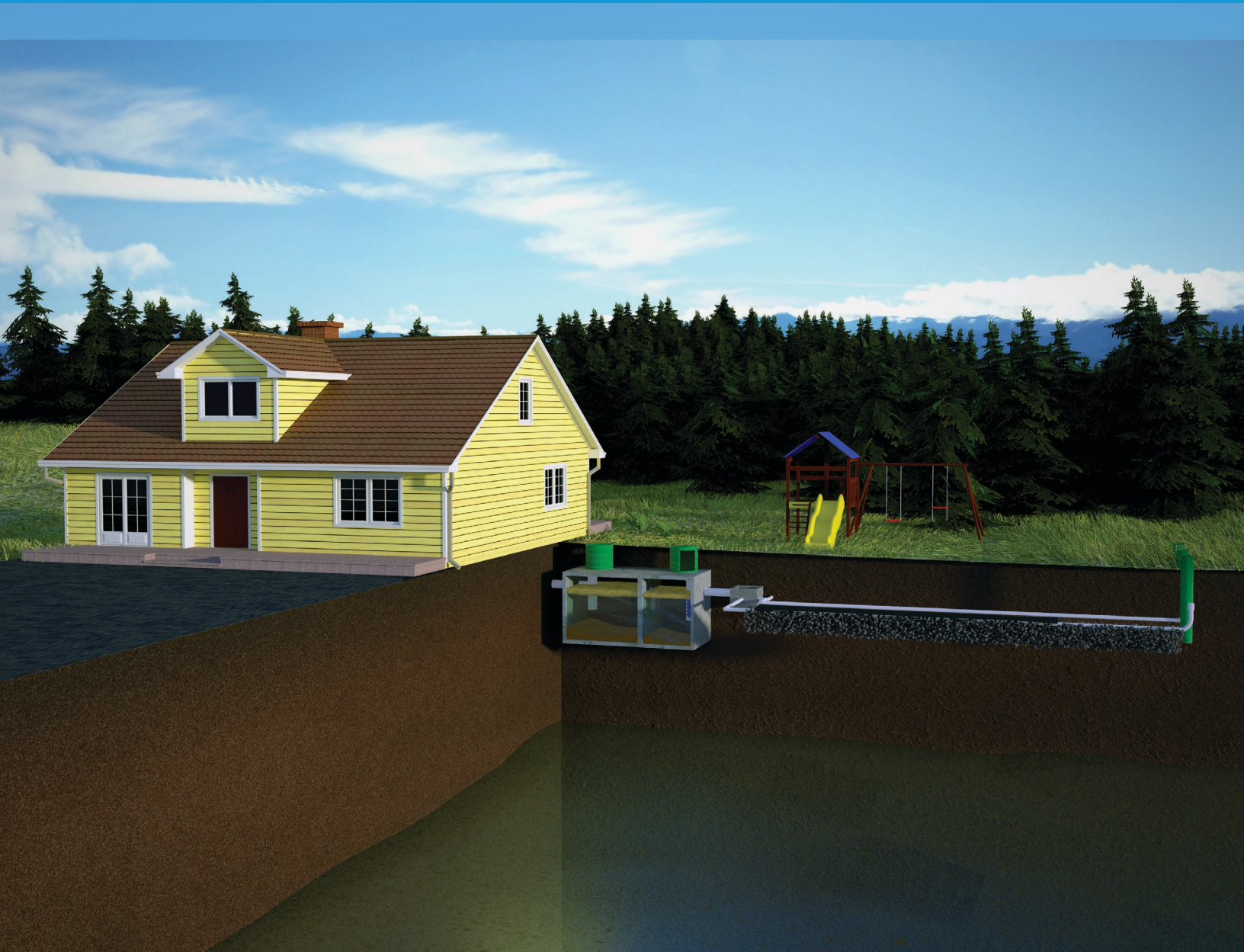


Septic System Basics for Homeowners



Contents

What is a Septic System? 2

Anatomy of a Septic System 3

Gravity System 4

Pump/Pressurized Distribution System 5

Sand Filter System 6

Aerobic Treatment Units 7

Types of Drainfields 9

 Mound drainfield 9

 Sand-lined beds 10

 Subsurface drip drainfields 10

This booklet features pictures of our 3-D models of many septic systems. You can interact with these 3-D models on a computer, tablet or mobile phone. Scan the QR codes in this booklet to see the 3-D model on your device. You can also visit tpchd.org/3Dseptic.

What is a Septic System?

When a home is not connected to a public sewer system, an on-site septic system treats its sewage.

Septic systems protect you, your family and your environment.

A working septic system:

- Keeps sewage from surfacing on your property.
- Protects ground, surface and drinking water from contamination.
- Keeps shellfish harvested from public waters safe to eat.

Regular septic system maintenance saves you money.

The cheapest septic system you will ever have is the one you’re using now. Repairs can cost thousands of dollars. Save money and hassle—get your system inspected!

Good maintenance keeps your septic system working.

A certified septic professional should inspect your septic system. Your system type dictates how frequently it should be inspected. Look up your type of system in this booklet for more information.

Septic tanks usually need to be pumped every three to five years, depending on household size and use. Pump your system when your certified septic professional says it needs pumping or when the total sludge and scum layer is more than 18 inches.

Find a certified septic professional at tpchd.org/septic-service-companies.

Contact at least three companies to compare prices. Ask about any discounts they offer.

Financial help is available.

