

CITY OF RALEIGH SANITARY SEWER SYSTEM

The City of Raleigh Public Utilities Department is dedicated to providing the best wastewater service for our customers while protecting the environment and maintaining public health, all at a reasonable cost. The sanitary sewer system has been collecting wastewater in the City of Raleigh since the 1890's. The system of today is much different from the system of the 1890's, which discharged directly into Walnut Creek and Crabtree Creek without any treatment process. The sanitary sewer system is comprised of approximately 2,300 miles of sanitary sewer mains which convey the wastewater to one of three wastewater treatment plants. The system collects wastewater from approximately 172,000 customers in the City of Raleigh and the surrounding communities of Garner, Wake Forest, Rolesville, Knightdale, Wendell, and Zebulon. The population of this service area is near 435,000 people.

The maintenance of the sanitary sewer system is critical to the operation of the sewer collection system and to ensure and secure public health for our customers. The maintenance of all of this system is the responsibility of the Operating Divisions in the Public Utilities Department. The sanitary sewer mains are primarily located underground and are connected by a series of manholes that are either at or slightly above ground level. In order to maintain the system, employees must be able to have access to the manholes. These manholes will either be located in public right-of-way or in easements on private property. Of the 2,300 miles of sanitary sewer, approximately 930 miles are located on private property in easements. Inadequate operation and maintenance of the sanitary sewer system can cause failures in the system, which result in sanitary sewer overflows. This operation and maintenance is protection of the capital investment that the community has made in its wastewater collection system, which extends its effective life cycle and reduces operational costs.

What is the sanitary sewer system?

The sanitary sewer system collects the wastewater from your home or business and conveys it to a wastewater treatment plant for processing so that it can be returned safely back into the Neuse River or re-distributes as non-potable reuse water.

What could happen if the system fails?

If the sanitary sewer system fails there can be backups of raw sewage either into homes or businesses or overflows onto the ground. Failures of the system can create public health, odor and sanitation problems.

What causes the sanitary sewer system to have failures?

The discharge of anything besides human waste, used water or toilet paper can cause blockages in the sanitary sewer system that cause backup or overflows. The most common materials that cause blockages are grease accumulation or paper and cloth materials that are not flushable. Tree roots intruding into the pipeline and vandalism can also cause failures.

What is the City doing to prevent problems with in the sanitary sewer system?

The City has a very proactive preventive maintenance program that includes routine cleaning of the mains by flushing, chemical treatment to the mains to help eliminate debris accumulation, roots and grease and easement maintenance which includes mowing and tree removal. The City also has budgeted in the Capital Improvement Program significant funding for the replacement and rehabilitation of its aging sanitary sewer infrastructure.

Where is the sanitary sewer mains located?

The sanitary sewer mains can either be located in the public right-of-way (the streets and roads) or on private property in dedicated sanitary sewer easements, typically along property lines.

What is a sanitary sewer easement and how do I know if one exists in my yard?

Easements are dedicated portions of private property dedicated for public use. In the case of sanitary sewer, the easement is where the sanitary sewer main is located on the property and it gives the City the right to access the property, which is required in the Sewer Collection System Operating Permit, to inspect and maintain the

sewer mains and manholes. They are developed at the time the utility is constructed or when a piece of property is subdivided for use. They are often shown on property surveys and descriptions of land such as a deed.

Why must the City maintain these sanitary sewer mains in my yard?

The City is required by state and federal law to prevent sanitary sewer overflows and in order to do so we must routinely inspect and clear the sewer mains owned by the City. The City works hard to maintain and clean its 2,300 miles of sewer each year, about 930 miles of which run through sanitary sewer easements on private property.

Why must the City cut trees and plants from the easement?

Trees and brush must be cut from these areas to



maintain access to the sewer line for maintenance work such as inspection and cleaning and it removes root materials from the proximity of the sewer mains. The clearing also allows the City to access these areas with its equipment in the event of an emergency, saving time and cost, but most important is to minimize the amount of sewer that overflows and to mitigate any negative impact to the environment. Also, roots from such vegetation within easements (trees, large shrubs, etc.) can grow onto the sewer mains at the joints, causing blockages and SSO's, as well as damage to the mains themselves.

Will new trees and plants be planted by the City?

The City is not required to replace this vegetation and it hinders future access to the easement. Upon clearing the easement, the damaged areas will be re-graded and spread with mulch or sown with grass seed. The easement will then be maintained as necessary to allow for continued access.

Why do we need to cut these trees if there is no emergency?

