



MARYLAND DEPARTMENT OF THE ENVIRONMENT

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BAT CLASS IV:

SAND MOUNDS

A sand mound system is an on-site sewage disposal system that is elevated above the natural soil surface in a suitable sand fill material. A gravel-filled bed is constructed in the sand fill, and the effluent is pumped into the absorption area through a pressure distribution network. Pretreatment of sewage occurs in an advanced pretreatment unit, and additional treatment occurs as the effluent moves downward through the sand fill and into the underlying natural soil. The purpose of the design is to overcome site limitations that prohibit the use of conventional subsurface on-site sewage disposal systems. The use of sand mound systems has become a general practice in certain site conditions in Maryland for over twenty years.

Basic Sand Mound Design and Construction is covered through Code of Maryland Regulation 26.04.02.05. All practices and criteria listed in this regulation and the requirements listed below must be applied when installing a sand mound as a BAT. All installation contractors of sand mounds must be certified by the Department. The MDE Design and Construction Manual for Sand Mound Systems, June 2003 or the latest version published is to be utilized for latest and best installation practices for sand mound systems in addition to any supplemental installation guidance and policy issued by MDE

➤ **Criteria for BAT Class IV sand mound approval:**

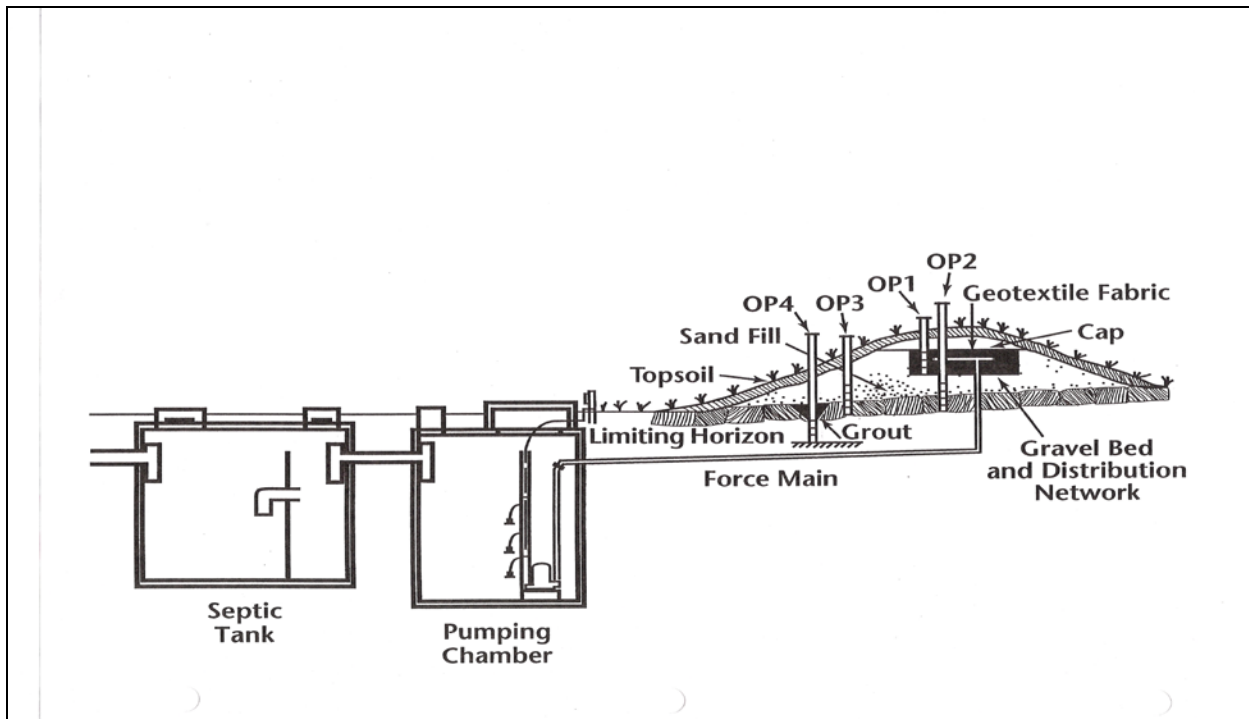
- The sand mound must be installed over a natural surface A or B soil horizon.
- No BAT credit is given to sand mounds installed over soils with a sand or loamy sand texture within 12 inches of the ground surface. Approving Authorities must field verify with a soil description subject to MDE review that the proper soil textures are present.
- Sufficient unsaturated soil must exist below the mound to allow for movement of the applied wastewater from the site without surfacing.
- Mounds may NOT be covered with clay loam, silty clay loam, or clay soils because they retard the diffusion of oxygen to the sand layer.
- Landscape position is also a necessary consideration. Systems should not be sited within a closed depression, or where water tends to pond during heavy rainfall events. Refer to MDE's Site Evaluation Manual for additional details on proper landscape position
- Observation pipes must be properly installed within the mound at designated locations, at minimum 3 observation ports are required: see illustration, Op1, Op2 and Op3 are required.
- Small, frequent, timed doses of effluent must be dosed to the sand media through a pressurized distribution system with a spacing that provides no more than 10 sf per orifice. Pump chambers, floats and panels shall be set up properly for timed dosing.
- An event counter and an elapsed time meter are required in the control panel.
- The linear loading rate may not exceed 5 gpd/lf on sites with limiting horizons.
- The system shall be equipped to allow system flushing as needed for maintenance.
- Co review and approval with MDE's Regional Consultant is required for Innovative Sand Mound sites.

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Annual Inspection Checklist

- Inspect the pump chamber for proper function. Confirm that the dosing volume, and dosing frequency comply with the original design parameters. Confirm that the volume of effluent dosed per unit of time conforms to the system design and existing and the start up pressure head conditions.
- Check the pump chamber for solids carryover and remove the solids if needed.
- Verify the dosing volumes and flush the laterals if volume pumped per unit of time decreases or pressure head is substantially increased over start up conditions and reset the pressure head if needed.
- Examine all 3 observation ports and check for ponding and leakage from the system.
- Conduct maintenance in accordance with the manufacturer's or designer's requirements of the treatment unit prior to dispersal field. More frequent visits might be necessary to maintain proper function.
- Conduct other generic operation and maintenance procedures
 - Measure sludge / scum levels in septic tank (trash tank?)
 - Pump septic tank as needed?
 - Clean effluent filter / screen
 - Walk dispersal fields and inspect for leakage or runoff.
 - Etc.



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