

Napa County Flood Control and Water Conservation District Stream Maintenance Manual

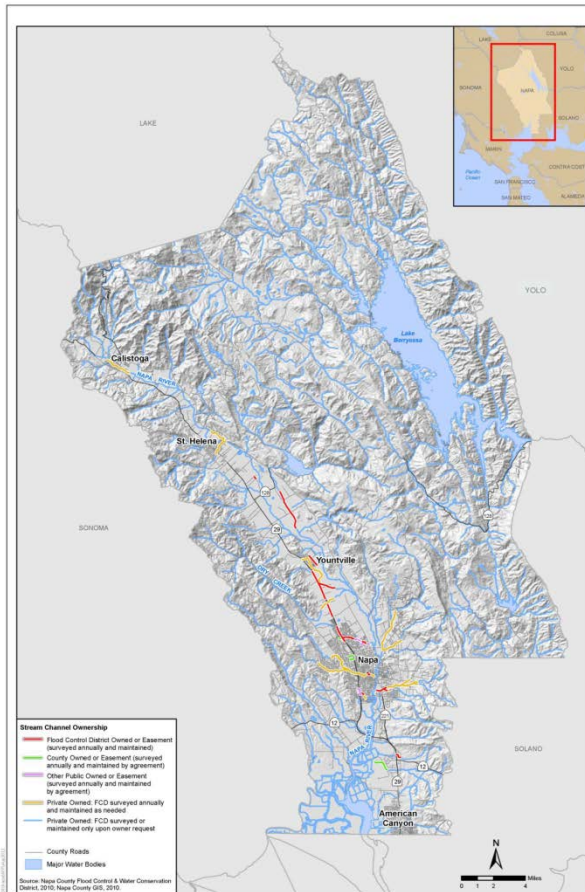
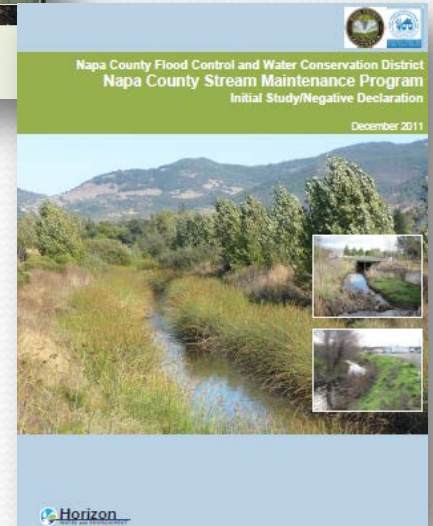
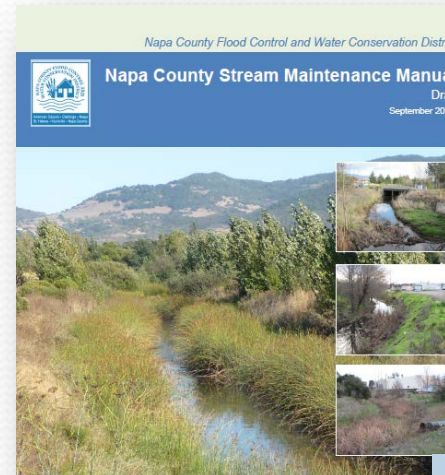


