

# ESTERO RIVER SEDIMENTATION ANALYSIS PROJECT UPDATE

PRESENTER: KYLE KINCAID



# ESTERO RIVER SEDIMENTATION ANALYSIS



## ▶ Project Purpose

- ▶ Determine extent of sedimentation.
- ▶ Evaluate recommendations to enhance/protect the river.
- ▶ Recommendations could include selective sediment removal to balance sediment transport, improve water flow, and maintain navigation.



# ESTERO RIVER SEDIMENTATION ANALYSIS



## ▶ Phase 1: Data Collection

- ▶ Reconnaissance Level Surveys
- ▶ Sedimentation Analysis

## ▶ Phase 2: Preliminary Design

- ▶ Detailed Level Surveys
- ▶ Preliminary Design of Dredge Cut
- ▶ Permit Applications & Processing

◀ Current Stage

## ▶ Phase 3: Final Design and Construction Management

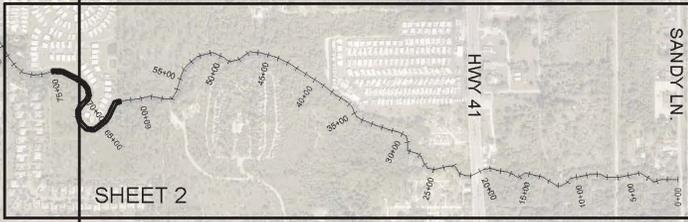
- ▶ Preparations of Plans and Specifications
- ▶ Bid Solicitation
- ▶ Commencement of Construction

ESTERO BAY AQUATIC PRESERVE BOUNDARY

BROADWAY AVE.

SHEET 2

SHEET 3



HWY 41

SANDY LN.

SHEET 2

CORKSCREW RD.

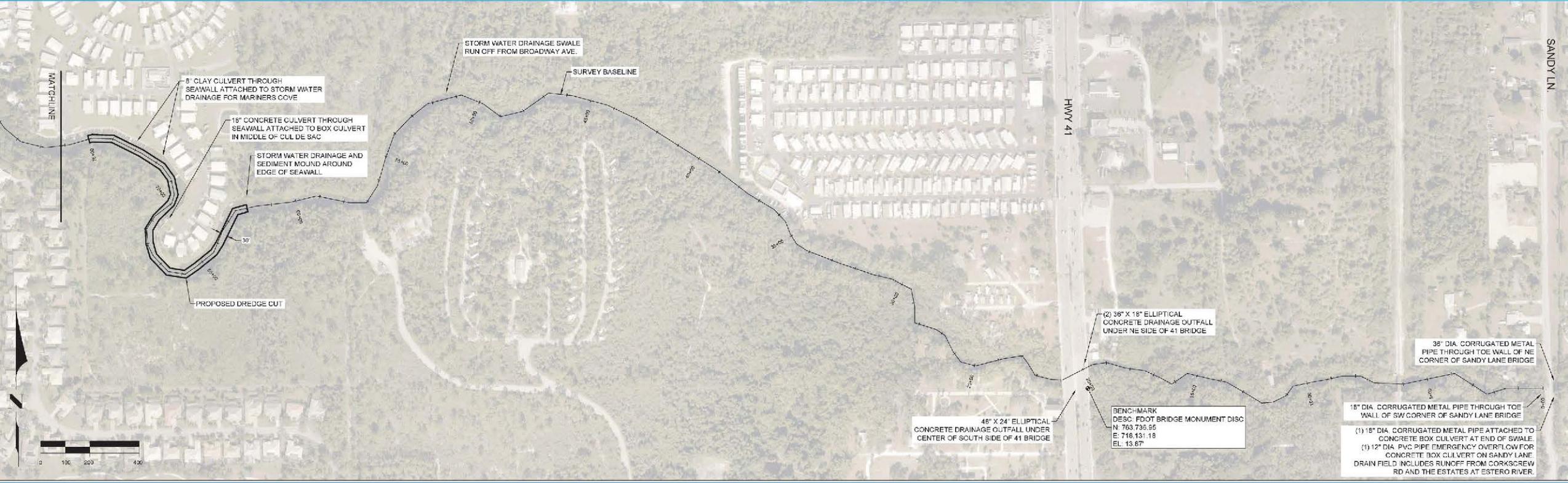
ESTERO BAY

SURVEY BASELINE

SHEET 3

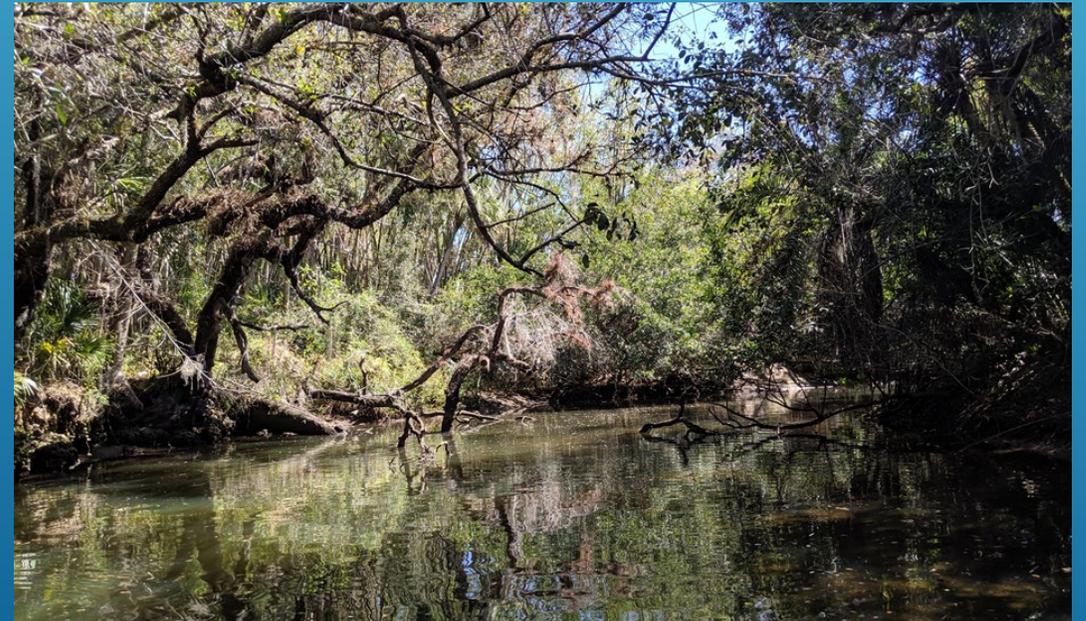
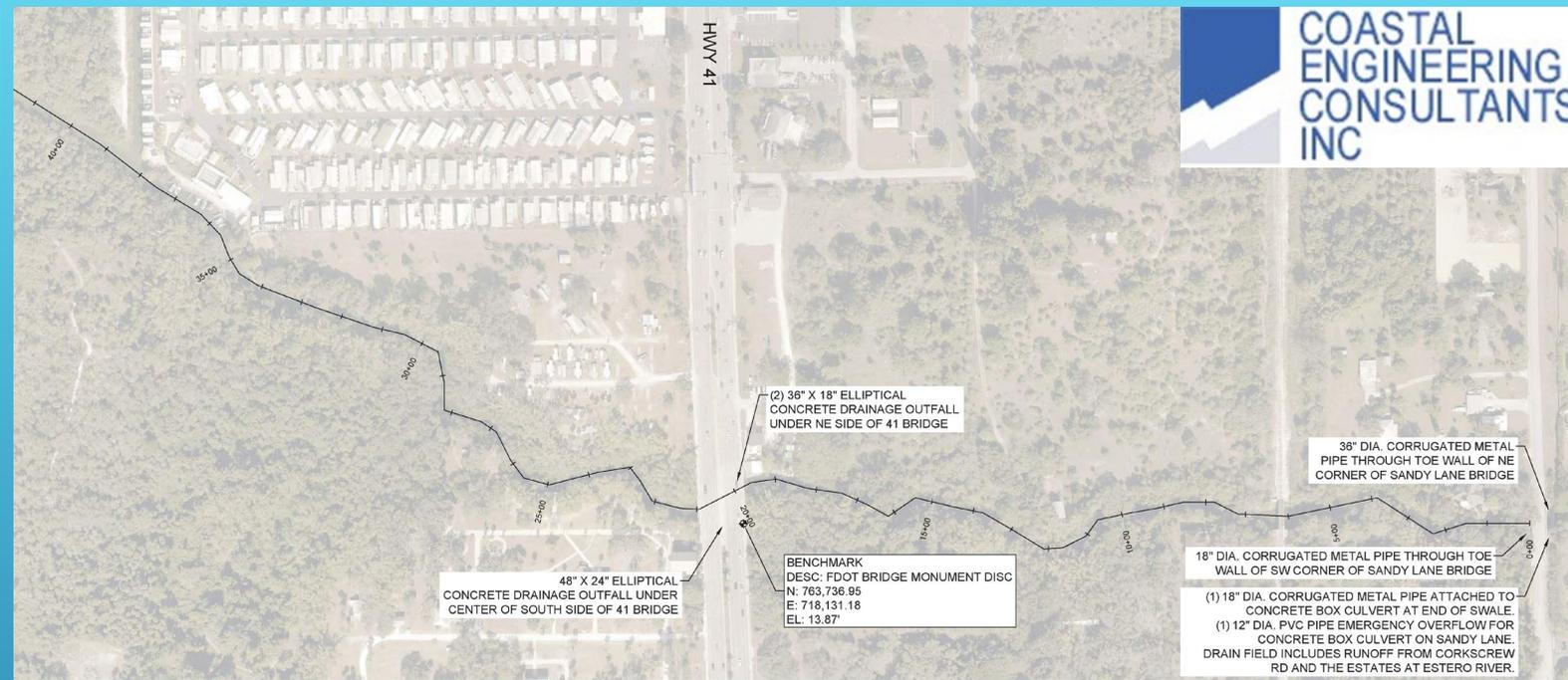
MOUND KEY

