

Review Criteria for Establishing a Conventional Onsite Wastewater System

This document is intended to provide comprehensive guidance to homeowners, installers, and designers regarding the regulatory requirements for onsite wastewater systems. Onsite systems, or septic systems, are regulated in accordance with Utah State Rule, R317-4, "Onsite Wastewater Systems," and "Weber-Morgan Health Department Rules for Individual Wastewater Disposal Systems." Regulatory oversight of onsite systems in Weber and Morgan counties is provided by the Weber-Morgan Health Department.

Septic systems are not suitable for all areas and situations. When the health department receives a request to install a system, we are obligated to ensure that the proposed location and operation of the system will not create a nuisance, public health hazard, or endanger the quality of any waters of the State and will function in a sanitary manner. Consequently, the permit process for an onsite wastewater treatment system is detailed.

A number of criteria must be satisfied before the health department is able to issue a permit for a given property. The applicant must demonstrate that a property is a legal building lot (have a land serial number) and have an approved water source. The number of systems in a given area (density) is also considered before a permit is issued. The permit process is summarized below:

Feasibility. Data and property information are considered together to determine if a system can be placed on a property and what type system would be suitable.

- Soil and property characteristics. Health department personnel complete this after an application is processed and the applicant has prepared a soils pit. This is discussed in detail below, in section 1.
- Percolation Test. The percolation test is performed by an independent party, after the health department completes the soil and property characteristics. See section 1.
- Water table monitoring. Health department personnel perform monitoring, after an application has been processed and the applicant has installed monitoring wells. This is discussed in section 2.

Additional Requirements.

- Density. In some instances, the number of septic systems that can fit within an area is limited.
- Legal property. In the case where a subdivision is proposed, the feasibility of placing a system on a proposed lot must be demonstrated before Weber County can issue a land serial. Other requirements may exist.
- Approved water source. A permit will not be issued for properties that do not have an approved source of drinking water. If water will be obtained from a private well, the well must be in place and approved by the health department before a permit can be issued.

Generally, the permit process begins as an inquiry, rather than an application. The health department reviews available data and records for the property of interest, and then specifies which, if any, criteria must be satisfied before a permit can be issued. The feasibility criteria, permit process and final inspection are discussed in detail below.

1. SOIL EVALUATION & SITE ASSESSMENT

In many instances when a permit inquiry is made, there is insufficient soil and site data for the property of interest. In such instances, the health department will require an evaluation.

- 1.1 Complete, "Application for Wastewater Site and Soil Evaluation," and submit with applicable fees.

- 1.2 The applicant or their designee prepares soil exploration pit(s).
 - 1.2.1 Excavate each pit with a backhoe, to make a pit with vertical sidewalls. Place pits near (within 50 feet), but not within the proposed absorption system.
 - 1.2.2 The width of the pit must be sufficient to permit entry and visual inspection.
 - 1.2.3 The depth of the pit must be at least 10 feet and at least 4 feet below the bottom of proposed absorption system. Deeper pits are required if deep absorption systems, such as deep wall trenches are proposed.
 - 1.2.4 One end of each pit must be sloped gently to facilitate access.
- 1.3 Site Assessment: health department personnel visit the property to map the site's features and determine soil characteristics. The following information is obtained:
 - 1.3.1 Direction of north.
 - 1.3.2 Slopes.
 - 1.3.3 GPS location and numerical designation for each pit.
 - 1.3.4 Level of water table, if possible.
 - 1.3.5 Observable site limitations such as wells, streams, irrigation ditches, ponds, wetlands.
 - 1.3.6 Soil characteristics and horizons.
- 1.4 The health department will mail the following information to the applicant:
 - 1.4.1 A plat of all exploration pits.
 - 1.4.2 Soil characteristics.
 - 1.4.3 The required percolation depths and a list of qualified testers.
 - 1.4.4 Ground water table monitoring information, if applicable.
 - 1.4.5 Additional site specific information as needed.
 - 1.4.6 Non-suitability of site, if applicable.
- 1.5 The applicant arranges for percolation tests to be performed by a Level 1 Onsite System Professional, certified by Utah Department of Environmental Quality. Contact the health department for a listing of local professionals.

2. GROUND WATER TABLE MONITORING.

High ground water levels exist throughout Weber and Morgan counties. If there are indications that the water table will affect an on-site wastewater system, then monitoring will be required.

