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Purpose and Use of Excess Flow Holding Basins (EFHB) in Sewage Collection Systems

The City of Lee's Summit has planned a new EFHB facility for the sanitary sewage collection system upstream of Raintree Lake. The residents of Raintree Lake have voiced concerns about the proposed facility. The following text will describe the need for and function of the EFHB.

Like most cities, the City of Lee's Summit owns and maintains two (2) separate sewer systems. One (1) sewer system consists of storm sewers. These storm sewers convey rainwater to streams and lakes. The second (2nd) sewer system consists of sanitary sewers. These sanitary sewers collect and convey sewage from residential homes, apartments, businesses (retail and commercial) and light industry to treatment facilities.

Even with the two (2) separated sewer systems, rainwater still finds its way into the sanitary sewage system. This rainwater is identified as infiltration and inflow (I&I).

INFILTRATION
Despite the best efforts of cities, some rainwater (groundwater) enters the sewage system through leaks in the City's sewer pipes and access structures (manholes).

INFLOW
Rainwater also enters the sewage system from the following locations on private property:

- Improperly connected house foundations, driveway drains, and outside stairwell drains
- Sump pumps improperly piped to a house floor drain
- Gutter downspouts improperly connected to the sewage system
- Leaky pipes from private property owners to the City's pipes (a type of infiltration)

During heavy rainstorms, too much leakage (I&I) can overload pipes and cause overflows. Cities throughout the U.S. face overflows like basement backups or sewage spills. Because of this problem, the U.S. Environmental Protection Agency (EPA) developed policies and regulations that require cities to take action.

EPA has identified a number of ways to solve this problem. Providing additional sewer pipes to convey the flow is costly and can move the problems downstream. Removal of the leaks can be costly and difficult to carry out considering a large portion of the rainwater comes from private property. One of the most cost-effective solutions is to store the peak flows in an EFHB for release after the wet weather has ended. According to EPA, storage in EFHB is widely used throughout the nation.

In the Kansas City metropolitan area, sewer agencies (municipalities) that currently use storage facilities include Lee's Summit and Harrisonville in Missouri and Olathe, Gardner, Ottawa, and Johnson County Wastewater in Kansas.

The existing sewage system under Raintree Lake can convey the normal daily flows and some rainwater. However, during heavy rainstorms, the City will need to store the sewage in the EFHB. Typically, 7 to 12 gallons of rainwater dilute each gallon of sewage entering the EFHB. Because of this dilution, the sewage does not produce odors.

At the end of the rainstorm, the City will release the diluted sewage in the EFHB back into the existing sewage system under Raintree Lake. The EFHB may store diluted sewage 4 to 5 times each year and hold the flow for about 24 hours.