

# Septics, Septage, Waterless Toilets and Climate Change – It's All Connected

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The purpose of this talk is to:

Bring a general understanding of how a septic system works

Learn how to properly care for a septic system

Understand sewage / nutrient impact on the natural environment and water quality

# What we will talk about today:

- A place called “Away”
- How the septic system works
- Causes of septic problems
- Indicators of septic problems
- Septic myths and folklore
- Septage
- Alternate toilets
- Climate Change



**It's all about the WATER!**





# We Are In A Sewage Crisis

**18 Billion Litres of treated,  
semi-treated and untreated  
sewage enters the Great  
Lakes Basin.**

**Every day!**

# The “Honey” Wagon





“AWAY”  
where is that anyway?



Do you really want to know?

# Where does it all go?

- In cottage country most of your septic stuff, known as Septage, is “Land Applied” to a field closer than you may like imagine!
- Or it is deposited into a municipal sewage lagoon which is emptied at a later date and taken ‘away’



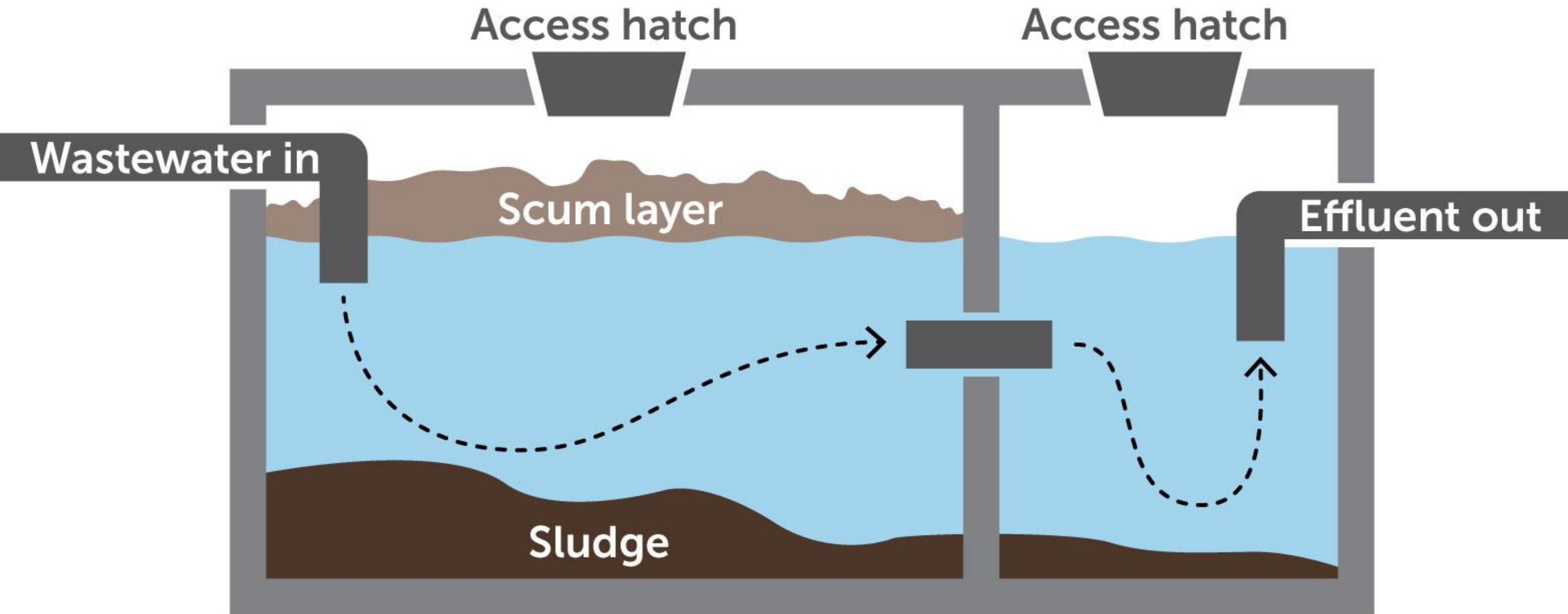
# How It Works

There are two types of treatment within the tank:

