



CITY OF COLUMBIA/BOONE COUNTY, MISSOURI



DEPARTMENT OF PUBLIC HEALTH AND HUMAN SERVICES
DIVISION OF ENVIRONMENTAL HEALTH

1005 W. Worley Street, Columbia, MO 65203
573-874-7346

Septic System Requirements

SOILS EVALUATION REQUIRED

- A permit is required when replacing a septic tank or a lateral field. It is not required when repairing an existing line.
- Permits for a new septic system associated with a building permit must be taken out at Resource Management, Boone County Government Center. The cost is \$440.00. The permit may be taken out by the homeowner or contractor.
- Permits for a new septic system not associated with a building permit may be taken out at the Health Department, 1005 W. Worley Street. The cost is \$440.00.
- A soils evaluation is required to install a septic system. This must be done by a certified soil scientist. A list is available at the Health Department. The soils evaluation is required before a site evaluation can be done. Percolation tests are not accepted.

Site Evaluation

At the site evaluation, the inspector will look at the site conditions, topography, slope, location of buildings, and the soils evaluation to determine if a standard absorption system will function at the site. The size will be based on the number of bedrooms and the loading rate given by the soils scientist. The installer must see the permit to get this information, as it will be required at the inspection.

Construction Inspection

All parts of the system must be exposed for inspection. Installers must call the Health Department 4 hours in advance to arrange for inspection. ONLY certified installers may install septic systems. A list is available at the Health Department.

Tank Size

1, 2 or 3 bedrooms	=	1,000 gallons
4 bedrooms	=	1,250 gallons
5 or 6 bedrooms	=	1,500 gallons

Setbacks

- 10 feet from any property line
- 50 feet from any stream, lake or pond
- 5 feet from building foundation (tank)
- 15 feet from building foundation (disposal area)
- 15 feet from any basement (tank)
- 25 feet from any basement (disposal area)
- 10 feet from any water line under pressure
- 50 feet from any individual water well (tank)
- 100 feet from any individual water supply well (disposal area)
- 300 feet from any public water supply well (tank or disposal area)
- 20 feet from other soil absorption system
- 25 feet from any cistern (disposal area)
- 25 feet from any roadway ditch
- 100 feet from any spring (disposal area)
- 15 feet from any swimming pool
- 10 feet from any uninhabited building

Drainage lines should have a minimum slope of 1/8 inch per foot.

Absorption field lines must be level.

Tank Requirements

- The tank must be set level on a firm foundation.
- The tank must be watertight and designed to withstand lateral earth pressure and a minimum of two feet of saturated earth cover above the tank top
- No metal tanks may be used.
- The tank must have sanitary tees or baffles to facilitate in the separation of the sewage into scum, liquid and solids and to withdraw only liquid from the tank
- The tank may be made of concrete, fiberglass or plastic as approved.
- The tank must have at least one manhole riser and a six-inch inspection port to the surface over the inlet and outlet sanitary tee. All connections must be watertight.
- A filter is required when preceding a lateral field.
- The tank must meet all setback requirements.
- The tank must be placed so that it is accessible for removal of solids.

Sewer Line Requirements

The sewer line from the house to the tank must be a minimum of SDR 35 with a cleanout located between the house and the tank. The lines must have a minimum slope of one eighth inch per foot to the tank and to the trenches. The line into and out of the tank must be schedule 40 for at least ten feet in and out.

Trenches

Maximum trench length is one hundred feet for a gravity system. All trenches must be laid level. A transit or laser level must be used to determine the elevations. Trenches must be laid on the contour.

Acceptable trenches include gravelless pipe, chambers, or gavel pipe systems. Gravelless pipe must be laid with the line on the pipe pointing up in the trench. This will leave the exit holes in the pipe at four and eight o'clock. The tubing must be encased in its protective wrap until time of installation. The filter wrap must enclose the pipe in the trench. Rock/pipe laterals must be laid using one and one-half to three inch clean rock, four inch around pipe and two inch above the pipes. It should then be covered with landscape fabric to prevent soil infiltration. Gravelless methods are strongly recommended due to the poor quality of gravel in our area and the reduction in compaction with gravelless methods.

Care must be taken to avoid unnecessary traffic and compaction of the lateral field area.

Trenches may not be constructed in all unstabilized fill. The maximum trench depth is twenty-four inches. The trenches must be excavated when the soil is dry to prevent smearing of the soil. The trenches must be located three times the trench width or five feet minimum apart on centers. The laterals must be installed in the area that the soils evaluation was taken. The ends of the laterals must be capped or connected if the elevations are level.

