Satisfying regulatory mechanism requirements for construction site stormwater runoff control in municipal stormwater permits

This document is intended to clarify requirements in the Minnesota Pollution Control Agency’s (MPCA) NPDES permit for Municipal Separate Storm Sewer Systems (MS4). The MS4 permit requires permittees to develop a construction site stormwater runoff control program that reduces pollutants in stormwater from construction activity. The MS4 Permit (item 22.3) requires the permittee to develop a regulatory mechanism that is at least as stringent as the MPCA’s current NPDES Construction General Permit (CGP). Only those parts of the CGP that are considered erosion and sediment controls or waste controls are required to be adopted into the permittee’s regulatory mechanism (per 40 CFR § 122.34). The MS4 permit identifies the seven sections of the CGP that qualify as erosion and sediment controls or waste controls, as follows:

1. BMPs to minimize erosion (Section 8 of the CGP)
2. BMPs to minimize the discharge of sediment and other pollutants (Section 9 of the CGP)
3. BMPs for dewatering activities (Section 10 of the CGP)
4. Site inspections and records of rainfall events and BMP maintenance (Section 11 of the CGP)
5. Management of solid and hazardous wastes on each project site (Section 12 of the CGP)
6. Permit termination conditions upon the completion of construction activity, including the use

of perennial vegetative cover on all exposed soils or other equivalent means (Section 13 of the CGP)

1. Criteria for the use of temporary sediment basins (Section 14 of the CGP)

The table in the following pages repeats the language as found in the CGP for each of the seven parts listed above. The language has been adjusted slightly such that references to other parts of the CGP and references to “The MPCA” have been removed in order for the language to read more like a municipality’s ordinance. Permittees are not required to adopt this language in its entirety although doing so would fulfill the MS4 Permit requirement. Permittees may choose to re-write these provisions in a manner that is more concise, as long as the concepts and requirements remain the same or more stringent. For example, the first paragraph of the temporary sediment basin requirement states:

*Where ten (10) or more acres of disturbed soil drain to a common location, permittees must provide a temporary sediment basin to provide treatment of the runoff before it leaves the construction site or enters surface waters. Permittees may convert a temporary sediment basin to a permanent basin after construction is complete. The temporary basin is no longer required when permanent cover has reduced the acreage of disturbed soil to less than ten (10) acres draining to a common location.*

This could be written in a number of different ways as long as the basic requirement (10 acres draining to one point) remains. Some permittees may choose to use different terminology that better fits their current ordinance or regulatory mechanism. This is acceptable as long as the basic tenant of the requirement remains

Another option is to simply reference the CGP in the regulatory mechanism. This has been done successfully in the past at both the city and county level. The CGP contains many sections that are not considered erosion and sediment control and waste control requirements and permittees may wish to provide a companion document to developers explaining which sections of the CGP they are expected to follow. The specific sections of the CGP are stated in the list above (1-7).

Interpreting the language found in the CGP can be subjective at times. Permittees may find it helpful to also adopt some of the definitions found in the CGP in order to provide clarity within the requirements. These definitions can be found at the end of this document.