**Physical Treatment** - Sinking and floating

**Biological Treatment** - Digestion of waste by microbes

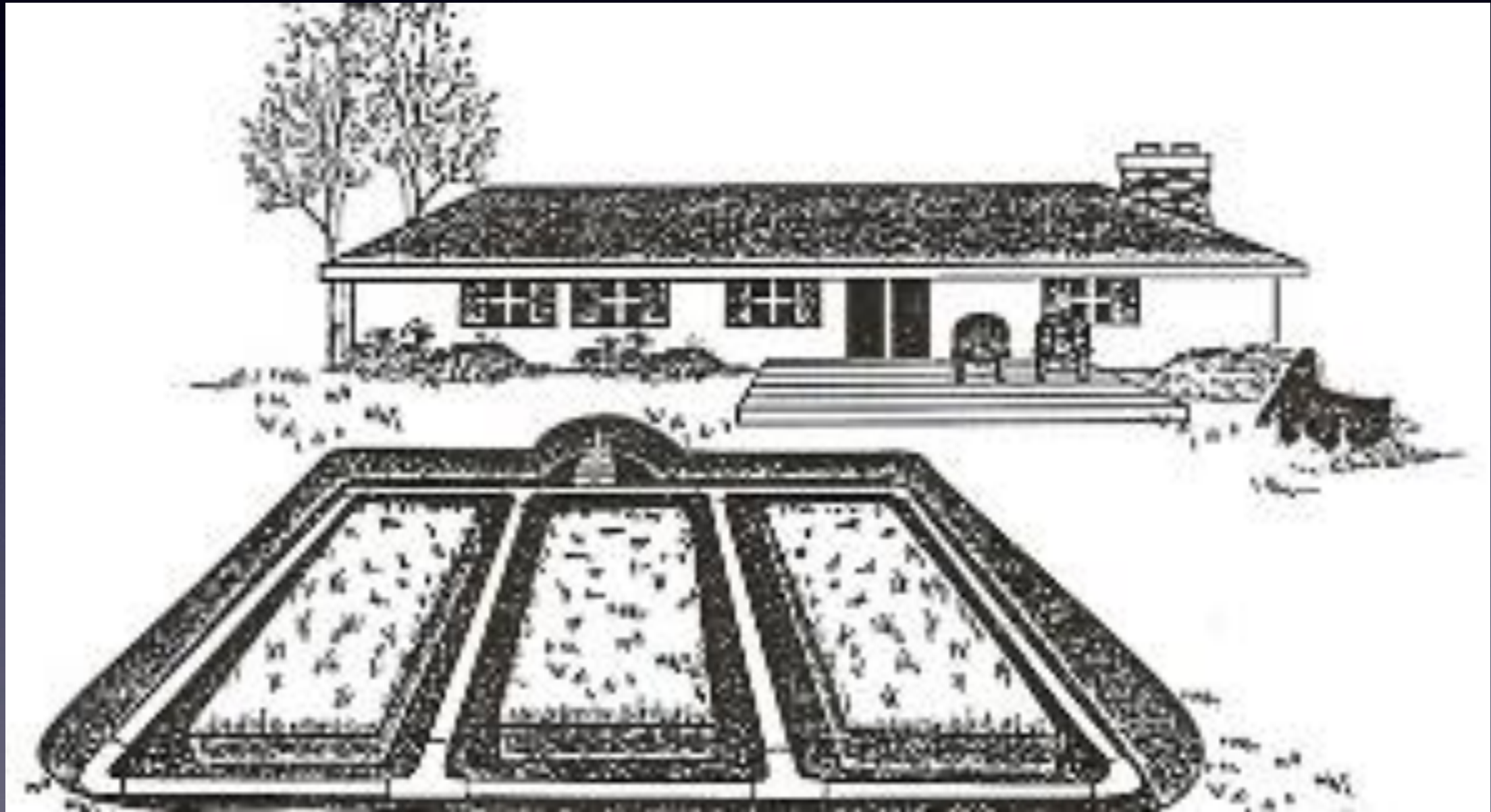
# Typical Septic Tank



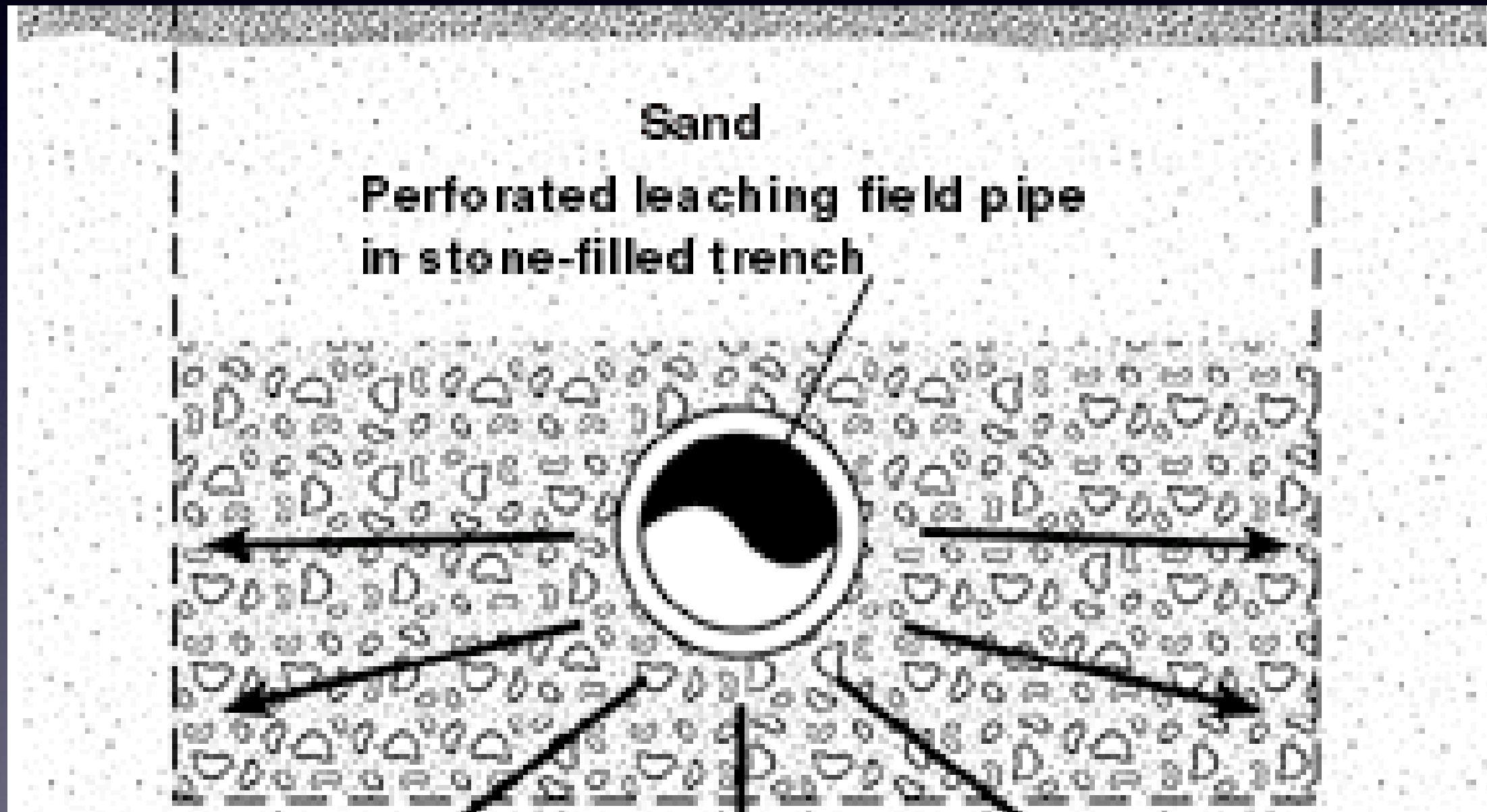
1 drop in = 1 drop out



# Tile or leaching field



# Tile Line Cross section





# Tile Line





# Plugged Tile Line





# Changing Wastewater

- What we put down the drain has drastically changed since the system was introduced in France about 260 years ago.
- Originally designed for toilet waste (black water) only.
- No grey water, soaps, laundry, antibacterial chemicals, bleach etc.
- Wastewater treatment whether a holding tank, septic system or sewage treatment plant, works and depends on a biological process. “Chemicals” are not removed from the wastewater.



