

Green Infrastructure Project

Riparian Zone

Revegetation

Live on a Waterway? Have Erosion Issues?

Land adjacent to waterways is known as the riparian zone and it has many important functions. Healthy vegetated riparian areas keep your land from eroding, improve water quality and quantity, provide important fish and wildlife habitat, and help sustain aquatic life.



photos: US Fish and Wildlife Service

“Riparian” refers to something that lives or is located next to a waterway. Native plants in riparian areas reduce erosion, improve water quality and quantity, provide wildlife habitat, and help sustain aquatic life. Roots of plants protect the stream bank and keep soil (sediment) out of the water. This keeps silt from covering the gravel on the river bed where juvenile salmon and other life forms spawn. Undercut banks with overhanging plants and large woody debris are also important habitat for fish and other aquatic wildlife.

Cold Climate Considerations:

See list on back for specific plants that will survive in a Fairbanks riparian zone.

Special Considerations:

Streambank revegetation projects may require prior approval from state, federal, and/or municipal agencies. We recommend that you contact the permitting agencies early in your planning process (one year before project in spring or summer) to allow ample time to secure necessary permits, acquire grant funding if applicable, and acquire assistance. Permit processing can take 30 days after filing application, much longer depending on project and permitting stipulations. Technical assistance can be obtained by contacting the Fish and Wildlife Service Partners program at 456-0209 or the Alaska Department of Fish and Game Habitat Division at 459-7289.

Cost Estimates:

- Brush Layers - \$105/ft
- Trenched Willow - \$50/ft
- Veg Mat - \$8/ft
- Cabled Spruce - \$45/ft
- Root Wads - \$225/ft

Pros:

- Reduces water runoff and increases groundwater infiltration.
- Reduces property erosion.
- Minimal maintenance required.
- Helps keep water bodies cool.
- Improves habitat for fish, birds and other aquatic life.
- Helps maintain aquatic habitats.

Cons:

- Permits may be necessary and can delay project.
- Should be installed during low water periods.

Time Estimate:

This project could take one day to many weeks to complete depending on level of contractor involvement, type and size of project.



Materials:

- Native Plants
- Veg Mat (removed with permission)
- Biodegradable Fabric C125 BM (ENC2 eqv.)
- Biodegradable Fabric Coir Mat 700 (CF7 eqv.)
- Coir Logs (12”diameter)
- Wooden stakes
- Fill soil, topsoil if possible
- Gravel
- Galvanized or stainless steel cable (1/8 inch)
- Duckbill earth anchor (size 66) and Ferrules

Tools:

- Shovels, pickaxes, loppers
- Sledgehammer
- Pruners
- Small Earthmover (optional)
- Cable Cutter

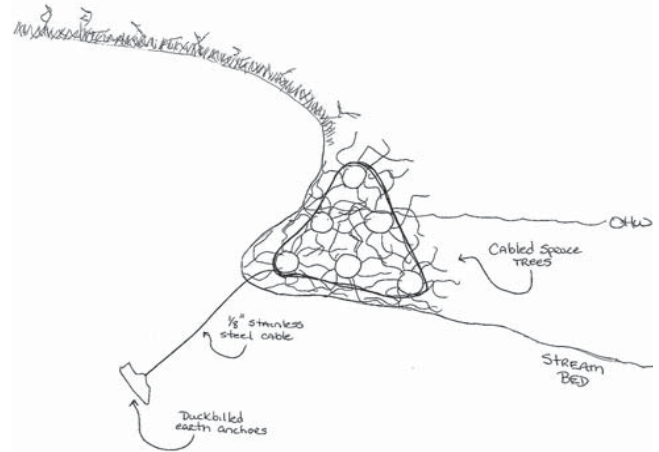


Maintenance:

- Water new plants daily and intensely through the hot dry part of summer to help them establish.
- Remove unnecessary debris regularly.

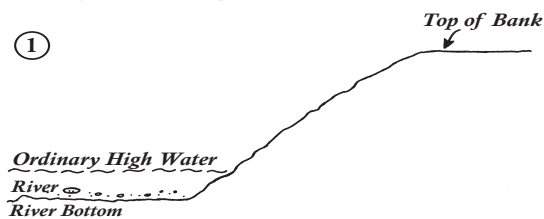
Cabled Spruce Tree Revetment

- The spruce trees are cabled along the river bank with the butt end of the tree facing upstream.
- The trees will overlap by 1/2 to 1/3 the length of the tree in shingle fashion.
- The trees are held in place with a duck bill anchor (size 66) driven into the river bank.
- The cabled spruce trees will be drawn tightly against the bank at and below ordinary high water (OHW)
- No limbs will be removed from the trees prior to installation.
- If the cabled spruce trees are not maintained and deteriorate, all visible cables and anchors that remain below OHW must be removed.

