

STATEMENT OF BASIS

PERMIT TYPE: General Permit for Stormwater Discharges Associated with Construction Activities

PERMIT NUMBER: SDR100000

DISCHARGE LOCATION: Surface Waters of the State of South Dakota

PURPOSE OF STATEMENT OF BASIS

This document is intended to explain the basis for the requirements contained in the draft General Permit for Stormwater Discharges Associated with Construction Activities (draft General Permit). This document provides guidance to aid in complying with the stormwater regulations as listed in the General Permit requirements. This guidance is not a substitute for reading the General Permit and understanding its requirements as they apply to your project or site.

BACKGROUND

Introduction

Construction activities have the potential to produce pollutants that may contaminate stormwater runoff. Clearing land of grass, trees, shrubs, rocks and other ground cover can change natural water runoff patterns and increase erosion. The disturbed soil, if not managed properly, can easily be washed off the construction site during storms, allowing sediment to enter water bodies. Sediment is one of the leading causes of water quality impairment nationwide. The deposition of sediment has contributed to reducing water depth in small streams, lakes, and reservoirs which can impair a water body's beneficial uses. Sediment runoff rates from unmanaged construction sites are typically 10 to 20 times greater than those from agricultural lands and 1,000 to 2,000 times greater than those of forest lands. During a short period of time, construction activity, when not managed properly, can contribute more sediment to streams than can be deposited naturally over several decades, causing physical and biological harm to waterbodies.

Some construction activities require the use of toxic or hazardous materials which contain pollutants such as pesticides, toxic chemicals, metals, and oil that may be harmful to humans, fish, wildlife, and plants. When these materials are not properly handled or stored, the resulting leaks and spills can pollute stormwater and negatively impact waters protected for drinking water, recreation, aquatic life, and other beneficial uses.

In 1972, Congress passed the Federal Water Pollution Control Act, commonly referred to as the Clean Water Act (CWA). The goal of the act was to restore and maintain the chemical, physical, and biological integrity of the Nation's waters. The CWA further states the discharge of any pollutant by any person shall be unlawful except in compliance with other provisions of the statute. To achieve these goals, the CWA requires control of discharges of pollutants from point

sources through the issuance of the National Pollution Discharge Elimination System (NPDES) permits.

In 1987, Congress amended the CWA to require implementation, in two phases, of a comprehensive national program for addressing stormwater discharges. The first phase of the program, commonly referred to as “Phase I,” was promulgated on November 16, 1990. Under Phase I, the Environmental Protection Agency (EPA) established the permitting requirements for discharges of “stormwater associated with construction activity,” which EPA included in its definition of “stormwater discharges associated with industrial activity.” Construction activities that disturb five or more acres of land were designated as point source discharges that must receive a permit for any discharge of pollutants into waters of the United States.

On December 8, 1999, EPA promulgated Phase II of the stormwater regulations, expanding the point source discharge definition to include small construction activities that disturb between one and five acres of land.

On December 1, 2009, EPA published final regulations establishing technology-based Effluent Limitations Guidelines (ELGs) and New Source Performance Standards (NSPS) for the Construction & Development (C&D) point source category, which became effective on February 1, 2010. Litigation was initiated challenging the 2009 rule and EPA reached settlement agreements with the parties. The C&D rule was amended on March 6, 2014 in accordance with the settlement agreements. All NPDES construction permits issued by EPA or states after this date must incorporate the requirements in the C&D rule.

The intent of the stormwater regulations is to improve and protect water quality by minimizing pollutants in stormwater runoff. The discharge of pollutants into surface waters of the state from construction activities disturbing one or more acres is considered a point source and shall obtain a Surface Water Discharge (SWD) permit from the South Dakota Department of Environment and Natural Resources (SDDENR). Stormwater runoff consists of rainwater and melted snow that runs off the land and directly, or indirectly by way of storm sewers, enters surface waters of the state, such as lakes, rivers, streams, wetlands, and ponds. The term “construction activity” includes point source discharges from areas undergoing operations such as clearing, grading, and excavation. Construction activities can include road building, construction of residential houses, office buildings, industrial sites, or demolition. The term construction activity does not include agricultural, silviculture, or maintenance activities.

Permit Description

The current General Permit was issued under South Dakota’s SWD regulations on February 1, 2010 and expired January 31, 2015. The General Permit was administratively extended, pending the reissuance of the permit.

SDDENR proposes to reissue the General Permit. The General Permit contains requirements that are based on technology-based effluent limitations, best management practices, South Dakota’s Surface Water Quality Standards (SDSWQS), and other conditions applicable to the types of stormwater generated by construction activities.

Stormwater runoff from construction activities disturbing one or more acres of land are designated as “point sources” by Phases I and II of EPA’s stormwater regulations. All point sources discharging pollutants into surface waters of the state shall have a SWD permit. Due to the nature of scheduling these construction activities, obtaining an individual SWD permit would significantly impact the timing of a project. The General Permit regulations within the Administrative Rules of South Dakota (ARSD) §74:52:02:46 provide for the issuance of General Permits for stormwater point sources. Therefore, SDDENR has issued a General Permit for these activities in order to:

1. Facilitate the scheduling of these activities by reducing the administrative delays in their authorization;
2. Establish uniform criteria for management practices and effluent limits for discharges from these activities; and
3. Promote consistent permitting with respect to these activities.

Coverage Under the General Permit

This permit authorizes the following discharges of stormwater from new or ongoing construction activities located in South Dakota:

1. Stormwater discharges associated with construction activity from construction sites greater than or equal to one (1) acre, including stormwater runoff, snowmelt runoff, and surface runoff and drainage.
2. Stormwater discharges from individual sites that are part of a larger common plan of development or sale.
3. Stormwater discharges from construction sites less than one (1) acre that have been designated by the Secretary as needing a permit
4. Stormwater discharges from construction support activities provided: 1) The support activity is directly related to the construction site required to have permit coverage; 2) The support activity does not continue to operate beyond the completion of the construction activity at the project it supports; 3) The support activity is included in the Stormwater Pollution Prevention Plan (SWPPP); and 4) Control measures are implemented for discharges from the support activity area; 5) A separate permit is obtained for support activities continuing past the initial permitted project timeframe.

Reporting Requirements

On October 22, 2015, the EPA published a rule in the federal register making electronic reporting of permit and compliance monitoring information mandatory for all NPDES permits. These are referred to as SWD permits in South Dakota. The final rule became effective December 21, 2015.

Phase II of the final rule requires authorized state NPDES programs begin electronically collecting, managing, and sharing construction stormwater permitting information within five (5) years after the effective date of final rule. This information includes: general permit reports (e.g. Notice of Intent to be covered (NOI); Notice of Termination (NOT); No Exposure Certification (NOX); and all other remaining NPDES program reports.)

Currently, the SDDENR is approved to use the NPDES e-Reporting Tool (NeT) to allow electronic reporting under 40 Code of Federal Regulations (CFR) Parts 122, 403, and 503. However, SDDENR is still working on fully developing programs to meet this requirement and will notify facilities as they become available. Requirements to request and terminate permit coverage are listed below.

New Construction Projects

To obtain coverage under the draft General Permit, you, the owner of the construction site, shall submit a NOI and a Certification of Applicant form to the SDDENR at least 15 days prior to the start of construction.

Note: If a contractor other than the owner will be responsible for the day-to-day operation of the construction site, that contractor shall be identified and the owner shall submit a Contractor Authorization form found in Appendix C of the draft General Permit. As an operator of the site, any contractor performing work at the site also has responsibility for compliance with the terms of the General Permit.

Upon receipt of a complete NOI signed by the owner, the Secretary of the SDDENR makes the decision to grant or deny coverage, or request additional information.

Existing Construction Projects

For existing construction operations already covered under the current General Permit, you will need to submit a NOI for Reauthorization, found in Appendix E of the draft General Permit, to continue coverage under the reissued General Permit. Coverage under the current General Permit will expire on the effective date of the reissued General Permit. If you do not submit a NOI for Reauthorization prior to the effective date of the General Permit, your coverage under the current General Permit will be terminated and any stormwater discharges associated with construction activity at the site will not be authorized and could be subject to enforcement.

Secretary Designation

While most construction sites less than one acre do not significantly impact surface waters in South Dakota, this is not universally true. In some cases, the Secretary of the SDDENR may require smaller construction sites to obtain coverage under a permit. In making this determination, the Secretary will take into account the beneficial uses of the receiving waters, the slope of the project, the management of the site, and other appropriate factors. SDDENR is making the draft General Permit available to these designated sites. Alternatively, the owner of the designated site may request an individual permit for the site.

Oil and Gas Exemption

Title 40 CFR, Section 122.26(a)(2) states that the EPA may not require a permit for discharges of stormwater runoff from mining operations or oil and gas exploration, production, processing or treatment operations or transmission facilities, composed entirely of flows which are from conveyances or systems of conveyances (including but not limited to pipes, conduits, ditches, and channels) used for collecting and conveying precipitation runoff and which are not contaminated by contact with or that has not come into contact with, any overburden, raw

material, intermediate products, finished product, byproduct or waste products located on the site of such operations.

