Amendment
to the
Upper Rum River Watershed Management Organization (URRWMO) Watershed Management Plan

Stormwater Infiltration Standards

The following standards were recommended by a Technical Advisory Committee including representation from each URRWMO member city, local and state agencies, and the Builders Association of the Twin Cities. Each member community must update their local water plan and ordinances for consistency with this amendment within two years of the effective date. However, municipalities are encouraged to do amendment-related updates with updates related to the new URRWMO Plan (deadline for those updates is 4-25-09).

Effective date: _____ (date of URRWMO Board adoption)

Background

Stormwater is water that flows across hard surfaces such as roofs and roads following a storm. As land is developed, it is important to manage this water because of the impacts it can have on water quality and flooding in lakes, streams, and rivers to which it drains. One approach to stormwater management is infiltration, or designing places where stormwater is allowed to soak into the ground. Infiltration is favored, especially in places with suitable soils such as sands, because it dramatically reduces stormwater volume (flooding) and water quality concerns. Infiltration also provides other benefits such as groundwater recharge, maintaining base flows in streams, and rate control.

The URRWMO is setting stormwater infiltration standards which must be incorporated into member communities' local water plans and ordinances, and accordingly enforced. Member communities are encouraged to customize their plans and ordinances within the framework established by the URRWMO standards. The purpose of the URRWMO's standards is to ensure that infiltration techniques are used in every community in a way that ensures functionality, minimizes maintenance, minimizes risks like groundwater contamination, and maximizes benefits.

Storm Water Infiltration Standards
* denotes standard is consistent with the MPCA's Construction General Permit.

Preferred Stormwater Management Techniques
The following order preference for stormwater management techniques must be followed:

1st - Better Site Design (as defined in the Minnesota Stormwater Manual Chapter 4)
2nd - Infiltration
3rd - Biofiltration, filtration, wetland treatment systems, extended detention basins, or NURP ponds (in no particular order of preference)

It is expected that a combination of techniques, used in series, will often be necessary.

In cases where stormwater facilities with unused capacity already exist near a new project, that new project may utilize those facilities to meet stormwater treatment needs. In these cases the order of preferred techniques listed above may be bypassed.

Applicability
Projects which must comply with the URRWMO stormwater infiltration standards include all projects, including redevelopment, disturbing one or more acres. 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 storm water 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. These projects are also subject to the Minnesota Pollution Control Agency's (MPCA) General Stormwater Permit for Construction Activity, commonly called the Construction General Permit.

State shoreland rules apply within shoreland areas.

Road construction and reconstruction are exempt, unless the roads are being built as part of another project, such as new residential, commercial, or industrial development that disturbs one or more acre.

Rate Control
As already specified in the URRWMO Watershed Management Plan,

> *"future discharge rates from new development and redevelopment will, at a minimum, not exceed the existing discharge rates for the 2-, 10-, and 100-year events. For formally identified "special waters" as defined in the NPDES general stormwater permit for construction activities, the permanent stormwater management system must be designed such that the pre and post project runoff rate and volume from the 1 and 2 year 24 hour precipitation events remains the same. NPDES permit also requires that volume of water from a site can be released at no more than 5.66 cfs per acre of surface area of the pond."*

Volume Control *

The first ½-inch of precipitation over new impervious surfaces must be infiltrated within 48 hours for portions of the project area with A or B soils. New impervious surfaces are all newly constructed impervious surfaces part of the project. In the case of redevelopment, replacement of an old feature (building, pavement, etc) with a new one is new construction, and therefore must comply with the standards. Resurfacing an existing feature is not new construction.

The volume control requirements for "special waters" also apply (see Rate Control section above).

Soil Testing *

At least three soil borings are required at proposed infiltration practice locations to determine soil type, infiltration rate, groundwater level, seasonally high water table, bedrock, and impeding layers. Borings must be done to a depth five feet below the proposed practice bottom.

Pre-treatment *

Pre-treatment of water before infiltration is required. Pre-treatment is defined as any Best Management Practice that (a) removes settleable or particulate matter and (b) removes oil and grease to a level that they do not interfere with infiltration performance.

