

## LINN COUNTY ENVIRONMENTAL HEALTH PROGRAM

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## SAND FILTER SYSTEMS

### Plan Preparation Guide

#### Overview:

As part of the application for a permit to install a sand filter system, plans for the system are required. The plans must be detailed enough to demonstrate that the system will meet all DEQ rules for siting and construction, and will function properly. Although plans may be prepared and submitted by the owner, having a consultant or a qualified septic contractor prepare the plans can be of significant benefit. Having someone who is familiar with sand filters, can help you design a system that will function properly, be easy to maintain, and can greatly speed up the plan review process. Once we have received the plans, you should normally allow 1-2 weeks for the plans to be reviewed by Environmental Health Staff. Once the plans are reviewed and approved, a permit to construct the system can be issued if all other permit requirements are met. The permit will contain, in addition to the approved plans, a schedule of inspections.

#### PREPARING YOUR OWN PLANS

It is possible to prepare your own plans. The plans must include, at a minimum:

- detailed construction materials and methods
- a hydraulic analysis (this is necessary to determine correct pump(s) to use)
- a scaled plot plan showing the location of all buildings and other site developments, and all system components
- a signed contract with a certified operation and maintenance provider

There are many possibilities for how you choose to construct a sand filter. You will need to make decisions concerning cost, durability, ease of service, and aesthetics. Because there are so many possibilities, and because everyone has different needs and wants from the finished product, we are not able to design a system for you. The attached rules prescribe **minimum construction standards** for a sand filter; any design that fully meets these rules can be approved for installation. Although not required, timed dose systems are recommended to prolong the life of your system.

## Sand Filter Plans Checklist

**Plot plan: (We will provide you with scaled outlines of your property and the approved disposal area to assist in drawing your system plans)**

- \_\_\_\_\_ Indicate North
- \_\_\_\_\_ Drawn to scale 1" = \_\_\_\_\_ feet
- \_\_\_\_\_ Property boundaries, easements, and dimensions
- \_\_\_\_\_ Existing or proposed roads
- \_\_\_\_\_ Well locations and water line locations
- \_\_\_\_\_ Test pit locations
- \_\_\_\_\_ Proposed dwelling location and dimensions
- \_\_\_\_\_ Location of septic tank
- \_\_\_\_\_ Location of disposal field with trenches and lengths designated (refer to your site evaluation for the approved drainfield area)
- \_\_\_\_\_ Distance between disposal trenches
- \_\_\_\_\_ Three elevation grade shots (ground surface) for each disposal trench
- \_\_\_\_\_ Location of clean-outs
- \_\_\_\_\_ Location of replacement disposal area (if pertinent)
- \_\_\_\_\_ Proposed driveways, parking areas and patio slabs
- \_\_\_\_\_ Drainage ways, springs, creeks, and waterways

**On-Site System Materials List**

**Tank Diagram** (if using a separate septic and dosing tank, include diagram for the dosing tank tank)

- \_\_\_\_\_ Manufacturer's name
- \_\_\_\_\_ Total volume and operating volume
- \_\_\_\_\_ Average unit volume (gallons per inch)
- \_\_\_\_\_ Dimensions of the tank (in and outside)
- \_\_\_\_\_ Float control settings – distance between "floor or roof" of tank and "pump on", "pump off", and "alarm"
- \_\_\_\_\_ Diameter of access riser
- \_\_\_\_\_ Location of electrical box, gate, check valves, and disconnects

**Construction Elevations**

- \_\_\_\_\_ Ground elevation at septic and dosing tanks
- \_\_\_\_\_ Top of septic and dosing tanks
- \_\_\_\_\_ High water alarm
- \_\_\_\_\_ Effluent level at either timer float on or pump on
- \_\_\_\_\_ Ground level at sand filter
- \_\_\_\_\_ Top of sand filter box
- \_\_\_\_\_ Top of distribution laterals in sand filter
- \_\_\_\_\_ Invert of sand filter underdrain
- \_\_\_\_\_ Pump on in sand filter (if a second pump is required)
- \_\_\_\_\_ Alarm on in sand filter (if a second pump is required)
- \_\_\_\_\_ Three ground surface elevation readings per disposal trench
- \_\_\_\_\_ Elevation at bottom of drainfield trenches

**Hydraulic Calculations** (used to select the correct pump or pumps)

**Pump Specifications (for each pump):**

- \_\_\_\_\_ Make and model number
- \_\_\_\_\_ Name of manufacturer
- \_\_\_\_\_ Pump performance curve

**Diagram of Sand Filter** (if you purchase a sand filter kit, most of this information is provided by the manufacturer)

- \_\_\_\_\_ Dimensions
- \_\_\_\_\_ Manifold Layout
  - Pressurized lateral layout
  - Orifice size
  - Number and spacing of orifices
  - Diameter of piping
  - Spacing of pressurized lateral piping
- \_\_\_\_\_ Material and thickness of membrane liner
- \_\_\_\_\_ Depth of drain/underdrain media, sand filter media, backfill soil, etc
- \_\_\_\_\_ Float assembly detail

**A copy of the signed operations and maintenance contract**