



Targeted Constituents

● Significant Benefit		▸ Partial Benefit		○ Low or Unknown Benefit	
● Sediment	○ Heavy Metals	○ Floatable Materials	○ Oxygen Demanding Substances		
○ Nutrients	○ Toxic Materials	○ Oil & Grease	○ Bacteria & Viruses	○ Construction Wastes	

Implementation Requirements

● High		▸ Medium		○ Low	
○ Capital Costs	○ O & M Costs	○ Maintenance	○ Suitability for Slopes >5%	○ Training	

Description

This BMP is intended to prevent or reduce the discharge of pollutants to the storm drain system or to watercourses as a result of construction activity by utilizing vegetation to protect soils from erosion and to slow the velocity of runoff to allow the removal of sediment through filtering and settling. This activity may be performed for temporary benefits, planned for permanent placement (See PESC-04), or may be the required buffer of no construction activity. This management practice is likely to create a significant reduction in sediment by reducing erosion and retaining plant vegetation along waterways.

Suitable Applications

- A buffer may be a planned feature and/or a requirement of MDPW. It is preferred that the buffer include all of a floodplain. However, a buffer must at least include the floodway plus 50 feet (15.2 m) perpendicular to the floodway. If a floodway has not been determined, the buffer must be at least 25 feet (7.6 m) perpendicular from each side of the stream bank, creek, or unnamed waterway under “bank-full conditions.” See Volume 1 Section 5.9 for additional descriptions of the required buffer.
- Any area within a buffer required by the regulation presented in Volume 1 Section 5.9, **SHALL NOT BE CLEARED**. They should be surveyed, flagged, and delineated by a colored temporary construction fence. This should be explained to all construction employees and supervisors.
- Utilization or reinforcement of existing vegetation is preferred. However, where improvements are required; sodding, plugging, use of stockpiled vegetation or seeding is acceptable.
- Sodding is appropriate if it is part of the no construction activity area required by MDPW for areas that contained turf prior to construction, or for any graded or

cleared area that might erode and where a robust plant cover is needed immediately. Examples of locations where sodding may be used include stream banks, grassed dikes, swales, steep slopes, outlets, and level spreaders. Sod along edge of buffer for at least two rows (offset).

- Plugging is appropriate for the same areas as sodding, except that a longer establishment period before protection is provided as required. Plugging stabilizes an area by planting clumps of grass material, which then grow and spread to provide complete covers. Plugging is generally used for hybrid grasses that cannot be established from seed.
- Vegetative buffer strips may be used at any location on-site that will support vegetation stockpiled from other areas of the site or from seed. Buffer strips are particularly effective on flood plains, adjacent to wetlands or other sensitive water bodies, and on steep, unstable slopes.

Approach

The practices set forth in this BMP are for temporary measures and are not to be in conflict with the permanent requirements discussed in Volume 1: Sections 5.3, 5.4 and 5.9.

Sodding and Grass Plugging

- Sod shall be protected with tarps or other protective covers during delivery and shall not be allowed to dry out between harvesting and placement.
- All weeds and debris shall be removed before cultivation of the area to be planted and shall be disposed in accordance with local waste management ordinances.
- After cultivation, installation of irrigation systems, and excavation and backfilling of plant holes are completed, areas to be planted with sod shall be fine graded and rolled. Topsoil may be needed in areas where the soil textures are inadequate. Areas to be planted with sod shall be smooth and uniform prior to placing sod. Areas to be planted with sod adjacent to sidewalks, concrete headers, header boards, and other paved borders and surface areas shall be 1.5 in.-0.25 in. (38 mm-6 mm) below the top grade of such facilities after fine grading, rolling, and settlement of the soil. Sod shall be placed so that ends of adjacent strips of sod are staggered by half the width. All edges and ends of sod shall be placed firmly against adjacent sod and against sidewalks, concrete headers, header boards, and other paved borders and surfaced areas.
- After placement of the sod, the entire sodded area shall be lightly rolled to eliminate air pockets and to ensure close contact with the soil. After rolling, the sodded areas shall be watered so that the soil is moistened to a minimum depth of 4 in. (100 mm). Sod shall not be allowed to dry out. Sod should not be planted during very hot or wet weather. Sod should not be placed on slopes that are greater than 3:1 (H:V) if they are to be mowed.
- If irregular or uneven areas appear before or during the plant establishment period, such areas shall be restored to a smooth and even appearance.

- Sod shall be healthy, field-grown sod containing not more than 0.5-in. (13-mm) thick thatch. The sod shall be free from disease, weeds, insects, and undesirable types of grasses and clovers. Sod shall be machine cut at a uniform soil thickness of 0.625 in.-0.25 in. (16 mm-6 mm), not including top growth and thatch.

Vegetative Buffer Strips

If a vegetative buffer strip will be created from existing vegetation, see CP 22 – Preservation of Existing Vegetation.

For development of a vegetative buffer strip from new vegetation, the following steps shall be followed:

- Strip and stockpile good topsoil during construction. Use stockpiled topsoil for surface preparation prior to seeding operations.
- Prepare a good, firm seed bed by adding soil amendments such as fertilizer as needed. After seeding, apply a mulch (straw layer, etc.) to protect the vegetation during establishment. Select a seed mixture appropriate to the site conditions, remembering that dense grasses are the most effective in slowing flow velocities and removing pollutants such as sediment. A thick root structure is needed to control erosion.
- Plant during the best time for the particular grass or vegetation selected.
- Use planting equipment and methods that provide uniform distribution and proper placement of seed.
- Water or irrigate the vegetation as needed to supplement rainfall until established.
- Fertilize in accordance with label instructions and the needs of the grass and soil as indicated by soil tests.
- Overseed, repair bare spots, or apply additional mulch as necessary.
- Avoid using the buffer strip for vehicular traffic as it will damage the vegetation and reduce its effectiveness as a buffer.

Maintenance

- Inspect sod installations weekly and after significant storm events, until the turf is established, and routinely thereafter.
- Maintenance shall consist of mowing, weeding, and ensuring that the irrigation system is operating properly and as designed to sustain growth.
- Inspect buffer strips weekly and after significant storm events until vegetation is established, and routinely thereafter. Repair eroded or damaged areas as needed to maintain original purpose and effectiveness of the buffer strip.

Limitations

- The purchase and placement of sod is more expensive than growing vegetation from seed. Additionally, sod is generally more expensive to maintain than other types of vegetation because of the need for irrigation, weeding, and mowing. Sod

will not survive unless properly maintained.

- Plugging is more expensive than seed but less expensive than sod. Plugging requires a longer establishment period than for sod before effective control is provided.
- Site conditions will dictate need and design of vegetative buffer strips. Vegetative buffer strips are most economical when there is existing vegetation that can be retained to serve as the buffer strip; otherwise, vegetation will need to be established.

**Primary
References**

California Storm Water Best Management Practice Handbooks, Construction Handbook, CDM et.al. for the California SWQTF, 1993.

Caltrans Storm Water Quality Handbooks, Construction Contractor's Guide and Specifications, CDM et.al. for the California Department of Transportation, April 1997.