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| 1. **Best Management Practices (BMPs) to minimize erosion.**
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| EROSION PREVENTION PRACTICES [Section 8]1. Before work begins, permittees must delineate the location of areas not to be disturbed.
2. Permittees must minimize the need for disturbance of portions of the project with steep slopes. When steep slopes must be disturbed, permittees must use techniques such as phasing and stabilization practices designed for steep slopes (e.g., slope draining and terracing).
3. Permittees must stabilize all exposed soil areas, including stockpiles. Stabilization must be initiated immediately to limit soil erosion when construction activity has permanently or temporarily ceased on any portion of the site and will not resume for a period exceeding 14A calendar days. Stabilization must be completed no later than 14A calendar days after the construction activity has ceased. Stabilization is not required on constructed base components of roads, parking lots and similar surfaces. Stabilization is not required on temporary stockpiles without significant silt, clay or organic components (e.g., clean aggregate stockpiles, demolition concrete stockpiles, sand stockpiles) but permittees must provide sediment controls at the base of the stockpile.
4. For Public Waters that the Minnesota DNR has promulgated “work in water restrictions” during specified fish spawning time frames, permittees must complete stabilization of all exposed soil areas within 200 feet of the water’s edge, and that drain to these waters, within 24 hours during the restriction period.
5. Permittees must stabilize the normal wetted perimeter of the last 200 linear feet of temporary or permanent drainage ditches or swales that drain water from the site within 24 hours after connecting to a surface water or property edge. Permittees must complete stabilization of the remaining portions of temporary or permanent ditches or swales within 14A calendar days after connecting to a surface water or property edge and construction in that portion of the ditch temporarily or permanently ceases.
6. Temporary or permanent ditches or swales that are being used as a sediment containment system during construction (with properly designed rock-ditch checks, bio rolls, silt dikes, etc.) do not need to be stabilized. Permittees must stabilize these areas within 24 hours after their use as a sediment containment system ceases.
7. Permittees must not use mulch, hydromulch, tackifier, polyacrylamide or similar erosion prevention practices within any portion of the normal wetted perimeter of a temporary or permanent drainage ditch or swale section with a continuous slope of greater than 2 percent.
8. Permittees must provide temporary or permanent energy dissipation at all pipe outlets within 24 hours after connection to a surface water or permanent stormwater treatment system.
9. Permittees must not disturb more land (i.e., phasing) than can be effectively inspected and maintained.

A For areas of the project draining to a discharge point on the project that is within one mile of a special or impaired water as defined by the Minnesota NPDES Permit for construction activity, the time frame stated in this requirement shall be seven (7) days. |

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| 1. **BMPs to minimize the discharge of sediments and other pollutants.**
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| SEDIMENT CONTROL PRACTICES [Section 9]1. Permittees must establish sediment control BMPs on all down gradient perimeters of the site and downgradient areas of the site that drain to any surface water, including curb and gutter systems. Permittees must locate sediment control practices upgradient of any buffer zones. Permittees must install sediment control practices before any upgradient land-disturbing activities begin and must keep the sediment control practices in place until they establish permanent cover.
2. If the down gradient sediment controls are overloaded, based on frequent failure or excessive maintenance requirements, permittees must install additional upgradient sediment control practices or redundant BMPs to eliminate the overloading and amend the site plans to identify these additional practices.
3. Temporary or permanent drainage ditches and sediment basins designed as part of a sediment containment system (e.g., ditches with rock-check dams) require sediment control practices only as appropriate for site conditions.
4. A floating silt curtain placed in the water is not a sediment control BMP to satisfy perimeter control requirements in this part except when working on a shoreline or below the waterline. Immediately after the short term construction activity (e.g. installation of rip rap along the shoreline) in that area is complete, permittees must install an upland perimeter control practice if exposed soils still drain to a surface water.
5. Permittees must re-install all sediment control practices that have been adjusted or removed to accommodate short-term activities such as clearing or grubbing, or passage of vehicles, immediately after the short-term activity is completed. Permittees must re-install sediment control practices before the next precipitation event even if the short-term activity is not complete.
6. Permittees must protect all storm drain inlets using appropriate BMPs during construction until they establish permanent cover on all areas with potential for discharging to the inlet.
7. Permittees may remove Inlet protection for a particular inlet if a specific safety concern (e.g., street flooding/freezing) is identified by the permittees or the jurisdictional authority (e.g., city/county/township/Minnesota Department of Transportation engineer). Permittees must document the need for removal in the site plans.