Clean Water Loans with Craft3

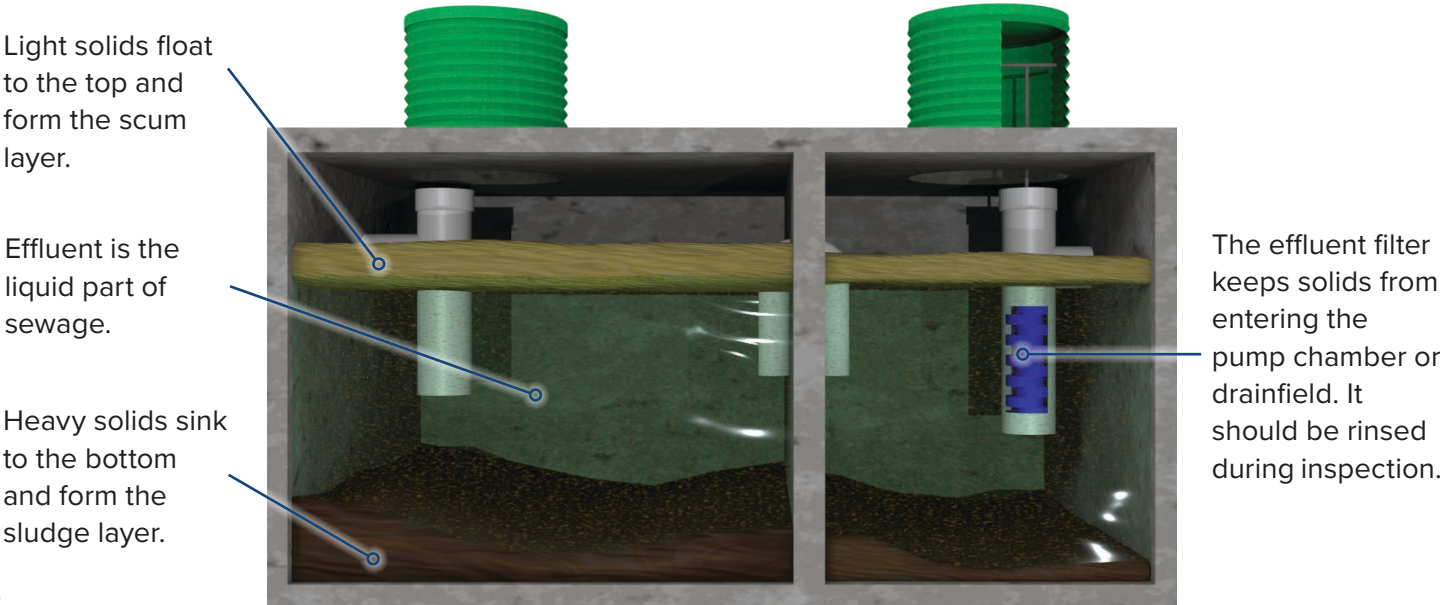
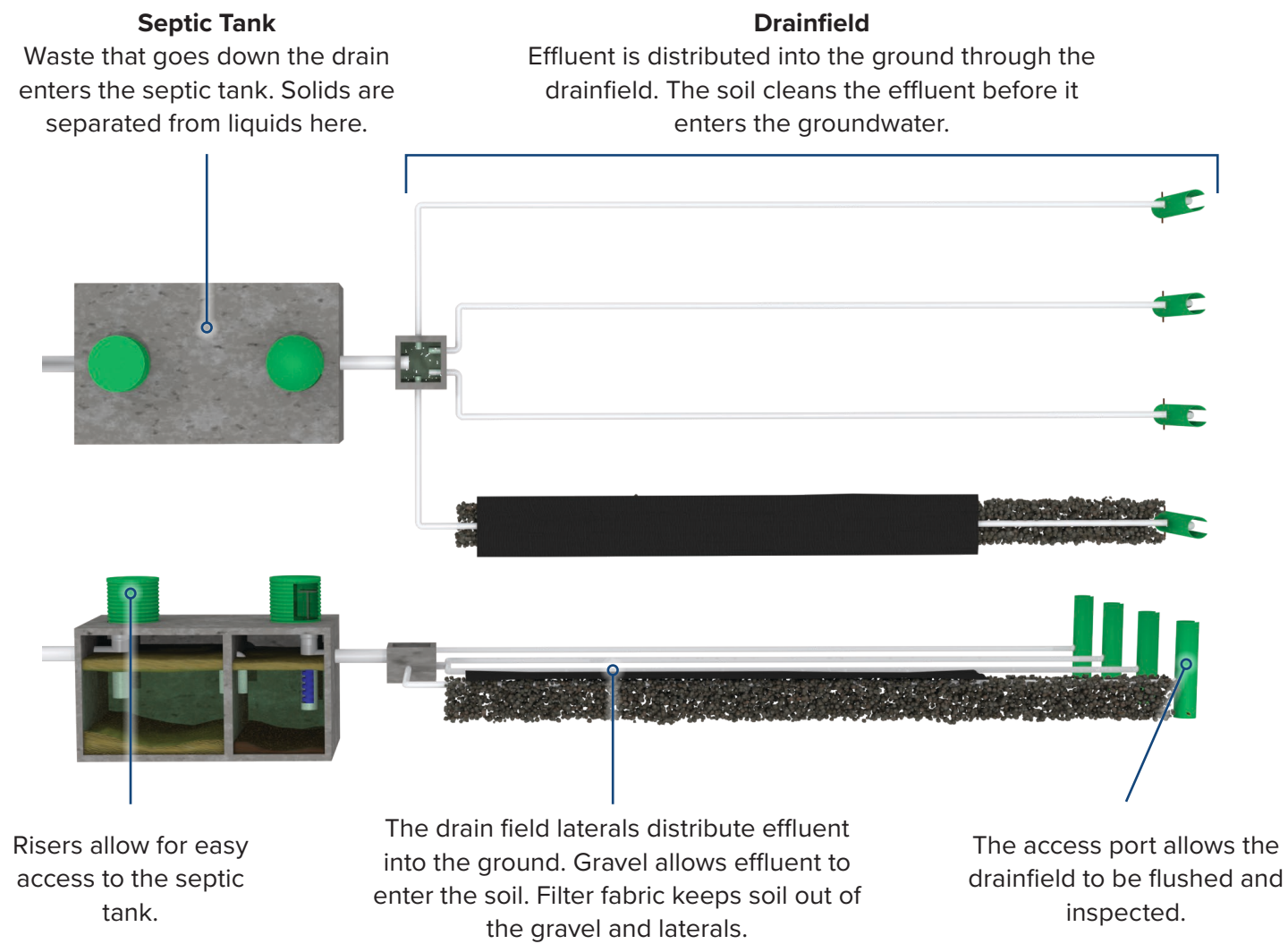
Nonprofit lender providing affordable loans with flexible qualification to cover the costs of designing, permitting, installing and maintaining your failing septic system.

