



CITY  
OF **FALLS**  
**CHURCH**

**IFB #0823-22-TBCI**  
**ATTACHMENT L**

**SUPPLEMENTAL SPECIFICATIONS**  
**TRAMMEL BRANCH CULVERT**  
**IMPROVEMENTS PHASE 2**

**City of Falls Church  
Trammel Branch Culvert Improvements Phase 2**

**SUPPLEMENTAL SPECIFICATIONS**

**Table of Contents**

<b>SECTION 100 – CONCRETE WASHOUT .....</b>	<b>3</b>
<b>SECTION 101 – TIMBER MATTING .....</b>	<b>4</b>
<b>SECTION 102 – COIR FIBER MATTING.....</b>	<b>5</b>
<b>SECTION 200 – CURED-IN-PLACE PIPE (CIPP) LINING .....</b>	<b>6</b>
<b>SECTION 201 – CURED-IN-PLACE PIPE (CIPP) LINING INSPECTION.....</b>	<b>8</b>
<b>SECTION 300 – SWALE RESTORATION.....</b>	<b>9</b>
<b>SECTION 301 – PAVEMENT RESTORATION.....</b>	<b>10</b>
<b>SECTION 302 – UTILITY POLE BRACING AND REPLACING GUY WIRES .....</b>	<b>11</b>

## **SECTION 100 – CONCRETE WASHOUT**

### **100.01 – Description**

The concrete washout shall be established to prevent concrete wastewater from being discharged from the site when washing of concrete trucks and equipment is necessary.

### **100.02 – Materials**

Materials shall conform to requirements on site plan and in VDOT Pollution Prevention Field Guide. Typical washout facility may be constructed of:

- Prefabricated Container
- Above ground structures using straw bales, sandbags, wood or the like, and line with a total thickness of 10 mil plastic
- Excavated pits lined with total thickness of 10 mil plastic
- All washouts must have identifying signage

### **100.03 – Procedures**

Concrete washout shall be installed prior to any concrete work to be performed on-site. Concrete wash water from concrete trucks and equipment shall be directed into a leak-proof container or leak-proof settling basin. Concrete wash water shall be allowed to evaporate and let concrete harden. Hardened concrete shall be recycled or disposed of properly. Any remaining liquid shall be collected and recycled at the concrete plant or disposed of in a leak-proof container with other construction waste.

Container or basin shall not overflow. Overflow shall not occur due to inadequate sizing or precipitation. Never discharge to surface waters, storm sewers, gutters, or streets. Do not allow wash water to infiltrate into the ground. Do not discharge to sanitary systems unless prior written approval has been granted by the sanitary sewer operator.

### **100.04 – Measurement and Payment**

Concrete washout will be measured per unit of each and will be paid for at the contract unit price. This price shall include providing materials, including signage, washout operations, and maintenance and disposal operations as necessary during construction.

Payment will be made under:

**Pay Item:** Concrete Washout

**Pay Unit:** Each (EA)

## **SECTION 101 – TIMBER MATTING**

### **101.01 – Description**

The timber matting shall be installed to protect existing ground surfaces.

### **101.02 – Materials**

Materials shall conform to requirements on site plan:

- 12 ft width Carolina mat “deck” mat or approved equivalent
- Mulch in conformance with VDOT Specification Section 605

### **101.03 – Procedures**

Contractor shall install mulch layer and timber matting over undisturbed existing ground surfaces in accordance with the site plan prior to use of heavy equipment onsite. Mulch layer shall be replenished as necessary to maintain consistent depth.

### **101.04 – Measurement and Payment**

Timber matting will be measured in square yards (SY) of surface area and will be paid for at the contract unit price per square yard of installed surface area. This price shall include providing and installing materials, including mulch and matting, and maintaining the mulch and matting during construction.

Payment will be made under:

**Pay Item:** Timber Matting

**Pay Unit:** Square Yard (SY)

## **SECTION 102 – COIR FIBER MATTING**

### **102.01 – Description**

Coir fiber matting is to be used on slopes and streamlines for erosion and sediment control. It is designed to hold seed intact during the establishment of vegetative cover.

