

Septic Systems & The Conversion to Central Sewer Systems

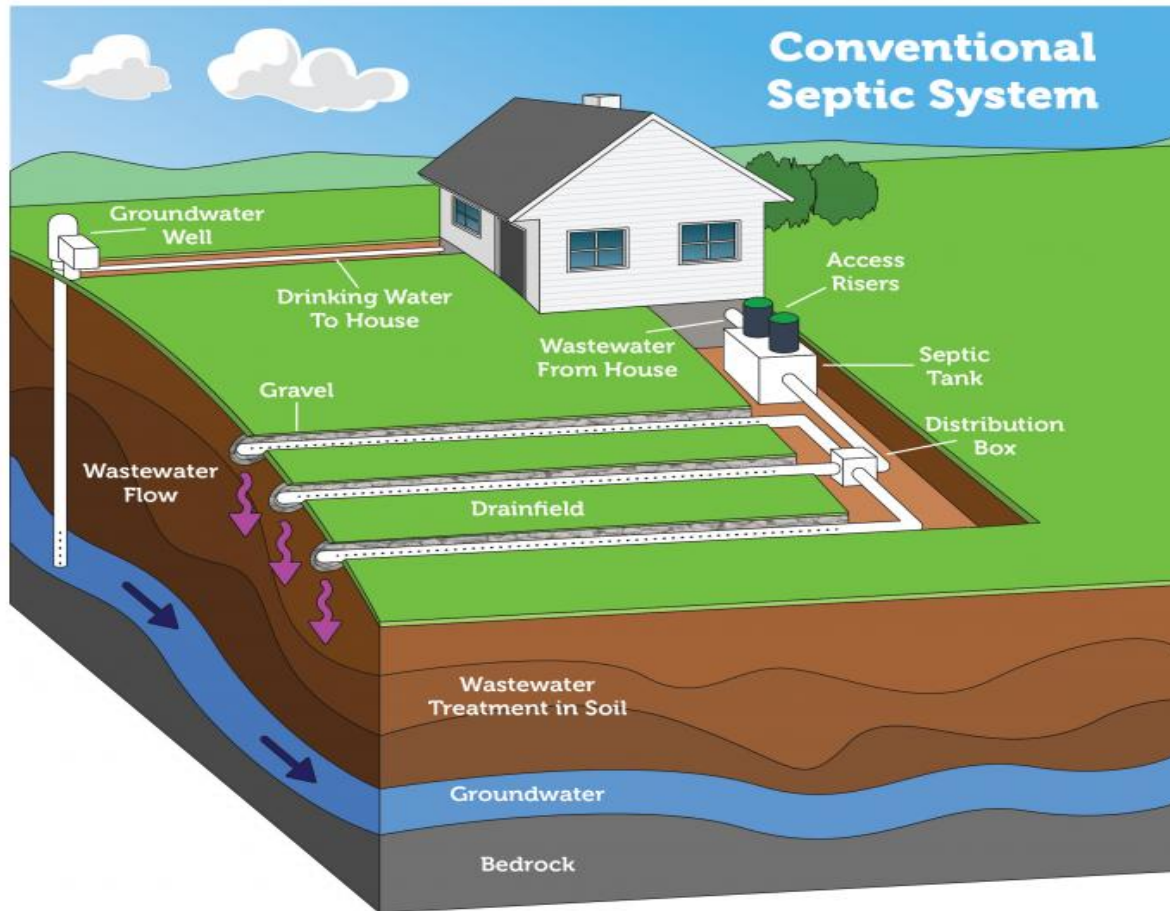


What are Septic/Onsite Systems?

- Wastewater facilities which collect and treat onsite
- Basically => a septic tank/drainfield or package plant
 - Septic tank serves single property (120 GPD per bedroom)
 - Package plant can serve small community (flows up to 0.5 MGD)
- OSTDS defined: sections 373.802, 381.0065, 489.551, Fla. Stat.
 - **“Onsite sewage treatment and disposal system”** means a system that contains a standard subsurface, filled, or mound drainfield system; an aerobic treatment unit; a graywater system tank; a laundry wastewater system tank; a septic tank; a grease interceptor; a pump tank; a solids or effluent pump; a waterless, incinerating, or organic waste-composting toilet; or a sanitary pit privy that is installed or proposed to be installed beyond the building sewer on land of the owner or on other land to which the owner has the legal right to install a system. [The term includes any item placed within, or intended to be used as a part of or in conjunction with, the system.] *This term does not include package sewage treatment facilities and other treatment works regulated under chapter 403.*
- Drainfield defined: section 64E-6.002(18), FAC
 - Drainfield – a system of open-jointed or perforated piping, approved alternative distribution units, or other treatment facilities designed to distribute effluent for filtration, oxidation and absorption by the soil within the zone of aeration.



Conventional Septic System



Please note: Septic systems vary. Diagram is not to scale.

By the Numbers

- Originated in France in 1860s, introduced to US in 1883
- 30% of Florida's population served by OSTDS
- 2.7 million septic systems in operation
- Florida accounts for 12% of U.S. septic systems
- Sewer: 240 million people nationwide served by appx. 14,500 wastewater treatment plants
- Costs:
 - Septic system for 3 bedroom SFR: \$3,000-\$6,000
 - Nitrogen reduction feature: \$10,000-\$15,000*
 - Periodic inspection and pumping: \$250-\$400 every 3-5 years
 - Decommissioning: \$1,000-\$2,000
- Typical system life: 20-40 years depending on use and maintenance

* New septic systems on lots < 1 acre permitted in some spring sensitive areas (PFAs/priority focus areas) required to be nitrogen reducing by 2016 Florida Springs and Aquifer Protection Act, Part VIII, Chapter 373, Fla. Stat.

