

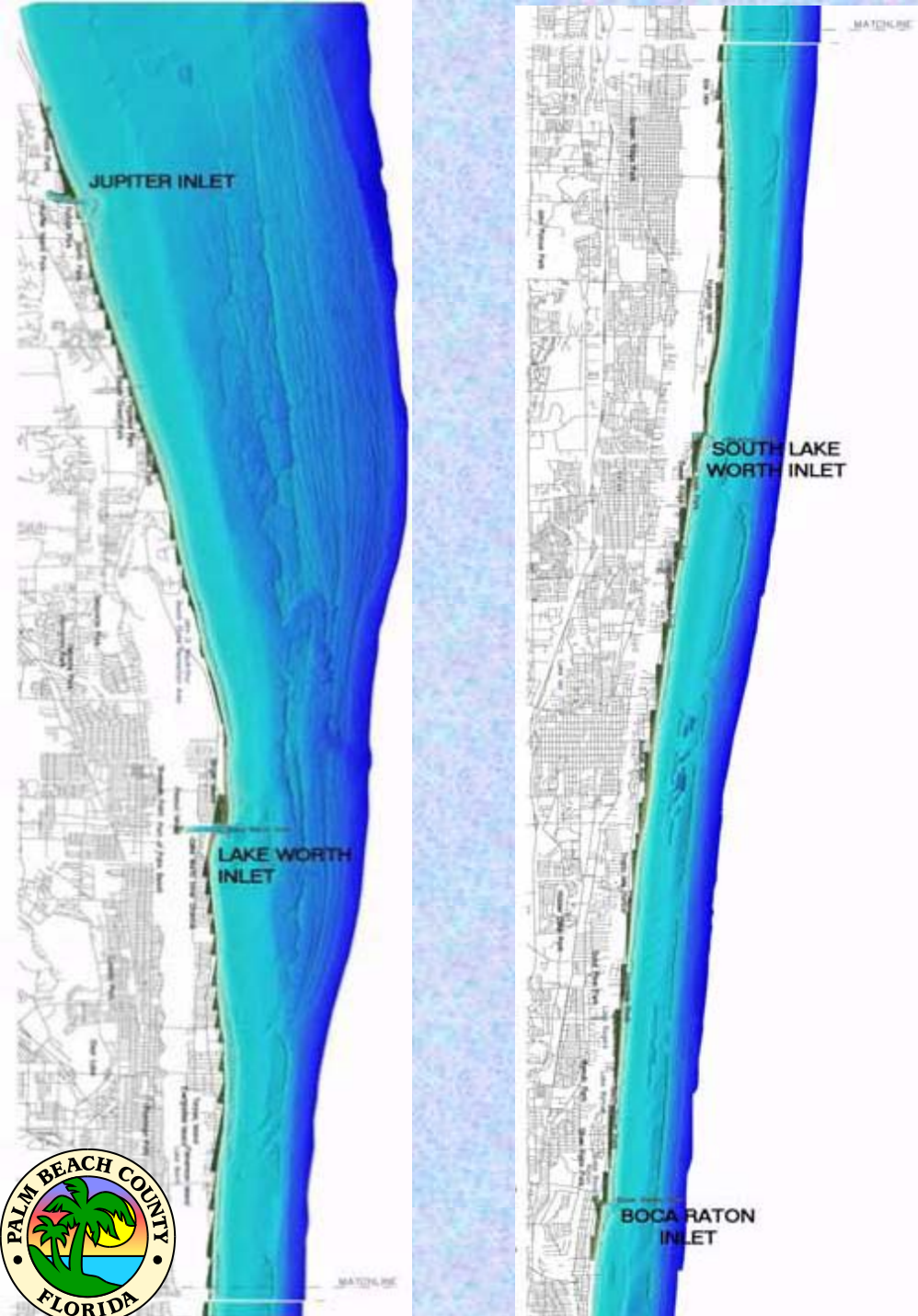
The South Lake Worth Inlet Projects...

Building Three for the price of One!

55th Annual Conference
Florida Shore and Beach Preservation Association
September 16, 2011

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Palm Beach County
Dept. of Environmental Resources Management





Overview (and history lesson)

Palm Beach County

- Four Inlets
- Two Natural
- Two Man made
- All are stabilized and managed (with varying degrees of success)





Lake Worth Inlet

First cut in 1877

- Moved several times over ~45 years
- Finally stabilized in 1918 at present location



What happened when Lake Worth Inlet was cut and stabilized?

- Residents now had a reliable way to move goods in and out of area
- Population in PBC grew dramatically
- Water quality in Lake Worth Lagoon declined drastically
- LWL was originally a freshwater, landlocked lagoon
- Something must be done!
- SLWID was formed in 1915 to fund a new inlet
- Plans to cut a new inlet at the south end of the lagoon were made in 1924
- Work began in 1925
- Finished in 1927
- 12 years from conception to completion (USACE record?)



