**Fish Habitat Restoration Methods Concept Specification**
**Root Wads**

**Purpose:**

- To stabilize eroding banks and provide instream cover.

**Conditions Where Applicable:**

- Instream location must be approved by an Adopt-A-Stream Biologist.
- On the outside of pools where there is a high eroding bank.
- Pools lacking cover.

**Habitats Created:**

- Instream cover.
- Bank stabilization and reduced siltation.

**Advantages:**

- Will tolerate high water velocities if the root wads are well anchored.
- Use of native materials can sequester sediment and woody debris, restore stream banks in high velocity streams, and improve fish rearing and spawning habitat.
- Some species, such as willow, often sprout and accelerate colonization.

**Disadvantages:**

- Structure may have limited life, depending on gravel movement and ice scour.
- Structure might need eventual replacement if vegetation does not grow or soil bioengineering systems are not used.
- Usually, the site must be accessible to heavy equipment.
- Materials might not be readily available at some locations.
- Can create local scour and erosion.

**Design Criteria:**

- Where appropriate, root wads should be used with soil bioengineering systems and vegetative plantings to stabilize the upper bank and ensure a regenerative source of stream bank vegetation.
- Trees with root wads should be sized according to the stream and bank height.
- Success depends on anchoring the trees well at both ends and causing a minimum of damage to the banks.

**Implementation Steps:**

- A typical site would use trees with 2 m diameter root wads, trees 6 to 9 m long.
- The tree is buried in the bank or driven into the bank so that the base of the root wad faces the current.
- Space the logs so that the root wad touches the trunk of the log upstream from it.
- Anchor the logs using cable and a dead man's log or a drivable anchor.

**References:**

British Columbia Ministry of Environment, Lands, and Parks and Ministry of Forestry. Fish habitat rehabilitation procedures, watershed restoration Technical Bulletin No. 9, 1997.

Federal Interagency Stream Restoration Working Group (FISRWG). 1998. Stream Corridor Restoration: Principles, Processes and Practices for Details on Root Wads.

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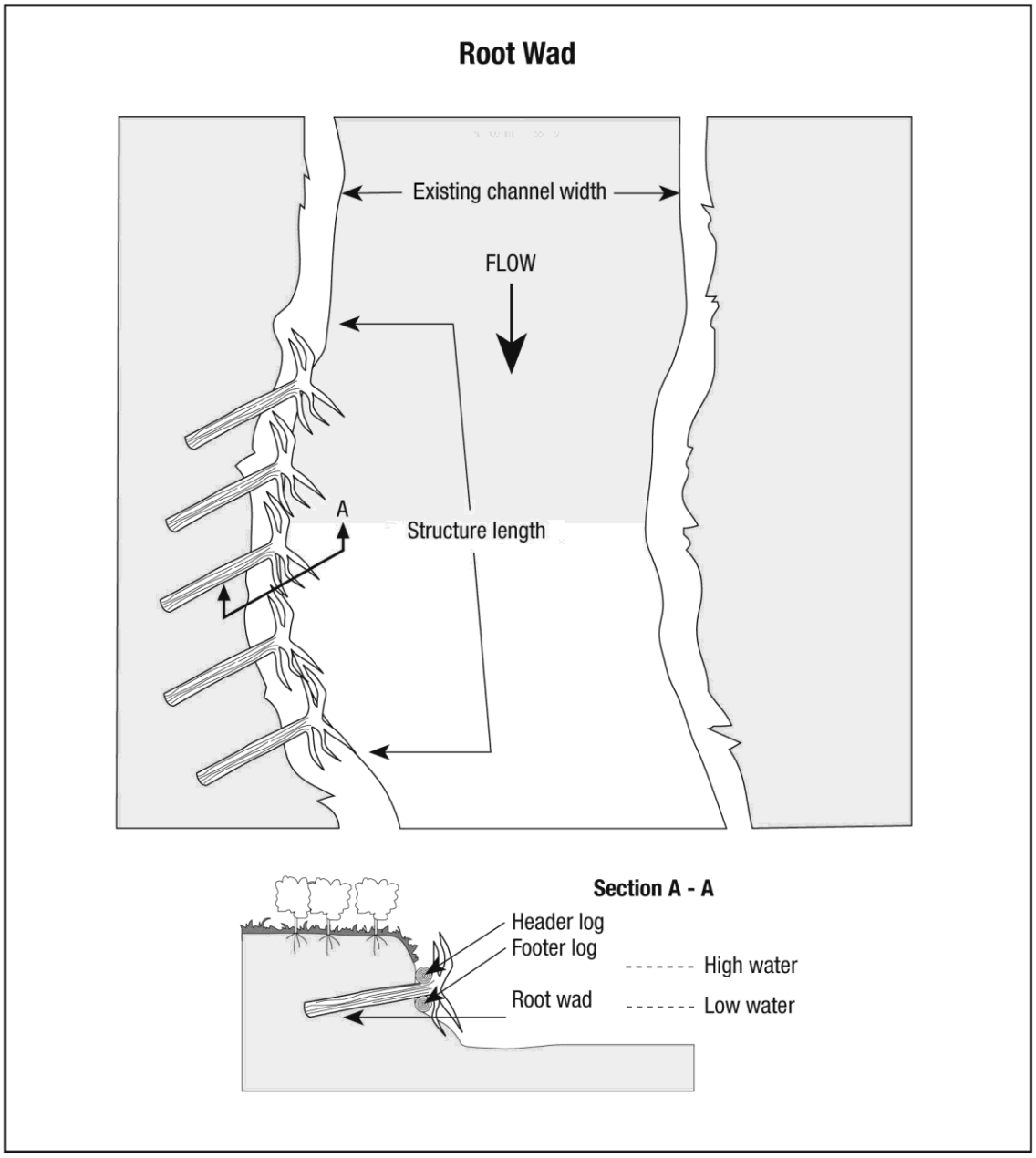


Figure 1. Conceptual drawing of root wads (Thaumas Environmental Consultants Ltd.).