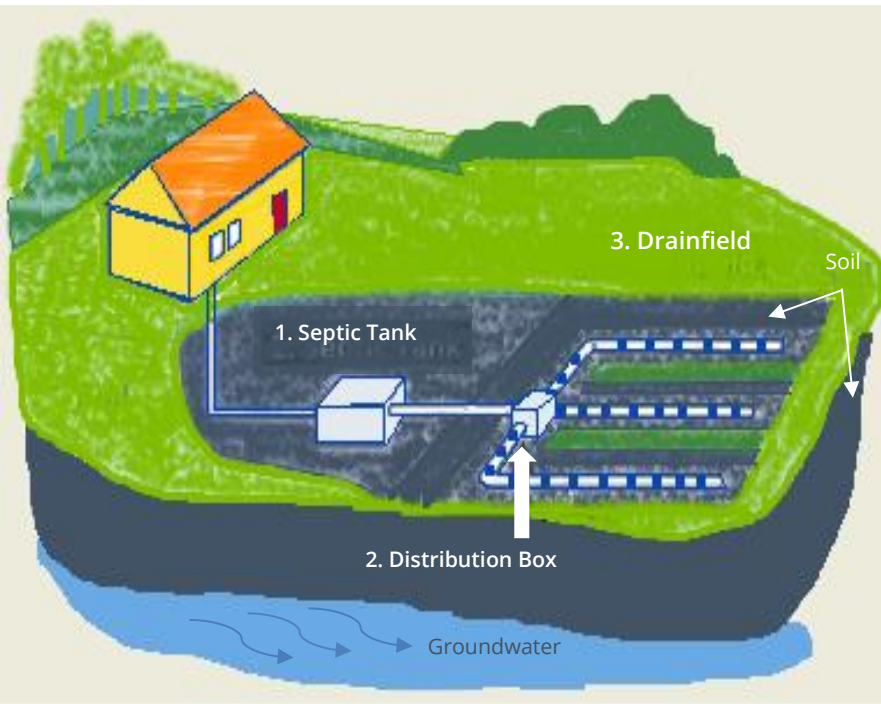


SEPTIC SYSTEM GUIDE

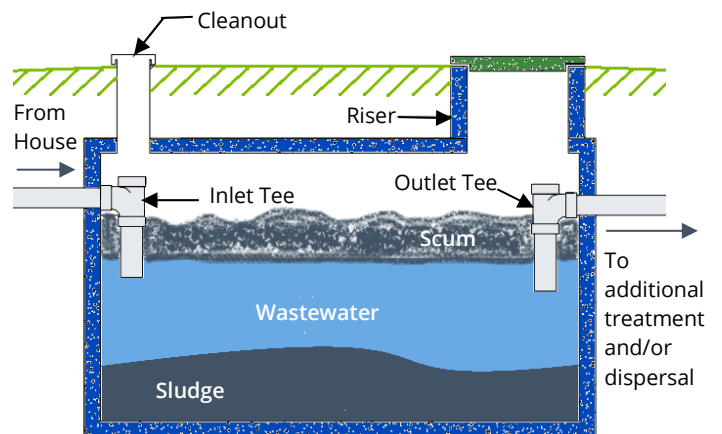
Septic System Overview



The standard onsite wastewater system consists of a **septic tank (1)**, **distribution box (2)** and **drainfield (3)**. Wastewater enters the septic system via the home's plumbing and is dispersed through the soil in the drainfield where it eventually recharges the groundwater. A standard drainfield is not feasible in all situations, so a capping fill drainfield or a bottomless sand filter are necessary for the treatment and dispersal of wastewater. Additionally, Alternative Treatment Technologies (ATTs) are sometimes required instead of, or in addition to, a standard septic tank. Information about nonstandard systems is available online or in the Deschutes County Community Development Offices.