- 2.1 Complete "Application for Maximum Ground Water Table Monitoring," and submit with applicable fees.
- 2.2 The applicant or their designee installs monitoring wells. Augers are available to borrow from the health department.
- 2.3 The health department monitors the water table during the season of peak ground water flow. Generally, this is done January through May, but may extend into summer months for areas in which the ground water is influenced by flood irrigation.
- 2.4 The health department will notify the applicant if the water table rises to 24" inches or less from the natural grade, and again if it rises to 12 inches or less of natural grade.
- 2.5 If requirements for soil characteristics, water table, lot size, slope, system size and replacement area are satisfactory, a letter of feasibility is issued.

- 2.6 A letter of feasibility is valid for eighteen months. Letters may be renewed by the health department. However, because the rules for onsite systems are subject to change, renewal is conditional upon rule changes that affect the feasibility or site constraints of the subject property.

3. SYSTEM DESIGN.

Design should proceed after the suitability of the site is assured and system type and size have been designated (in the letter of feasibility). The following information is required for a conventional system:

- 3.1 Design plans prepared by, or under the supervision of, an individual certified by Utah Department of Environmental Quality, prepared in accordance with Utah Rule, R 317-4 and Weber-Morgan Health Department Rules for Individual Wastewater Disposal Systems. The designer will require the soils information, and the feasibility information. Design plans will contain the following details:
- 3.1.1 Scale, e.g. 1" = 8' or 16' but not to exceed 1" = 30'.
 - 3.1.2 Direction of north.
 - 3.1.3 Aerial view schematic of the property, indicating the spatial relation of all system components, dwelling, driveways & parking areas, out buildings, well with protection zones and/or culinary water lines etc... Location of clean-outs (at least every 100 feet and at changes in direction and grade), site limitations (such as slopes, wells, streams, ponds, easements...).
 - 3.1.4 Dimensions of all system components: trench width, wall-to-wall distances between trenches, the length, slope and spacing of each sewer line and each distribution lateral.
 - 3.1.5 Cross section of the absorption trench, showing natural grade, the relative elevations (from natural grade) of the trench, filter aggregate, distribution pipe, permeable barrier and backfill. If absorption chambers (e.g. bio-diffusers, infiltrators...) are used, specify the details within the plans.
 - 3.1.6 All applicable separation distances (minimum separation distances are provided in R317-4, table 2).
 - 3.1.7 Details of drop boxes and distribution boxes that will be used: placement, positioning of inlets & outlets, relative elevations of inlets & outlets, materials and manufacturer.
 - 3.1.8 Septic tank location, material, manufacturer and capacity.
 - 3.1.9 A floor plan to indicate the maximum number of bedrooms, including unfinished basement.
 - 3.1.10 Distance of distribution pipes from trees, cut banks, replacement trenches and landscaping details.
 - 3.1.11 Side profile of the complete system, showing the slope, depth and width of the system, excavation, depth of distribution pipe, filter aggregate, barrier material and backfill.
 - 3.1.12 Location of easements or drainage right-of-ways affecting the property.
 - 3.1.13 Location of all streams, ditches, watercourses, ponds, subsurface drains... whether intermittent or year-round, within 100 feet of the proposed system and property line.
 - 3.1.14 Type and size of filter aggregate (gravel) to be used. Material must be clean, free from fines (as specified in the rule, R317-4, table 8) and be sized between 3/4 inch and 2 1/2 inches. "Inch-minus" gravel is not acceptable, because of the high percentage of fines.
 - 3.1.15 Distance of the absorption field from the dwelling's foundation, see R317-4, table 2.
 - 3.1.16 On a sloped surface, there shall be ten feet of horizontal, undisturbed earth from the bottom of the distribution pipe within the absorption field, to the downslope ground surface (10-feet to daylight).
 - 3.1.17 Type and depth of filter aggregate barrier. The barrier must be a pervious material such as a synthetic filter fabric, unbacked fiberglass building insulation, or a two-inch layer of compacted straw.

- 3.1.18 Building plans to include:
 - i. Floor plan for dwelling indicating the maximum number of bedrooms (this includes potential and unfinished bedrooms).
 - ii. Out-buildings.
 - iii. Driveways and parking areas.
- 3.1.19 Ground surface contours preferably in two-foot intervals, of the original and final grade of the property.
- 3.1.20 Location of complete absorption field replacement area.

4. WASTEWATER PERMIT APPLICATION.

Complete, "Application for an On-Site Wastewater Disposal System," and submit the following information:

- 4.1 The name, current mailing address and telephone number of the individual(s) who will own the proposed system.
- 4.2 Legal description of property, address, lot size and dimensions.
- 4.3 Source of culinary water supply. An approved source of water must be available. If a private well is to be used, the well must be installed and approved.
- 4.4 Easements.
- 4.5 Design plans, as described above, in section 3.

