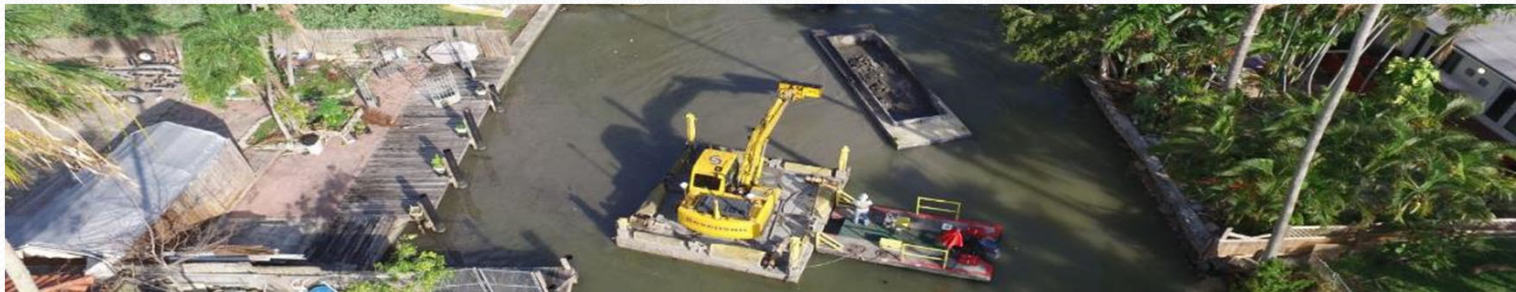# RESTORATION OF AN URBAN WATERWAY DESIGN BUILD SERVICES FOR WAGNER CREEK/SEYBOLD CANAL MIAMI, FLORIDA

PRESENTED BY: TIMOTHY DONEGAN, PE
CO-AUTHORS: MICHAEL CRYSTAL, DAN LEVEY, BABU MADABHUSHI, GEORGE HICKS

FEBRUARY 12, 2018

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PROJECT HISTORY

- Client: City of Miami, FL
- Project design completed in 2009
- City funding 2016
- Design build contract
- Specifications allowed alternatives
- Majority of permits were in place
- Corrective Action Plan detailed approved means and methods

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PROJECT STAKEHOLDERS

- Six agencies involved
- Permit modifications required input from all of them

PROJECT GOALS and SITE FEATURES

- Improve drainage and/or navigation
- Reduce risk from contamination (dioxin)
- Dioxin source potentially from old City incinerator
- Urban area with limited access
- Site is 1.7 miles long
- Major tributary to the Miami River
- Historically was a natural spring fed tributary

