

SSB-7

2020

Test Pits and Percolation Tests for Subsurface Sewage Disposal Systems

Two Early Steps

The design and construction of a subsurface sewage disposal (septic) system involves several key steps including; (1) digging test pits and (2) conducting percolation (perc) tests.

Why are Test Pits and Perc Tests Required?

Septic system leach fields must be designed and constructed in locations with suitable soils. An adequate location with proper drainage and with sufficient distance from the underlying water table, is necessary to ensure that the leach field will operate both properly and in an environmentally sound manner. Test pits are holes that must be excavated into the soil within the area of a septic system's proposed leach bed. These pits are necessary to determine the level of the seasonal high water table and/or the depth of impermeable substratum. Percolation tests are necessary to determine the soil's ability to leach liquid at an adequate rate.

How must test pits be dug and evaluated? (Env-Wq 1006)

Test pits are to be dug to a depth that allows the inspection of soil and all soil layers (horizons) 4 feet below the bottom of the proposed bed. The pit must be dug at most 20 feet from the edge of the proposed bed. A description of the predominant soil layers, including color notations based on the Munsell Soil Color Book, shall be recorded for each test pit dug. In addition, the following depths shall be reported for a complete evaluation of the pit: seasonal high water table, observed water table, and impermeable substratum.

How must Percolation Tests be conducted?

A percolation test requires a small test hole dug in the area of the proposed leach bed. The percolation test shall be conducted in the most restrictive permeable soil horizon above the seasonal high water table and below the A horizon, via the test pit inspection. The percolation test shall be located at least 5 feet from the test pit to ensure it is located in undisturbed soil. The hole shall be dug 4 to 12 inches in diameter to a depth of at least 14 inches and the smeared soil surfaces removed. Two inches of coarse sand or fine gravel must be placed in the bottom of the test hole to protect it from scouring.

After placing the sand or fine gravel in the percolation test hole, the hole must be slowly filled with clear water to a minimum depth of 12 inches over the sand or gravel. This water level should be maintained for at least two hours. In sandy soils containing little or no fines, the

soaking procedure is not necessary and the test may be performed after the water from two fillings has completely seeped away.

The next step in the percolation test is to adjust the water level to 6 inches over the sand or gravel. The drop in the water level should be measured from a fixed reference point, at approximately 10-minute intervals for one hour. The drop that occurs during the final 30-minute period of time shall be used to calculate the percolation rate. The rate of absorption is expressed in number of minutes required for water to drop one inch.

For Further Information

If you have any questions concerning septic systems, contact NHDES Subsurface at (603) 271-3501, or 29 Hazen Drive, PO Box 95, Concord, NH 03302-0095; Fax: (603) 271-6683.