

# Boonville Wastewater Collection and Treatment System Upgrades

by Robert Andrews

In 1968 O'Brien and Gere was hired to study the collection system and the existing primary treatment plant in the Village of Boonville for a possible upgrade. As a result, construction began in 1970 on a new activated sludge treatment plant, with completion in July 1972. This author joined the village staff in January 1973.

Initially the village's department of public works was in charge of the operation and maintenance of the sewer system. In 1984 responsibility was transferred to the treatment plant staff, consisting then of two men. Some equipment was purchased to clean sewer lines, and a garage was built to house all the equipment.

Many engineering studies had been done to examine the sewer system, and each came to the same general conclusion: there were problems with inflow and infiltration (I&I). At the time, this was a combined sewer system, and it had many structural problems. There were over 75 catch basins entering the system, and many roof drains were also connected. Much money had been spent on studies to identify the issues with the system, but nothing had yet been done to actually improve it!

Treatment plant staff began to clean and televise the lines, looking for problem areas. After several weeks of this, it became evident that extensive work was necessary to restore the integrity of the system. The Black River Canal ran through Boonville, and an interceptor adjacent to this was a significant source of I&I. In 1985 this section of the system was slip lined, which dramatically reduced inflow at this point. In 1986 the remainder of the collection system under New York State Route 12 was reconstructed.

In 1988 the village signed a consent order with the New York State Department of Environmental Conservation to eliminate the remaining I&I from the system. The condition of the system was such that instantaneous flows at the rate of 10 million gallons per day (mgd) were estimated! A 10-year

reconstruction plan was developed by the author, which indicated that village personnel were to be responsible for providing the labor necessary to accomplish this considerable task of eliminating the system's I&I.

After five years of extensive work on the system, it became evident that all I&I could not be eliminated within the remaining five years of the initial plan. The village board hired an engineer to provide design services and seek external funding to complete this project. At this same time, it was determined that the treatment facility itself was in need of an upgrade.

Funding for the upgrade was secured through the U.S. Department of Agriculture (USDA) Rural Development program, and this phase of the reconstruction and upgrade commenced in 1998. This developed into a major project for the Village of Boonville. A contractor was hired to reconstruct the collection system—36,000 lineal feet of sewer main, including 270 new manholes. This was a two-year project and was completed pretty much on schedule.

The upgrade of the treatment plant, however, was an entirely different story. The contractor initially hired to perform the construction walked off the job and was subsequently declared in fault of the contract. Litigation followed. The contract was re-bid, but the winning bid came in about \$400,000 more than the previous one. The USDA Rural Development would not fund this additional amount until the following year. So, in order to keep the project close to schedule, village staff decided that they would do all the excavation necessary for the upgrade themselves. This reduced costs and allowed the project to continue without the additional funding obtained from USDA Rural Development.

The upgrade project consisted of the construction of a new 80 foot diameter final clarifier, a new 50 foot by 70 foot belt press/sludge storage building, and all the piping to connect to the existing treatment

plant. Due to the lag time in building these units, the belt press and the clarifier equipment had been bid about six months prior. We ended up with a new belt press sitting at the factory with no building to put it in!

We asked the village to rent a trailer, and we drove the trailer to the factory and mounted the belt press onto it. We temporarily set up the belt press in the maintenance garage. This allowed the sludge to be pressed rather than necessitate the hiring of a contractor to do it for us. We pressed sludge this way for two years until the building was constructed and the press was permanently moved. Meanwhile, we encountered some structural problems with the new clarifier. Once the manufacturer corrected these problems, the unit was put into service.

Today the treatment plant is operating quite well; it discharges an effluent that measures over 90 percent removal of biological oxygen demand and total suspended solids. Work continues, whether it is to improve the collection system as new problems arise or to proactively manage the plant.

This article exemplifies the willingness and dedication of the Village of Boonville employees to take on the challenges and overcome many obstacles along the way. With perseverance, resourcefulness, and the support of a village board, Boonville residents have a system they can be proud of.

*(Data from Department of Environmental Conservation Descriptive Data, January 2004)*

**Robert Andrews is a retired chief wastewater treatment plant operator from the Village of Boonville.**



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