Understanding Sewage Systems in Ontario

Wastewater, Re-inspections, and System failure

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Ontario Building Code

TREATMENT PARAMETERS

CLASSES OF SYSTEMS

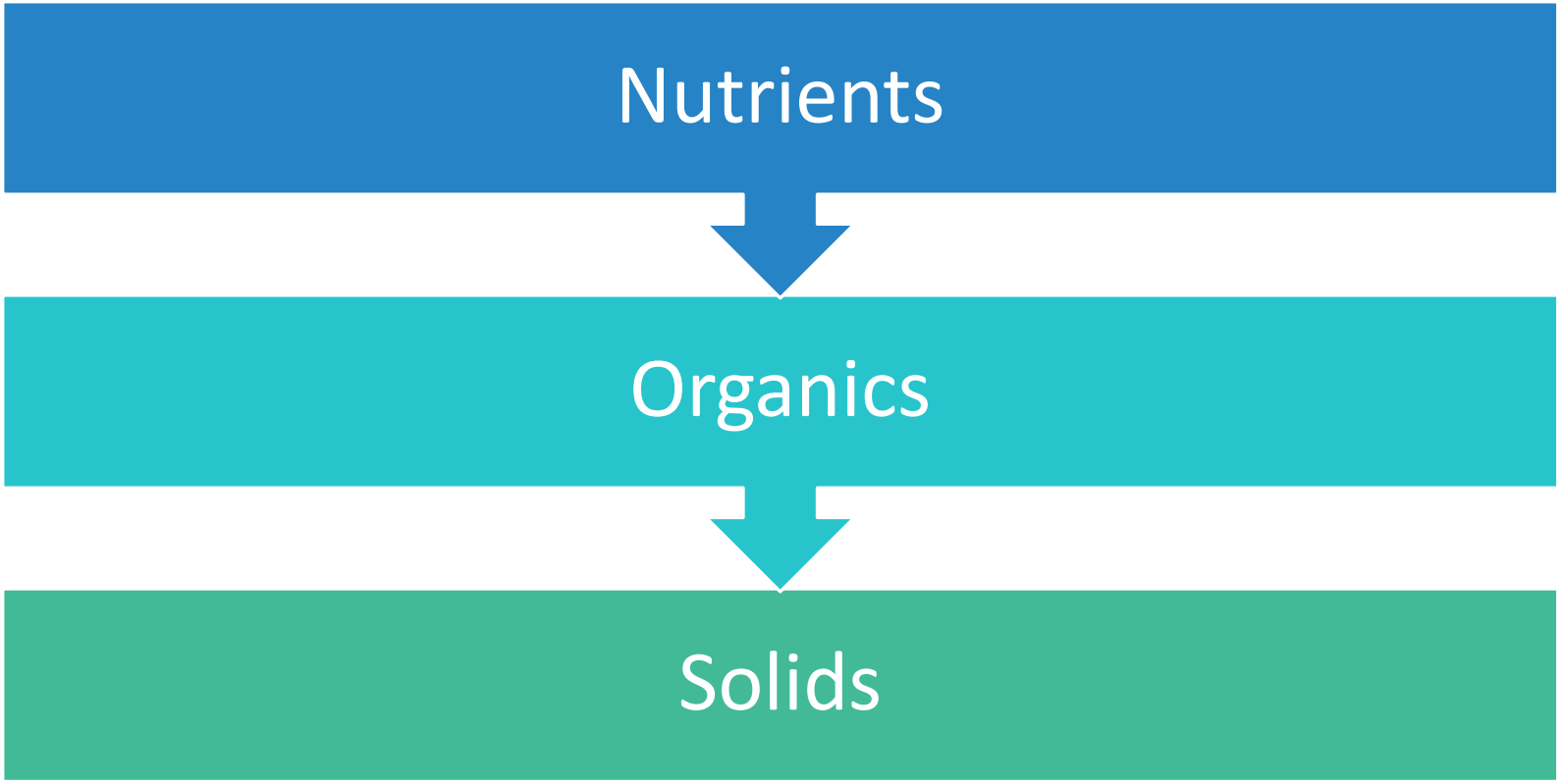
What is Wastewater?