Therefore, owners of oil and gas field activities are exempt from the permitting requirements for any construction activity at these facilities. However, the SDDENR expects these operations to employ best management practices to minimize the discharge of pollutants from the site and ensure the SDSWQS are maintained.

RECEIVING WATERS

The South Dakota Surface Water Quality Standards (SDSWQS), Administrative Rules of South Dakota (ARSD), Sections 74:51:03:01 and 74:51:03:06, designate beneficial uses for all surface waters of the state. These classifications designate the minimum quality at which the surface waters of the state are to be maintained and protected. All waterbodies in South Dakota have been assigned one or more of the following beneficial uses:

1. Domestic water supply waters;
2. Coldwater permanent fish life propagation waters;
3. Coldwater marginal fish life propagation waters;
4. Warmwater permanent fish life propagation waters;
5. Warmwater semipermanent fish life propagation waters;
6. Warmwater marginal fish life propagation waters;
7. Immersion recreation waters;
8. Limited contact recreation waters;
9. Fish and wildlife propagation, recreation, and stock watering waters;
10. Irrigation waters; and
11. Commerce and Industry waters.

The draft General Permit was developed to ensure these beneficial uses are maintained and protected.

ANTIDEGRADATION

The South Dakota Department of Environment and Natural Resources (SDDENR) has fulfilled the antidegradation review requirements for this draft General Permit. In accordance with South Dakota's Antidegradation Implementation Procedure and the South Dakota Surface Water Quality Standards (SDSWQS), no further review is required. The results of SDDENR's review are included in Attachment 1.

TOTAL MAXIMUM DAILY LOAD

Section 303(d) of the federal Clean Water Act (CWA) requires states to develop Total Maximum Daily Loads (TMDLs) for waters at levels necessary to achieve and maintain water quality standards. TMDLs are calculations of the amount of pollution a waterbody can receive and still maintain applicable water quality standards. TMDLs are necessary for waters that do not meet or are not expected to meet water quality standards with the application of technology-based

controls for point sources. TMDLs address specific waterbodies, segments of waterbodies, or even entire watersheds, and are pollutant specific. TMDLs must allow for seasonal variations and a margin of safety, which accounts for any lack of knowledge concerning the relationship between pollutant loads and water quality.

The draft General Permit is a Surface Water Discharge (SWD) permit that requires best management practices to ensure the surface water quality standards are met and maintained. Therefore, the draft General Permit will be able to authorize discharges to waterbodies that are listed as impaired or have an approved TMDL. However, if the South Dakota Department of Environment and Natural Resources (SDDENR) determines a specific site has the potential to cause or contribute to an impairment of the surface water quality standards or best management practices are not sufficient, SDDENR can require the owner to implement additional controls and/or obtain an individual discharge permit.

EFFLUENT LIMITS

Under the federal Clean Water Act (CWA), dischargers shall comply with both technology-based and water quality-based effluent limits.

The CWA allows states and the Environmental Protection Agency (EPA) to meet the requirement for technology-based limits using non-numeric, or “narrative,” effluent limits in permits where appropriate. The EPA has developed regulations allowing the use of narrative best management practices as effluent limits (40 CFR §122.44(k)). On March 6, 2014, EPA promulgated the final technology-based Construction and Development Effluent Guidelines in Title 40 of the Code of Federal Regulations, Part 450 (40 CFR Part 450). The draft General Permit includes narrative effluent limits, including best management practices, to ensure the federal effluent limitations guideline requirements are met. SDDENR has included additional narrative effluent limitations to ensure the South Dakota Surface Water Quality Standards (SDSWQS) are met.

All permittees and their contractors shall comply with the effluent limits specified below. These limits are based on the Construction and Development Effluent Guidelines (40 CFR Part 450), South Dakota Codified Law (SDCL), the Administrative Rules of South Dakota (ARSD), the SDSWQS, the permit writer’s judgment, and current General Permit limits.

1. **Proper Operation and Maintenance.** You must properly operate and maintain all the sediment and erosion controls used to meet the conditions of the draft General Permit. This limit is based on ARSD Section 74:52:03:02(5) and the current General Permit limits.
2. **Erosion and Sediment Control Requirements.** You must design, install, and maintain effective erosion and sediment controls to minimize soil erosion and the discharge of pollutant during earth-disturbing activities. The controls must be designed for a 2-year, 24-hour precipitation event. Your controls must be able to control stormwater volume, velocity, and peak flow rates and account for the anticipated soil characteristics at the site. This limit is based on 40 CFR 450.21(a)(1), (2), and (5), and the current General Permit limits.

3. **Installation Requirements.** You must install the erosion and sediment controls before any land disturbing activity takes place. All other controls must be installed as soon as site conditions on the site allow. The controls must be installed using good engineering practices and should follow the manufacturer's specifications. You must document any deviations from the manufacturer's specifications in the stormwater pollution prevention plan. This limit is based on the permit writer's judgement.
4. **Perimeter Controls.** You must have effective down gradient sediment controls and controls for any side slope boundaries. This limit is based on the current General Permit limits.
5. **Sediment Basins.** If you use a sediment basin at the site to control the discharge of sediment, the basin must meet the following requirements:
 - a. The sediment basin must be designed, constructed, and operated in accordance with any local requirements;
 - b. The outlet structures must withdraw water from the surface of the sediment basin to allow for proper sediment removal in the pond;
 - c. You must use erosion control and velocity dissipation devices to prevent erosion within the basin and at the inlets and outlets from the basin; and
 - d. Sediment basins must be situated outside of surface waters and any natural buffers. Basins must be designed to avoid collecting water from wetlands and other waterbodies.

This limit is based on 40 CFR 450.21(f) and the permit writer's judgement.

6. **Minimize Sediment Track-Out.** You must take steps to minimize the track-out of sediment from the construction site where vehicles leave the site:
 - a. Restrict vehicle use to properly designated access points;
 - b. Use appropriate stabilization techniques at every construction site access point so sediment removal occurs prior to vehicle exit.
 - c. Where sediment has been tracked out from your site onto offsite streets, other paved areas, and/or sidewalks, remove the deposited sediment by the end of the same work day in which the track-out occurs. You must remove the track-out by sweeping, shoveling, vacuuming these surfaces, or by using other similarly effective means of sediment removal. You are prohibited from hosing or sweeping tracked-out sediment into storm drain inlets, surface waters of the state, or any stormwater conveyance unless the conveyance is connected to a sediment basin, sediment trap, or similar effective control. You must obtain approval from the owner of the sediment traps before hosing or sweeping sediment into those controls.

This limit is based on the current General Permit limits.

7. **Remove Offsite Accumulation.** If sediment escapes the construction site, you must begin removing the offsite accumulations by the end of the same work day. You must revise your stormwater pollution prevention plan and implement controls to minimize further offsite accumulation. This limit is based on the current General Permit limits and the permit writer's judgement.
8. **Minimize Dust.** You must minimize the generation of dust at the construction site to avoid pollutants from being deposited into surface waters of the state. This limit is based on the current General Permit limits.
9. **Minimize Run-On.** You must minimize run-on to your construction site. This limit is included to minimize the volume of water managed at the site and represents a best management practice to further reduce the likelihood of erosion and sedimentation, based on the permit writer's judgement.
10. **Provide Natural Buffers.** You must provide natural buffers if disturbed portions of the construction site are within 50 feet of a lake assigned immersion recreation or limited contact recreational beneficial uses in ARSD Section 74:51:02:02 and listed in ARSD Section 74:51:02:04; or a river or stream assigned any of the warmwater or coldwater fish life propagation beneficial uses in ARSD Section 74:51:03:02 and listed in ARSD Sections 74:51:03:04 to 74:51:03:27, inclusive. The draft General Permit requires a 50-foot undisturbed natural buffer, or equivalent controls. Equivalent controls are outlined in Appendix G of EPA's Construction General Permit This limit is based on 40 CFR 450.21(a)(6) and permit writer's judgement.
11. **Preserve Topsoil.** You must preserve the native topsoil on your site, unless infeasible. Preserving topsoil is not required where the intended function of a specific area of the site dictates that the topsoil be disturbed or removed. This limit is based on 40 CFR 450.21(a)(8).
12. **Minimum Steep Slope Disturbance.** You must minimize the disturbance of slopes that are greater than a three horizontal to one vertical (3:1) slope, unless infeasible. This limit is based on 40 CFR 450.21(a)(4) and permit writer's judgement.
13. **Protect Storm Drain Inlets.** You must protect all storm drain inlets that receive stormwater flows from the construction site to minimize the discharge of pollutants from the site. You must maintain the inlet protection until you have permanently stabilized all sources that have the potential to discharge pollutants to the inlet. If local officials require you to remove the inlet controls during the winter, you must install alternative controls to prevent sediment from entering the storm drain inlet. The limit is based on the current General Permit limits and the permit writer's judgement.
14. **Erosive Velocity Control.** You must use erosion controls and velocity dissipation devices where necessary along the length of stormwater conveyance channels and outlets to minimize erosion of the channel, adjacent stream bank, slope, and downstream waters. You must provide energy dissipation best management practices prior to connecting pipe or culvert outlets to surface waters. Conveyances that collect and channelize the stormwater runoff can result in high flows leaving the site at a concentrated point. This can cause erosion and scour

downstream of the construction site, which in turn discharges pollutants to surface waters. You must install controls to manage both the peak flowrates and the total stormwater volume leaving the site. This limit is based on 40 CFR 450.21(a)(1) and the current General Permit limits.