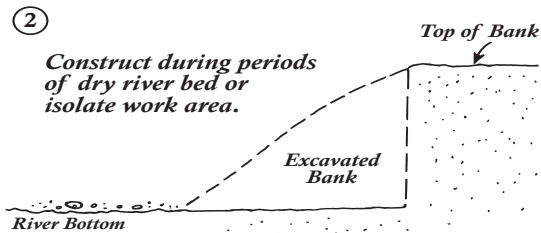


Brush / Hedge Brush Layering Step-by-Step

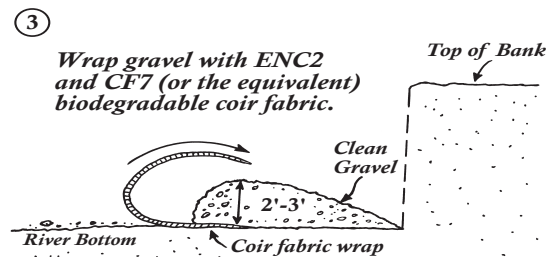
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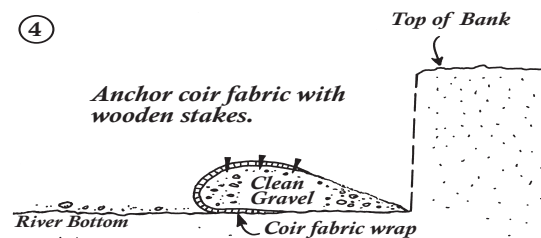
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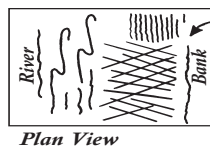


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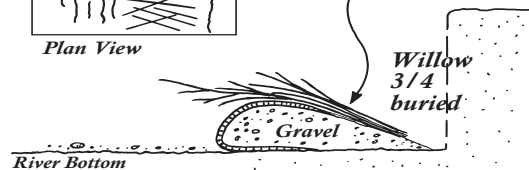


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- Crisscross layers of 15 dormant cuttings per foot or 10 rooted cuttings per foot. Deposit topsoil over cuttings and water liberally. Compress soil to 2 - 4 inches.



Plan View



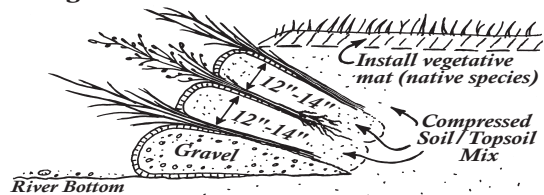
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- Wrap second layer of soil / topsoil mix with ENC2 and CF7 coir fabrics (or equivalent) 2' - 3' over topsoil and stake fabric into place. Water each layer liberally and compress soil / topsoil mix to 12" - 14" before willow placement.



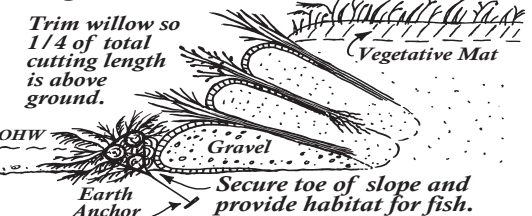
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- Repeat steps 4, 5, 6 until desired bank height is reached.



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- Trim vegetative mat shoots by 1/3 to compensate for root loss and promote root growth.



Tree and Shrubs	Plant Common Name	Latin Name	Zone	Revegetation Uses*
Deciduous Shrubs	Feltleaf Willow	<i>Salix alaxensis</i>	3-4	DC, LS, B, BL, L, H, RC, T, S
	Red Osier Dogwood	<i>Cornus stolonifera</i>	3	DC, LS, B, BL, H, RC, T, S
	Lingonberry	<i>Vaccinium vitus-idea</i>	3	RC, T, S
	Rugosa Rose	<i>Rosa rugosa</i>	3	RC, R, T, S
	Diamond Leaf Willow	<i>Salix planifolia</i> spp. <i>Pulchra</i>	3-4	DC, LS, B, BL, H, RC, T, S
	Highbush Cranberry	<i>Viburnum edule</i>	3	RC, T, S
	Pacific Willow	<i>Salix lasiandra</i>	3-4	DC, LS, B, BL, L, H, RC, T, S
	Thin Leaf Alder	<i>Alnus tenuifolia</i>	4	RC, T, S
Coniferous Trees	Whites Spruce	<i>Picea glauca</i>	4-5	RC, T, S
	Larch/Tamarack	<i>Larix laricina</i>	5	RC, T, S
Deciduous Trees	Alaska Paper Birch	<i>Betula neoalaxensis</i>	5	DC, LS, B, BL, H, RC, T, S
	Balsam Poplar	<i>Populus balsamifera</i>	5	DC, LS, B, BL, H, RC, T, S
	Quaking Aspen	<i>Populus tremuloides</i>	5	H, RC, T
Grasses and Sedges	Plant Common Name	Latin Name	Zone	Availability
Grasses	Bluejoint Reedgrass	<i>Calamagrostis canadensis</i>	2-3	Limited Seed Supply, Transplants from wild
	Bering Hairgrass "Norcoast"	<i>Deschampsia caespitosa</i>	2-3	Seed Available High Demand
	Red Fescue "Arctared" "Boreal" "Pennlawn"	<i>Festuca rubra</i>	2	Seed Available
	Polargrass "Alyeska" "Kenai"	<i>Arctagrostis latifolia</i>	2	Alyeska seed available
	Sloughgrass "Egan"	<i>Beckmannia syzigachne</i>	2	Seed available
Sedges	Water Sedge	<i>Caryx aquatilis</i>	1-2	Contract seed collections
	Lyngby Sedge	<i>Caryx lyngbyaei</i>	1-2	Contract seed collections

*Key to Revegetation Uses:

DC : dormant cutting B: bundles L: live siltation RC: rooted cutting R: root cutting
 LS: Live Stakes BL: brush layer H: hedge layering T- transplants S: seed

Riparian Zones

For more information about this and other Green Infrastructure Projects please visit: www.fairbanksgig.com

