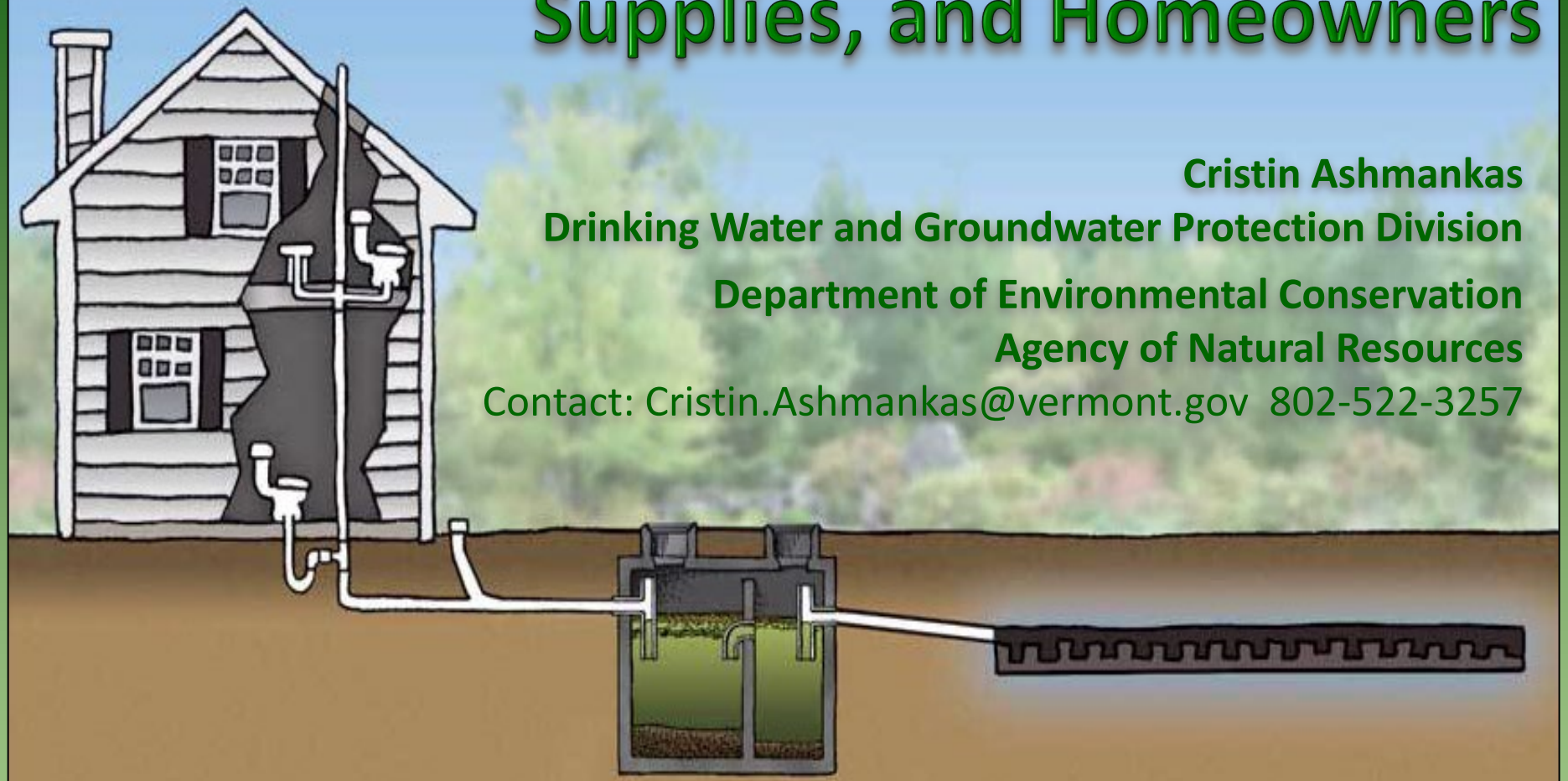
Wastewater Systems, Potable Water Supplies, and Homeowners

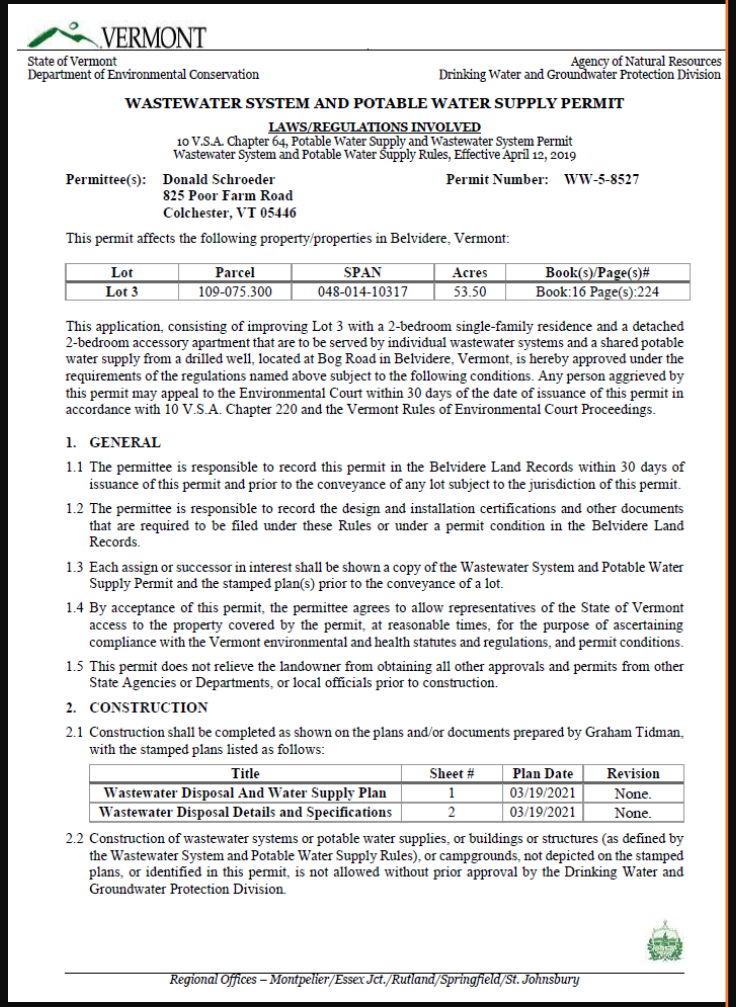


Cristin Ashmankas
Drinking Water and Groundwater Protection Division
Department of Environmental Conservation
Agency of Natural Resources
Contact: Cristin.Ashmankas@vermont.gov 802-522-3257

VERMONT

Wastewater System and Potable Water Supply Program (WW Program)

- Soil-based wastewater systems and water supplies
- Wastewater flows of less than 6,500 gallons per day
- Potable water supplies (water supplies that are not public water supplies)
- Municipal water and sewer connections
- Subdivision of lands



VERMONT

State of Vermont
Department of Environmental Conservation

Agency of Natural Resources
Drinking Water and Groundwater Protection Division

WASTEWATER SYSTEM AND POTABLE WATER SUPPLY PERMIT

LAWS/REGULATIONS INVOLVED
10 V.S.A. Chapter 64, Potable Water Supply and Wastewater System Permit
Wastewater System and Potable Water Supply Rules, Effective April 12, 2019

Permittee(s): **Donald Schroeder**
825 Poor Farm Road
Colchester, VT 05446

Permit Number: **WW-5-8527**

This permit affects the following property/properties in Belvidere, Vermont:

Lot	Parcel	SPAN	Acres	Book(s)/Page(s)#
Lot 3	109-075.300	048-014-10317	53.50	Book:16 Page(s):224

This application, consisting of improving Lot 3 with a 2-bedroom single-family residence and a detached 2-bedroom accessory apartment that are to be served by individual wastewater systems and a shared potable water supply from a drilled well, located at Bog Road in Belvidere, Vermont, is hereby approved under the requirements of the regulations named above subject to the following conditions. Any person aggrieved by this permit may appeal to the Environmental Court within 30 days of the date of issuance of this permit in accordance with 10 V.S.A. Chapter 220 and the Vermont Rules of Environmental Court Proceedings.