15. **Minimize Soil Compaction.** In areas where final vegetative stabilization or infiltration will occur, you must ensure the areas allow proper drainage following construction. You must either restrict vehicle and equipment use in these locations to avoid soil compaction or condition areas of compacted soil prior to seeding or planting. This limit is based on 40 CFR 450.21(a)(7) and the permit writer's judgement.
16. **Minimize Exposed Soil.** You must schedule and sequence soil disturbing activities to minimize the amount and duration of soil exposure to erosion and sedimentation by wind, rain, surface runoff, and vehicle tracking. You should consider factors such as high precipitation seasons when scheduling soil disturbing activities. This limit is based on 40 CFR 450.21(a)(3).
17. **Protect Stockpiles.** For any stockpiles or land clearing debris, you must take the following steps:
 - a. Locate the stockpiles and debris outside of any natural buffers established under paragraph 10 (Provide Natural Buffers) above and away from any stormwater conveyances, drain inlets, and areas where stormwater flow is concentrated;
 - b. Protect the stockpile debris from contact with stormwater run-on by using temporary sediment controls, berms, or other best management practices;
 - c. Properly maintain and position stockpiles to minimize dust generation and wind transport of sediment; and,
 - d. Minimize stormwater runoff from the piles by properly positioning stockpiles and debris or installing effective sediment controls.
 - e. You are prohibited from placing stockpiles in surface waters of the state.

This limit is based on the SDSWQS (ARSD Section 74:51:01:06), SDCL 34A-2-21, and the current General Permit limits.

18. **Stabilization Requirements.** You are required to stabilize exposed portions of your site once construction has ceased, both temporarily and permanently.
 - a. You must begin soil stabilization measures the following work day whenever earth-disturbing activities have permanently or temporarily ceased on any portion of the site. Earth-disturbing activities have permanently ceased when you complete clearing, grading, and excavation within any area of your site that will not include permanent structures. Earth-disturbing activities have temporarily ceased when you cease clearing, grading, and excavation within any area for a period of at least 14 calendar days, but will resume such activities in the future.

- b. You must complete temporary stabilization as soon as practicable, but no later than 14 calendar days after initiating soil stabilization measures. This includes,
 - i. All activities necessary to initially seed or plant the area to be stabilized for vegetative stabilization practices.
 - ii. The installation or application of all non-vegetative measures.
 - iii. As soon as practicable after seeding or planting, select, design, and install non-vegetative erosion controls (e.g., mulch or rolled erosion control products) to prevent erosion on the seeded or planted areas while vegetation establishes.
- c. You must meet the criteria for final stabilization, as defined in the draft General Permit:

***Final Stabilization** – on areas not covered by permanent structures, means either (1) vegetation has been established that provides a uniform (e.g., evenly distributed, without large bare areas) perennial vegetative cover with a density of 70 percent of the natural background vegetative cover, (2) permanent non-vegetative stabilization methods have been implemented to provide effective cover for exposed portions of the site, or (3) disturbed portions of a construction site on land used for agricultural purposes must be returned to pre-construction agricultural use.*

This limit is based on 40 CFR 450.21(b), the current General Permit limits, and permit writer's judgement.

19. Maintenance Requirements. You must ensure that all erosion and sediment controls remain in effective operating condition until final stabilization is complete. At a minimum, you must:

- a. Remove sediment from any sedimentation basins when the design capacity has been reduced by 50% or more.
- b. Remove sediment from sediment controls before the deposit reaches 50% of the above-ground height of the control.
- c. Repair vegetative buffers if they become silt-covered, contain rills, or are otherwise rendered ineffective.
- d. You must repair and stabilize eroded areas by the end of the same work day they are identified. If repair is infeasible, you must implement alternative control measures.
- e. You must clean inlet protection devices when sediment accumulates, or when the filter becomes clogged, or performance is compromised.

- f. You must ensure all controls remain in effective operating condition and are protected from activities that would reduce their effectiveness.
- g. .
- h. If you find a problem or if your inspections identify that control measures are not operating effectively, you must make the necessary repairs or modifications as follows:
 - i. If you discover a problem that does not require repair or replacement, you must initiate work to fix the problem on the same day. If the problem is identified at a time in the work day when it is too late to complete the corrective actions, you must initiate work to fix the problem on the following work day or before the next anticipated runoff event, whichever comes first.
 - ii. If you need to install new erosion or sediment controls or need to complete repairs, you must complete the work before the next anticipated runoff event or by no later than seven calendar days from the time the problem is discovered, whichever comes first.
 - iii. You must modify your stormwater pollution prevention plan within seven calendar days of completing the work. The stormwater pollution prevention plan must address any changes to the controls and must detail the necessary steps to prevent similar damage in the future.

This limit is based on 40 CFR 450.21(a)(1) and (5), and the current General Permit limits.

20. Pollution Prevention Procedures. You must design, install, implement, and maintain effective pollution prevention measures to minimize the discharge of pollutants from the activities listed below. Spills must be reported as required in Section 7.1 of the draft General Permit.

- a. ***Prohibited Discharges.*** You are prohibited from discharging the following from your construction site, based on 40 CFR 450.21(e):
 - i. Wastewater from washout and cleanout of concrete, stucco, paint, form release oils, curing compounds, and other construction materials.
 - ii. Fuels, oils, or other pollutants used in vehicle and equipment operation and maintenance.
 - iii. Detergents, soaps, or solvents used in vehicle and equipment washing.
 - iv. Toxic or hazardous substances from a spill or other release.
 - v. Waste, garbage, floatable debris, construction debris, and sanitary waste.

- b. ***Fueling and Maintenance of Equipment or Vehicles.*** If you fuel or maintain equipment or vehicles at your site, you must minimize the discharge of spilled or leaked materials from the area where these activities take place. This limit is based on the SDSWQS (ARSD 74:51:01:10).
- c. ***Washing of Equipment and Vehicles.*** You must provide an effective means of minimizing the discharge of pollutants from equipment and vehicle washing, wheel wash water, and other types of washing. The washing must be limited to a defined area of the site and must be properly disposed. This limit is based on 40 CFR 450.21(d)(1).
- d. ***Management of Construction Products, Chemicals, Materials, and Wastes.*** You must properly store, handle, and dispose of any construction products and materials, chemicals, landscape materials, and wastes in order to minimize the exposure to stormwater. Products or wastes that are either not a source of contamination to stormwater or are designed to be exposed to stormwater are not held to this requirement. This limit is based on 40 CFR 450.21(d)(2) and (3), and SDCL 34A-2-21. Requirements are as follows:
 - i. You must cover or otherwise protect any materials that have the potential to leach pollutants in order to minimize contact with stormwater and prevent the discharge of pollutants.
 - ii. Clean up spills by the end of the same work day in which the spill occurred, using dry clean-up methods where possible, and dispose of used materials properly. Do not clean surfaces or spills by hosing the area down. Eliminate the source of the spill to prevent a discharge or continuation of an ongoing discharge.
 - iii. For registered pesticides and fertilizers, you must comply with all application and disposal requirements included on the label. Pesticides and fertilizers must be stored under cover or other effective means designed to minimize contact with stormwater. You must document any departures from the manufacturer's specifications for applying fertilizers and pesticides.
 - iv. Store all diesel fuel, oil, hydraulic fluids, other petroleum products, and other chemicals and products in water-tight container.
 - v. Hazardous or toxic wastes that may be present at construction sites include, but are not limited to, paints, solvents, petroleum-based products, wood preservatives, additives, curing compounds, acids, and alkaline materials. For these materials and wastes, you must:
 - (1) Separate hazardous or toxic wastes and materials from construction and domestic waste.
 - (2) Store hazardous or toxic wastes and materials in sealed containers and provide secondary containment as applicable. These containers must

be constructed of suitable materials to prevent leakage and corrosion. These containers must be labeled in accordance with the applicable Resource Conservation and Recovery Act (RCRA) requirements and all other applicable federal, state, or local requirements.

