



PW/Utilities

Connection



March 2005

Utilities Data from Feb. 2005

City of Melbourne Public Works & Utilities Department

Demolition of old treatment units underway at D.B. Lee WWTP

The new is in and now the old will soon be out at the D.B. Lee Wastewater Treatment Plant, thanks to a project that has recently begun to demolish old treatment units at the facility.

"This is older equipment that can't meet today's effluent discharge standards that require higher treatment levels," said Operations Supervisor Roger Mansfield, who is serving as project representative, acting as a liaison between the contractor and the engineers.

The structures were constructed in the 1950's and 1960's and includes two concrete clarifiers, one concrete aeration basin and two steel ring treatment units.

In addition to demolishing this equipment, the project also includes some construction elements — a riser pipe on the influent line and a piping diversion tie-in.

"The influent pipe tie-in will allow us to perform the demolition of our existing splitter structure," said Eric Blankman, Wastewater Treatment Superintendent. "The riser pipe is needed so the lift stations can continue to run as designed."

The old equipment is no longer needed due to the completion of the \$15.5 million Phase III expansion and improvement project that was completed in the fall of 2003. This project provided new and better treatment units. It also provided additional reuse treatment and storage units.

"The new plant is designed for biological nutrient removal, which is a higher level of treatment and creates

less of an impact on the environment," Mansfield said.

According to Blankman, "Phase III was basically the first phase. Phases I and II were rehabilitation projects to get us by until we could make the full commitment.

Phase IV is the proposed duplication of Phase III that will provide almost double the capacity."

The existing capacity at the plant is six million gallons per day (MGD). Phase IV, which is anticipated to begin in three years, would bring the total capacity to 10 MGD.

"This will allow us to keep pace with the City's growth and to improve the level of treatment," Blankman said.

The work for the current project is being performed by Cross Environmental Services of Winter Park, Florida. They have 180 days to complete this \$624,700 project. The company was

already 45 days into the project when work began the first week of March. The delay occurred as they waited for delivery of special valves needed for the project.

Once delivered, the project is now proceeding at a rapid pace.

"At the rate they are going, they should be complete well before the contractual completion date," Blankman said.



Worker with Cross Environmental Services uses a cutting torch to demolish one of the steel ring package treatment units.



A trackhoe used in the demolition of one of the concrete tanks.

PW/Utilities Connection - March 2005

www.melbourneflorida.org

Public Works/Utilities Data from Feb. 2005

Monthly Water Usage and Raw/Finished Water Quality Statistics

Water Usage

- ◆ Water pumped to service: 442,521,000 gallons or 15.804 MGD average
- ◆ Maximum finished water pumped to service: 16.723 MGD on February 20, 2005
- ◆ Water billed: 418,432,600 gallons
- ◆ Fire hydrant flushing: 14,110,760 gallons
- ◆ Fire Department water usage: 33,750 gallons
- ◆ Brevard County water usage – sewer flushing: 9,000 gallons
- ◆ Flushing and testing new water mains: 23,787 gallons
- ◆ Committed capacity: 2.4619 MGD
- ◆ Capacity available for development: 8.5790 MGD (Based on 12-month average daily flow)

Water Quality Statistics

Lake water quality

- ◆ pH: 7.6

- ◆ Alkalinity: 59 mg/L
- ◆ Total hardness: 115 mg/L
- ◆ Chlorides: 79 mg/L
- ◆ Color: 156
- ◆ Total dissolved solids (TDS): 235 mg/L

Well water quality

- ◆ pH: 7.6
- ◆ Alkalinity: 120 mg/L
- ◆ Total hardness: 619 mg/L
- ◆ Chlorides: 740 mg/L
- ◆ Color: 5
- ◆ TDS: 1,563 mg/L

Finished water quality - pumped to service

- ◆ pH: 8.2
- ◆ Alkalinity: 38 mg/L
- ◆ Total hardness: 104 mg/L
- ◆ Chlorides: 81 mg/L
- ◆ Color: 4
- ◆ Total dissolved solids (TDS): 244 mg/L

Wickham tank being demolished for system improvements

For the elevated water storage tank on Wickham Road, it's out with the old part II. The City entered into a change-order agreement with Cross Environmental Services, Inc. to demolish this tank. This is the same contractor currently performing the demolition work at the D.B. Lee Wastewater Treatment Plant, which is featured on page 1.