Visit www.craft3.org/CleanWater for more information.



*Protect your investment, your family and your community.
Keep your septic system working properly.*

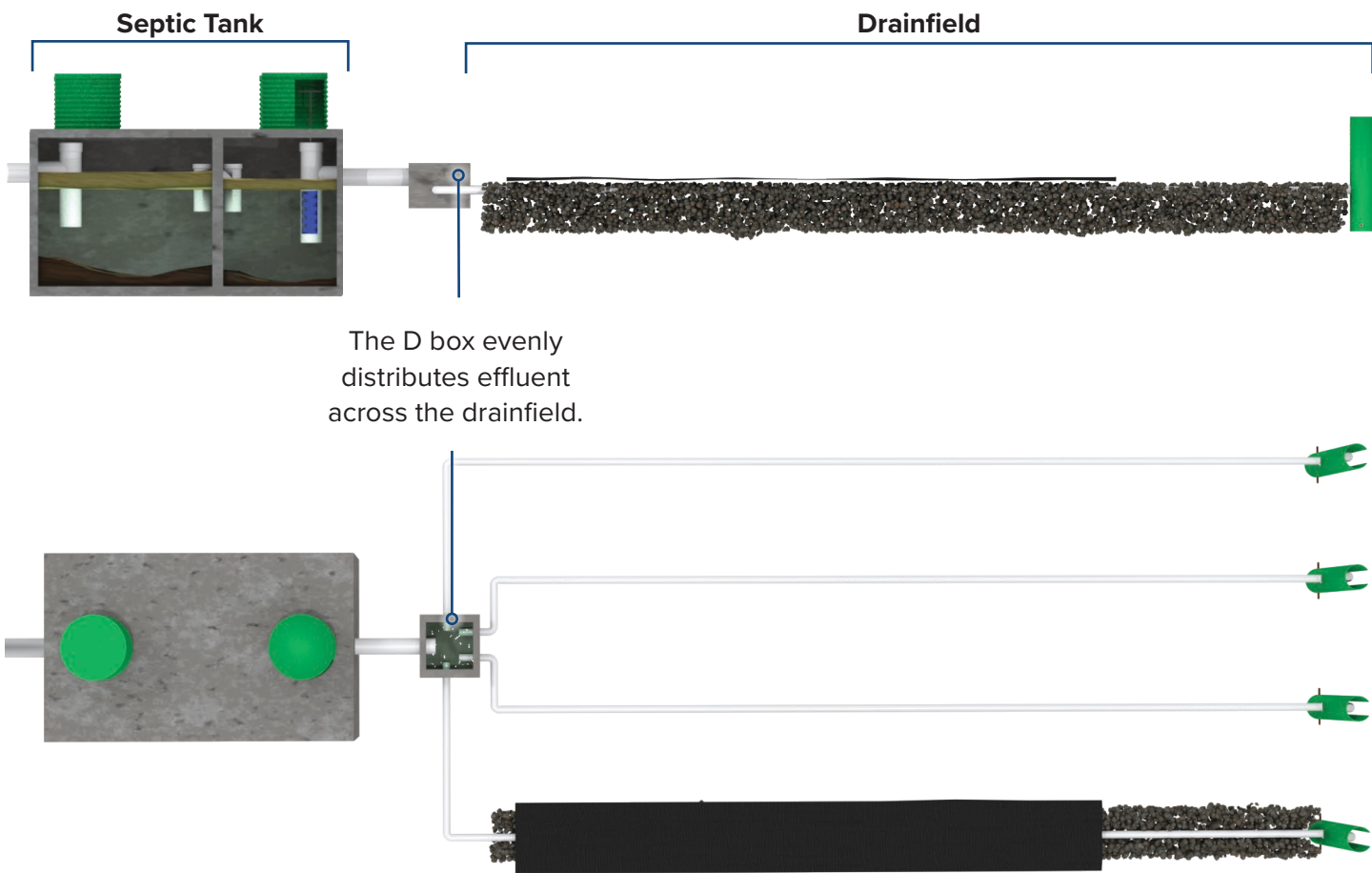
Anatomy of a Septic System



Gravity System

Gravity systems are common in older homes with older systems. A gravity system doesn't require any electricity to operate.

Inspect every three years.