- (3) Dispose of hazardous or toxic wastes in accordance with the manufacturer's recommended method of disposal and in compliance with federal, state, and local requirements.
- vi. You must provide effective containment for all liquid and solid wastes generated by washout operations including, but not limited to, concrete, stucco, paint, form release oils, curing compounds, and other construction materials related to the construction activity. For these materials and wastes, you must comply with the following requirements:
- (1) Designate areas to be used for washout and cleanout activities. The containment must be designed so that it does not result in runoff from washout operations or during runoff events;
 - (2) Install signs adjacent to each washout facility directing site personnel to use the proper facilities for concrete disposal and other washout wastes;
 - (3) Direct all wash water into a leak-proof container or leak-proof pit;
 - (4) Do not dump liquid wastes in the storm sewers; and,
 - (5) Clean up and properly dispose of any accumulated wastes in designated waste containers.
- vii. You must provide proper waste disposal receptacles of sufficient size and number to handle construction wastes including, but not limited to, packaging materials, scrap construction materials, masonry products, timber, pipe, and electrical cuttings, plastics, Styrofoam®, concrete, and other trash or building materials.
- viii. For sanitary waste, you must position portable toilets so they are secure and will not be tipped or knocked over. You must properly remove and dispose of wastes from the portable toilets.

These limits are based on 40 CFR 450.21, the SDSWQS, SDCL, the current General Permit limits, and the permit writer's judgement.

21. **Construction Dewatering.** You are prohibited from discharging from dewatering activities, including discharges from dewatering of trenches and excavation, unless the discharges are managed by the following controls:

- a. You shall not discharge toxic pollutants in toxic amounts. This limit is based on the SDSWQS (ARSD Section 74:51:01:12)
- b. Your discharge shall not impart a visible film or sheen to the surface of the receiving water or adjoining shoreline. This limit is based on the SDSWQS (ARSD Section 74:51:01:10).
- c. Your discharge shall not contain visible pollutants. You must visually monitor the discharge for suspended solids. This limit is based on the SDSWQS (ARSD Section 74:51:01:06). If you observe suspended solids in the discharge, you must implement the following requirements:
 - i. You must install additional best management practices and update your stormwater pollution prevention plan to reduce the visible solids.
 - ii. You must sample the dewatering discharge for total suspended solids on a daily basis until there is no longer a discharge of visible solids. The samples must be analyzed in accordance 40 CFR, Part 136. If the total suspended solids value exceeds 53 mg/L in any sample or measurement, you must cease the dewatering discharge to surface waters of the state until you can demonstrate the additional best management practices are sufficient to eliminate the visible pollutants. You must also document this in your stormwater pollution prevention plan.
- d. You must use best management practices to minimize or prevent stream channel scouring or erosion caused by dewatering discharges. This limit is based on 40 CFR 450.21(a)(1) and the current General Permit limits.
- e. You cannot add chemicals to the discharge without prior approval from the SDDENR. This limit is based on the SDSWQS (ARSD Section 74:51:01:12).
- f. You must obtain a Temporary Water Right. Contact SDDENR at (605) 773-3352 for more information and to obtain a temporary water right.

These limits are based on 40 CFR 450.21(c), the SDSWQS, the current General Permit limits, and the permit writer's judgement.

STORMWATER POLLUTION PREVENTION PLAN

You are required to develop and implement a Stormwater Pollution Prevention Plan (SWPPP) prior to submitting a Notice of Intent (NOI) for new construction projects. The objective of the SWPPP is to identify and document potential sources of sediment and other sources of pollution associated with construction activity, and to ensure practices are implemented and maintained to reduce the contribution of pollutants in stormwater discharges from the construction site to surface waters of the state and storm sewer systems. Your SWPPP must describe all control

measures that are, or will be, installed and maintained that are site-specific to meet the conditions of the draft General Permit. You are required to certify you have developed the SWPPP when you submit the NOI and are required to implement the necessary sediment and erosion controls before initiating construction.

The SWPPP details the Best Management Practices (BMPs) you will implement to meet the effluent limits specified in the draft General Permit. The draft General Permit requirements for the SWPPP were designed for maximum flexibility to allow the development of needed stormwater controls based on the specifics of the site. Some of the factors to consider when developing your SWPPP include:

1. Local development requirements and/or
2. Building codes;
3. Precipitation patterns for the area at the time the project will be underway;
4. Soil types;
5. Slopes;
6. Sensitivity of nearby water bodies;
7. Safety concerns of the stormwater controls (i.e. potential safety hazards of water in stormwater retention ponds to humans and wildlife, and the potential of drawing birds to retention ponds and the hazards they pose to aircraft); and
8. Coordination with other site operators.

A large number of sites are already covered under the current General Permit. While the draft General Permit is consistent with the South Dakota Department of Environment and Natural Resources' (SDDENR) requirements under the current General Permit, there are some changes. Existing permittees will have until [INSERT DATE] to update their SWPPP to reflect the requirements of the reissued General Permit.

The draft General Permit requires the stormwater controls be described in the stormwater pollution prevention plan and implemented at the site. A more thorough description of pollution prevention measures and best management practices is provided in *Developing Your Pollution Prevention Plan: A Guide for Construction Sites* (U.S. EPA, 2016). An electronic version of this document is available from the Environmental Protection Agency's (EPA) web site (<http://www.epa.gov/npdes/developing-stormwater-pollution-prevention-plan-swppp>), or a hardcopy of the summary document may be obtained from the SDDENR or EPA upon request. A table listing common BMPs and their uses is also included in Attachment 2 of this Statement of Basis.

SELF MONITORING REQUIREMENTS

You shall ensure that qualified personnel inspect the site at least once every seven (7) days and within twenty-four (24) hours after any rain event that is 0.25 inches or greater or a snowmelt event that generates runoff. Where runoff is unlikely due to winter conditions (e.g. the site is covered with snow, ice, or frozen ground) *and* the site has been temporarily stabilized, you shall conduct such inspections at least once every month. You must resume weekly inspections by no

later than March 1st of each year until the site is permanently stabilized and you have submitted a Notice of Termination (NOT). The inspection shall include:

1. All disturbed areas of the construction site that have not reached final stabilization;
2. All sediment and erosion control measures;
3. Vegetated buffers;
4. Areas used for storage of materials;
5. Areas where stormwater typically flows within the site;
6. All points of discharge from the site;
7. All dewatering activities at the site; and
8. Locations where vehicles enter or exit the site.

You, or a qualified inspector knowledgeable about stormwater controls, shall inspect these areas for evidence of, or the potential for, pollutants entering the drainage system and erosion. You, or the inspector, shall also inspect sediment control measures to ensure that they are operating correctly and that sediment is not tracked offsite. You must also inspect stabilized areas to ensure that stabilization measures are still in place and effective.

If a discharge is occurring during the inspection, you, or the qualified inspector, are required to:

1. Identify all points where there is a discharge;
2. Observe and document the visual quality of the stormwater discharge and note the characteristics of the discharge; and
3. Document whether the control measure are operating effectively.

The South Dakota Department of Environment and Natural Resources (SDDENR) also recommends that you perform a “walk through” inspection of the construction site before any anticipated storm event that could potentially cause a significant amount of runoff. These types of inspections help to ensure the effective implementation of sediment and erosion controls.

Record-Keeping Requirements

You shall maintain on site, or make readily available, the Stormwater Pollution Prevention Plan (SWPPP) and a copy of the SDDENR’s letter granting coverage under the draft General Permit, from the date construction activities are initiated until final stabilization is achieved and coverage under the draft General Permit is terminated. You shall retain copies of the SWPPP, all reports required by the draft General Permit, and records of all data used to complete the Notices of Intent and Termination for this permit for a period of at least three (3) years from the date that the site is finally stabilized. The Secretary may request extension of this period at any time.

CONSTRUCTION DEWATERING

The draft General Permit provides for discharges from dewatering activities as long as you employ the following controls:

1. You shall not discharge toxic pollutants in toxic amounts.

2. Your discharge shall not impart a visible film or sheen to the surface of the receiving water or adjoining shoreline.
3. Your discharge shall not contain visible pollutants. You must visually monitor the discharge for suspended solids. If you observe suspended solids in the discharge, you must implement the following requirements:
 - a. You must install additional best management practices and update your stormwater pollution prevention plan to reduce the visible solids.
 - b. You must sample the dewatering discharge for total suspended solids on a daily basis until there is no longer a discharge of visible solids. The samples must be analyzed in accordance with Title 40 of the Code of Federal Regulations, Part 136. If the total suspended solids value exceeds 53 mg/L in any sample or measurement, you must cease the dewatering discharge to surface waters of the state until you can demonstrate the additional best management practices are sufficient to eliminate the visible pollutants.
4. You must use best management practices to minimize or prevent stream channel scouring or erosion caused by dewatering discharges.
5. You cannot add chemicals to the discharge without prior approval from the South Dakota Department of Environment and Natural Resources (SDDENR).
6. You must obtain a Temporary Water Right. Contact the SDDENR at (605) 773-3352 for more information and to obtain a temporary water right.