1. GENERAL

1.1 The permittee is responsible to record this permit in the Belvidere Land Records within 30 days of issuance of this permit and prior to the conveyance of any lot subject to the jurisdiction of this permit.

1.2 The permittee is responsible to record the design and installation certifications and other documents that are required to be filed under these Rules or under a permit condition in the Belvidere Land Records.

1.3 Each assign or successor in interest shall be shown a copy of the Wastewater System and Potable Water Supply Permit and the stamped plan(s) prior to the conveyance of a lot.

1.4 By acceptance of this permit, the permittee agrees to allow representatives of the State of Vermont access to the property covered by the permit, at reasonable times, for the purpose of ascertaining compliance with the Vermont environmental and health statutes and regulations, and permit conditions.

1.5 This permit does not relieve the landowner from obtaining all other approvals and permits from other State Agencies or Departments, or local officials prior to construction.

2. CONSTRUCTION

2.1 Construction shall be completed as shown on the plans and/or documents prepared by Graham Tidman, with the stamped plans listed as follows:

Title	Sheet #	Plan Date	Revision
Wastewater Disposal And Water Supply Plan	1	03/19/2021	None.
Wastewater Disposal Details and Specifications	2	03/19/2021	None.

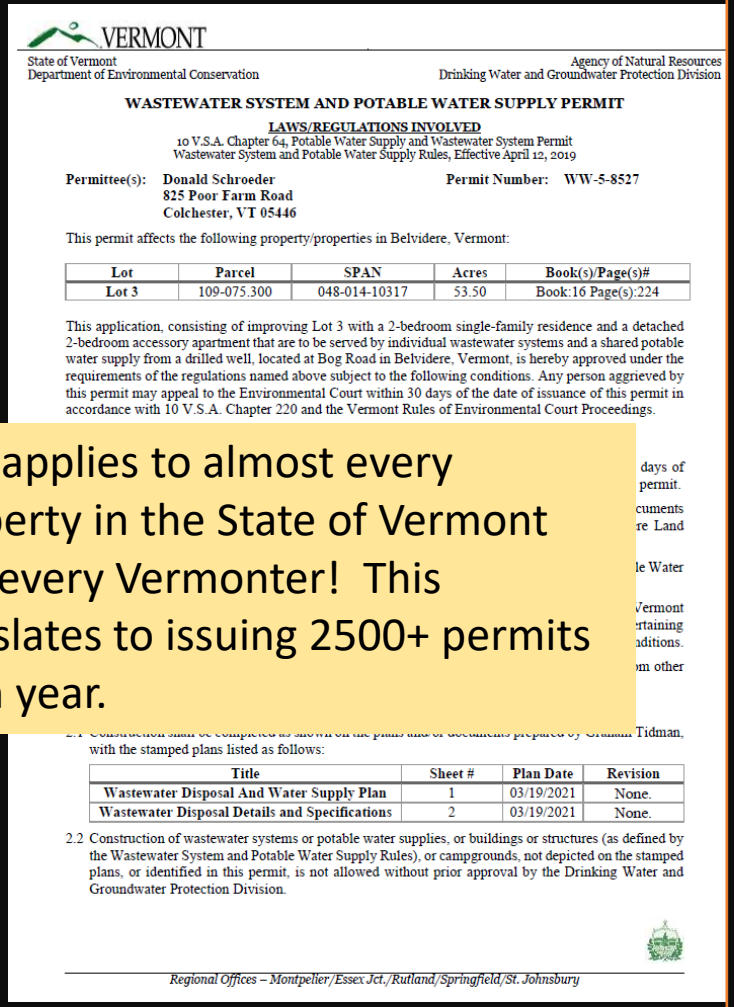
2.2 Construction of wastewater systems or potable water supplies, or buildings or structures (as defined by the Wastewater System and Potable Water Supply Rules), or campgrounds, not depicted on the stamped plans, or identified in this permit, is not allowed without prior approval by the Drinking Water and Groundwater Protection Division.

Regional Offices – Montpelier/Essex Jct./Rutland/Springfield/St. Johnsbury

Wastewater System and Potable Water Supply Program (WW Program)

- Soil-based wastewater systems and water supplies
- Wastewater flows of less than 6,500 gallons per day
- Potable water supplies (water supplies that are not public water supplies)
- Municipal water and sewer connections
- Subdivision of lands

This applies to almost every property in the State of Vermont and every Vermonter! This translates to issuing 2500+ permits each year.



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State of Vermont
Department of Environmental Conservation

Agency of Natural Resources
Drinking Water and Groundwater Protection Division

WASTEWATER SYSTEM AND POTABLE WATER SUPPLY PERMIT

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Regional Offices – Montpelier/Essex Jct./Rutland/Springfield/St. Johnsbury