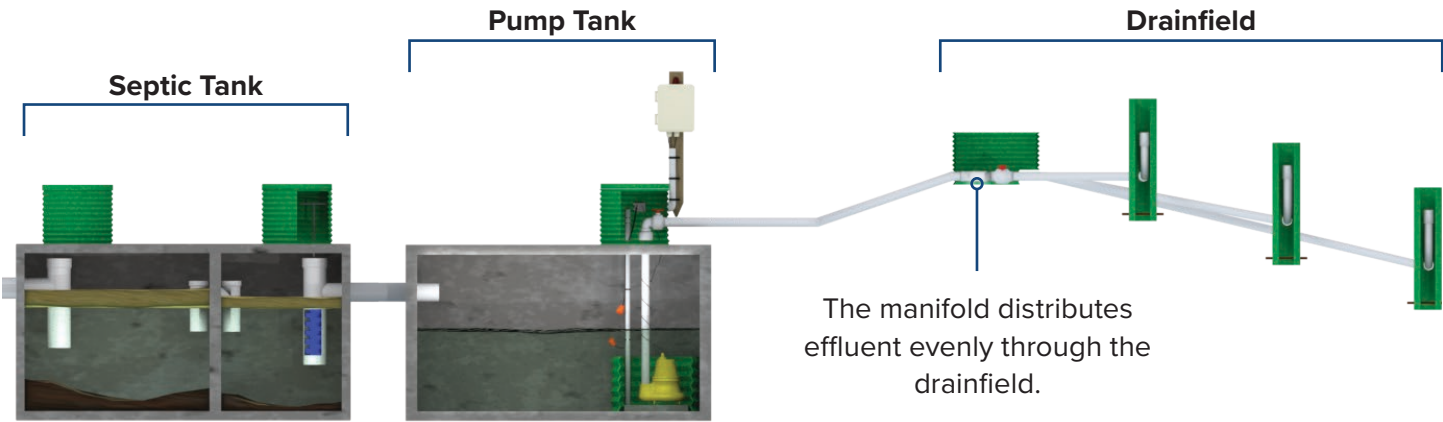


Scan to see a 3-D model of a gravity septic system.

Pump/Pressurized Distribution System

Septic systems with pumps allow for effluent to be pumped uphill to the drainfield. The pump adds a set amount of effluent to the drainfield. This prevents the drainfield from being overloaded.

Inspect every three years.

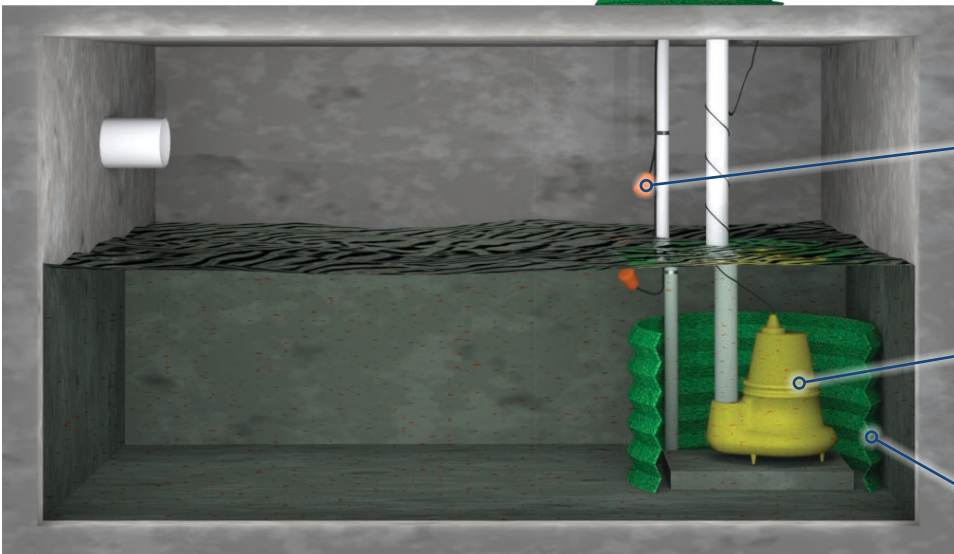


The manifold distributes effluent evenly through the drainfield.

The control panel is above ground. It houses electronics used to run the pump. Its alarm will sound when the pump has a problem. Contact a septic professional if the alarm sounds.

To drainfield.

Pump Tank Detail



Floats turn the pump on or off based on the effluent level. A second float sets off an alarm if the level of effluent in the pump chamber is too high.

The pump adds a set amount of effluent to the drainfield.

A shroud is recommended to keep any solids from entering the pump.