Septic Tank

The septic tank provides primary treatment of the wastewater, allowing solids to settle and the scum (grease, oils, and fats) to rise to the top as the wastewater moves through the tank. Anaerobic bacteria digests some of the solids,



*Check out the **SepticSmart Homeowner Septic System User Guide** for more tips about maintaining your septic tank.*

generating sludge and gases. The gases escape through plumbing vents and the sludge accumulates in the tank, which is why it is important to have your septic tank pumped regularly.



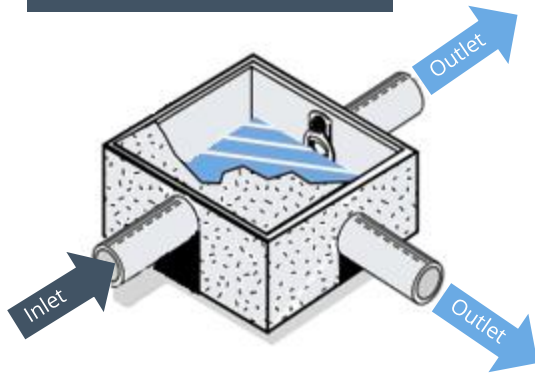
Community Development Department
117 NW Lafayette Street
Bend, Oregon 97703
www.deschutes.org/cd
(541) 388-6575

To request this information in an alternate format, please call 541-388-6575 or send an email to accessibility@deschutes.org.

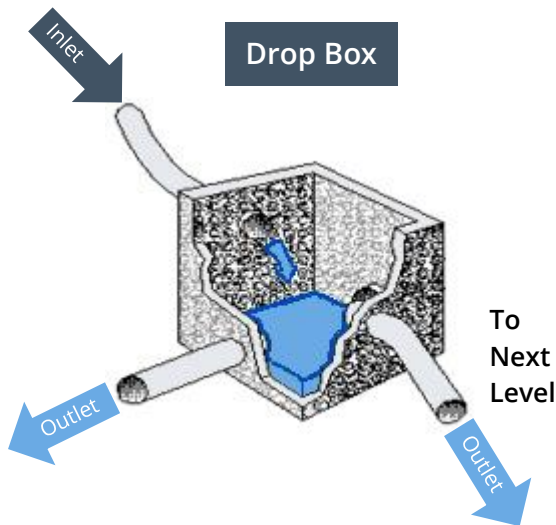
Distribution Box

The liquid in the septic tank leaves the tank through the outlet tee, which sits below the scum layer but above the sludge level, to allow for only the liquid, called effluent, to continue to the distribution box and then to the drainfield through the effluent sewer pipe. There are two types of distribution boxes, equal distribution and drop boxes.

Equal Distribution Box



Drop Box



Equal Distribution Boxes

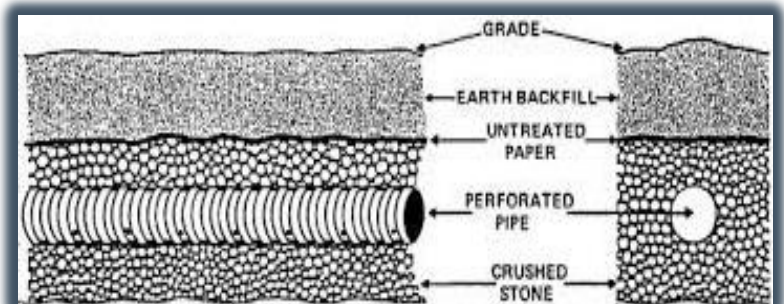
Equal distribution boxes are used on sites without slope. The equal distribution box has one inlet, which is (2) inches higher than the outlets. The box is used to equally divide the effluent between trenches and doubles as an inspection port. A non-perforated header pipe connects the distribution box to the distribution pipes. The header pipe must extend a minimum of (4) feet from the distribution box to the distribution pipes and be laid level in an equal distribution system.

Drop Boxes

On sloped sites where it is not possible to install all drainfield trenches at the same elevation and meet the minimum and maximum depth requirements, a serial system using drop boxes is necessary. A drop box is similar to a distribution box but instead of the header pipe outlets being the same level, one header pipe outlet is higher than the others. This allows the uppermost trench to fill, causing the effluent to rise and spill into the next uppermost trench.

