

MUNICIPAL AUTHORITY OF THE BOROUGH OF BEDFORD
Removal of Inflow & Infiltration (I&I) from the Sanitary Sewer System

General Information

The Sanitary Sewer System was designed and installed to collect and transport the sewage flows generated by Bedford Borough and Township customers. The System was not sized, nor will it accommodate, an excessive amount of extraneous clear water. Such extraneous clear water is commonly referred to as infiltration and inflow, or I&I.

The Municipal Authority of the Borough of Bedford (MABB) regulations and municipal ordinances prohibit any person to permit, allow or cause to enter into the public sanitary sewer system any stormwater or surface water.

Please read the information below for we feel that it will address some of the additional questions and/or concerns that you may have in regard to the Sewer Testing Regulations.

Why are these regulations being enforced now?

In order to eliminate periodic discharges of wastewater to the Raystown Branch of the Juniata River, the Pennsylvania Department of Environmental Protection (DEP) has entered into a Consent Order Agreement with MABB that requires the elimination of a Combined Sewer Overflow (CSO). One of the requirements of the plan is to reduce the overloading of the sanitary sewer system by removing groundwater and stormwater from the sewer lines.

What's the problem if drains or downspouts are connected to the sanitary sewer?

Sanitary sewers are designed to accept a rather constant flow of sewage from household water. The sudden, rapid flow of rainwater from roofs, patios, driveways, etc., can overload the sanitary sewer causing them to overflow, or surcharge. Surcharges can lift manhole lids allowing sewage to overflow into streets and yards. Surcharges can also activate the CSO which discharges sewage directly into the river. Surcharges also cause sewage to back-up into basement floor drains and fixtures.

What regulations are violated by connecting rain downspouts to a sanitary sewer?

To prevent the overloading of sanitary sewers, the connection of stormwater to sanitary sewers is not permitted. Regulators enforcing this matter are:

Pennsylvania Department of Environmental Protection
Environmental Protection Agency
Borough of Bedford Ordinances
MABB Rules & Regulations

Who do these regulations apply to?

All customers on the MABB system.

What must property owners do to comply with these regulations?

ALL extraneous sources of stormwater must be disconnected from the public sanitary sewer system. Cracked or broken service pipes, foundation drains, driveway or area drains, downspouts, leaking joints, sump pump discharges, footer drains, entrance drains, wall or floor seepage are all examples of illegal sources of stormwater.

How does the MABB determine that I have an illegal connection?

The MABB conducts a variety of tests at every property on the sewer system which may include dye tests, smoke tests and air tests.

What is a dye test?

Dye testing involves placing a non-staining water-soluble dye tablet in the drain or downspout of your property and flushing it with water. The area is then examined for the appearance of traces of dyed water.

What is a smoke test?

Smoke testing involves forcing a non-toxic, non-staining smoke through the sewer system by the use of air blowers. The area is then examined for smoke leaking from the system, which indicates a leak that would allow water to enter the system.

What is an air test?

Air testing involves sealing the sewer system and then forcing air under pressure into the system. If the system is not able to remain pressurized on its own, a leak exists that would allow water to enter the system.

If I am notified that I have an improper connection, what do I need to do about it?

The MABB recommends consulting a plumber or general contractor with underground utility experience to help determine the best corrective action plan. DO NOT ignore the notice. The problem will not go away on its own. The penalties for non-compliance are severe.

What am I supposed to do with my stormwater?

All stormwater is supposed to be retained on the property. Downspouts should dump onto a splash pad allowing the rain water to disperse across the ground. Stormwater pipes are not permitted to discharge through curbs. You are not permitted to intentionally discharge stormwater onto a neighbor's property.

Will I have to dig up my floors to make repairs?

This testing requirement does NOT, in most cases, apply to any under-slab plumbing. Repair of under-slab plumbing is only required when conditions are monitored in a viewport or some other condition indicates that water is infiltrating the plumbing under the slab.

Who is responsible for the repairs?

The responsibility of the costs of any required repair work that may be necessary in order to be fully compliant with these regulations falls solely on the property owner.

How much will it cost to make repairs?

The cost to correct I&I violations is case specific. The removal of downspouts can be relatively inexpensive. Replacement of an entire service lateral can be expensive, especially if it is under a wall or driveway. You should contact a plumber or excavating contractor for a price quote.

Have there been inspections conducted at each property to identify and eliminate sources of inflow and infiltration (I&I)?

The fastest and most efficient method of identifying I&I is through smoke testing. MABB has smoke tested its system several times over the past 20 years and has identified numerous sources of excess flow, which have been eliminated. The Bedford Township Municipal Authority (BTMA) has been performing smoke testing of their system on a regular basis over the past few years and has been addressing and correcting issues as they are identified. One drawback of smoke testing is that if there is a building trap on the sewer lateral, the smoke is not able to pass through the trap. This would not allow for identification of any sources of excess flow that are connected to the lateral on the building side of the trap. The current lateral testing program includes a detailed investigation of each property and several sources of excess flow, behind the building traps, have already been identified.

If these tests are so urgent, why weren't they done when the sewer main replacement project occurred?

Sewer laterals, on private property, are the responsibility of the property owner. In fact, up until the 1980's, the sewer lateral was the responsibility of the property owner from the sewer main to the building, according to previous ordinances. This policy was changed because it would require private owners to excavate Borough streets if a repair would be necessary. If the sewer contractor would have performed the testing for each private lateral, the cost would have been passed on by MABB to the property owner. The cost to have the sewer contractor perform the work would have been significantly higher because of prevailing wages that the contractor would be required to pay. The current testing allows the property owners to select the contractors they wish to work with and negotiate their own price.

If sewer laterals are replaced that are defective or have illegal stormwater connections, what will be the impact on the volume of flow at the wastewater treatment plant (WWTP)?

Perhaps a single leaking lateral would not make a significant impact, but repairing hundreds of them certainly could. While it is true that the WWTP sees a spike in flows during storm events, the spike is somewhat short-lived; however, flows continue to remain higher than normal as groundwater levels remain high. This is an indicator that there is still a significant amount of groundwater still leaking into the system. Approximately 95% of the MABB collection system has been replaced with gasketed PVC pipe and air tested over the last 25 years. Prior to that work, the sewer mains primarily consisted of vitrified clay pipe, or terra cotta, which is the type of pipe currently seen on most laterals within the Borough. The primary remaining source of groundwater infiltration is private laterals. MABB has seen significant reductions in flow at the WWTP each time a major replacement project has been completed. For example, the average daily flow at the plant in 1996 was 1,137,000 gallons per day, while in 2021, the average flows at the WWTP were 654,000 gallons per day – even though many customers have been added to the system during that timeframe. MABB is attempting to meet deadlines imposed by DEP to abandon the CSO as outlined in the Consent Order & Agreement issued by DEP.

What financial support has MABB applied for before calling on homeowners to carry this burden?

MABB has been successful in securing more than \$9 million in grant funds over the past 20 years. This funding was used toward two large I&I removal projects and the DEP required updates at the WWTP. These costs would have passed along to the

customers if grants had not been secured. As far as the private laterals, the most viable option available to MABB would be PENNVEST. A project to replace private laterals could have been submitted to PENNVEST, but this would also be a low interest loan which would require the MABB to own and maintain the laterals for the period of the loan which would most likely be 20 years. The costs for the debt service for this loan would be spread out among all customers and the construction costs would be significantly higher due to the contractors being required to pay laborers prevailing wages. In this scenario, it would be all customers that would be sharing the cost, instead of just those who have leaking laterals. This is not desirable to MABB.

Are all properties connected to the MABB system under the same obligation placed on Borough homeowners?

Yes, all customers of the MABB system are required to comply. At this time, customers on the Bedford Township Municipal Authority (BTMA) system are not required to perform sewer lateral testing but will be required to once the Borough testing has been completed. The reasoning for this, is that BTMA sewer laterals are much newer, with most of them being gasketed PVC pipe and if both customers in the Borough and Township were testing and repairing laterals at the same time, we would be experiencing even more difficulty with availability of contractors and materials to perform the work. Because of the prevalence of vitrified clay laterals in the Borough, it is believed this area would have the most significant impact on reducing flows.

