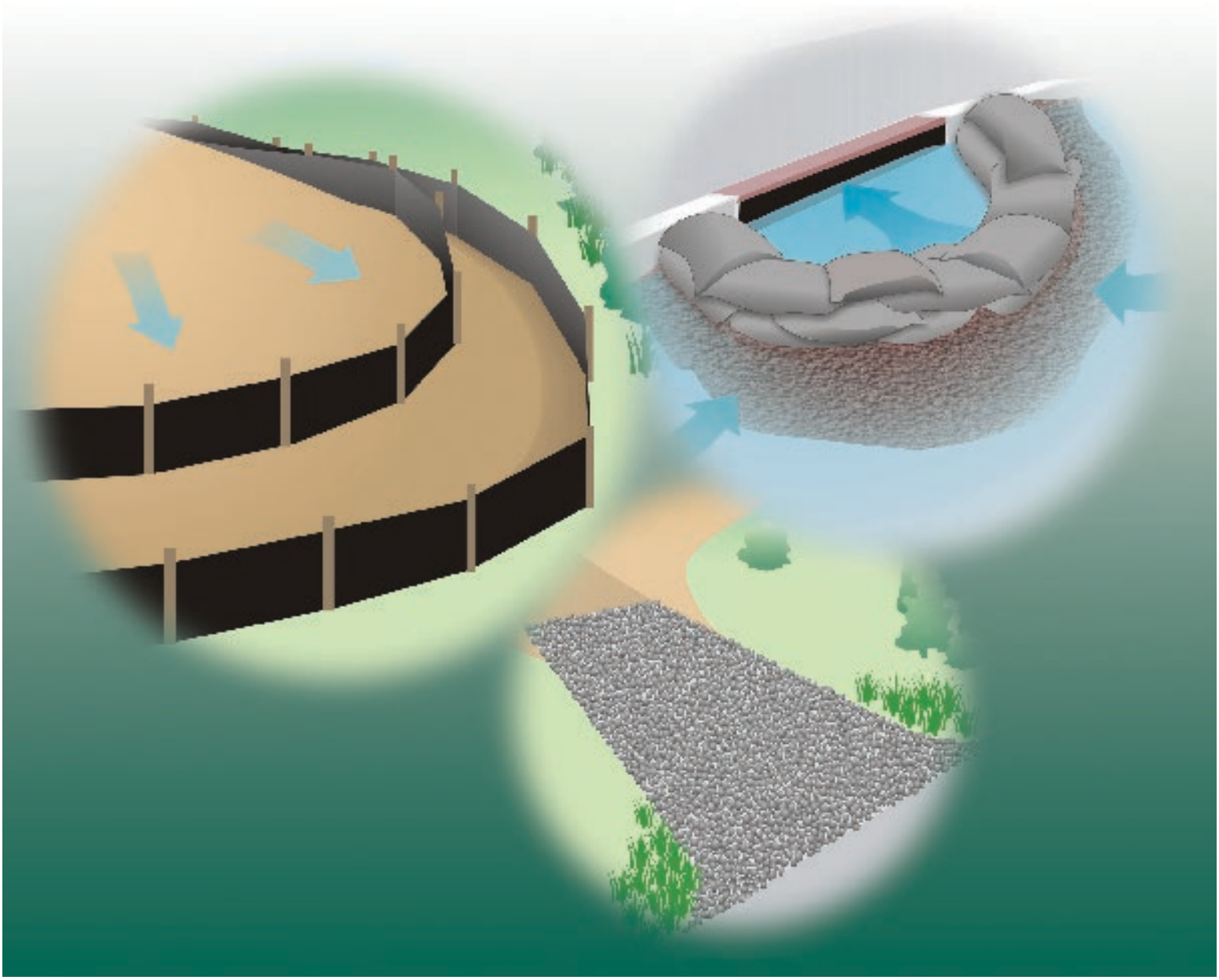

Stormwater Compliance Assistance Toolkit for Small Construction Operators

MINNESOTA POLLUTION CONTROL AGENCY

September 2023

Acknowledgments

This guidance was developed under EPA Contract GS-10F-0268K, Task Order 1100 managed by Irvin J. Dzikowski, EPA Region V. The Minnesota Pollution Control Agency contract manager was Joyce Cieluch. The valuable assistance of Michael Findorff, Ken Moon, John Thomas, Reed Larson and others from the MPCA in developing this guidance is gratefully acknowledged.

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Introduction

This guidance is intended as a resource to help small construction operators comply with the Minnesota Pollution Control Agency's (MPCA Construction Stormwater General Permit. The permit requires the development and implementation of a stormwater pollution prevention plan (SWPPP, which is your plan to decrease soil erosion and water pollution during construction. Small construction operators manage construction projects on sites less than five acres; however, large construction operators may also benefit from the information in this guidance.

This guidance explains who needs to apply for the permit, how to develop a stormwater pollution prevention plan (SWPPP, typical best management practices (BMPs you may use during construction, and what you need to do during and after construction. In addition, a SWPPP template is included in Attachment A to help small construction operators develop a SWPPP that meets permit requirements.

This guidance does not replace the construction stormwater permit. All construction operators are strongly encouraged to read and understand the requirements described in the actual permit before applying for the permit and commencing construction.

It's important to note that the BMPs described in this guide need to be executed in the proper manner or the expected benefits will not be realized and the site may be deemed in violation.

Comments welcome

This is the second edition of the *Compliance Assistance Toolkit*. We welcome comments and suggestions on how it might be changed in future editions to better assist developers and construction firms in reducing stormwater runoff, both during construction and longterm. Send comments to:

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Chapter 1

MPCA's Construction Stormwater Permit

The MPCA issued the National Pollutant Discharge Elimination System/State Disposal System (NPDES/SDS) General Stormwater Permit for Construction Activity in August 2013. Owners and operators of construction activity disturbing **one acre or more** of land need to obtain the construction stormwater permit. Sites disturbing less than one acre within a larger common plan of development or sale that is more than one acre also need permit coverage.

Who is required to obtain the MPCA construction stormwater permit?

The **owner** who signs the application is a permittee and is responsible for compliance with all terms and conditions of this permit. The operator is responsible for compliance with Sections 3, 4, 6-22, 24 and applicable requirements for construction activity in Section 23.

The owner can also be a lease, easement, or mineral rights license holder if the construction activity is for the leaseholder, or the owner can be the contracting government agency responsible for the construction activity. It is common for the owner and operator to be the same person or business. However, if you are required to have permit coverage on a site that already has a NPDES permit, you may transfer the coverage to your name by using the Permit transfer form.

What is a "larger common plan of development or sale?"

A common plan of development or sale means a contiguous area where multiple separate and distinct construction activities are occurring under one overall plan (e.g., the operator is building on three half-acre lots in a six-acre development). The "plan" in a common plan of development or sale is broadly defined as any announcement or documentation or physical demarcation indicating that construction activities may occur on a specific plot.

The operator is the person (usually the general contractor, firm, governmental agency, or other entity designated by the owner who has day to day operational control and/or the ability to modify project plans and specifications related to the SWPPP. The permit application must list the operator as a permittee. This person must be knowledgeable in those areas of the permit for which he is responsible. Subcontractors hired by and under supervision of the general contractor are not operators.

What type of projects do not require this construction stormwater permit?

Agricultural land disturbing activity – Land disturbing activity specifically for the purposes of growing crops is exempt from construction stormwater rules. Construction of buildings or roads at an agricultural facility still requires permit coverage.

Silvicultural activity – logging activity that is not associated with a construction project (not performed in order to clear land for anticipated construction activity is not required to have permit coverage.

What are some of the main permit requirements?

Permittees are required to develop a SWPPP and submit an application and $400 application fee. Application must be completed on-line by creatng an e-Service account. Access the e-Services webpage by visiting https://rsp.pca.state.mn.us/TEMPO_RSP/Orchestrate.do?initate=true.

In addition to developing the SWPPP, permittees must implement the SWPPP, conduct regular inspections, and maintain BMPs. Inspections are required once every seven days during active construction and within 24 hours after a rainfall event greater than 0.5 inches in 24 hours. The next inspection must be conducted within seven days after that. At the end of the project, after all disturbed surfaces are stabilized, the permittee must submit a Notice of Termination (NOT) to let MPCA know that the construction activity is complete.

For most sites, construction may begin one business day after submitting the application and submitting the payment. For sites that are more than 50 acres and that discharge to outstanding natural resource value waters (special waters) or impaired waters, the SWPPP and application materials must be submitted to the MPCA at least 30 days prior to commencing construction. For projects less than 50 acres in size but are a part of common plan of development that will ultimately disturb more than 50 acres, the SWPPP must also be reviewed by the MPCA.

What are "special waters?"

Additional requirements apply to construction sites that discharge within one mile of a special water. These waters can include:

- Wilderness areas (such as the Boundary Waters Canoe Area Wilderness, Voyageurs National Park, and parts of Kettle River and Rum River)
- Mississippi River (portions of)
- Scenic or recreational river segments (such as the Saint Croix River and Cannon River)
- Lake Superior
- Lake trout lakes
- Trout lakes
- Scientific and natural areas
- Trout streams

(See Section 23 of the construction stormwater permit for more information or use the Special Waters Search tool on the MPCA construction stormwater webpage.)

How do I apply for the construction stormwater permit?

To help you comply with the requirements in the construction stormwater permit, the MPCA has developed the following "Steps to construction" to assist with the permit requirements. These steps are also available on the MPCA's stormwater website. Remember that completing the application is one of the last things you do. Follow the steps below:

Step 1. Identify the construction site boundaries, the latitude and longitude for the site, and the major phases of the project.

The first thing you will need to do is identify the boundaries of your construction site. Identifying these construction site boundaries is important for determining which environmental resources may be at risk of being impacted by the project. This will also help you fill out the application, which requires you to fill out the total number of acres to be disturbed, the latitude and longitude of the center of the site, and surface waters within one mile of the project that will receive stormwater from the site. The latitude and longitude should correspond to a point "on site" which is closest to the approximate center of the construction site.