5. Permittees must provide silt fence or other effective sediment controls at the base of stockpiles on the downgradient perimeter.1. Permittees must locate stockpiles outside of natural buffers orsurface waters, including stormwater conveyances such as curb and gutter systems unless there is a bypass in place for the stormwater.
2. Permittees must install a vehicle tracking BMP to minimize the track out of sediment from the construction site or onto paved roads within the site.
3. Permittees must use street sweeping if vehicle tracking BMPs are not adequate to prevent sediment tracking onto the street.
4. In any areas of the site where final vegetative stabilization will occur, permittees must restrict vehicle and equipment use to minimize soil compaction.
5. Permittees must preserve topsoil on the site, unless infeasible.
6. Permittees must direct discharges from BMPs to vegetated areas unless infeasible.
7. Permittees must preserve a 50 foot natural buffer or, if a buffer is infeasible on the site, provide redundant (double) perimeter sediment controls when a surface water is located within 50 feet of theproject’s earth disturbances and stormwater flows to the surface water. Permittees must install perimeter sediment controls at least 5 feet apart unless limited by lack of available space. Natural buffers are not required adjacent to road ditches, judicial ditches, county ditches, stormwater conveyance channels, storm drain inlets, and sediment basins. If preserving the buffer is infeasible, permittees must document the reasons in the site plans. Sheet piling is a redundant perimeter control if installed in a manner that retains all stormwater.
8. Permittees must use polymers, flocculants, or other sedimentation treatment chemicals in accordance with accepted engineering practices, dosing specifications and sediment removal design specifications provided by the manufacturer or supplier. The permittees must use conventional erosion and sediment controls prior to chemical addition and must direct treated stormwater to a sediment control system for filtration or settlement of the flocprior to discharge.
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| 1. **BMPs for dewatering activities.**
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| DEWATERING AND BASIN DRAINING [Section 10]1. Permittees must discharge turbid or sediment-laden waters related to dewatering or basin draining (e.g., pumped discharges, trench/ditch cuts for drainage) to a temporary or permanent sediment basin on the project site unless infeasible. Permittees may dewater to surface waters if they visually check to ensure adequate treatment has been obtained and nuisance conditions (see Minn. R. 7050.0210, subp. 2) will not result from the discharge. If permittees cannot discharge the water to a sedimentation basin prior to entering a surface water, permittees must treat it with appropriate BMPs such that the discharge does not adversely affect the surface water or downstream properties.
2. If permittees must discharge water that contains oil or grease, they must use an oil-water separator or suitable filtration device (e.g. cartridge filters, absorbents pads) prior to discharge.
3. Permittees must discharge all water from dewatering or basin-draining activities in a manner that does not cause erosion or scour in the immediate vicinity of discharge points or inundation of wetlands in the immediate vicinity of discharge points that causes significant adverse impact to the wetland.
4. If permittees uses filters with backwash water, they must haul the backwash water away for disposal, return the backwash water to the beginning of the treatment process, or incorporate the backwash water into the site in a manner that does not cause erosion.
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| 1. **Site inspections and records of rainfall events and BMP maintenance.**
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| INSPECTIONS AND MAINTENANCE [Section 11]1. Permittees must ensure that a trained person will inspect the entire construction site at least once every seven (7) days during active construction and within 24 hours after a rainfall event greater than 1/2 inch in 24 hours.
2. Permittees must inspect and maintain all permanent stormwater treatment BMPs.
3. Permittees must inspect all erosion prevention and sediment control BMPs and Pollution Prevention Management Measures to ensure integrity and effectiveness. Permittees must repair, replace, or supplement all nonfunctional BMPs with functional BMPs by the end of the next business day after discovery unless another time frame is specified below. Permittees may take additional time if field conditions prevent access to the area.