PROJECT LOCATION
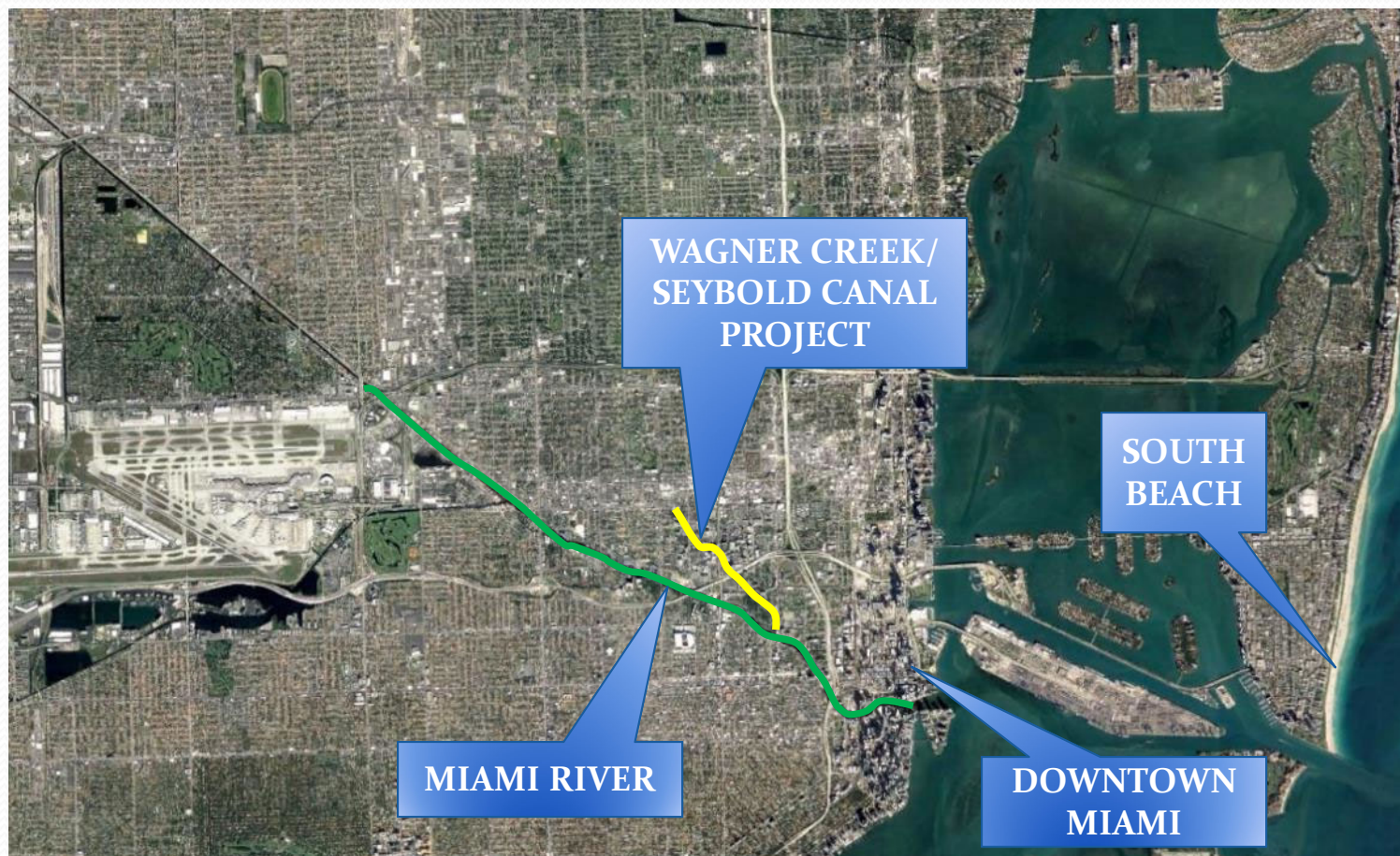
PROJECT LOCATION and VOLUME

- Project broken in to 6 operational sections
- OS1 – 4,800 CY
- OS2 – 5,400 CY
- OS3 – 3,100 CY
- OS4 – 2,100 CY
- OS5 – 2,700 CY
- OS6 – 18,100 CY
- Total – 36,200 CY

OS 1
OS 2
OS 3
OS 4
OS 5
OS 6
MIAMI RIVER

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PROJECT CHALLENGES and SUCCESSES

- Develop site-specific equipment for project
- Maintain quality of life for community
- Access Points to work areas
- Meet permit requirements for turbidity
- Working around dilapidated structures
- Permitting coordination for each OS with agencies
- Exclude manatees from the work area