Is there flow information for all users?

Both MABB and BTMA base their billing on water usage. This information is available for all users of the system; however, there is not a method to measure sewer flow from each property, except a few larger users have meters on their discharge to the sanitary sewer. It is not common to meter residential sanitary sewer flow individually.

How much of the overflow problem is caused by properties in Bedford Township?

Flow meters have been installed on all major BTMA connections to the MABB system. These meters are constantly monitored and information is provided to each Authority. It appears that flows rise in the BTMA system similar to how they rise in the Borough; however, it appears the BTMA system is affected more by inflow than it is by groundwater infiltration. BTMA regularly performs smoke testing in an effort to locate the sources. It would be difficult to quantify how much of the problem is occurring because of the BTMA system.

How much of the overflow is caused by commercial and other properties?

Without having meters on the discharge of each property, it would be difficult to quantify how much of the excess flow is coming from these properties.

Are there too many users of the system that was originally designed for only the Borough?

No. The collection system was originally designed and sized in the early 1900's to carry both stormwater and sanitary sewage and discharge it directly to the river. As environmental regulations became more prevalent, a treatment facility was constructed and work was done to separate the storm and sanitary sewers, but two CSOs remained in place to allow discharges during wet periods. Once CSO at the WWTP was eliminated in the early 2000's and the other remained. As sanitary sewer lines have been replaced over the years, the line sizes have remained the same and are very capable of handling flows that would typically be anticipated for a

system of this size. The WWTP was upgraded in 2011 to be capable of treating an average daily flow of 1,500,000 gallons per day. As mentioned previously, the plant measured an average daily flow of 654,000 gallons per day in 2021, which is only 44% of capacity. The flows are monitored constantly and submitted to DEP annually with 5-year flow projections to see if the plant is anticipating a hydraulic overload. No overloads are projected. The real problem is with the significant increase in flows during wet weather events.

Is it time to increase the capacity of the sewage treatment facility or build a new one?

No. It would not be cost effective to increase the size of a treatment facility that operates at 44% of capacity for 98% of the year. One option that has been discussed is the construction of a large tank that could capture the excess flow and release it to the treatment plant slowly after wet weather periods. This would be a last resort scenario should the I & I removal efforts not be successful in removing sufficient flows to warrant abandonment of the CSO. MABB chose not to spend millions to construct such a facility that would be funded by all customers while lateral testing would only require those with leaking laterals to pay for repairs.

What initiatives have been taken to separate the storm sewer from the sanitary sewer?

Since 2011, MABB has replaced more than 38,300 feet of terra cotta sewer mains with gasketed PVC pipe and replaced approximately 175 leaking manholes with new pre-cast concrete manholes. In addition, a comprehensive I & I investigation was performed in 2015 and 2016 that included manhole inspections, smoke testing and flow monitoring to identify areas that were impacted. The smoke testing confirmed that there are no street storm sewer drains directly connected to the sanitary sewer system. Permanent metering stations were constructed at 8 interconnections with the BTMA system to more closely monitor flows.

How many times in the last 10 years has an overflow event happened?

Since 2012, there have been 34 events that resulted in a CSO discharge to the Raystown Branch of the Juniata River. These events range from a high of 9 times in 2018, an extremely wet year, to lows in 2013 and 2016, when there were no discharges. During this 10-year period, it is estimated that a total of more than 21 million gallons of flow was discharged to the river. MABB is required to notify DEP each time such a discharge occurs and it is also included in an annual report that must be submitted to DEP. There is no requirement to notify EPA.

Is there financial assistance available for property owners?

There are grant and low interest loan programs available to qualified homeowners through the US Department of Agriculture and PENNVEST. Information on these programs was provided with the letters mailed to customers and is also available on the Borough/MABB's website.

For more information about compliance with sewer system regulations, please contact:

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