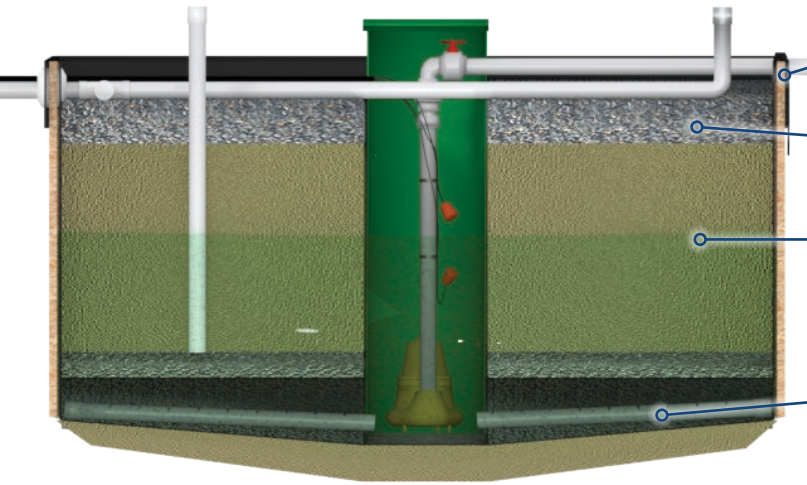
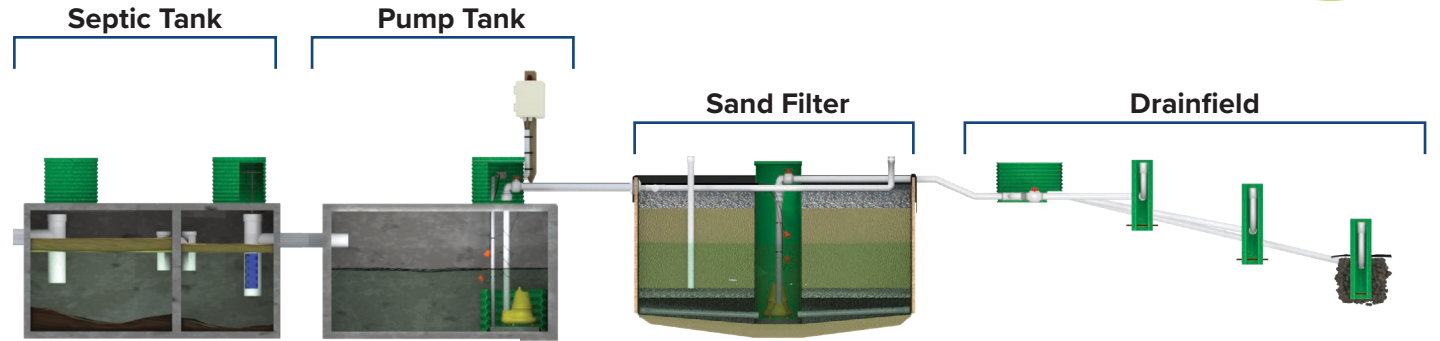


Scan to see a 3-D model of a pump septic system.

Sand Filter System

Septic systems may have a sand filter. Sand filters can be used when the effluent needs additional treatment before going to the drainfield.

Inspect every year.

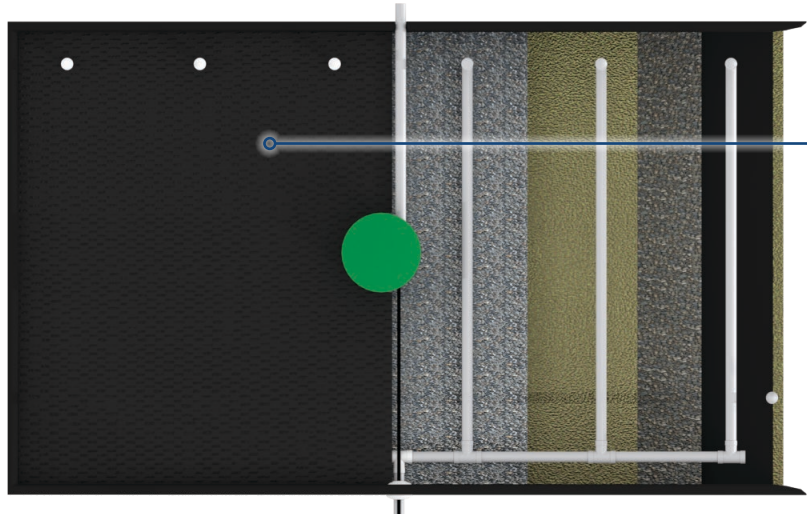


Sand filters are built in plywood boxes or trenches lined with plastic.

Gravel surrounds laterals.

Sand treats effluent as it trickles through.

Effluent enters perforated pipes at the bottom of the sand filter. This carries effluent to a pump. The pump moves the effluent to the drainfield.



Plastic covers the sand filter so water can't enter.