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EQUIPMENT DEVELOPMENT

- Shallow draft for dredge
- Limited width in creek and canal to pass with scows
- Specification required level cut bucket
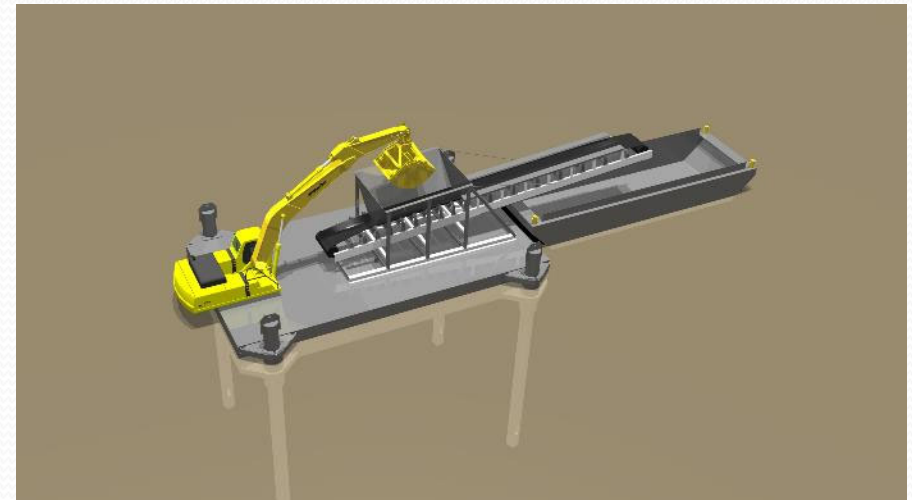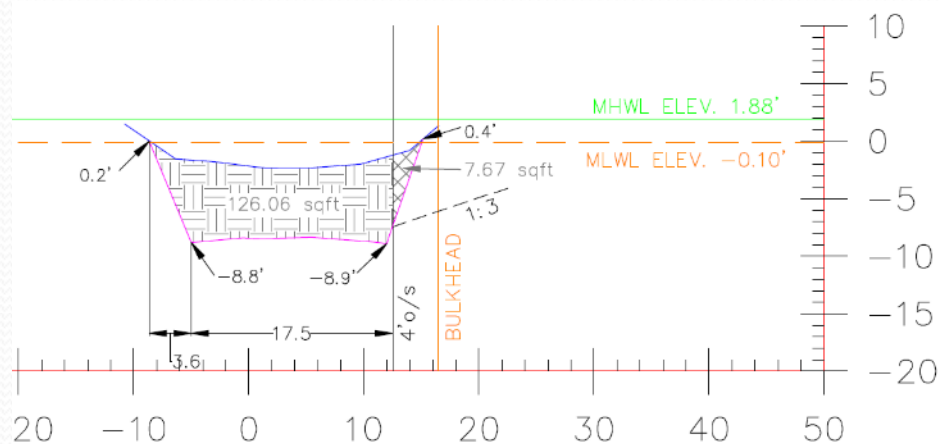
EQUIPMENT DEVELOPMENT

- Custom dredge development
- PC120 no tracks, level cut bucket, and conveyor system

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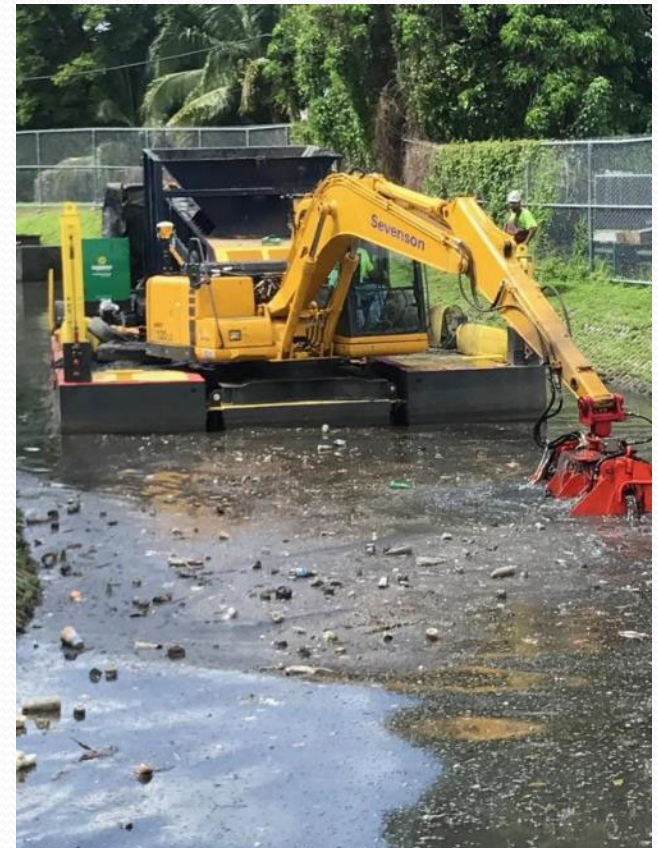
EQUIPMENT DEVELOPMENT

- Custom dredge 2

EQUIPMENT DEVELOPMENT

- Custom dredge 3

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EQUIPMENT DEVELOPMENT

- Custom scows and push boats

QUALITY OF LIFE and ACCESS

- Community meetings and input
- Acknowledgment from owners on ex. Conditions
- Door to door operations

Wagner Creek Public Meeting

ACKNOWLEDGEMENT OF EXISTING CONDITIONS

The attached information shows the existing conditions of my property located at the address listed below.

I understand that the City of Miami has completed dredging the Wagner Creek and Seybold Canal.

The project's objective was to remove accumulated sediments, improve navigation, and restore stormwater capacity.

I agree that the attached information accurately shows the existing conditions of my property.

808 NW 8 ST RD Miami, FL 33136

Property Address

Jonathan Dickey
Property Owner/Representative (Print Name)

Signature

9-7-18
Date

Direct any questions to:

Jenn L. King, P.E.
AECOM Public Involvement Officer
7650 NW 19th St., Ste. 400
Miami, FL 33126
Phone: (305) 514-2438
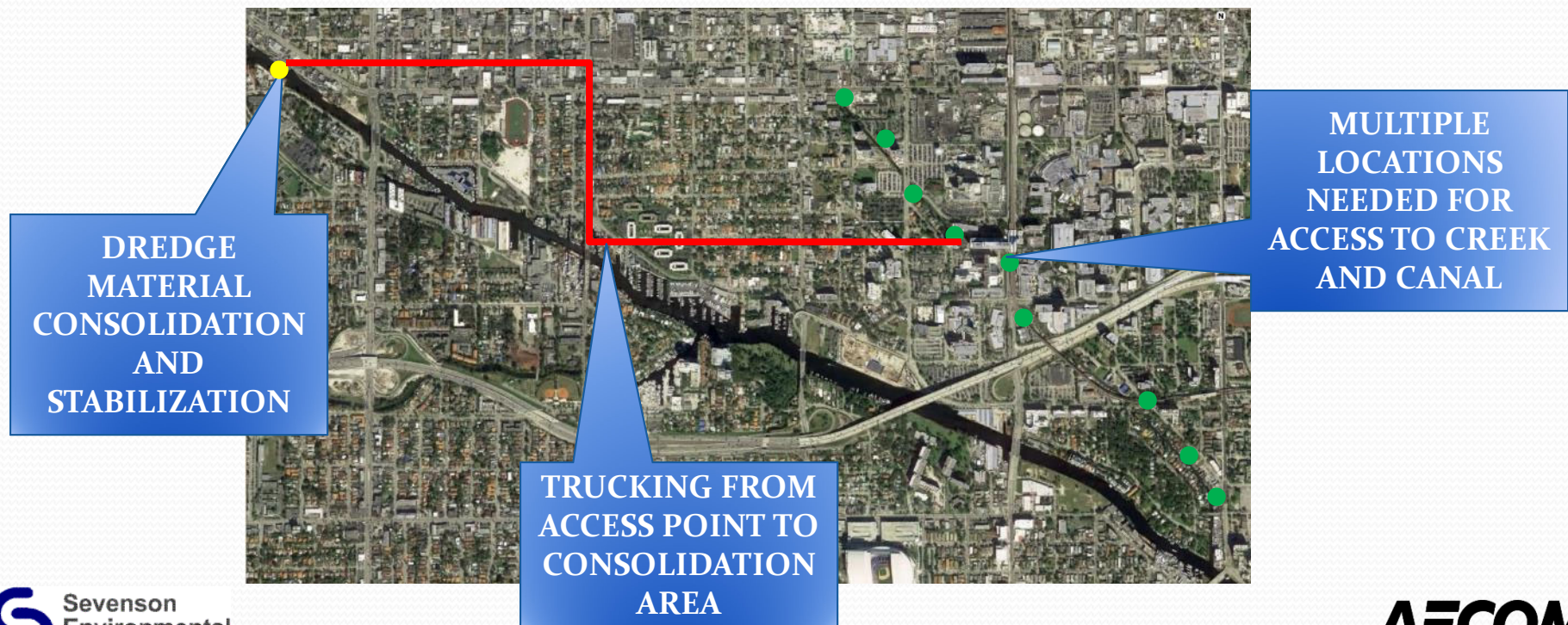Email: Jenn.King@AECOM.com