# Causes of Problems & Malfunctions



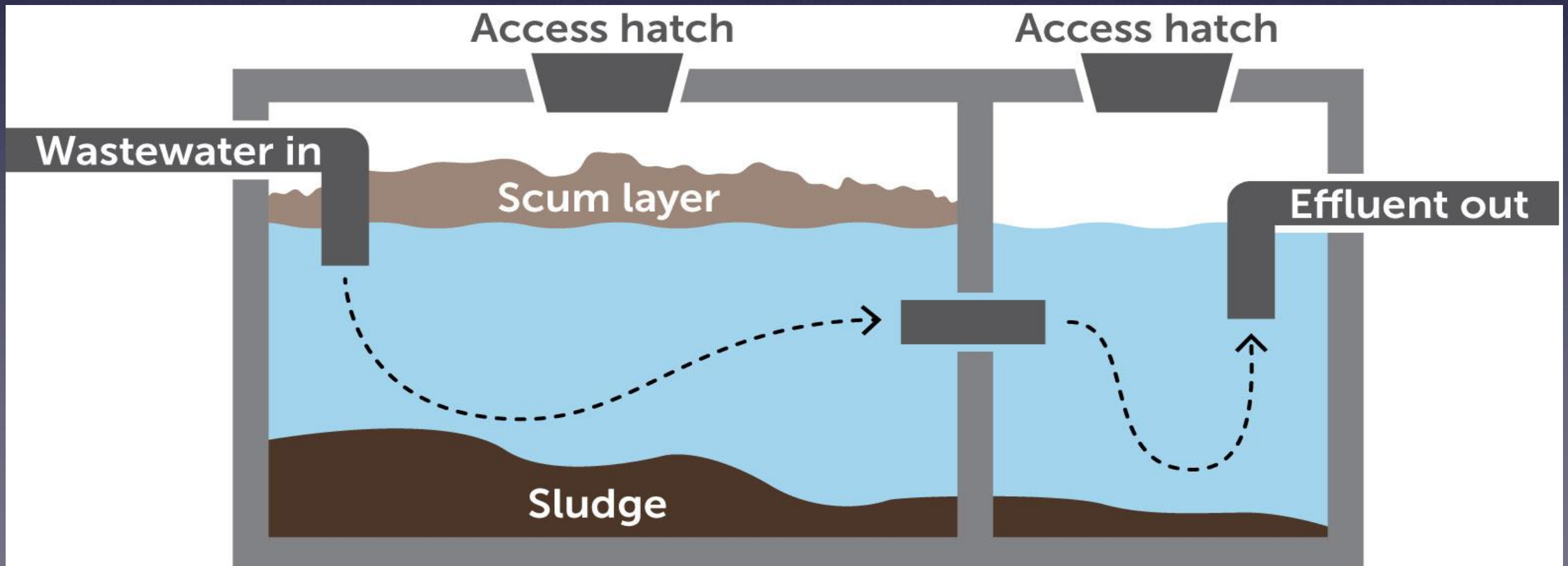


- Poor or improper installation
- Improper maintenance
- Damaged or missing baffles
- Hydraulic overload
- Water softeners & Iron filters
- Garberators
- Chemicals

# Missing or Damaged Tank Baffles

A tank baffle is a concrete “dam” on the septic tank outlet which helps prevent floating solids from leaving the tank and entering the tile field.

Baffles are a critical component to a septic system's life. Baffles are often missing from septic tanks as they are degraded by a corrosive gas within the septic tank or simply fall off.





# Automatic dishwashers

Contribute to water conservation..... However.....

Most automatic detergents are very problematic to a septic system as they contain:

Chlorine (sodium hypochlorite), sodium hydroxide, and other sanitizers restrict the microbes ability to breakdown organic material, or even kill them off completely, resulting in reduced treatment efficiency and increased pollution.

There is enough chlorine in one load to sterilize a 600 gallon septic tank! (U of C Small Flows Council)

Use only phosphate and chlorine free products.

# Water Softeners & Iron Filters

This equipment should NEVER backwash into your septic system.

- a) the fine mineral removed from the water will be backwashed into your septic tank where it is slow to settle and ends up in the tile bed.
- b) most softeners use salt, lots of salt, which negatively effects the bacteria within the septic tank.
- c) the amount of water used in the backwash cycle can cause hydraulic overload.

Direct all backwash to an exterior stone leaching pit or consult the building code.