Sanitary sewage Definition - Division A, Part 1.4.1.2.):

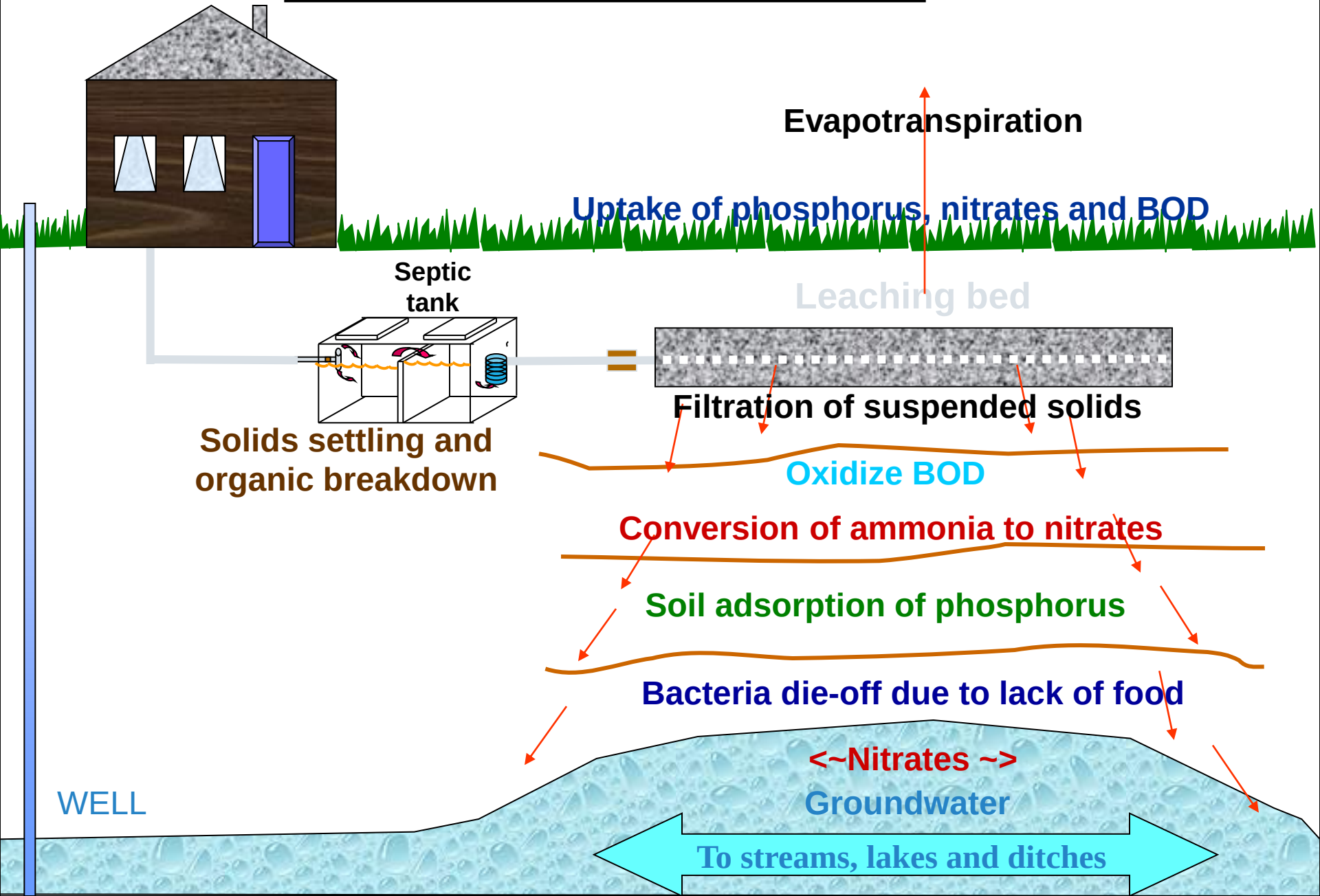
liquid or water borne waste, of industrial or commercial origin, or of domestic origin, including human body waste, toilet or other bathroom waste, and shower, tub, culinary, sink and laundry waste

Greywater - sanitary sewage of domestic origin which is derived from *fixtures* other than *sanitary units*

What is Treated?