Alicia C. Alvarez
City of Miami
Office of Communications
Public Relations Agent
444 SW 2nd Ave., 9th Fl.
Miami, FL 33130
Phone: (305) 416-1422
Email: alialvarez@miamigov.com

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QUALITY OF LIFE and ACCESS

- Worked near residential/commercial/buisnesses
- Shutting down traffic during day and night operations
- Minimize dust and odor within the community

DREDGE MATERIAL CONSOLIDATION AND STABILIZATION

MULTIPLE LOCATIONS NEEDED FOR ACCESS TO CREEK AND CANAL

TRUCKING FROM ACCESS POINT TO CONSOLIDATION AREA

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QUALITY OF LIFE and ACCESS

- Specifications required amending along shoreline of creek within community
- Sevenson developed and alternative offsite location

PRIVATE INDUSTRIAL WWTP

DREDGE MATERIAL CONSOLIDATION AND STABILIZATION

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QUALITY OF LIFE and ACCESS

- Shut roadways down for access
- Requires coordination with City and local law enforcement
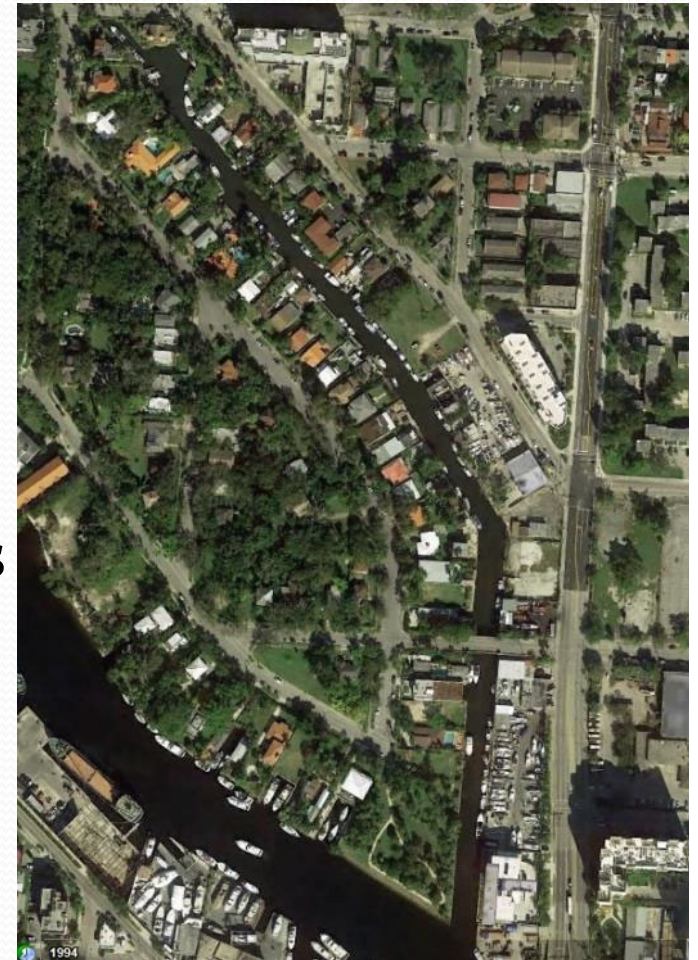
QUALITY OF LIFE and ACCESS