Identifying the major phases of a project will help you develop a plan to eliminate or minimize the potential environmental impacts.

Step 2. Determine if additional permits are needed.

It is your responsibility to contact other state and federal agencies and local governments to determine if additional permits are required in addition to the NPDES/SDS permit issued by MPCA. An example of an additional permit that could be required is a Section 404 permit from the Army Corps of Engineers if work will occur in a waterway or wetland. Local zoning offices are good places to check for required permits.

Step 3. Determine if Environmental Review is needed.

Contact the Minnesota Environmental Quality Board, the appropriate state agency, or local government agency to determine if your proposed project meets or exceeds the thresholds outlined in the state environmental review rules. For more information, see the two web links below:

Minnesota Environmental Quality Board: Environmental Review
https://www.eqb.state.mn.us/

MPCA: Environmental Review
https://www.pca.state.mn.us/quick-links/environmental-review

Step 4. Understand the requirements of the NPDES/SDS Construction Stormwater General Permit.

Read and understand the requirements in the NPDES/SDS Construction Stormwater Permit itself. MPCA has developed this guidance document and a summary of the permit *(Overview of Minnesota's NPDES/SDS Construction Stormwater Permit),* to help you understand the requirements. Copies of the permit and this summary are available at *www.pca.state.mn.us/water/stormwater/stormwater-c.html* or call the MPCA front desk at 651-296-6300 or 800-657-3864 and ask for Construction Stormwater Support Staff.

By signing and submitting the application described below, you are legally committing to follow the permit requirements. Make sure you know what these requirements are!

Step 5. Identify waters that have the potential to receive a discharge of stormwater runoff from the project or discharge from a permanent stormwater management system.

Page 3 generally describes "Special Waters." Impaired waters are those identified by the state and U. S. Environmental Protection Agency as waters not meeting their designated uses for specific pollutants. You will need to identify all waters, including special or impaired waters, within one mile of the project boundaries that will receive stormwater from the site or discharge from a permanent stormwater management system. Include waters identified on maps such as the USGS 7.5-minute quad map, the National Wetland Inventory, or equivalent maps.

The MPCA has developed an electronic map tool called Special Waters Search to help you identify special and impaired waters. It can be accessed here: https://mpca.maps.arcgis.com/apps/webappviewer/index.html?id=e03ef170fa3e41f6be92f9fafec100cc

Step 6. Determine if discharges from the construction site will impact endangered or threatened species, historic places, or calcareous fens.

It is your responsibility to check if discharges from your site will impact endangered or threatened species, historic places, or calcareous fens. Information on calcareous fens is available using the *Special Waters Search* tool. Projects that discharge to a calcareous fen must get a letter of approval from the Minnesota Department of Natural Resources.

Information on endangered or threatened species and historic places is available from the contacts below:

Minnesota Department of Natural Resources – Natural Heritage Program
www.dnr.state.mn.us/eco/nhnrp/nhis.html

Minnesota Historical Society – National Register Properties
http://nrhp.mnhs.org

Step 7. Prepare a stormwater pollution prevention plan (SWPPP).

See Chapter 2 for more information on developing a SWPPP. You must have this SWPPP developed before you submit your application (Step 11.

Step 8. Re-check the receiving waters that the project discharges to.

After developing your SWPPP, you may find that your project boundaries have moved or your discharge locations have changed. Double check the information you obtained in steps 5 and 6 to make sure it is still accurate. You will need to list the waters that receive a discharge from your construction site on the permit application form.

Step 9. Complete the application form for an MPCA NPDES/SDS stormwater permit for construction activities.

Complete the permit application on-line by creating an e-Services account. The permit application includes prerequisite questions, information about the construction activity, and contact information for the responsible parties (both the construction site owner and operator). Create an e-Services account by accessing the e-Service webpage: *https://rsp.pca.state.mn.us?TEMPO_RSP/Orchestrate.do?initate=true.* Feel free to call Construction Stormwater Support Staff at 651-296-6300 or 800-657-3864 for questions relating to the permit application process.

Step 10. Submit the application form and fee to the MPCA.

Submit the application on-line by creating an e-Services account. Access the e-Services webpage by visiting *https://rsp.pca.state.mn.us/TEMPO_RSP/Orchestrate.do?initate=true*.

You may commence construction activity one business day after submitting the application, except for the following situations.

- Projects requiring an Individual Permit must submit applications at least 180 days before the construction start date.
- For projects disturbing 50 acres or more and discharging within a mile of a special water or impaired water, you must submit the application fee and SWPPP for MPCA review at least 30 days before the construction start date.

Keep a copy of your completed application form.

Step 11. Implement the SWPPP and begin construction.

The MPCA will notify you when the permit coverage is effective. If you applied on-line the system will provide you with a notice of coverage. For projects requiring a SWPPP review, MPCA staff will notify you when the the review is complete and will provide a notice of coverage.

Why get a permit? Addressing the problem of runoff

Construction activity can impact our water resources in two main ways: through water **quality** impacts from excessive erosion and discharge of other pollutants and through water **quantity** impacts caused by increases in impervious surfaces.

During a short period of time, construction activity can contribute more sediment to streams than would be deposited naturally over several decades, causing physical and biological harm to our waters. Uncontrolled construction site runoff can reduce clarity and lower dissolved oxygen in waterbodies; deposit excess sediments in waterways; and smother aquatic habitat including spawning sites. Runoff can also transport other pollutants attached to sediment particles such as pesticides and chemicals.

The addition of impervious surfaces increases the temperature, velocity and volume of discharges into wetlands, ponds and rivers. These factors reduce vegetative filtering and infiltration (less water soaks into the ground for recharge of the aquifer and base flow for streams). Impervious surfaces also increase flooding, which threatens human life and property, causes stream bank erosion, and damage to aquatic habitat and water quality.

There is a suite of enforcement options available to local government or state agencies to help achieve permit compliance, ranging from field requests and formal notices to local citations, administrative penalty orders, stipulation agreements, stop-work orders and permit revocations. Local governments may require developers to acquire a performance bond. State law provides for civil and criminal penalties for permit and water quality law violations of up to $10,000 per violation per day.

An important element when assessing stormwater program violations is whether or not a permit has been applied for. The application process requires a site-specific SWPPP, because experience has shown regulated parties are less likely to analyze site conditions relative to erosion and loss of sediment when a SWPPP is not developed. Lack of analysis becomes a key component of environmental harm considerations in the enforcement process.

While enforcement options are available, assisting contractors in achieving permit compliance and resource protection is our main focus and the goal of this publication.

Chapter 2

How do I develop a Stormwater Pollution Prevention Plan (SWPPP)?

Steps to developing an effective SWPPP

The following steps will help you develop and implement an effective SWPPP:

Step 1. Evaluate the site

Step 2. Identify goals and objectives

Step 3. Describe roles, the site and construction activity

Step 4. Develop BMPs for construction activity

Step 5. Develop BMPs for permanent stormwater management

Step 6. Implement the SWPPP

Step 7. Inspect, maintain and evaluate BMPs

Step 8. Update the SWPPP

The person preparing the SWPPP must have received appropriate training.

Step 1: Evaluate the site

Begin by evaluating the site to determine the critical issues that will need to be addressed in the SWPPP. Determine how stormwater will drain from the site, including the number and location of discharge points. Identify any surface waters within a mile that will receive runoff from your site. Note whether any are special or impaired waters. Identify any storm drain inlets that may receive a discharge from your project.

Identify potential sources of pollution that may reasonably be expected to affect the quality of stormwater discharges from your construction site. These could be fueling areas, concrete washouts, material storage areas, trash containers, and other materials that can be mobilized by stormwater runoff. You must also identify potential construction exits from the site, and determine if there are steep slopes on the project that will require extra protection.

Step 2: Identify project goals and objectives

Your overall goals during construction are to prevent erosion and minimize any sediment transport from your site. Post-construction goals are to reduce or minimize the impact on receiving waters from stormwater discharges from the site. You will do this primarily through developing and implementing your SWPPP.

Every project must also try to meet the following objectives:

- *Minimize disturbed areas and protect vegetation.* If practical for your site, consider phasing construction activities so that you only clear the portion of the site that you will be working on in the near future. Identify areas of vegetation, trees, and sensitive areas that must be protected by placing a physical barrier around these areas.
- *Protect slopes and channels.* Convey stormwater runoff around the top of slopes and stabilize slopes as soon as possible. Where a large amount of runoff must flow over a disturbed slope, use a slope drain to convey the water to the bottom of the slope for minimum erosion. Avoid disturbing natural channels.
- *Reduce impervious surfaces and promote infiltration.* Reducing impervious surfaces will ultimately reduce the amount of runoff leaving your site. Also, divert rooftops and other impervious surfaces to grassy areas when possible to promote infiltration.
- *Control the perimeter of your site.* Divert runoff coming on to your site. Install BMPs such as silt fences to capture sediment before it leaves your site.
- *Follow pollution prevention measures.* Provide proper containers for waste and garbage from your site. Store hazardous materials and chemicals so that they are not exposed to stormwater runoff. Define and place signs for concrete washout. Do not degrease machinery on-site.

Step 3: Describe roles, the site and construction activity

The construction *owner* is the person possessing the title of the land on which the construction activities will occur. The construction *operator* has operational control over construction plans and specifications and can commit resources to implementing the BMPs described in the SWPPP. However, stormwater pollution control is typically not the job of a single person; therefore, you must describe in the SWPPP the roles and responsibilities of everyone involved in implementing the SWPPP.