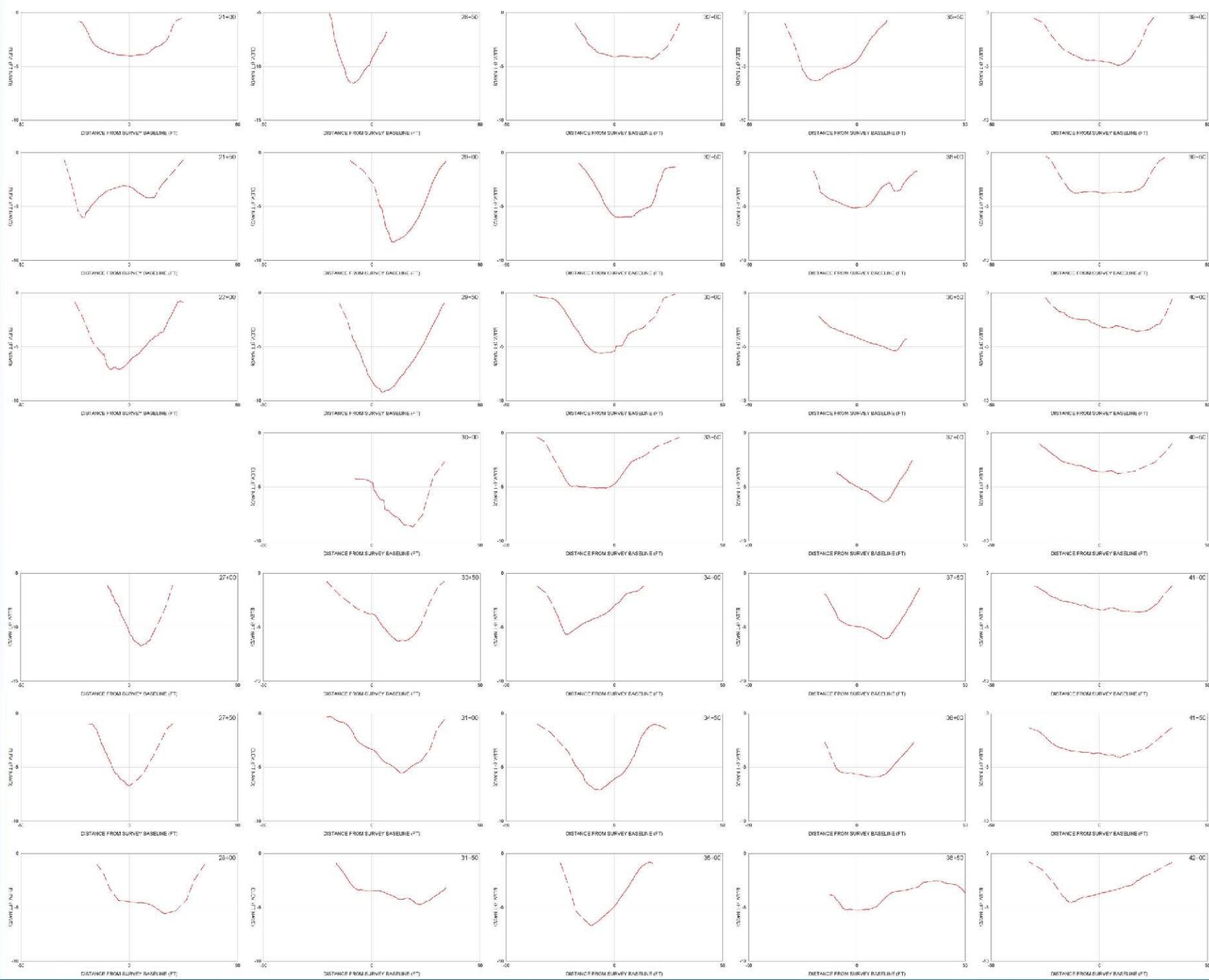




▶ Channel obstructions to navigation from Stations 0+00 to 34+00 (Sandy Lane Bridge to Sunny Grove docks) are downed tree limbs and low hanging branches.

▶ Lee County is partnering with SFWMD to remove debris in the reach from Sunny Grove to US 41 Bridge in 2021.