WW Workshop

Introductions

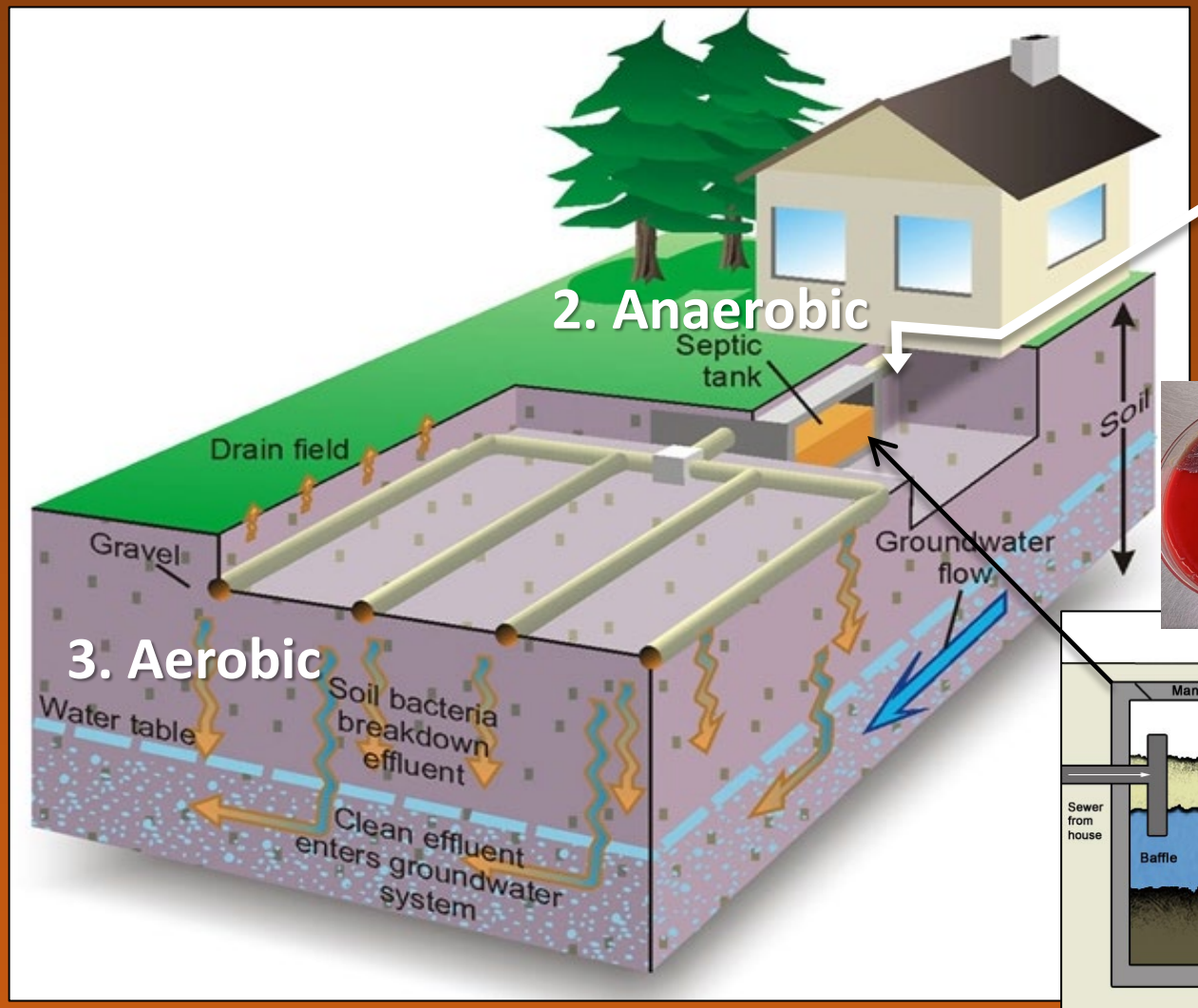
1. Onsite Wastewater Systems 101

2. Wastewater System & Water Supply Rules and Preventative Maintenance

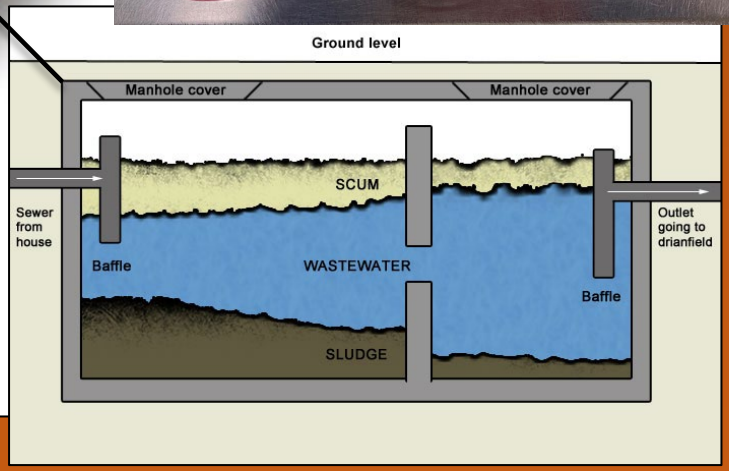
Questions and discussion

VERMONT

Part 1 - Wastewater 101: How do Soil-Based Wastewater Treatment Systems Work?

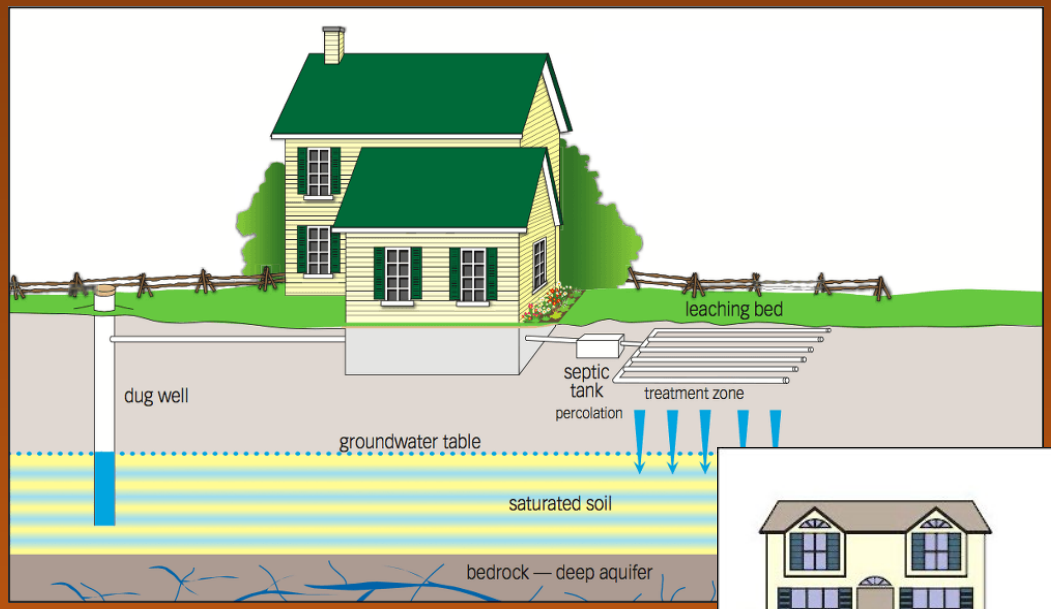


1. Digestion

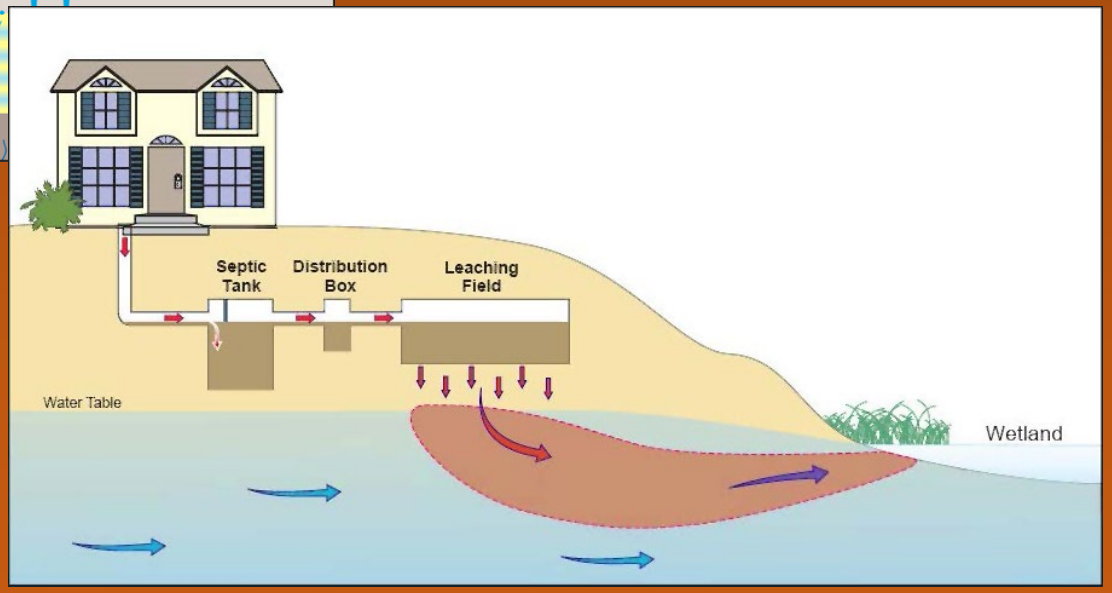


Why care about wastewater treatment?

