Protect Stormwater Quality
Project and Site Management Training for General Contractors

Presenter
Becky Pearson
Professional Civil Engineer
Part II
Best Management Practices (BMPs)
What is a Best Management Practice (BMP)?

An action, program, or device, which helps to reduce pollutants in industrial/construction site runoff.

1) Training: employees and sub contractors
2) Erosion control (*keep soil in its place*)
3) Sediment control (*keep sediment from leaving the site*)
4) Good housekeeping
5) BMP Inspection / Maintenance
Training
Training is not only required, it is probably the most cost-effective way to protect stormwater quality.
Training Meetings

- Spill response
- BMP installation demonstrations
- Traffic control and parking
- Good housekeeping
Erosion Control and Sediment Control
Erosion Control First!

- Any practice that protects the soil surface and prevents the soil particles from being detached by rainfall, wind, or stormflow.

- Erosion control is considered source control that will treat the soil as a resource that has value and should be kept in place.
Erosion Control BMPs

▷ Erosion controls BMPs are preferred
  • It is best to keep the soil in place
  • It helps to enhance the protection of the site resources

▷ When possible...

Erosion control BMPs - primary protection
Sediment control BMPs - backup protection
Keep natural vegetation in place whenever possible to minimize disturbance of soil structure

- Ideal soil is 50% solid and 50% pore space
- Pore space has air, water, microorganisms, and nutrients
- Disturbances to soil disrupt its complex system
Native vegetation and soil cover minimize erosion
Application of erosion blankets and fiber rolls can prevent and limit erosion.
Sediment Control is …

- Any practice that traps the soil particles after they have been detached and moved by wind or water.

- Sediment control measures are usually passive systems that rely on filtering or settling soil particles out of the water or wind.
Sediment control BMPs include ...

- Sediment Control during construction
  - Silt Fences, Fiber Rolls, Strawbales
  - Temporary Inlet Protection
  - Temporary Construction Entrances
  - Geotextiles
- Sediment Control during and post-construction
  - Geotextiles and hydroseeding
  - Sediment traps and basins
  - Check Dams (slow the flow)
Sediment control is required...

- Along the site perimeter
- At all operational internal inlets
- When discharging groundwater

At all times during the rainy season.
Perimeter Control

Silt Fence designing basics:

- Consider topography and drainage patterns
- Put only along same elevation contour
- Do not use for concentrated flow
- Do not use on slopes
- Limit drainage area to 100 sq. ft. per lineal foot of silt fence
Silt Fences

Silt fences work well for sheet flow when they are installed properly.
Silt fences can be used creatively
Silt Fence installation can be problematic
Improperly installed silt fence
Don’t use a silt fence across concentrated flow areas.
Silt fences must be maintained
Bad silt fence installation created this problem
Fiber Rolls

ENTRENCHMENT DETAIL IN SLOPE AREA

100 MM MAX.

300 MM MIN.

WOOD STAKE 19MM X 19MM MAX 1.2M SPACING

SEDIMENT ROLL
Proper installation includes placing the straw wattle in a trench.
Use fiber rolls to prevent sediment from reaching streets
Fiber rolls, straw wattles installed
A mesh enclosing a biodegradable fiber, which may be staked to the slope along the slope contours.
- If access is needed, move devices and replace them before leaving at the end of the day
- If damaged, repair or replace
Fiber rolls can fail if improperly installed
Strawbales

Inlet surrounded by strawbales
Proper installation is necessary
Straw bales can disintegrate in the sun and clog stormdrains.
Temporary Construction
Ingress/Egress
Tracking offsite is both a stormwater quality and an air quality issue.
Use designated stabilized construction ingress/egress
Wash tires at control exit to remove mud and sediment and to reduce tracking
Temporary Inlet Protection
Inlets must be protected year round, not just in the rainy season.
Filter Inserts

Are used as a redundant safety feature, and should never be used as a primary sediment control measure. They are not capable of trapping fine sediment, nor are they trash cans.
Concrete spill is entering unprotected stormdrain inlet.
Sediment on streets is one of the major problems cited by inspectors.
Sweep streets, walks, and driveways before washing down