TERMINATION OF COVERAGE

After you complete construction activities in an area, you shall permanently stabilize the site as soon as possible to prevent further soil erosion. When construction activities are complete and final stabilization has been achieved, you are required to submit a Notice of Termination (NOT) to the South Dakota Department of Environment and Natural Resources (SDDENR). The NOT indicates that all earthmoving activities have ended and the site has achieved final stabilization as required by the draft General Permit. You shall maintain coverage under the draft General Permit until all disturbed areas on the entire project site have achieved final stabilization, as defined in the draft General Permit:

***Final Stabilization** – on areas not covered by permanent structures, means either (1) vegetation has been established that provides a uniform (e.g., evenly distributed, without large bare areas) perennial vegetative cover with a density of 70 percent of the natural background vegetative cover, (2) permanent non-vegetative stabilization methods have been implemented to provide effective cover for exposed portions of the site, or (3) disturbed portions of a construction site on land used for agricultural purposes must be returned to pre-construction agricultural use.*

REQUIRING AN INDIVIDUAL PERMIT

Based upon a number of different situations (e.g., applicable numeric effluent limitations resulting from a Total Maximum Daily Limit (TMDL), or a determination that the operator has the potential to cause or contribute to a water quality standard excursion), the South Dakota Department of Environment and Natural Resources (SDDENR) may determine that coverage

under an individual permit is necessary. If you are currently discharging under this General Permit and SDDENR determines that individual coverage is required, written notification of this required change in permit coverage, including reasoning for this decision, an application form, and a deadline for filing the application, will be provided to you by SDDENR.

Additionally, any permittee may apply for an individual permit rather than applying for coverage under this draft General Permit. Any permittee applying for an individual permit shall submit an individual application for coverage with reasoning supporting the request. SDDENR will review the request and will determine if individual permit coverage is appropriate. If SDDENR issues an individual permit to a permittee currently covered under this General Permit, or coverage under an alternative general permit is obtained, coverage under the draft General Permit is terminated on the effective date of the new permit.

If a permittee, covered under the current General Permit, requests an alternative permit and is denied, coverage under the draft General Permit may also be terminated on the date of such denial, unless otherwise specified by SDDENR.

ENDANGERED SPECIES

This is a renewal of an existing general permit. No listed endangered species are expected to be impacted by activities related to this permit.

DRAINAGE ISSUES

Local governments have the authority to regulate drainage. You are responsible for getting any necessary drainage permits from the county *prior* to discharging.

PERMIT EXPIRATION

A five-year permit is recommended. The South Dakota Department of Environment and Natural Resources (SDDENR) proposes to issue the draft General Permit for five years. Periodically during the term of this draft General Permit and at the time of renewal, you may be requested to reaffirm the eligibility of the permitted site to discharge under this General Permit.

The draft General Permit specifies procedures for continued coverage if the General Permit expires prior to a replacement permit being issued.

PERMIT CONTACT

This statement of basis and the draft permit were developed by Jill Riedel, Engineer III, for the Surface Water Quality Program. Any questions pertaining to this statement of basis or the draft permit can be directed to the Surface Water Quality Program, at 1-800-SD-STORM.

August 30, 2017

ATTACHMENT 1

Antidegradation Review

Permit Type: **General Permit for Stormwater Discharges Associated with Construction Activities**

Permit #: **SDR10000**

Receiving Stream: **Varies** Classification: **Varies**

APPLICABILITY

1. Is the permit or the stream segment exempt from the antidegradation review process under ARSD 74:51:01? Yes No If no, go to question #2. If yes, check those reasons why the review is not required:

- Existing facility covered under a surface water discharge permit is operating at or below design flows and pollutant loadings;
- *Existing effluent quality from a surface water discharge permitted facility is in compliance with all discharge permit limits;
- *Existing surface water discharge permittee was discharging to the current stream segment prior to March 27, 1973, and the quality and quantity of the discharge has not degraded the water quality of that segment as it existed on March 27, 1973;
- *The existing surface water discharge permittee, with DENR approval, has upgraded or built new wastewater treatment facilities between March 27, 1973, and July 1, 1988;
- The existing surface water discharge permittee discharges to a receiving water assigned only the beneficial uses of (9) and (10); the discharge is not expected to contain toxic pollutants in concentrations that may cause an impact to the receiving stream; and DENR has documented that the stream cannot attain a higher use classification. This exemption does not apply to discharges that may cause impacts to downstream segments that are of higher quality;
- Receiving water meets Tier 1 waters criteria. Any permitted discharge must meet water quality standards;
- The permitted discharge will be authorized by a Section 404 Corps of Engineers Permit, will undergo a similar review process in the issuance of that permit, and will be issued a 401 certification by the department, indicating compliance with the state's antidegradation provisions; or
- Other: Discharges are of a temporary nature. Any change in water quality will be temporary.

*An antidegradation review is not required where the proposal is to maintain or improve the existing effluent levels and conditions. Proposals for increased effluent levels, in these categories of activities are subject to review.

No further review required.

ANTIDEGRADATION REVIEW SUMMARY

2. The outcome of the review is:
- A formal antidegradation review was not required for reasons stated in this worksheet. Any permitted discharge must ensure water quality standards will not be violated.
 - The review has determined that degradation of water quality should not be allowed. Any permitted discharge would have to meet effluent limits or conditions that would not result in any degradation estimated through appropriate modeling techniques based on ambient water quality in the receiving stream, or pursue an alternative to discharging to the waterbody.
 - The review has determined that the discharge will cause an insignificant change in water quality in the receiving stream. The appropriate agency may proceed with permit issuance with the appropriate conditions to ensure water quality standards are met.
 - The review has determined, with public input, that the permitted discharge is allowed to discharge effluent at concentrations determined through a total maximum daily load (TMDL). The TMDL will determine the appropriate effluent limits based on the upstream ambient water quality and the water quality standard(s) of the receiving stream.
 - The review has determined that the discharge is allowed. However, the full assimilative capacity of the receiving stream cannot be used in developing the permit effluent limits or conditions. In this case, a TMDL must be completed based on the upstream ambient water quality and the assimilative capacity allowed by the antidegradation review.
 - Other: _____

3. Describe any other requirements to implement antidegradation or any special conditions that are required as a result of this antidegradation review: **Antidegradation will not apply to this draft General Permit due to the intermittent and temporary nature of most stormwater runoff from construction sites and the expected limited impact of the discharge. Therefore, no formal antidegradation review is required.**

Jill M. Riedel
Team Leader

09/15/2017
Date

Kelli D. Buscher, PE
Program Administrator

09/15/2017
Date

ATTACHMENT 2

Best Management Practices Guide

**BEST
MANAGEMENT
PRACTICES
GUIDE**

Silt Fences



https://www.landandwater.com/features/vol50no2/vol50no2_2.html

Purpose

Silt fences are a temporary sediment control used to contain soil on exposed portions of a site as well as soil stockpiles. Metal or wooden posts hold up the porous fabric that makes up the silt fence. In proper operating condition, the silt fence will allow water to pass through while retaining sediment on-site. Silt fences are most effective on larger particles and may allow finer particles to pass through. It is recommended that you consider you other BMPs alongside silt fences to prevent sediment from discharging offsite.

Application

Drive stakes to support the silt fence into the ground so that half the stake's height is below ground. Use strong plastic zip ties to attach the fabric to the stakes. Trench the fabric at least 6-8 inches into the ground, which can be achieved used a static slicing machine or a trencher. The fabric should be upright and taut along the entire length of the silt fence. Driving a tractor wheel over each side of the silt fence helps to compact the soil around the fence, preventing the fence from washing out.

For peak effectiveness, avoid long runs of silt fences, as failure in one section of the fence will render the entire run ineffective. Instead, install short runs of adjacent silt fences in the "J" shape to share the sediment load. The area draining to a silt fence should not exceed 0.25 acres per 100 feet of silt fence.

Maintenance

Inspect silt fences at least weekly and after rain events. Repair or replace silt fences that are no longer in effective operating condition. Remove sediment or add an additional silt fence when sediment reaches half the height of the silt fence.

Season

Silt fences can be an effective measure of sediment control all year if installed properly.

References

Oregon DEQ (Department of Environmental Quality). 2013. *Construction Stormwater Best Management Practices Manual*. Oregon Department of Environmental Quality, Water Quality Division, Portland, OR.

USEPA (U.S. Environmental Protection Agency). 2014. *Water: Best Management Practices, Seeding*. U.S. Environmental Protection Agency, Office of Water, Washington, DC.

SDDOT (SD Department of Transportation). 2014. *Erosion and Sediment Control and Stormwater Management*. SD Department of Transportation, Pierre, SD.

Vegetative Buffers



https://www.dot.state.oh.us/Divisions/ConstructionMgt/OnlineDocs/Specifications/2002CMS/2003_Manual_for_web/207.htm

vegetative buffer will depend on the slope of the buffer zone, the slope of adjacent disturbed areas, type and density of vegetation, and other factors. When practicable, avoid disturbing preexisting vegetation onsite. Soil compaction, soil stockpiles, and grading near or on vegetation can impact vegetation onsite and reduce the effectiveness of the vegetative buffer.

Grasses are recommended for establishing vegetative buffers, due to their extensive coverage above ground to slow and filter runoff, as well as a dense root system to hold sediment in place. Other types of vegetation can also be effective as vegetative buffers and the optimum type of vegetation will depend upon onsite conditions.

Maintenance

Inspect vegetation regularly, especially before vegetation is completely established. Remove sediment if the buffer zone becomes full of sediment. Reseed, fertilize, or otherwise encourage vegetative growth until dense vegetative cover is established. Clearly mark vegetative buffer zones on the SWPPP and onsite to prevent disturbance of vegetative buffer zones.

Season

Vegetative buffers can be an effective form of sediment control all year, if properly implemented.

References

Oregon DEQ (Department of Environmental Quality). 2013. *Construction Stormwater Best Management Practices Manual*. Oregon Department of Environmental Quality, Water Quality Division, Portland, OR.

USEPA (U.S. Environmental Protection Agency). 2014. *Water: Best Management Practices, Seeding*. U.S. Environmental Protection Agency, Office of Water, Washington, DC.

SDDOT (SD Department of Transportation). 2014. *Erosion and Sediment Control and Stormwater Management*. SD Department of Transportation, Pierre, SD.

Purpose

Vegetative buffers are a form of sediment control that: filter runoff, control runoff velocity, and trap sediment to prevent sediment and other pollutants from discharging off-site. Vegetative buffers can include areas of preexisting vegetation left undisturbed or areas where vegetation is established for the purpose of controlling runoff.

Application

Perimeter boundaries of the site can be left undisturbed, if already vegetated, or seeded to establish a vegetative buffer. The necessary width of

Construction Entrances



<https://www.pca.state.mn.us/water/construction-stormwater>

Purpose

Construction entrances prevent vehicles from tracking sediment offsite. Rock pads, rumble tracks, wheel washes, or other forms of sediment removal can all be used as construction entrances/exits.

Application

Install construction entrances/exits in each area where vehicles will access the site. Strategic placement of entrances/exits may reduce costs by decreasing the number of entrances/exits necessary.

A rock pad should be placed over a filter cloth or geotextile to prevent packing the rock into the fine material beneath, allowing sediment to escape. Rocks used in rock pads should be large rock, 4-6 inches in diameter. Install the rock at least 6 inches deep to ensure sediment is removed properly.

A rumble track can be placed temporarily on paved roads to prevent discharging sediment offsite. Wheel washes can be used at construction exits to wash sediment from truck tires.

Maintenance

Add rock to the rock pad when necessary. Remove sediment from rumble tracks as necessary. Remove any sediment that has been tracked offsite by performing street sweeping or other sediment removal BMPs.

Season

Construction entrances can be an effective form of track out control all year, if properly implemented.

References

Oregon DEQ (Department of Environmental Quality). 2013. *Construction Stormwater Best Management Practices Manual*. Oregon Department of Environmental Quality, Water Quality Division, Portland, OR.

USEPA (U.S. Environmental Protection Agency). 2014. *Water: Best Management Practices, Seeding*. U.S. Environmental Protection Agency, Office of Water, Washington, DC.

SDDOT (SD Department of Transportation). 2014. *Erosion and Sediment Control and Stormwater Management*. SD Department of Transportation, Pierre, SD.

Sediment Basins



<http://www.fairfaxcounty.gov/nvswcd/newsletter/esc.htm>

Purpose

A sediment basin is usually a temporary, but can be a permanent, sediment storage area to prevent sediment from washing offsite. Sediment basins allow water to flow into the basin, and then contain the water to allow sediment to settle to the bottom. Sediment basins are most effective for large sites more than 5 acres.

Application

Form earth embankments over low areas or excavate to build sediment basins. Design in such a way that the flow from the inlet to outlet is slow enough to allow sediment to settle out of the water.

Maintenance

In time, permanent sediment basins will lose holding capacity as they fill with sediment. The time between sediment removals is dependent on size of the basin and the area contributing to the sediment basin. This usually involves the use of an excavator to scoop out the sediment. Mowing of the seeded embankment may be required. Removal of foreign objects that may clog the outlet is required to ensure proper flow through the basin.

Season

Construction should occur prior to the wet season for the particular location of the basin. Sediment basins can be effective forms of sediment control throughout the year when runoff containing sediment flows to the sediment basin.

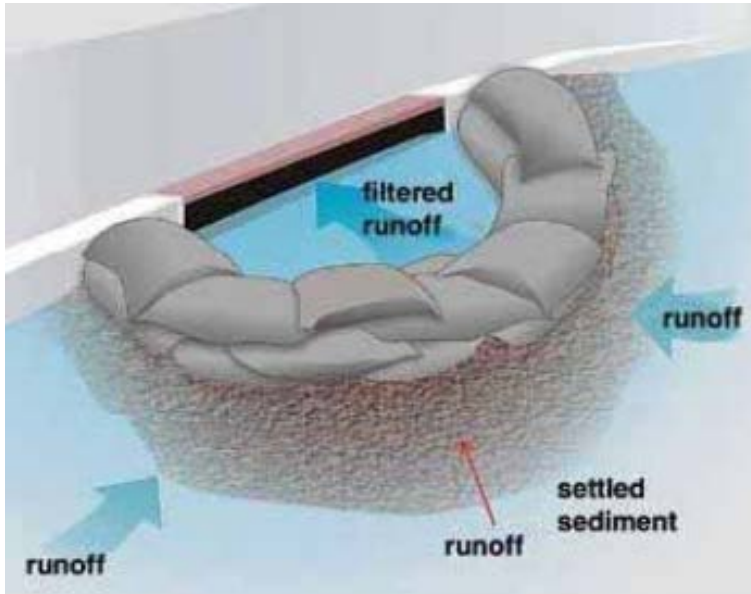
References

Oregon DEQ (Department of Environmental Quality). 2013. *Construction Stormwater Best Management Practices Manual*. Oregon Department of Environmental Quality, Water Quality Division, Portland, OR.

USEPA (U.S. Environmental Protection Agency). 2014. *Water: Best Management Practices, Seeding*. U.S. Environmental Protection Agency, Office of Water, Washington, DC.

Illinois DOT (Department of Transportation), 2014. *Sediment Basin*. Illinois Department of Transportation.

Storm Drain Inlet Protection



https://stormwater.pca.state.mn.us/index.php?title=Sediment_control_practices_-_Storm_drain_inlet_protection

Purpose

Storm drain inlet protection prevents sediment and other debris from entering and potentially clogging or reducing the effectiveness of storm drains. A variety of methods can be used to allow water to flow into the storm drain inlet while preventing sediment from entering.

Application

Excavating around the inlet, fabric barriers, sandbags, or other methods can be used to protect storm drain inlets from sediment runoff. If excavating around the inlet, excavate 1-2 feet deep. Make sure fabric inlet protection is staked firmly into the ground if inlets are adjacent to soils to prevent soil flowing beneath the fabric.

Install inlet protection on all storm

drain inlets that could receive runoff from the construction site. Inlet protection should be properly installed before construction begins. When installing inlet protection BMPs, make sure that there are no gaps that could allow sediment to reach the storm drain.

Different inlet protection BMPs may be necessary during winter months to avoid damage from snow removal equipment. Winter inlet protection methods require lots of upkeep, usually daily installation and removal. Temporarily stabilize the site before removing inlet protection for the night. Filter inserts; compost, wood chip, or rock filter logs; and sediment moats are all types of winter inlet protection.

Maintenance

Inspect storm drain inlets frequently to ensure that controls remain in effective operating condition. During rain events inspect inlet protection to verify water is flowing into the drain, but sediment is blocked. Repair or replace inlet protection as necessary, and remove sediment when the controls become full and when sediment controls are removed after construction ends.

Season

Inlets should be protected all year, though the type of inlet protection used may vary in the winter months.

References

Oregon DEQ (Department of Environmental Quality). 2013. *Construction Stormwater Best Management Practices Manual*. Oregon Department of Environmental Quality, Water Quality Division, Portland, OR.

USEPA (U.S. Environmental Protection Agency). 2014. *Water: Best Management Practices, Seeding*. U.S. Environmental Protection Agency, Office of Water, Washington, DC.

MNDOT (MN Department of Transportation). November 14, 2010. *Winter Stabilization Best Management Practice Guidance Document*. MN Department of Transportation, St. Paul, MN.

Surface Roughening



Purpose

Surface roughening is a technique to temporarily control erosion. Surface roughening establishes ridges that flow horizontally across a slope. Facing the slopes against the flow of water helps to slow the velocity of the flow and trap sediment. Surface roughening is useful for steep slopes, but should be used in conjunction with other sediment and erosion control BMPs.

Application

To establish soil roughening, place the grooves of the machinery to form ridges perpendicular to the contours of the slope or cut parallel to the slope. If

<http://prj.geosyntec.com/npsmanual/surfacerooughening.aspx>

seasonally appropriate, seed and mulch soils after surface roughening. Surface roughening should not be the only erosion control BMP on a site but, with other BMPs, can be an effective method to prevent discharging soil offsite. Do not use surface roughening for rocky soils.

Maintenance

Inspect areas of surface roughening at least weekly and after rain events to look for erosion rills. Re-roughen soils if ridges are washed out.

Season

Surface roughening can be a useful means of erosion control all year when used in conjunction with other BMPs, and is particularly useful for winter erosion control, when other BMPs may be more difficult to implement.

References

Oregon DEQ (Department of Environmental Quality). 2013. *Construction Stormwater Best Management Practices Manual*. Oregon Department of Environmental Quality, Water Quality Division, Portland, OR.

USEPA (U.S. Environmental Protection Agency). 2014. *Water: Best Management Practices, Seeding*. U.S. Environmental Protection Agency, Office of Water, Washington, DC.

SDDOT (SD Department of Transportation). 2014. *Erosion and Sediment Control and Stormwater Management*. SD Department of Transportation, Pierre, SD.

Rip Rap



https://stormwater.pca.state.mn.us/index.php?title=Sediment_control_practices_-_Outlet_energy_dissipation

Purpose

The purpose of rip rap is to prevent erosion in areas with high flow and slow the velocity of the water flow. Rip rap consists of large rocks piled together to hold sediment in place.

Application

Place a filter layer below a layer of durable, varied-size stones to form rip rap. Use larger stones for areas of higher flow, with diameters from 2-24 inches. Rip rap is not an appropriate erosion control technique on slopes greater than 2 horizontal to one vertical.

Rip rap can be an effective means of preventing erosion at outlet points, especially

outlets that experience high flows. Use stone that can withstand winter conditions and remain in proper operating condition. Install rip rap at ground level, not on top of soil. Excavation may be necessary to ensure that rip rap is at ground level.

Maintenance

Inspect rip rap frequently, at least weekly and after rain events. If maintenance is necessary, make repairs to rip rap as soon as possible.

Season

Rip rap can be an effective means of erosion control all year, if installed properly.

References

Oregon DEQ (Department of Environmental Quality). 2013. *Construction Stormwater Best Management Practices Manual*. Oregon Department of Environmental Quality, Water Quality Division, Portland, OR.

USEPA (U.S. Environmental Protection Agency). 2014. *Water: Best Management Practices, Seeding*. U.S. Environmental Protection Agency, Office of Water, Washington, DC.

SDDOT (SD Department of Transportation). 2014. *Erosion and Sediment Control and Stormwater Management*. SD Department of Transportation, Pierre, SD.

Straw Bales



<https://www.cityofmadison.com/engineering/stormwater/ECPracticeExamples.cfm>

Purpose

Straw bales can be used to reduce the velocity of water runoff and retain some sediment onsite. The EPA recommends avoiding the use of straw bales in favor of other BMP practices.

Application

Do not use straw bales in drainage channels, or other areas with potential for high flows. Straw bales are not effective for large rain events

Always stake straw bales firmly into the ground, trench bales at least 4 inches into

the ground, and fill in gaps after trenching.

String or wire should bind the bale

horizontally, so that the string or wire does not

touch the ground. Steel wire should be at least 16 gauge in diameter, and nylon or polypropylene string should be at least 12 gauge in diameter. Place bales end to end, with no gaps in between bales, to control sheet runoff.

For winter use, wrap straw bales in a geotextile fabric.

Maintenance

Straw should be replaced approximately every 3 months. Remove sediment that has collected around straw bales when it reaches one half the height of the bale, at a minimum. Inspect bales frequently, and repair or replace bales as necessary, or every 3 months at a minimum.

Season

Straw bales can help to control sediment runoff all year, if installed properly.

References

MNDOT (MN Department of Transportation). November 14, 2010. *Winter Stabilization Best Management Practice Guidance Document*. MN Department of Transportation, St. Paul, MN.

USEPA (U.S. Environmental Protection Agency). 2014. *Water: Best Management Practices, Seeding*. U.S. Environmental Protection Agency, Office of Water, Washington, DC.

Washington State Department of Ecology. September 2004. *Stormwater Management Manual for Eastern Washington*. Washington State Department of Ecology, Water Quality Program, Olympia, WA.

Erosion Control Blanket (Mat)



<https://www.codot.gov/programs/environmental/water-quality/documents/CDOT%20Pocket%20Guide%20122211.pdf>

Purpose

Erosion control blankets, or mats, are fabrics used as a temporary erosion and sediment control measure. They are often made of synthetic or biodegradable materials.

Application

Place erosion control blanket on slopes and disturbed soils to provide quick temporary sediment and erosion control until permanent measures can be established. Erosion control blankets can also help to establish vegetation. Some erosion control blankets have seeding inside, but if seeding separately, seed the ground before installing erosion control blankets.

Erosion control blankets should be staked to the ground. The entire blanket should maintain contact with the ground, except where blankets overlap. Uphill blankets should overlap on top of downhill blankets to ensure stormwater does not wash under the mats; however, blankets should be installed vertically on long slopes.

The best type of erosion control blanket depends on site conditions. Consider factors such as length of time mat will be in use, rainfall expected, slope gradients, and other site conditions when selecting the appropriate material for an erosion control blanket.

For winter installation, clear snow from soil, if necessary, and install erosion control blankets directly on disturbed soils.

Maintenance

Inspect erosion control blankets frequently, at least weekly and after rain events, for flaws such as holes and tears. Repair or replace blankets with flaws as soon as possible upon discovery. Make sure that erosion control blankets stay in contact with the ground.

Season

Erosion control mats can be an effective form of temporary erosion and sediment control all year.

References

- MNDOT (MN Department of Transportation). November 14, 2010. *Winter Stabilization Best Management Practice Guidance Document*. MN Department of Transportation, St. Paul, MN.
- Oregon DEQ (Department of Environmental Quality). 2013. *Construction Stormwater Best Management Practices Manual*. Oregon Department of Environmental Quality, Water Quality Division, Portland, OR.
- USEPA (U.S. Environmental Protection Agency). 2014. *Water: Best Management Practices, Seeding*. U.S. Environmental Protection Agency, Office of Water, Washington, DC.

Mulching



https://stormwater.pca.state.mn.us/index.php?title=Temporary_construction_erosion_and_sediment_control

Purpose

The purpose of mulching is to establish temporary erosion control using grass, straw, hay, wood, or other plant material to protect disturbed soils. Mulching stabilizes seeds as well as soils and can protect seeds and soils from temperature variance in addition to stormwater runoff.

Application

Install mulches directly on top of disturbed soils. The rate of mulch applied per acre will vary depending on the type of mulch selected, follow manufacturer specifications. Use tackifier or netting to

hold mulch in place if necessary, especially on steep slopes. Soil should not be discernible beneath the mulch. If seeding, seed soils before applying mulch.

In the winter, mulch may be applied on top of snow and will approach the soil surface as snow melts. Disk anchoring or other anchoring methods may be necessary to ensure mulch is not blown away.

Hydraulic mulches are applied by hydroseeding equipment and typically used in areas with steeper slopes or where equipment access would be difficult.

Maintenance

Inspect mulched areas frequently, weekly and after rain events. Reseed and reapply mulch in areas where mulch has loosened or washed out.

Season

Mulching can be an effective form of erosion control all year, if installed properly.

References

MNDOT (MN Department of Transportation). November 14, 2010. *Winter Stabilization Best Management Practice Guidance Document*. MN Department of Transportation, St. Paul, MN. [h](#)

Oregon DEQ (Department of Environmental Quality). 2013. *Construction Stormwater Best Management Practices Manual*. Oregon Department of Environmental Quality, Water Quality Division, Portland, OR.

USEPA (U.S. Environmental Protection Agency). 2014. *Water: Best Management Practices, Seeding*. U.S. Environmental Protection Agency, Office of Water, Washington, DC.

Seeding



<http://www.sddot.com/resources/manuals/SDDOTESCFieldGuidev10Press.pdf>

Purpose

The purpose of seeding is to establish vegetative cover, which can be a form of temporary or permanent stabilization. After vegetation has been established, roots will help to hold soils in place to prevent erosion. Vegetation will also protect soils from disturbance by wind or rain.

Application

The ground to be seeded should contain 4-6 inches of topsoil or compost. The most suitable type of vegetation for any site depends on climate, soil types,

and landscape. Follow manufacturer's specifications to determine how much seed your site will require.

Mulch or matting can be used to secure and protect the seed before vegetative cover is established. If seeding is not immediately achievable, or will not produce immediate cover (such as dormant seed that will not germinate until spring), mulching and tackifier may be necessary as temporary stabilization, before permanent vegetative cover can be established.

Hydro seeding (see Hydro seeding page), the spreading of a mix of mulch, seed, and fertilizer can be used to establish vegetative cover, but will often require more than one application to achieve 70% native vegetative cover.

Maintenance

The goal of seeding is to establish perennial vegetative cover, but maintenance may be required. Watering is critical in establishing vegetative cover. The soil should be kept moist after seeding, until vegetative cover is established. After vegetation has been established, follow manufacturer specifications regarding fertilizing and watering. Areas that do not achieve 70% of the native vegetative cover may need to be reseeded. Mowing may be required depending on the type of vegetation that is established.

Season

The optimal time for seeding will depend on the type of vegetation to be seeded, but seeding should be complete before October 1st.

References

Oregon DEQ (Department of Environmental Quality). 2013. *Construction Stormwater Best Management Practices Manual*. Oregon Department of Environmental Quality, Water Quality Division, Portland, OR.

