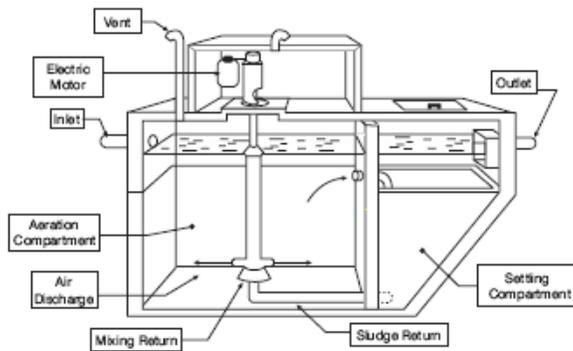
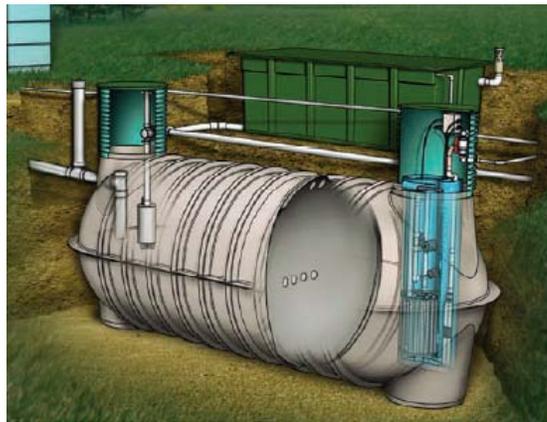


Pretreatment to Soil Absorption Trenches

Basic Design: This system design includes a mechanical pretreatment device that reduces the suspended solids, organic material and bacteria in the effluent. Pretreatment devices consist of a special septic tank that is divided into two or more sections to provide for settling of solids and effluent treatment. These devices use different biological processes to treat sewage including continuous flow, suspended growth aerobic systems (most common), fixed media processing and optional recirculation, and sequencing batch reactors. Aerobic conditions are required for treatment, subsequently most systems add oxygen to the treatment process. These systems can substantially reduce the total suspended solids (TSS), organic matter (BOD), fecal coliform (and other pathogenic bacteria). Some systems use recirculation of effluent to reduce ammonia and nitrogen in the effluent. The treated effluent is discharged to a soil absorption trench. 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 significant 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.



Typical aerobic treatment unit



Fixed film pretreatment unit

Advantages: A variety of pretreatment units are available across the state with varying costs, performance levels and operation and maintenance requirements. Pretreatment devices help overcome site limitations like high seasonal water table by providing higher levels of treatment to allow for less useable soil thickness on the lot. They also ensure adequate treatment when the system is located near or could impact sensitive water environments. These devices also allow for a smaller area for the soil absorption trenches reducing costs.

Disadvantages: Pretreatment units are mechanical devices that require regular maintenance by a qualified service provider.

Operation and Maintenance. Annual maintenance costs can range from \$100 to \$250 per year. Maintenance requirements will vary by system. Some systems offer or require remote telemetry to monitor system operations.