

# **AMERICAN PUBLIC WORKS ASSOCIATION**

## **SOUTH FLORIDA BRANCH**

### **PROJECT OF THE YEAR AWARD SUBMITTAL 2011**



### **BROWARD COUNTY 3C FACILITY AND TANK FILL LINE**

Nominated by: BROWARD COUNTY WATER AND WASTEWATER SERVICES

Consultant: HAZEN AND SAWYER, P.C.

Contractor: FLORIDA DESIGN CONTRACTORS, INC.



## PROJECT BACKGROUND AND HISTORY

The **Broward County 3C Facility and Tank Fill Line** project is located in the City of Miramar about 8 miles southwest of the Fort Lauderdale-Hollywood International Airport. Prior to becoming the County 3C Facility, the site was a developer owned and operated lime softening water treatment plant with on-site raw water wells and included a 0.5 MG potable water steel storage tank, pumping station and chemical feed system. In 1968, Broward County purchased the water plant site from Broward Utilities, Inc., and with the associated distribution system piping, became part the Broward County District 3B/3C service area. In 1995, the raw water supply and water treatment portion of the facility was decommissioned. The above ground storage tank, distribution pumps and chemical feed system were re-configured to operate as a re-pump facility and remained in service up to the date of the 3C Project.

Water supply to the 3C storage tank from the City of Hollywood was originally furnished via connection to the local water distribution system. Under this set-up, the tank was subject to distribution system pressures thus filling at night during low demand, and subsequently emptying during the day. This tank fill arrangement was discontinued in 2009 when the County completed the construction of approximately 7,000 feet of 16-inch water main which connected directly to the City's water transmission system and would serve as a dedicated tank fill line for the new 3C Facility.

Design for the improvements of the re-pump facility and afore-mentioned dedicated fill line began in early 2004. Construction of the 16-inch fill line began in May 2008 and was completed in August of 2009 at a cost of \$1.3M (Fig A). Construction was performed by GMI Contracting, Inc.; the design was prepared by Craven Thompson & Associates. Construction of the 3C Facility began in November 2008 and was substantially completed in December, 2010 at a cost of \$4.5M. Construction was performed by Florida Design Contractors, Inc.; the design of the facility was prepared by Hazen & Sawyer, P.C.

The new 3C Facility includes a 1.5 MG concrete ground storage tank and a high service pump building equipped with 3 variable speed pumps with 100 HP motors that have a capacity of 4.5 MGD, sodium hypochlorite and ammonia chemical feed systems, and a 380 KW emergency generator. Operationally, water delivered through the 16" fill line from the City can be directed to storage or to by-pass depending on the influent control valve positioning. The station chemical feed system can be operated to re-chlorinate and ammoniate water entering and leaving the site in operator selectable manual mode, paced to flow or by residual analytical feedback to proportion chemical addition. The facility is monitored and controlled remotely at the District 1 Water Treatment Plant located in Lauderdale Lakes, Florida.

The project, by necessity, was constructed in two demolition and construction phases to keep the facility operational at all times. The first phase included demolition of the old treatment plant (Figs. B thru G) and subsequent construction of the new pumping station (Figs. H thru Q). Once the new pumps were commissioned as temporary in-line boosters which bypassed the storage tank, the old tank and pump station were demolished and the new tank constructed and later placed into operation.

Because the facility is located within a residential neighborhood, extensive coordination with the City of Miramar was necessary to insure that the visual impact of the new facility was well received by the community. This effort resulted in a facility with landscaping and architectural appointments that comprise a landmark design and support the County's mission of **"OUR BEST and NOTHING LESS."**

**Project Partners:**

**Owner: Broward County Water and Wastewater Services**

WWWS Director: Alan Garcia, P.E.  
WWED Director: Greg Balicki, P.E.  
Project Manager: John Morra, P.E.  
Project Manager: Bob Leonard  
WWOD Director: Terry Karda  
WWOD Manager: John Kaye