OSTDS Disadvantages

- Ongoing maintenance and inspection responsibility
- Initial/ongoing costs may be less than sewer but substantial
- Reduces usable land area
 - Precludes parking, building expansion, trees/shrubs, pools and other features
- Heavy rainfall can cause system backup
- May limit development potential, setback requirements
- Limits on flow and type of waste – bleach, drain cleaner may kill beneficial bacteria
- Potential for public health and environmental harms



OSTDS Disadvantages: Septic System Failure

- **Common Causes**

- Using too much water/rainfall
- Tree root intrusion
- Improper design/construction (ex. improper ventilation, lid failure)
- Lack of maintenance

- **Consequences**

- Contamination of drinking water and recreational surface water
- Pathogens: bacteria, parasites, viruses (hepatitis A, polio, viral gastroenteritis)
- Nitrogen/nitrate pollution

- **Failure Signs**

- Bright green, spongy grass on the drainfield
- Excessive weed or algae growth in nearby shore waters
- Unpleasant odors, pooling water or muddy soil near system
- Soil/water testing indicate biological contamination

Drainfield Failure



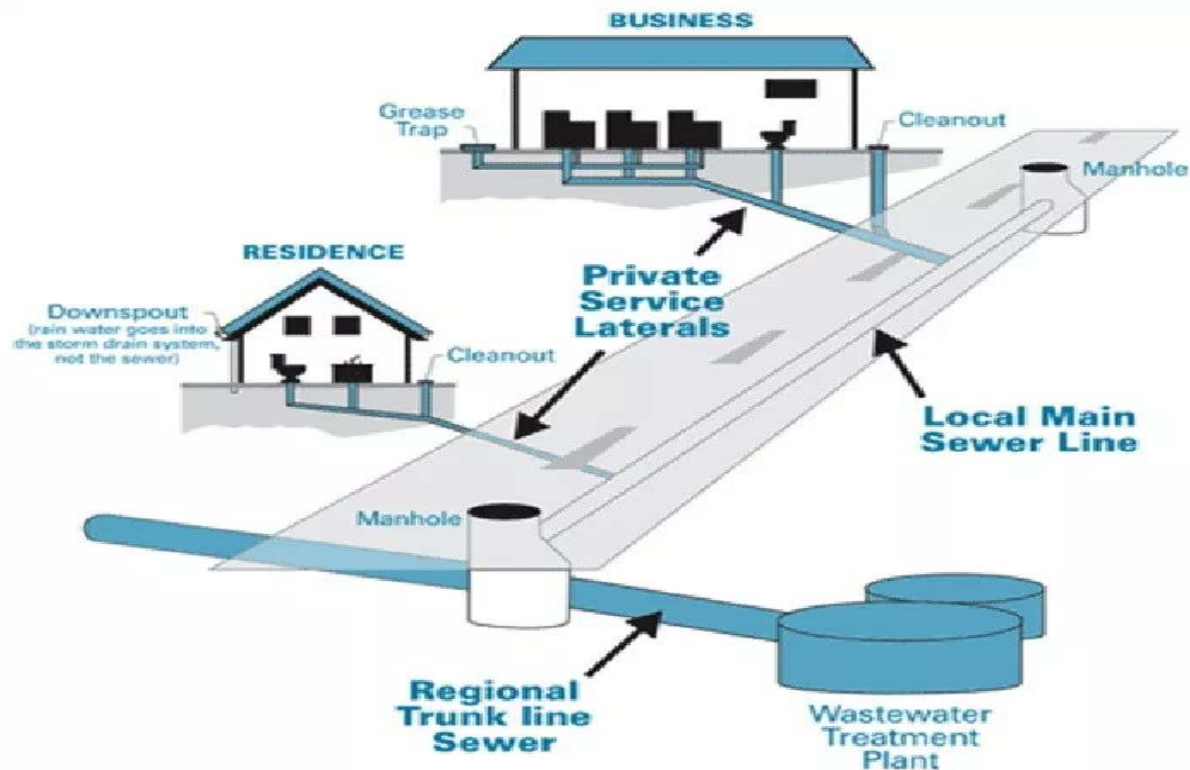
Septic Tank Displacement



Septic tank on Vilano Beach, St. Augustine after Hurricane Matthew



Ending/Reversing Proliferation of OSTDS: Conversion to Central Sewer Systems



Advantages of Sewer

- Avoids disadvantages of septic, i.e. eliminates landowner maintenance responsibilities and costs
- Proponents say safer for the environment
 - Lower potential for surface and groundwater contamination
 - Avoid aiding another Red Tide
 - "The question is not that they do or don't. The question is how big of an impact is it to the algae bloom?"
 - University of Florida professor Ed Phlips
 - See Amy Sherman, What role do septic tanks play in Florida's algae bloom? PolitiFact Florida (2018), <https://www.politifact.com/florida/article/2018/aug/20/what-role-do-septic-tanks-play-algae-bloom-crisis/>