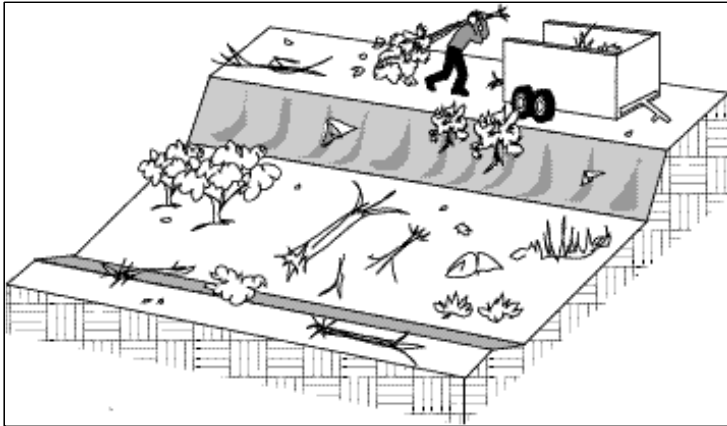


## Vegetation and Debris Management

## Removal of Existing Vegetation



- Erosion Control
- Public Safety
- Habitat/Wildlife Protection

### *Description*

Vegetation removal techniques to preserve the channel's flood control functions; create a stable channel environment, where the need to perform vegetation removal is minimal; and provide safe access for maintenance equipment, fire protection vehicles and pedestrians.

### *Applicability*

- Areas where construction will occur and could be damaging to existing vegetation, structures, or equipment.
- Areas where flow is obstructed or is diverted against a bank.
- Where necessary for public safety.
- Refer to BMP NR-3 for more information related to this BMP.

### *Approach and Standards*

- As appropriate, use small, motorized rubber-tracked vehicles with hydraulic lift mounted platforms to aid in cutting and removing vegetation from flood control channels.
- Use hand operated equipment (e.g. loppers, hand saws, chain saws, weed eaters, and other tools) to remove or trim vegetation where it is feasible.
- Have a vegetation specialist available for maintenance crews to consult with when removing or trimming vegetation on flood control district property.
- Where applicable, consider using mowers operated from the access road to cut vegetation on channel banks instead of spraying with herbicides.
- If herbicides are used, use herbicides that are approved for water use, and only in the lowest amounts that are effective. Consider minimizing the effects on aquatic life when deciding whether to remove treated vegetation or mowing it to decompose in place.

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- If possible, save removed native vegetation to replant after construction or to plant immediately in other areas.
- Keep equipment away from trees to be preserved to avoid trunk damage caused by equipment scarring the trunk, and to prevent soil compaction near roots (see also VDM-1).
- Consider potential wind damage to adjacent vegetation from exposure to increased wind velocities, as appropriate, before removing vegetation,
- Only vegetation that is noxious, or that could obstruct channel flows, should be removed. Herbacious layers are components of riparian habitat and provide erosion protection. If noxious vegetation is removed, replant the area with native vegetation. Do not remove stumps.
- Willows require the following treatment:
  - ✓ Never top live willows. This encourages shrubby growth.
  - ✓ Only remove willows from a channel bed if they are obstructing flow or diverting water against a bank.
- Remove non-native vines or plants that inhibit the growth of native riparian trees.
- To favor stream shading, retain large trees on the east side of north-south flowing streams and on the south side of east-west flowing streams.
- Recycle useful vegetation, (i.e., cut willows can be used to revegetate an eroding bank).

### ***Limitations***

- Requires planning.

### ***Requirements***

### **Maintenance**

- Monitoring and progress evaluations are essential components of vegetation management programs.
- During construction, the limits of grading or disturbance should be clearly marked at all times.
- Removal of trees or vegetation should conform to the vegetation plan.

### **Costs**

- The cost of using mowers opposed to herbicides is in dispute. Some sources indicate that using mowers to control excess growth, instead of herbicides, could potentially reduce costs, while other sources state that mower use is extremely expensive. The Santa Clara Valley Water District (February 2000) indicates that mechanical

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vegetation removal (mowing, discharge, etc.) costs five times more than herbicide controls, in part because it must be performed more often.

- Purchase or upkeep of additional hand-operated equipment and rubber-tracked vehicles with hydraulic lift mounted platform, may be required.
- Costs would increase with the hiring of a vegetation specialist.
- If a lot of vegetation is removed, costs for vegetation disposal and for replanting useful vegetation would increase.
- Extra costs are incurred for vegetation that is removed, saved, and replanted.

### **Training**

- Train vegetation removal crews in the correct methods for pruning and vegetation removal.
- Staff should be trained to remove vegetation with the least amount of impact to existing vegetation that is to be preserved. Vegetation management planning for the removal of vegetation requires planning, which involves the design staff as well as the maintenance staff.
- A vegetation expert may be required for some projects.

### **References**

California Storm Water Quality Task Force, *Stormwater Best Management Practices Construction Handbook*, ESC2, March, 1993.

Marin County Flood Control District, Draft "Environmentally Sensitive Stream Management Strategies," February 16, 1998.

Santa Clara Valley Water District, "BMP/PMM List," February, 1999.

Santa Clara Valley Water District, personal written communication, "Comments on the BASMAA OPC BMP Guidance Manual." February 2, 2000.