The owner is responsible for identifying a person (or job title such as foreman) who is knowledgeable, experienced and trained in the application of erosion and sediment control BMPs before and during construction. The owner must also identify the person (or entity) who will have the responsibility for long-term operation and maintenance of the permanent stormwater management system. The owner must also ensure that the SWPPP will be implemented and stay in effect until the construction project is complete; the entire site has undergone final stabilization; and a NOT has been submitted to the MPCA.

Provide a brief description of the nature of the construction activity. This must include:

- The function of the project (e.g., low density residential, shopping mall, highway, etc.)
- The intended sequence and timing of activities that disturb soils at the site
- Estimates of the total area expected to be disturbed by excavation, grading, or other construction activities, including dedicated off-site borrow and fill areas.

Site Map

Include in your SWPPP a legible site map, showing the entire site, and identifying:

1. Existing and final grades, including dividing lines and direction of flow for all pre and post-construction stormwater runoff drainage areas located within the project limits
2. Impervious surfaces and soil types
3. Locations of areas that will not be disturbed
4. Location of areas where construction will be phased in to minimize duration of exposed soil areas
5. All surface waters and existing wetlands, which can be identified on maps such as USGS 7.5-minute quad maps within one mile from the project boundaries, which will receive stormwater runoff from the construction site, during or after construction. If these waters do not fit onto the site map, identify them with an arrow indicating the direction and distance to the surface water.
6. Methods to be used for final stabilization of all exposed soil areas.

Your site plan is a dynamic document. As conditions change at the construction site, such as the locations of BMPs, you must update your site plan to reflect those changes. The person overseeing the implementation of the SWPPP has to have the appropriate training.

Step 4: Develop BMPs for construction activity

Select appropriate BMPs to control stormwater runoff during construction. Refer to this graphical representation of the typical BMP's used on a small site: https://www.pca.state.mn.us/sites/default/files/wq-strm2-106.pdf. The following BMPs are commonly used on small sites disturbing less than five acres:

- *Protect storm drain inlets.* All inlets receiving stormwater from the project must be protected until all disturbed areas with a potential for discharging to the inlet have been stabilized. Inlet protection may be removed for a particular inlet if a specific safety concern has been identified and you have received a written correspondence from the jurisdictional authority.

- *Establish stabilized construction exits.* Use stone pads, concrete or steel wash racks, or equivalent practices to contain vehicle tracking of sediment. Sweep the street if necessary.
- Protect slopes. Stabilization of all exposed soils should be initiated immediately to limit soil erosion, but in no case later than 14 days after the construction activity in that portion of the site has temporarily or permanently ceased. If you are within one-mile of impaired or special waters, all exposed soil must be stabilized as soon as possible but in no case later than seven days after the construction activity in that portion of the site has temporarily or permanently ceased.
- Protect ditch bottoms (normal wetted perimeter). Any temporary or permanent ditch that drains water from a construction site or diverts water around a site, must be stabilized within 200 lineal feet from the property line or from the point of discharge to any surface water. Stabilization must take place within 24 hours of connecting to a surface water.
- Install silt fence (or equivalent sediment control) along the down slope perimeter. Use practices such as silt fence, sediment traps, or other practices to capture runoff leaving the site.
- Control any dewatering practices. Discharge dewatering or basin draining water to a temporary or permanent sedimentation basin on the project.
- Control the location of and runoff from temporary stockpiles. Place temporary stockpiles away from surface waters including stormwater conveyances such as curb and gutter systems, or conduits and ditches. Runoff from stockpiles must be controlled by a sediment control such as silt fence or other BMP. The sediment control method must be installed prior to the stockpiling activity.
- Implement pollution prevention measures. Control solid waste using proper trash management practices. Properly store oil, gasoline, paint and other hazardous substances. External washing of vehicles must be limited to a defined area on the site. No engine degreasing allowed on site. Concrete washout must be limited to defined areas, and these areas must have a sign indicating the location of the washout facility.

Step 5: Develop BMPs for permanent stormwater management

If your project replaces vegetation and/or other pervious surfaces with one or more acres of cumulative impervious surface, then you will need to design practices to treat the runoff from these impervious surfaces. At least one inch of runoff (called the water quality volume or live storage) from the new impervious surfaces must be treated.

Calculations for determining the size of your stormwater management system should be kept with the SWPPP.

The methods available for treating the water quality volume include (see the permit for all of the design requirements):

- *Infiltration/filtration*. Options include infiltration basins, infiltration trenches, rainwater gardens, sand filters, organic filters, bioretention areas, enhanced swales, dry storage ponds with underdrain discharge, off-line retention areas, and natural depressions.
- *Wet sedimentation basins.* A permanent storage volume (dead storage) of 1800 cubic feet/acre that drains to the basin must be provided. The water quality volume (live storage) must be discharged at no more than 5.66 cubic feet per second (cfs) per acre of surface area of the pond.
- *Regional ponds.* You must obtain written authorization from the pond owner before discharging to a regional pond and the pond must meet the permit's design requirements.

For linear projects where permittees cannot treat the entire water quality volume within the existing right-of-way, permittees must make a reasonable attempt to obtain additional right-of-way, easement or other permission for stormwater treatment during the project planning process. Documentation of these attempts must be in the SWPPP.

See the general permit for more information and minimum design requirements of the permanent stormwater management system. Additional information on permanent stormwater management practices is available in MPCA's guidance document called *Minnesota Stormwater Manual*. The Minnesota Stormwater Manual is available on the MPCA's website: *https://stormwater.pca.state.mn.us/index.php/Main_Page.*

Step 6: Implement the SWPPP

You must implement your SWPPP *before* construction activity begins. This typically means installing storm drain inlet protection, stabilizing construction exits, and installing perimeter sediment controls before clearing and grading activities begin. The person who implements the SWPPP has to have appropriate training.

Additional BMPs must be installed as soon as possible during construction.

Step 7: Inspect, maintain and evaluate BMPs

Your responsibility doesn't stop after your BMPs are implemented. You are required to periodically inspect and maintain the BMPs on your site and you need to have received the appropriate training. See Chapter 4 for more information on the inspection and maintenance requirements.

You must also evaluate whether the BMPs you have selected are working. If they are not, modify your practices. For example, if your perimeter silt fence is frequently failing, you may need additional erosion controls upslope of the silt fence. You must continuously evaluate the practices you've implemented to determine if something better would work.

Step 8: Update the SWPPP

Finally, update your on-site SWPPP as necessary during construction to reflect any changes made. The MPCA requires you to update your SWPPP whenever:

- There is a change in design, construction, operation, maintenance, weather or seasonal conditions that has significant effect on the discharge of stormwater from your site.
- Inspections indicate the SWPPP is not effective in minimizing the discharge of pollutants to surface waters.
- The SWPPP is not consistent with the requirements in the permit.
- The MPCA notifies you in writing that changes are needed.

Updates to your SWPPP must also include updates to your site plan as necessary to reflect changes in where BMPs are being implemented on-site.

Construction SWPPP Template

To help you develop a construction SWPPP, the MPCA has developed a template which is provided as Attachment A in this guide. This template is also available as a Microsoft Word document on the MPCA stormwater construction website.

The Word document allows you to "fill in the blanks" when developing your SWPPP. This is only a template, you may need to include additional information based on the conditions at your site, or based on requirements from local agencies.

Chapter 3

What kind of BMPs can I use in my SWPPP?

Erosion prevention and sediment control BMPs

You can avoid many problems at your construction site by following the advice "divert the clean water, trap the dirty water." Limit the amount of ground you disturb and re-vegetate as soon as possible to prevent runoff from getting dirty in the first place. Divert clean water coming on to your site so you don't have to spend extra money treating it. Finally, for the areas of the construction site you do have to disturb, design practices to minimize erosion and then select practices to control sediment once erosion occurs. Note that you must include in the SWPPP the estimated preliminary quantities anticipated at the start of the project for the site of the project for all erosion prevention and sediment control BMPs. Below are some common BMPs to help you achieve these goals. Note that it is important to construct BMPs properly in order to achieve the desired benefits.

For information on selecting appropriate BMPs for your SWPPP and detailed design guidance, refer to the Minnesota stormwater manual:

- MPCA's *Minnesota Stormwater Manual:* *https://stormwater.pca.state.mn.us/index.php/Main_Page.*

Minimize disturbance

You must plan for and implement appropriate construction phasing to minimize exposed soil at any one time. Schedule clearing, grading, excavating and other land disturbing activities only when you will be actively working on that portion of the project.

Preserve existing vegetation at the site where possible. This includes areas next to streambanks, steep slopes, floodplains, and other sensitive areas. The location of areas not to be disturbed must be delineated (e.g., with flags, stakes, signs, silt fence, etc.) on the development site before work begins.

Protect slopes and ditch bottoms (normal wetted perimeters)

Use terracing or soil roughening practices to decrease runoff velocities, trap sediment, and increase infiltration on slopes. Tracking with machinery up and down (perpendicular to the slope) will provide grooves that catch seed and rainfall, reducing runoff and making it more difficult for rills and gullies to form on the slope.

For steep slopes, consider blankets, seeding or hydromulch to stabilize the slope.

Permit requirement:

- All exposed soil areas (including stockpiles) must have temporary or permanent cover initiated immediately and be completed no later than14 calendar days after the construction activity in that portion of the site has temporarily or permanently ceased.

Storm drain inlet protection

Storm drain inlet protection prevents sediment from entering a storm drain by surrounding or covering the inlet with a filtering material. This allows sediment-laden runoff to pond and settle before entering the storm drain.

Several types of filters are commonly used for inlet protection: silt fence, sand bags or block and gravel. The type of filter will depend on inlet type (curb inlet, drop inlet), slope, and amount of flow. Many commercial inlet filters are also available. Some commercial inlet filters are placed in front or on top of an inlet, others are placed inside the inlet and under the grate.