USEPA (U.S. Environmental Protection Agency). 2014. *Water: Best Management Practices, Seeding*. U.S. Environmental Protection Agency, Office of Water, Washington, DC.

Wisconsin Department of Natural Resources. 2003. *Seeding for Construction Site Erosion Control*. Wisconsin Department of Natural Resources, Madison, WI.

Hydro Seeding



https://stormwater.pca.state.mn.us/index.php?title=Temporary_construction_erosion_and_sediment_control

Purpose

Hydro seeding is a method used to establish temporary or permanent vegetative cover to stabilize disturbed soils, preventing erosion and controlling sediment runoff.

Application

Hydro seeding is the spreading of a mix of mulch, seed, and fertilizer, and can be used to establish vegetative cover, but will often require more than one application to achieve 70% native vegetative cover.

Choose a composition of hydro seed that is compatible with onsite conditions. Use mixes specific for winter use when hydro seeding during

the winter. Hydro seeding must occur directly on soil; do not attempt to hydro seed over snow cover.

Maintenance

If hydro seeding occurs in areas where stormwater runoff may be expected to flow, use erosion control mats to hold the hydro seeding mix in place.

Season

Seasonal appropriateness of hydro seeding will depend on type of mix and local conditions, but temporary stabilization methods may be required over hydro seeding if hydro seeding occurs during winter months.

References

MNDOT (MN Department of Transportation). November 14, 2010. *Winter Stabilization Best Management Practice Guidance Document*. MN Department of Transportation, St. Paul, MN.

Oregon DEQ (Department of Environmental Quality). 2013. *Construction Stormwater Best Management Practices Manual*. Oregon Department of Environmental Quality, Water Quality Division, Portland, OR.

USEPA (U.S. Environmental Protection Agency). 2014. *Water: Best Management Practices, Seeding*. U.S. Environmental Protection Agency, Office of Water, Washington, DC.

Sodding



http://www.extension.umn.edu/garden/landscaping/maint/newlawn_9.html

Purpose

Sodding can be a temporary or permanent form of stabilization. Sod controls stormwater runoff velocity as well as erosion. Sod can be used to quickly establish vegetative stabilization on disturbed areas, as well as channels of stormwater runoff.

Application

The type of sod selected will depend on the conditions of the site to be sodded. Choose sod types adapted to the conditions onsite.

Make sure that sod is uniform thickness. Clear the soil of any large rocks or clods. Apply sod perpendicular to the

direction of stormwater flow and stagger section placement so the ends of each section are placed away from the end of sections above and below. Anchor the sod into the soil during establishment.

Dormant sod can be placed during times of year when seeding or normal sodding is not appropriate. Make sure soil is properly prepared for dormant sodding and sod is anchored into soil.

Maintenance

Water sod frequently during establishment and regularly after sod has been established. Fertilize as necessary, during times appropriate for the type of sod selected. Reapply sod or reseed areas that are not established.

Season

Sod can be an effective means of erosion and sediment control during much of the year, but may be difficult to establish during the winter months.

References

MNDOT (MN Department of Transportation). November 14, 2010. *Winter Stabilization Best Management Practice Guidance Document*. MN Department of Transportation, St. Paul, MN.

USEPA (U.S. Environmental Protection Agency). 2014. *Water: Best Management Practices, Seeding*. U.S. Environmental Protection Agency, Office of Water, Washington, DC.

Washington State Department of Ecology. September 2004. *Stormwater Management Manual for Eastern Washington*. Washington State Department of Ecology, Water Quality Program, Olympia, WA.

Dust Control



<http://www.sddot.com/resources/manuals/Erosionsedimentcontrolconstman.pdf>

disturbing or removing vegetative cover of areas that will not be immediately worked whenever possible. Phase construction to minimize the amount of soil exposed at once whenever practicable. If possible, limit work that creates dust when there is high wind.

Purpose

Dust control reduces the creation of dust onsite, reducing wind erosion as health risks associated with breathing in the dust.

Application

A variety of methods can be used to control dust onsite. Watering the ground can be effective in controlling dust, but water must not be allowed to run offsite. Vegetative cover, mulching, tilling, windscreens, and chemical dust suppressants can all be effective forms of dust control.

To avoid creating dust, it is best to avoid

Maintenance

Maintenance depends on the type of dust control selected. Inspect BMPs regularly to ensure continued effectiveness of dust control techniques.

Season

The seasonal appropriateness of dust control BMPs will depend on the type of control selected, site conditions, and local climate. Ensure that the dust control BMPs selected are appropriate for the seasonal conditions onsite.

References

USEPA (U.S. Environmental Protection Agency). 2014. *Water: Best Management Practices, Seeding*. U.S. Environmental Protection Agency, Office of Water, Washington, DC.

Washington State Department of Ecology. September 2004. *Stormwater Management Manual for Eastern Washington*. Washington State Department of Ecology, Water Quality Program, Olympia, WA.

Floating Silt (Turbidity) Curtain



<https://connect.ncdot.gov/projects/Roadway/RoadwayDesignAdministrativeDocuments/Best%20Management%20Practices%20for%20Construction%20and%20Maintenance%20Activities.pdf>

Purpose

Floating silt curtains, or floating turbidity curtains, block sediment in waterbodies and cause sediment to settle to the bottom of the water body.

Application

Floating silt curtains should be installed near the shore of the waterbodies to float on the surface of the water and should also be secured to the bottom of the waterbody. The installment of the silt curtain should allow for the rise and fall of water levels.

Floating silt curtains alone are not an effective form of sediment control to prevent sediment from being discharged offsite, but can help reduce the effect of sediment that has bypassed other forms of perimeter control.

Maintenance

Inspect floating silt curtains regularly, weekly and after rain events, to ensure continued effectiveness. Check buoys, anchor lines and anchors regularly and remove debris as needed. Minimize turbidity when removing silt curtains.

Season

Silt curtains may not be effective during winter months if the surface of the water body is subject to freezing.

References

SDDOT (SD Department of Transportation). 2014. *Erosion and Sediment Control and Stormwater Management*. SD Department of Transportation, Pierre, SD.

Mississippi DEQ, 2011. *Erosion Control, Sediment Control and Stormwater management on Construction Sites and Urban Areas*. Mississippi Department of Environmental Quality

Check Dams



https://stormwater.pca.state.mn.us/index.php?title=File:Example_of_rock_check_dam.jpg

Purpose

Check dams decrease the velocity of concentrated flows in areas of water conveyance.

Application

Check dams are made of rock, logs, sandbags, or gravel and placed in ditches or areas of concentrated flow, perpendicular to direction of water flow. Do not build check dams in streams unless you have prior approval from the State.

Place a filter fabric or geotextile material beneath the check dam. Check dams should not be constructed by dumping a pile of material in

ditch. The center of the check dam should be lower than the edges. The top of the downhill check dam should be at the least as high in elevation as the bottom of the uphill check dam, if built in series.

Maintenance

Inspect check dams regularly, at least weekly and after rain events, and repair or replace dams that are no longer in proper operating condition. Additional rock or other material may be necessary to keep the check dam in proper operating condition. Remove sediment that has collected in front of check dams when it reaches one half the height of the check dam, or more frequently.

Season

Check dams can be an effective form of velocity control all year, if installed properly.

References

USEPA (U.S. Environmental Protection Agency). 2014. *Water: Best Management Practices, Seeding*. U.S. Environmental Protection Agency, Office of Water, Washington, DC.

Washington State Department of Ecology. September 2004. *Stormwater Management Manual for Eastern Washington*. Washington State Department of Ecology, Water Quality Program, Olympia, WA.

Gabions



<http://prj.geosyntec.com/npsmanual/gabions.aspx>

Purpose

Gabions decrease surface exposure of soil near water, especially flowing water. Based on the material used to fill the gabion, they can be used to decrease the flow velocity.

Application

Gabions are wire baskets filled with rock to hold back soil while allowing water to seep through. Gabions can be used for structural integrity or as a water control structure. They are effective in preventing erosion in locations exposed to flowing water. They can be filled with a variety of material ranging from sand to large stones. The fill material will affect

the infiltration rate of the Gabions as well as the roughness coefficient.

When designing a gabion the surrounding soil's percolation and infiltration rates should be considered when determining the proper fill material. A stable foundation should be provided. A filter fabric behind and under the gabion should be installed to prevent soil migration into and through the gabion, while still allowing water to flow through.

Maintenance

Need to be checked for broken wires which may allow rock to be released due to the force of the flowing water. Large vegetative growth should be removed as it may damage the cage structure of the gabion. The soil behind the gabion should be inspected for erosion and the cause should be determined and corrected. Soil below the gabion should be inspected for signs of undercutting.

Season

Gabions can be effective throughout the year, especially during times of moderate flow. Installation should occur during dry period as access to the location is improved.

References

Fischenich, J. C., and Freeman, G. E. , May 2000. "Gabions for Streambank Erosion Control" EMRRP Technical Notes Collection (ERDC TN-EMRRP-SR-22), U.S. Army Engineer Research and Development Center, Vicksburg, MS.