Distribution

Even distribution to all laterals is key to operation of laterals. This can be done by means of a flow splitter, self leveling distribution box or pumping the effluent to a distribution box. These devices must be set levelly on a firm foundation and be watertight.

Pumps

ways to pump:

- two-compartment septic tank
- filtered pump vault in septic tank
- pump tank set after septic tank

types of pumps:

- effluent pump: Pumps liquid and small solids only. High flow, low head. Ideal for use when pumping to gravity distribution.
- sewage pump: Pumps up to two inch solids. Some used in septic systems.
- turbine pump: Pumps liquids only. Liquids must be filtered, pumps low volumes at high heads. Ideal for use in systems that require frequent dosing such as sand filters or textile filters.

Pumps come in many sizes. A pump dealer can size the pump based on the desired operating pressure, the estimated friction losses, elevation differences and application. Dosing will be required when the length of lateral is greater than five hundred linear feet.

Curtain Drain

A curtain drain may be required when there is evidence of a perched water table. The curtain drain will help lower the perched water table by draining the water moving laterally through the soil away from the lateral area.

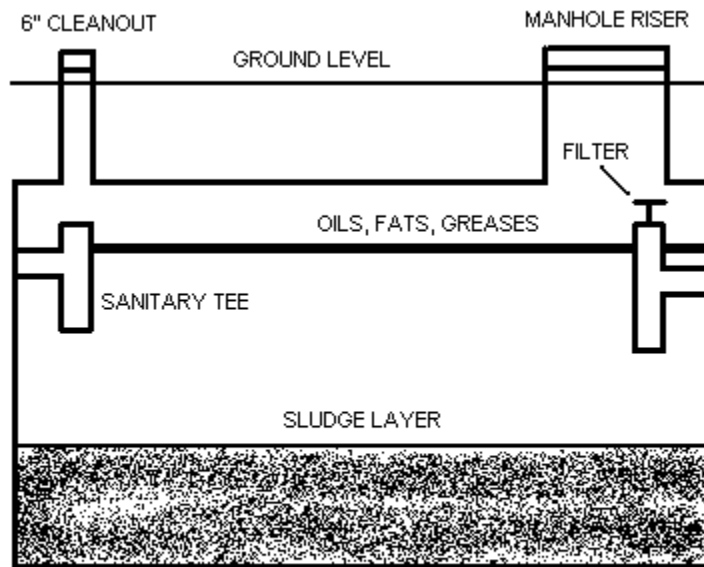
The curtain drain is required to be one foot deeper than the lateral, within ten feet of the top line and extend at least ten feet past the laterals to daylight at least on one end. The trench should have a four inch perforated pipe and be filled to the surface with rock or geotextile plastic.

Maintenance

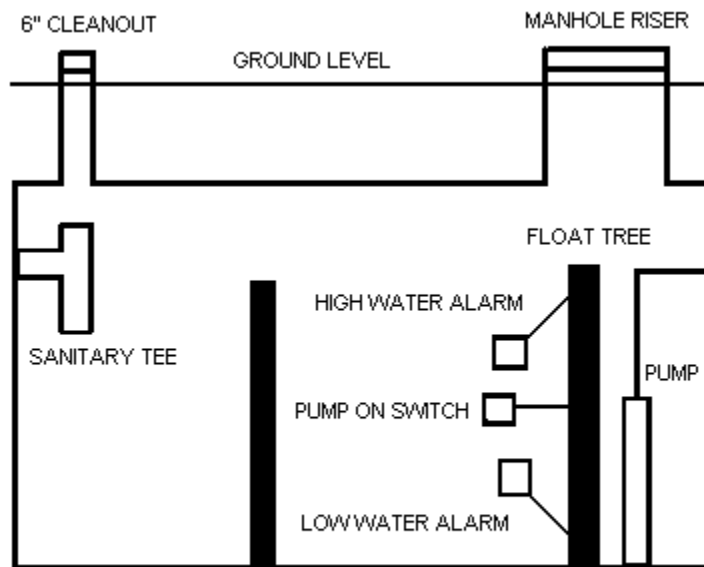
Care should be taken to divert all surface water, gutters and foundation drains from the lateral field to avoid unnecessary overloading of the system.

The tank must be pumped every three to five years. The filter must be cleaned every four to six months.

CROSS SECTION OF SEPTIC TANK



CROSS-SECTION OF SEPTIC TANK WITH PUMP



CURTAIN DRAIN