Human Health & the Environment



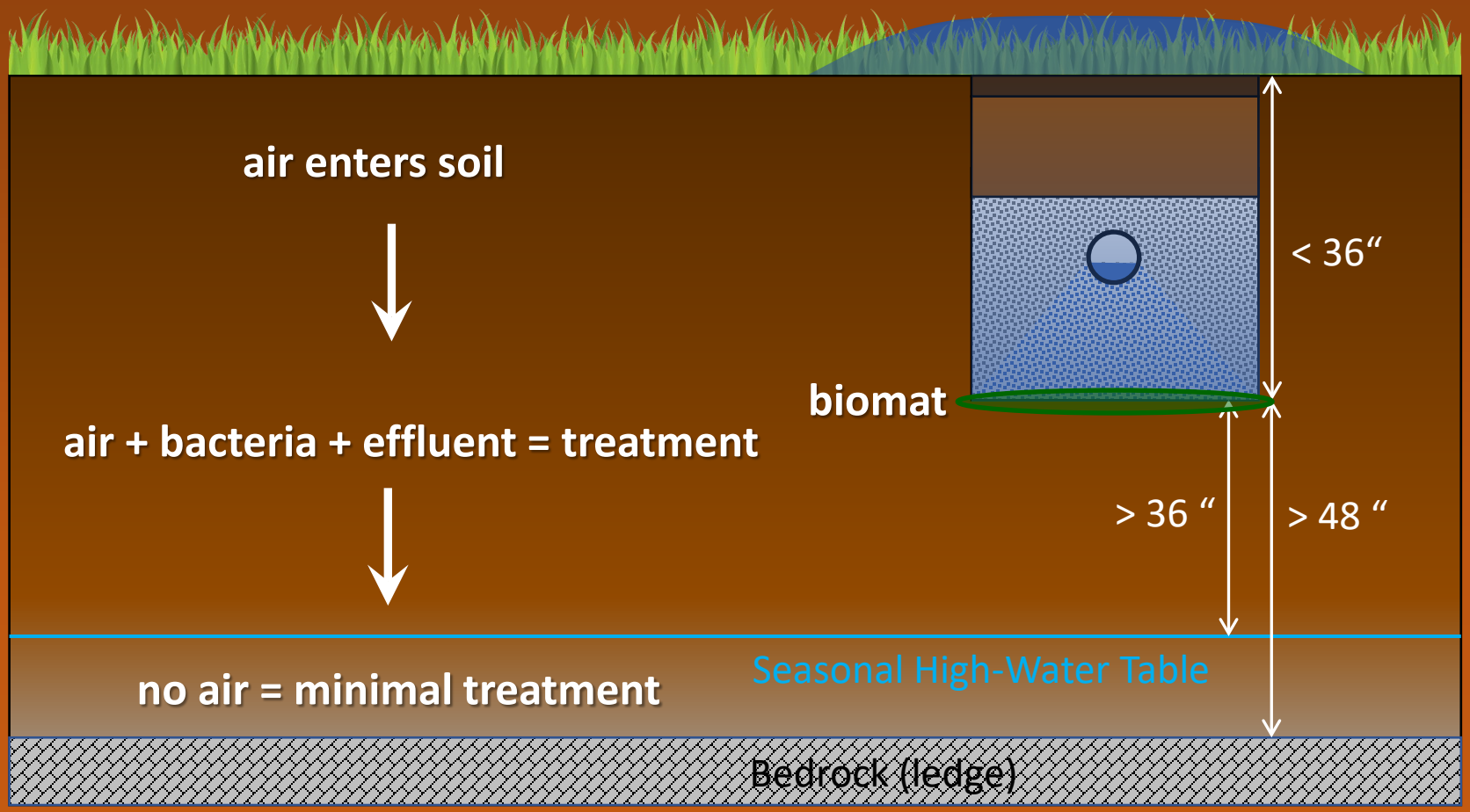
Pathogens: bacteria, viruses, and other microorganisms that can cause disease



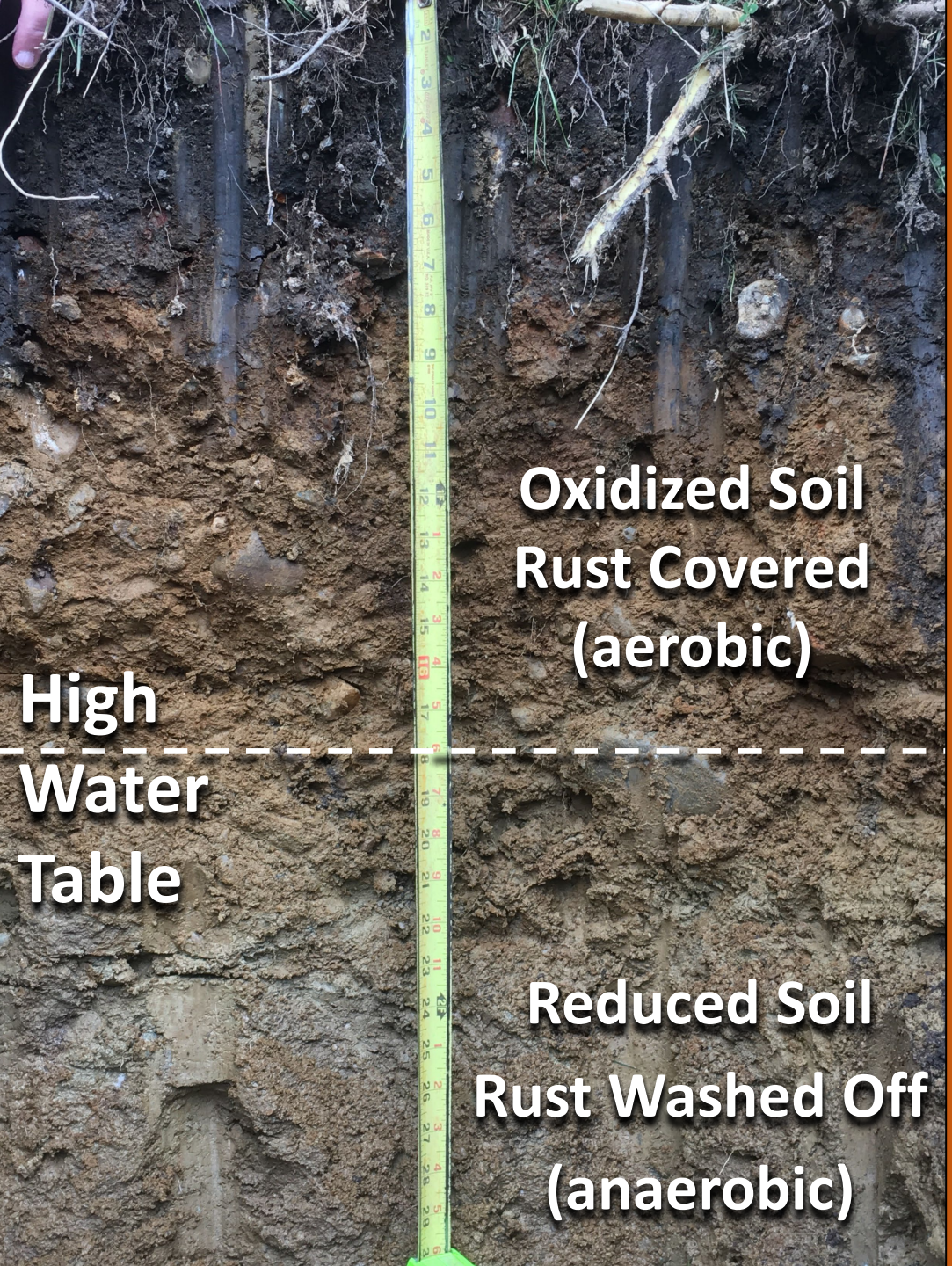
Excess nutrients: Nitrogen, Phosphorus, other limiting nutrients

