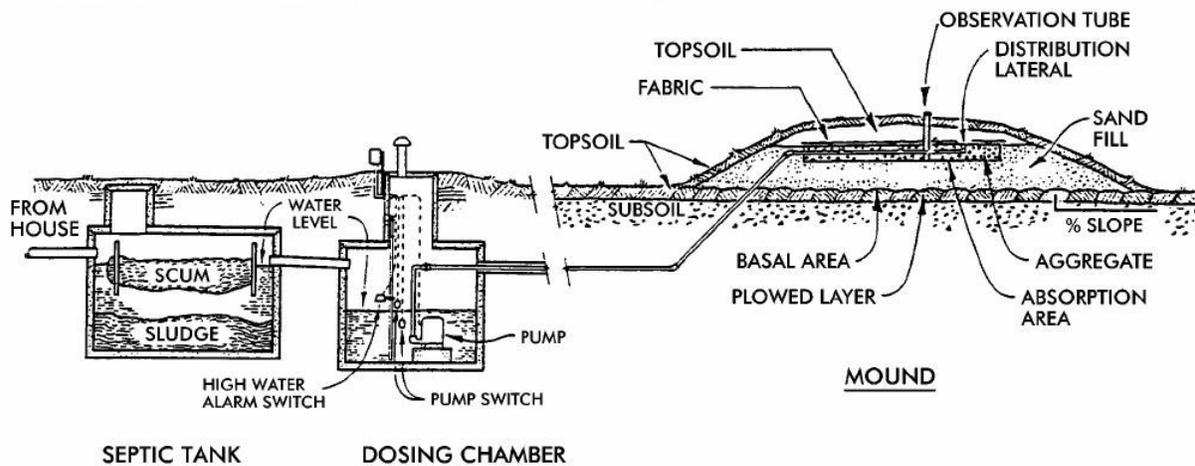


## System Type: Sand Mounds with Pressure Distribution

**Basic Design:** A septic tank and sand mound system is a technology used for treating and disposing of wastewater in areas unsuitable for conventional septic tank soil absorption systems. Mounds are pressure-dosed sand filters placed above, and discharging directly to, the natural soil. Their main purpose is to provide additional treatment to the wastewater before it enters the natural environment. Treatment occurs through physical, biological, and chemical means as the wastewater filters down through the sand and the natural soil. Mound systems are designed to overcome site restrictions such as slow or fast permeability of soils, shallow soil over bedrock, and a perched seasonal water table through elevation of the system with sand. The three components of a mound system are a septic tank or pretreatment unit(s), dosing chamber, and the elevated mound. See figure below for an illustration. Some mound systems are designed with a pretreatment unit(s) to reduce waste strength and/or to reduce the mound sizing (see Pretreatment to soil absorption page). The dosing chamber follows the septic tank or pretreatment component and contains a pump, which uses pressure to evenly distribute the wastewater over the infiltration surface of the mound. The mound is constructed with a soil cover that can support vegetation, and a fabric covered coarse gravel aggregate or gravelles product in which a network of small diameter perforated pipe is placed. The network of perforated pipe is designed to distribute the effluent evenly through the gravel from where it trickles down to the sand media and hence, into the plowed basal area (natural soil).



Source: ASAE, Converse and Tyler, 1998b.

**Advantages:** Mound systems enable the use of some sites that would otherwise be unsuitable for in-ground or at-grade onsite systems due to seasonal perched water or other site limitations. The natural soil utilized in a mound system is the upper most horizon, which is typically the most permeable. A mound system does not have a direct discharge to the ground, streams, or other bodies of water; and construction damage is minimized since there is little excavation required in the mound area.

**Disadvantages:** Cost is somewhat higher a conventional systems due to specialized construction, materials and transportation costs, and possible engineering design fees; since there is usually limited usable soil available at mound system sites, extreme care must be taken not to damage this layer with construction equipment; the size and shape of mound systems, and their elevation above the natural grade may present some concerns related to grading, landscaping and aesthetics for the site. The mound may have to be partially rebuilt if seepage or leakage occurs; all systems require pumps or siphons.

**Operation and Maintenance:** Suggested annual inspection of mechanical components and flushing of distribution pipe to remove bio-slimes/build-up at a cost of \$150-\$300 annually. Regular pumping of the septic tank (every 2-5 yrs) at a cost of \$50-\$100 annually.