Standard Drainfield

The drainfield is an underground network of absorption trenches that distribute the wastewater effluent over a large soil area, allowing the effluent to percolate through the soil. The soil acts as a physical, biological, and chemical filter to remove most of the pollutants in wastewater. In a traditional drainfield trench, wastewater effluent is dispersed through perforated distribution pipe bedded in gravel.



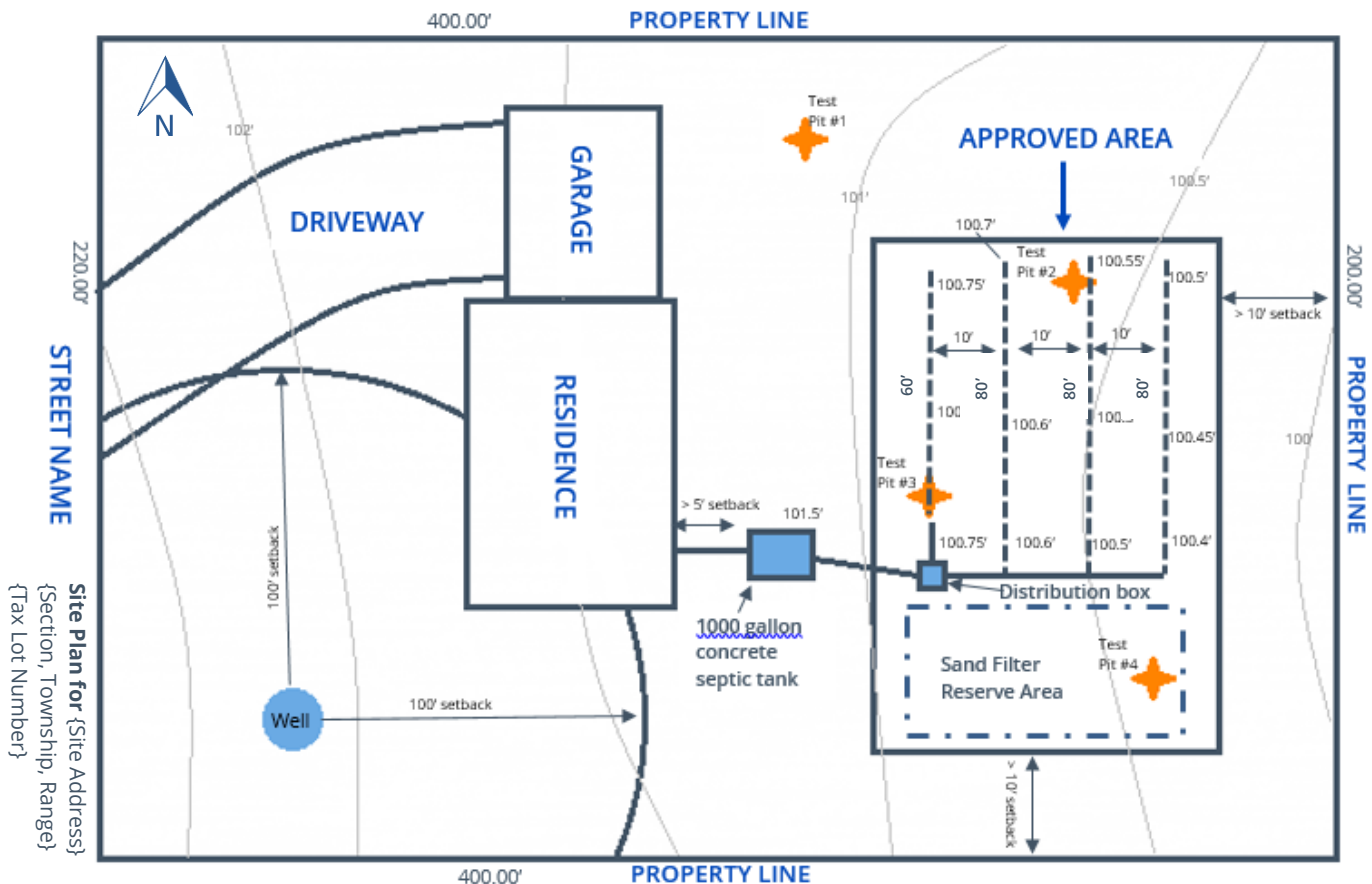
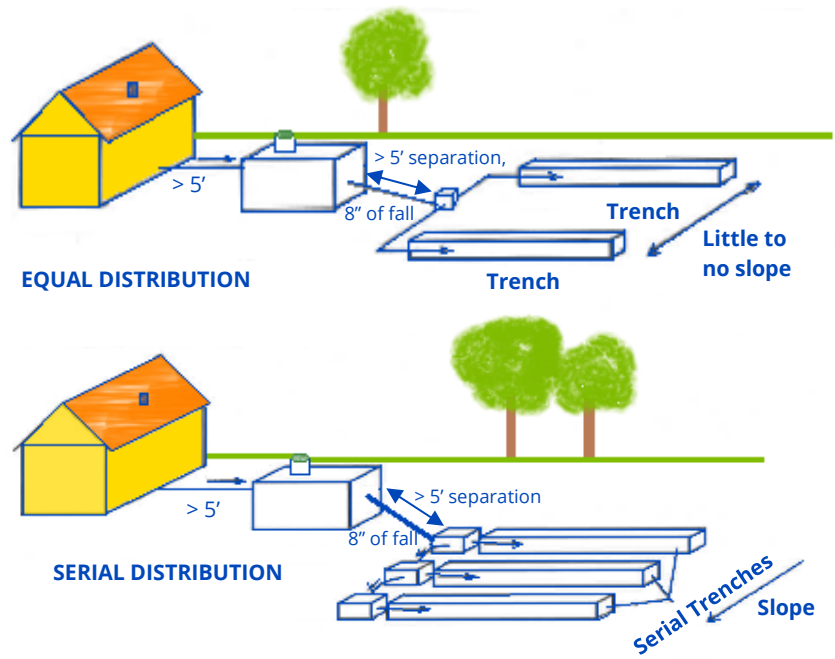
System Design