The cost to demolish the tank using the same contractor is \$91,650, well under the \$166,000 that had been budgeted. The demolition should be complete by the end of March.

The Wickham tank, which can store 350,000 gallons of water, was part of the old Eau Gallie water system that was taken over by Melbourne in the late 1960's. In the past few years, the tank had become corroded and was minimally used.

According to Assistant City Engineer Martha Campbell, the tank was also damaged during the hurricanes last September.

"It has become a safety hazard, it's leaking and has some structural damage from the storms," Campbell

said. She explained that it was taken out of service after the hurricanes, awaiting demolition.

There are three elevated water tanks still standing from the old Eau Gallie system. Besides the Wickham tank, there is a 250,000-gallon tank on Aurora Road and a 150,000-gallon tank on Post Road. According to Campbell, the Aurora tank will be rehabilitated in the near future, however, it too will likely be demolished in another 10 years.

The Post Road tank is currently slated for demolition within the next year. First, though, a new location has to be found on which a new two-million gallon storage tank and booster pump station will be constructed to replace the three old tanks.

"We don't own the land where the Post Road tank is currently located and it's not big enough for the new facilities that will be

constructed." Campbell said. She added that the existing tank would have to be kept in service until the new tank came on line. She said they are looking for sites between Post Road and the Pineda Causeway.



Two workers on top of the Wickham water tank prepare it for demolition.

PW/Utilities Connection - March 2005

www.melbourneflorida.org

Public Works/Utilities Data from Feb. 2005

Wastewater Treatment Operational Summary and Reuse Statistics

D.B. Lee WWTP

- ◆ Treated this month: 114.12 MG
- ◆ Treated daily: 4.08 MGD
- ◆ Reuse production — total month flow: 41.80 MG
- ◆ Reuse average daily flow: 1.49 MGD
- ◆ Reuse number of days run: 27
- ◆ Plant efficiency, BOD removal: 98.9%
- ◆ Committed capacity: 0.8979 MGD
- ◆ Capacity available for development: 0.5353 MGD
(Based on 12-month average daily flow)

Grant St. WWTP

- ◆ Treated this month: 82.49 MG
- ◆ Treated daily: 2.95 MGD
- ◆ Reuse production — total month flow: 6.65 MG
- ◆ Reuse average daily flow: 0.24 MGD
- ◆ Reuse number of days run: 28
- ◆ Plant efficiency, BOD removal: 98.6%
- ◆ Committed capacity: 0.8773 MGD
- ◆ Capacity available for development: 1.5101 MGD
(Based on 12-month average daily flow)

Hibiscus booster tank gets new valves to steady pressure

Water leaves the City's treatment plant at between 70 and 80 psi, or pounds of pressure. As it travels through the distribution system the pressure would naturally drop if not for the booster stations at various locations in the City's water service area. They boost the pressure to maintain a stable rate throughout the system.

If there is a power failure, check valves at the booster station close because pressure is not being generated. The old hydraulic valves created water hammer when this occurred. Water hammer is when the valves close rapidly and create pockets of air, causing pressure surges throughout the system. These fluctuations can have harmful effects on the distribution system.

To alleviate this problem, a project is underway at the Hibiscus Water Booster Station to replace the old valves on three pumps with new electronic valves.

"We will have the ability to monitor the status of the valves from the plant," said Maintenance Supervisor Bill Spann. "The new valves are electrically actuated to open and close which will greatly reduce the water hammer effect."

The new valves will open and close at a slower rate to provide steady increases and reductions in pressure.

Waterline Industries is the contractor for this \$75,777 project. In a similar project, the company recently replaced the valves at the Canova Beach Booster Station located beachside.



Bill Spann (left) and Electronics Technician Ray Elden go over plans for the valve replacements. One of the valves has already been replaced, with two more to go. The project should be complete by early April.

