 20 grams for slow growing plants or 40 grams for fast growing plants or poor soil conditions. Said fertilizer tablets shall be Agriform 20-10-5 or approved equivalent, applied in accordance with manufacturer’s recommendations.
- B. Herbaceous seeding areas shall not be fertilized

2.7 MYCORRHIZAL FUNGI

- A. All bare root seedlings shall be treated with root dip absorbent polymers and mycorrhizal root dip inoculates in accordance with the manufacturer’s recommendations. Root Dip shall be Mycortree™ Root Dip or the OWNER approved equal.

2.8 ROOT GROWTH HORMONE

- A. All live stake plantings shall be treated with Root Growth Hormone prior to installation.

2.9 STRAW MULCH

- A. Straw mulch shall consist of un-rotten small grain straw.

PART 3 EXECUTION

3.1 GRADES

- A. General: Existing and final contours shown depict finished grades after completion of landscaping work.

3.2 EXCAVATION FOR WETLAND PLANTING

- A. General: Obtain approval for all plant locations before excavation. Remove from the site all material that is surplus and unsuitable for backfill.

- B. Ground Cover: Excavate 4 - 6 inches below final grade for placement of 4 - 6 inches of select topsoil.

3.3 WETLAND SOIL CONDITIONING

- A. Disking: Before the application of topsoil, sodding or seeding, disk the area to be seeded or planted with groundcover to a depth of 4 - 6 inches. Continue the disking until the subsoil surface is sufficiently broken to provide a good bond between subsoil and topsoil. Spread 4 - 6 inches of planting soil over the disked area to a uniform depth and density.

3.4 PLANTING

A. Pre-planting:

1. Plants shall be brought to the site the day they are to be installed, if possible. If situations arise where earlier delivery can't be avoided or if planting is delayed after the plants have been delivered, they shall be stored where they can be properly watered, sheltered from direct sunlight, and protected from mechanical damage by construction equipment, animals, etc. If storage needs to be more than two days, the plants shall be separated far enough from each other to provide good air circulation to their tops, reducing the risk of fungus. Bare root plants which must be held shall be held-in where they can be watered as needed.
2. All plants shall be watered thoroughly and allowed to drain prior to planting.
3. While planting, bare root plants must be protected from hot sun and drying wind by shading them with burlap, landscape fabric, straw or other breathable material. Plastic is unacceptable. Containerized plants must be left in their containers until each is planted. They shall not be removed from the containers to be laid out on the bed where sun and wind will damage the roots prior to planting.
4. Any dead or damaged plant parts shall be removed from the plants upon planting

B. Planting:

1. All areas disturbed by construction shall be planted in accordance with the composition and planting schedules for each designated planting zone. Areas within designated planting zones not disturbed by construction shall be supplemented with trees and shrubs to meet the acre quantities specified in the composition schedule.
2. The CONTRACTOR shall refer to the planting plan, vegetation schedule, planting details and notes in the Contract Documents for specific spacing requirements.

3. The CONTRACTOR shall use the overall spacing requirements, spacing diagrams, and the Planting Notes and Details in the Contract Documents to determine the spacing between each species of vegetation and among the same species vegetation.
4. Immediately after site preparation and approval, trees and shrubs shall be planted. Containerized plants shall be installed between September 30 and March 31, or as directed by the OWNER. Live stakes shall only be planted between February 1 and March 31 (when stock is dormant). Tubelings shall be planted between September 30 and March 31. No planting shall occur when soil is frozen.
5. Root stock of the plant material shall be kept moist during transport, from the source, to the job site and until planted.
6. The CONTRACTOR may be required to flag and label individual planting pits at specific locations. Upon planting a typical area within each planting zone, the CONTRACTOR shall have the OWNER inspect and approve plant spacing and planting techniques before proceeding.
7. All planting pits shall be dug by hand. Walls of planting pits shall be dug so that they are vertical or sloping outward in heavy soils. Scarify the walls of the pit after digging.
8. Excavate the planting pit to a depth of 1 foot plus the container depth in which the plant was grown and 2 feet wider than the container.
9. Planting holes for bare root trees shall be 1-2" deeper than the root collar (i.e. 1-2" deeper than they were growing in the nursery). Bare root seedlings shall be installed with the use of a "sharpshooter shovel".
10. Remove all non-organic debris from the pit and tamp loose soil in the bottom of the pit by hand.
11. Remove the plant either by cutting or inverting the container.
12. DO NOT handle the plant by the branches, leaves, trunk or stem.
13. Place the plant straight in the center of the planting pit, carrying the plant by the root mass. Never lift or carry a plant by the trunk or branches.
14. Place controlled release fertilizer in the planting hole in accordance with Section 2.7 of these specifications (above).
15. Treat all bare root seedlings with root dip absorbent polymers and mycorrhizal root dip inoculates in accordance with the manufacturer's recommendations as specified in Section 2.8 of these specifications (above).