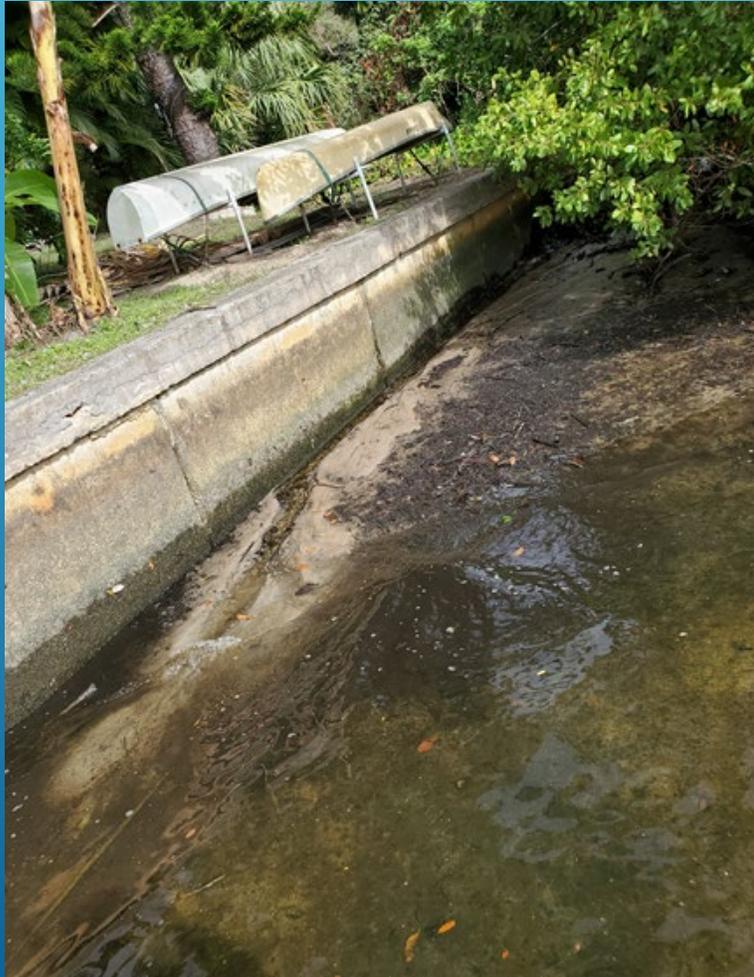


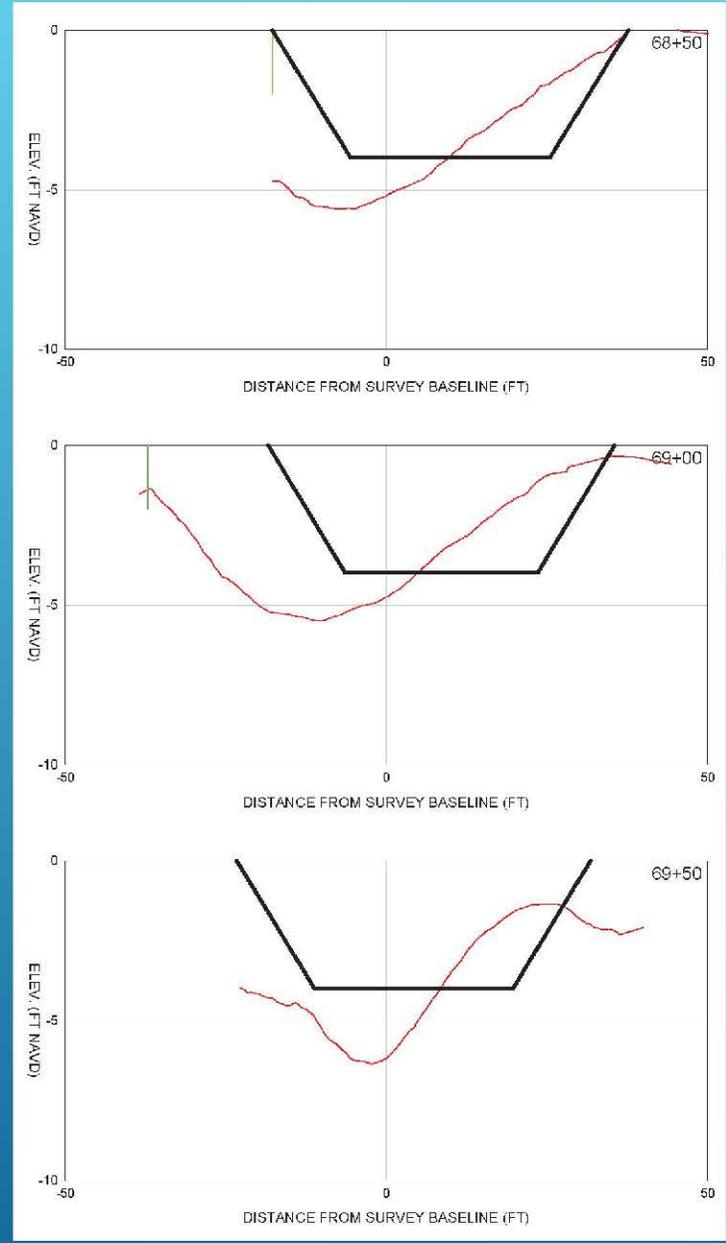
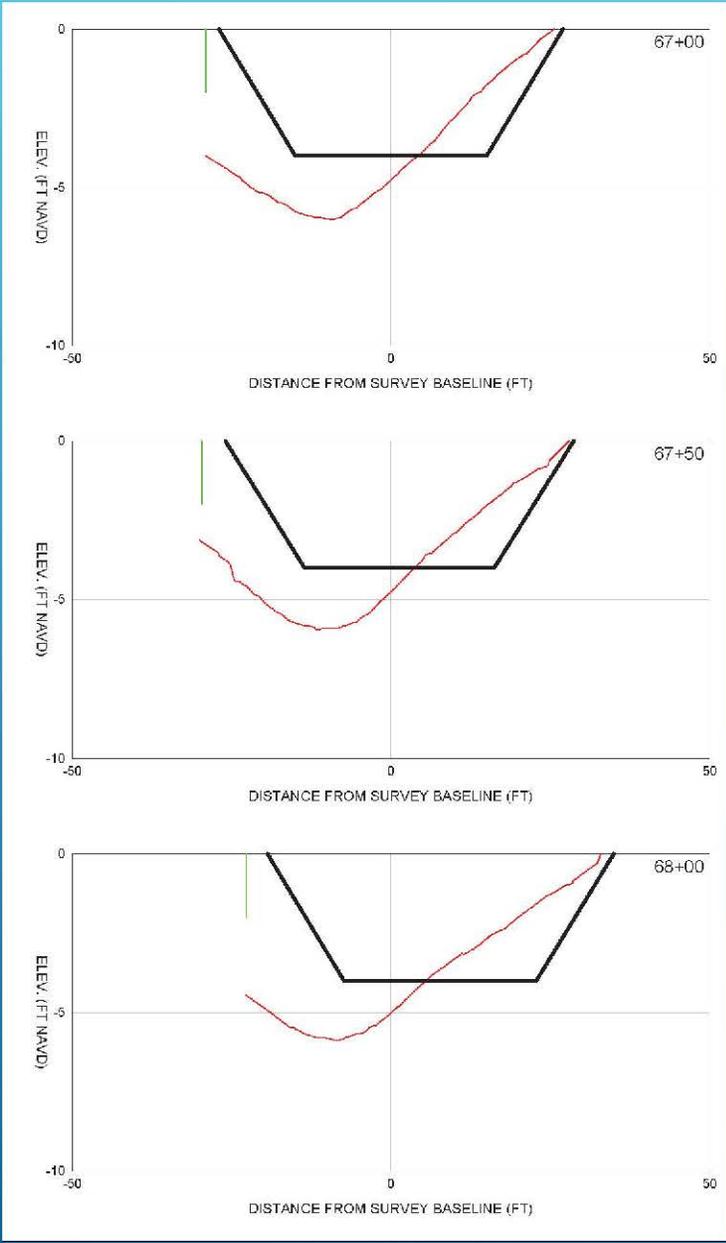


- ▶ Sediment Mounding above 0.00' NAVD 88 adjacent to Mariners Cove seawall from Stations 67+00 – 69+00 (200 feet)
- ▶ Mound is comprised of poorly graded fine brown sand.