South Lake Worth Inlet (the early years)

By 1932,
erosion on the
south side of the
inlet was
evident and a
2000' long
seawall was
constructed and
stabilized with
groins

By 1936,
shoaling had
increased so
much that the
jetties had to
be raised to 12'





THE INLET
BOYNTON BEACH, FLA.
P 1134



First STP consisted of a 6", 65 HP pump, capable of pumping 55cy/hr
Between 1937 – 1941, avg 50,400 cy/year

The STP through the years...

- 1937: 6" 65 HP centrifugal pump
- 1948: 10" intake
 - swinging boom (30' radius);
 - 8" centrifugal pump, 300 HP

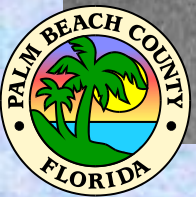


The STP through the years...

•1968:

- 410' curved extension to N jetty
- 65' extension to S jetty
- Training wall on north side (1952)
- Plant moved 118' seaward
- 10", 400 HP pump , intake on 35' boom

1968



The SLWI through the years...

•1970s:

- N jetty tightened
- Spur constructed on east side of STP
- Training wall on S side of inlet
- Bypassing of shoals twice
 - 50,000 – 70,000 cy

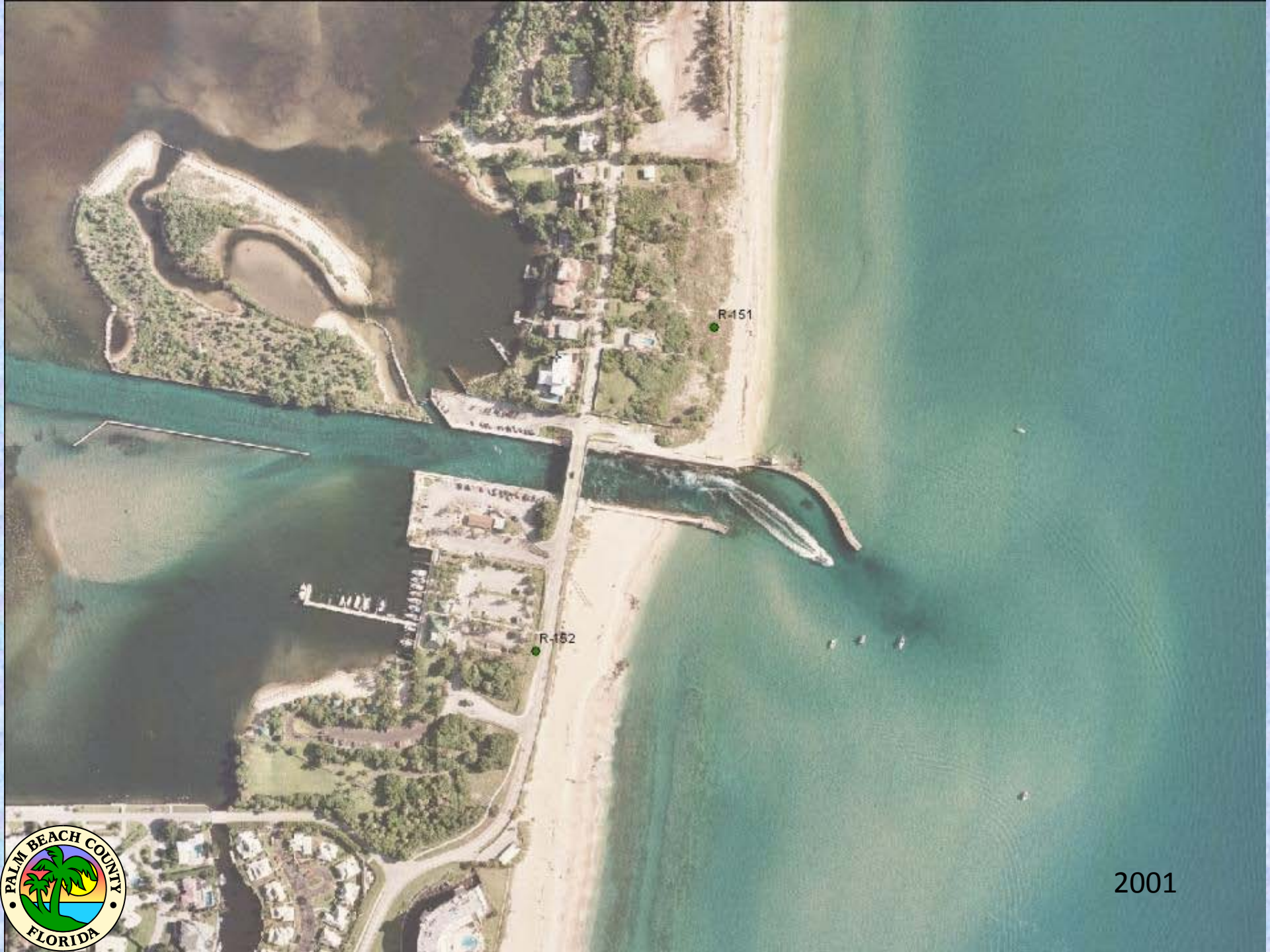


The STP through the years...

