

Report on Private and Shared Septic Systems Relative to Cluster Development

Small communities like the Town of Kinnickinnic are the ones that are best suited to support onsite wastewater systems, especially in cluster developments. Financially, decentralized systems are favorable over centralized systems if they use the newest technology and are properly developed and maintained. Unlike centralized city sewer systems, these systems are very convenient, as they can efficiently meet the immediate needs of an expanding rural community.

Problems with Decentralized Systems

Most of the problems that come from private septic systems stem from site limitations, poor management, or from older systems that can be faulty or cracked. These problems include:

- Fecal coliform bacteria loading into a rural watershed.
- Acute Infectious Diarrhea in children.
- Unsatisfactory or outdated systems that leak.
- Systems that are built on lands that cannot support the system.
- Improper construction.
- Total neglect for routine maintenance.

Site Limitations

If the proper technology is used on newer systems, they can be built almost anywhere. However, there are some site limitations that should be taken into consideration before building any kind of private septic system. Places where decentralized systems may not be viable include:

- Watersheds or any area prone to flooding.
- Land with poor drainage or impermeable surfaces.
- Land with adverse soils or rock formations.
- Topography that is susceptible to severe erosion.
- An area which would be unreasonably costly to remedy avoidable problems

Technology

In the last couple decades, there have been several approaches to enhance the performance of septic systems. These advancements have the ability to counteract any of the problems that are listed above. The development of these low-cost collection systems has enabled an affordable approach to help overcome site limitations in cluster developments.

- Standard septic systems allow particulates to settle before allowing gravity to cleanse the effluent through the soil-infiltration structure. (Fig.1)
- Aerobic Treatment Units (ATU) are the oldest of alternative pretreatment methods.
- Intermittent media filters use sand, glass, peat, or pea gravel to clean effluent.
- Recirculating media filters clean the effluent up to 6 times before dispersal. (Fig. 2)

Maintenance

Proper maintenance and operation of onsite systems can be simple and inexpensive, and can greatly reduce the risk of system failure. These procedures entail not overloading or poisoning a system, and by regularly alternating leach fields where applicable. Older systems can mean at least four standard operations and maintenance visits annually and have to be pumped at least every nine months. Newer systems can cut these visits in half or even a quarter with the recirculation systems.

The U.S. EPA recommends, but does not require, implementation of the following active management programs on controlling septic-system performance, as stated in *Voluntary National Guidelines for Management of On-site and Clustered Wastewater Systems (2003)*. Each of these programs would slightly increase the costs to the homeowners.

- Promote household awareness with inventory and maintenance reminders.
- Management through maintenance contracts.
- Management through operating permits.
- Responsible management of operation and maintenance.

Regulations - Comm 83, Wis. Adm. Code

All Private Onsite Wastewater Treatment Systems (POWTS) must comply with management and maintenance requirements found in Comm 83, Wis. Adm. Code. Any development with a POWTS that is installed or modified after 7/1/00 will be subject to the following regulations:

- In all POWTS, the owner is responsible to ensure maintenance completion.
- POWTS must have a management plan approved by Comm 83, Wis. Adm. Code.
- The owner must have a maintenance or service contract with a registered POWTS maintainer if the management plan requires maintenance, monitoring or evaluation at an interval of 12 months or less.
- The owner must have a maintenance or service contract with a certified septic servicing operator if the management plan involves servicing (i.e. pumping) any component at an interval of 12 months or less.
- Requires that prior to state sanitary permit issuance evidence of the requirement for maintenance, service, evaluation, or monitoring of a POWTS be recorded on the deed if the management plan specifies such activities occur at an interval of 12 months or less.
- Service, maintenance, and inspection of POWTS are provided by appropriately licensed, certified or registered persons.

Financial Aspects

Decentralized systems are favorable over centralized in a smaller community if they are properly developed and maintained. Centralized systems typically have the highest initial infrastructure cost with the need for manholes, lift stations, and burial of the large pipes. Since they are much smaller and close in proximity to the users, there will also be a drop in distribution costs vs. centralized systems.

The following are average costs for various septic systems. These prices are not set in stone, as various factors can affect the cost of different systems. A standard gravity based system for a single family home ranges from \$1,800 to \$4,000. Newer pressure based systems can go for \$3,500 to \$5,000. Standard mound systems can begin at \$5,000 and go up to \$13,000 if it also has the intermittent sand filters and recirculation tanks. One other cost that needs to be taken into consideration is the cost of the permit, which ranges from \$100-1,000 depending on the density of the area.

Funding

The *Wisconsin Fund Grants* is a program that provides grants to homeowners and small commercial businesses to help offset a portion of the cost for the repair, rehabilitation, or replacement of existing failing treatment systems. Funds are available annually in 66 of Wisconsin's 72 counties.

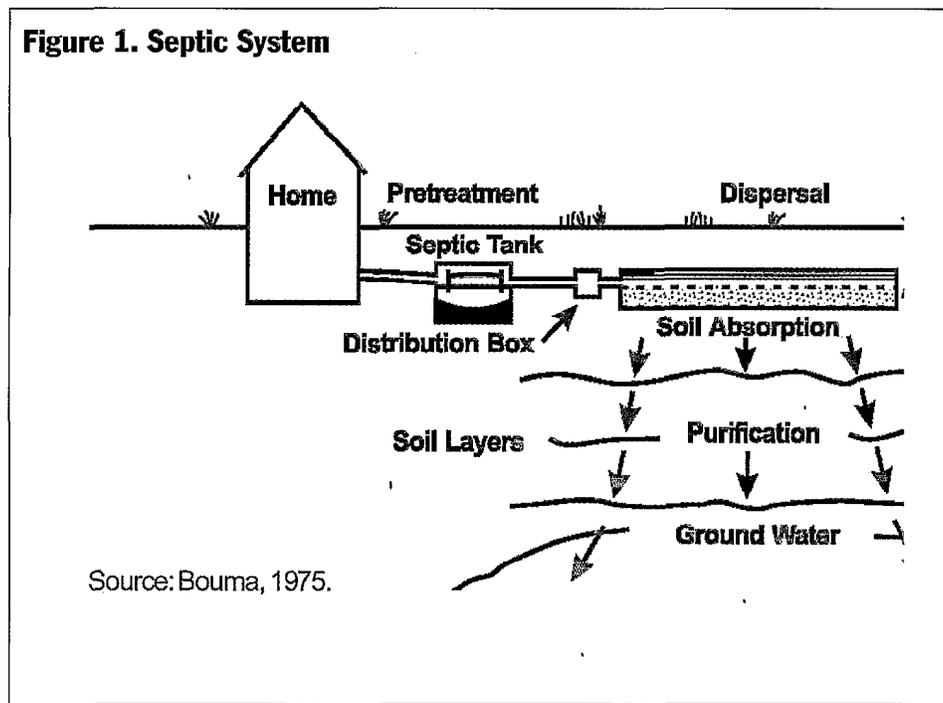


Figure 2. Recirculating Media Filter