Figure 2-1
Napa County Stream Maintenance Program Area and Maintenance Reaches



Vegetation Management

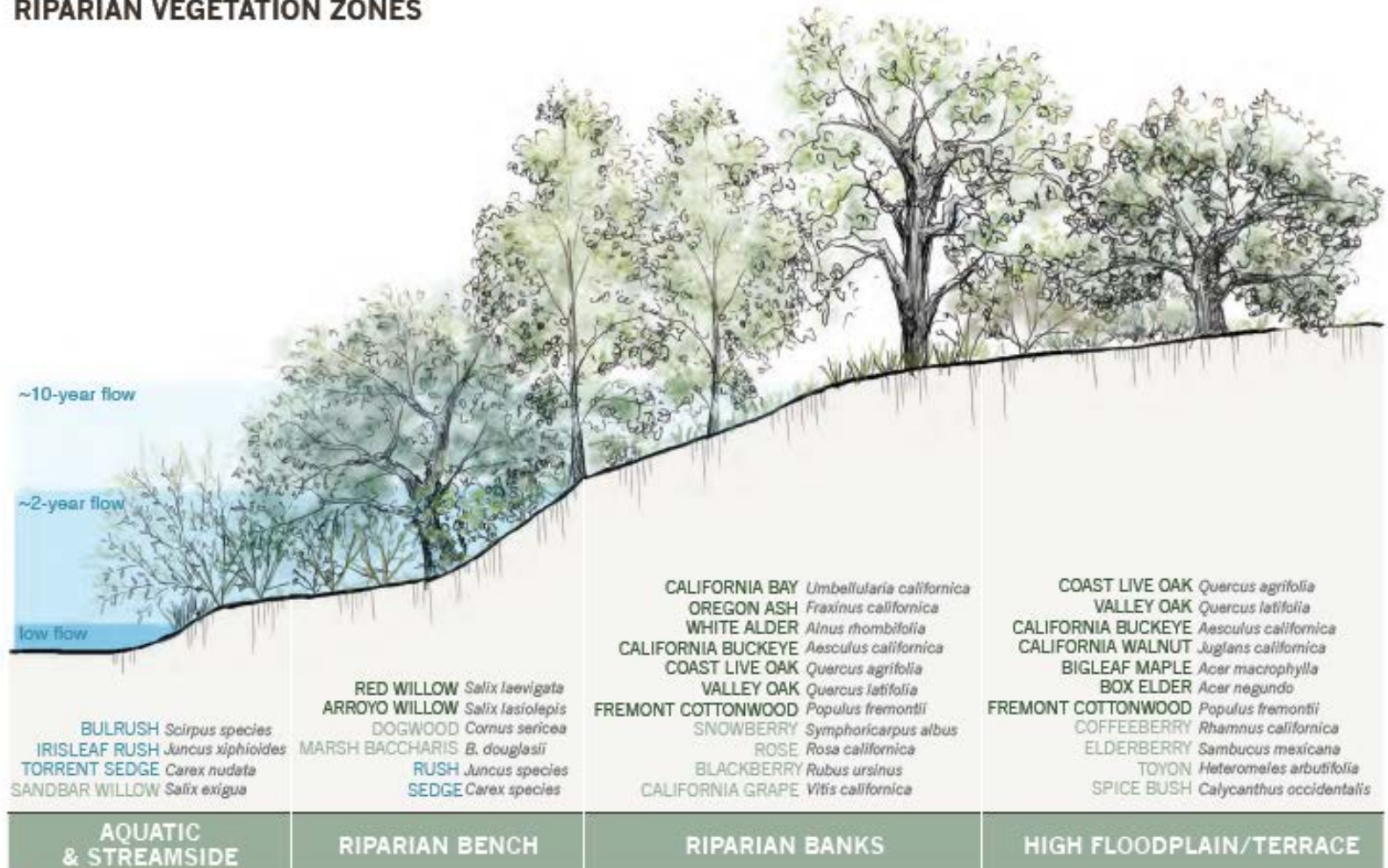
Tree Pruning & Management



Invasive Plant Management



RIPARIAN VEGETATION ZONES



Erosion Protection & Bank Stabilization

WILLOW WALL

DESCRIPTION

The willow pole cuttings are used as a biotechnical structural element to increase bank strength. Once established, willow pole cuttings will provide dense vegetated cover with high habitat value.

APPLICABILITY

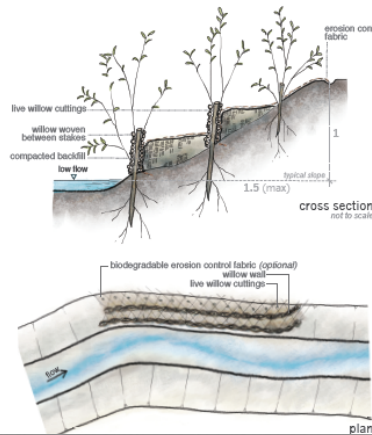
Suitable for moderate velocity and shear stress flow conditions. Suitable for steep slopes. Can be constructed with hand tools and labor, especially useful where access is limited.

CONSIDERATIONS

Generally not suitable for protecting infrastructure. Mature willows will increase roughness and may require maintenance and thinning. Site should be appropriate for increased roughness.

VARIATIONS

Can be combined with brush mattress or soil lifts.



ENCAPSULATED SOIL LIFTS

DESCRIPTION

This treatment uses soil and sediment wrapped in erosion control fabric to reconstruct stream banks. Live willow cuttings are planted in interstitial spaces. Provides high habitat and aesthetic value once vegetation is established.

APPLICABILITY

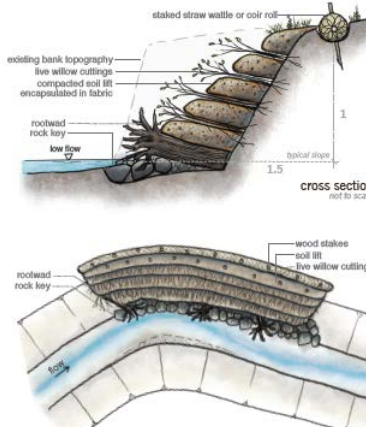
Suitable for steep slopes with moderate to high velocity and shear stress flow conditions. Appropriate for confined areas or constricted right-of-ways.

CONSIDERATIONS

Costly to construct and requires good access. Reuse native bank soil when feasible. Incorporate root wads or large woody debris when feasible to increase habitat complexity.

VARIATIONS

Provide rock toe protection in high energy settings.



CRIB WALL

DESCRIPTION

This treatment involves construction of an engineered log crib structure filled with native soil and/or stream substrate. Suitable for restoring or establishing native riparian vegetation on extremely steep slopes. Provides high habitat value on confined, steep banks.

APPLICABILITY

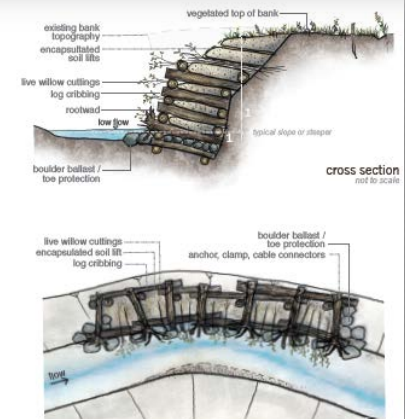
Suitable for high velocity and high shear stress flow conditions for stream reaches with steep, overhanging banks. May be appropriate where right-of-way is highly constrained or where valuable infrastructure is threatened by erosion.

CONSIDERATIONS

Costly to construct and requires heavy equipment access. Requires boulder ballasts and anchoring. Risk of downstream impacts if crib wall is dislodged in high flows. Reuse native bank soil when feasible.

VARIATIONS

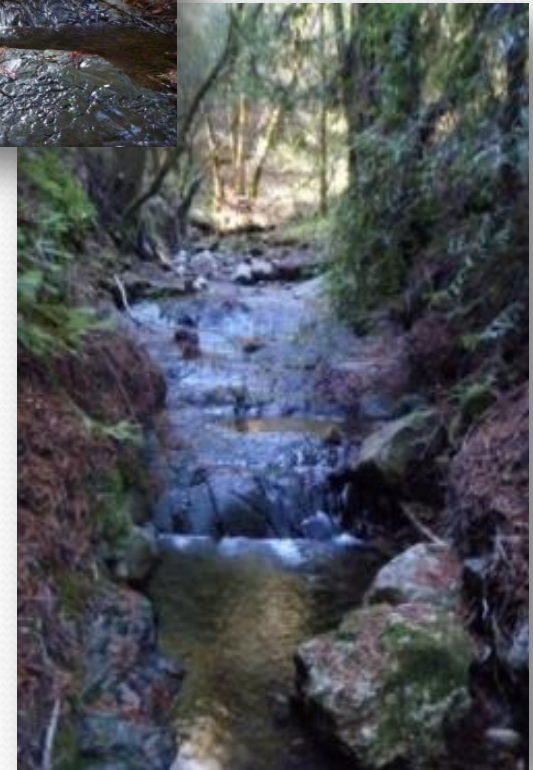
Transition to encapsulated soil lifts above ordinary high water.



Down Tree Management



Sediment and Debris Removal



Habitat Protection & Enhancement



Creek or Project Site	Linear Feet Planted	Number of Trees Planted	Number of Understory Species Planted
Conn Creek	300		
Napa Creek	150	200	
Napa River	1,500	350	
Oak Knoll Ditch	4,700	100	
Salvador Creek	3,500	2,000	
Salvador Outfall at Summerbrooke	1,300	400	200
Solano/Salvador Avenue Collector	5,600	750	30
Tulucay/Camille Creeks	2,200	95	25
Yountville Collector	9,800	2,000	
Yountville Outfall	2,600	600	
Totals	31,650	6,495	255



A Tradition of Stewardship
A Commitment to Service

