

## 4.21 Recirculating Gravel Filter

Revision: May 21, 2015

Installer registration permit: Complex

Licensed professional engineer required: Yes

### 4.21.1 Description

A recirculating gravel filter is a bed of filter media in a container that filters and biologically treats septic tank effluent. The filter effluent is returned to the recirculation tank for blending with untreated septic tank effluent and recirculated back to the filter. The treated effluent is distributed to a disposal trench of reduced dimension. System components include a septic tank, recirculating tank, low-pressure distribution system, free-access filters, dosing chamber, mechanical flow splitter, and drainfield.

### 4.21.2 Approval Conditions

1. Nondomestic wastewater with biological oxygen demand (BOD) or TSS exceeding normal domestic wastewater strengths (section 3.2.1, Table 3-1) is required to be pretreated to these levels before discharge into the recirculating gravel filter system.
2. The bottom of the filter must not come within 12 inches of seasonal high ground water.
3. All pressurized distribution components and design elements of the recirculating gravel filter system that are not specified within section 4.21 must be designed and installed according to the guidance for pressure distribution systems in section 4.19.
4. The recirculating gravel filter container shall meet the same separation distance requirements as a septic tank.
5. System must be designed by a PE licensed in Idaho.

### 4.21.3 Design Requirements

Minimum design requirements for the recirculating gravel filter components are provided below.

#### 4.21.3.1 *Recirculating Tank*

1. Minimum recirculating tank volume shall be capable of maintaining two times the daily design flow of the system (Figure 4-27).
2. The recirculating tank may be a modified septic tank or dosing chamber selected from section 5.2 or section 5.3.
  - a. Alternatively, the recirculation tank may be designed by the system's design engineer to meet the minimum requirements of this section and IDAPA 58.01.03.007.
  - b. Recirculating tank design is exempt from subsections .07, .08, .10, .11, and .13 of IDAPA 58.01.03.007.
3. The recirculating tank shall be accessible from grade and the return line, pump, pump screen, and pump components shall be accessible from these access points.