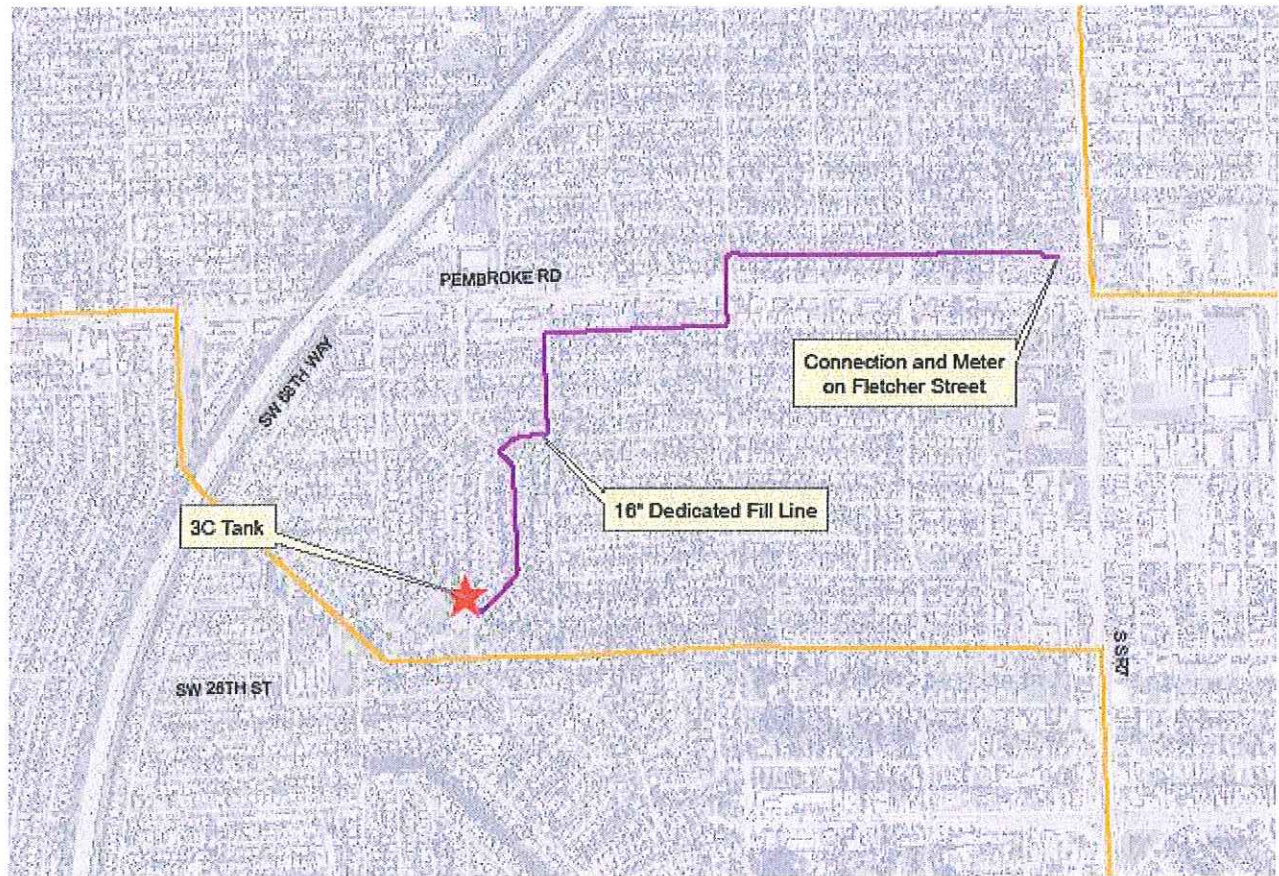
**Consultant: Hazen and Sawyer, P.C.**

Project Manager: Merle Medina  
Project Manager: Glenn Cunningham, P.E.