# Biodegradability

My Old Buick

If I leave it there long enough.....

Arsenic

It's all natural and biodegradable – want some?

Rob's Biodegradable Soap - Says Who?

3rd Party Verifications –

OECD biodegradability & non-toxicity statements

“Green washing”



# Non Biodegradable Soap





# Indicators of Septic Problems

- Odours - on “that side” of the cottage
- Damp areas on the tile bed
- Green “Stripes” on the tile bed area
- Break-out of effluent
- Slow fixture drains
- Gurgling toilets
- Frequent Pump-outs
- Freezing

# Indicators - “Green Stripes”



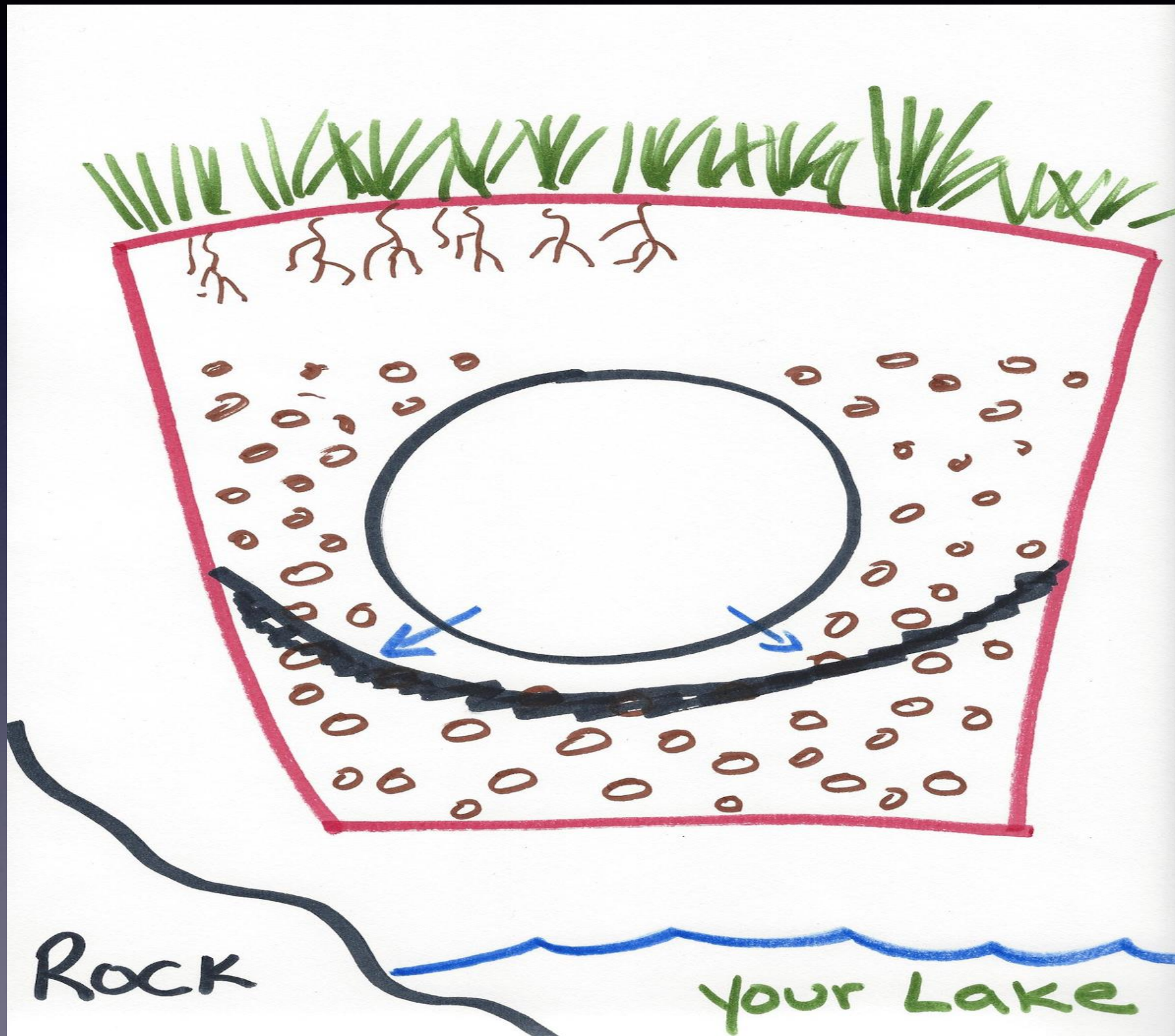


# Green “stripes”





# Bio-mat





# Hydraulically overloaded system





# Overflowing Septic Tank





# Failed Tile Bed



Bio-mat



# Poor Installation





# Leaking Septic Tank





# Attempt at outlet repair





# Plugged tile line





# Roots from nearby Poplar tree





# Cedar Roots In a Septic Tank





# Natural Disasters

- Pollution - nutrient and bacteriological contamination
- Negative lake water quality – Blue-Green Algae Blooms and eutrophication
- Release of pathogens & viruses .....
- Such as E.coli, Hepatitis and who knows what else.



# Never pumped out!





# Septic Myths & Folklore

- Never need to pump the tank
- Green “stripes” or patches
- Just add some “Road Kill”
- Rotten Protein
- Yogurt
- Yeast
- Flush through extra water
- Never use an “additive”



# What Should Be Added

- Natural bacteria, from our guts, are not well suited to  
breakdown paper fiber, fats, oils, soaps &  
detergents
- As a result these materials build up in a septic system