The Health Department reviews the application to ensure density requirements are satisfied and to determine which site evaluations are necessary. Permits are valid for one year, with the expiration date printed on the permit. Permits may be renewed for a \$75 fee. However, because the rules for onsite systems are subject to change, renewal is conditional upon rule changes that affect the feasibility or site constraints of the subject property.

5. INSTALLATION

Health department staff will supply a list of registered installers upon approval of a permit. If the desired installer is not on this list, the installer must contact the department prior to any construction.

If a non-registered installer is used for the installation, the department will not issue a final approval of the system.

6. INSPECTION.

Once the system is installed, but before the system is back-filled, the health department will perform a final inspection. In addition to verifying that the system is installed in accordance with the approved plan and permit, the following items will be checked:

- 6.1 Schedule or grade, material, diameter and minimum slope of building sewer.
- 6.2 Septic tank:
 - 6.2.1 Separation distances from tank to dwelling and tank to drainfield, at least 5 feet.
 - 6.2.2 From other features as applicable (e.g. wells, streams, irrigation ditches, ponds, wetlands...) I in accordance with Table 8, R 317-4.
 - 6.2.2 Slope of building sewer line to the tank.

- 6.2.3 Inlet/outlet orientation.
- 6.2.4 Baffles.
- 6.2.5 Capacity.
- 6.2.6 Water tightness (tank must be full of water at the time of inspection)
- 6.2.7 Manufacturer.
- 6.2.8 Material.
- 6.2.9 Level.
- 6.2.10 Stability of soil beneath tank.
- 6.2.11 Undisturbed earth between the tank and absorption field (at least 5 feet required).
- 6.3 Pump chamber and pump, if applicable. (electricity must be supplied to the pump and the chamber must be full of water at the time of inspection)
 - 6.3.1 Tank placement, inlet/outlet, material, and manufacturer.
 - 6.3.2 Floats, dose volume, and alarm.
- 6.4 Distribution of wastewater effluent from the septic tank to the absorption field.
 - 6.4.1 The sewer pipe from the septic tank shall not be in direct line with any one of the distribution lines, except where drop boxes or distribution boxes are used.
 - 6.4.2 Distribution and drop boxes, if applicable:
 - i. Level.
 - ii Inlet and outlets aligned properly.
 - ii Inlet and distribution pipelines properly placed and sealed.
 - iv Unused outlets sealed.
 - v. Serial trenches shall be connected with a drop box or watertight overflow line in such a manner that a trench will be filled with wastewater to the depth of the gravel fill before the wastewater flows to the next lower trench.
- 6.5 Absorption field:
 - 6.5.1 Elevation of the trench bases, relative to natural grade.
 - 6.5.2 Separation from site limiting features as applicable (e.g. wells, streams, irrigation ditches, ponds, wetlands...), in accordance with Table 2, R 317-4.
 - 6.5.3 Minimum construction standards as specified in Table 8, R 317-4
 - 6.5.4 Backfill material: systems shall be backfilled with at least 6-inches of earth, over the permeable barrier, free from stones 10 inches or more in diameter.
 - 6.5.5 Filter material (gravel): size, clean, free from fines.
 - 6.5.6 Length of trench.
 - 6.5.7 Width of trench.
 - 6.5.8 Depth of filter media (gravel), below, around and over the distribution pipe.
 - 6.5.9 Permeable barrier such as an acceptable synthetic filter fabric, unbacked fiberglass building insulation, or a two-inch layer of compacted straw.
 - 6.5.10 Distribution pipelines: Level (maximum slope is four inches/100 feet). Parallel laterals must be inter-connected to produce a closed loop, or continuous system. Deep trenches that have no parallel laterals or serial trenches must have caps on the terminal ends of the laterals.

6.5.11 Total absorption area determination.

- i. Standard trenches: area is the sum of linear feet times the width of the trench. Width is not to exceed 3 feet, and linear footage beyond 100 feet of the point of distribution will not be included.
- ii. Type A chambers (30" minimum width): area is the sum of linear feet of chambers, times 3 feet. Linear footage beyond 100 feet of the point of distribution will not be included.
- iii. Type B chambers (22" minimum width): area is the sum of linear feet of chambers, times 2 feet. Linear footage beyond 100 feet of the point of distribution will not be included.
- iv. Deep wall trenches: area is the depth of filter material below the distribution pipe times the total linear feet of the trench, times 2. NOTE: soil horizons located in the trench's absorption sidewall that are unsuitable can not be included in the absorption area calculation.

6.5.12 Sketch of system to show dimensions and relative distances.

6.5.13 Verification of 100% replacement area.

After a system passes the final inspection, Weber-Morgan Health Department issues a letter of certification to the permit holder. The system may then be operated.