**Contractor: Florida Design Contractors, Inc.**

Owner: Thomas Clarke  
Project Manager: Greg Williams





**Fig A. - DEDICATED TANK FILL LINE**



## OLD 3C FACILITY



**Fig. B – Control Building & Softening Tank**

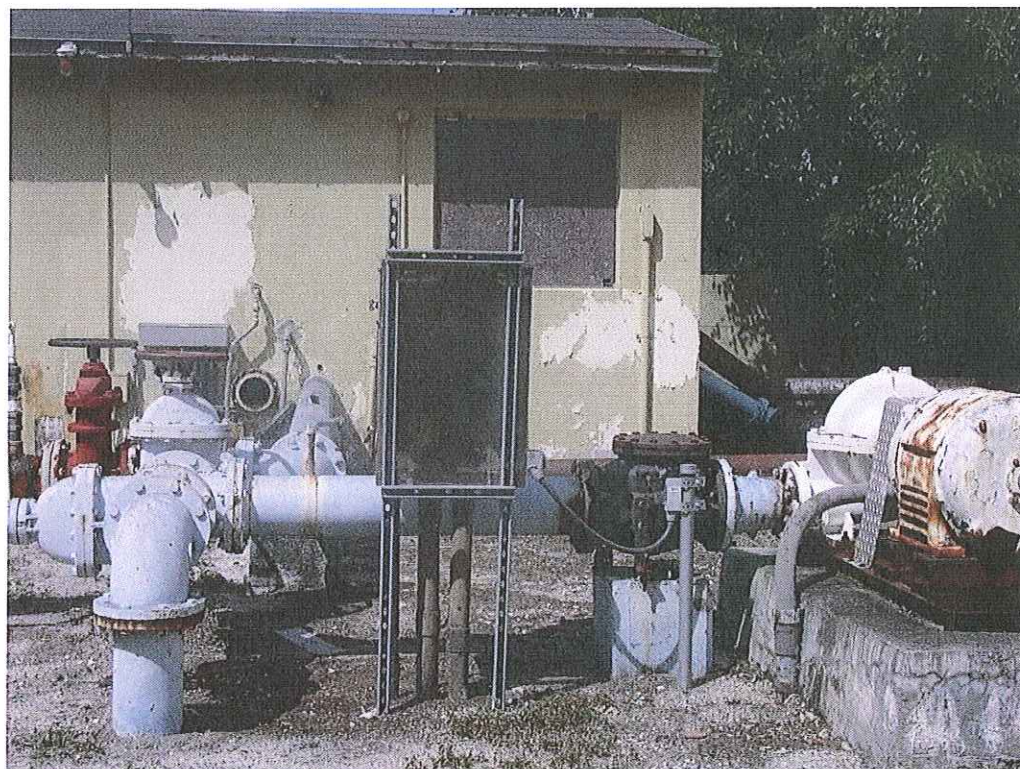


**Fig. C – Filter Tanks and Piping**



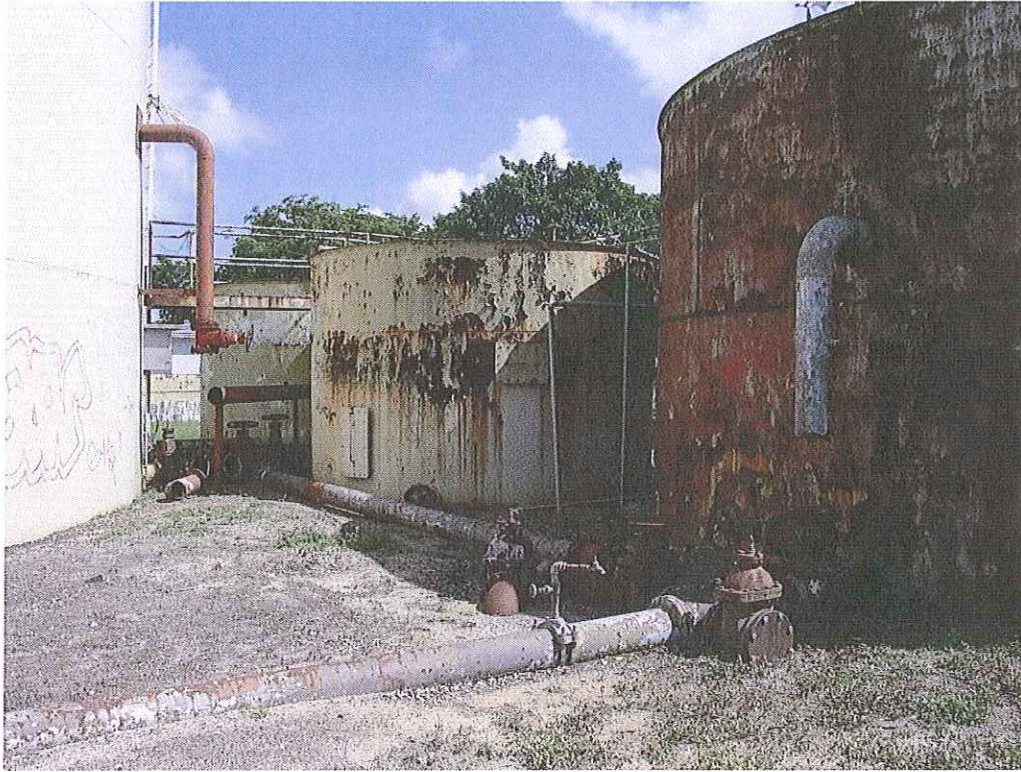


**Fig. D – 0.5 MG Tank Lime Silo & Chemical Building**



**Fig. E - HIGH SERVICE PUMP AND SERVICE BUILDING**





**Fig. F INTERIOR VIEW OF- OLD TANKS**



**Fig. G - OLD PERIMETER WALL/FENCE**



## NEW 3C FACILITY



**Fig. H - NEW 1.5 MG GROUND STORAGE TANK**



**Fig. I - 1.5 MG TANK UNDER CONSTRUCTION**





**Fig. J - PUMPING STATION AND STORAGE TANK**



**Fig. K - HIGH SERVICE PUMP ROOM**





**Fig. L- SODIUM HYPOCHLORITE DISINFECTION ROOM**



**Fig. M - 380 KW EMERGENCY GENERATOR**





**Fig. N - STORM WATER RETENTION POND**



**Fig. O - LANDSCAPING ON SOUTH PERIMETER**





**Fig. P - LANDSCAPING ON NORTH PERIMETER SOFTENS VIEW**



**Fig. Q – ENTRANCE FEATURE**