MAIN TREATMENT PROCESSES



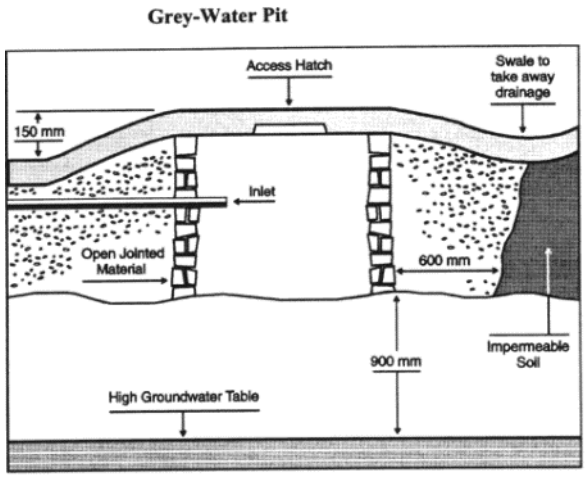
Classes of Sewage Systems

Class 1 – Privies

- Composting toilets are a Class 1
- No permit required for installation
- Construction requirements and SEPARATION distances provided in Ontario Building Code and can be enforced

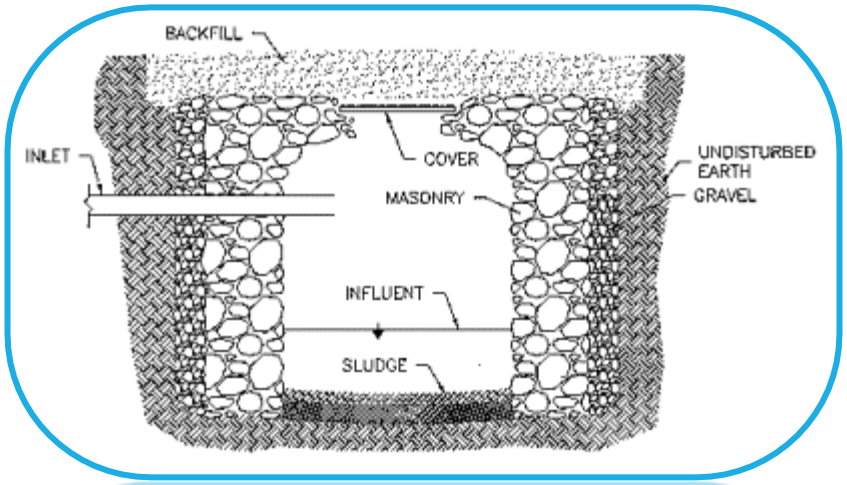
Class 2 – Greywater Pit

- Also known as :
  - French Drain
  - Dry Well…
- Can only accept waste from fixtures – i.e. sinks, showers…
- Permit required prior to construction
- Systems can be very large depending on conditions



Class 3 - Cesspool

- Only accepts waste from a Class 1 system
- Permit required prior to construction
- Not very common



Class 4 – Septic Tank &Distribution Field

- Most common system
- Accepts both black water and greywater
- Different configurations:
  - Conventional –
    - Trench bed & Filter media
  - Level IV Treatment –
    - Type A & B, SBT
  - BMEC approved
- Level IV treatment
  - Higher level of effluent quality
    - better for the environment
  - Overall system size can be smaller
    - less imported fill

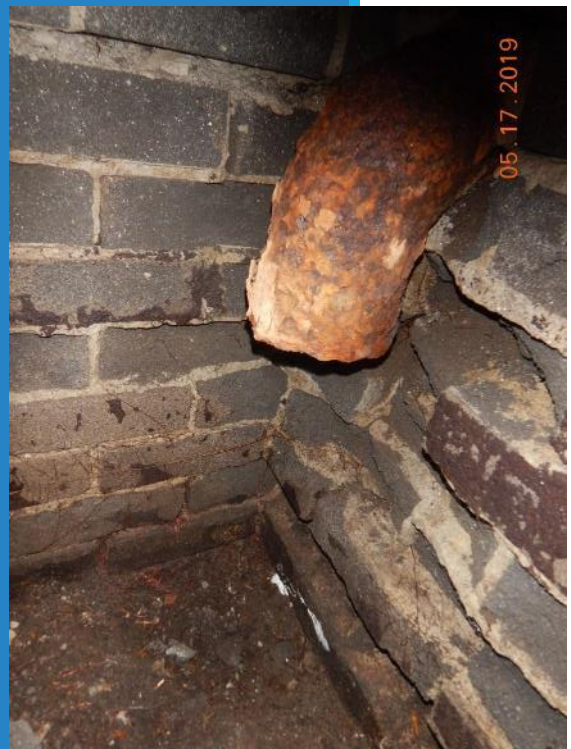
Class 5 – Holding Tank

- No on-site treatment or disposal of sewage
- Not very common in recent years – all other avenues exhausted prior to installation
- Signed Agreement required with Licensed Sewage Hauler
- Minimum tank size is 9000L

