

PW/Utilities Connection



July 2011

Utilities Data from June 2011 City of Melbourne Public Works & Utilities Department

Environmental protection integral to Eau Gallie River projects

A number of improvements are underway or being planned to improve the Eau Gallie River. Dredging is being discussed as a future project; however, it will have to be done in phases due to the \$30 million cost estimate.

"The first step is to do a survey of the river to determine the volume of muck that needs to be removed and determine how and where the muck can be taken to be dewatered and then transported somewhere to be used beneficially," said Deputy City Manager Howard Ralls. He said the City is looking into funding for this first phase from the state and the St. Johns River Water Management District.

Another coming environmental improvement is the removal of the dam located in the river behind the First Baptist Church of Eau Gallie.

"The steel dam is very old and no longer serves the purpose for which it was constructed," Ralls said. It was put into place in the 1960s as a salinity barrier for fresh water wells in the area upstream of the dam when Eau Gallie had its own water system.

"This will restore the Eau Gallie River environment to its natural pre-dam condition," Ralls said. He explained the first step will be to have sophisticated hydraulic evaluations and modeling performed and there are funds budgeted for the next fiscal year for these evaluations. The City will be looking for federal funding for the actual dam restoration project once the studies are completed.

Another important project is now ready to get underway to relocate the potable water byproduct disposal main. The main is needed to dispose of the brackish water, referred to as concentrate, which contains constituents removed through the reverse osmosis (RO) water treatment process. RO treatment uses high pressure membranes to separate the raw ground water into clean, pure potable water, and the reject water that contains salts and other dissolved solids. The RO process supplies approximately 33% of the total water distributed to Melbourne customers. The other water source is Lake

Washington. An average of 15 million gallons of water per day is produced from these two sources. The Florida Department of Environmental Protection (FDEP) had required the current concentrate outfall point be relocated from its present location at the intersection of the Eau Gallie River and Apollo Boulevard right-of-way, to immediately east of the U.S. 1 bridge. This new location will provide better mixing of the concentrate with the receiving water to promote and ensure compliance with the permit, while further protecting the environment.

"There is better flow through this particular area, both east and west," explained Harold Nantz, Assistant Public Works & Utilities Director.

In addition to relocating the discharge point, a diffuser will be constructed in the river to provide more efficient mixing of the reverse

osmosis byproduct concentrate effluent with the waters of the Eau Gallie River.

"The City has performed extensive modeling and research to determine a location in the Eau Gallie River where the best mixing would be achieved," said Nantz. "The new outfall location was selected based on the results of this extensive research."

To further protect the environment, during the winter months between November 1 and March 31, discharging will cease if there is shown to be a thermal condition in the river that could attract manatees to the discharge site.

Nantz said that RO operations will be modified so that if the temperature of the effluent is one degree higher than the 69 degree temperature of the receiving water, RO operations will stop until the receiving water temperature increases. Monitor stations will be constructed in the river to gauge the temperatures.

City Council has approved a construction contract with Masci Corporation of Port Orange in the amount of \$1,104,341 for the 9,500 linear feet of byproduct main relocation and manifold diffuser. Construction is expected to begin next month and be completed by April 2012.



Manatee protection will be a benefit of upcoming projects in the Eau Gallie River.

PW/Utilities Connection - July 2011

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Public Works/Utilities Data from June 2011

Monthly Water Usage and Raw/Finished Water Quality Statistics

Water Usage

- ◆ Water pumped to service: 489,037,000 gallons or 16.301 MGD average
- ◆ Maximum finished water pumped to service: 18.275 MGD on June 12, 2011
- ◆ Fire hydrant flushing: 13,315,710 gallons
- ◆ Committed capacity: 2.5780 MGD
- ◆ Capacity available for development: 6.8510 MGD (Based on 12-month average daily flow)