- ▶ Sediment mounding around end of seawall located at Station 62+00.
- ▶ Mound is comprised of poorly graded fine brown sand.







**Aquatic Preserve Boundary**

- ▶ This reach of the river currently is currently navigable under normal tidal conditions, however there are areas where sediment is built up on the banks the river.
- ▶ It is recommended to include this area in the permitted template.

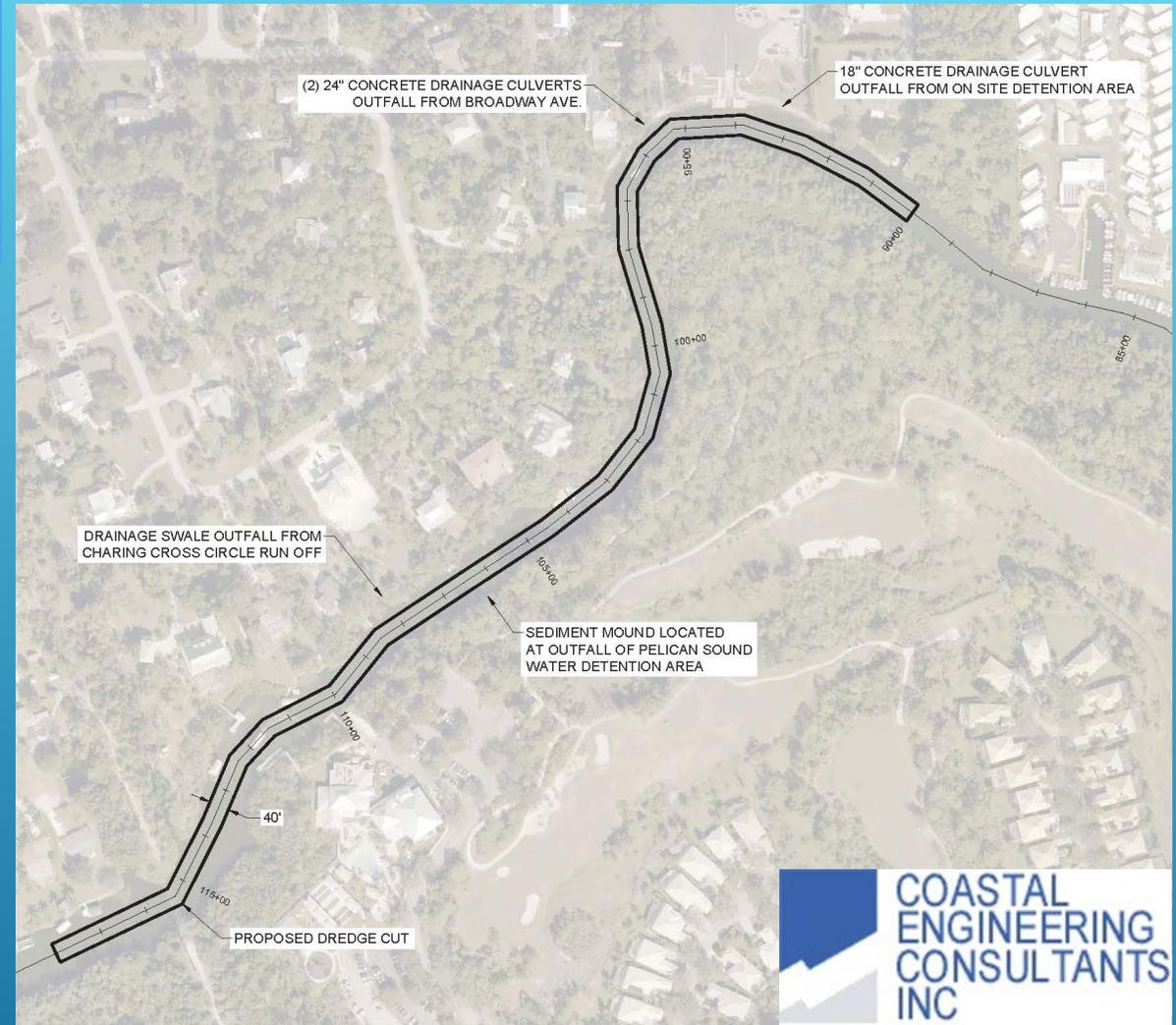
- ▶ The reach from Stations 90+00 to 118+00 (Holiday Drive Canal to eastern limits of Estero River Heights) has point sources of sedimentation.
- ▶ Pelican Sound sediment mound is comprised of poorly graded fine light brownish gray sand.