When are Permits Required

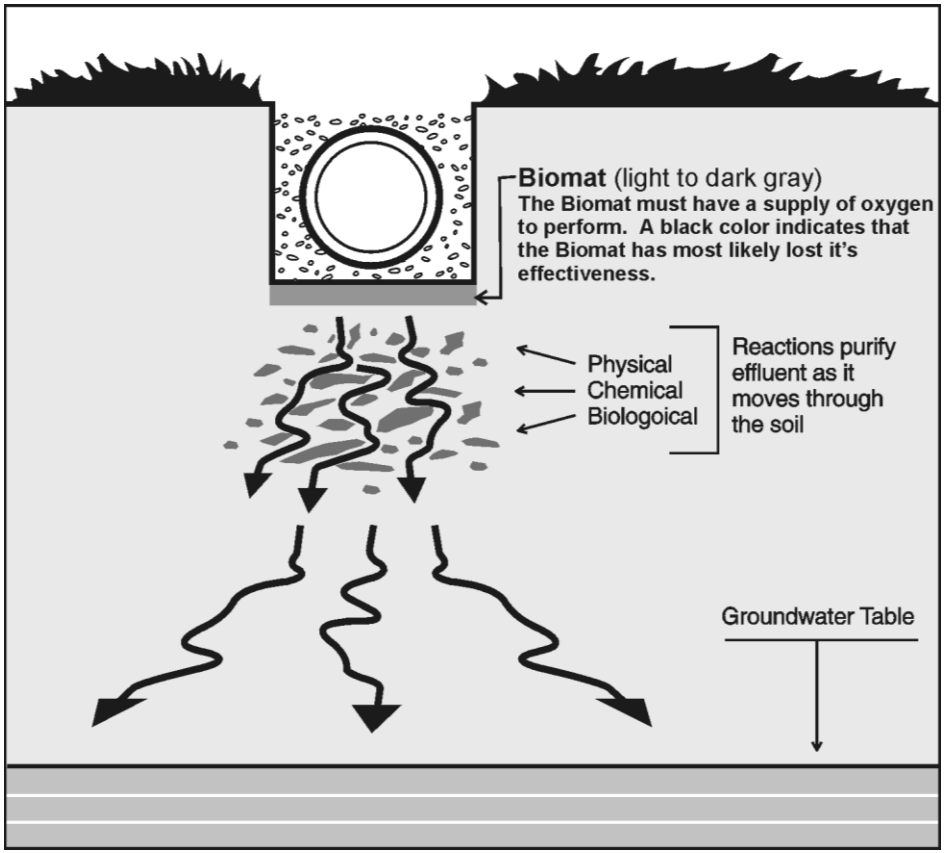
- Building a new home/building that is not serviced by sewer
- Renovating - adding bedrooms, plumbing fixtures or increasing finished floor area by more than 15%
- Replacing a failed system
- Altering or remediating any part of the system
- Property Owner is responsible for the design, construction, operation and maintenance of the Sewage System

All Systems Will Fail



Biomat

- Conventional system biomat is part of treatment
- Initial biomat forms at sand stone interface
- Biomat will build up over time
- Biomat is typically not an issue with advance treatment



Consequences Of Biomat

- **Sewage unable to travel into the soil**
- **Backup into septic tank or house**
- **Sewage break out on top of leaching bed**

Impacts

Can failing septic systems affect human health?

Yes

- A failing septic system likely discharges untreated wastewater, which contains pathogens (e.g., *E. coli*), nutrients and other harmful substances directly into the groundwater or onto the ground and into surface waters.

Do septic systems impact water quality?

Yes

- Groundwater contamination with pathogens, chemicals or nutrients that affect drinking water wells.
- Surface waters can be contaminated with pathogens, such as *E. coli*, chemicals, and nutrients including nitrogen and phosphorus.
- Freshwater rivers, lakes, and ponds are more sensitive to phosphorus contamination from failing septic systems.
- Pathogens can cause illnesses for recreational swimming areas, even requiring beach closures and hazards to humans and pets. Excess nitrogen and/or phosphorus can cause an overgrowth of blue-green algae or cyanobacteria in a short period of time, triggering algae blooms.