For best functionality, the septic tank should be placed near the house, but at least (5) feet away from any foundation. The less pipe that solids pass through, the less likely plugs will occur. The tank must be level, located in an easily accessible place, and have at least one riser at the ground's surface.

The effluent pipe, exiting the tank, must extend at least (5) feet before connecting to the distribution box (or drop box). There must be a minimum of (8) inches of fall from the invert (bottom interior) of the tank outlet to the invert of the drainfield header pipe.

In an equal distribution system the effluent pipe is the only pipe to have any fall. **All header and perforated drain pipe should be laid level** in an equal distribution drainfield. In a serial distribution system, the header pipes between drop boxes will also have fall.

The drainfield trenches must be installed in the Approved Area identified in the site evaluation report and should follow the natural contours of the native soil. There must be (8) feet of undisturbed soil between each trench. A detailed site plan like the one below is required for all installation permits.



Installation

1. Install the drainfield trenches using a transit or laser level to ensure the trenches are level. There should be no fall from one end of the trench to the other. The trench bottom should be at least (24) inches wide. The trench depth is determined during the site evaluation process, is specific to each site, and is indicated in the installation permit. The maximum trench depth is measured from the native ground elevation to the bottom of the trench. It has been determined to be the most effective soil for the treatment of the wastewater, so it must not be exceeded.
2. Install at least (6) inches of gravel at the base of the drainfield trenches. The gravel should be (¾- 2 ½) inch river rock or crushed rock that has been sorted and *washed*. It may be installed after the pipe is laid if the pipe rests on (6) inch blocks or 2x4's.

The Department of Environmental Equality (DEQ) keeps an updated list of approved drainfield products that may be used instead of pipe and rock. The list of approved products and their installation guides can be found here:

<http://www.oregon.gov/deq/Residential/Pages/Onsite-Products.aspx>.