Streets and Stormwater Management Monthly Summary

- ◆ Daytime street sweeper — hours run: 78
Cubic yards of material removed: 97.5
- ◆ Nighttime street sweeper — hours run: 82
Cubic yards of material removed: 89
- ◆ Asphalt repairs made: 37
- ◆ Tons of asphalt used: 50
- ◆ Feet of canals cleaned mechanically: 4,465
- ◆ Acres treated through aquatic spraying: 0
- ◆ Feet of storm drain pipe repaired: 100
- ◆ Concrete repairs: 31
- ◆ Cubic yards of concrete used: 43.5

PW/Utilities Connection - March 2005

www.melbourneflorida.org

Utilities Data from Feb. 2005

February Highlights

The level of Lake Washington increased slightly during the last month. At the end of February, the lake level was 14.59 feet above sea level. This compares to the lake level at the end of January, when it was 14.53 feet above sea level. Water quality remains good.

The D.B. Lee Wastewater Treatment Plant recorded 3.8 inches of rain during one day in February. The Grant Street Wastewater Treatment Plant received 4.1 inches of rain over two days during February. A total of 47.72 million gallons of reclaimed water was distributed during February. This represents 24% percent of total plant flows for February.

What's Done, What's Underway and What's Coming Up

Water Projects

Under Construction:

- ◆ Parkway Drive and Turtle Mound water line extension, \$657,000
- ◆ Hibiscus booster station electric shut-off valves, \$75,777
- ◆ Waterline upgrade, Olde Eau Gallie, \$347,409
- ◆ Replacement of RO membranes, \$469,000
- ◆ Water Treatment Plant storage building, \$98,000
- ◆ Wickham water tank demolition, \$91,650
- ◆ Fee Avenue waterline replacement under FEC, \$120,330

Under Design or in Bid Process:

- ◆ Phase II surface water treatment plant improvements
- ◆ Utility relocation in association with NASA Boulevard realignment at Wickham Road
- ◆ Chemical feed upgrades at Canova Beach Booster Station
- ◆ Wickham Road ground storage tank and booster pump station
- ◆ Eau Gallie River sub-aqueous crossing
- ◆ Miscellaneous two-inch to six-inch waterline upgrades
- ◆ Dairy Road, US 192 and

Hibiscus Boulevard water line interconnection

- ◆ Hazelwood waterline extension
- ◆ Turtlemound north waterline extension
- ◆ Automatic transfer switch and generator enclosure at the surface water treatment plant's belt press building

Wastewater Projects

Under Construction:

- ◆ Lift Station 24 replacement, \$451,440
- ◆ Demolition of old treatment units at D.B. Lee WWTF, \$624,700

Under Design or in Bid Process:

- ◆ New monitoring network for reuse system at DB Lee WWTP
- ◆ Reuse master plan
- ◆ Water & Wastewater Operations maintenance building
- ◆ Lift station 55 upgrade
- ◆ Grant Street Wastewater Treatment Plant lighting upgrade
- ◆ Sarno Road force main upgrade
- ◆ Electrical upgrade to the sludge belt press building at D.B. Lee WWTP
- ◆ D.B. Lee WWTP administration

building

- ◆ Lift Station #43 (Front Street) upgrade

Streets & Stormwater Projects

Recently Completed:

- ◆ Sarno Road/Bell Street drainage improvements, \$257,911

Under Construction:

- ◆ Sherwood Park drainage improvements, \$358,285
- ◆ Babcock Street realignment, \$1,394,649
- ◆ Eber Road widening from Babcock Street to Dairy Road, \$3,840,879

- ◆ Pineapple Avenue pedestrian bridge at Cliff Creek, \$115,429

Under Design or in Bid Process:

- ◆ Hoag Avenue paving and drainage improvements
- ◆ Upgrade of stormwater system at Charles Dr./Almar Subdivision
- ◆ Upgrade of existing culvert crossing under Pirate Lane
- ◆ Laurie Road drainage improvements

For more information about this report, please contact the Melbourne PW/Utilities Administration Department at (321) 674-5761 or send an e-mail to utilitiesadmin@melbourneflorida.org