



## **Choosing a Private Sewage Disposal System**



When connecting to a municipal sewer is not an option, a private sewage disposal system must be used. While other types of systems can be used, the systems described in this flyer are the areas most popular and affordable. Before deciding which system will best serve your needs, some important factors should be considered:

1. Soil suitability
2. Topography
3. Lot size
4. Existing structures: wells, water lines, property lines, etc.

Careful planning will help ensure you choose the correct sewage disposal system for your property. A properly functioning system helps prevent disease and protect the environment.

### **SUBSURFACE SEEPAGE SYSTEM**

Often called lateral lines, fields or trenches, these systems depend upon the site's soil absorption properties. Subsurface systems can only be installed in soils which drain well and are not affected by a seasonal high water table. Three different construction materials may be used for a subsurface seepage system: gravel, gravelless pipe, and chamber. Two different construction techniques may be used: trenches or beds. A soil evaluation must be performed by a certified professional to determine the minimum square footage required. If the evaluation determines soil conditions are not adequate, an alternative system must be used.

### **BURIED SAND FILTER**

A buried sand filter is composed of alternate layers of rock, pea gravel, and filter media sand. These layers biologically and physically filter the liquid after it exits septic tank. The filtered liquid can then be discharged to a suitable site. If the discharge leaves the property, a chlorination system is required. Also, if the discharge leaves the property, an EPA NPDES permit may be required.

### **WASTE STABILIZATION POND**

This system uses a pond to treat the liquid after it is discharged from a septic tank. These systems can be an alternative to subsurface systems where poor soils exist. After treatment, the liquid is discharged from the pond.

### **AERATION UNIT**

Aerobic treatment units differ from traditional system in that they use oxygen to break down sewage. Oxygen allows for the growth of aerobic bacteria. Aerobic bacteria are capable of decomposing sewage at a much faster rate than anaerobic bacteria. Aeration units typically use a three stage process. First a settling stage, then an aeration stage, and finally a clarifying stage. After the final stage the liquid is discharged. If the discharge leaves the property, a chlorination system is required. Also, if the discharge leaves the property, an EPA NPDES permit may be required.

## ADVANTAGES AND DISADVANTAGES OF THESE SYSTEMS

### SUBSURFACE SEEPAGE SYSTEM

#### **Advantages**

- ▶ Usually lower installation cost
- ▶ Low maintenance, pump septic tank every three to five years
- ▶ No surface discharge

#### **Disadvantages**

- ▶ Requires suitable soils, low permeability requires larger fields
  - high clay soils are unsuitable
  - shallow bedrock is unsuitable
  - high or seasonable high water tables are unsuitable
- ▶ Cannot have deep rooted plants or construction over the filter

### BURIED SAND FILTER

#### **Advantages**

- ▶ Usually the first choice of alternative systems if property has sufficient slope for gravity discharge
- ▶ Low maintenance, pump septic tank every 3 to 5 years
- ▶ Does not depend upon soil to absorb septic tank effluent

#### **Disadvantages**

- ▶ Usually higher installation cost
- ▶ Requires a lift station if cannot gravity drain
- ▶ If installed in a high water table, must be fully lined
- ▶ Cannot have deep rooted plants or construction over the filter

### WASTE STABILIZATION POND

#### **Advantages**

- ▶ Inexpensive system to install
- ▶ Low maintenance, pump septic tank every 3-5 years, mow banks of pond

#### **Disadvantages**

- ▶ Large area for required for construction
- ▶ Creates an attractive nuisance for children and pets, should be fenced

### AEROBIC TREATMENT UNIT

#### **Advantages**

- ▶ Small installation area
- ▶ Not affected by seasonably high water tables
- ▶ Discharge 20 to 40 inches below grade
- ▶ Good alternative for low permeability soils

#### **Disadvantages**

- ▶ Can have higher installation cost than seepage system
- ▶ Higher maintenance, system should be serviced every six months
- ▶ Surface discharging systems may require an EPA NPDES permit