16. Treat all live stake plantings with Root Growth Hormone prior to installation.
17. Backfill planting pit with existing soil and hand tamp as pit is being backfilled to completely fill all voids and air pockets. Do not over compact soil. Make sure plant remains straight during backfilling/tamping procedure.
18. Do not cover the top of the root mass with soil.
19. An additional 18 inch diameter area of topsoil shall be placed around each tree and shrub. Topsoil shall be 2 inches thick.
20. Water plants thoroughly immediately after planting, unless otherwise directed by the OWNER.
21. The OWNER reserves the right to require supplemental watering during construction or during the first growing season after substantial completion, at their sole discretion. Such watering may be required, for example, if plant materials are installed outside the approved planting window or in areas where vegetative establishment does not provide adequate cover (85% min.) to protect against erosion. Supplemental watering shall be done using a submersible-style pump to pump water from an adjacent pool whenever possible in order to avoid damage associated with vehicular access. Any such supplemental watering shall be at the CONTRACTOR'S expense, not subject to change order requests.
22. The CONTRACTOR shall leave no open planting pits at the close of each day.
23. Remove all tags, labels, strings and wire from the plant materials, unless otherwise directed by the OWNER.

C. Post-planting:

1. Herbaceous perennials planted during the active growing season should be protected from hot midday sun with proper shading. Shading may be removed after three days, but shall be replaced if wilting occurs.

3.5 HERBACEOUS PERMANENT SEEDING

- A. No work shall begin without having proper (approved by the OWNER) seed mixes on site. If seed supply runs out, no further work shall be done until seed supply is replenished.

- B. Any seed bags found on site containing seed other than that specified in the Contract Documents (e.g. perennial rye) shall be immediately removed and are subject to confiscation by the OWNER.
- C. All areas disturbed by construction shall be seeded in accordance with the planting plans and schedules. The herbaceous permanent seeding is specified on the composition and planting schedules in the Contract Documents. Areas not disturbed, shall not be seeded.
- D. The CONTRACTOR shall supply the content analysis seed tag from each seed bag to the OWNER for approval prior to seeding.
- E. All areas to be seeded shall conform to the finished grades as specified on the plans and be free of all weeds, trash, debris, brush, clods, loose rocks and other foreign materials larger than 3 inches in diameter or length that would interfere with seeding. All gullies, washes or disturbed areas that develop subsequent to final dressing shall be repaired prior to seeding.
- F. Seeding shall be accomplished by using a broadcast spreader. Any alternative seeding methods must be approved by the OWNER, prior to Bid Submittal. All seeding equipment shall be calibrated before application to the satisfaction of The OWNER so that the material is applied accurately and evenly to avoid misses and overlaps. The broadcast spreader used shall be capable of placing seed at the specified rate.
- G. The specified herbaceous permanent seed mix shall be thoroughly mixed with Species Group 9 (temporary seed) and seeded using a broadcast seeder at the rates specified in the Contract Documents. Seed shall be applied to the top of the topsoil in two different directions. Following the placement of the topsoil and herbaceous permanent seed mix, the CONTRACTOR shall hand rake the seeded areas to mix herbaceous permanent seed mix into the first one (1) inch of the surface media.
- H. Seed shall be spread immediately following fine grading of an area, as construction progresses, in order to achieve rapid stabilization. After seeding and raking, the CONTRACTOR shall cover the seeded areas with straw mulch (overbank areas) or coir matting along the stream banks, as indicated in the Contract documents. **No seed shall be spread on top of straw or coir matting.**
- I. At the sole discretion of the OWNER, additional seeding may be required in areas where poor vegetative establishment is observed (less than 85% surface coverage). Additional seeding may be requested at any time prior to substantial completion or in association with planting inspections during the one year warranty period. Additional seeding shall be considered within the original contract scope and shall not be subject to change order request.

END OF SECTION

(NO TEXT FOR THIS PAGE)