

Targeted Constituents

● Significant Benefit		◐ Partial Benefit		○ Low or Unknown Benefit	
○ Sediment	○ Heavy Metals	○ Floatable Materials	● Oxygen Demanding Substances	○ Construction Wastes	
● Nutrients	○ Toxic Materials	○ Oil & Grease	● Bacteria & Viruses		

Description

Prevent the discharge of pollutants from sanitary sewer laterals and from septic tank systems. Property owners are responsible for the inspection, maintenance and repairs to the sanitary sewer laterals up to the connection with a sanitary sewer collector pipe. Property owners are responsible for maintenance and repairs to septic tank systems and associated drainfields.

Approach

The definition of sanitary and septic waste includes, but is not limited to, the following items as listed in the Knoxville Stormwater and Street Ordinance:

- Human wastes
- Wastewater from toilets, sinks, dishwashers, washing machines and other indoor plumbing fixtures
- Wastewater from kitchens and restaurants
- Wastewater from industries and commercial establishments

These types of wastes, as well as animal and pet wastes, carry harmful viruses and bacteria that spread disease. It is important to prevent direct and indirect human contact with these types of waste flows. Sanitary sewers are a vital part of American civilization and community health system but are seldom appreciated, noticed or maintained.

Within the City of Knoxville, most waste flows are discharged into sanitary sewers leading to wastewater treatment plants operated by the Knoxville Utilities Board (KUB), a publicly-owned utility company. KUB is independent from the City of Knoxville and the Knox County governments. In addition to wastewater collection and treatment, KUB also operates the water, electricity and natural gas distribution network systems. See the KUB website <http://www.kub.org/> or call 524-2911 for additional information on wastewater services, fee structures, request for service, etc. Other wastewater system operators in the area (with telephone numbers) include:

First Utility District of Knox Co.	(966-9741)	http://www.fudknxco.org
Hallsdale-Powell Utility District	(922-7547)	
Knox Chapman Utility District	(577-4497)	
Lenoir City Utilities Board	(986-6591)	http://www.lcub.com
Northeast Knox Utility District	(688-4070)	http://www.nekud.com
West Knox Utility District	(690-2521)	http://www.wkud.com

Before you dig Tennessee One Call 1-800-351-1111 <http://www.tnonecall.com>

**Sanitary
Laterals**

All new development and redevelopment must be connected to a sanitary sewer system that fully treats the sewage to applicable federal and state standards for discharged effluent. In most cases it will be the KUB sanitary sewer system, although there are other utility companies that serve some city residents. Industrial plants, hospitals or nursing homes, and educational institutions may choose to construct and operate wastewater treatment plants on private property, if a NPDES discharge permit has been obtained from Tennessee Department of Environment and Conservation (TDEC).

At a minimum, property owners should be aware of where sanitary sewer laterals are found on the property. Do not allow heavy vehicles or construction equipment to drive on top of sanitary sewer laterals. Do not plant large trees directly over or near to sanitary sewer laterals. Large tree roots can infiltrate and eventually break a sanitary sewer lateral so that it will not function.

Inspection and Investigation

- The following guidelines are helpful for inspecting and maintaining sanitary sewer laterals. These guidelines will help the property owner to protect a valuable utility asset, and will help to improve water quality in Knoxville creeks and streams.
 - _____ Find location of sanitary sewer laterals on the property.
 - _____ Find location of sanitary sewer lateral connection to the main sewer.
 - _____ Determine approximate date of construction and materials used.
 - _____ Inspect lateral locations regularly for unusual odor or ground wetness.
 - _____ Inspect lateral locations regularly for subsidence or unusual soil color.
- A leaking sanitary sewer lateral may be contributing flow to a nearby storm drain, ditch or creek. Inspect the nearest storm drain or ditch during dry weather to determine if there is a suspicious flow. Contact the Knoxville Water Quality Hotline (215-4147) to report illicit discharges, spills, leaks, or suspicious sanitary sewer discharges that need to be investigated. Anonymous calls are also handled.

