

1. Description

Rootwads are a natural channel stabilization technique used to provide interim protection to streambanks. When buried into a streambank with the root mass pointing upstream, rootwads can be used to deflect stream flows away from streambanks. Rootwads provide short term (5-10 year) protection to allow the establishment of deep rooted vegetation. Rootwads also provide improved fisheries habitat.

2. Materials

Trees used as rootwads must be sound, and free from significant decay. Rootwad installation requires a length of tree trunk with the root mass attached as well as a second Footer Log. Typically, rootwads are identified when present on site and marked by the project coordinator for use by the Contractor.

- 2.1 Rootwads should be of substantial size, and a minimum of fifteen (15') of the trunk must be attached to provide for adequate anchoring in the bank. Footer Logs should be a minimum of eighteen to twenty four inches (18"-24") in diameter and free of limbs.
- 2.2 The root mass should exceed four (4') in diameter. In some instances, multiple rootwads can be installed together to provide the necessary mass.
- 2.3 Trees used for rootwads can consist of any species that provides a dense, flattened root mass. Trees with primarily a deep tap root are not generally suitable for rootwads.

3. Construction Methods

- 3.1 Rootwad construction is as shown in Detail Drawing Sr-06a.
- 3.2 Footer Logs are installed in a trench parallel to the streambank. The footer log shall be buried securely in the bank on both ends. Two (2) large rocks shall be placed on each end of the footer log to help hold it in place.
- 3.3s A trench is dug into the streambank at an angle, and length, that will accommodate the trunk portion of the rootwad. The trench shall be dug such that when buried, the root mass will face upstream at an angle of 20° to 30° from the bank.

- 3.4** The rootwad is placed in the trench at an elevation where the majority of the root mass is below the bankfull elevation. The bottom of the root mass may extend to the thalweg bottom.
- 3.5** After the rootwad is placed in the correct position, one to two large boulders shall be placed on top of the trunk, just behind the root mass. The trench is then backfilled and compacted.
- 3.6** Rootwads are completed by transplanting large woody material from borrow areas at the project site. Woody transplants are placed adjacent to and behind the exposed root mass.

4. Measurement and Method of Payment

Rootwads shall be paid on a Contract unit price basis.

5. Special Conditions

- 5.1** Prior to the start of work, the Contracting Officer and Project Engineer shall designate representatives authorized to observe the Contractors placement of the rootwad. The Contractor shall construct all rootwads in the presence of an authorized GCSWCD representative.
- 5.2** Placement of the footer log and large rocks is critical to the success of rootwads. To insure proper placement, the Contractor shall provide a portable pump to de-water excessive ground water from the excavation.
- 5.3** The construction of rootwads, requires equipment which can place rock in precise locations. An excavator of a suitable size, and containing a thumb is suggested.
- 5.4** The GCSWCD will identify for the Contractor, which rootwads on site may be used.
- 5.5** The GCSWCD has estimated that 5 cu yds of rock are required for each rock vane. Contractors shall include the cost of rock in their unit cost bid for this item.