### **102.02 – Materials**

Materials shall conform to requirements on site plan:

- Ecomatting 400 (properties on site plan) or approved equal
- Topsoil per VDOT Specification Section 605
- Biodegradable or wooden stakes (metal staples not allowed)

### **102.03 – Procedures**

Install coir fiber matting according to the VESCH Section 3.36 upon final grading. Grade the banks to provide a smooth soil surface free from stones, clods, or debris. Place and tamp 2-inch deep course of topsoil. Apply seed (per permanent seeding specification) to the bank prior to the installation of the matting. Seed shall be lightly raked into the soil.

Unroll and place matting. On steep slopes, apply the matting parallel to the direction of flow and anchor securely. Provide a minimum one-foot overlap (laterally and longitudinally) between matting rolls. Rolls that are overlapping along ends parallel to the bank shall be lapped such that the upstream roll is on top of the downstream roll. Rolls that are overlapping along edges perpendicular to the bank shall be lapped such that the upslope roll is on top of the downslope roll. Secure the matting to the slope with biodegradable or wooden stakes, not metal staples.

Matting shall extend two feet beyond the limits of grading at the top of slope and be keyed into a six-inch-deep trench. The matting shall be staked in place along the bottom of the trench at one foot maximum spacing and the trench shall be backfilled and tamped. If there is no adjacent mat, the edge of the mat shall be keyed-in to a depth of six inches into the bank. If there is no toe treatment below the matting, the matting shall be keyed-in a minimum of one foot deep into the stream bed and backfilled with bed material at the toe of the bank. Matting shall be securely fastened in place with wood stakes driven vertically into the soil and flush to the surface. Stakes shall be placed two feet apart on center. Place stakes across the matting at ends, overlaps, and key-in trenches, approximately one foot apart.

### **102.04 – Measurement and Payment**

Coir Fiber matting will be measured in square yards (SY) of surface area and will be paid for at the contract unit price per square yard of installed surface area. This price shall include providing and installing materials, including matting, topsoil, and stakes, and maintaining the matting during vegetation establishment.

Payment will be made under:

**Pay Item:** Coir Fiber Matting

**Pay Unit:** Square Yard (SY)

## **SECTION 200 – CURED-IN-PLACE PIPE (CIPP) LINING**

### **200.01 – Description**

Cured-in-place pipe lining is to be installed to rehabilitate the existing 80" x 48" CMP pipe in site.

### **200.02 – Materials/Submittals**

Materials shall conform to requirements on site plan and VDOT Materials Division Approved Products List No. 30, Pipe Rehabilitation Systems for Method B (Flexible Pipe Liner):

- Liner product with a current PMG listing issued by the International Code Council Evaluation Service (ICC-ES)
- Curing method

Submittals shall follow the City Stormwater Specification Section 01300 *Submittals*.

- Shop drawings/specifications of CIPP liner and installation shall be provided to City of Falls Church for review and approval prior to purchase and installation. Shop drawings shall clearly show all materials and dimensions.
- Record of a pre-installation video camera survey shall be provided to City of Falls Church for review prior to installation.
- CIPP Design including calculations with PE Stamp
- CIPP Manufacturer installer certifications and/or training verifications
- Provide all required documentation to a City-approved third-party inspector for inclusion in a report submittal to the City.
- Record of a post-installation video camera survey shall be provided to City of Falls Church for review after installation.

### **200.03 – Procedures**

Any voids around exterior of pipe must be filled for design assumptions to be valid.

The proposed CIPP product shall have a current PMG listing issued by the International Code Council Evaluation Service (ICC-ES). This listing shall be provided to the third-party inspections firm prior to the commencement of work. The proposed CIPP manufacturer's installation instructions shall be provided to the third-party inspections firm prior to the commencement of work.