- Work nights in vicinity of two hospitals
- Work a reduced schedule at night (8 hours)

QUALITY OF LIFE and ACCESS

- Negotiate with each homeowner
- Commercial boats relocated
- Private boats relocated
- Pulled boats from water
- City provided access to waterfront
- Paid a monthly stipend to boat owners
- 50+ boats relocated

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QUALITY OF LIFE and ACCESS

- 6 Community meetings
- No complaints
- Worked 6 days a week

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TURBIDITY REQUIREMENTS

- NTU's above background
  - OS with low TEQ<1 ppm (dioxin) – 29 NTU
  - OS with high TEQ>1 ppm (dioxin – 0 NTU
 - OS6 –Outstanding Florida Water - 0 NTU

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TURBIDITY REQUIREMENTS

- Combination of hydro barriers and silt curtains
- Hydrobarriers control the tide for draft
- Silt curtains control turbidity within the OS

TURBIDITY REQUIREMENTS OS6

- 0 NTU's above background at the mouth of the Canal
- Miami River is typically less then 5 NTU's (background)
- Could not use hydro barrier at mouth of Canal
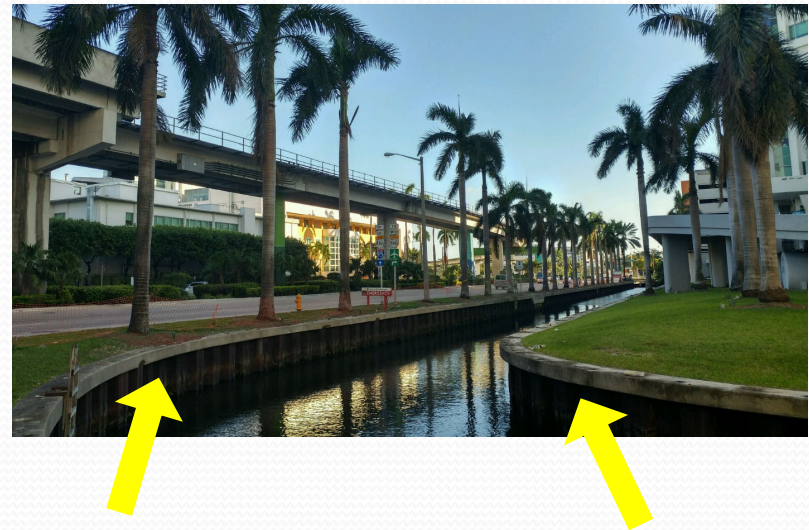- Had to install steel sheeting
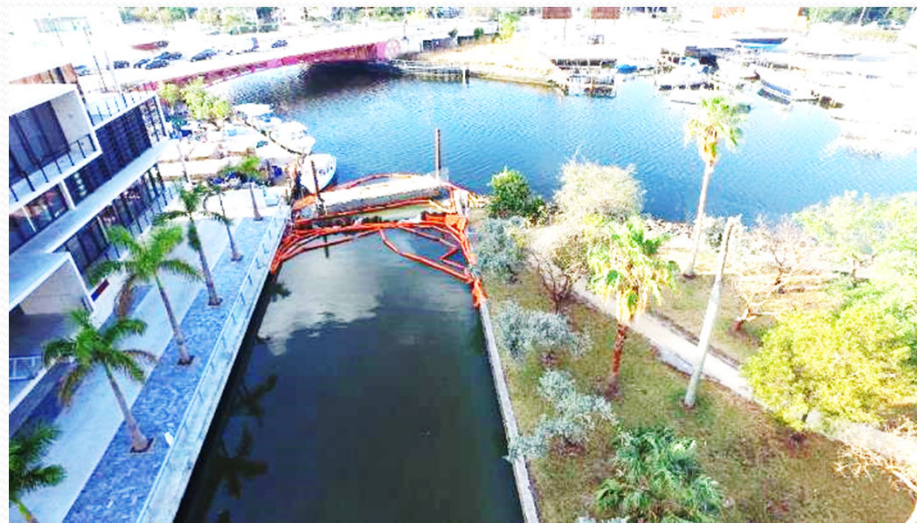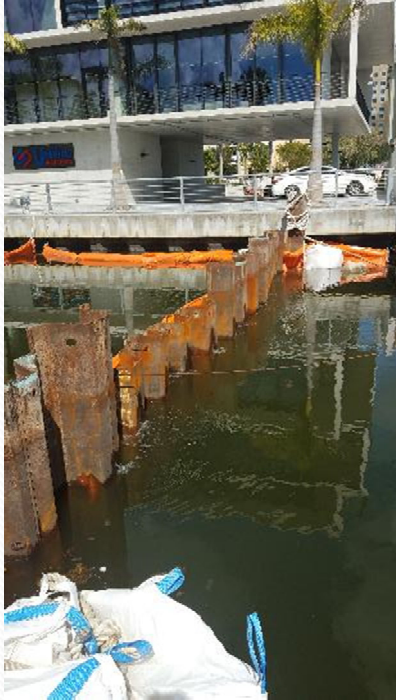
TURBIDITY REQUIREMENTS OS6

