

**Pima County Department of Environmental Quality  
Alternative Wastewater On-Site Residential Treatment System Checklist  
for Engineers, Designers, and Site Evaluators**

**per Arizona Administrative Code Title 18, Chapter 9**

**R18-9-E305. 4.05 General Permit: Gravelless Trench, Less Than 3000 Gallons Per Day Design Flow**

**General Permit**

- \_\_\_ Wastewater treated to a level equal to or better than specified in R18-9-E302 (B).
- \_\_\_ A Gravelless Trench may be used if
  - suitable gravel or volcanic rock aggregate is unavailable, excessively expensive, or
  - adverse site conditions make movement of gravel difficult, damaging, or time consuming.

**Performance**

- \_\_\_ Gravelless trench is designed so that treated wastewater released to the native soil meets the following criteria:
  - TSS of 75 milligrams per liter, 30-day arithmetic mean;
  - BOD<sub>5</sub> of 150 milligrams per liter, 30-day arithmetic mean;
  - Total nitrogen (as nitrogen) of 53 milligrams per liter, 5-month arithmetic mean; and
  - Total coliform level of 100,000,000 (Log<sub>10</sub> 8) colony forming units per 100 milliliters, 95th percentile.

**Notice of Intent to Discharge**

- \_\_\_ Meets the Notice of Intent to Discharge requirements specified in R18-9-A301(B) and R18-9-A309(B)
- \_\_\_ The soil absorption area that would be required if a conventional disposal trench filled with aggregate is used,
- \_\_\_ The configuration and size of the proposed gravelless disposal works, and
- \_\_\_ The manufacturer's installation instructions and warranty of performance.

**Design requirements**

- \_\_\_ Meets requirements in R18-9-A312
- \_\_\_ Ensure that the top of the gravelless disposal pipe or similar disposal mechanism is:
  - at least 6 inches below the surface of the native soil, and
  - 12 to 36 inches below finished grade if approved fill is placed on top of the installation;
- \_\_\_ Calculate the infiltration surface as follows:
  - For 8-inch diameter pipe, 2 square feet of absorption area is allowed per linear foot;
  - For 10-inch diameter pipe, 3 square feet of absorption area is allowed per linear foot;
  - For bundles of two pipes of the same diameter, the absorption area is calculated as 1.67 times the absorption area of one pipe; and
  - For bundles of three pipes of the same diameter, the absorption area is calculated as 2.00 times the absorption area of one pipe;
- \_\_\_ Use a pressure distribution system meeting the requirements of R18-9-E304 in medium sand, coarse sand, and coarser soils; and
- \_\_\_ Construct the drain field of material that will not decay, deteriorate, or leach chemicals or byproducts if exposed to sewage or the subsurface soil environment.

**Installation requirements**

- \_\_\_ Meet the applicable requirements in R18-9-A313 (A)
- \_\_\_ Install the gravelless pipe material according to manufacturer's instructions if the instructions are consistent with this Chapter,
- \_\_\_ Ensure that the installed disposal system can withstand the physical disturbance of backfilling and the load of any soil cover above natural grade placed over the installation, and
- \_\_\_ Shape any backfill and soil cover in the area of installation to prevent settlement and ponding of rainfall for the life of the disposal works.

**Operation and maintenance requirements**

- \_\_\_ Meet the applicable requirements in R18-9-A313 (B)
- \_\_\_ Inspect the finished grade in the vicinity of the gravelless disposal works for maintenance of proper drainage and protection from damaging loads.

Prepared by:

Date: