

**MONTEREY PENINSULA WATER MANAGEMENT DISTRICT
PROJECT DESCRIPTION FOR**

**SELECTIVE VEGETATION MANAGEMENT
VIA MALLORCA BRIDGE MAINTENANCE
BANK PROTECTION (RANCHO SAN CARLOS AREA)**

IN THE CARMEL RIVER CHANNEL, SUMMER AND FALL 2013

SELECTIVE VEGETATION MANAGEMENT

A series of average hydrologic years on the Carmel River since 1998 has encouraged significant vegetation growth in the active channel in several areas. Winter storm flows capable of scouring vegetation out of the channel bottom have not occurred since a peak flow in February 1998 of 14,500 cubic feet per second (cfs), which was estimated to be a 20-year return flood magnitude. The highest peak flow since 1998 was in March 2011 at 5,000 cfs (about a five-year return flow). This flow did not scour vegetation that has been encroaching into the channel bottom since the very wet 1998 El Niño winter. As a result, the risk of streambank erosion along riverfront properties has increased at several locations (see enclosed maps) should winter flows rise above the five-year return magnitude. Erosion can occur as high flows are directed away from the center of the channel by vegetation and debris dams into streambanks.

Two areas impacted by vegetation encroachment or debris piles in the channel bottom are proposed for selected vegetation trimming:

1. Highway One Bridge Area (area approximately 1000 feet²): beginning approximately 300 feet downstream of Highway One Bridge at River Mile (RM) 1 to just downstream of the Carmel Area Wastewater District (CAWD) pipe casing. Encroaching vegetation will be trimmed back. In addition, a very large black cottonwood (2 feet in diameter) has fallen completely across the channel downstream of the CAWD pipe. This tree will have its crown branches removed to allow debris to pass and large portions of the trunk will be left in place for large wood habitat.
2. Quail 8 Area (area approximately 500 feet²): beginning approximately RM 4.2 at the Quail 8 condominiums and extending 100 feet downstream; trees extending out and blocking the channel will be trimmed back. Some branches will be placed in the channel for habitat and the rest will be chipped.

In general, a width of up to 30 feet of open channel is desired. A total of approximately 1,500 square feet of stream cover encompassing approximately 0.034 acres in the channel bottom may be affected by the vegetation removal. However, it is important to note that larger canopy trees located slightly higher on the bank will still be providing shade and cover

Woody species on the edge of the channel, including cottonwood and willow, will be cut by hand, using chainsaws, loppers, and other hand tools. As described in Monterey Peninsula Water Management District's (MPWMD) "Guidelines for Vegetation Management and Removal of

Deleterious Materials for the Carmel River Riparian Corridor” (2012), a minimum of vegetation will be removed in order to maintain an open passage for flow and debris. Most of the vegetation targeted for cutting will be simply trimmed back. A portion of the cut branches and tree trunks will be placed along stream edges to provide shade and cover for aquatic species, excess vegetation will be chipped. Vegetation on the banks will be left in place to maintain bank stability. Streambank vegetation encroaching into the channel bottom will be trimmed back to align it with vegetation upstream and downstream of the constriction.

MPWMD proposes to conduct vegetation management between approximately mid August and mid October 2013. Because vegetation will be cut using hand tools, no stream diversions or erosion control plans are necessary. Both steelhead and California red-legged frogs (CRLF) may be present in the reaches targeted for vegetation cutting.

Avoidance and minimization measures proposed to protect steelhead include the following:

1. Where possible, trees will be cut to fall away from stream areas that may contain steelhead. Where trees cannot be cut to fall away from stream areas, the direction of fall will be to areas that steelhead are less likely to occupy, such as shallow or open water areas.
2. Work will be conducted in the fall when water temperatures may be less affected by the removal of shade along the stream edge.

Avoidance and minimization measures to protect CRLF include the following:

1. A qualified biologist will survey project areas using United States Fish and Wildlife Service survey guidelines prior to conducting work in the channel.
2. A qualified biologist will conduct a training session for any workers who have not already participated in such a session.
3. A qualified biologist will inspect project areas daily for the presence of CRLF prior to conducting work in the channel.
4. If CRLF are found at a project site and it is determined that vegetation removal may impact frogs, MPWMD will delay vegetation removal until the frogs move or relocate frogs to another area of the river if delay is not feasible.