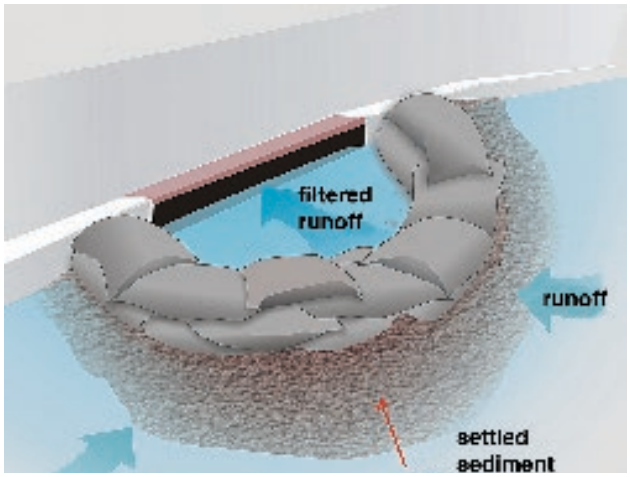

Figure 1. Sand or gravel bags can be used to filter stormwater runoff before entering a catch basin. Commercial products are also available that fit in front of or inside the catch basin.

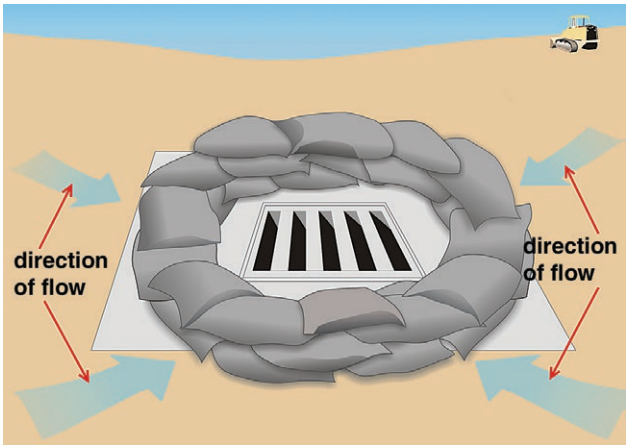

Figure 2. Sand or gravel bags used to protect a drop inlet.

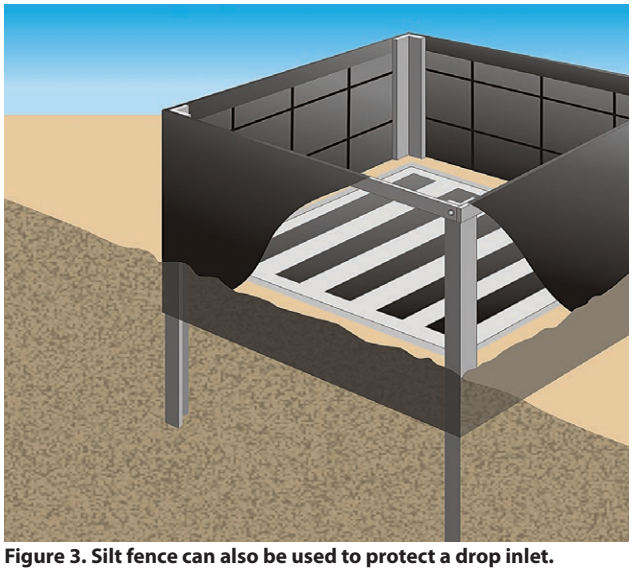

Figure 3. Silt fence can also be used to protect a drop inlet.

Permit requirements:

- All storm drain inlets must be protected by appropriate BMPs during construction until all sources with potential for discharging to the inlet have been stabilized. Inlet protection may be removed for a particular inlet if a specific safety concern has been identified and you have received written correspondence from the jurisdictional authority.
- All sediment control BMPs must be inspected to ensure integrity and effectiveness. All nonfunctional BMPs must be repaired, replaced, or supplemented with functional BMPs

Installation tips:

- Install inlet protection as soon as storm drain inlets are installed (or before land disturbance activities begin in areas with existing storm drain systems).
- Protect all inlets that will receive stormwater from your construction project.
- Inlet protection is a secondary BMP. Make sure you have other erosion prevention and sediment control BMPs in place.
- Safety is a consideration when determining the best method to protect an inlet. For example, if two feet of ponded water around an inlet will cause flooding of a nearby roadway, have an overflow at one foot of depth and additional controls at the outlet.

Maintenance:

- Inspect inlets at least weekly and within 24 hours after each rain event of at least .5 inches within a 24-hour period. The next inspection must be conducted within seven days after that.
- Remove accumulated sediment behind the inlet protection and any sediment that enters a storm drain.
- Replace the inlet protection when it becomes damaged.

Stabilized construction exit

A rock construction exit can reduce the amount of mud transported onto paved roads by vehicles. The construction exit does this by removing mud from the vehicle tires before the vehicle enters a public road.

In some cases, a wash rack may be used to wash tires and keep driving surfaces mud-free. Wash water must be directed to a suitable settling area and must not be discharged to a stream or storm drain.

Permit requirements:

- Vehicle tracking of sediment from the construction site must be minimized by BMPs such as stone pads, concrete or steel wash racks, or equivalent systems. Street sweeping must be used if such BMPs are not adequate to prevent sediment from being tracked onto the street.
- Construction site vehicle exit locations must be inspected for evidence of off-site sediment tracking onto paved surfaces. Tracked sediment must be removed from all off-site paved surfaces within 24 hours of discovery, or if applicable, within a shorter time.

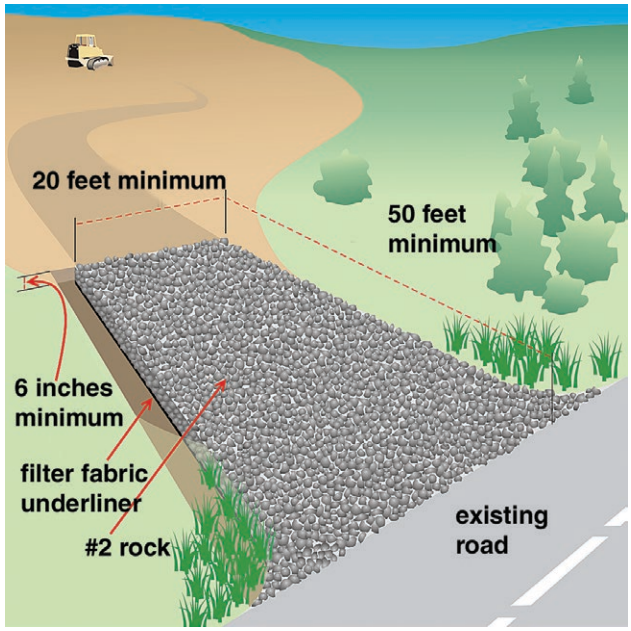

Figure 4. Stabilized construction exit.

Installation tips:

- The exit must be at least 50 feet long (generally the length of two dump trucks), and the exit must be graded so runoff does not enter the adjacent street.
- Place a geotextile fabric under a layer of aggregate at least 6 inches thick. The aggregate must be a minimum of 1 to 3 inches (larger aggregate is better).
- Direct employees to use the designated construction exits.

Maintenance:

- Replenish or replace aggregate if it becomes clogged with sediment.
- Sweep the street regularly.

Silt fence and sediment barriers

Silt fence is a temporary sediment barrier consisting of a geotextile, which is attached to supporting posts trenched into the ground. The purpose of a silt fence is to filter out sediment-laden runoff as it ponds on the uphill side. However, a silt fence is only designed for runoff from small areas, and is not intended to handle flows from large slopes or in areas of concentrated flow.

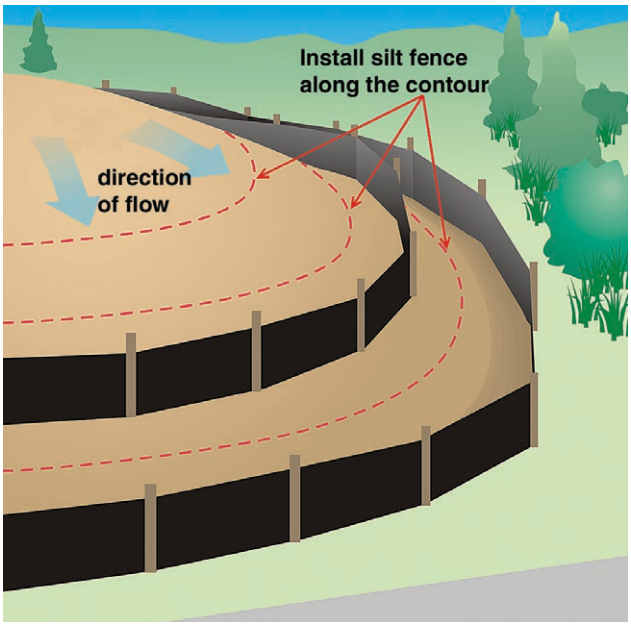

Figure 5. Illustration of silt fences installed along the contour.

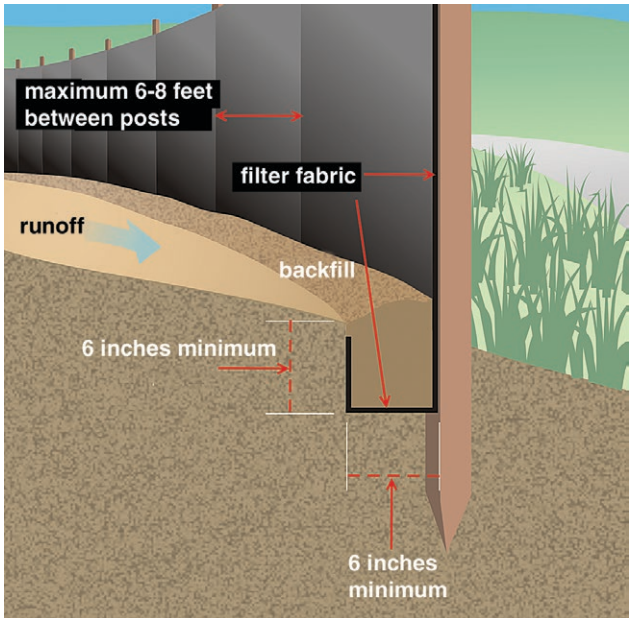

Figure 6. Detail of silt fence installation.