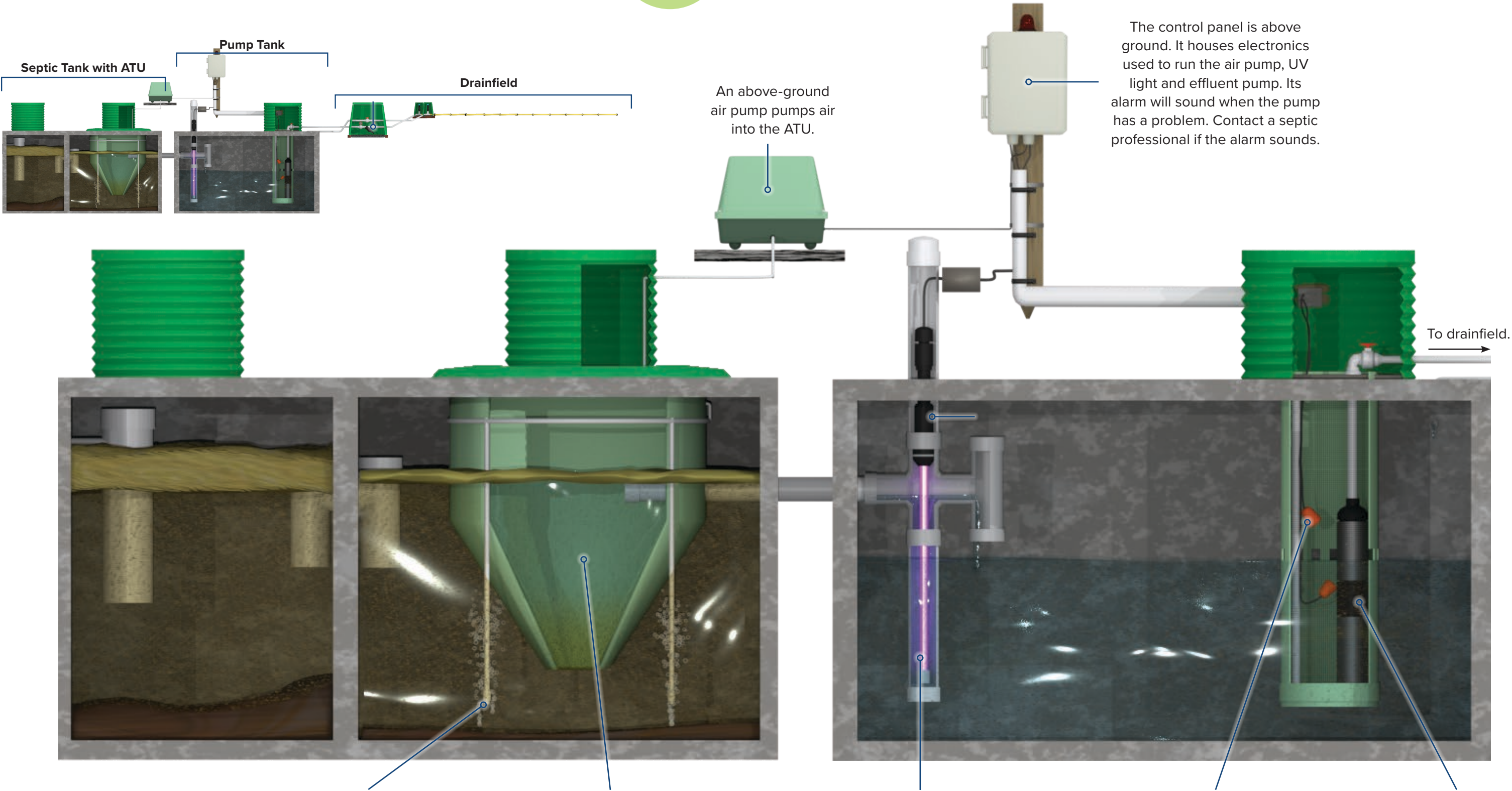


Scan to see a 3-D model of a sand filter septic system.

Aerobic Treatment Units

Aerobic treatment units (ATUs) are proprietary devices that use oxygen to treat effluent. Systems with ATUs usually require a UV light to disinfect effluent. ATUs are used when the native soil is poor.

Inspect every year.



Scan to see a 3-D model of an ATU septic system.

Aerators release air into the ATU to encourage bacterial treatment of sewage.

The ATU may sit in the septic tank or be in a separate chamber after the septic tank. Treated effluent enters the inner chamber then flows into the pump chamber.

A UV lamp disinfects the effluent. This reduces harmful bacteria in the treated sewage.

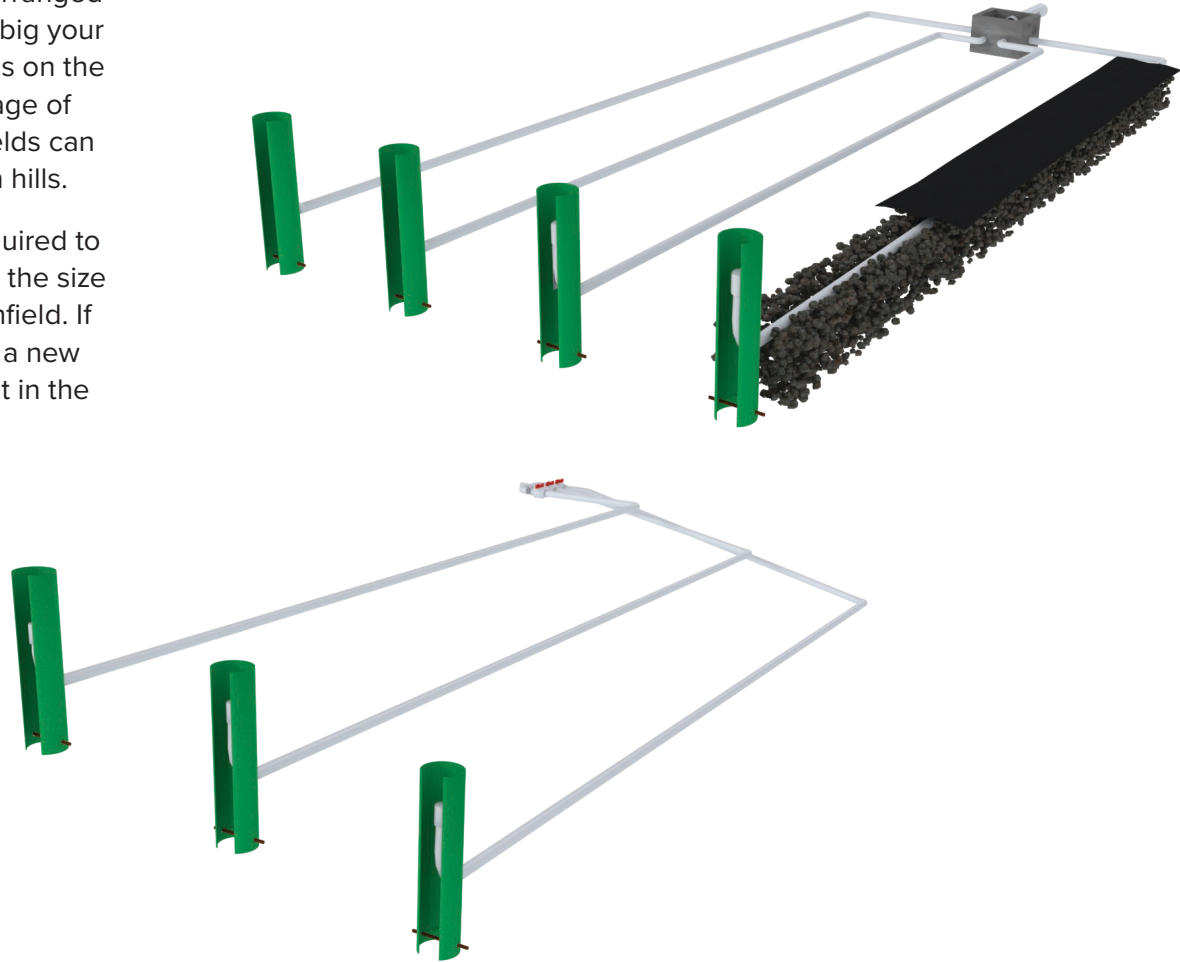
Floats turn the pump on or off based on the effluent level. A second float sets off an alarm if the level of effluent in the pump chamber is too high.

