

## **SECTION 1170 - STREAMBANK AND STREAMBED STABILIZATION AND PROTECTION**

### **PART 1 - GENERAL**

#### **1.1 SCOPE OF WORK:**

Provide all labor, materials, equipment and services required for stabilizing streambanks and streambeds with methods and at locations shown on the Plans and specified herein. This includes all associated furnishing, preparing, installing, and hauling as required to complete the work shown on the Plans and specified herein.

#### **1.2 STREAMBANK STABILIZATION:**

At each stream or creek crossing or other location where the CONTRACTOR is disturbing a streambank, the CONTRACTOR shall do so with care so as to not create long-term stability problems of the streambank. The crossing shall be conducted in accordance with Section 1230 STREAM AND CREEK CROSSINGS. Stabilization includes, but is not limited to, regrading, streambank vegetation, and placement of rip-rap as shown on the plans and directed by the ENGINEER.

#### **1.3 STREAMBED STABILIZATION:**

At each stream or creek crossing where the CONTRACTOR is disturbing a streambed, the CONTRACTOR shall do so with care so as to not create long-term erosion problems of the streambed. The crossing shall be conducted in accordance with Section 1230 STREAM AND CREEK CROSSINGS. As indicated in Section 1230, material excavated from the streambed shall be sidecast for replacement during restoration. Rip-rap shall be placed during restoration where shown on the plans or directed by the ENGINEER. No soil or other fine erodible material shall be placed in the channel. Additionally, check dams shall be properly installed and maintained to promote long-term stability.

### **PART 2 - EXECUTION:**

#### **2.1 GENERAL:**

All streambanks and streambeds impacted by construction shall be stabilized so that conditions are improved as a result of the construction activities, unless otherwise approved by the OWNER. Streambank stabilization shall include grading all streambanks to an acceptable grade and vegetating with the most acceptable method or placing rip-rap, as described herein. The CONTRACTOR shall restore the bank with vegetative techniques or rip-rap as shown on the plans, specified herein, and/or directed by the ENGINEER. Any other erosion control methods required by the Ohio Environmental Protection Agency or U.S. Army Corps of Engineers shall be adhered to. The CONTRACTOR shall be responsible for maintaining and/or replacing streambed and streambank stabilization to maintain effectiveness for one year after acceptance of the project by the OWNER.

#### **2.2 STREAMBANK REGRADING:**

In most cases regrading will be minimal, and original grades will usually be restored. If necessary, regraded slopes will be described on the Plans (i.e. 2:1, 3:1, etc.).

#### **2.3 STREAMBANK VEGETATION:**

Vegetation of streambanks shall be performed during restoration with materials that are conducive to the aquatic and terrestrial habitat and the soil and bank stability. The vegetation shall be indicated on the Plans as one of the following and installed as shown in the detail drawings. A maximum of three feet (3') spacing shall be maintained between posts, stakes, seedling or cuttings.

- A. Posts - usually 5 to 7 feet long, but can be 12 feet long or more.
- B. Stakes - usually 1 to 3 inch diameter and 1.5 to 3 feet long.

- C. Seedlings and cuttings - Shall not be planted on actively eroding banks. Banks should be no steeper than 2:1 slope. Species to be based on Tables 1-3 below. Seedlings or cuttings that may develop deep roots shall not be planted over sanitary sewers unless the sewer is completely encased in concrete.

Table 1. Dormant Woody Cuttings Plant Species for Streambank Stabilization		
Black Willow	salix nigra	Any size cutting
White Willow	salix alba	Any size cutting
Sandbar Willow	salix interior	Small cutting
Eastern Cottonwood	populus deltoides	Seedling or any size cutting
Swamp Cottonwood	populus heterophylla	Seedling or any size cutting

Table 2. Little Obstruction to Stream Flow Plant Species for Streambank Stabilization		
Streamco Willow	salix purpurea	Seedling or small cutting
Bankers Willow	salix cotteti	Seedling or small cutting

Table 3. Shade Tolerant Plant Species for Streambank Stabilization		
Blue Arctic Willow	salix nana	Seedling or small cutting
Silky Dogwood	cornus amomum	Seedling only

#### 2.4 RIP-RAP BANK SLOPE PROTECTION/ROCK CHANNEL PROTECTION:

Where shown on the plans or where erosion of the creek channel, in the judgment of the ENGINEER, could cause damage to the water main, sewer, manholes, or other appurtenance and the protection cannot be provided by regrading and vegetative techniques, the CONTRACTOR will be directed to furnish and place Rock Channel Protection in accordance with the Ohio Department of Transportation specification #601.08 with filter, and Type "C" material (unless otherwise shown on the plans). Rock channel protection shall have a minimum thickness (depth) of 24" excluding filter and shall extend over the full width of the area disturbed for the length from top of bank to top of bank, unless otherwise indicated on the Plans or required by the ENGINEER.

#### PART 3 - BASIS OF PAYMENT

Payment for Rock Channel Protection will be made at the Contract unit price per linear foot, measured along the centerline of the pipe, regardless of width, which price shall include compensation for furnishing, hauling, and placing the stone. Cost of streambank and streambed stabilization and protection as shown on the Plans and described herein shall be included in the unit prices for the pipe, except where separate applicable pay items (such as Streambank Regrading, Streambank Vegetation, or Erosion Control) are included on the Proposal Forms.

END OF SECTION