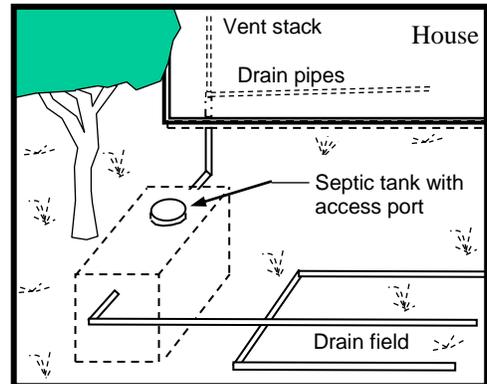
Other Considerations

- All temporary and permanent connections to the municipal sanitary sewer system must be inspected and approved by the City of Knoxville plumbing inspector prior to installation. Contact the Inspections Office (215-2999) for construction procedures and testing requirements. Only use licensed plumbing contractors with adequate experience and equipment for each project.
- Older houses throughout the City of Knoxville may have cross connections, where a sanitary sewer line discharges into a storm drain. There are many reasons that this may have occurred, including:
 - Standard practice 50 to 100 years ago, where sanitary sewers didn't exist.
 - A building contractor may have misidentified the connection pipe honestly.
 - A building contractor may have taken a shortcut to save time & money.
 - The storm drain contractor may have misidentified the sanitary sewer pipe.
- Many cross connections have been identified and corrected through monitoring efforts by KUB and the City of Knoxville. When found, cross connections must be replaced and repaired to function correctly. See IC-01 (Non-Stormwater Discharges to Storm Drains) for additional information on locating illicit discharges and cross connections. Smoke testing and dye testing are two common methods for KUB to

locate leaks in the main sanitary sewer system.

Septic Tank Systems

- Roof drains for older houses typically are connected to the sanitary sewer system (standard practice 50 years ago). Current standard procedures for roof drainage call for roof drains and gutters to be disconnected from the sanitary sewer system. Roof drainage is relatively clean water that is discharged directly onto the ground.
- Do not install an onsite disposal system (such as a septic tank) within the city limits. Septic tanks are not allowed in the City of Knoxville, unless no municipal sanitary sewer connections are available and sufficient hardship exists to warrant a variance. Approval must be obtained from the Knox County Health Department and the Knoxville Inspections Bureau. A septic system must be designed by a professional engineer and located on a site development plan.
- Existing privately-owned septic systems must be maintained in good working order. If a private septic system fails to function properly, then the owner may be required to hook into the municipal sanitary sewer system at his cost. Typically a septic tank needs to be inspected every year and pumped out every three years.
- Septic systems are not designed to process large volumes of water in short time periods. Do not wash several loads of clothes consecutively, and do not use excessive amounts of detergents that contain phosphorus. Do not pour household chemicals down the drain into a septic system; chemicals can kill the good microbes within the septic tank. Garbage disposals contribute to an overloading of solids in the septic tank, requiring more frequent cleanouts.
- Keep heavy equipment and vehicles away from septic tank and septic drain field. Do not compact soils in the septic field. Do not pave over the septic drain field. Adequate aeration and evaporation in drain field must occur for proper treatment.
- Inspect the septic tank and septic drainfield regularly to verify that sanitary and septic waste is not being discharged inadvertently. Inspection is normally done during dry weather to determine whether a discharge occurs. See IC-01 (Non-Stormwater Discharges to Storm Drains) for methods to detect illicit discharges and leaks. Look for unusual odors, wet ground, discolored soil, subsidence or unusual settlement.



Safety Concerns

- Be careful investigating sanitary sewer lines or other confined spaces where sewer gases may exist. Sanitary sewer gases can render a person unconscious before being detected by normal senses. There are many instances of people being killed by falling unconscious into an open manhole due to sewer gases.
- Methane gas, along with other sewer gases, is very explosive. Keep sparks and open flames away from sewers, manholes and septic tanks. Do not smoke near open manholes.

Related BMPs

- AM-09 Sanitary and Septic Waste Management
- IC-01 Non-Stormwater Discharges to Storm Drains

References

137, 138, Knoxville Stormwater & Street Ordinance
(see BMP Manual Chapter 10 for list)