•1990s

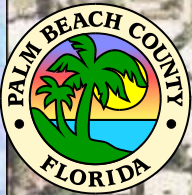
- SLWID disbanded
- Inlet turned over to Palm Beach County
- South training wall replaced
- Replaced engine in 1998
- Beach Nourishment and groin field





R-151

R-152



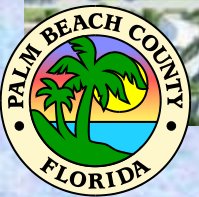
2001



The STP through the years...

- 2000s

- After all this hard work, let's bring this plant into the 21st Century!
- Better talk to the neighbors...



2002

- About those neighbors...
- The Town of Manalapan
- Incorporated in 1931
- <500 residents



"A truly unique municipality of unparalleled beauty and quality of life"



What color should it be?



The STP through the years...

- May 2003

- A new design is approved by all
- Funding and permits applied for



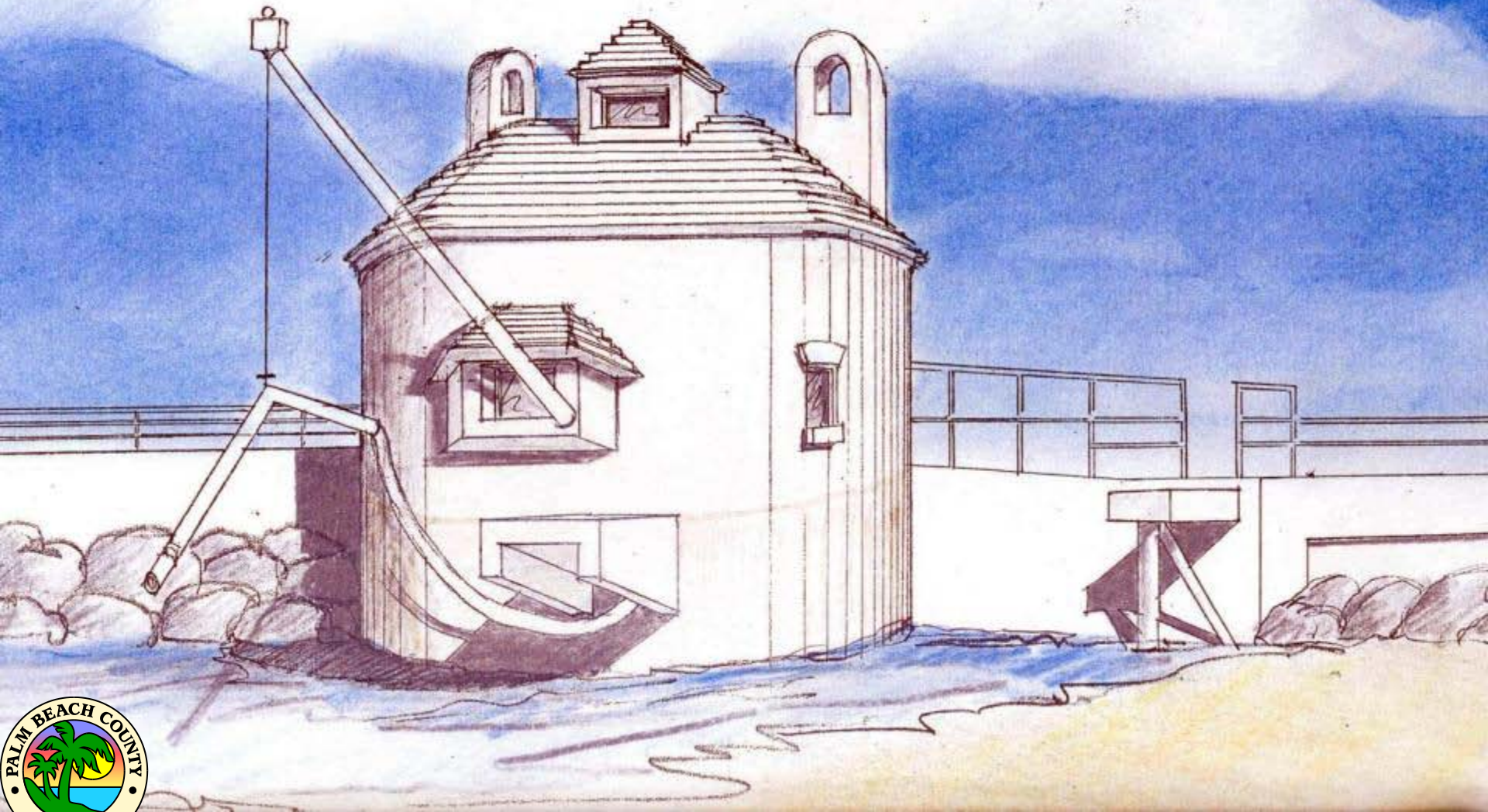
- The Plant operators breathlessly await the upgrade from...



**Old School
STP**



New and Fancy STP!



The STP through the years...

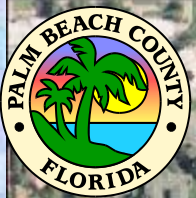
•2004/5

- Good news, we received permits for the new plant
- Bad news, engine room of STP completely flooded by Hurricane Frances (or was it Jeanne?)
 - Total replacement of the “guts” was needed
 - FEMA \$\$

2005

More bad news:

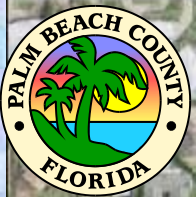
- The fuel tank and lines were out of compliance and needed to be torn out



The STP through the years...

•2006

•The STP staff kept the plant running despite the difficulties...

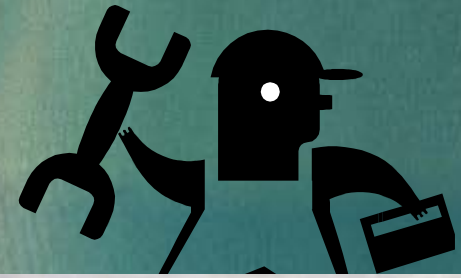


2006

The STP through the years...

•2006

•The STP staff kept the plant running despite the difficulties...



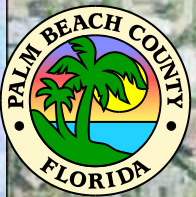
Digging it out when it got "sanded in"



The STP through the years...

•April 2007

- New plant design goes out to bid
- There is much interest in the marine construction industry
- Engineer's estimate puts construction costs ~\$5M
- Breathlessly we opened the bids...





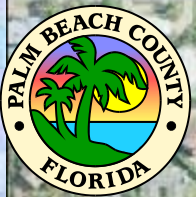
\$7,240,000!

(but we only have \$5,100,000)

R-151



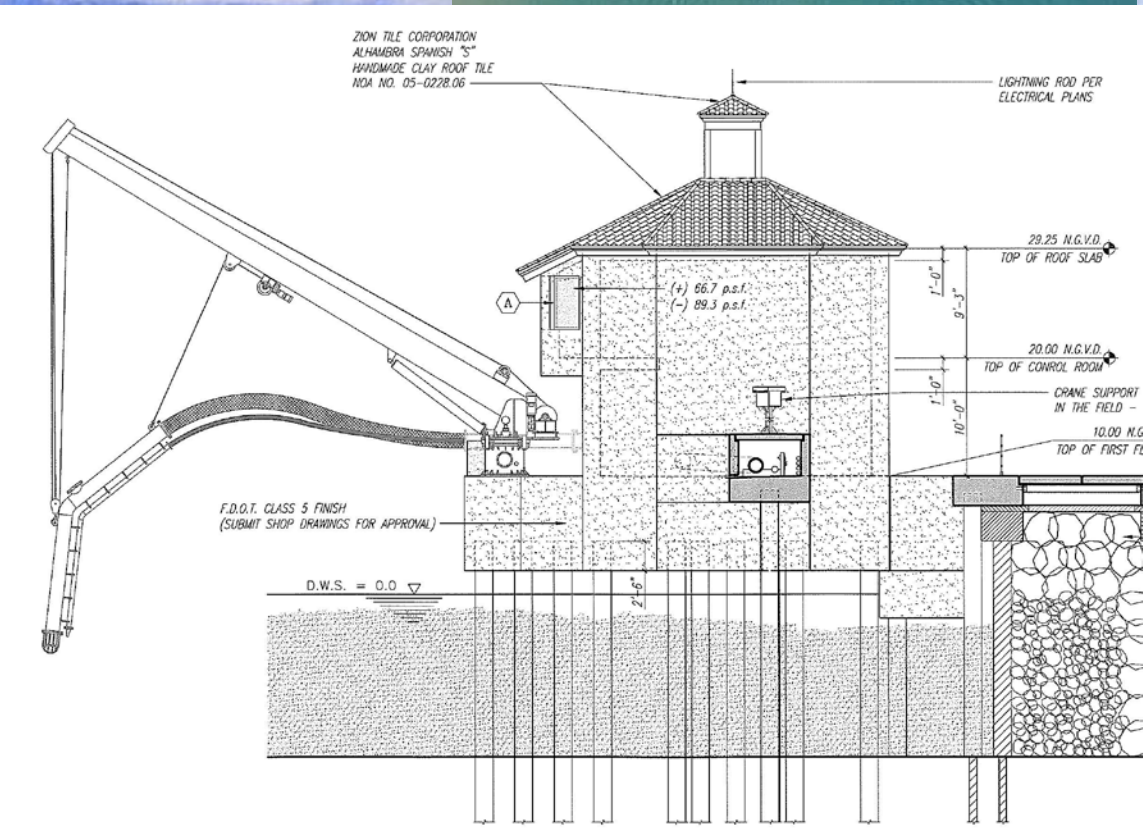
Time to break the bank
(or find another option)





Value Engineering

- Replaced custom cast faux tile room with actual tile
- Changed shape from oval to elongated octagon
- Replaced custom parts like the crane with off the shelf items
- Went from three story building on a poured foundation to a pile supported structure
- Removed back up generator and simplified the electronics



Meanwhile...

There were a few other projects on the drawing board at the Inlet.

Coincidentally, permits for these projects were in process!



Both the North and South Jetties were way past due for replacement.

Age and impacts from multiple storms had taken their toll...

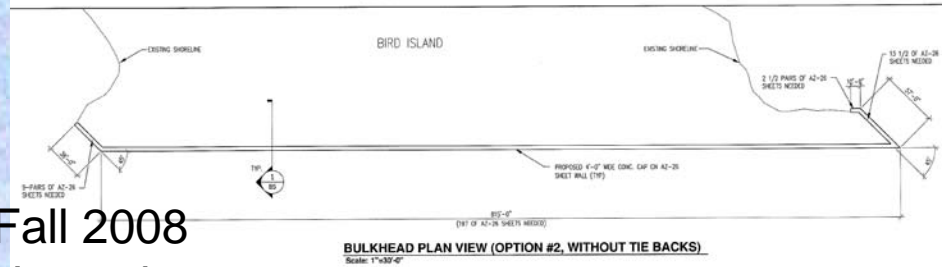
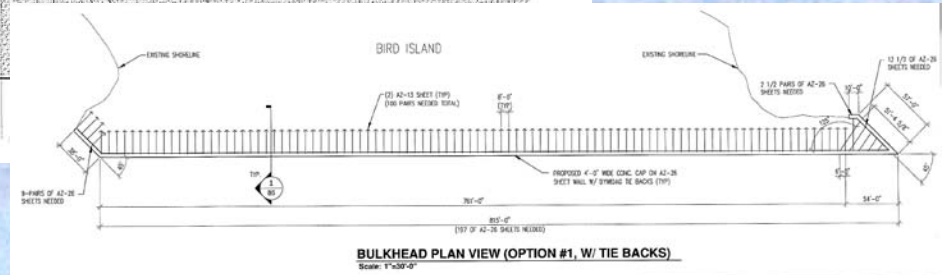
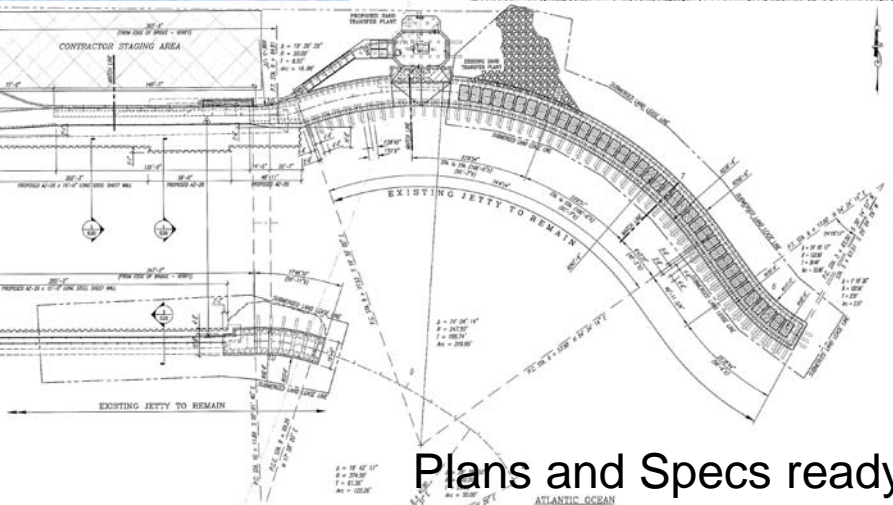
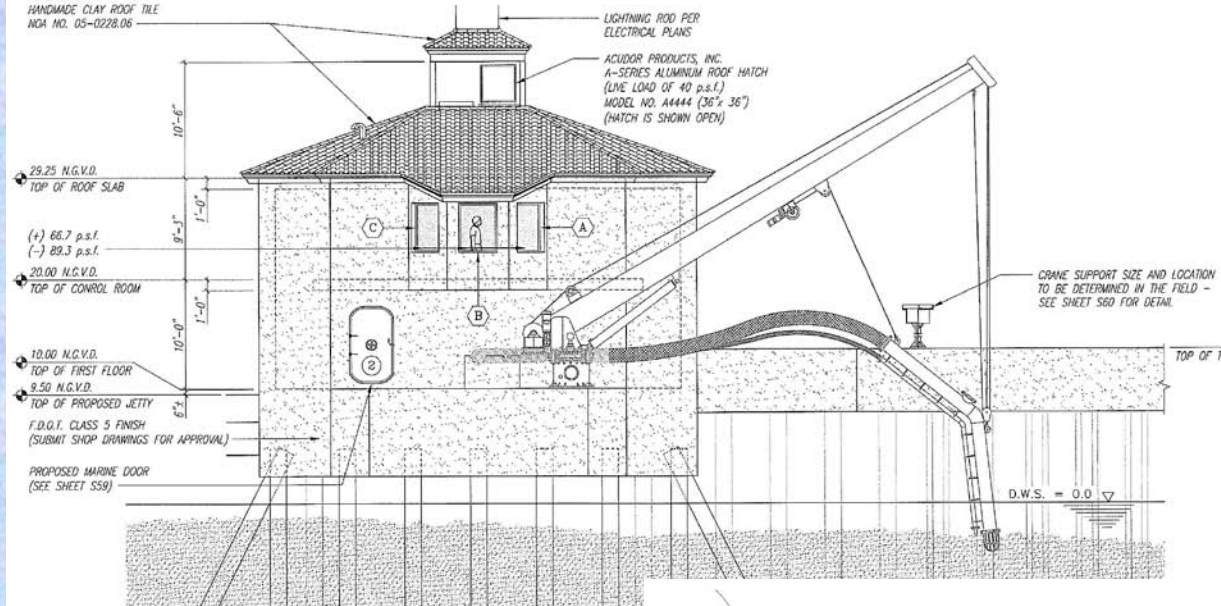




An engineering report on the Bird Island Bulkhead questioned the forces that were holding up the decades old seawall...



ZION TILE CORPORATION
ALHAMBRA SPANISH 3" HANDMADE CLAY ROOF TILE
NGA NO. 05-0228.06



Plans and Specs ready in Fall 2008
Project went out to bid on November 2, 2008

- Replace Sand Transfer Plant
- Restore N. and S. Jetties
- Replace bulkhead on S. side of Bird Island

Bids opened on December 2, 2008...



\$7,010,000!

That's \$200,000 less to do 3x the work!

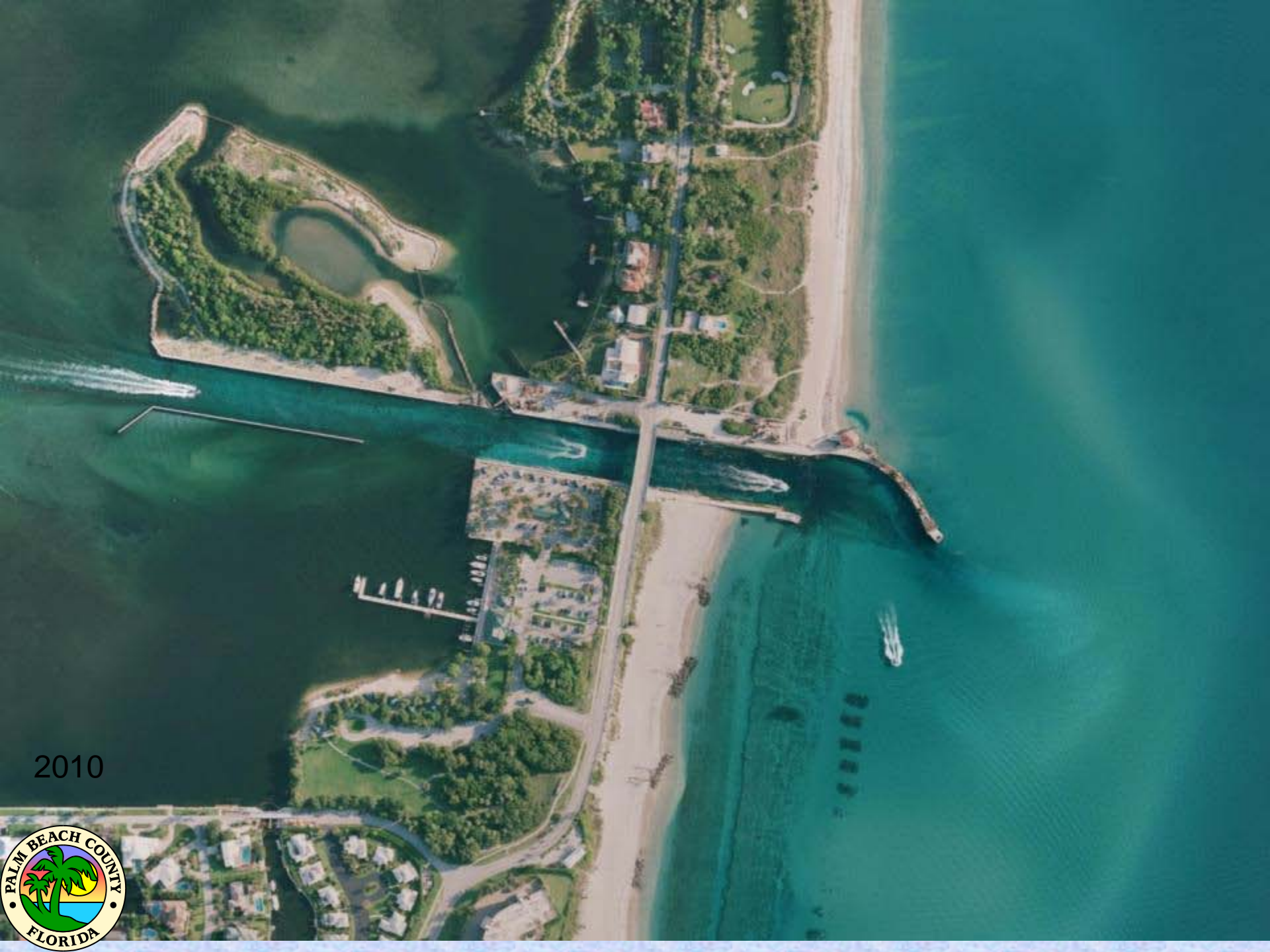
Sand Transfer Plant:
Estimate: \$5.1 M
1st Bid: \$7.2 M
Final costs: \$2.6M

