

Onsite System Types

There are a multitude of wastewater treatment systems out on the market today. For residential onsite wastewater treatment, the Deschutes County Environmental Health Division currently permits the following types of systems: standard, capping fill, pressure distribution, sand filter, and DEQ approved Alternative Treatment Technologies (ATTs).

A septic tank or comparable is the first component in all of these types of systems. It provides primary treatment to the wastewater: as wastewater flows into the tank, the heavier solid material settles to the bottom (forming a sludge layer) and the lighter materials float to the top (forming a scum layer). The size of the septic tank depends on the daily flow, there must be at least 2 days of retention time to allow for the separation of the materials. In a properly functioning tank, a clear zone is formed in the middle of the tank, where the effluent is then drawn for distribution to the secondary treatment media (ex. the drainfield, sand filter, or ATT).

Distribution to the secondary treatment technology or media takes place either with a pump system (mandatory for pressure distribution, sand filters, and some ATTs) or gravity. In gravity distribution the sanitary tee on the outlet of the septic tank draws from the clear zone and distributes via a distribution box to trenches cut in the native soil (the secondary treatment media). Pumped systems require either a designated tank or compartment from which to pump the clarified effluent to the sand filter or pressure distribution laterals.

All the systems except sand filters and ATTs use native soil as the secondary treatment media. Both sand filters and ATTs use native soils for final effluent polishing and dispersal. As the effluent enters and flows through the soil environment, the soil acts as a physical and chemical filter to remove much of the pollutants in wastewater. With the introduction of a food source (sewage effluent) a biological zone is formed, which in the presence of oxygen, most pathogens and some chemicals contaminants are consumed and/or converted. Sewage effluent filtered through a sand filter receives treatment in the same way. ATTs commonly provide this treatment through mechanical methods of introducing air to the wastewater during treatment. ATTs may include additional treatment processes to provide higher levels of treatment than conventional systems.