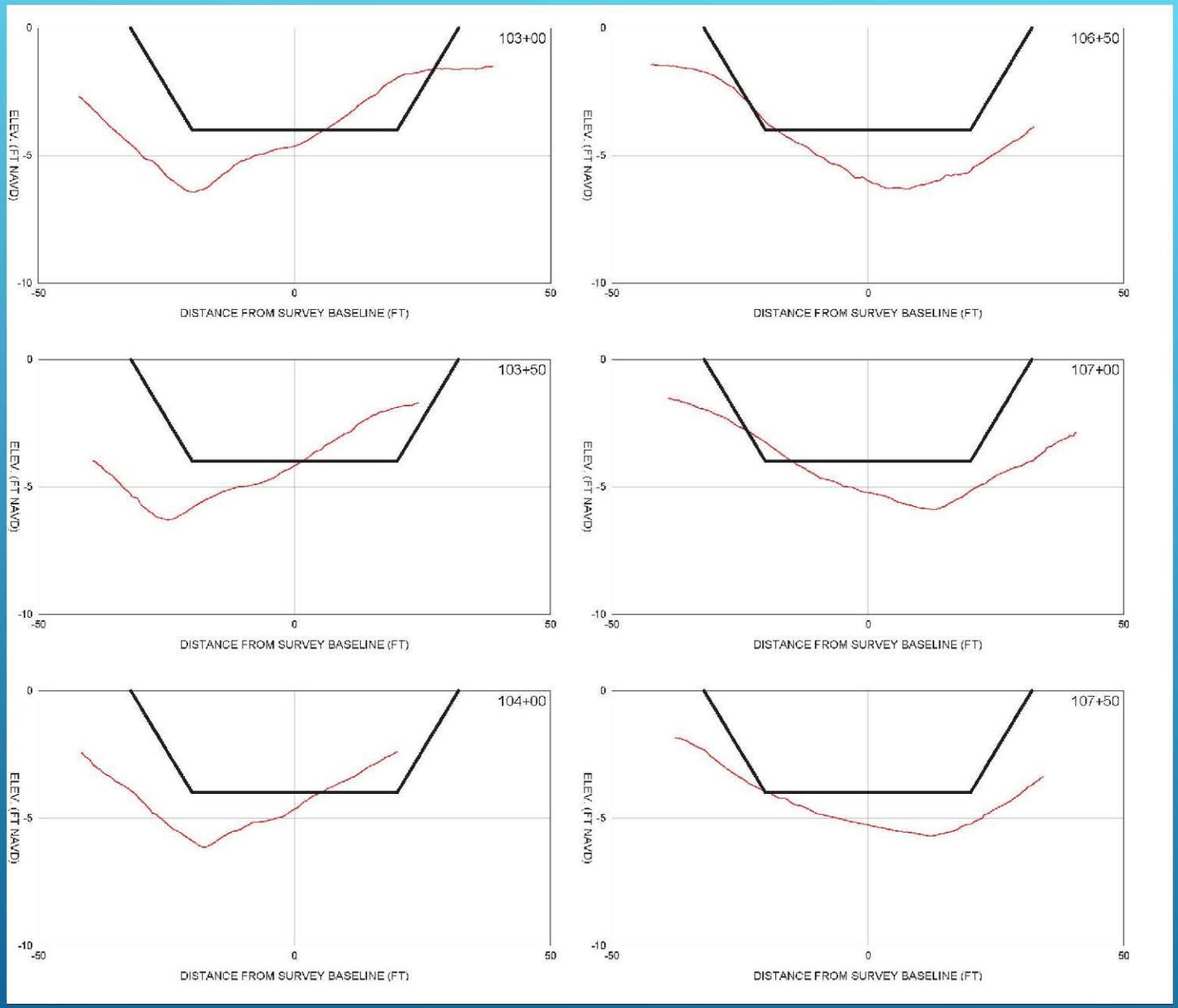


Sediment Mound at Pelican Sound Outfall



Sediment Mound at Charing Cross Drainage Swale Outfall





Pelican Sound  
Storm Water Runoff  
Management Area





**OYSTER LEGEND**

	OYSTER CLUMPS < 6' Ø APPROX. 3' APART O.C.	= 37,350 SQ. FT.
	OYSTER CLUMPS 6'-10' Ø APPROX. 3' APART O.C.	= 53,914 SQ. FT.
	DENSE OYSTERS	= 1,931 SQ. FT.

