I&I FAQ

What a broad definition of I&I? Inflow and infiltration is defined as groundwater and stormwater that enter a sewer system. Collection systems can be damaged when they are forced to transport more flow than they are designed to handle. Increased effluent also raises costs for wastewater treatment facilities, because harmless stormwater and groundwater mix with sewage. In many cases, inflow and infiltration (I&I) accounts for up to 45% of the annual flow to treatment plants.

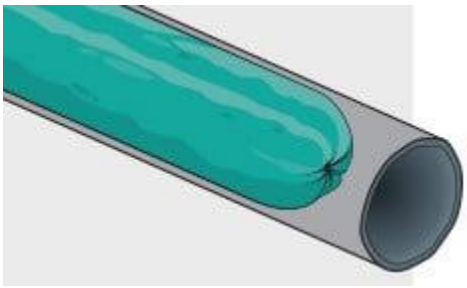
Why is I&I such a big deal? Exceeding the capacity of the collection system can result in discharge of untreated wastewater into the environment. This discharge may come from collection system components or from a treatment system that doesn't have the capacity to treat the water. Infiltration can also cause pipe structure failures due to erosion of soil support, and ground subsidence due to erosion of underground soil. More often than not, exceeding the capacity of the collection system due to excessive I&I results in sewage back-up into residential and commercial buildings. That primarily happened during large storm events.

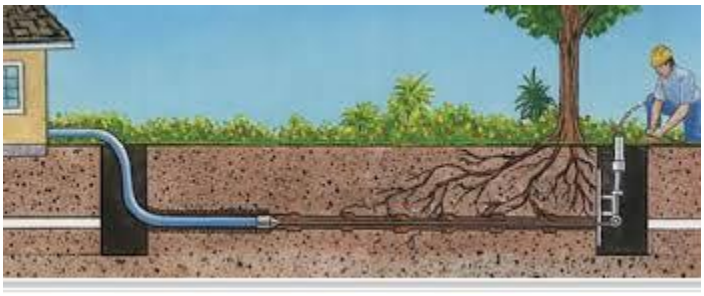
What are examples of Infiltration? Infiltration occurs when groundwater seeps into sewer pipes through cracks, leaky pipe joints and/or deteriorated manholes.

What are examples of Inflow? Inflow is stormwater that enters the sewer system through rain leaders, basement sump pumps or foundation drains illegally connected to the sewer. Together, inflow and infiltration place a burden on collection systems and wastewater treatment facilities.

What is considered excessive I&I? The EPA considers infiltration excessive if a system's average dry weather flow is more than 120 gallons per capita per day. This total includes infiltration, domestic flow, and nominal industrial and commercial flows. These flows are only experienced in Redwood Falls during winter months when the ground is frozen or extreme drought conditions. Other standards argue simply that all I&I is excessive, unless it's too pricey or difficult to eliminate. Whatever the calculation, most operators agree that if a plant experiences overflows during storm events, the inflow is excessive.

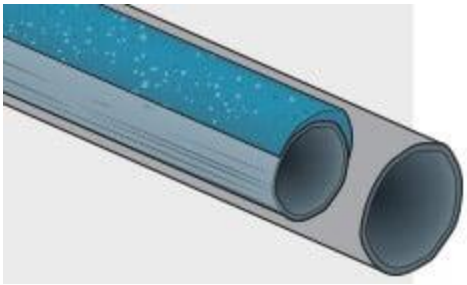
HOW DO I FIX MY PRIVATE SEWER LINE?

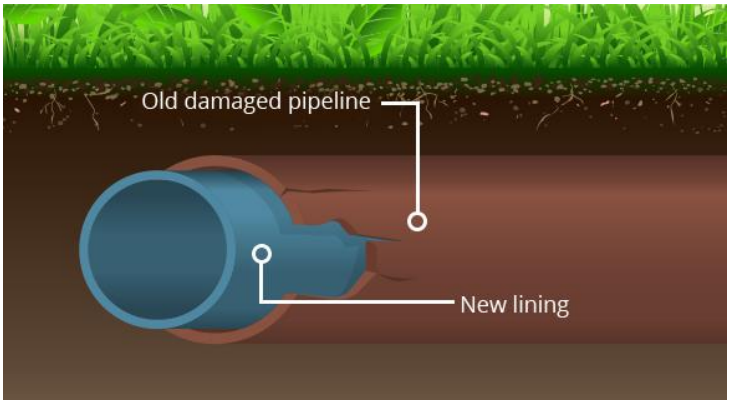




CIPP-CAST IN PLACE PIPE

A flexible felt liner impregnated with resin is inserted into the line, generally through inversion. Hot water, steam, light or ambient temperature is used to cure the resin. This is a great method with low intrusion to the residence. – Price = Moderate to High