Inlet Jetties:
Estimate: \$5M
Final costs: \$2.8M

Bird Island Seawall:
Estimate: \$2 M
Final costs: \$1.9M

2009





2010

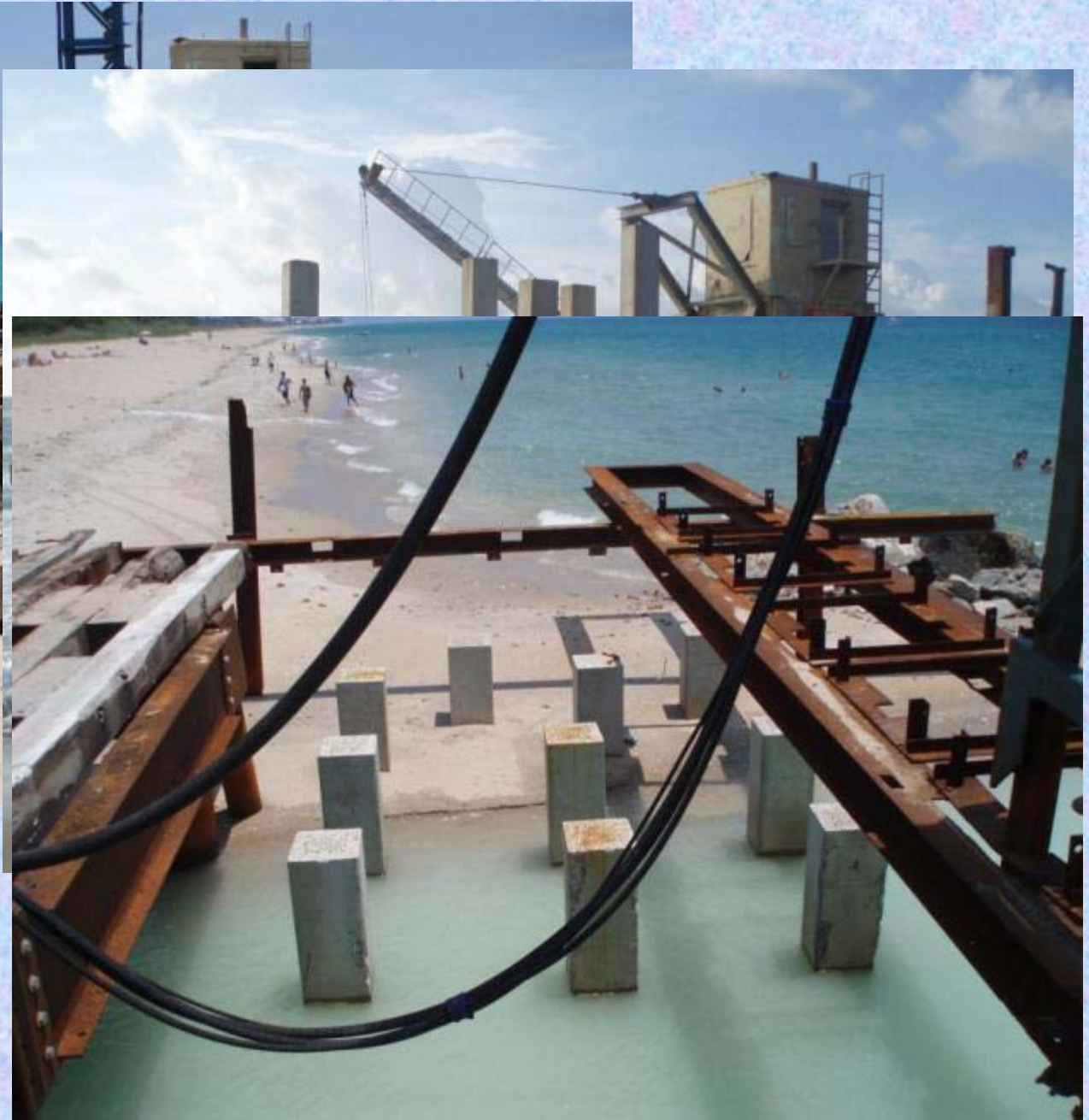


April, 2009



July, 2009

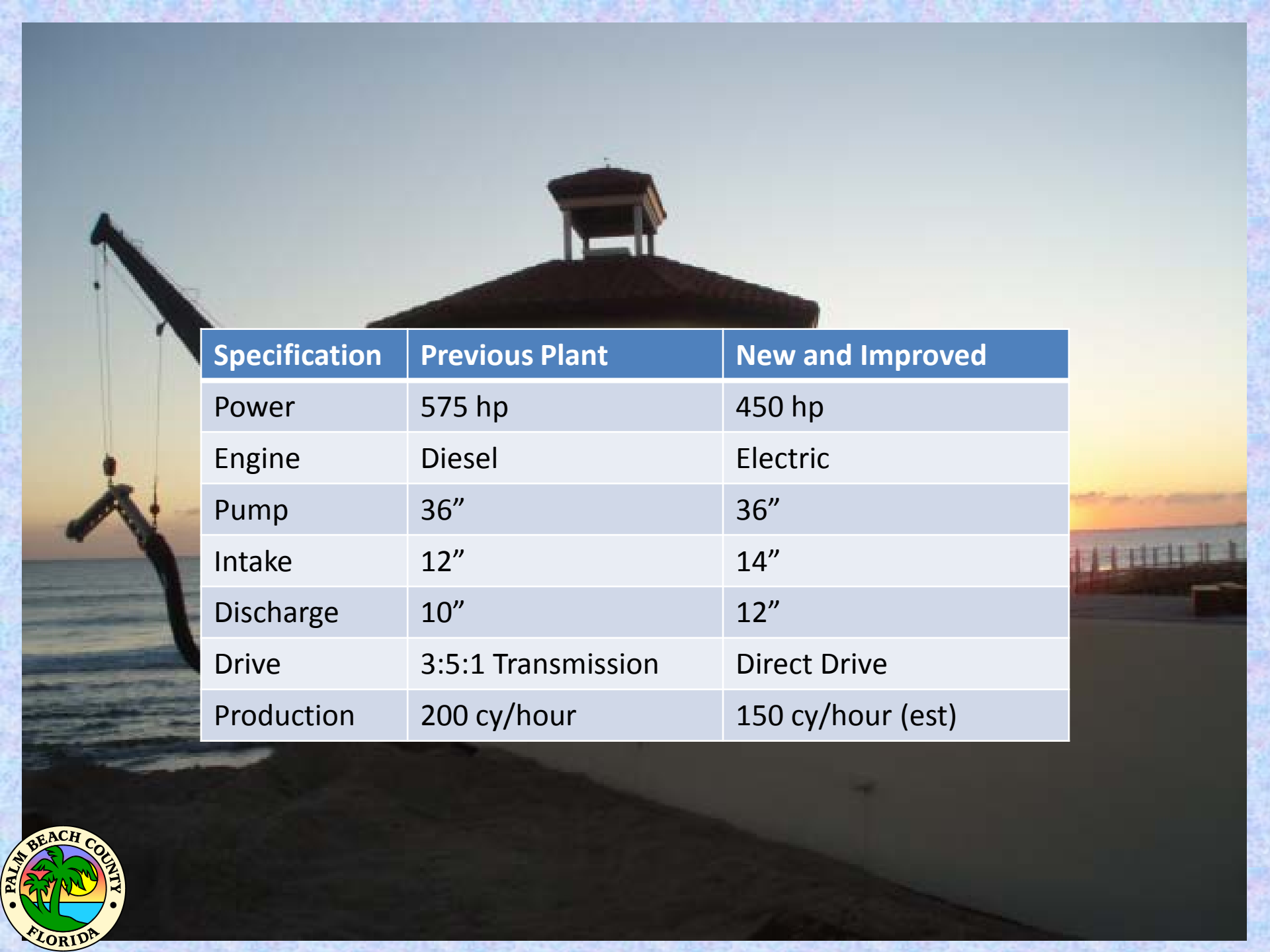












Specification	Previous Plant	New and Improved
Power	575 hp	450 hp
Engine	Diesel	Electric
Pump	36"	36"
Intake	12"	14"
Discharge	10"	12"
Drive	3:5:1 Transmission	Direct Drive
Production	200 cy/hour	150 cy/hour (est)

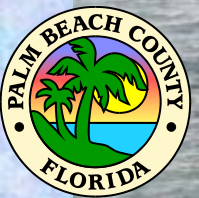


High Tech Production Survey
(we don't need no stinking
nuclear density meter)





Learning as you go...



One final “before” shot...





Thank you!

