



Construction Site Erosion and Sediment Control

Construction sites impact Ohio's surface waters by adding pollutants, especially sediment, to rainwater running off construction sites. To limit the negative impacts of construction, Ohio EPA's Construction General Permit requires that construction sites *"design, install and maintain effective erosion controls and sediment controls to minimize the discharge of pollutants"*. This includes the following requirements:

- ➲ Control storm water volume and velocity to minimize soil and stream erosion.
- ➲ Minimize erosion at outlets and downstream channel erosion.
- ➲ Minimize the amount of soil exposed.
- ➲ Minimize the disturbance of steep slopes.
- ➲ Minimize sediment discharges from the site.
- ➲ Maintain a 50-foot undisturbed natural buffer around surface waters of the state.
- ➲ Direct storm water to vegetated areas to increase sediment removal and maximize storm water infiltration.
- ➲ Minimize soil compaction and preserve topsoil.



Source: photo courtesy of <http://www.wncsstormwater.org>

This document provides a summary overview of sediment and erosion control practices for construction sites. More detailed information and specifications can be found in the latest Rainwater and Land Development Manual on Ohio EPA's website: <https://epa.ohio.gov/divisions-and-offices/surface-water/guides-manuals/rainwater-and-land-development>

SOIL STABILIZATION PRACTICES

Phased Disturbance

Limit the total amount of grading at any one time and sequence operations so that at least half the site is either left as undisturbed vegetation or re-stabilized prior to additional grading operations.



Clearing & Grubbing

Minimize areas of clearing and grubbing and avoid stream corridors. Clearing during dry/frozen periods is preferred. Salvage timber on site when possible.



Tree and Natural Area Preservation

Identify mature trees and high-quality wooded areas to preserve. Use fencing to keep construction traffic out of the dripline of the tree canopy to protect the tree roots.



Construction Entrance

Provide a stabilized stone pad underlain with geotextile to reduce the mud tracked off-site with construction traffic.



Dust Control

Vegetative cover, watering, spray-on adhesives, stone paths, windbreaks, and calcium chloride application are methods that can help control dust generation during construction.



Grade Treatment

Grade treatment or surface roughening creates horizontal depressions in the soil surface that help to reduce erosion and aid in the establishment of vegetative cover.

Topsoiling

Stockpile the upper most organic layer of soil and replace on the newly graded areas. Topsoil provides a more suitable growing medium than subsoil.

Temporary Seeding and Mulching

Quick growing grasses and straw mulch should be used to stabilize exposed soil areas that will not be graded within 21 days.

Permanent Seeding and Sodding

Establish permanent vegetation on areas that will not be re-disturbed for a year or more. This will stabilize soil, reduce erosion, prevent sediment pollution, and reduce runoff.

Erosion Control Matting and Turf Reinforcement Matting

Use matting products on areas where seed establishment is difficult such as steep slopes, stream banks, areas of high wind, highly erosive soils, or concentrated flows. Matting may be temporary/biodegradable or permanent/non-biodegradable.

SEDIMENT CONTROL PRACTICES

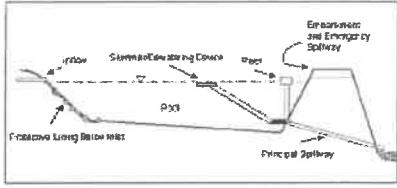
Sediment Basin

A sediment basin is designed to collect construction site runoff from drainage areas up to 100 acres and slowly release runoff, detaining it long enough to allow most of the sediment to settle. Sediment basins are required to include a surface outlet or skimmer. The basin may be removed when construction is complete or may be converted to a post-construction detention basin.



Sediment Trap

A sediment trap is a temporary settling pond with a simple outlet structure that is typically stabilized with geotextile and rip-rap and used for drainage areas 5 acres and smaller. Sediment traps are constructed to detain sediment-laden runoff from small, disturbed areas for a sufficient period of time to allow the majority of the sediment to settle out.



Silt Fence

A geotextile fence installed perpendicular to the flow of water captures sediment and promotes sheet flow. Silt fence should not be used in areas of concentrated flow and is appropriate for slopes up to 2:1 (H:V). Silt fence should be at least 16" tall and should be staked at least 16" deep.



Storm Drain Inlet Protection

Storm drain inlet protection devices remove sediment from storm water before it enters storm sewers. Controls may be constructed of washed gravel or crushed stone, geotextile fabrics and other materials. Inlet protection is considered a secondary sediment control to be used in conjunction with other more effective controls.



Filter Berm

Filter berms are created by mounding compost/mulch. The filter berm should be a minimum of 1 foot in height and the width should be twice the height. Filter berms are for sheet flow only and are appropriate for slopes up to 5:1 (H:V).



Filter Sock

Filter socks are made from inserting compost into a flexible, permeable tube and range in size from 8" to 24" in diameter. Filter socks are appropriate for slopes up to 2:1 (H:V).



Sources: All photos/graphics courtesy of Ohio Department of Natural Resources Division of Soil and Water Conservation's Rainwater and Land Development Manual, Ohio's Standards for Stormwater Management Land Development and Urban Stream Protection, Third Edition 2006 (updated 11-6-14).

SOIL STABILIZATION TIME FRAMES

Permanent Stabilization

| AREAS REQUIRING PERMANENT STABILIZATION | TIME FRAME TO APPLY EROSION CONTROLS |
|--|---|
| Any areas that will lie dormant for one year or more. | Within seven days of the most recent disturbance. |
| Any areas within 50 feet of a surface water of the state and at final grade. | Within two days of reaching final grade. |
| Other areas at final grade. | Within seven days of reaching final grade within that area. |

Temporary Stabilization

| AREAS REQUIRING TEMPORARY STABILIZATION | TIME FRAME TO APPLY EROSION CONTROLS |
|--|---|
| Any disturbed areas within 50 feet of a surface water of the state and not at final grade. | Within two days of the most recent disturbance if the area will remain idle for more than 14 days. |
| Any disturbed areas that will be dormant for more than 14 days but less than one year, and are not within 50 feet of a surface water of the state. | Within seven days of the most recent disturbance within the area. For residential subdivisions, disturbed areas must be stabilized at least seven days prior to transfer of permit coverage for the individual lot(s). |
| Disturbed areas that will be idle over winter. | Prior to the onset of winter weather. |

PROHIBITED DISCHARGES FROM CONSTRUCTION SITES

- ⌚ Wastewater from washout of concrete, unless managed by an appropriate control.
- ⌚ Wastewater from washout and cleanout of stucco, paint, form release oils, curing compounds, etc.
- ⌚ Fuels, oils, or other pollutants used in vehicle and equipment operation and maintenance.
- ⌚ Soaps or solvents used in vehicle and equipment washing.



POLLUTION PREVENTION

Design, install, implement and maintain effective pollution prevention measures to minimize the discharge of pollutants. At a minimum:

1. Minimize the discharge of pollutants from equipment and vehicle washing, wheel washwater, and other washwaters. Washwaters shall be treated in a sediment basin or similar control.
2. Minimize the exposure of construction materials, products, and wastes; landscape materials, fertilizers, pesticides, and herbicides; detergents, sanitary waste and other materials present on the site to precipitation and to storm water.
3. Minimize the discharge of pollutants from spills and leaks and implement chemical spill and leak prevention and response procedures.