DO-IT-YOURSELF WATER QUALITY

OWTS DESIGN GUIDE

SOUND OWTS DESIGN THAT PROTECTS WATER QUALITY INCLUDES MANY FACTORS

Many considerations should be made when siting and designing an on-site wastewater treatment system (OWTS; commonly referred to as a "septic system"). It is required that a licensed professional engineer be used for OWTS design for all new development or upgrades to existing systems as well as contact the local building department to ensure that all state and local regulations are followed.

The design and location of an on-site wastewater treatment system is imperative for proper functioning of the system, the protection of water quality and the health of a community. The design process consists of several important aspects that when correctly administered will result in a treatment system that will ably perform for years if maintained. Here are the most important considerations:

The right location is necessary for an OWTS. Also, soil type influences what type of system will work best. A soil test pit is essential

Site Appraisal: During a site appraisal, conditions such as wetlands, steep slopes and separation requirements should be evaluated to determine the location for an OWTS. Slopes are important since OWTSs have maximum slope considerations for construction. Separation distances are maintained to "minimize risks" to public health and the environment. Typical separation distances from an absorption/septic field is 20 feet to a residence; 100 feet to a well (possible 200 feet is the well is located downgradient) and 100 feet to a stream, lake or wetland. However, the separation to surface waters may be greater depending on the percolation rate of the soils or the type of OWTS selected.

Soil Investigation: In a soil investigation, the licensed design professional should look for limiting layers and soil characteristics

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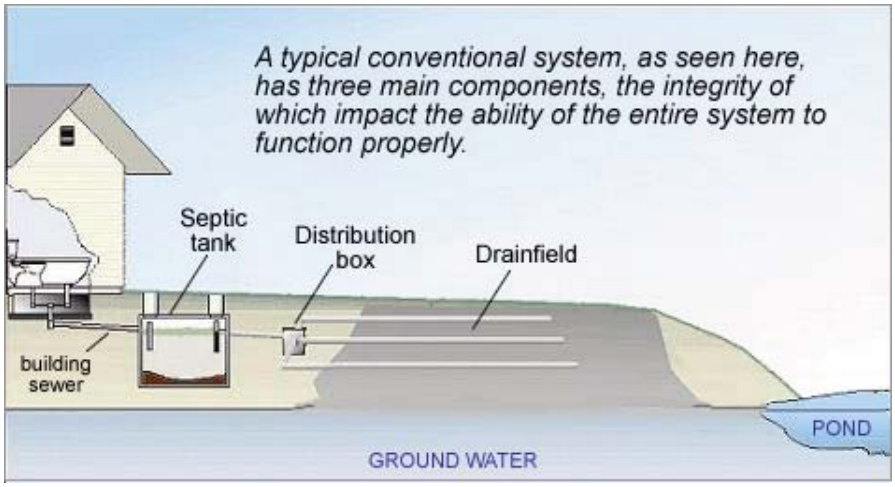
that restrict infiltration and a percolation rate that show how fast the soil will transmit water, which is measured in minutes per inch. Deep test pits should be performed first because this determines the depth of usable soil for the treatment area and will also determine if there are limiting layers, such as seasonal high groundwater. If the seasonal high groundwater is high, this limits the functioning of an OWTS. Deep test pits also assess the percolation test depth (in the event there are limiting layers less than four feet). Deep test pits are typically six feet deep and are within or immediately adjacent to the proposed leaching area. Seasonal high groundwater is indicated by the "depth to mottling," which is the visible (typically rust colored) "staining" in soils from the oxidation of residual iron as the groundwater table rises and falls during the year. There must be at least two feet of separation between the leaching system in an OWTS bottom and the limiting layer (this may be three feet depending on local sanitary codes). Percolation tests are performed in a presoaked 12" diameter hole dug to the depth of the proposed bottom of the leaching system. A minimum of two stabilized tests are required at the site of an OWTS. The percolation rate determines the size of the leaching system.



An OWTS should be sized according to the expected use.

Design flow: The design flow is necessary to determine the size of the leaching field and is primarily based on the number of bedrooms. Local sanitary codes can vary on the design wasteflow per bedroom from the NYSDOH regulations and should be consulted before design. In addition, additional factors should be considered that influence the daily wasteflow: garbage grinders (increase biological oxygen demand and are equivalent to an additional bedroom); spas and whirlpool baths (equivalent to an additional bedroom); and additional rooms that easily double as bedroom (expansion attics, basements, dens and recreation rooms). The OWTS should be built to a size appropriate for the expected use.

If an OWTS is well sited and well designed it can help to protect the water quality of Lake George. Once installed, it's important to maintain, and regularly pump, the system.