4. During each inspection, permittees must inspect surface waters, including drainage ditches and conveyance systems but not curb and gutter systems, for evidence of erosion and sediment deposition. Permittees must remove all deltas and sediment deposited in surface waters, including drainage ways, catch basins, and other drainage systems and restabilize the areas where sediment removal results in exposed soil. Permittees must complete removal and stabilization within seven (7) calendar days of discovery unless precluded by legal, regulatory, or physical access constraints. Permittees must use all reasonable efforts to obtain access. If precluded, removal and stabilization must take place within seven (7) calendar days of obtaining access. Permittees are responsible for contacting all local, regional, state and federal authorities and receiving any applicable permits, prior to conducting any work in surface waters.
5. Permittees must inspect construction site vehicle exit locations, streets and curb and gutter systems within and adjacent to the project for sedimentation from erosion or tracked sediment from vehicles. Permittees must remove sediment from all paved surfaces within one (1) calendar day of discovery or, if applicable, within a shorter time to avoid a safety hazard to users of public streets.
6. Permittees must repair, replace, or supplement all perimeter control devices when they become nonfunctional or the sediment reaches 1/2 of the height of the device.
7. Permittees must drain temporary and permanent sedimentation basins and remove the sediment when the depth of sediment collected in the basin reaches 1/2 the storage volume.
8. Permittees must ensure that at least one individual present on the site (or available to the project site in three (3) calendar days) is trained in the job duties of overseeing the implementation of, revising and/or amending the site plans and performing inspections for the project.
9. Permittees may adjust the inspection schedule as follows:
	1. Inspections of areas with permanent cover can be reduced to once per month, even if construction activity continues on other portions of the site; or
	2. Where construction sites have permanent cover on all exposed soil areas and no construction activity is occurring anywhere on the site, inspections can be reduced to once per month and, after 12 months, may be suspended completely until construction activity resumes. The MPCA may require inspections to resume if conditions warrant; or
	3. Where construction activity has been suspended due to frozen ground conditions, inspections may be suspended. Inspections must resume within 24 hours of runoff occurring, or upon resuming construction, whichever comes first.
10. Permittees must record all inspections and maintenance activities within 24 hours of being conducted and these records must be retained with the site plans. These records must include:
	1. date and time of inspections; and
	2. name of person(s) conducting inspections; and
	3. accurate findings of inspections, including the specific location where corrective actions are needed; and
	4. corrective actions taken (including dates, times, and party completing maintenance activities); and
	5. date of all rainfall events greater than 1/2 inch in 24 hours, and the amount of rainfall for each event. Permittees must obtain rainfall amounts by either a properly maintained rain gauge installed onsite, a weather station that is within one (1) mile of your location, or a weather reporting system that provides site specific rainfall data from radar summaries; and
	6. if permittees observe a discharge during the inspection, they must record and should photograph and describe the location of the discharge (i.e., color, odor, settled or suspended solids, oil sheen, and other obvious indicators of pollutants); and
	7. any amendments to the site plans proposed as a result of the inspection must be documented within seven (7) calendar days.
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| 1. **Management of solid and hazardous wastes on each project site.**
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| POLLUTION PREVENTION MANAGEMENT MEASURES [Section 12]1. Permittees must place building products and landscape materials under cover (e.g., plastic sheeting or temporary roofs) or protect them by similarly effective means designed to minimize contact with **s**tormwater. Permittees are not required to cover or protect products which are either not a source of contamination to stormwater or are designed to be exposed to stormwater.
2. Permittees must place pesticides, fertilizers and treatment chemicals under cover (e.g., plastic sheeting or temporary roofs) or protect them by similarly effective means designed to minimize contact with stormwater.
3. Permittees must store hazardous materials and toxic waste, (including oil, diesel fuel, gasoline, hydraulic fluids, paint solvents, petroleum-based products, wood preservatives, additives, curing compounds, and acids) in sealed containers to prevent spills, leaks or other discharge. Storage and disposal of hazardous waste materials must be in compliance with Minn. R. ch. 7045 including secondary containment as applicable.
4. Permittees must properly store, collect, and dispose of solid waste in compliance with [Minn. R. ch. 7035](https://www.revisor.mn.gov/rules/?id=7035).
5. Permittees must position portable toilets so they are secure and will not tip or be knocked over. Permittees must dispose of sanitary waste in accordance with Minn. R. ch. 7041.