- DERM made over a dozen visits to the site for inspection
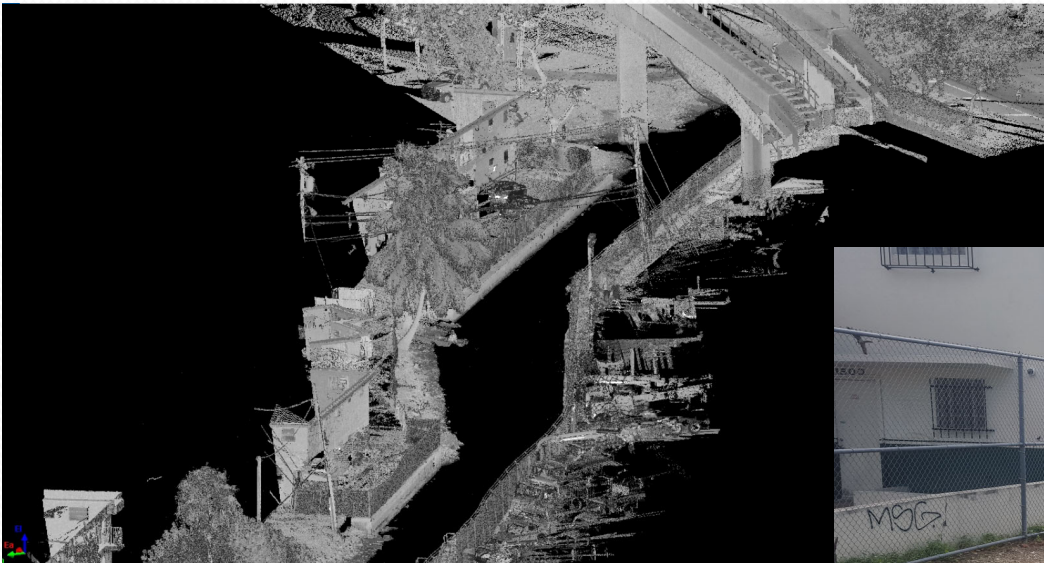- Bubble curtain and manatee exclusion

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WORKING AROUND STRUCTURES

- Offset from structures
- Overhead clearance

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WORKING AROUND STRUCTURES

- Before and after structure documentation
- Survey with laser scanner
- Did it move?