Misunderstandings/Myths

Effluent filters don't work

- Maintenance required

Misunderstandings/Myths

Seasonal Septic Tanks don’t need to be pumped

Lack of use results in less break down of material

Diet, water quality/quantity, medications, frequency of use,… affect treatment

Most systems need to be pumped every 3-5 years – including seasonal

Sewage System Re-inspections

Understanding Septic Re-Inspections

Programs generally based around Section 8.9 of the Ontario Building Code:

- How systems are to function
- Operated and Maintained in accordance to the Act or predecessor legislation
- When systems need to be pumped / sampled / inspected

Understanding Septic Re-Inspections

Impacts of a malfunctioning or failed system include:

- Environmental degradation
- Public health risks
- Depreciated property values.

Lower Beverley Lake

Thank you

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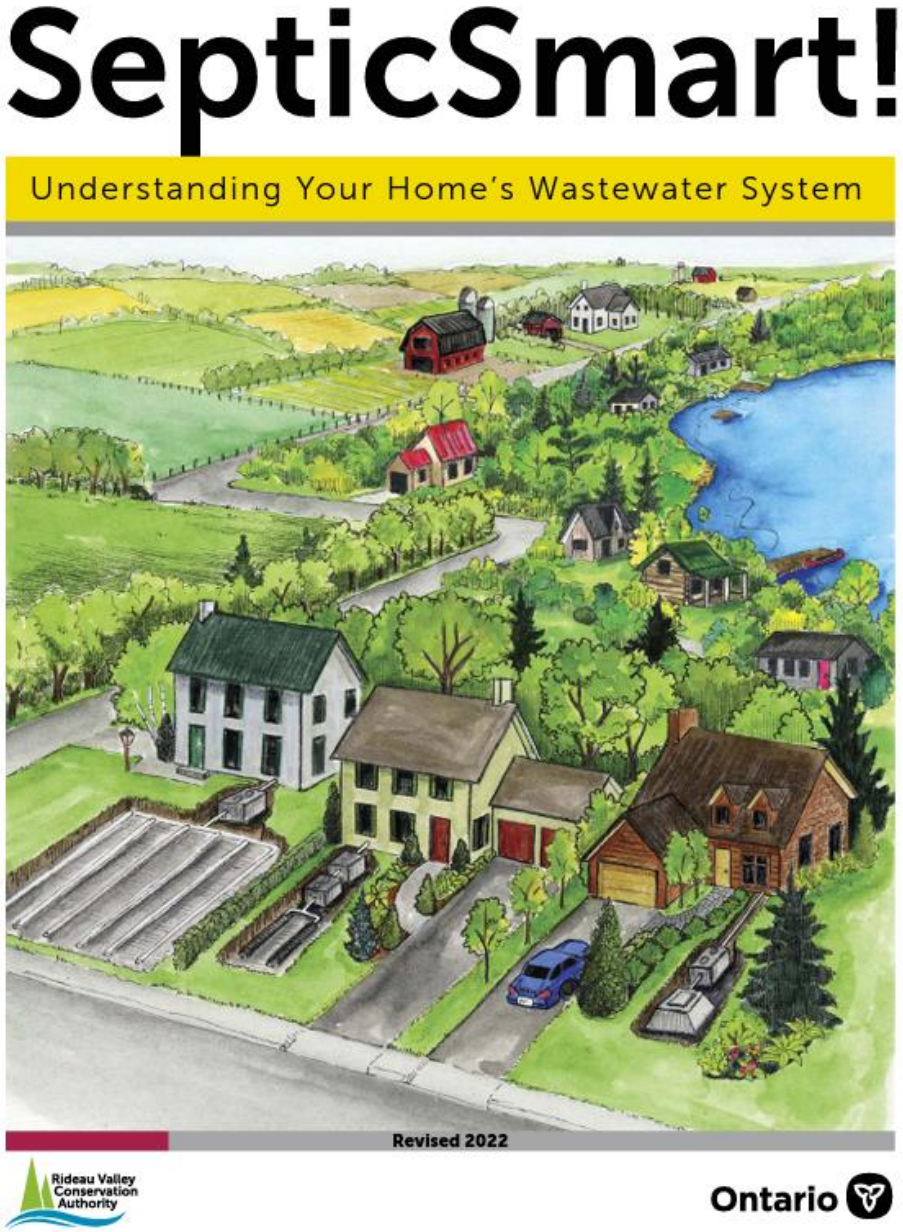

https://www.rvca.ca/septic-approvals/faq#english-copy