

Section 2

BMPs for the Construction Site

In order to address the requirements of pollution prevention at construction sites, a variety of techniques should be employed to reduce soil erosion, reduce site sediment loss, and manage some of the more common construction-generated wastes and construction related toxic materials. The BMPs identified in the field manual consist of temporary methods to reduce pollution from a construction site. Hazardous and toxic wastes and construction-generated wastes will require coordination with multiple state and/or federal agencies and the procedures and requirements for management of these wastes are not described in this document. Hazardous and toxic waste issues should be coordinated with EPA, MDT Environmental Services, and DEQ.

The BMP fact sheets contained in this manual were developed by the State of California Department of Transportation (Caltrans) and have been modified for Montana (CDM, 1997. Caltrans Storm Water Quality Handbooks). The majority of BMPs address soil loss from the site. Soil loss in the form of erosion and sedimentation due to storm events, snowmelt, and wind constitute the majority of pollution at construction sites. BMPs that address erosion and sediment control are typically more site specific than waste and toxics management. Erosion and sediment control BMPs are dependent on site slopes, drainage patterns, and drainage quantities along with other site-specific conditions. Waste management consists primarily of “good housekeeping” practices that are dependent on the type of construction, and the quantity and type of building materials.

The fact sheets in this manual provide details for the design maintenance limitations and purpose of each of the BMPs. In order to address the requirements of pollution reduction at MDT construction sites, a variety of techniques should be employed to reduce soil erosion and sedimentation.

Temporary Soil Stabilization BMPs



Soil Roughening reduces runoff velocity, increases infiltration, reduces erosion, traps sediment, and prepares soil for seeding and planting by giving seed an opportunity to take hold and grow (BMP SS-12).

Temporary soil stabilization on disturbed soils of construction projects consists of preparing the soil surface and applying one of the BMPs shown in Table 2-1, or combination thereof, to disturbed soil surfaces. These soil stabilization BMPs are primarily used in perimeter areas around construction sites to either limit water flows across the site or limit the erosion in disturbed areas within the construction site that are not being actively worked.

Temporary concentrated flow conveyance controls, SS-9 through SS-11, are grouped with temporary soil stabilization BMPs and consist of

a system of BMPs that are used alone or in combination to intercept, divert, convey, and discharge concentrated flows with a minimum of soil erosion, both on site and downstream (off-site). Temporary concentrated flow conveyance controls may be required to direct water running onto the construction site or through the project in a non-erodible fashion.



Rock Lined channels are a method of conveying discharges with a minimum of soil erosion (BMP SS-9).

BMPs should be implemented when construction activities disturb native soils and vegetation exposing bare surfaces to water and wind erosion. The BMPs should be installed as close as possible to the original disturbed site of sediments. The EPA stresses the use of a management system approach (tool box approach), which utilizes a combination of BMPs at each construction site to maximize the overall effectiveness of the BMPs.



Soil binders and hydraulic mulch are used to stabilize soils (BMP SS-3).

The presence of vegetation prevents soils from being eroded by creating a natural cover and holding soils together. If possible, vegetation should not be disturbed during construction activities or only removed when construction activities begin at a particular area of the site. Designers should consider phasing the activities and only removing vegetation when necessary to avoid creating bare soils for long periods of time. The use of designated haul routes, temporary fencing, and other measures that minimize the disturbance of natural vegetation should also be considered when planning construction activities.



Temporary seeding is used to stabilize soils through new plant growth (BMP SS-4).



Synthetic liners can be used to minimize soil erosion during construction (BMP SS-7).

Table 2-1 BMP Selection Guidelines

ID	BMP Name	Primary Purpose	Erosion Processes
SS-1	Scheduling	Sequencing of BMPs	All
SS-2	Preservation of Existing Vegetation	Protection of desirable vegetation by limiting soil detachment	All
SS-3	Hydraulic Mulch	Protection of disturbed soil with mulch by limiting soil detachment	Splash, Sheet, Rill/Gully, Wind, and Snow Melt.
SS-4	Temporary Seeding	Provide soil protection through new plant growth	All
SS-5	Soil Binders	Soil stabilization to prevent wind and water induced erosion	Splash, Sheet, Wind, and Snow Melt.
SS-6	Straw Mulch	Protect disturbed soil with straw mulch by limiting soil detachment	Splash, sheet, Rill/Gully, Wind, and Snow Melt.
SS-7	Geotextiles, Plastic Covers, & Erosion Control Blankets/Mats	Protect disturbed soil or slopes	All
SS-8	Wood Mulching	Protect disturbed soil with wood mulch	Splash, Sheet, Rill/Gully, Wind, and Snow Melt.
SS-9	Earth Dikes/Drainage Swales & Lined Ditches	Intercept, divert, and convey surface run-on	Stream Bank, Sheet, Rill/Gully, and Snow Melt.
SS-10	Outlet Protection/Velocity Dissipation Devices	Prevent scour of exiting storm water flows	Stream Bank, Snow Melt, and Shoreline.
SS-11	Slope Drains	Route overland flow into a pipe to protect slope	Rill/Gully, Sheet, and Snow Melt.
SS-12	Slope Roughening	Reduce runoff velocity, increase infiltration, trap sediments, and create microenvironment for seeding	Rill/Gully, Sheet, Splash, Wind, and Snow Melt.
SS-13	Terraced Slope	Reduce velocity and allow upland deposition	Rill/Gully, Sheet, Wind, and Snow Melt.
SS-14	Vegetated Buffer	Prevent soil erosion and catch sediment	Stream Bank, Sheet, Wind, Snow, and Shoreline.
SS-15	Erosion Seeding	Erosion control on steep slopes	All



Crimped straw can be used alone or in conjunction with temporary seeding to help stabilize soils (BMP SS-6).



Terraced slopes help reduce velocities and allow deposition of sediment on the terraces. Steep slope revegetation can be a difficult task (BMP SS-13).