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MANATEE EXCLUSION

- Full time manatee observations even during downtime
- Manatee exclusion

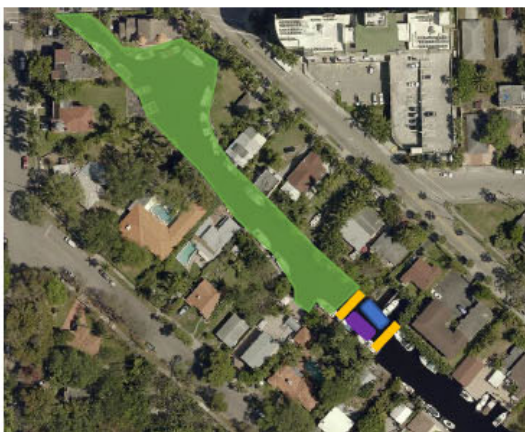# MANATEE EXCLUSION OS6

STEP 1
- Observe for manatees

STEP 2
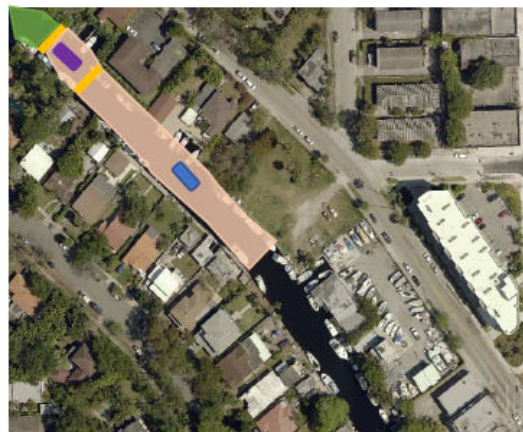- Install manatee barrier 1
- Observe for manatee

STEP 3
- Install manatee barrier 2
- Observe for manatee

STEP 4
Move manatee barrier 1 closer to barrier 2

STEP 5
- Observe for manatees
- Repeat steps 3 to 5 until end of Canal

Manatee Observation Area
Manatee Watch Boat
Work Boat to Move Manatee Barriers
Manatee Barrier
Manatee Free Area

Figure 1
**Phase Manatee Exclusion Approach**

SUMMARY

- Project completed on time and under budget
- Proactive agency coordination for each OS (DERM)
- Minimal downtime due to turbidity exceedances
- Residents in OS6 cooperated with vessel removal
- We were able to keep manatees out of work area
- Adaptive approach for dredging and access

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SUMMARY

- Hydro barriers worked well to control tides
- Community supported the project
- Keeping amending out of community was critical
- Extreme high tides (King Tides) and Hurricane Irma
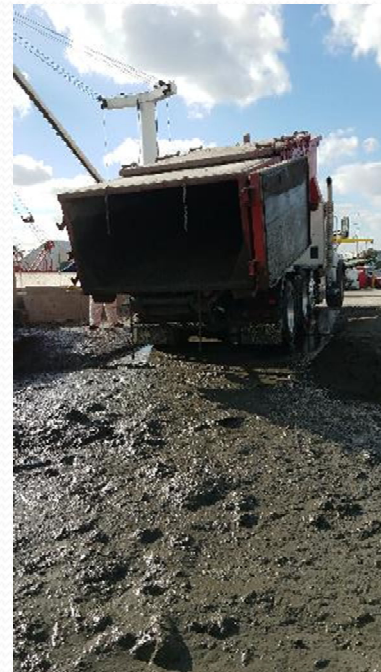
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Questions?

Timothy Donegan, PE

Engineering Manager

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tdonegan@sevenson.com