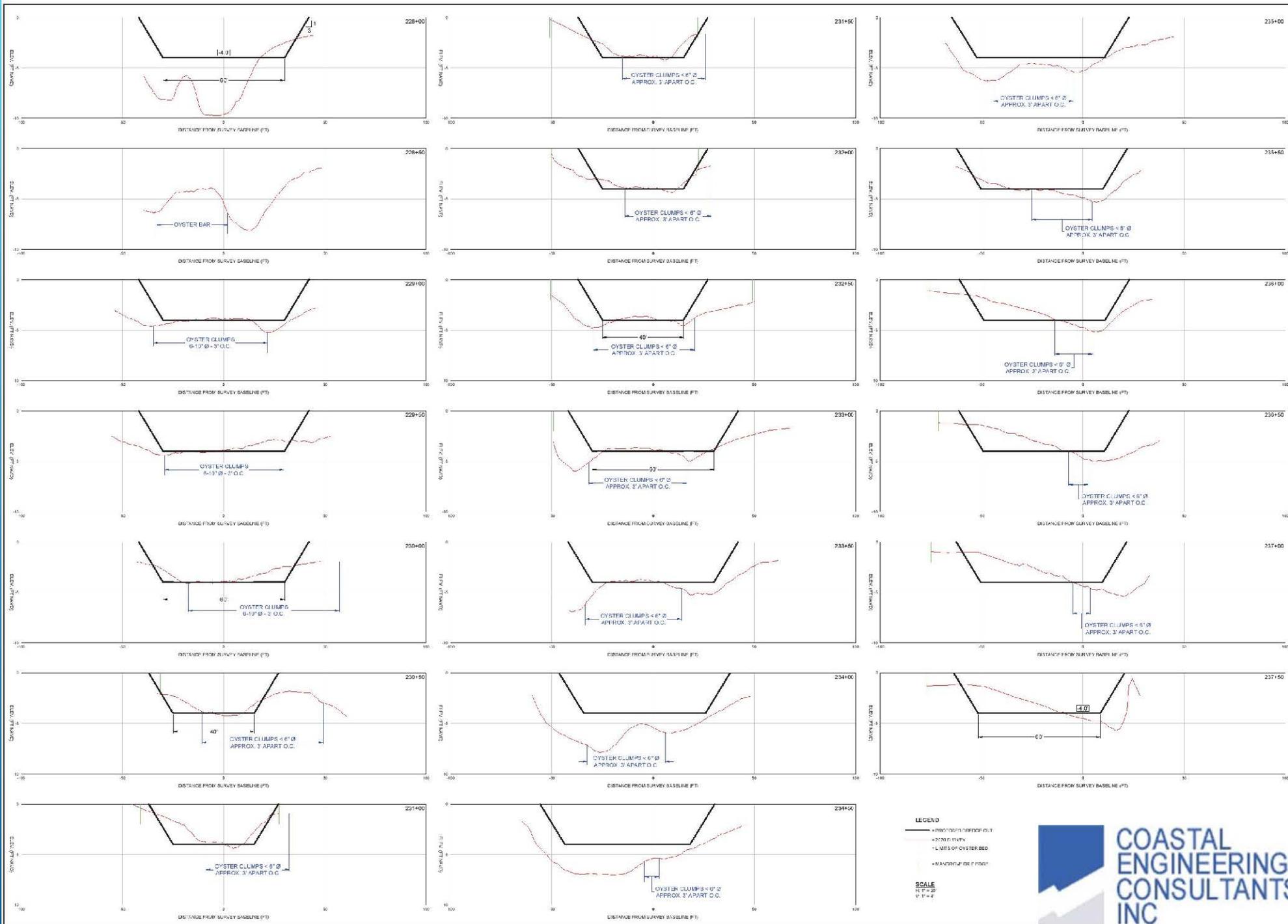
**NOTE:**  
OYSTER CLUMPS OF VARIOUS  
SIZE WERE FOUND TO HAVE A  
RANGE OF 50 TO 80 PERCENT  
LIVE OYSTERS PER CLUMP.

