

City of Sanibel



DONAX WRF PROCESS IMPROVEMENTS

– Project Update



Tetra Tech

09.13.2021



Project History & Purpose

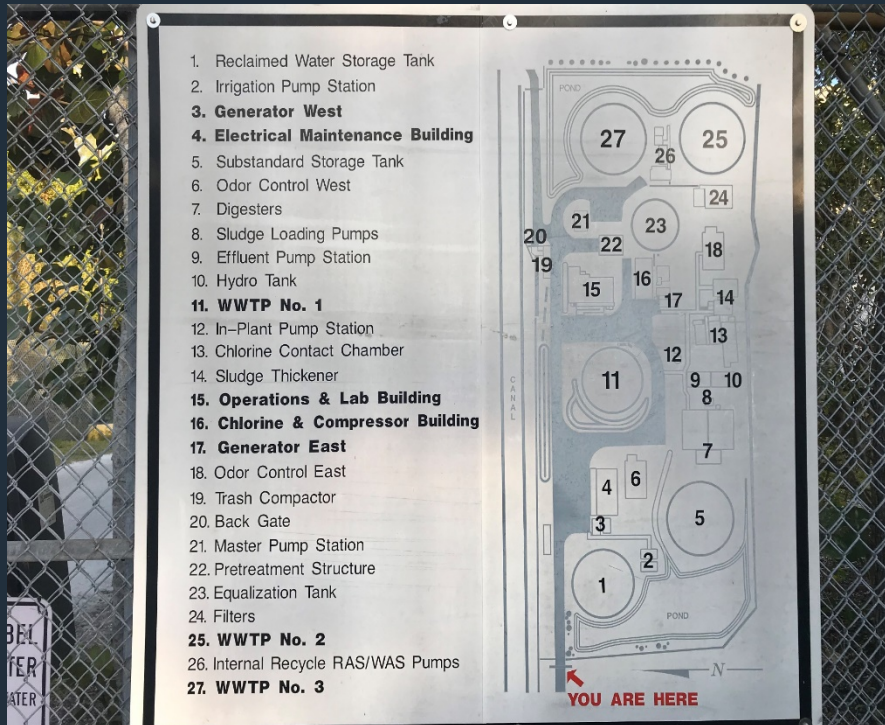
- The beginning stages of the upgrade project began in 2016 with the main goal to improve the quality of the reclaimed water, reduce nutrient loading in the water and extend the life of the facility.
- The facility process improvements will help reduce the amount of nitrogen and/or phosphorus that is in the water. This nutrient removal process is imperative to help protect and improve water quality in the Gulf of Mexico, San Carlos Bay, Pine Island Sound, and the Sanibel River.

Regulatory Effluent Parameters



PARAMETER	PUBLIC ACCESS REUSE (DONAX PERMIT LIMIT)	ADVANCED WASTE TREATMENT GOALS
CBOD	30 mg/L	5.0 mg/L
TSS	5.0 mg/L	5.0 mg/L
NITROGEN	12.0 mg/L	3.0 mg/L
PHOSPHORUS	REPORT	1.0 mg/L

Process Improvements Overview



The specific upgrades incorporated in the project include construction of a new electrical building, conversion of one treatment unit (Plant 1) to a new flow equalization basin, new pretreatment fine screens, conversion of two treatment basins (Plants 2 & 3) from the Modified Ludzack-Ettinger (MLE) process to a Four Stage Bardenpho process, and the addition of a membrane bioreactor (MBR) to the treatment process.

How We Treat More In Smaller Footprint

With increased disposal capacity, the improvements will allow for an increase in the permitted capacity from 2.375 mgd to 3.0 mgd.



With upgrades, solids settling clarifiers and sand filters are no longer used.

The Donax WRF will operate at a much higher solids concentration which is more efficient.

Simply put, more bugs are active in a smaller footprint to process the organic and inorganic compounds in the wastewater.

Project Budget & Funding

The budget for the Donax Water Reclamation facility upgrade is \$20,132,100.

Thus far the City of Sanibel has secured \$4.1375 million dollars in grants to off-set these costs (\$3.425 million from the State of Florida and \$712,500 from the federal government).

As a result, the Donax Water Reclamation Facility upgrade project is being partially funded by grants from the Florida Department of Environmental Protection (FDEP) and the Federal Emergency Management Agency (FEMA) through the state of Florida.

Funding for the remaining balance of the project comes from funds associated with the City of Sanibel Utility revenue.