Soil-Based Treatment Systems

How they work, and how they fail.



Designing Wastewater Systems

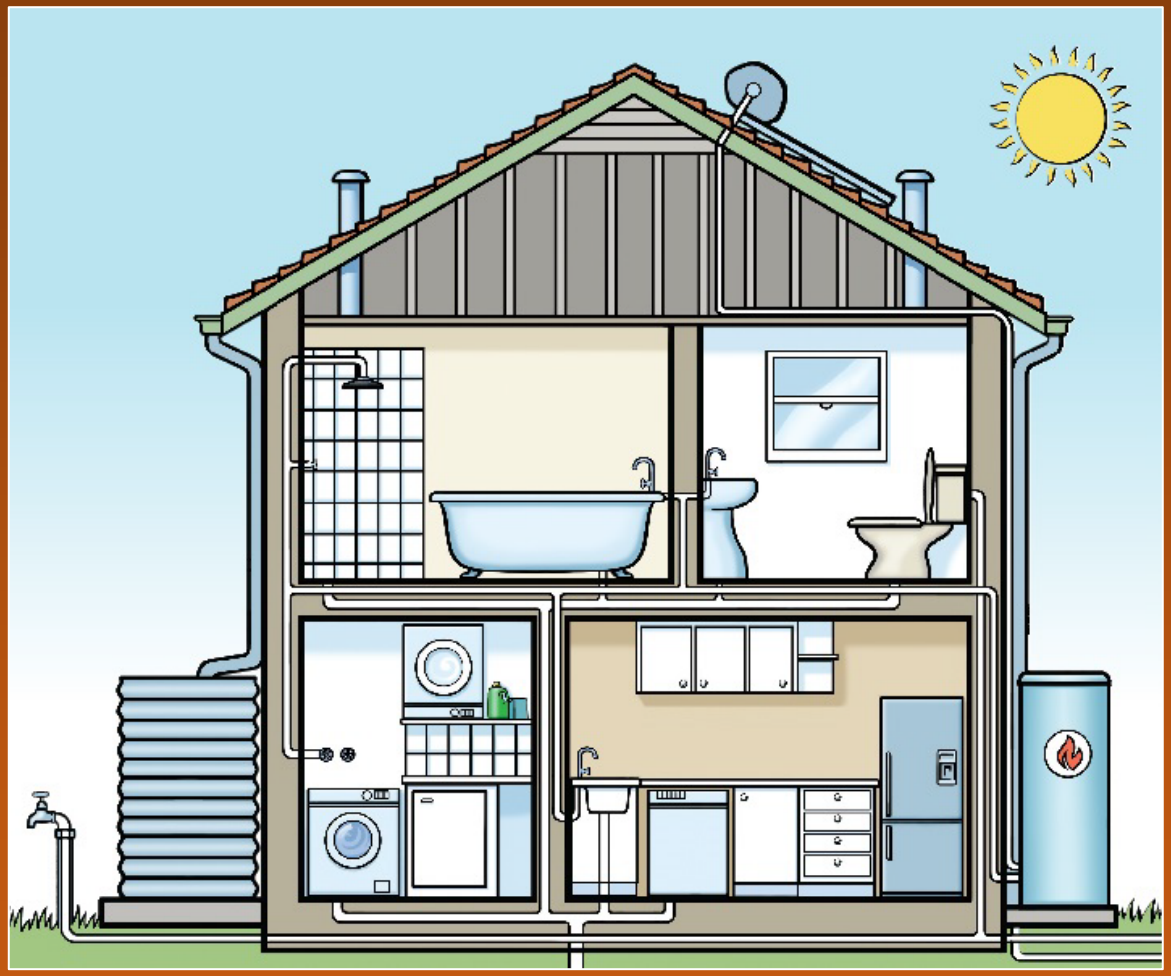


Where do the wastewater treating microbes live?

*Look for the rust covered (red-brown) soil! (Is there Fe everywhere?)

*Grey soil indicates the rust has been dissolved & washed off below the seasonal high-water table (SHWT).

How much wastewater per house?

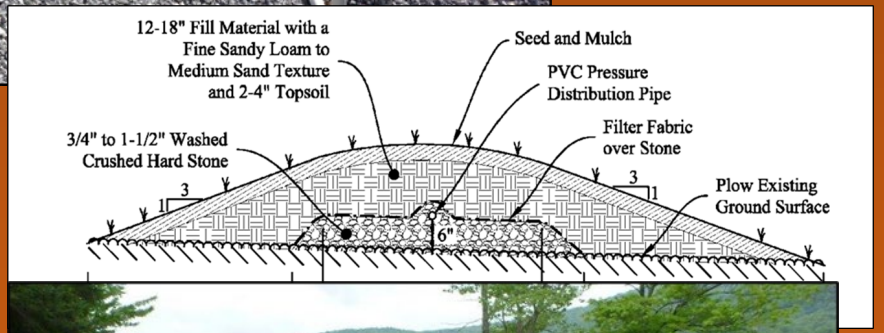


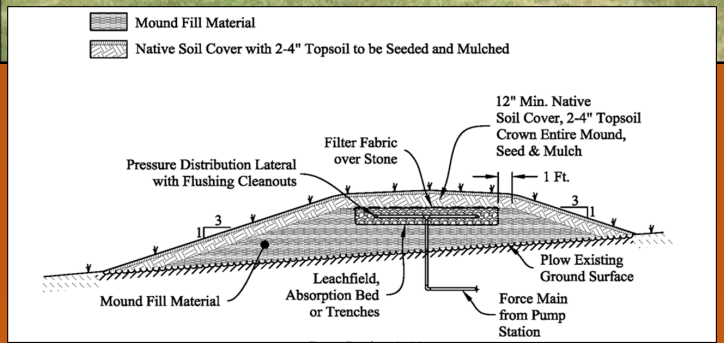
Design Flow

- 70 gallons per person per day
- Based on number of bedrooms (min. 2-bedrooms)
- 2 people in first three bedrooms
- 1 person in further bedrooms