6. Permittees must take reasonable steps to prevent the discharge of spilled or leaked chemicals, including fuel, from any area where chemicals or fuel will be loaded or unloaded including the use of drip pans or absorbents unless infeasible. Permittees must ensure adequate supplies are available at all times to clean up discharged materials and that an appropriate disposal method is available for recovered spilled materials. Permittees must report and clean up spills immediately as required by Minn. Stat. § 115.061, using dry clean up measures where possible.
7. Permittees must limit vehicle exterior washing and equipment to a defined area of the site. Permittees must contain runoff from the washing area in a sediment basin or other similarly effective controls and must dispose of waste from the washing activity properly. Permittees must properly use and store soaps, detergents, or solvents.
8. 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 of liquid and solid wastes in compliance with [Minn. R. ch. 7035](https://www.revisor.mn.gov/rules/?id=7035). Permittees must install a sign indicating the location of the washout facility.
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| 1. **Permit termination conditions upon the completion of construction activity, including the use of perennial vegetative cover on all exposed soils or other equivalent means.**
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| PERMIT TERMINATION CONDITIONS [Section 13]1. Permittees must complete all construction activity and must install permanent cover over all areas. Vegetative cover must consist of a uniform perennial vegetation with a density of 70 percent of its expected final growth. Vegetation is not required where the function of a specific area dictates no vegetation, such as impervious surfaces or the base of a sand filter.
2. Permittees must clean the permanent stormwater treatment system of any accumulated sediment and must ensure the system meets all applicable requirements and is operating as designed.
3. Permittees must remove all sediment from conveyance systems.
4. Permittees must remove all temporary synthetic erosion prevention and sediment control BMPs. Permittees may leave BMPs designed to decompose on-site in place.
5. For residential construction only, permit coverage terminates on individual lots if the structure(s) are finished and temporary erosion prevention and downgradient perimeter control is complete and the residence sells to the homeowner.
6. For construction projects on agricultural land (e.g., pipelines across cropland), permittees must return the disturbed land to its preconstruction agricultural use.
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| 1. **Criteria for the use of temporary sediment basins.**
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| TEMPORARY SEDIMENT BASINS [Section 14]1. Where ten (10)B or more acres of disturbed soil drain to a common location, permittees must provide a temporary sediment basin to provide treatment of the runoff before it leaves the construction site or enters surface waters. Permittees may convert a temporary sediment basin to a permanent basin after construction is complete. The temporary basin is no longer required when permanent cover has reduced the acreage of disturbed soil to less than ten (10)B acres draining to a common location.
2. The temporary basin must provide live storage for a calculated volume of runoff from a two (2)-year, 24-hour storm from each acre drained to the basin or 1,800 cubic feet of live storage per acre drained, whichever is greater.
3. Where permittees have not calculated the two (2)-year, 24-hour storm runoff amount, the temporary sediment basin must provide 3,600 cubic feet of live storage per acre of the basin’s drainage area.
4. Permittees must design basin outlets to prevent short-circuiting and the discharge of floating debris.
5. Permittees must design the outlet structure to withdraw water from the surface to minimize the discharge of pollutants. Permittees may temporarily suspend the use of a surface withdrawal mechanism during frozen conditions. The basin must include a stabilized emergency overflow to prevent failure of pond integrity.
6. Permittees must provide energy dissipation for the basin outlet within 24 hours after connection to a surface water.
7. Permittees must locate temporary basins outside of surface waters and any required buffer zones.
8. Permittees must construct temporary basins prior to disturbing 10B or more acres of soil draining to a common location.
9. Where a temporary sediment basin meeting the requirements of this part is infeasible, permittees must install effective sediment controls such as smaller sediment basins and/or sediment traps, silt fences, vegetative buffer strips or any appropriate combination of measures as dictated by individual site conditions. In determining whether installing a sediment basin is infeasible, permittees must consider public safety and may consider factors such as site soils, slope, and available area on-site. Permittees must document this determination of infeasibility in the site plans.

