Sand Filters

Performance

Well designed sand filters are able to achieve reductions in nutrients as follows:

Nitrogen Reductions of 40 to 70%

Biological Oxygen Demand Reductions of <5 to 10 mg/L

Suspended Solids Reductions of <5 mg/L

Phosphorus Reductions around 30%

Advantages

Average household would require around 20 m^2 for a sand filter.

Treats wastewater to a high degree.

Suits households where, because of soil conditions, other systems are not appropriate

Disadvantages

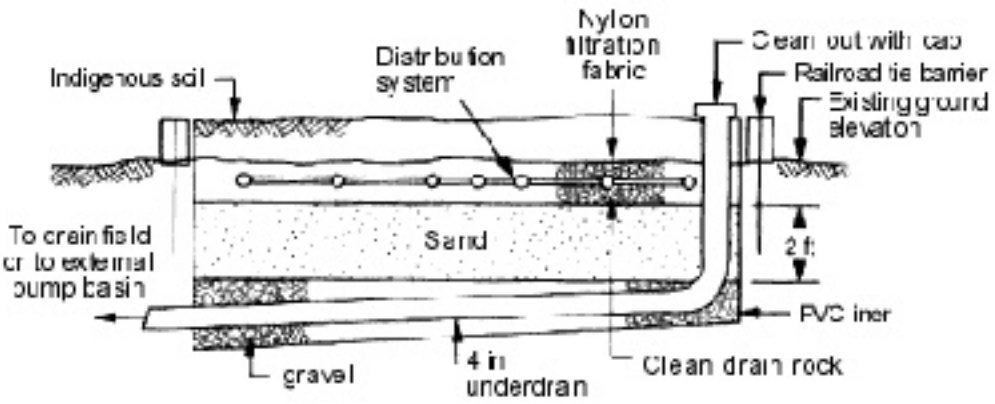
Still requires land application of the treated wastewater, so may not suit a household with limited land.

The bed may need to be raked yearly.

Requires a pump, and this together with the distribution pipes, may make this a more costly alternative than other on-site systems.

Sand filters are used when a higher amount of treatment is required such as the removal of some nutrients, before applying wastewater to the land.

There are two types of sand filters: recirculating and intermittent.



reproduced from Wastewater Engineering: treatment, disposal and reuse, Metcalf and Eddy, 3rd Edition, 1991, McGraw-Hill

Wastewater flows over a bed of sand for treatment and is then collected by a system of pipes underneath.

If the wastewater passes through the sand filter more than once, it is a recirculating sand filter.

Sand filters are generally buried, but they can be open to air.

A sand filter is designed to treat the wastewater by passing the effluent through the sand. A biological growth forms on the sand particles, and this treats the wastewater. After treatment by the sand filter, the water is applied to land for further treatment.