Please note that wire mesh with (½-1) inch openings should be placed below all graveless half pipes like Infiltrator.

3. Install the perforated pipe with the stripe and holes facing down on top of the gravel.
4. Each drainline lateral must be covered with at least (2) inches of gravel.
5. Each trench must be covered with filter fabric or untreated building paper before backfilling.
6. Carefully place backfill to prevent damage to the system. Backfill must be free of large stones, frozen clumps of earth, masonry, stumps, and waste construction materials.

This handout is designed to explain the basic workings of the standard septic system and the basic layout. For construction and material standards for all septic system types refer to Oregon Administrative Rules (OAR) 340, Division 71 and 73, available on-line at: <http://www.oregon.gov/deq/Residential/Pages/Onsite-Rules.aspx>

Inspections

A standard system installation typically requires one inspection, although different components of the inspection may be scheduled separately if needed. A complete [As-Built & Materials List](#) form must be submitted in-person at the Deschutes County Community Development Offices or emailed (onsite@deschutes.org) to the Environmental Soils Division prior to scheduling a pre-cover inspection.

Schedule a Pre-Cover inspection (#7020) prior to backfilling. It will include:

- Septic Tank Inspection (#7100)
- Tank Water Tightness Test (#7270)
- Effluent Line Inspection (#7350)
- Drainfield Inspection (#7450)

Note: Oregon's ePermitting System and App is only available to licensed contractors.

Schedule an Inspection:



Online via Oregon's [ePermitting](#) system

<https://aca.oregon.accela.com/oregon/>



On your phone or tablet with Oregon's [ePermitting](#) App. Search for Oregon inspections in the App store for your apple or android device



Call 888-299-2821 | You will need a site specific permit number and 4 digit inspection code for the type of inspection requested

Minimum Separation Distances (OAR 340-071-0220)

Items Requiring Setback	From Subsurface Absorption Area Including Replacement Area	From Septic Tank and Other Treatment Units, Effluent Sewer and Distribution Units
1. Groundwater Supplies and Wells.	*100'	50'
2. Springs: <ul style="list-style-type: none"> • Upgradient. • Downgradient. 	50' 100'	50' 50'
**3. Surface Public Waters: <ul style="list-style-type: none"> • Year round. • Seasonal. 	100' 50'	50' 50'
4. Intermittent Streams: <ul style="list-style-type: none"> • Piped (watertight not less than 20' from any part of the onsite system). • Unpiped. 	20' 50'	20' 50'
5. Groundwater Interceptors: <ul style="list-style-type: none"> • On a slope of 3% or less. • On a slope greater than 3%: <ul style="list-style-type: none"> • Upgradient. • Downgradient 	20' 10' 50'	10' 5' 10'
6. Irrigation Canals: <ul style="list-style-type: none"> • Lined (watertight canal). • Unlined: <ul style="list-style-type: none"> • Upgradient. • Downgradient 	25' 25' 50'	25' 25' 50'
7. Manmade Cuts Down Gradient in Excess of 30 Inches (top of downslope cut): <ul style="list-style-type: none"> • Which Intersect Layers that Limit Effective Soil Depth Within 48 Inches of Surface. • Which Do Not Intersect Layers that Limit Effective Soil Depth. 	50' 25'	25' 10'
8. Downgradient Escarpments: <ul style="list-style-type: none"> • Which Intersect Layers that Limit Effective Soil Depth. • Which Do Not Intersect Layers that Limit Effective Soil Depth. 	50' 25'	10' 10'
9. Property Lines.	10'	5'
10. Water Lines.	10'	10'
11. Foundation Lines of any Building, Including GaraQes and Out Buildings.	10'	5'
12. Underground Utilities.	10'	—
<p>* 50-foot setback for wells constructed with special standards granted by WRD.</p> <p>**This does not prevent stream crossings of pressure effluent sewers.</p>		