B For areas of the project draining to a discharge point on the project that is within one mile of a special or impaired water as defined by the Minnesota NPDES Permit for construction activity, the disturbed area stated in this requirement shall be five (5) acres. |

**DEFINITIONS AND ABBREVIATIONS**

“Best Management Practices (BMPs)” means the most effective and practicable means of erosion prevention and sediment control, and water quality management practices that are the most effective and practicable means of to control, prevent, and minimize degradation of surface waters, including avoidance of impacts, construction-phasing, minimizing the length of time soil areas are exposed, prohibitions, pollution prevention through good housekeeping, and other management practices published by state or designated area-wide planning agencies.

“Construction Activity” means activities including clearing, grading, and excavating, that result in land disturbance of equal to or greater than one acre, including the disturbance of less than one acre of total land area that is part of a larger common plan of development or sale if the larger common plan will ultimately disturb equal to or greater than one acre. This includes a disturbance to the land that results in a change in the topography, existing soil cover, both vegetative and nonvegetative, or the existing soil topography that may result in accelerated stormwater runoff that may lead to soil erosion and movement of sediment. Construction activity does not include a disturbance to the land of less than five acres for the purpose of routine maintenance performed to maintain the original line and grade, hydraulic capacity, and original purpose of the facility. Routine maintenance does not include activities such as repairs, replacement and other types of non-routine maintenance. Pavement rehabilitation that does not disturb the underlying soils (e.g., mill and overlay projects) is not construction activity.

“Dewatering” means the removal of surface or ground water to dry and/or solidify a construction site to enable construction activity. Dewatering may require a Minnesota Department of Natural Resources water appropriation permit and, if dewatering water is contaminated, discharge of such water may require an individual MPCA NPDES/SDS permit.

“Energy Dissipation” means methods employed at pipe outlets to prevent erosion caused by the rapid discharge of water scouring soils.

“Erosion Prevention”means measures employed to prevent erosion such as soil stabilization practices, permanent cover or construction phasing.

“Infeasible” means not technologically possible or not economically practicable and achievable in light of the best industry practices

“Initiated immediately” means taking an action tocommence stabilization as soon as practicable, but no later than the end of the work day, following the day when the earth-disturbing activities temporarily or permanently cease, if the permittees know that construction work on that portion of the site will be temporarily ceased for 14 or more additional calendar days or 7 calendar days where item 23.9 applies. Permittees can initiate stabilization by:

1. prepping the soil for vegetative or non-vegetative stabilization; or
2. applying mulch or other non-vegetative product to the exposed soil area; or
3. seeding or planting the exposed area; or
4. starting any of the activities in a - c on a portion of the area to be stabilized, but not on the entire area;

or

1. finalizing arrangements to have stabilization product fully installed in compliance with the applicable deadline for completing stabilization.

“Natural Buffer” means an area of undisturbed cover surrounding surface waters within which construction activities are restricted. Natural buffer includes the vegetation, exposed rock, or barren ground that exists prior to commencement of earth-disturbing activities.

“Normal Wetted Perimeter” means the area of a conveyance, such as a ditch or channel, that is in contact with water during flow events that are expected to occur from a two-year, 24-hour storm event.

“Permanent Cover” means surface types that will prevent soil failure under erosive conditions. Examples include: gravel, concrete, perennial cover, or other landscaped material that will permanently arrest soil erosion. Permittees must establish a uniform perennial vegetative cover (i.e. evenly distributed, without large bare areas) with a density of 70 percent of the native background vegetative cover on all areas not covered by permanent structures, or equivalent permanent stabilization measures. Permanent cover does not include temporary BMPs such as wood fiber blanket, mulch, and rolled erosion control products.

“Project(s)” means all construction activity planned and/or conducted under a particular permit. The project occurs on the site or sites described in the permit application, and in the associated plans, specifications and contract documents.

“Public Waters” means all water basins and watercourses described in Minn. Stat. Sect. 103G.005 subp. 15.

“Sediment Control” means methods employed to prevent suspended sediment in stormwater from leaving the site (e.g., silt fences, compost logs and storm drain inlet protection).

“Stabilize”, “Stabilized”, “Stabilization” means the exposed ground surface has been covered by appropriate materials such as mulch, staked sod, riprap, erosion control blanket, mats or other material that prevents erosion from occurring. Grass seeding, agricultural crop seeding or other seeding alone is not stabilization. Mulch materials must achieve approximately 90 percent ground coverage (typically 2 ton/acre).

“Stormwater” means precipitation runoff, stormwater runoff, snowmelt runoff, and any other surface runoff and drainage.

“Steep Slopes” means slopes that are 1:3 (V:H) (33.3 percent) or steeper in grade.

 “Surface Water or Waters” means 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 that were constructed in wetlands and mitigated in accordance with Section 22 as surface waters.

“Waters of the State” (as defined in Minn. Stat. Sect. 115.01, subp. 22) means 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.