Five Bedroom House: (3br(2pplx70gpd)+(2br(1psn×70gpd) = 560 gpd

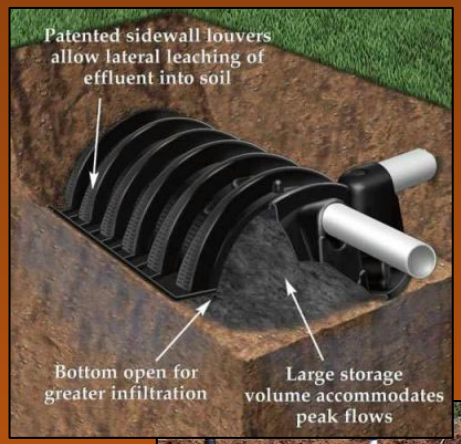
Soil-Based Treatment System Profiles





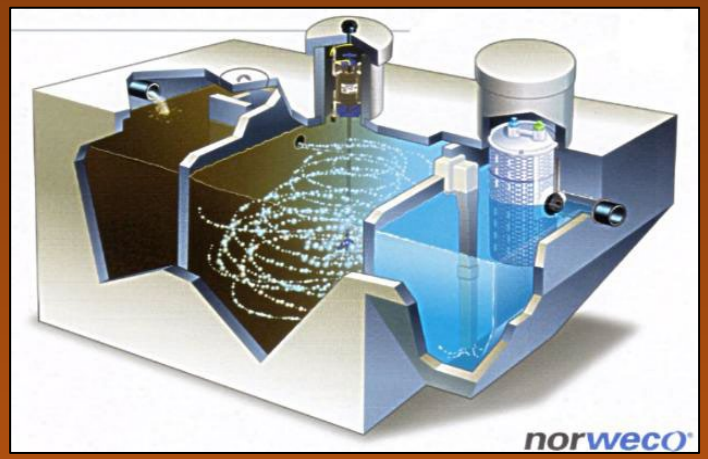
Soil-Based Innovative and Alternative (I/A) Dispersal Systems

large diameter aeration/infiltration chambers replacing traditional stone and pipe, may require regular inspections by licensed professional



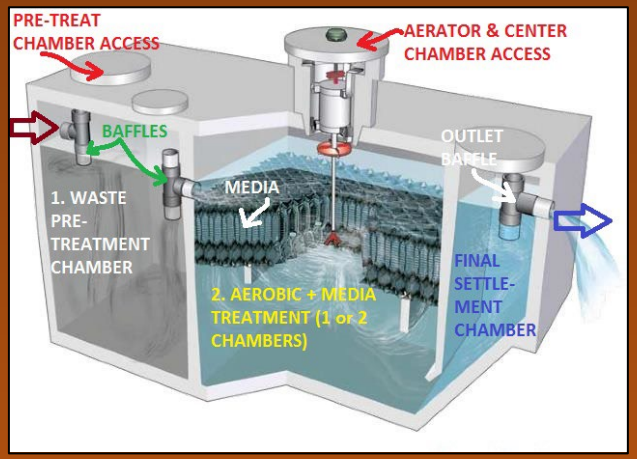
Innovative/Alternative Treatment Systems

1. Aerobic Treatment Units

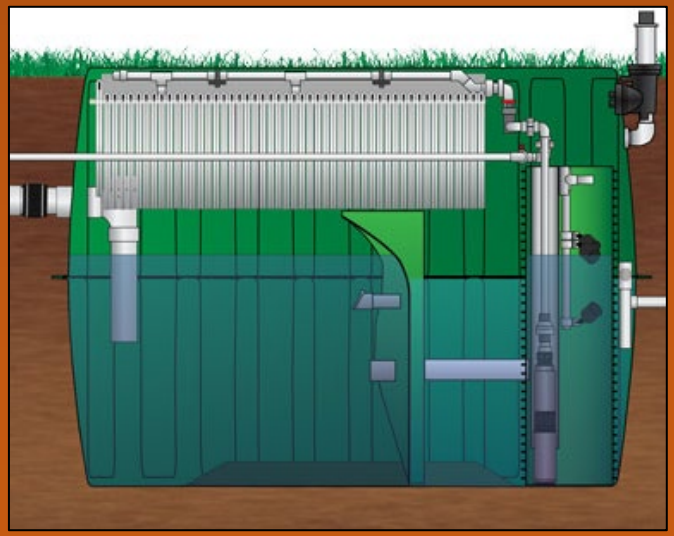


2. Media Filters

a) Bubbles up through synthetic media



b) Trickle down through synthetic media



c) Trickle down through organic media

Do I have to have a Potable Water Supply?

- **Yes**, in order to maintain sanitary conditions, the State of Vermont requires that every campground, structure, and building has a potable water supply.
  - Water supply should be tested annually to ensure potable quality.
  - If a potable water source is surface water, you may **not** rent your building/structure. These buildings or structures must obtain water from a spring, drilled, driven, or dug well.

Part 2: The Wastewater System and Potable Water Supply Rules

1. Scope and Purpose
2. Permits (site-specific) for Wastewater & Water Supply
3. What can and should landowners do for their systems?

VERMONT

Scope of the Rules

- Regulate **soil-based** disposal systems with design flows less than **6,500 gallons per day** and municipal connections to water & sewerage
- **Construction, modification, or replacement** of building, structure, campground, and associated **wastewater systems** and **potable water supplies**

When is Permit required for Existing System?

- **January 1st, 2007** – "Clean Slate"
  - Wastewater systems & potable water supplies associated buildings and campgrounds built before this date are exempt from Permit requirements provided there have been no modifications that alter flow ("you get what you got, but you don't get more without meeting the Rules")
- **July 1st, 2007** – Introduction of Universal Jurisdiction
  - After this date all Permits issued are by the State, unless authority delegated to municipality (formally Colchester and Charlotte)
  - Prior to this date, some Towns had their own regulatory requirements. Contact Town authority or Regional Engineer. It may still legally apply to the older systems.

How do I find out if valid Permit exists?

- Permits go with the property
- Permits do not “expire”
  - If Permit issued but wastewater system or potable water supply not installed, it may be built exactly as Permitted
  - Permits for failed systems and seasonal conversions do “time out” if not installed
  - Installation Certifications must be on file to make a Permit valid
- Find State issued WW Permits with on-line search:

  http://dec.vermont.gov/water/forms/ww-systems-permits
- Find out if a pre-2007 Town Permit exists by contacting the Town
- Permit may include easements.
- Find Innovative / Alternative Technology Approvals for inspection and maintenance requirements

When is a new Permit required?