BASE BID		
Item No.	Description	Amount
1	Mobilization and Demobilization	\$ 750,000.00
2	General Requirements	\$ 1,250,000.00
3	Indemnification	\$ 100.00
4	Locate Utilities in Advance of Construction	\$ 110,000.00
5	Phase 1 Construction of the City of Sanibel Donax WRF Process Improvements, Plant 1 Conversion to Flow EQ and Construction of the Fine Screening Facilities	\$ 4,700,000.00
6	Phase 1 Construction Owner's Contingency	\$ 100,000.00
7	Phase 2 Construction of the City of Sanibel Donax WRF Process Improvements, Demolition of the "Old" Flow EQ Tank, Plant 3 Improvements, and Construction of the MBR	\$ 9,800,000.00
8	Phase 2 Construction Owner's Contingency	\$ 100,000.00
9	Phase 3 Construction of the City of Sanibel Donax WRF Process Improvements, Demolition and Modifications to Plant 2 and any Outstanding Items	\$ 1,000,000.00
10	Phase 3 Construction Owner's Contingency	\$ 50,000.00
11	Standby Power Generator Facility	\$ 1,000,000.00
12	Material and Debris Removal from Existing Structures	\$ 142,000.00
13	All Work Not Included in Line Items 1-12 Work	\$ 200,000.00
	Total Base Bid	\$19,202,100.00

OWNER DIRECT PURCHASE				
Manufacturer	Equipment Description	Price Without Tax of Any Kind	Florida 6% Sales Tax	Phase
Flygt	Submersible Mixers	\$ 134,547	\$ 8,073	Phase I
Enduro	Flat Tank Cover	\$ 243,335	\$ 14,600	Phase I
Huber	Tank Mounted Perf Plate Screens	\$ 551,573	\$ 33,094	Phase I
Sanitaire	Fine Bubble Diffusers	\$ 26,961	\$ 1,618	Phases II & III
Fontaine	Stainless Steel Slide Gates	\$ 32,109	\$ 1,927	Phases II & III
SUEZ	Membrane Filtration System	\$2,450,000	\$ 147,000	Phase II
Total		\$3,438,525	\$ 206,312	

Convert Plant 2 to 4-Stage Bardenpho Process

- Converting two treatment basins (Plants 2 & 3) from the Modified Ludzack-Ettinger (MLE) process to a Four Stage Bardenpho process. Anaerobic, Pre-Anoxic, Aeration, Post Anoxic zones have been established.

Work Progress

- Placed into operation on August 16th.
- Currently fine-tuning operational parameters (oxygen concentrations, internal recycle & return activated sludge flow rates).
- Continue to achieve a greater reduction in nitrate-nitrogen levels, which are a condition (12.0 mg/L max in single sample) of the operating permit.



Convert Plant 3 to 4-Stage Bardenpho Process

- Converting two treatment basins (Plants 2 & 3) from the Modified Ludzack-Ettinger (MLE) process to a Four Stage Bardenpho process.

Work Progress

- Electrical enhancements have been ongoing while in operation.
- Basins drained and ready for conversion as of September 2nd.
- Currently demolishing clarifier mechanism and preparing to clean solids from basins.



Construct New MBR Basins

- Three basins contain membrane filtration cassettes for new MBR process.

Work Progress

- Placed into operation on August 16th.
- Performance has met design criteria.
- Final manufacturer's performance testing planned for week of September 13th.



Project Schedule

- Contractor is approximately eight (8) months behind schedule based on Tetra Tech assessment of remaining work.

Change Orders

- No change orders approved this period.
- See pending Change Order No. 1 summary on following slide.

Contract Status Through Pay Application No. 29

End Date of Pay Application #29	8/26/2021
Days Used	934
% of Contract Time to Substantial Completion Used	116%
% of Total Contract Time Used	108%
Total Completed and Stored to Date	\$14,607,620
Current Contract Price	\$15,312,264
% Complete Based on Current Contract Price	95%

Original Contract Price	\$20,132,100
Change Order #1 - Deleted Work (Rebidding Generator)	-\$1,175,000
Change Order #1 - 6% Sales Credit to Owner for ODP	-\$206,312
Change Order #1 - Credit to Owner for Equipment Portion of ODP	-\$3,438,525
Net Change by Change Order #1 (Execution Pending)	-\$4,819,837
Current Contract Price	\$15,312,264
Liquidated Damages per Calendar Day	
Substantial Completion	\$500
Final Completion	NA
Incentive Bonus per Calendar Day	\$100

Notice To Proceed (Date)	2/4/2019
Effective Date of Agreement (Date)	12/4/2018
Contract Time to Substantial Completion Including Approved Extensions (Calendar Days)	807
Total Contract Time Including Approved Extensions (Calendar Days)	867
Substantial Completion Date Including Approved Extensions (807 Calendar Days)	4/21/2021
Final Completion Date Including Approved Extensions (867 Calendar Days)	6/20/2021

Discussion