A pre-installation video camera survey shall be performed by personnel trained and certified by the manufacturer in locating breaks, obstacles, and service connections. Verification of this training and certification shall be provided to the third-party inspections firm along with the pre-installation video camera survey. The third-party inspections firm shall review and evaluate this video to determine if the piping system is capable to be relined in accordance with the proposed lining system manufacturer's installation requirements and applicable referenced standards. The installation of the CIPP shall not be conducted until written approval of the pre-installation video camera survey has been provided by the third-party inspections firm.

The minimum thickness of the CIPP liner shall be determined by a Virginia registered design professional in accordance with section X1.2 of ASTM F1216 for each individual application.

Calculations, sealed by a Professional Engineer, shall be submitted to the third-party inspections firm.

The contractor installing the CIPP must be trained and certified by the lining manufacturer. Verification of this training and certification shall be provided to the third-party inspections firm.

The installer shall record the data as required by the relining material manufacturer and applicable standards. The recorded data shall include the location of the project, relining material type, amount of product installed, and conditions of the installation. A copy of the data report shall be provided to the third-party inspections firm.

Samples of each installation shall be taken per Sections 8.1.1, 8.1.2, and 8.1.3 of ASTM F1216/F1743 and tested by an accredited laboratory acceptable to the code official. The results of these tests shall be submitted to the third-party inspections firm. Testing shall include:

- Short-term flexural strength and flexural modulus in accordance with ASTM D790. Minimum flexural strength shall be 4,500 psi and minimum flexural modulus shall be 250,000 psi.
- Delamination in accordance with section 8.4 of ASTM F1216/F1743.

The completed system shall be inspected and tested as follows. The inspection and testing shall be witnessed by the third-party inspections firm.

- After curing in accordance with the manufacturer's instructions, a final video inspection in accordance with section 8.6 of ASTM F1216/F1743 shall be performed. The final inspection shall verify that the liner is continuous over the entire length of the inversion and is free of dry spots, lifts, and delaminations.
- Leakage testing in accordance with section 8.2 of ASTM F1216/F1743.

#### **200.04 – Measurement and Payment**

Cured-in-place pipe lining will be measured as a lump sum (LS) and paid upon completion of work and approval of the work by a third party inspector. This price shall include providing materials, shop drawings, submittals, and installation by a certified contractor.

Payment will be made under:

**Pay Item:** CIPP Lining of Existing 80" x 48" CMP

**Pay Unit:** Lump Sum (LS)

## **SECTION 201 – CURED-IN-PLACE PIPE (CIPP) LINING INSPECTION**

### **201.01 – Description**

Contractor shall provide a third-party inspector to oversee the cured-in-place pipe lining. Contractor shall obtain approval of City third-party inspector selection.

### **201.02 – Materials/Submittals**

Materials shall conform to requirements in the latest VDOT Inspection Manual.

- CIPP inspection tools and equipment

Submittals shall follow the City Stormwater Specification Section 01300 *Submittals*.

- All applicable CIPP inspector qualifications including certifications and/or training records

### **201.03 – Procedures**

The City-approved third-party inspections firm shall conduct all required inspections of the CIPP installation and collect all required documentation for inclusion in a report submittal to the City.

Third-party inspector shall be certified by the liner manufacturer and shall conduct inspections in accordance with specifications included on plans and requirements of Supplemental Specification Section 200.

### **201.04 – Measurement and Payment**

Cured-in-place pipe lining inspection will be measured as a lump sum (LS) and paid upon completion of work and approval of the work by a third party inspector. This price shall include review of materials, shop drawings, submittals, and inspections associated with the CIPP installation, and compilation of all required documentation by a certified contractor.

Payment will be made under:

**Pay Item:** Third Party CIPP Inspector

**Pay Unit:** Lump Sum (LS)



## **SECTION 300 – SWALE RESTORATION**

### **300.01 – Description**

The Level 2 Dry swale on-site shall be restored to original condition. Original design of the swale (by others) has been included in the plans for restoration purposes.