Water Quality Statistics

Lake water

- ◆ Level: 12.43 feet above MSL on June 30, 2011 (Prior month comparison: 12.83 feet on May 31)
- ◆ pH: 7.5
- ◆ Alkalinity: 62 mg/L

- ◆ Total hardness: 182 mg/L
- ◆ Chlorides: 173 mg/L
- ◆ Color: 103
- ◆ Total dissolved solids (TDS): 489 mg/L

Well water

- ◆ pH: 7.4
- ◆ Alkalinity: 121 mg/L
- ◆ Total hardness: 660 mg/L
- ◆ Chlorides: 796 mg/L
- ◆ Color: 6
- ◆ Total dissolved solids (TDS): 1,846 mg/L

Finished water - pumped to service

- ◆ pH: 8.4
- ◆ Alkalinity: 50 mg/L
- ◆ Total hardness: 130 mg/L
- ◆ Chlorides: 134 mg/L
- ◆ Color: 2
- ◆ Total dissolved solids (TDS): 377 mg/L

Cooperative effort with St. Johns WMD plugs large leaking well

A leaking 419-foot deep, six-inch well in Melbourne's right-of-way was recently plugged and abandoned through a joint effort between the City and the St. Johns River Water Management District (SJRWMD).

Located on Melissa Court in a recently annexed portion of the City near Turtlemound Road, the well had likely been put in years earlier before the area was developed, probably used for farming or ranching purposes.

As a temporary fix, the homeowner had sealed the well with a temporary repair band. SJRWMD staff sent a camera into the well to assess the depth, condition of the well, and obtain a flow estimate, which was 300 gallons per minute.

In the past, the District would have contracted this

work out, paying \$20 per sack of cement along with several hundred dollars for mobilization fees. Due to State budget cuts, the work in the past few years has

been performed by District crews. For this project, it took 150 sacks of cement to plug the well, at a cost to the District of \$10 each. The primary goal for plugging abandoned wells is to conserve water. However, according to Wesley Curtis, Supervising Hydrologist with the SJRWMD, the program will soon be completely eliminated due to the budget cuts.

The City's Wastewater Collection crew assisted with the work by excavating the well, supplying a construction meter, hoses and potable water to wash everything down, and restoring the site once completed.



Workers lower a "tremie" into the well to pump in cement in order to plug the well.

PW/Utilities Connection - July 2011

www.melbourneflorida.org

Public Works/Utilities Data from June 2011

Wastewater Treatment Operational Summary and Reuse Statistics

D.B. Lee Water Reclamation Facility

- ◆ Treated this month: 101.01 MG
- ◆ Treated daily: 3.37 MGD
- ◆ Reuse production — total month flow: 50.95 MG
- ◆ Reuse average daily flow: 1.7 MGD
- ◆ Reuse number of days run: 30
- ◆ Plant efficiency, BOD removal: 99.62%
- ◆ Committed capacity: 0.6035 MGD
- ◆ Capacity available for development: 2.4290 MGD
(Based on 12-month average daily flow)
- ◆ Rainfall: 6.97 inches over 9 days

Grant St. Water Reclamation Facility

- ◆ Treated this month: 80.05 MG
- ◆ Treated daily: 2.67 MGD
- ◆ Reuse production — total month flow: 40.78 MG
- ◆ Reuse average daily flow: 1.36 MGD
- ◆ Reuse number of days run: 30
- ◆ Plant efficiency, BOD removal: 98.88%
- ◆ Committed capacity: 1.0101 MGD
- ◆ Capacity available for development: 1.7324 MGD
(Based on 12-month average daily flow)
- ◆ Rainfall: 5.11 inches over 9 days

A total of 91.73 million gallons of reclaimed water was produced during June, representing 51 % of total plant flows.

Fleet earns ASE certification

For the sixth year in a row, Melbourne's Fleet Management Division earned the Blue Seal of Excellence from the National Institute of Automotive Service Excellence (ASE).