Figure 7. Illustration of "J-hooks" used during silt fence installation.

Permit requirements:

- Sediment control practices must be established on all down-gradient perimeters before any up-gradient land disturbing activities begin. These practices must remain in place until final stabilization has been established.

- All silt fences must be repaired, replaced, or supplemented when they become nonfunctional or the sediment reaches 1/2 of the height of the fence. These repairs must be made within 24 hours of discovery, or as soon as field conditions allow access.

Installation tips
DO:

- Install silt fence along the contour of a slope.
- Trench in the silt fence on the uphill side (trench should be six inches deep by six inches wide).
- Install stakes on the downhill side of the fence.
- Curve the end of silt fences up-gradient so that it contains the muddy runoff.

DON'T:

- Install silt fence at the top of hills, or up and down hills.
- Install silt fence in ditches, channels or areas of concentrated flow.
- Use silt fence for areas that drain more than ¼ acre per 100 ft. of fence.
- Rely on silt fence as your only BMP; use it in combination with other practices.

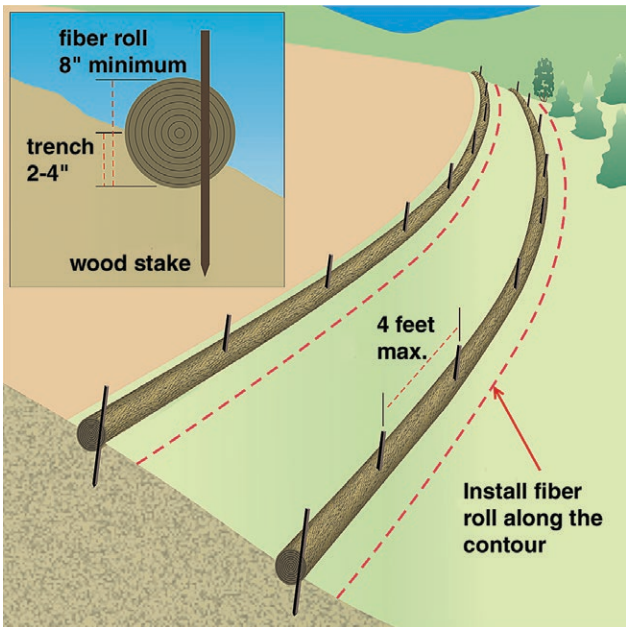

Figure 8. Fiber roll installation and detail.

Sediment barriers such as fiber rolls or wattles function similar to silt fence, and many of the same installation tips apply.

Maintenance:

- Remove sediment when it reaches 1/2 of the height of the fence
- Replace the silt fence where it is worn, torn, or otherwise damaged.

Diversion ditches/berms

Diversion ditches or berms direct off-site runoff away from unprotected slopes or direct sediment-laden runoff to a sediment trapping structure. A diversion ditch can be located at the upslope side of a construction site to prevent surface runoff from entering the disturbed area. Ditches or berms on steeper slopes may need to consider erosive velocities. Also, ensure diverted water is released through a stable outlet and does not cause downstream flooding.

Installation tips:

- Divert runoff coming on to your construction site (generally used to protect areas of five acres or less).

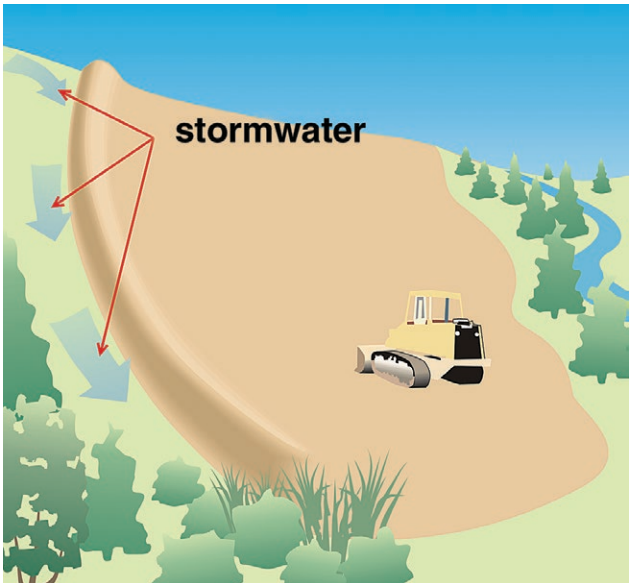

Figure 9. Diversions must be used to divert stormwater away from disturbed areas.

- Clean runoff must be discharged to a stable outlet or channel, sediment-laden water must be diverted to a sediment-trapping structure.

The ditches or swales must be stabilized within 200 lineal feet from the property edge, or from the point of discharge into any surface water. Stabilization of the last 200 lineal feet must be complted within 24 hours after connecting to a surface water.

Stabilization of the remaining portions of any temporary or permanent ditches or swales must be initiated immediately and complete no later than 14 days after connecting to a surface water and construction in that portion of the ditch has temporarily or permanently ceased.

Maintenance:

- Inspect diversions and berms after each rain event (within 24 hours of a .5 inch rain in a 24-hour period), including outlets.
- Remove any accumulated sediment.

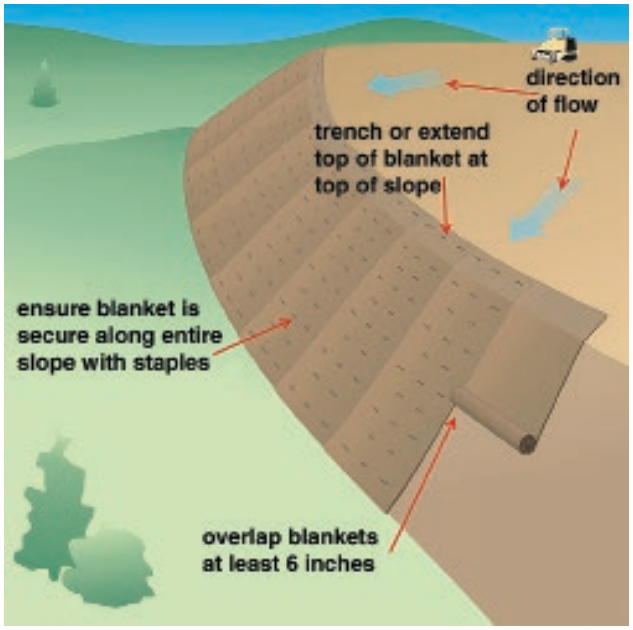

Figure 10. Erosion control blanket.

Mats, mulches, and blankets

Mats, mulches, and blankets are used for temporary stabilization and establishing vegetation of disturbed soils. Mats and blankets are typically used on slopes or channels while mulches are effective in helping to protect the soil surface and foster vegetation.

Installation tips:

- Mats and blankets must be used on slopes steeper than 3:1 and in swales or long channels (mulches are generally not recommended on slopes greater than 3:1).
- Trench the top of the blanket in to prevent runoff from flowing under the blanket.
- Overlap the end of each blanket and mat.
- Staple blankets and mats according to specifications.
- Do not place mulch in areas of concentrated flow.

Maintenance:

- Periodically check for signs of erosion or failure.
- Apply additional mulch or repair blanket/mat if necessary.
- Continue inspections until vegetation is established.

Temporary sediment trap or pond

A temporary sediment trap, pond or basin is a temporary ponding area formed by constructing an earthen embankment with an outlet across a swale. Temporary sediment traps are intended to detain sediment-laden runoff from small, disturbed areas long enough to allow the majority (at least 75%) of the sediment to settle out.

Sediment traps are designed for small areas. The volume of the trap must be at least 1,800 cubic feet per acre of contributing drainage.

Permit requirements:

- See Section 14 of the permit for temporary sediment basin design details.

Installation tips:

- Install the basin in the low point of your construction site.
- Install the basin before land disturbing activities begin.
- Install a gravel outlet following BMP design.
- The basin must not be installed in a main stream.

Maintenance:

- Remove the sediment in the basin when it reaches about 1/2 the design volume.
- Check the outlet for needed maintenance.

Permanent stormwater system BMPs

Permanent stormwater management BMPs are required when a project will replace vegetation and/or other pervious surfaces with one or more acres of cumulative impervious surface. If the project will result in a net increase of one or more acres of imperious surfaces, your SWPPP must describe how you will treat the water quality volume from this area, including design calculations. Replacement of impervious surfaces is not considered an increase of impervious surfaces.

The stormwater treatment system must be large enough to capture and retain the "water quality volume". The water quality volume is defined as one inch times the net increase in impervious surfaces created by the project. This volume does not correspond to a particular rain event but rather is assumed to reach the BMP's instantaneously. Permittees must first consider volume reduction practices on-site when designing the permanent stormwater treatment system. This is typically accomplished by using stormwater infiltration practices however, other practices can be used such as stormwater capture and re-use. There are a number of situation in which infiltration is not allowed by the permit. If the permit prohibits infiltration as described in the infiltration section below (or as described in the permit, items 16.14 through 16.21), permittees may consider a wet sedimentation basin, filtration basin or regional pond. The permit does not consider wet sedimentation basins and filtration systems to be volume reduction practices. For projects where the full volume reduction requirement cannot be met on-site, (e.g., the site has infiltration prohibitions), permittees must document the reasons in the SWPPP.

Where the proximity to bedrock precludes the installation of any permanent stormwater treatment practices required by the permit, permittees must install other treatment such as grassed swales, smaller ponds, or grit chambers, prior to the discharge of stormwater to surface waters.

For linear projects where permittees cannot treat the entire water quality volume within the existing right-of-way, permittees must make a reasonable attempt to obtain additional right-of-way, easement or other permission for stormwater treatment during the project planning process. Documentation of these attempts must be in the SWPPP. Permittees must still consider volume reduction practices first. If permittees cannot obtain additional right-of-way, easement or other permission, they must maximize the treatment of the water quality volume prior to discharge to surface waters.

Section 15 of the permit lists the general design requirements for stormwater management and Section 16 through 19 of the permit lists the specific design requirements that must be followed for the four treatment options listed below. Designers of stormwater treatment system should also be familiar with other aspects of design in addition to the requirements of the permit. Refer to the Minnesota Stormwater Manual for more design information (https://stormwater.pca.state.mn.us/index.php/Main_Page).

Infiltration options include, but are not limited to: infiltration basins, infiltration trenches, rainwater gardens, bioretention areas without underdrains, swales with impermeable check dams, and natural depressions. Permittees must design infiltration systems such that pre-existing hydrologic conditions of wetlands in the vicinity are not impacted (e.g., inundation or breaching a perched water table supporting a wetland. Vehicles must be kept away from all infiltration areas to avoid compacting the soil.

The infiltration system must discharge all stormwater (including stormwater in excess of the water quality volume routed to the system through the uppermost soil surface or engineered media surface within 48 hours. This means the system should appear empty or dry 48 hours after the rain event. It should be noted that micro pools of water may still be present for some time after the 48 hour period. For underground infiltration systems, the storage component of the system should be empty within 48 hours after the storm event. A means to visually verify the infiltration system is working must be provided. Additional flows that cannot infiltrate within 48 hours must bypass the system through a stabilized discharge point.

At least one soil boring, test pit or infiltrometer test must be performed in the location of the infiltration practice for determining infiltration rates. For design purposes, designers must divide field measured infiltration rates by 2 as a safety factor or permittees can use soil-boring results with the infiltration rate chart in the Minnesota Stormwater Manual to determine design infiltration rates. When soil borings indicate type A soils, permittees should perform field measurements to verify the rate is not above 8.3 inches per hour. The permit prohibits infiltration if the field measured infiltration rate is above 8.3 inches per hour. A minimum of three (3 feet of separation from the seasonally saturated soils (or from bedrock is required.

Infiltration must be used only as appropriate to the site and land uses. The permit specifically prohibits stormwater infiltration in a number of situations such as the presence

of contaminated soils on the property. Refer to items 16.14 through 16.21 for the complete list of infiltration prohibitions.

Filtration

Filtration systems are different from infiltration systems in one key aspect of the design. Filtration systems have a drain tile or perforated pipe underneath that collects the treated stormwater after passing through a filter media and discharges to a surface water (or storm sewer) as opposed to infiltrating into the groundwater. For this reason, filtration systems are not considered a volume reduction method. Since the interaction with groundwater is minimal, filtration systems do not share the same concerns as with an infiltration system. However, some precautions must still be taken such as when shallow ground water or bedrock is present. In these situations, the permit requires an impermeable liner to be included. See Section 17 of the permit for the complete list of design requirements for filtration systems.

Wet sedimentation basin and regional wet sedimentation basins

A wet sedimentation basin or regional wet sedimentation basin can be used for stormwater treatment if infiltration options are limited at the site of the project or where infiltration is prohibited by the permit. Stormwater ponds have controlled stormwater release structures designed to provide settling time for sediment and other particulates before runoff is discharged. A permanent volume must be maintained by the basin and must be between 3 and 10 ft deep. A regional basin is a wet sedimentation basin that usually already exists and serves a larger area. Regional basins can be utilized if they have capacity for additional stormwater flows.

Section 18 and 19 of the permit list all the specific design requirements for stormwater ponds.

Pollution prevention BMPs

Solid waste

Provide appropriate containers for solid waste and empty them frequently. If necessary, containers must be covered to prevent wind from blowing the waste around the construction site. Solid waste includes collected sediment, asphalt and concrete millings, floating debris, paper, plastic, fabric, construction and demolition debris and other wastes.

Follow MPCA disposal requirements for all solid waste.

Permit requirement:

- *Solid waste:* Collected sediment, asphalt and concrete millings, floating debris, paper, plastic, fabric, construction and demolition debris and other wastes must be disposed of properly and must comply with the MPCA disposal requirements.

Hazardous materials

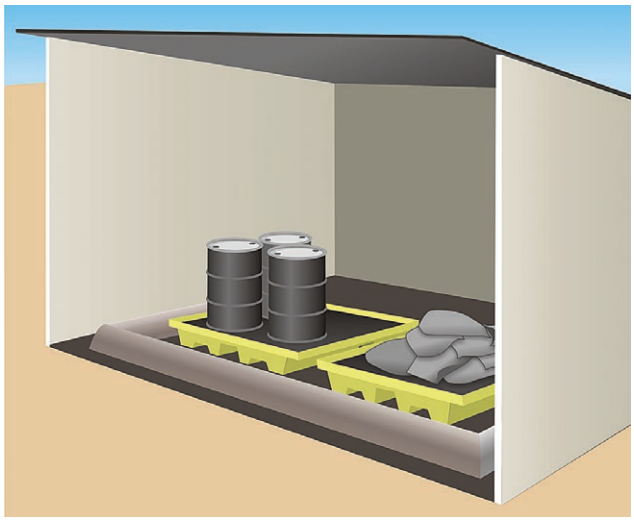

Figure 11. Example of hazardous materials storage (doors removed for illustrative purposes only). Access to hazardous materials must be restricted.

Hazardous materials must be properly stored, and must have secondary containment to prevent spills, leaks or other discharges. These materials must be stored in a shed or building that can be locked to prevent vandalism or unauthorized access. Hazardous materials include oil, gasoline and paint, so ensure that these materials are also properly stored.

Follow MPCA regulations when storing and disposing of hazardous waste. This must include proper labeling of hazardous wastes. Additional information can be found at *https://www.pca.state.mn.us/business-with-us/hazardous-waste*

Permit requirement:

- *Hazardous materials:* Oil, gasoline, paint and any hazardous substances must be properly stored, including secondary containment, to prevent spills, leaks or other discharge.

Vehicle washing

Avoid washing vehicles on the construction site. If washing is necessary, designate a site where the runoff can be contained and properly disposed of, such as an adequately sized sedimentation basin.

Engine degreasing is not permitted on the construction site. Maintenance of vehicles must occur in a properly equipped shop, and not on the construction site.

Concrete washout

The liquid and solid wastes generated by concrete washout operations have to be deposited in leak-proof containers and afterwards, the wastes must be disposed of properly and in compliance with MPCA regulations. The concrete washout needs to be dewatered and then it can be ground and recycled or taken to a demolition landfill. Signs need to be posted of the site(s) where concrete washout operations take place.

Permit requirement:

- *Concrete washout onsite:* Permittees must provide effective containment for all liquid and solid wastes generated by washout operations (e.g., concrete, stucco, paint, form release oils, curing compounds and other construction materials) related to the construction activity. Permittees must prevent liquid and solid washout wastes from contacting the ground and must design the containment so it does not result in runoff from the washout operations or areas. Permittees must properly dispose liquid and solid wastes in compliance with MPCA rules. Permittees must install a sign indicating the location of the washout facility.

Chapter 4

Selected required activities during construction

Inspections and maintenance

Remember if you are going to be in charge of inspecting and maintaining the BMPs, you need to have received appropriate training. Conduct routine inspections of the construction site and keep records of these inspections and maintenance performed. Your SWPPP must identify who is responsible for conducting the inspections. You are required to inspect the construction site:

- Once every 7 days during active construction
- Within 24 hours after a rainfall event greater than 0.5 inches in 24 hours. The next inspection must be conducted within 7 days after this.

In order to conduct inspections after a 0.5-inch rainfall event, you'll need to know how much rain falls on your site. The easiest way to do this is to install a rain gage at or near your construction site. Make sure nothing interferes with rainfall entering the rain gage (like a tree or building). Place the rain gage at the top of a stake or pole, and empty it after each rain event. Keep records of rainfall totals in your SWPPP.

You need to keep records of your inspections with your SWPPP, and your records must include a minimum set of information. The following information is required to be kept in your records:

- Date and time of inspections.
- Name of person conducting inspections.
- Finding of inspections, including corrective actions.
- Corrective actions taken (including dates, times, and party completing maintenance activities).
- Date and amount of all rainfall events greater than 0.5 inches in 24 hours.
- Documentation of changes made to the SWPPP.

Use a camera during your inspections to document activities and any problems observed. Digital cameras can be especially convenient for this purpose.

An example *Maintenance record* is provided as Attachment B. The MPCA has also developed an inspection checklist to assist in recording inspections. The inspection checklist can be found on the MPCA's construction stormwater webpage: https://www.pca.state.mn.us/water/construction-stormwater#guidance-abfa3824.

To ensure adequate treatment of dewatering discharges has been obtained, you are required to inspect and photograph dewatering discharges at the beginning of and at least once every 24 hours during operation. Photographs are not required for discharges that last only for minutes, as opposed to hours, and do not reach a surface water. All photographs and documentation of dewatering activities must also be kept with the SWPPP.

Parts of the construction site that have undergone final stabilization may be inspected once per month. If work has been suspended due to frozen ground conditions, then required inspections must take place as soon as runoff occurs at the site or prior to resuming construction, whichever comes first.

Chapter 5

What Do I Have to Do When the Construction Project is Finishing?

Termination of permit coverage

Permittees must submit a NOT within 30 days after all termination conditions listed in Section 13 are complete:

1. All soil disturbing activities at the site have been completed and all soils are stabilized by any means necessary to prevent soil failure under erosive conditions or by a uniform perennial vegetative cover with a density of 70% over the entire pervious surface area. The density is based on canopy cover at 6" height. This includes sod that is firmly rooted to the underlying soil or direct-seeded herbaceous species that have grown to at least six inches in height. It does not include annual cover crop species such as oats and winter wheat. If soils are too poor to support 70% vegetative cover, the percent cover must be 70% of the native background vegetative cover, or other equivalent means necessary to prevent soil failure under erosive conditions.
2. You must ensure that the permanent stormwater treatment system meets all of the permit requirements This includes but is not limited to, a final clean out of temporary or permanent sedimentation basins that are to be used as permanent water quality management basins and final construction or maintenance of infiltration basins. All sediment must be removed from conveyance systems and ditches must be stabilized with permanent cover.
3. All temporary synthetic and structural erosion prevention and sediment control BMPs (such as silt fence) must be removed on the portions of the site for which you are responsible. BMPs designed to decompose on site (such as some compost logs) may be left in place.
4. For residential construction only, individual lots are considered finally stabilized if the structure(s) are finished and temporary erosion protection and downgradient perimeter control has been completed and the residence has been sold to the homeowner. Additionally, you must distribute the MPCA's "Homeowner Fact Sheet" to the homeowner to inform the homeowner of the need for, and benefits of, permanent cover (*www.pca.state.mn.us/publications/wq-strm2-07.pdf*).

5. If your construction project was on land used for agricultural purposes, final stabilization may be accomplished by returning the disturbed land to its preconstruction agriculutural use.

Notice of termination

You must submit a notice of termination (NOT) electronically. Follow these instructions to use you e-Services account to perform this service: https://www.pca.state.mn.us/sites/default/files/wq-strm2-108.pdf.

As part of the termination process in e-Services, you are required to provide at least one photo depicting the stabilization on the site. When submitting the NOT Permittees must include either ground or aerial photographs showing the requirements of 13.2 have been met. Permittees are not required to take photographs of every distinct part of the site, however the conditions portrayed must be substantially similar to those areas that are not photographed. Photographs must be clear and in focus and must include the date the photo was taken.

Chapter 6

Resource listing

The following are selected resources to help you develop and implement an effective SWPPP:

MPCA Stormwater Program
https://www.pca.state.mn.us/business-with-us/construction-stormwater
Click on the construction stormwater program to get copies of the construction permit, application, and information on special waters, fact sheets, and staff contacts.

MPCA Minnesota Stormwater Manual
https://stormwater.pca.state.mn.us/index.php/Main_Page
An electronic copy of the MPCA's *Minnesota Stormwater Manual* v.2. (2008). The first part of the manual is dedicated to the management of stormwater in the context of Minnesota. The second part contains diagrams and formulae, helpful for professionals.

MPCA Stormwater BMP Manual
https://stormwater.pca.state.mn.us/index.php?title=Protecting_Water_Quality_in_Urban_Areas%3A_Best_Management_Practices_for_Dealing_with_Storm_Water_Runoff_from_Urban%2C_Suburban%2C_and_Developing_Areas_of_Minnesota
An electronic copy of MPCA's *Protecting Water Quality in Urban Areas: Best Management Practices for Dealing with Stormwater Runoff from Urban, Suburban and Developing Areas of Minnesota* (2000). Includes information on all types of stormwater control practices.

Minnesota Erosion Control Association
www.mnerosion.org - An organization advancing effective stormwater management and erosion and sediment control techniques and practices.

International Erosion Control Association
www.ieca.org - An association for erosion and sediment control professionals.

Chapter 7

Definitions

The following selected definitions are reprinted from MPCA's construction permit. For additional definitions, refer to the permit.

"Best management practices"
Erosion prevention and sediment control and water quality management practices that are the most effective and practicable means of controlling, preventing, and minimizing degradation of surface water, including avoidance of impacts, construction-phasing, minimizing the length of time soil areas are exposed, prohibitions, and other management practices published by state or designated area-wide planning agencies. Individual BMPs found in the construction permit are described in the current version of *Minnesota Stormwater Manual*. BMPs must be adapted to the site and can be adopted from other sources. However, they must be similar in purpose and at least as effective and stringent as MPCA's BMPs. (Other sources include manufacturers specifications, *Stormwater Management for Construction Activities: Developing Pollution Prevention Plans and Best Management Practices*, U.S. Environmental Protection Agency 1992, and *Erosion Control Design Manual*, Minnesota Department of Transportation, et al, 1993).

"Common plan of development or sale"
A contiguous area where multiple separate and distinct land disturbing activities may be taking place at different times, on different schedules, but under one proposed plan. One plan is broadly defined to include design, permit application, advertisement or physical demarcation indicating that land-disturbing activities may occur.

"Construction activity"
Construction activity as defined in 40 C.F.R. part 122.26(b)(14)(x) and small construction activity as defined in 40 C.F.R. part 122.26(b)(15). This includes a disturbance to the land that results in a change in the topography, existing soil cover (both vegetative and non-vegetative), or the existing soil topography that may result in accelerated stormwater runoff, leading to soil erosion and movement of sediment into surface waters or drainage systems. Examples of construction activity may include clearing, grading, filling and excavating. Construction activity includes the disturbance of less than one acre of total

land area that is a part of a larger common plan of development or sale if the larger common plan will ultimately disturb one acre or more.

"Erosion prevention"
Measures employed to prevent erosion including but not limited to: soil stabilization practices, limited grading, mulch, temporary erosion protection or permanent cover, and construction phasing.

"National Pollutant Discharge Elimination System"
The program for issuing, modifying, revoking, reissuing, terminating, monitoring, and enforcing permits under the Clean Water Act (Sections 301, 318, 402, and 405) and United States Code of Federal Regulations Title 33, Sections 1317, 1328, 1342, adn 1345.

"Operator"
The person (usually the general contractor), firm, governmental agency, or other entity designated by the owner who has day to day operational control and/or the ability to modify project plans and specifications related to the SWPPP. The permit application must list the operator as a permittee. Subcontractors hired by and under supervision of the general contractor are not operators.

"Owner"
The person, firm, governmental agency, or other entity possessing the title of the land on which the construction activities will occur or, if the construction activity is for a lease, easement, or mineral rights license holder, the party or individual identified as the lease, easement or mineral rights license holder; or the contracting government agency responsible for the construction activity.

"Permittee"
A person(or persons), firm, or governmental agency or other institution that signs the application submitted to the MPCA and is responsible for compliance with the terms and conditions of the permit.

"Sediment control"
Methods employed to prevent sediment from leaving the site. Sediment control practices include silt fences, sediment traps, earth dikes, drainage swales, check dams, subsurface drains, pipe slope drains, storm drain inlet protection, and temporary or permanent sedimentation basins.

"Stormwater"
Defined under Minn. R. 7077.0105, subp. 41(b), and includes precipitation runoff, stormwater runoff, snow melt runoff, and any other surface runoff and drainage.

"Stormwater Pollution Prevention Plan" (SWPPP)
A plan for stormwater discharge that includes erosion prevention measures, sediment controls and permanent stormwater management systems that, when implemented, will decrease soil erosion on a parcel of land and decrease off-site nonpoint pollution.

"Surface water or waters"
All streams, lakes, ponds, marshes, wetlands, reservoirs, springs, rivers, drainage systems, waterways, watercourses, and irrigation systems whether natural or artificial, public or private, except that surface waters do not include stormwater treatment systems

constructed from upland. This permit does not consider stormwater treatment systems constructed in wetlands and mitigated in accordance with Section 22 as surface waters.

"Temporary erosion protection"
Methods employed to prevent erosion. Examples of temporary erosion protection include: straw, wood fiber blanket, wood chips, and erosion netting.

"Total maximum daily load"
The federal Clean Water Act requires states to adopt water quality standards to protect the nation's waters. These standards define how much of a pollutant (Total maximum daily load) can be in a surface and/or ground water while still allowing it to meet its designated uses, such as for drinking water, fishing, swimming, irrigation or industrial purposes. Many of Minnesota's water resources cannot currently meet their designated uses because of pollution problems from a combination of point and nonpoint sources. TMDL projects are being implemented to address these impaired waters. The list of impaired waters is available at the MPCA website: *www.pca.state.mn.us/water/tmdl/index.html.*

"Waters of the state"
Defined in Minn. Stat. § 115.01, subd. 22 as all streams, lakes, ponds, marshes, watercourses, waterways, wells, springs, reservoirs, aquifers, irrigation systems, drainage systems and all other bodies or accumulations of water, surface or underground, natural or artificial, public or private, which are contained within, flow through, or border upon the state or any portion thereof.

Attachment A:
Construction SWPPP Template

Stormwater Pollution Prevention Plan (SWPPP) Template to comply with the General Stormwater Permit for Construction Activity (MN R100001)

IMPORTANT: Before completing this SWPPP, you must read and understand the requirements in the General Stormwater Permit for Construction Activity (MN R100001) available from MPCA at *www.pca.state.mn.us/water/stormwater/index.html*. An overview of the permit is available from MPCA at *www.pca.state.mn.us/publications/wq-strm2-05.pdf*. This SWPPP Template will help you complete information required.