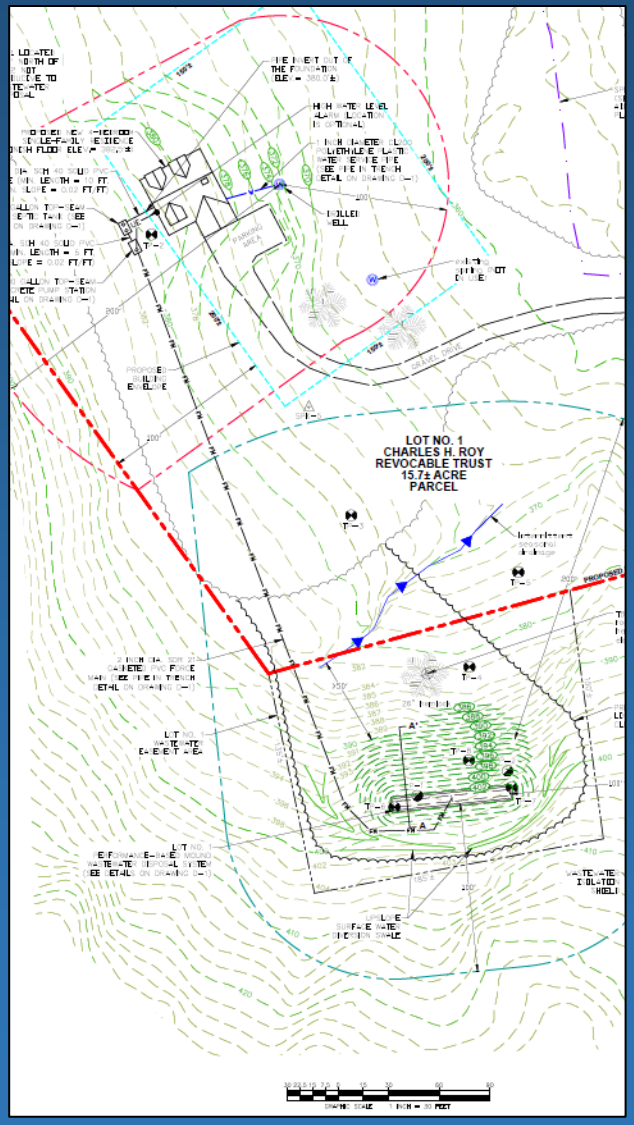
1. **Subdivision** of a lot or lots
2. **Construction, Modification, or Replacement** of a wastewater system or potable water supply
3. **Construction, Modification, or Change in Use** of building or structure that changes Design Flow, or seasonal to year-round
4. **Connection** of existing wastewater system or potable water supply to new or modified building of structure
5. **New** campground, or modification that changes Design Flow
6. **F**ailed wastewater system or potable water supply
7. “If water is going to flow in, water is going to need to flow out, and you will need a permit”

Permit Application Requirements

1. **Design Flow** – gallons per day
2. **Soil Descriptions** – Where is water table? What is soil absorption capacity? Where is ledge?
3. **Wastewater System Design** – Loading rates (gallons per square foot per day), system type, system size calculations, and component details
4. **Plans and Detailed Drawings** –

   a) contours; b) water features; c) flood plain;

   d) engineered features; e) existing/approved wells & wastewater systems; f) easements or rights of way; g) test pit & well locations; h) construction details; i) isolation distances & presumptive zones.



Permit Requirements for Landowners

1. Project shall be completed as shown in Permit Application plans
2. **Permit runs with land. Enforceable against Landowner & Successors**
3. Landowner shall record Permit in local town records with 30 days
4. No permit is valid for completed project **until Installation Certificate** is received by DWGP from the Licensed Designer
5. Permit is only valid for conditions described in the Application
6. **Purchaser shall be shown the Permit & I/A Approval if applicable**
7. **Maintain systems and meet all permit inspection requirements**
8. Landowner agrees to allow State representative to access property to ascertain compliance with Statutes, Rules, and Permit
9. Wastewater System shall be operated to prevent surface discharge and Water Supply shall be operated to prevent its contamination

When has a wastewater system or potable water supply failed?

A wastewater system is failed when:

1. Exposed on ground surface
2. Discharged to surface water
3. Backed up in building

* May qualify as a minor repair

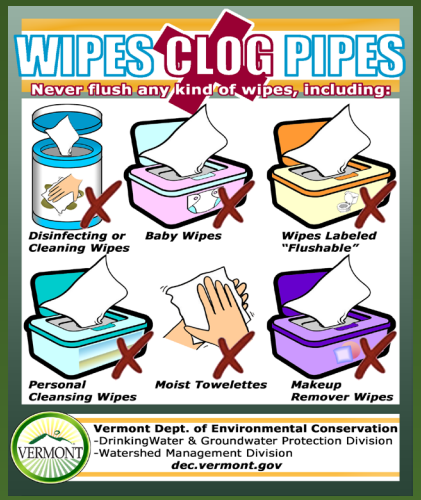
Signs of a Failed Wastewater System

- Wastewater backing up into your toilets, tubs, or sinks.
- Slow-draining fixtures, especially following a weather event.
- The smell of sewage, particularly when accompanied by soggy ground or water discharging over the ground or in a nearby ditch, even if the discharge is not constant.
- A flashing light or beeping alarm in the house or yard indicating a pump is not working or the level in a tank is too high.

A wastewater system has not failed if…

- It can be remedied by minor repair or replacement of physical component (replace pipe)
- Effects lasted for a brief period, system has recovered, and cause of failure was an unusual and non-recurring event (Hurricane-caused flooding)

How to prevent a wastewater system from failing…



- Conserve water, particularly during a major weather event
- Repair or replace leaking plumbing fixtures
- Maintain proper landscaping around your system

- Pump your septic tank regularly
- Limit what goes into your System
- Do not drive or build on any part of your system
- Inspect your system routinely, including cleaning of effluent filter

What to do if a wastewater system has failed?

- **Contact a VT Licensed Designer** to act on property owner's behalf
- **Designer** will assess site and submit permit application
  - It is a Permit violation if replacement system not installed
  - Immediate temporary remediation is required
  - Timescale to replace depends on circumstances
- **In the meantime?**
  - **Fence off area and keep people and animals away**
  - **Don't redirect water anywhere else**
  - **Place hay bales around the area**
  - **Have your tank pumped**

Routine Maintenance

How to Inspect a Soil-Based Wastewater System?

Do determine how quickly sludge and scum accumulate in the tank with semi-regular inspections. The tank should be full of wastewater.

Do have the sludge and scum pumped out of the septic tank when needed.

Don't turn off pumps or other electrical components, they are important and necessary components of the system and should be tested to determine if functioning correctly.

Do hire a licensed designer or engineer to inspect the system. They will research the size and location of the system components, expected flows, and the vitality of the leach field by inspecting it for a proper aerobic environment.