The City saves valuable time in responding to emergencies such as SSOs if they have access to these areas. This time saves further damage from occurring by allowing the City to focus on the repair work and not in gaining access to the troublesome area. It is also mandated by law that these easements be maintained by the Sewer Collection System Permit.

What is a Sanitary Sewer Overflow (SSO)?

A SSO is the discharge of raw wastewater from the sewer system out onto the ground or into a waterway. This is a release of waste onto private property and adjacent creek or stream or in the worst of cases into a customer's home. These spills have various causes, the principal ones being the build up of fats, oils, and grease as well as root infiltration. An effective maintenance



program helps to prevent SSOs from occurring. The City of Raleigh experiences approximately 50 such

occurrences each year despite our best efforts to prevent them, this is a comparatively low number given the amount of sewer lines in active service.

How does the City select easements for clearing?

In general, it is our goal to have 100% of our easements accessible for maintenance work. There are numerous older easements with heavy growth that are selected for heavy clearing and cutting work based upon our established maintenance records for the area, and problems encountered such as SSOs.

Will the City cut and remove all of the trees and plants from within the easement?

Ideally yes; however, the City's easement maintenance staff will discuss with the property owner the so called "boundary trees" along the edge of the easement. These trees can be left in place until the sewer main is replaced by the City under the following conditions:

- 1) The existing sewer main in the easement when inspected by the City's staff shows no signs of tree or plant root intrusion into the main or manholes that will eventually cause a blockage and sewer overflow.
- 2) The "boundary trees" are located within the easement such that they do not prohibit the City's use of the easement to access the sewer main or manholes or cause damage to the main or manholes if the trees topple over during high wind conditions.

What laws and regulations apply in these situations?

In 1999 the State legislature passed the North Carolina Clean Water Act of 1999 which requires municipalities to prevent sewage from spilling and entering waterways and punishes agencies for allowing leaks to occur which they could prevent. This legislation requires North Carolina Department of Environment and Natural Resources (DENR) and its Division of Water Quality (DWQ) to develop and issue sewer collection system operational permits. The City of Raleigh operates its system under permit number WQCS00002.

What does the City's Sanitary Sewer Collection System permit say?

The permit defines various components of the sanitary sewer system and how it must be operated and spells out the punishment for violation of these operating guidelines. Some appropriate items are:

- 1) The Operator must develop and implement a program for cleaning of all sewer lines and that a minimum of 10% of the system shall be cleaned each year.
- 2) Rights-of-way and/or easements shall be properly maintained to allow accessibility to the wastewater collection system.
- 3) The Operator must inspect the system regularly to reduce the risk of malfunction and deterioration which could lead to release of wastes to the environment or threaten human health.
- 4) The Operator shall inspect all high priority lines, such as those which parallel a creek, etc., at least once per every six month period of time.

Failure of the City to follow these guidelines and regulations subjects the City to civil penalties (fines) and can jeopardize the City's permit.



Which City of Raleigh Codes relate to these issues?

The City of Raleigh Code Section 8-2012 states the following:

- (b) No person shall damage, obstruct, or cover a manhole or the City's water or sanitary sewer system.

(c) No person shall plant trees, shrubs, or other plants within a water or sewer easement without prior written approval from the Director of the Public Utilities Department.

(d) No person shall place any part of a structure or any permanent equipment within a water or sewer easement without prior written approval from the Director of the Public Utilities Department. Prohibited structures include buildings, houses, decks, garages, tool or storage sheds, swimming pools, walls, and fences. Prohibited permanent equipment includes air conditioning units and heat pumps.

If I have fences or sheds in the easement that has been there for a long time, am I "grandfathered" and allowed to keep it?

Unfortunately, no, this would not allow the City to have access down the easement for access to the utility system, which is required. Where possible, the City will work with property owners to allow existing fences to remain that are parallel to the direction of the sanitary sewer main under the following conditions:

- 1) The fence has not damaged the sanitary sewer main and all manholes are fully visible and not obstructed.
- 2) The fence is constructed of wood and/or metal materials that can easily be removed by City equipment such as a rubber tired backhoe.
- 3) The City is not responsible for any damage to the fence at anytime and if the fence is removed by the City, it is not responsible for costs to replace the fence outside of the easement.
- 4) The fence is considered a temporary, non-conforming use of the City's sanitary sewer easement and as such once removed by the property owner or the City during a sewer emergency, the fence can not be reconstructed within the City's existing sanitary sewer easement.

*For more information please
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SANITARY SEWER EASEMENTS AND



WHAT THEY MEAN TO YOU!

*Prepared by
The City of Raleigh
Public Utilities Department*