Construction Activity Information	
Project Name	
Project Location	
Briefly describe where construction activity occurs. Include address if available	
City or Township	State, Zip Code MN
Latitude and longitude of approximate centroid of project	
Method of collection of latitude/longitude: GPS Online tool USGS Topographic map Scale used	
All cities where construction will occur	

All counties where construction will occur	All townships where construction will occur

Project Size (number of acres to be disturbed)

Project Type

☐ Residential	☐ Commercial/Industrial	☐ Road Construction
☐ Residential and Road Construction	☐ Other (describe)	

Cumulative Impervious Surface

Existing area of impervious surface _____ (to the nearest quarter acre)

Post construction area of impervious surface _____ (to the nearest quarter acre)

Receiving Waters

Water Body ID*	Name of Water Body	Type (ditch, pond, wetland, lake, stream, river)	Special Water? (See Section 23)	Impaired Water?** (See Stormwater Permit Appendix A)
			☐ Yes ☐ No	☐ Yes ☐ No
			☐ Yes ☐ No	☐ Yes ☐ No
			☐ Yes ☐ No	☐ Yes ☐ No
			☐ Yes ☐ No	☐ Yes ☐ No

*Water Body ID might not be available for all water bodies. Use the Special and Impaired Waters Search Tool at: *https://mpca.maps.arcgis.com/apps/webappviewer/index.html?id=e03ef170fa3e41f6be92f9fafec100cc*

** Impaired water for the following pollutant(s) or stressor(s): phosphorus, turbidity, dissolved oxygen, or biotic impairment

Dates of Construction

Construction Start Date	Estimated Completion Date

Contact Information		
Owner of the Site		
Business of Firm Name		
Last Name First Name Title	E-mail	Telephone *(include area code)*
Mailing Address	City	State Zip Code
Alternate Contact Last Name First Name	E-mail	Telephone *(include area code)*
Contractor (Person who will oversee implementation of the SWPPP)		
Business of Firm Name		
Last Name First Name Title	E-mail	Telephone *(include area code)*
Mailing Address	City	State Zip Code
Alternate Contact Last Name First Name	E-mail	Telephone (include area code)
Party Responsible for Long Term Operation and Maintenance of the Permanent Stormwater Management System		
Business of Firm Name		
Last Name First Name Title	E-mail	Telephone (*include area code*)
Mailing Address	City	State Zip Code
Alternate Contact Last Name First Name	E-mail	Telephone (*include area code*)

General Construction Project Information

Describe the construction activity (what will be built, general timeline, etc.)

Describe soil types found at the project.

General site information

Describe the location and type of all temporary and permanent erosion prevention and sediment control BMPs. Include the timing for installation and procedures used to establish additional temporary BMPs as necessary.

Attach to this SWPPP a table with the anticipated quantities for the life of the project for all erosion prevention and sediment control BMPs.

Attach to this SWPPP a site map that includes the following features:

- Existing and final grades, including dividing lines and direction of flow for all pre and post-construction stormwater runoff drainage areas located within the project limits.
- Locations of impervious surfaces and soil types.
- Locations of areas not to be disturbed.
- Location of areas of phased construction
- All surface waters and existing wetlands within 1mile from the project boundaries that will receive stormwater runoff from the site (identifiable on maps such as USGS 7.5 minute quadrangle maps or equivalent). Where surface waters receiving runoff associated with construction activity will not fit on the plan sheet, they must be identified with an arrow, indicating both direction and distance to the surface water.
- Methods to be used for final stabilization of all exposed soil areas.

Were stormwater mitigation measures required as the result of an environmental, archaeological, or other required local, state, or federal review of the project? If yes, describe how these measures were addressed in the SWPPP.

Is the project located in a karst area such that additional measures would be necessary to protect drinking water supply management areas as described in Minn. R. chs. 7050 and 7060? If yes, describe the additional measures to be used. (Section 23)

Does the site discharge to a calcareous fen listed in Minn. R. 7050.0180, subp. 6.b.? If yes, a letter of approval from the Minnesota Department of Natural Resources must be obtained prior to application for this permit.

Does the site discharge to a water that is listed as impaired for the following pollutant(s) or stressor(s): phosphorus, turbidity, dissolved oxygen or biotic impairment? Use the Special and Impaired Waters Search Tool at: https://mpca.maps.arcgis.com/apps/webappviewer/index.html?id=e03ef170fa3e41f6be92f9fafec100cc. If no, skip to next box.

Does the Impaired water have an approved TMDL with an Approved Waste Load Allocation for construction activity?

If yes;

- List the receiving water, the areas of the site discharging to it, and the pollutant(s) identified in the TMDL
- List the BMPs and any other specific construction stormwater related implementation activities identified in the TMDL.

If the site has a discharge point within one mile of the impaired water and the water flows to the impaired water but no specific BMPs for construction are identified in the TMDL, the additional BMPs in Section 23 must be added to the SWPPP and implemented. The additional BMPs only apply to those portions of the project that drain to one of the identified discharge points.

Training

Training is required for all permitted projects after February 1, 2010. It must be provided by entities with expertise in erosion prevention, sediment control or permanent stormwater management. Training must be focused on the individual's job duties as they relate to the permit requirements. Who must be trained?

- ✓ Individual(s) preparing the SWPPP for the project
- ✓ Individual(s) overseeing the implementation of, revising and amending the SWPPP and individuals performing inspections required by the permit
- ✓ Individuals performing or supervising the installation, maintenance or repair of BMPs

Attach to this SWPPP:

Names of the personnel trained; dates of training; name of instructor(s) and entity providing training; content of training course or workshop (including number of hours of training)

Selection of a Permanent Stormwater Management System

Will the project create a new cumulative impervious surface greater than or equal to one acre?

☐ Yes ☐ No

If yes, a water quality volume of 1 inch of runoff from this area must be treated before leaving the site or entering surface waters.

Describe which method will be used to treat runoff from the new impervious surfaces created by the project:

- Infiltration
- Filtration
- Wet sedimentation basin
- regional facilities
- other

Include all calculations and design information for the method selected. See Section 23 of the permit for specific requirements associated with each method.

If it is not feasible to meet the treatment requirement for the water quality volume, describe why. This can include proximity to bedrock or road projects where the lack of right of way precludes the installation of any permanent stormwater management practices. Describe what other treatment, such as grasses swales, smaller ponds, or grit chambers, will be implemented to treat runoff prior to discharge to surface waters.

Erosion Prevention Practices

Describe construction phasing, vegetative buffer strips, horizontal slope grading, and other construction practices to minimize erosion. Delineate areas not to be disturbed (e.g., with flags, stakes, signs, silt fence, etc.) before work begins.

Describe temporary erosion protection or permanent cover used for exposed soil. All exposed soil areas must be stabilized as soon as possible but in no case later than 14 days after the construction activity in that portion of the site has temporarily or permanently.

For drainage or diversion ditches, describe practices to stabilize the normal wetted perimeter within 200 lineal feet of the property edge or point of discharge to surface water. The remaining portions of the temporary or permanent ditch or swale must be stabilized within 14 days after connecting to surface waters and construction in that portion of the ditch has temporarily or permanently ceased.

Describe other erosion prevention practices (list and describe).

Sediment Control Practices

Describe sediment control practices used to minimize sediments from entering surface waters, including curb and gutter systems and storm drain inlets. At a minimum, these sediment control practices must include:

- Sediment controls for temporary or permanent drainage ditches and sediment basins that are designed as part of a treatment system
- Installation of check dams or other grade control practice to ensure sheet flow and prevent rills (for slope lengths greater than 75 feet with a grade of 3:1 or steeper).
- Sediment control practices on all down gradient perimeters prior to land disturbing activities.
- Storm drain inlet protection for all inlets.
- Silt fencing or other sediment control surrounding temporary soil stockpiles.
- Minimize vehicle tracking of sediments (e.g., stone pads, concrete or steel wash racks, or equivalent systems).
- Street sweeping of tracked sediment.
- Temporary sedimentation basins.

Dewatering and Basin Draining

Will the project include dewatering or basin draining? ☐ Yes ☐ No

If yes, describe BMPs used so the discharge does not adversely affect the receiving water or downstream landowners.

Additional BMPs for Special Waters and Discharges to Wetlands

Special Waters. Does your project discharge to special waters? ☐ Yes ☐ No If no, skip to Wetlands section below.

If proximity to bedrock or road projects where the lack of right of way precludes the installation of any of the permanent stormwater management practices, then other treatment such as grassed swales, smaller ponds, or grit chambers is required prior to discharge to surface waters. Describe what other treatment will be provided.
Describe erosion and sediment controls for exposed soil areas with a continuous positive slope to a special waters, and temporary sediment basins for areas that drain 5 or more acres disturbed at one time.
Describe the undisturbed buffer zone to be used (not less than 100 linear feet from the special water).
Describe how the permanent stormwater management system will minimize any increase in the temperature of trout stream receiving waters resulting in the 1, and 2-year 24-hour precipitation events.
Wetlands. Does your project discharge stormwater with the potential for significant adverse impacts to a wetland (e.g., conversion of a natural wetland to a stormwater pond)? ☐ Yes ☐ No
If Yes, describe the wetland mitigation sequence that will be followed in accordance with Section 22 of the permit.

Inspections and Maintenance

Describe procedures to routinely inspect the construction site:

- Once every seven days during active construction and,
- Within 24 hours after a rainfall event greater than 0.5 inches in 24 hours, and within seven days after that.

Inspections must include stabilized areas, erosion prevention and sediment control BMPs, and infiltration areas.

Pollution Prevention Management Measures

Describe practices to properly manage and dispose of solid waste, including trash.

Described practices to properly manage hazardous materials.

Describe practices for external washing of trucks and other construction vehicles.

Describe how are you going to provide a safe, lake proof, concrete washout on site.

Describe your spill prevention plan.

Describe measures to address sanitary and septic waste.

Final Stabilization

Describe how you will achieve final stabilization of the site.

Records Retention (III.D)

Describe your record retention procedures (must be kept at the site) (III.D). Records must include:

- Copy of SWPPP and any changes
- Training documentation
- Inspection and maintenance records
- Calculations for the design of temporary and permanent stormwater management systems.

Attachment B: Sample Maintenance Records

Inspector	Type of Inspection		Date of Inspection			Rainfall (record all events > 0.5 in)	Time of Inspection			Areas Inspected							Findings and Corrective Actions
	Routine weekly	24 hrs after rain	Month	Day	Year		Time	AM	PM	Erosion / Sediment Control BMPs	Silt Fences	Sedimentation basins	Drainage ditches and other surface waters	Construction site exits	Infiltration areas	Pollution Prevention Measures	
																	Findings: Corrective Actions:
																	Findings: Corrective Actions:
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