

NAME:

Peach Lake Environmental Center

LOCATION

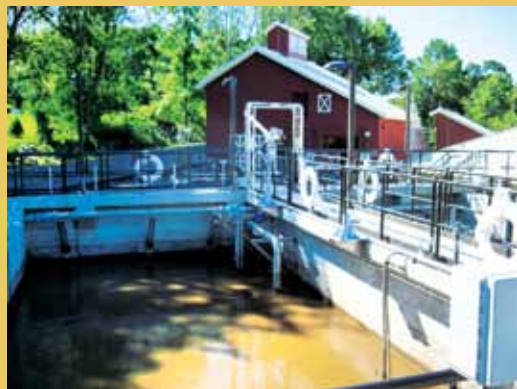
North Salem, N.Y.

PLANT SIZE:

0.5 mgd

INFRASTRUCTURE:

Static fine screens, biofilter odor control system, spiral grit conveyor, chemical storage tanks, chemical pump skids, fine bubble aeration grids, submersible mixers, decanters, waste sludge pumps, coarse bubble aeration grids, equalization pumps, cell sand filtration, microfiltration, ultraviolet disinfection, parshall flume



The facility was designed to blend in with the homes and barns in the Peach Lake community.



Chemical pump skids



Water undergoes a tertiary treatment process before it is discharged into the lake.

By Amy McIntosh

Protecting Peach Lake

Small community solves big septic problem with new wastewater treatment plant

Nestled among the cottages and barns between the towns of North Salem and Southeast, N.Y., just outside New York City, sits the Peach Lake Environmental Center. What appears to be just another horse stable on the land surrounding Peach Lake actually is a brand new wastewater treatment facility.

The cottages in the area once primarily served as summer homes and were only occupied on a seasonal basis. Eventually, families began taking up full-time residence in the nearly 500 homes in the area, and the septic systems were not equipped to handle the increased flow. Soon thereafter, water began leaching into the nearby lake.

"The project is located within the New York City East-of-Hudson Watershed, which is one of the reasons why they needed to [build a new wastewater treatment plant]," said Drew McKay, senior project engineer for the Arben Group LLC, the general contractor on the project. "They couldn't have their failing septic systems polluting this lake and then in turn polluting the New York City watershed."

Cleaning Up the Lake

A number of residents in the area formed the Peach Lake Coalition, which led a 38-year campaign to bring sewer service to the homes and businesses surrounding the lake.

The town secured funds from the American Recovery and Reinvestment Act, and construction on the \$12 million project began in December 2009. The project included the construction of a new sanitary wastewater treatment facility, along with approximately 40,000 in ft of combined low-pressure force main/gravity main sewer lines.

The headworks building includes two static fine screens, a spiral grit conveyor and an odor control system that minimizes all odors within the facility. From there, water enters the splitter box, followed by pre-reaction basins that lead into the sequencing batch reactor (SBR) tanks.

The SBR system comprises two fine bubble aeration grids with positive displacement blowers, two submersible mixers, decanters and waste sludge pumps. Water then enters the equalization basin, and is pumped into the filtration building.

A three-step filtration process is utilized at the facility, beginning with a three-cell sand filtration system. From there, water enters a microfiltration system, followed by an open-channel ultraviolet disinfection system, and then enters the post-treatment aeration basin before being discharged into the lake.

The plant was put online in June 2012, with all homes and businesses hooked up by November

2012. It was designed for an average flow of 0.17 million gal per day (mgd), but is capable of handling flows up to 0.5 mgd.

The plant's exterior was designed to blend in with the surrounding community. From the outside, it appears to be a typical red barn.

"Nobody would know that it's a wastewater treatment facility," McKay said. "With the area that the plant is in, nobody wants a wastewater treatment facility in their backyard. It was a populated community, so they designed it to look like a horse barn with horse stables."

Weathering the Storms

The construction crew faced challenging weather conditions during record snowfall in December 2010.

"We worked through one of the worst winters New York had seen in ages," McKay said. "Obviously, because of the snow, people weren't working as efficiently. We basically worked six days a week and 10-hour days through the winter in order to meet the timeline that was required."

As with the startup of any new treatment system, getting all of the components of the system to communicate and operate effectively was a challenge.

"Each individual piece of treatment equipment talks with itself, and then everything talks to SCADA," McKay said. "Trying to get everything to not only talk to each other, but [also] talk to SCADA was a challenge."

According to McKay, the weather continues to be the plant's greatest enemy.

During Hurricane Sandy in October 2012, the plant lost power but quickly recovered, thanks to its generator system.

The extreme cold in the winter, however, continues to present challenges.

"These cold temperatures are causing various piping and valves that are located outside above-ground in the sequencing batch reactor structure to freeze," McKay said. "The temporary solution has been to apply heat tape to the [affected] piping and valves. The ultimate solution will be to insulate and heat trace these areas accordingly."

There are no plans for upgrades at this time, but McKay said that the town is always looking for improvements in technology that will reduce operation and maintenance costs. **WWD**

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