Policy on Utilizing Artificial Drainage Methods

For Subsurface Sewage Treatment Systems

Water Quality/Individual Sewage Treatment Systems #4.04 • June 2009

This fact sheet describes the Minnesota Pollution Control Agency's (MPCA) policy of utilizing artificial surface or subsurface drainage methods to improve natural soil drainage for subsurface sewage treatment systems (SSTS).

How are certain terms defined in the policy?

SSTS

Per Minn. R. 7080.1100, SSTS are a system or systems which employ sewage tank(s) or other treatment devices with final treatment and dispersal of effluent into the soil. SSTS are regulated under local ordinances.

Groundwater

For the purposes of this fact sheet, groundwater is defined as any zone of saturation, including periodic, seasonal, or perched zones or regional groundwater.

Drainage Methods

For the purposes of this fact sheet, drainage methods mean any ditching, tiling or other method which is installed in the periodically saturated soil zone to lower groundwater levels for the purpose of providing the required unsaturated zone for treatment of sewage effluent. These types of diversions are commonly termed "French Drains" (Figure 1) or "Curtain Drains" (Figure 2).

Diversions

For the purpose of this fact sheet, diversions mean:

1. Any method which intercepts groundwater, but whose function is not relied upon to provide the required unsaturated treatment zone, placed at least ten feet upslope of the soil dispersal system.

2. Any enhancement that provides surface water drainage and is not relied upon to provide the required unsaturated treatment zone. These types of diversions are commonly termed "Interceptor Drains" (Figure 3) or "Surface Ditches" (Figure 4).

What types of SSTS are impacted by the MPCA's artificial drainage policy?

I. New systems

A. New SSTS proposed to use drainage methods to meet the required vertical separation distance: New SSTS proposing these types of drainage methods will require a National Pollution Discharge Elimination (NPDES) permit issued by the MPCA, and would need to be operated by an MPCA-certified wastewater operator. Permitting and license fees are required for NPDES permits.

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The NPDES permit will require monitoring, sampling, and testing of the discharge at the drainage outlets to ensure compliance limits are met. This sampling is required as the discharge has the potential to collect, transport, and discharge contaminants to the ground surface which could impact public health and the environment.

B. New SSTS proposed to use diversion methods for water management, not vertical separation achievement: New SSTS proposing this type of drainage method may be employed without a NPDES permit if:

1. Diversions (Figures 3 and 4) are placed at least ten feet away from the upslope side of the soil dispersal system. If the diversion intercepts groundwater, the depth of the diversion shall not be deeper than the depth of the soil dispersal system.
2. No diversion may be placed downslope of the soil dispersal system
3. Diversions are not allowed to negatively impact the public health or environment.
4. A determination should be made on the effect of the diversion discharge on downgradient property.

There may be additional local requirements for these systems.

There is no maximum limit as to how far away from a SSTS a diversion can be installed, but since the goal of the diversion is to keep water from negatively impacting the drainfield on a specific property, the diversion should not be installed so far away that it is ineffective.

II. Existing systems

A. Existing SSTS using drainage methods to meet the vertical separation distance: Existing SSTS currently employing this type of drainage system do not need to obtain a NPDES permit; however, they do need to meet all local ordinance requirements which may include monitoring or additional permitting.

If water quality monitoring of the discharge indicates a violation of surface water quality standards, the system must be replaced within ten months as the agency considers the system to be an imminent threat to public health or safety.

If monitoring of groundwater elevations indicates a violation in the required vertical separation distance, the system is considered failing to protect groundwater and must be upgraded per local ordinance requirements.

B. Existing SSTS using diversion methods for water management not vertical separation: These systems must meet Criteria B under “New systems”.

III. Retrofitted systems

A. Adding drainage methods to an existing SSTS: These systems must meet Criteria A under “New systems”.

B. Adding diversion methods to an existing SSTS: These systems must meet Criteria B under “New systems”.

Figure 1. Drainage Method – Upslope French Drain

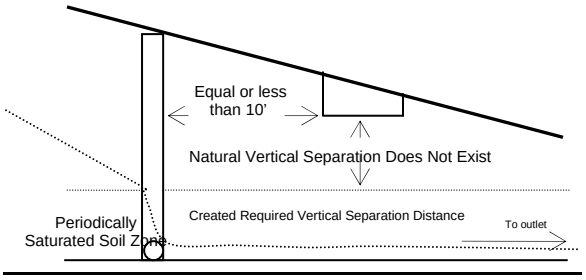


Figure 2. Drainage Method – Curtain Drain, Flat Site

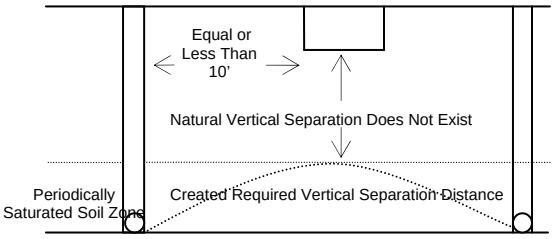


Figure 3. Diversion Method – Interceptor Drain

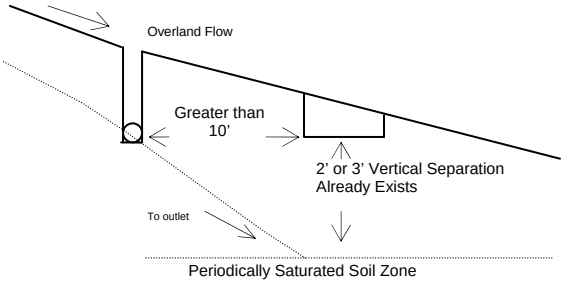
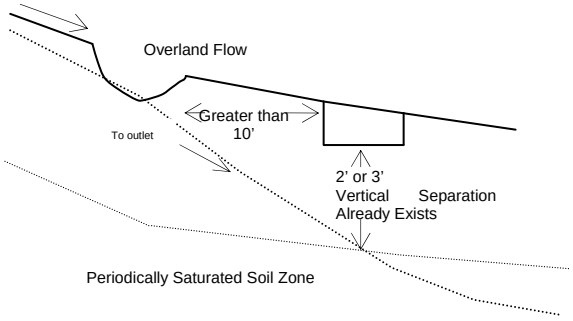


Figure 4. Diversion Method – Surface Ditch



Where do I find more information?

Additional information on NPDES permits and fees is available at www.pca.state.mn.us/publications/wq-wwprm1-02.pdf and www.pca.state.mn.us/water/permits/permit-fees.html.

For additional SSTS information, please visit www.pca.state.mn.us/programs/ists/ or call us at 651-296-6300, or toll free at 800-657-3864.