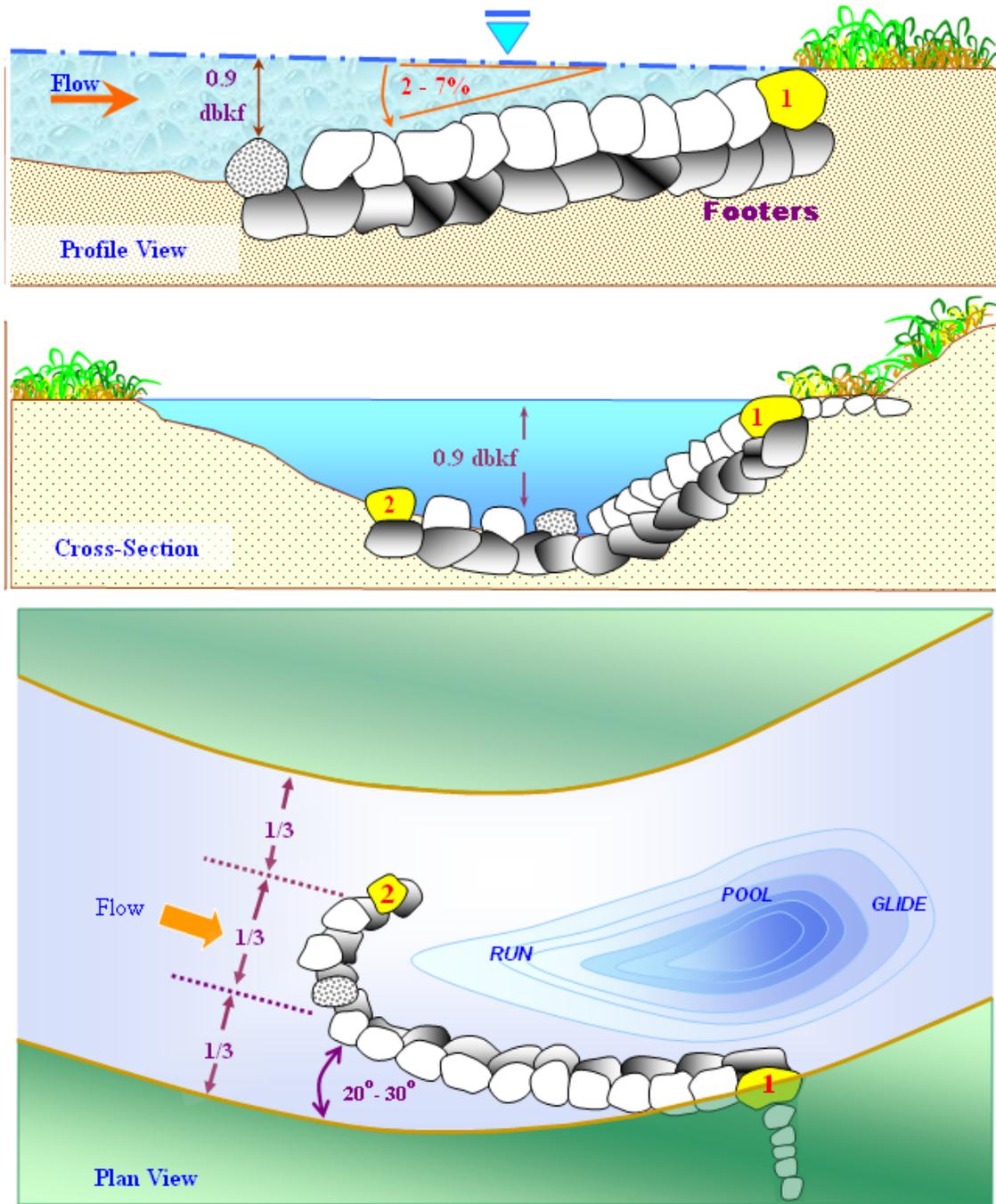
Temporary impacts from vegetation removal may include the loss of cover and shade. MPWMD conducts ongoing revegetation activities along the Carmel River that mitigate for such temporary impacts. In addition, MPWMD routinely removes non-native plant species in the riparian corridor which allows for the expansion of native plants and removes competition associated with non-natives. Additional information about these activities is available by contacting Thomas Christensen, MPWMD Riparian Projects Coordinator, at (831) 238-2547.

LAKE/ASSELBORN AND BIG SUR LAND TRUST STREAMBANK STABILIZATION

Streambank erosion occurred along approximately 75 feet of the right streambank just downstream of the Rancho San Carlos Road bridge at RM 3.8 in the spring of 2011. The bank continued to erode in the winter of 2012-13. Temporary measures to stabilize the bank including jute net, sand bags, large wood, and willow cuttings do not appear to be adequate to protect the bank from additional erosion. A rock vane (without the J-hook extending into the middle of the channel) consisting of ¼ to two ton rip rap is proposed to be installed. Filtering to prevent piping would be accomplished with an appropriately sized gravel filter. Approximately 30-40 cubic yards of rock (about 60 to 80 tons) would be imported to the site and placed along the streambank to form a vane. Work would be carried out when the river dries up in this reach. Access into the river bottom would be through the Lake/Asselborn property and onto an existing gravel bar shown in the foreground of the photo below. Limited vegetation removal would be required for construction equipment access. Willow cuttings would be placed into the streambank and channel bottom along the rock vane as part of the installation.



Photo looking downstream at erosion along Big Sur Land Trust/ Lake and Asselborn properties, Carmel River, Monterey County, California, November 7, 2011.



Plan, profile, and section views of the J-hook vane structure, Part 654 Stream Restoration Design, National Engineering Handbook, United States Department of Agriculture Natural Resources Conservation Service

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