- Resulting in more frequent pump-outs, odours, less efficient treatment, and more nutrients leaving the system
- Adding a quality digestive bacteria mix will improve digestion and over all health of your septic system



# Spring Septic Start-Up

Your Septic's last meal was  
Thanksgiving

Now its May "24" weekend

Microbes job is to convert nutrients  
into more microbes, carbon dioxide  
and mineral ash



# Toilet Paper Only

No flushing feminine hygiene products - no matter what the package says.

Provide a suitable container and inform your guests why.

Never put wet wipes, baby or adult, paper towel, diapers - no matter what the package says.

These items will likely cause blockages at the tank inlet or outlet and potentially cause septic tank overflow - that's a bad day.



# Lets Talk Toilet Paper

1 Ply

VS

2 Ply



# Septic Do's &

## Don'ts

- Don't drive on the tile bed - atv or snow machines.
- No woody rooted plants i.e. perennials
- Keep trees and shrubs back 5 meters / 15 feet
- No solvents, fats, oils or chemicals down the drain
- Don't use garburators
- Do use low flow or dual flush toilets
- Do use biodegradable cleaning products
- Do use a high quality bacteriological additive at start up and maintenance i.e. EcoEthic Septic Treatment



# Septic Pump-Outs

While somewhat dependent on usage and age of your septic system, every 3-5 years is recommended.

Older and single compartment septic tanks should be serviced more often as they are smaller.

Both sides of the tank (if two chambers) should be pumped out every service interval.

If effluent filter is installed – it should be cleaned.