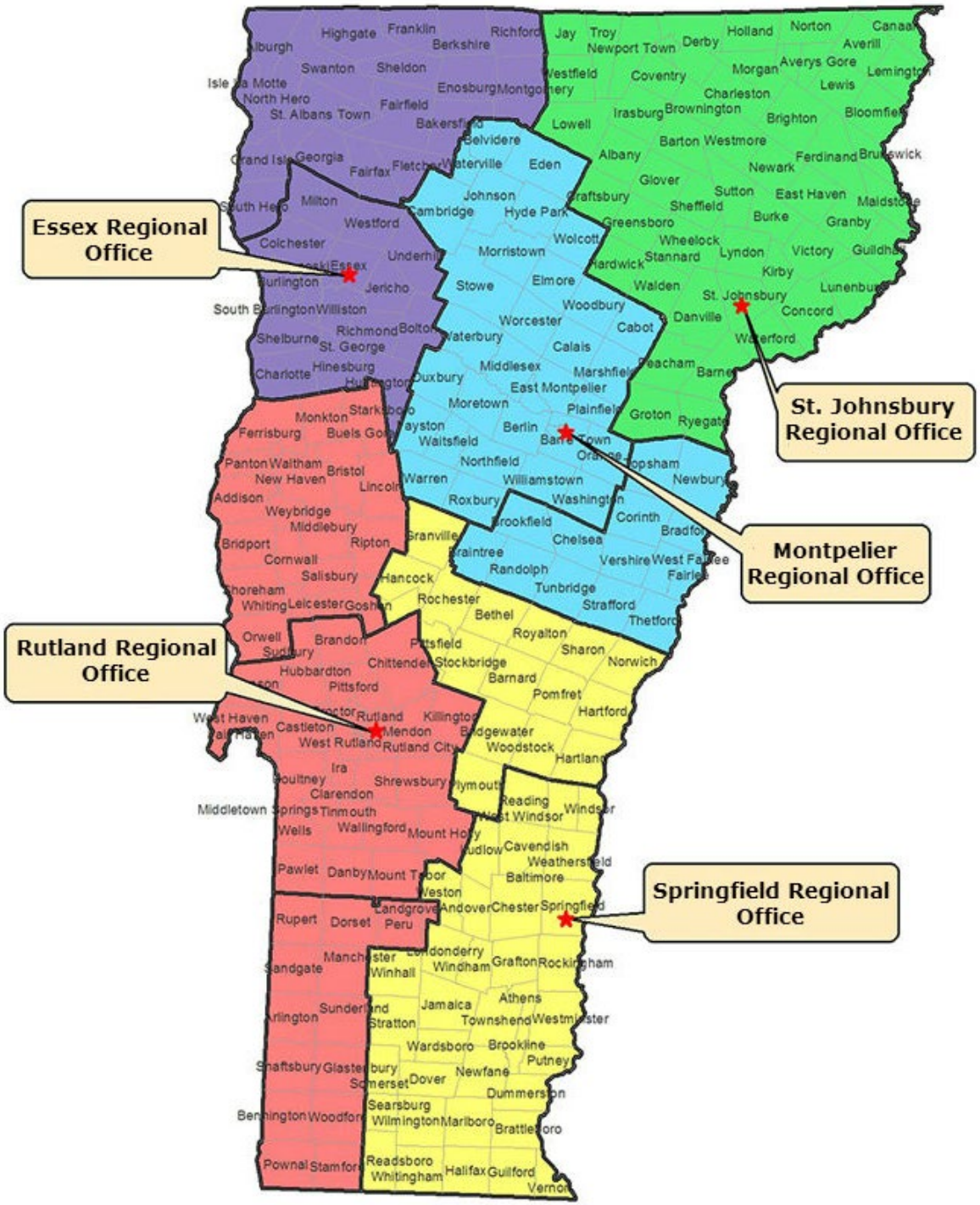
Don't purposefully stress a system to see if it is failed.

Do clean the effluent filter annually.

Don't dye test the system, the water flows from a dye test can overstress a system that was functioning and potentially cause it to fail.

Do install risers over the tank to provide easier access for the measuring and pumping of solids and the cleaning of the effluent filter.

Regional Office Program



http://dec.vermont.gov/water/ww-systems

http://dec.vermont.gov/water/contacts

VERMONT OFFICIAL STATE WEBSITE

VERMONT

AGENCY OF NATURAL RESOURCES
Department of Environmental Conservation 1

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  - Well Drillers Licensing and Reporting
  - Contacts
  - What's New
- Environmental Assistance

PROGRAM EDUCATION, OUTREACH AND RESOURCES

This is a simplified overview of how a septic system works.

Water runs out of your house from one main drainage pipe into a septic tank.

The septic tank is a buried, water-tight container usually made of concrete, fiberglass or polyethylene. Its job is to hold the wastewater long enough to allow solids to settle down to the bottom (forming sludge), while the oil and grease floats to the top (as scum). Compartments and a T-shaped outlet prevent the sludge and scum from leaving the tank and traveling into the drainfield area.

The liquid wastewater then exits the tank into the drainfield. If the drainfield is overloaded with too much liquid, it will flood, causing sewage to flow to the ground surface or create backups in toilets and sinks.

Finally, the wastewater percolates into the soil, naturally removing harmful bacteria, viruses and nutrients.

The Regional Office Program issues water/wastewater permits (WW Permits) for soil based wastewater systems with flows of less than 6500 gallons per day, for potable water supplies (water supplies that are not public water supplies), and for municipal water and sewer connections. Permitting staff are located in five Regional Offices. Staff also administers the licensed designer program and reviews innovative and alternative systems for potential use in VT.

The regional offices map provides office, program and contact information for each region.

Licensed Designer Program information.

WHAT'S NEW?

Be Septic Smart!

Over half the households in Vermont depend on septic systems or other types of onsite systems to treat their wastewater. Failure to maintain a septic system can lead to backups and overflows, which can result in costly repairs.

Even if you do not own an on-site septic system you are likely to use one at a friend's house or camp, a business or a park facility. During Septic Smart Week, EPA provides septic system use and maintenance tips, including:

- **Keep it clean!** Maintain your septic system to protect the cleanliness of your water well.
- **Don't Strain Your Drain:** Use water efficiently and stagger use of water-based appliances. This can improve septic system operation and reduce risk of failure.
- **Think at the sink!** What goes down the drain has a big impact on your septic system.
- **Don't overload the commode!** A toilet is not a trash can. Disposable diapers and wipes, feminine hygiene products, cigarette butts and cat litter can damage septic systems.
- **Protect it and inspect it!** Regular septic maintenance can save homeowners thousands of dollars.

Where do I find answers to questions?

Digging deep into the DEC web site

http://dec.vermont.gov/water/programs/ww-systems/program-education

Where do I find answers to my questions?

1. The Designer may be able to answer questions
   http://dec.vermont.gov/water/licensed-designers
2. Environmental Enforcement for anonymous reporting:
   http://dec.Vermont.gov/content/environmental-violation-report
3. For WW Permit questions contact Regional Engineer:
   http://dec.vermont.gov/environmental-assistance/permits
4. For compliance questions contact compliance supervisor:
   Cristin Ashmankas – Cristin.Ashmankas@vermont.gov (802) 522-3257
5. If still unsure or unhappy, contact Program Manager:
   Bruce Douglas –Bruce.Douglas@vermont.gov (802) 636-7545

Engineered wastewater systems and the protection of potable water supplies is considered the single greatest human achievement, saving more human lives than all of medical science.

Questions?