Allowable Time with Standing Water *

Infiltration practices must not have standing water longer than 48 hours following each storm.

Vegetation

Infiltration facilities should be planted with vegetation that is appropriate for the infiltration practice and design.

Separation from the Water Table *

The bottom of infiltration practices must be separated 3 feet vertically from the seasonally high water table, bedrock, or other impeding layer.

Required Protections of Infiltration Areas During Construction *

- Stake off and mark infiltration areas to prevent compaction by equipment traffic.
- Sediment and runoff must be kept away from the infiltration area.
- Upland drainage areas must be stabilized immediately following construction and prior to construction of infiltration areas. All areas must be vegetated immediately following construction.
- Vegetation must be established at the infiltration practice inlets and side slopes immediately following construction.
- Construction of the infiltration practice should be suspended during periods of snowmelt or rainfall.

- Low-impact, light-tracked equipment should be used during infiltration practice construction to minimize soil compaction.
- Periodic inspections.

Maintenance Guidelines *

- A legally binding and enforceable maintenance plan clarifying responsible parties is required for all infiltration practices.
- Infiltration practice design should include easy access for maintenance.
- A way to visually inspect infiltration practice performance is required (example – perforated PVC observation well).

Easements and Outlots

An easement and/or outlot is required over the area inundated by a 100-year storm and adequate to provide maintenance access.

Potential Stormwater Hotspots

No infiltration of stormwater from potential stormwater hotspots is allowed. Potential stormwater hotspots are defined as a land use or activity that produces higher concentrations of trace metals, hydrocarbons, or pollutants than normally found in stormwater. Examples include fueling stations, vehicle service or washing areas, vehicle fleet storage areas, auto recycling or salvage, stockpiled snow from salted roadways, construction site inputs, manufacturing sites, public works storage areas, facilities that generate or store hazardous waste materials, and others as determined by the municipality or watershed management organization.

Infiltration in Drinking Water Supply Management Areas (DWSMA)

Municipalities and project managers must exercise extra caution when planning projects within public Drinking Water Supply Management Areas (DWSMA). Some areas may not be suitable for infiltration due to elevated risk of groundwater contamination. DWSMA boundaries are available from public water suppliers or the Minnesota Department of Health (MDH, http://www.health.state.mn.us/divs/eh/water/swp/maps/index.htm).

Projects within a DWSMA should refer to MDH guidance entitled “Evaluating Proposed Stormwater Infiltration Projects in Vulnerable Wellhead Protection Areas” (http://www.health.state.mn.us/divs/eh/water/fs.htm) to determine if infiltration techniques are appropriate. This guidance relies on the answers to the following questions:

1. Is the wellhead protection area or DWSMA considered vulnerable?
2. Does the aquifer receiving the water from the infiltration basin exhibit fracture or solution-enhanced groundwater flow conditions (secondary porosity features?
3. Is the proposed infiltration site within the 1-year time-of-travel (emergency response zone) as designated by MDH?
4. What current or proposed land uses drain to the infiltration site?

If the land use is commercial, industrial, municipal, or transportation corridors, are emergency procedures for containment of spills established and acceptable?

5. Are site planning, BMPs, pre-treatment, or secondary containment measures, or natural attenuation characteristics in the vadose zone acceptable to meet federal drinking water standards.

Minimum Permit Application Materials

Permit applications to municipalities for projects required to comply with these stormwater infiltration standards must include:

- Storm Water Pollution Prevention Plan (SWPPP)
- Maps showing contours, subwatersheds, stormwater facilities, and 100-year flood elevations
- Soil borings results for infiltration areas
- Construction plans for stormwater facilities and computations used to create the designs
- Calculations or modeling showing rate and volume requirements are met. The methodologies used must be approved by the permitting authority.
- Platting and easement documents

Additional Guidance

For additional guidance, refer to:

- MPCA Construction General Permit
- Minnesota Stormwater Manual and
- Minnesota Urban Small Sites BMP Manual

All are available from the Minnesota Pollution Control Agency website.