### **300.02 – Materials**

Materials shall conform to requirements on original plans and in Virginia BMP Clearinghouse Specifications for Level 2 Dry Swale:

- Filter Media – BMP Clearinghouse Spec No. 9, Section 6.6
- Surface Cover / Vegetation – Meadow Planting Seed Mix
- Topsoil – BMP Clearinghouse Spec No. 10
- Filter Fabric – BMP Clearinghouse Spec No. 10
- Choking Layer – BMP Clearinghouse Spec No. 10
- Stone and/or Storage Layer – BMP Clearinghouse Spec No. 10
- Underdrains, cleanouts, and observation wells – BMP Clearinghouse Spec No. 10
- Check Dams – BMP Clearinghouse Spec No. 10
- Erosion Control Fabric – BMP Clearinghouse Spec No. 10

### **300.03 – Procedures**

Contractor shall restore existing Level 2 Dry Swale to original condition, as included in the detail from the original construction plan included in the site plan and per Virginia BMP Clearinghouse Specifications. All maintenance inspections and routine maintenance operations shall be conducted per original requirements. Swale footprint shall be protected from compaction during construction.

### **300.04 – Measurement and Payment**

Swale restoration will be measured per cubic yard (CY) and will be paid for at the contract unit price of installed level 2 dry swale. This price shall include providing all materials, restoration of the swale upon completion of construction of other on-site improvements, and maintenance and inspections as necessary during construction.

Payment will be made under:

**Pay Item:** Restore Level 2 Dry Swale

**Pay Unit:** Cubic Yard (CY)

## **SECTION 301 – PAVEMENT RESTORATION**

### **301.01 – Description**

The trail on-site shall be restored to original condition, if damaged. Original design of the trail (by others) has been included in the plans for restoration purposes.

### **301.02 – Materials**

Materials shall conform to requirements on original plans and in VDOT Specifications:

- SM-9.0A Asphalt Concrete
- IM-19.0A Asphalt Concrete
- 21B Subbase Aggregate

### **301.03 – Procedures**

Contractor shall restore existing trail to original condition if damaged during construction, as included in the detail from the original construction plan included in the site plan and per VDOT Specifications.

### **301.04 – Measurement and Payment**

Trail restoration will be measured per square yard (SY) and will be paid for at the contract unit price per square yard of installed surface area. This price shall include providing all materials per the detail (1" SM-9.0A, 3" IM-19.0A, 6" 21B), over a subgrade compacted at 95%, and maintenance and inspections as necessary during construction.

Payment will be made under:

**Pay Item:** Trail Pavement Restoration (1" SM-9.0A; 3" IM-19.0A; 6" 21B; 95% Compacted Subsoil)

**Pay Unit:** Square Yard (SY)

## **SECTION 302 – UTILITY POLE BRACING AND REPLACING GUY WIRES**

### **302.01 – Description**

Utility poles adjacent to excavation and site work (utilities along N. Four Mile Run Drive) shall be temporarily braced and restored to original condition upon completion of construction. No work shall impact the transmission lines in the W&OD right-of-way.

### **302.02 – Materials**

Materials shall conform to Dominion Energy or appropriate utility owner requirements, including any conductivity requirements near utility lines. No permanent modifications to power poles may be made without prior approval of Dominion Energy or appropriate utility owner.

### **302.03 – Procedures**

Contractor shall temporarily brace poles adjacent to excavation work as needed. Contractor shall not make permanent modifications to power poles without obtaining approval of Dominion Energy. Contractor shall not interrupt service or modify existing utility lines without obtaining approval of Dominion Energy or utility appropriate utility owner. If guy wires are impacted during construction, Contractor shall coordinate with Dominion Energy or appropriate utility owner to restore them to original condition.

### **302.04 – Measurement and Payment**

Utility pole bracing and guy wire work will be measured per lump sum (LS) and will be paid for at the contract unit price. This price shall include providing and installing all materials, obtaining Dominion Energy approvals if necessary, and removing and disposing of temporary items.

Payment will be made under:

**Pay Item:** Bracing Utility Poles and Replacing Guy Wires

**Pay Unit:** Lump Sum (LS)