Well graded  
fine brown  
sand

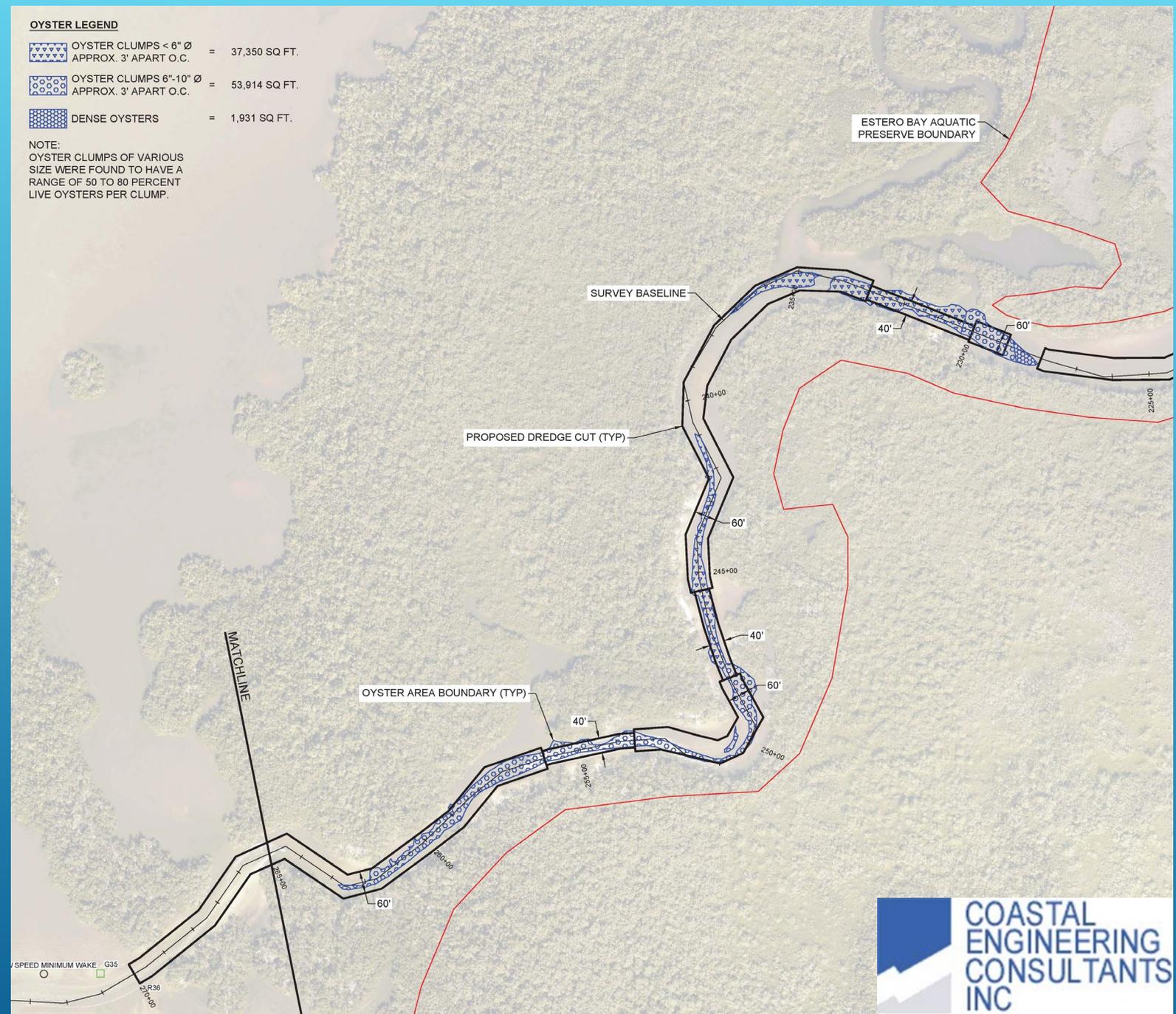


Poorly graded very  
dark grayish brown  
fine sand

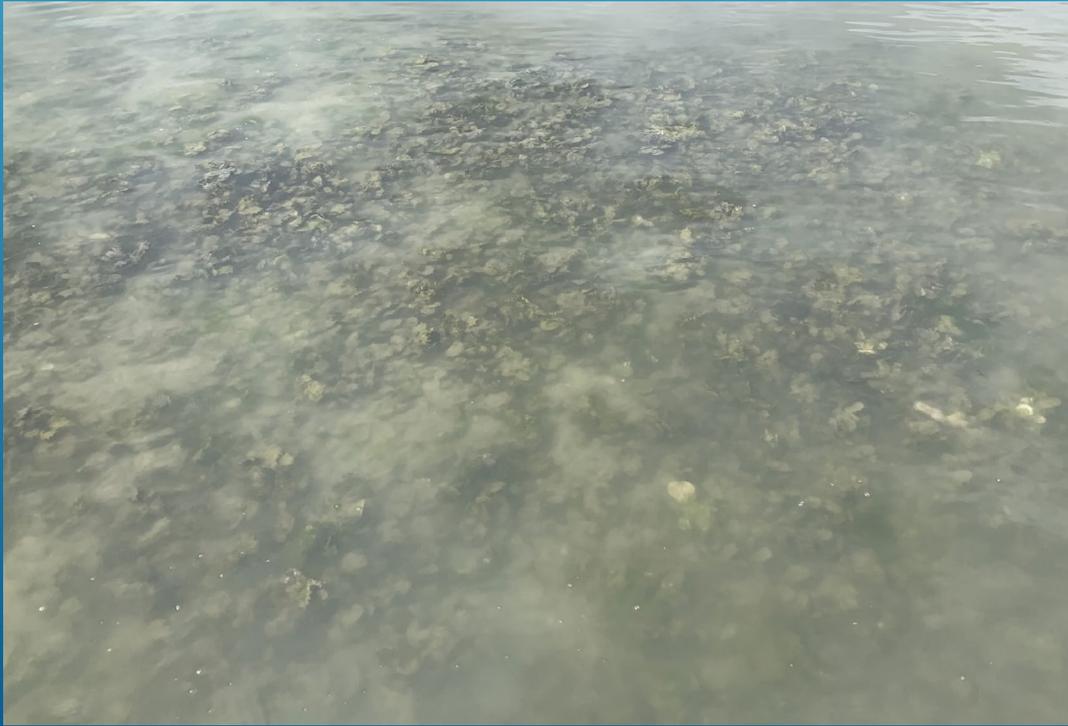




- ▶ 90% of proposed dredge volume is within Estero Bay Aquatic Preserve.
- ▶ Conducted environmental resource survey.
  - ▶ Total area of sparse oyster clumps was 2.1 acres.
  - ▶ Approximately 1 acre of oysters are above -4.0' NAVD 88.
  - ▶ Sizes of clumps varied, largest is 10" diameter.
  - ▶ Clumps spaced roughly 3' apart on center.
  - ▶ Approximately 50-80% of oysters were live in each clump.
  - ▶ No other resources impacted.



# MITIGATION FOR SIMILAR PROJECTS



# SIMILAR PROJECT BUDGETS

- ▶ Spring Creek Dredging Project (2018-19)
  - ▶ 4,100 cubic yards, Total Project Cost \$640,300
  - ▶ \$156.17 per cubic yard all in
  
- ▶ NE Hurricane Bay Dredging Project (2020)
  - ▶ 6,100 cubic yards, Total Project Cost \$429,472
  - ▶ \$70.41 per cubic yard all in



# PRELIMINARY OPINION OF PROBABLE COST

DREDGING				
Dredge Depth	Total Dredge Volume	Cost Per Cubic Yard	Total Cost	Total Cost with 10% Contingency
-4.0 ft NAVD 88	11,800 yd <sup>3</sup>	\$105.00	\$1,239,000	\$1,362,900
-4.5 ft NAVD 88	21,200 yd <sup>3</sup>	\$105.00	\$2,226,000	\$2,448,600

MITIGATION				
Dredge Depth	Impact Area	Cost Per Square Foot	Total Cost	Total Cost with 10% Contingency
-4.0 ft NAVD 88	41,628 ft <sup>2</sup>	\$7.00	\$291,400	\$320,540
-4.5 ft NAVD 88	67,132 ft <sup>2</sup>	\$7.00	\$470,000	\$517,000

TOTAL COST ESTIMATE			
Dredge Depth	Dredging Cost with 10% Contingency	Mitigation Cost with 10% Contingency	Total Cost
-4.0 ft NAVD 88	\$1,362,900	\$320,540	\$1,683,440
-4.5 ft NAVD 88	\$2,448,600	\$517,000	\$2,965,600

# STEPS GOING FORWARD

- ▶ Village/stakeholders to review and approve proposed plan. (Day 0-30)
  - ▶ Submit permit applications: (Day 30-60)
    - ▶ United States Army Corps of Engineers (USACE)
    - ▶ Florida and Department of Environmental Protection (FDEP).
    - ▶ Schedule site visits and meetings with agencies and stakeholders as needed.
  - ▶ Permit Processing (Day 60-425+)
  - ