SECTION 04000 – ROOTWAD STABILIZATION STRUCTURES

PART 1 – GENERAL

A. DESCRIPTION

The work shall consist of furnishing and installing structural treatments to stabilize and protect eroding banks of streams or constructed channels, and shorelines of lakes, reservoirs, or estuaries.

B. TREATMENTS

Treatment measures shall be installed in the locations shown on the construction drawings. Several treatments may be installed in combination to achieve the desired conditions.

PART 2 – MATERIALS:

A. Material shall be reasonably free from dirt, clay, sand, rock fines and other materials not meeting the required size specifications.

B. Tree Revetment - The tree revetment is constructed from freshly cut, well branched whole trees (except rootwads) that are laid together and anchored by cover logs and compacted earth, which are buried near the bank. Freshly cut or soaked wood is less buoyant.

C. The length of the logs is set based on the desired spacing between root wads. Use trees that have a trunk diameter of 12 inches or larger. The best type is those that have a brushy top and durable wood, such as hedge, cedar, hackberry, or oak. The rootwad fan should be a minimum of 4 ft. in diameter and have a length of 15 to 20 feet. Other tree trunk sections and limbs from rootwad trees should be cut into lengths of 10 to 20 feet to form cover and/or footer logs as needed.

3. INSTALLATION:

A. Placement of tree revetments shall be accomplished during periods of low water flow.
B. Root wad revetments shall be in sound condition and free from extensive decay. Logs over 12 inches in diameter that are crooked and have an irregular surface can be used for rootwads, footer, or cover logs.
C. Lay the footer log parallel to the bank approximately 15 feet away from the existing bank. Place rootwad trees on top of the footer logs with the basal ends (rootwad) pointed toward the stream and oriented at an upstream angle to the bank.
D. Place miscellaneous smaller branches and tree top material between and on top of the rootwad logs and cover with river gravel.

E. Place 2 – 3 cover logs on top of the rootwad logs and brush with the logs laying parallel to the footer logs.

F. Begin covering the completed rootwad system with soil in compacted layers.

G. Backfill and combine vegetative plantings or soil bioengineering systems behind and above rootwads to form a bench at the bankfull elevation. The vegetation plantings can include live stakes, willow transplants, or dormant post plantings in the openings of the revetment below stream-forming flow stage, live stakes, bare root, or other upland methods at the top of the bank.

H. Install other vegetative plantings or soil bioengineering systems within and above structures to restore stability and establish a vegetative community as shown on the construction drawings.

I. Dormant Post Plantings - Dormant post plantings can be used to form a permeable revetment that is constructed from appropriate vegetative material placed in rows or triangular patterns.

4. SITE EROSION CONTROL

A. Practices shall be installed, or the work performed in such a manner that will minimize site erosion, and the production of sediment. They include but are not limited to project staging, diversions, waterways, seeding, mulching, sediment basins, in-channel sediment control, and silt fence.

5. MAINTENANCE:

A. If, at any time before 12 months after the completion and acceptance of the work, there shall be any settlement requiring repairs to be made along the line of work, or should any defect appear in the work due to neglect, carelessness or improper construction on the part of the Contractor, the Contracting Officer will notify the Contactor to make such repairs and remedy any defects. The Contractor shall, within 5 days after such notice, begin and carry out such repairs at no additional cost to the owner.

PART 5 – MEASUREMENT AND PAYMENT

5.1 METHOD OF MEASUREMENT:

Work will be measured by number of structures placed.

5.2 BASIS OF PAYMENT:

The amount of work completed and approved, as stated above, shall be paid for at the contract unit price.

END OF SECTION 04000