

GENERAL OPERATIONS

DEWATERING

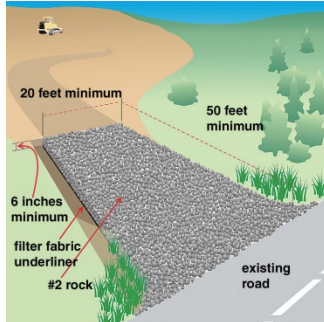
Any dewatering that must be done must meet basic requirements. No turbid or sediment laden water may be discharged off site. All water must be treated using appropriate BMP's. Discharges should be directed into temporary or permanent basins when possible. Other treatment methods include using flocculation products, sedimentation bags or discharging to an area where the water can infiltrate into the ground.

STOCKPILE PROTECTION

All stock piles should be located in areas away from drainage areas. Soil stockpiles should be protected from sediment runoff with perimeter control such as silt fence. All stock piles should be seeded within a week if they are not being actively worked to prevent soil loss.

ROCK ENTRANCES

All construction sites should have a rock entrance constructed where vehicles access the site. The entrance should be constructed of rock or gravel and maintained if sediment accumulates.



Source: MPCA Stormwater Construction Inspection Guide

STREET SWEEPING

Sediment tracked onto streets from vehicles or from erosion should be removed within 24 hours of discovery. The street should be swept with a pickup broom or other method.

SEDIMENT REMOVAL

Any sediment that is lost of site into the right of way or an adjacent lot must be removed in a timely manner. Sediment caught in silt fence, ditch checks, inlet protection, and in sedimentation ponds must also be removed when it accumulates. All sediment from any permanent stormwater pond must be removed before the project is completed.

By preventing erosion from occurring in the first place, the costly process of removing sediment can be prevented.

ONLY RAIN DOWN THE DRAIN



City of Brainerd



STORM WATER POLLUTION PREVENTION



EROSION AND SEDIMENT CONTROL

Storm Water Information

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EROSION & SEDIMENT CONTROL (ESC)

Erosion and sediment control is necessary to protect water resources, storm sewer systems and adjacent properties. The City of Brainerd is committed educating the public on controlling erosion and keeping sediment on construction projects. This brochure is intended to give information on the erosion and sediment control practices required on construction sites to land owners and contractors who are involved in site grading and erosion control.

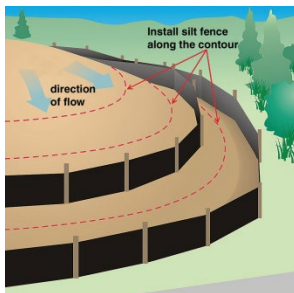
The following is a sample of some BMP ideas that can be used during construction to prevent erosion and control sediment. Additional information and BMP's can be found in the MPCA Storm Water Manual located on the MPCA website. For more specific requirements on erosion and sediment control in the City of Brainerd go to the City of Brainerd's website at www.ci.brainerd.mn.us.

SEDIMENT CONTROL

All sediment control devices should be installed prior to land disturbing activities.

PERIMETER CONTROL

Perimeter control devices should be installed around the entire perimeter of the site where water may flow off site.



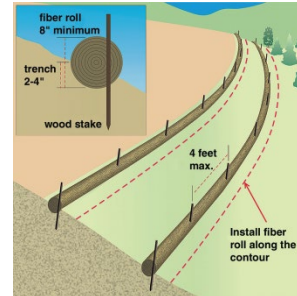
Source: MPCA Stormwater Construction Inspection Guide

Silt fence is the primary BMP used to keep sediment on site. In order for it to work as designed it must be installed properly.

Biorolls or wattles made of straw or other materials are another form of perimeter control. These work best when they are installed by sidewalks and have little flow going to them as they do not have the sediment capacity of silt fence.

Hay bales are another form of perimeter control that works well in protecting wetlands. Placing the bales along the edge of a wetland can create less impact during

installation and works as a filter to prevent sediment from running into the wetland.

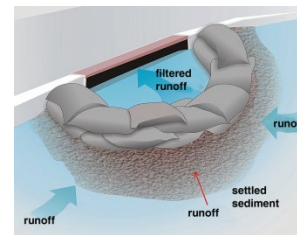


Source: MPCA Stormwater Construction Inspection Guide

All perimeter controls should be maintained by removing sediment or replacing the device when it is broken.

INLET PROTECTION

Any storm sewer inlet that water from the construction site may enter must be protected from sediment during all phases of construction. The following are a couple examples of types of inlet protection that may be used:



Source: MPCA Stormwater Construction Inspection Guide

All inlet protection devices used must have an emergency overflow to prevent flooding of the road. All devices must not create a hazard to vehicles. All devices must be maintained by removing sediment and debris when conditions warrant.

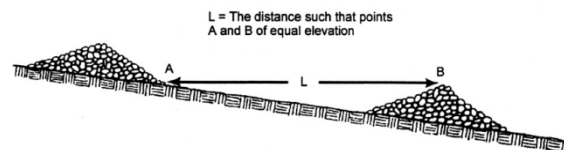
SEDIMENT TRAPS & BASINS

Sediment traps and basins are another way to capture sediment. Temporary sediment basins should be installed in areas where more than 10 acres of disturbed soils drain to one area.

EROSION CONTROL

DITCH CHECKS

Ditch checks are used to slow channelized flow in ditches and helps prevent erosion. Ditch checks include silt fence, biorolls or wattles, geotextiles triangular dikes or rock checks.



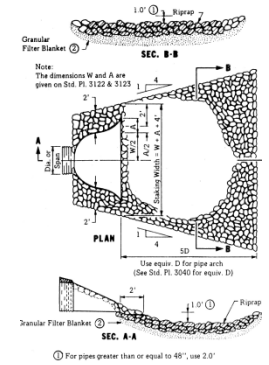
Source: MPCA

Silt fence should only be used in very flat ditches or where flow will be minimal so water can flow through the silt fence and not around or over which could cause erosion.

For the other types or ditch checks, they should be constructed such that the bottoms of the outer edges are higher than the top of the center of the ditch check. This forces water over the center of the dike rather than around the dike, which could cause erosion.

RIPRAP

Rip rap or some other energy dissipation device must be installed on outlets within 24 hrs of connection.



MULCH

Mulch is an excellent way of helping stabilizing a slope or disturbed area. Temporarily mulch is ideal to use in areas where work has stopped temporarily and is not ready for seeding. This is often needed due to weather or when different areas of the project need focusing on.

EROSION CONTROL BLANKETS

Erosion control blankets are an excellent way to stabilize a slope temporarily or permanently. They are ideal for lining ditch bottoms and areas that see concentrated flows. They also work well on steep grades where seed and mulch would blow or wash away. The appropriate category of erosion control blanket should be used depending on the need of the area that is going to be stabilized.

FINAL STABILIZATION

SEEDING

all disturbed areas not being actively worked must be stabilized within a certain time period depending on the slope of the ground. The following table shows the times in which stabilization must take place:

Type of Slope	Time	Maximum time an area can remain open when the area is not actively being worked.
Steeper than 3:1	7 days	can remain open when the area is not actively being worked.
10:1 to 3:1	14 days	
Flatter than 10:1	21 days	