SLIP-LINING/PIPE INSERTION

A new liner pipe (one with an exterior diameter smaller than the interior of the existing line) is pulled in from an installation trench. The space between the old pipe and new liner pipe is filled with grout to prevent leaks and, depending on the type of grout, provide structural support. *An alternative to grouting is once the existing pipe is lined, to crush the existing exterior pipe at the back of the curb and grout with sakreet or heavy clay. An exterior cleanout is also recommended for installation.*

SPOT FIX

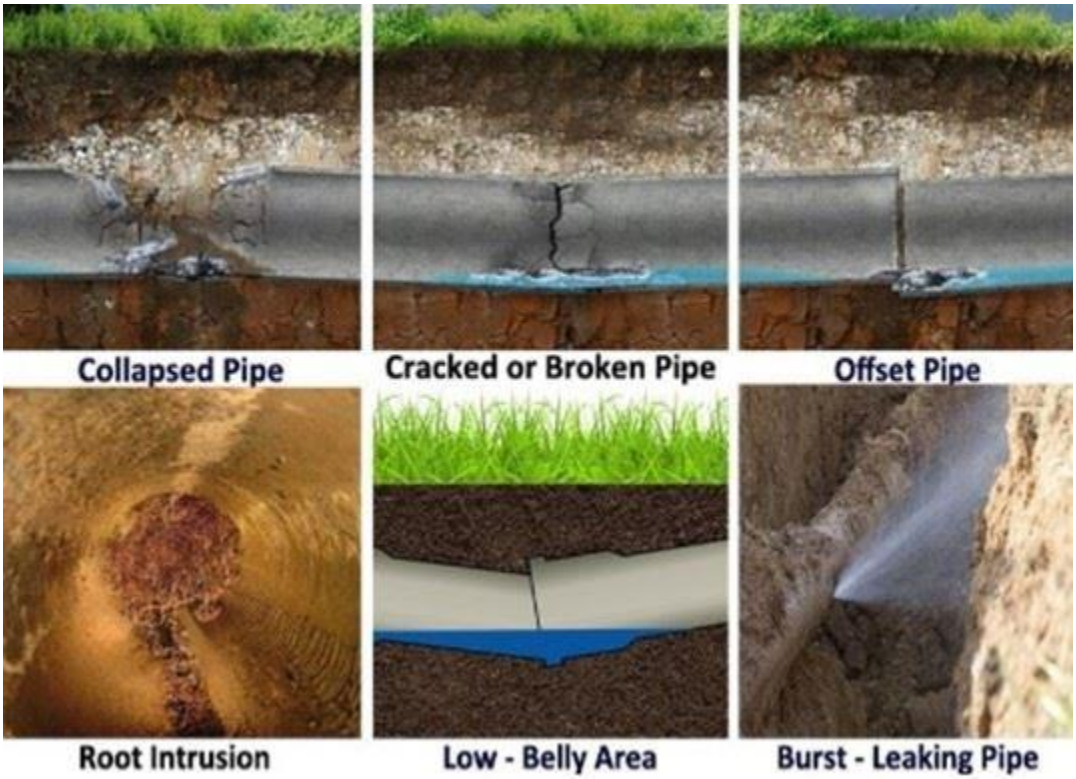
In some cases, there is only one area of bad sewer pipe. Most original sewer pipe in Redwood Falls are two-foot clay tile sections. Cases were there is only one or a couple sections of bad sewer line, it may be more economical or efficient to fix that one spot and come into compliance.

Who do I call to assist me with my sewer line or sump pump violation? Just ask City Staff has a non-complete list of service providers. Bottom line they need to be a licensed plumber or pipe layer.

OTHER FIX TECHNOLOGIES

Your licensed plumber or certified pipe layer may have other ideas on how to bring your system into compliance. Make sure other technologies than the ones listed here are discussed and confirmed with City Staff prior to installation.

What is being looked for during a televised inspection of a private sewer line that would cause my line to fail?



Is the I&I program really cost effective? Inflow and infiltration robs valuable capacity from treatment plants. Such capacity shortfalls can lead to damaging and costly sanitary sewer overflows (SSOs). Thirty-five percent of water entering a water treatment plant is I&I, according to the Chalmers University of Technology's Division of Water Environment Technology. Another 35% is stormwater, and the remaining 30% is sewage. In other words, 70% of total flow into a treatment facility is water that would not need treatment had it not entered a sewer line.

Reducing I&I will regain hydraulic design allowing the City of Redwood Falls added growth capacity while utilizing the current sewer system. Any robbed capacity will force City Officials to look at expansion or development of a new Mechanical wastewater treatment system that is currently priced in excess of $30 million dollars which can be a reality if we do not take action now.

What happens if we do not take necessary steps now are there any consequences? First off, required by current ordinance, individual parcels hooked to the City sanitary system, owners are required to maintain their individual sewer line free of leaks, intrusions and defects. Secondly, the City providing a sanitary sewer system for residents must also comply with Federal EPA and State of MN Pollution Control Agency standards, in order to be permitted to outlet our treated waste water. Non-Compliance means no permit, levied monetary fines, and increased costs to the consumer.