# Septic Maintenance

Pump-out every 3-5 years

Check Baffles

Clean Effluent Filter

Check Toilet Flappers and Dripping Faucets

Educate Family & Friends

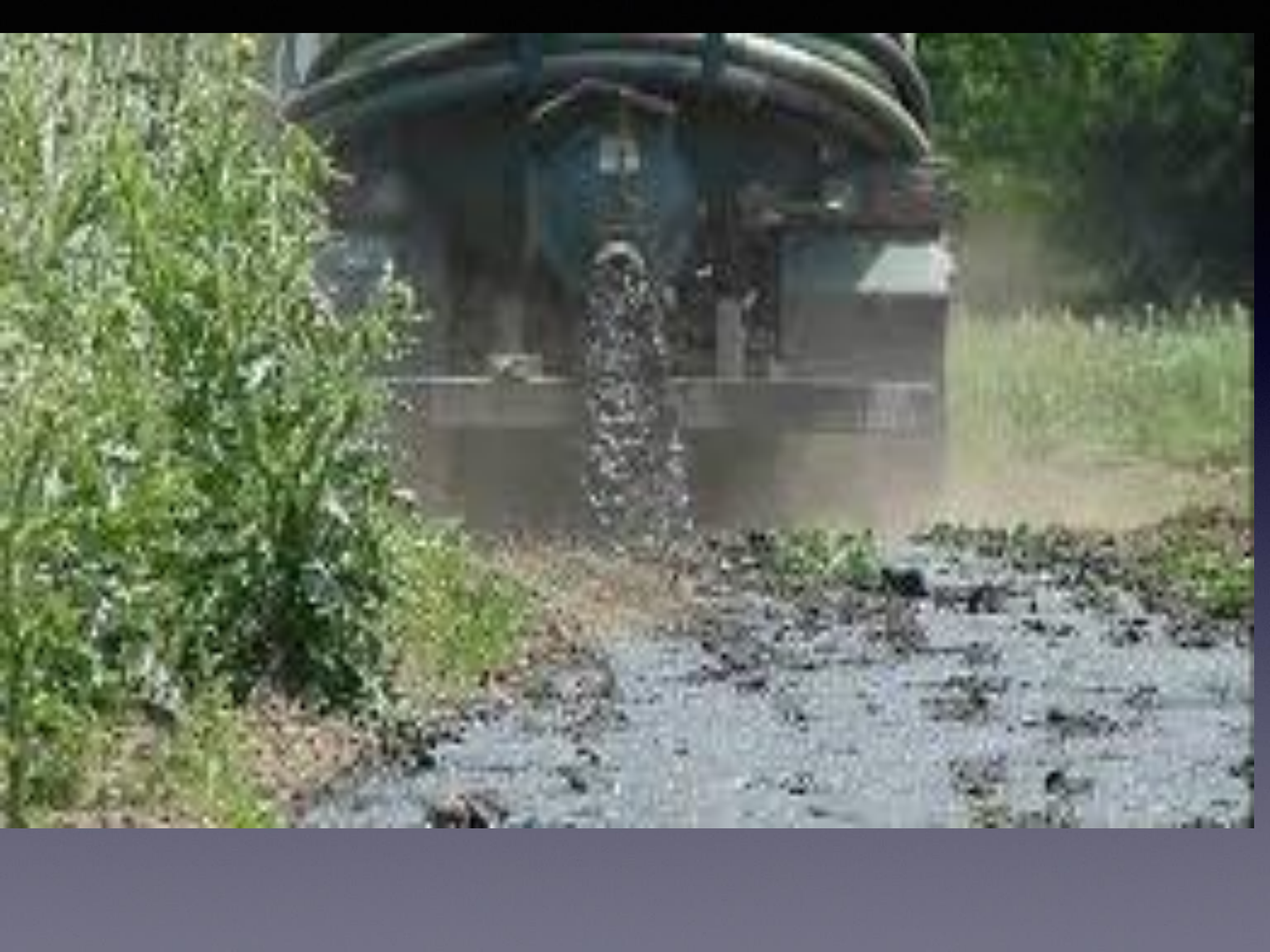
Add Effective Bacteria Monthly and at Start-up



# Septage - what is it?

Septage or septic tank sludge is the partially treated sludge stored in a septic tank.

















Like · Comments



They bulldoze, County Commissioner Erik...  
Open as clearing of the slope and pits fully sewage? It's known as 'Tara'

Robert Robert 'DODGERS'  
... ..















# Septic Systems & Climate Change

Warmer winters = less “ice on” time

Less reflected heat = warmer water sooner, more plant / algae growth and less dissolved oxygen

Plants die and decompose resulting in more nutrients  
Decomposition uses up dissolved oxygen in the lake

More nutrients from decomposing plants = more plant growth

Now, add nutrient loading from poorly maintained, inadequate and

overused septic systems and this scenario is supercharged.



# Septic Inspections

Are you ready?

Do you have anything to hide?

Municipally sanctioned septic system inspections are on the way!

“Proper” Inspections vs visual or “drive by”

Private Inspections



# Scandinavia

A long history of NOT mixing water with sewage waste in cottage areas.

Sweden is the world leader in waterless, closed system toilet technology.

Why?


Drinking water and estrogen, nutrient pollution in the 1970's



# Alternative Toilet Systems from Sweden

- Do not mix water with Sewage waste
- Eliminate nutrient pollution in lakes
- Produce a usable end product – humus
- Ideal for difficult locations – bunkie and boathouse
- MullToa – only Environmentally Certified brand





**CAUTION:**  
Vehicle may be Transporting  
Political Promises!

CALIFORNIA  
P00 PMPR



Please pass along your new septic knowledge.

**Thank You**