

Department of Resource Management

Environmental Health Services Division

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SITE EVALUATION

For

ON-SITE SEWAGE DISPOSAL SYSTEMS

Before issuance of a permit to install an onsite sewage disposal system, it is necessary to determine where it should be placed, the kind of system required, and how it should be constructed. This information is obtained through site evaluation.

SITE EVALUATION:

A site evaluation is performed by a registered consultant. Registered consultants are Licensed Professional Engineers, Registered Environmental Health Specialists, Professional Geologists, Certifed Engineering Geologists, or Certified Professional Soil Scientists. Registered consultants are knowledgeable in soil identification and mechanics and how soil can impact a septic system.

The site evaluation is composed of two parts. The first is the on-site review. After this is completed, then soil evaluation can occur.

ON_SITE REVIEW:

During the on-site review the registered consultant walks the site to determine the best location to perform further testing. Locations of wells, property lines, drainages, excessive slopes and other surface features are identified.

Once a suitable area is found, then soil evaluation can occur.

SOIL EVALUATION:

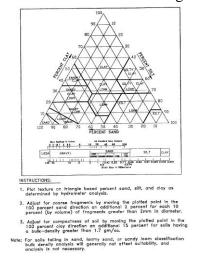
1. SOIL PROFILE:

To begin the soil evaluation the registered consultant observes the soil characteristics within the sidewall of a soil profile. A soil profile is an 8' deep pit usually dug by a backhoe. Evidence of groundwater (seasonal or permanent) is also reviewed. Hand augers may be allowed under special circumstances and with prior written approval from the Environmental Health Services Division.

The registered consultant will make a field determination as to the texture of the soil. Texture is the percentage of sand, silt, and clay in the soil. There are many different soil textures. Each texture falls within a specific location on the USDA Soil Textural Triangle depending upon the specific percentage of sand, silt and clay (see USDA Soil Textural Chart). The soil texture is an important factor in determining how well an on-site sewage disposal system will function in the soil. The field classification of the soil will determine the type of additional testing required.

Soils that are field classified as sandy loam, sandy clay loam, or loam only require a hydrometer test and in-place bulk density measurement to confirm the texture. A hydrometer test is a laboratory test that determines specifically the percentages of sand, silt and clay. Soils that are classified as sand, loamy sand, sandy clay, clay loam, silt loam, silty clay loam, silty clay, silt, and clay will require percolation testing.

USDA Soil Textural Triangle



2. GROUNDWATER DETERMINATION:

The highest anticipated level of groundwater is estimated by the highest extent of soil mottling to natural grade observed in the soil profile, or by direct observation of stabilized groundwater levels during wet weather conditions. Soil mottling is discoloration (gray and red or orange colors) observed in the soil that occur when the soil has been in a saturated condition for extended period of time. Wet weather conditions are defined as beginning on the occurrence of fifty percent of the annual normal rainfall or after 8" of rainfall in any 30 day period and ending on March 15. The wet weather testing period can be started earlier or extended later by the Environmental Health Services Division if a monitoring program establishes that the shallow groundwater tables are fully charged.

3. PERCOLATION TESTS:

A percolation test is a field procedure used to determine the rate at which the soil will accept water when the soil is fully hydrated and swollen. Percolation test holes are 4" to 12" wide and are dug to the most restrictive soil layer within the leaching layers below the bottom of the disposal trench. The depth of the leaching layer will range from two to five feet below the disposal field depending on the type of system proposed.

In order for percolation tests to yield accurate results it is necessary to assure that the soil is saturated and swollen. This is accomplished by adequately presoaking the percolation test holes for 24 to 48 hours prior to the test. The length of the presoak is determined by the soil type and time of year the test is performed. Soils classified as clay, silty clay, or sandy clay will require a 48 hour presoak unless the percolation test is performed during the wet weather period. All other soils must have at least a 24 hour presoak prior to the percolation test.

Once the presoaking is complete the percolation test may be performed by the registered consultant. To perform the test water within the percolation test hole is brought to a height of 6" above the coarse sand or pea gravel in the bottom of the hole. After thirty minutes the elevation of the water is measured and the drop in elevation is recorded. The water level is then brought back to 6" over the coarse sand or gravel. Readings are taken every thirty minutes for at least four hours.

If the percolation test hole will not hold water for thirty minutes, than the water is brought to 6" above the coarse sand or gravel in the bottom of the hole and readings are taken every ten minutes for at least two hours.

The percolation test is performed for the required minimum time period, or until the last three readings are within $\frac{1}{4}$ " of one another, whichever is longer.

USE OF THE DATA:

Once all the data is obtained the location and design of the on-site sewage disposal system can be determined. The registered consultant will use the data to determine the maximum depth the disposal field can be installed and the rate at which sewage can be applied to the soil. This is then used to calculate the size of the required disposal field based upon the projected maximum sewage flow from the project.