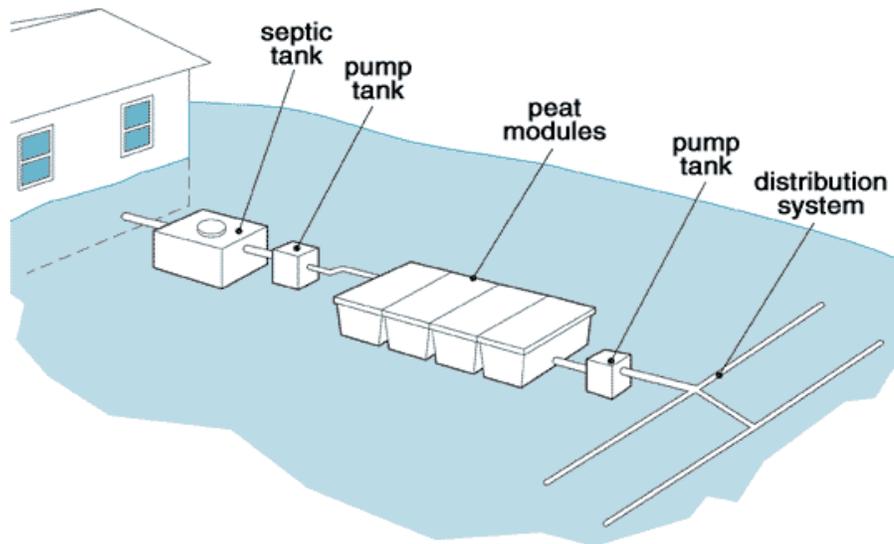


## **System Type: Peat Biofilter with Soil Absorption**

**Basic Design:** A peat filter produces secondary-level treatment of septic tank effluent by filtering it through a layer of sphagnum peat before sending it to the soil absorption system. Peat is partially decomposed organic material with a high water-holding capacity, large surface area, and chemical properties that make it effective in treating wastewater. Unsterilized peat is also home to a number of different microorganisms, including bacteria, fungi, and tiny plants. All of these characteristics make peat a reactive and effective filter. The peat is contained in modules placed above ground or at ground level. Wastewater flows into a septic tank where the large solids settle out. The liquid effluent either gravity flows, or in some models, is pumped in doses to the peat filter where it is pretreated and delivered to the soil absorption system for final treatment. Depending on the installed depth of the peat filter, a dose pump may be required to lift effluent to the soil absorption system. With a gravity distribution to the filter, wastewater may pond on top of the peat compressing it, reducing the flow of wastewater through the filter. With a pressure distribution system, wastewater is applied evenly over the peat surface, allowing rapid infiltration. Due to the high level of pretreatment, the size of the soil absorption trench can be reduced by 25 to 30%, thus reducing system costs. The reduction of fecal coliform can also allow for less thickness of soil necessary for treatment, and one or two foot soil depth credits (reduction of soil thickness needed by 1-2 feet) can be used to help overcome site limitations such as bedrock or seasonal high water table.



**Advantages:** Peat's high cation exchange capacity means the peat can effectively hold positively charged molecules including ammonium, metals, pesticides, some organic molecules, and possibly viruses. As a filter medium peat is effective in situations where loadings are seasonal or intermittent. The treatment capacity can be expanded through modular design.

**Disadvantages:** Peat filters require more maintenance than conventional septic to soil absorption trenches. Treatment media has a limited useful life of 10-15 years and has to be replaced with new media depending on the use.

**Operation and Maintenance:** A maintenance contract is recommended; the system may require quarterly to yearly maintenance. Maintenance includes inspecting all components and cleaning and repairing when needed. The peat module(s) are low-maintenance and require no annual pumping or backwashing. They should be raked annually to break up any biomat that may be forming and to level the media. Because of the high organic content of peat, the filter media must be periodically replaced. Life expectancy of the peat media in a filter is estimated to be ten to fifteen years. Daily running costs for a peat filter are based on the operation of a small submersible pump, and average less than one dollar per month for an individual home (2002). Overall operational costs of \$200-\$500 per year include pumping, repairs, maintenance, and electricity.