

## Velocity Controls

MN Stormwater Design



Check Dams

- Spaced so that the elevation of the toe of the upslope check dam is equal to the elevation of the crest of the downslope check dam.
- Inspect for repairs until final stabilization is achieved.
- Sediment should be removed when it reaches one-half of the original dam height.

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Rock Chutes & Flumes

- Placed at release point where runoff enters a ditch, stream, or lake.
- Inspect in the spring to ensure it is level. Correct movement caused by freeze-thaw and add more rock if needed.
- The right size of rock in the right place is key to success and can be the cause of failure.



Outlet Protection

- Consider protection at all pipe and culvert outlets.
- If scour erosion is occurring, consider additional stabilization methods.
- Vegetation surrounding or within should be well established with no bare spots.

Forester Network



Diversion Structure

- Use around the perimeter of sites to prevent run-on and off-site flows over disturbed ground.
- Any damage to a vegetated lining should be repaired, remove and properly dispose of all debris to provide adequate flow conveyance.

## Good Housekeeping



Concrete Washout

- Wash water should be contained and waste should be removed when container is full. It can't be discharged to surface water and can not affect a water of the state.
- Care should be taken to prevent soil contamination by using lined systems, roll offs, or chute washouts.



Construction Debris & Dust Control

- Contain, cover, and remove debris from the site.
- Protect from wind, plug drainage ports.
- Washout containers should be staked down and located away from storm sewers.
- Use water or environmentally friendly dust suppressants for dust control.



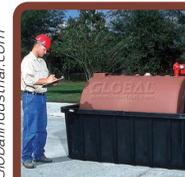
Spill Prevention

- Have a spill kit on site to minimize discharge of pollutants through chemical spill and leak response procedures.
- Use impervious surfaces for loading and unloading of chemicals and fuels.



Paints & Other Hazardous Materials

- Discharges from washout of stucco, paint, from release oils, compounds, and other construction materials are prohibited.
- Fuels, oils, and other pollutants must be contained and disposed of properly.
- Minimize discharges from vehicle and wheel washing.



Other Waste Management

- Use secondary containment if chemicals are used on site to prevent leaks.
- Waste should be located away from storm drains.



Wet Saw Cutting

- Use absorbent gels, or vacuum up properly and dispose of waste.
- Use inlet protection.
- Waste can't be discharged into surface water or affect a water of the state.

## Soil Compaction & Topsoil Requirements



Soil Compaction

- Soil that is not compacted and has plenty of organic matter is best for turf growth.
- The Iowa Stormwater Management Manual outlines 2 methods to preserve soil quality, 5 management methods to restore soil quality for new construction, and 1 method to restore soil quality for areas with established turf.



Topsoil & Compost

- Decompect subsurface soils as deep as possible using ripping and tillage equipment.
- Add topsoil and compost, till after addition to reduce compaction.

# Construction Site Runoff Control & Pollution Prevention

## Best Management Practices

# FIELD GUIDE



IowaStormwater.org

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## Erosion Controls



Mulching

- Mulch should be applied to a uniform depth of 1-3 inches depending on the slope and type of mulch and/or tackifier used. Straw is crimped.
- Inspect for signs of thin or bare spots. Add mulch as required to maintain initial thickness.
- Eroded areas should be repaired and may require additional protection with an erosion mat.



Hydro-Mulching

- Applied in 2 directions in a uniform manner to cover all exposed soil.
- Seed can be used along with hydro-mulch; most mulches are biodegradable and use a green dye to assist with coverage.



Temporary Seeding

- Newly seeded areas should be mulched and protected from vehicular and foot traffic.
- Inspect thickness of vegetation several feet above vegetation. Repair bare spots, water, and fertilize as needed.
- Bare spots, or eroded areas should be re-seeded immediately.



Permanent Seeding

- 100% of the site has a 70% plant density.
- Inspect for bare spots, which should be re-seeded immediately.
- Alternative stabilization measures are required if seeding with field equipment or initiating vegetative stabilization is infeasible.



Temporary Rolled Erosion Control Blankets & Turf Reinforcement Mats

- Use on bare soils susceptible to erosion, such as on slopes and channels, and in locations where establishing vegetation may otherwise be difficult.
- Soil surface should be smooth. Inspect for signs of rill or gully erosion below the matting until vegetation is fully established.
- Repair eroded areas, tearing, tenting, or areas where product is no longer anchored firmly to the ground.



Temporary Slope Drain

- Flexible pipe/tube that runs from top to bottom of a disturbed slope.
- Inspect for leaking joints, pipe movement, erosion at inlet/outlet, and seepage through the berm at the inlet.

### GP No. 2 Requirement

- Provide and maintain natural buffers around waters of the state, direct storm water to vegetated areas to maximize stormwater infiltration.
- Vegetative filter strips should be designed with no bare spots. Inspect to ensure runoff sheet flows into the filter area.

## Sediment Controls



Silt Fence

- Ends should be upturned, placed on contour, and bottom of edge of fabric buried.
- Maintenance is needed when accumulated sediment reaches approximately 1/2 of silt fence height.
- Repair tears and fabric post anchor and remove when area is stabilized and the project is complete.



Filter Sock & Wattles

- Should be staked in place, ends upturned and placed on the contour.
- Replace those that have been driven over and/or torn.
- Remove sediment when accumulated sediment reaches approximately 1/2 height of wattle or filter sock.



Inlet Protection

- Remove debris; may have to remove external devices seasonally to prevent street flooding and snow plow damage.
- Replace when necessary.



Temporary Sediment Basin

- Inspect embankment for rills, seepage, settlement or slumping, repair immediately by vegetating berms.
- Remove sediment when it accumulates to 1/2 of the wet storage volume.
- Inspect outlet for plugging.



Temporary Dewatering Basin

- Turbid water discharges are prohibited to storm sewers and streams unless managed by appropriate controls.
- Use an environmentally-safe flocculent.
- Periodically clean out roll-off and basin systems and properly dispose of waste.
- Utilize outlet structures that withdraw water from the surface when discharging from basins.



Stabilized Exit

- Remove any sediment tracked onto paved roadways.
- Replace rock when plugged with sediment
- Rock exit, engineering fabric and any accumulated sediment should be removed when project is completed.

## Reminders

- Ensure compliance by maintaining on a regular schedule.
- Stabilization of areas must, at a minimum, be **initiated immediately** whenever any clearing, grading, or excavating or other earth disturbing activities have permanently ceased on any portion of the site, or temporarily ceased on a portion of the site and will not resume for a **period exceeding 14 calendar days**.

- Minimize the exposure of building materials, building products, construction wastes, trash, landscape materials, fertilizers, pesticides, herbicides, detergents, sanitary waste and other materials present on the site to precipitation and storm water.
- Upon inspection of potential pollutant sources at a site, the permit and SWPPP shall be revised as soon as practicable after the inspection but no later than 7 calendar days.

### GP No. 2 Requirements

- Minimize sediment discharges from the site; minimize the amount of soil exposed during construction; and minimize the disturbance of steep slopes.
- Make sure to address the amount, frequency, intensity, and duration of precipitation and the nature of resulting storm water runoff and soil characteristics, including the range of soil particulate size.