The division's 12 mechanics maintain 1,250 pieces of equipment, from large fire engines, vector trucks, dumps trucks, excavators and loaders, to police patrol cars, pickup trucks, tractors, street sweepers, and mowers.

"ASE keeps our technicians current," said Fleet Superintendent Kenny Tinsley. "There is a tremendous amount of data we have to constantly keep up to date on."



Billy Parker (l) and Aaron Corey work on a police cruiser.

Streets and Stormwater Management Monthly Summary

Street Sweeper

- ◆ Daytime street sweeper — hours run: 125
- ◆ Cubic yards of material removed: 518

Canal & Ditch Maintenance

- ◆ Feet of canals cleaned mechanically: 867
- ◆ Square feet of fabric form installed: 0

Aquatic Spraying

- ◆ Acres treated through aquatic spraying: 21

Inlet Maintenance

- ◆ Storm inlets cleaned: 4
- ◆ Storm inlets repaired: 7
- ◆ Cubic yards of material removed from drains: 1.5
- ◆ New catch basins installed: 2

Storm Drain Pipe Repair & Maintenance

- ◆ Feet of storm drain pipe repaired: 7
- ◆ Feet of storm drain pipe cleaned: 415
- ◆ Feet of storm drain pipe replaced: 45
- ◆ Feet of storm pipe lined (CIPP): 0
- ◆ Feet of new storm drain pipe installed: 0

Concrete Work

- ◆ Concrete repairs: 15
- ◆ Cubic yards of concrete used: 28

Asphalt Work

- ◆ Asphalt repairs made: 53
- ◆ Tons of asphalt used: 41

Water Usage

- ◆ Vac truck & yard usage (gallons): 28,200

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Outreach programs in full swing during summer months

Just because school is out doesn't mean there isn't time for learning; it's just being done in a more active and informal way.

So far this summer, the City's Environmental Community Outreach Division has reached 1,304 children in various camps and other summer programs. There are another five scheduled for the remaining summer break, expected to reach another 127 kids.

The children learn about water conservation, erosion, wetlands, stormwater runoff, the



Jennifer Thompson plays wetlands game at recent cub scout camp, held at Wickham Park.

Indian River Lagoon, recycling and litter. The program involves active learning where the kids play

games, including a wetlands obstacle course and a soil erosion obstacle course.

Environmental Programs Coordinator Jennifer Thompson says the games are fun and interactive so they capture the attention of the kids. "They get a lot of learning in even though it's summer camp," Thompson said.

After the children return to school, educational programs will be held in classrooms throughout Melbourne's water service area.

To schedule a program, please call the ECO Division at 321-953-6302.

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

Water Projects

Recently Completed:

- Interior and exterior painting of RO water treatment plant, \$249,880

Under Construction:

- RO wellfield rehabilitation, \$331,270
- Pressure-sustaining valves, \$213,000
- RO byproduct (concentrate) pipeline extension, \$1,104,134

Under Design or in Bid Process:

- Apollo Boulevard extension utility relocation
- Wickham Road reconstruction, 8" waterline

Wastewater Projects

Under Construction:

- Grant Street WRF reuse improvements, phase I, \$5,216,025
- WRF generator and fuel storage improvements, \$2,643,881
- Lift Station 55 to 23 replacement of sewer force main, \$1,607,188
- Rehabilitation of Lift Station 63
- 10" force main conversion to reclaimed main, \$150,000

Under Design or in Bid Process:

- D.B. Lee WRF expansion and miscellaneous improvements
- Lift Station 25 rehabilitation

Streets & Stormwater Projects

Under Construction:

- Spain outfall drainage basin improvements, \$129,539
- Fee Avenue/Apollo Boulevard stormwater pond & culvert replacement, \$483,495

Under Design or in Bid Process:

- South Sarno Road drainage improvements
- Babcock Street medians, Phase 3, Apollo Boulevard to Almar Drive
- D.B. Lee Water Reclamation Facility ditch restabilization

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