The pump adds a set amount of effluent to the drainfield.

Types of Drainfields

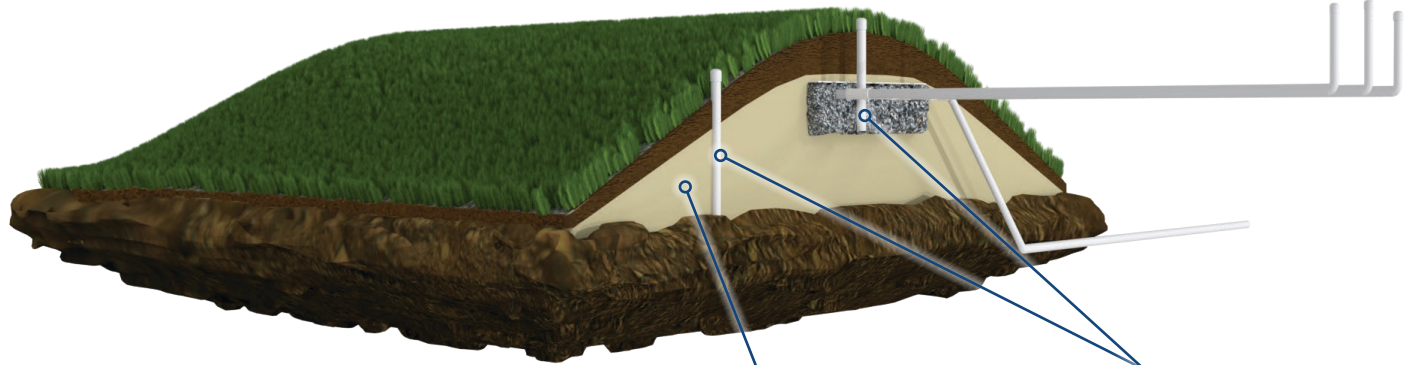
Drainfields can be arranged in many ways. How big your drainfield is depends on the estimated water usage of your house. Drainfields can be on flat land or on hills.

Your property is required to have a reserve area the size of your current drainfield. If your drainfield fails, a new drainfield can be put in the reserve area.



Mound drainfield

Mound drainfields are used when the native soil is shallow or if the water table is high.



Scan to see a 3-D model of a mound septic system.

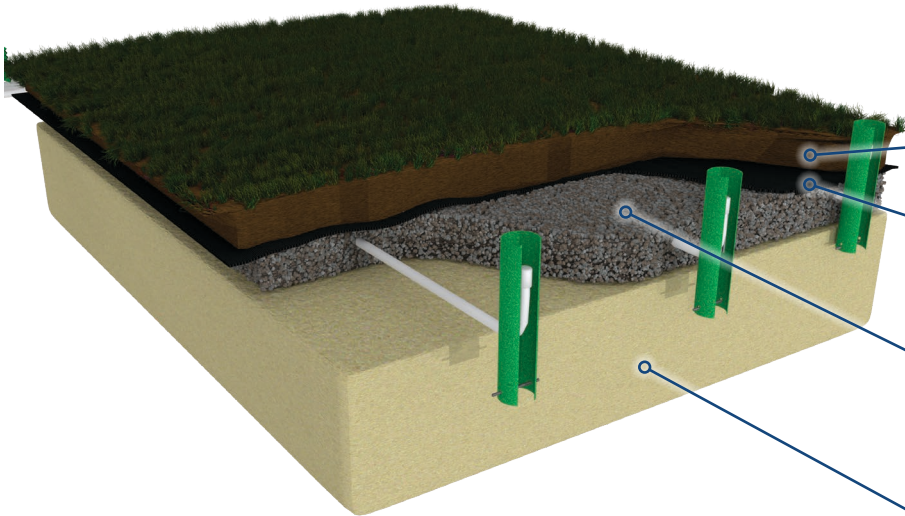
Sand is put above the shallow soil to treat sewage.

Access ports allow the mound to be inspected where gravel meets sand and where sand meets soil.

Inspect every three years.

Sand-lined beds

Septic systems use sand-lined beds for additional treatment below the drainfield. Installers dig trenches and fill them with sand and gravel.



Scan to see a 3-D model of an sand-lined bed drainfield.

Six to 12 inches of soil fills the top of the trench.

A sheet keeps soil from clogging the gravel.

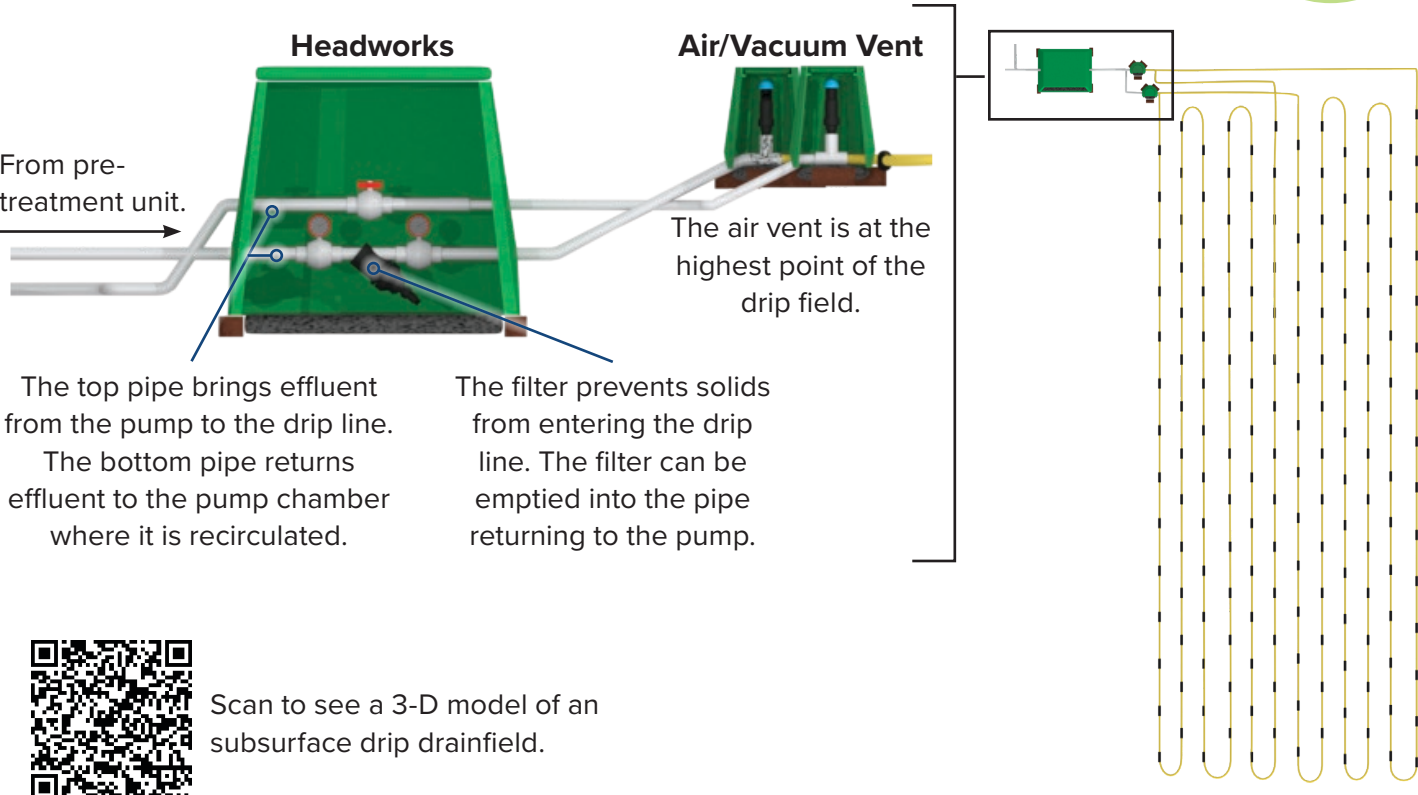
Nine to 12 inches of gravel surrounds the drainfield pipe. Sewage is freely dispersed through the gravel.

At least 24 inches of sand goes into the bottom of the bed.

Inspect every three years.

Subsurface drip drainfields

Subsurface drip systems deliver small doses of effluent through emitters. They are useful in locations with poor soil or high water tables. Drip systems need pre-treatment, such as an aerobic treatment unit (ATU).



From pre-treatment unit.

The top pipe brings effluent from the pump to the drip line. The bottom pipe returns effluent to the pump chamber where it is recirculated.

The filter prevents solids from entering the drip line. The filter can be emptied into the pipe returning to the pump.

Air/Vacuum Vent

The air vent is at the highest point of the drip field.



Scan to see a 3-D model of an subsurface drip drainfield.

Inspect every year.

Contact Us

On-site Sewage Program

General questions: ehsepticssystems@tpchd.org or (253) 649-1925

Tacoma-Pierce County Health Department

3629 S. D St.
Tacoma, WA 98418

info@tpchd.org
(253) 649-1500

Key Peninsula Office

Key Center Corral
9013 Key Peninsula Hwy N.
Lakebay, WA 98349

Tuesdays and Thursdays: 9 a.m.-2 p.m.
(253) 432-4948

Resources

General septic system information—tpchd.org/septic

List of septic system service companies—tpchd.org/septicservicecompanies

List of certified installation firms—tpchd.org/installers

Septic repair loan information—tpchd.org/septicassist

Report of System Status information—tpchd.org/RSS

As-built look up—forms.tpchd.org/asbuilt.php

3D septic system models—tpchd.org/3Dseptic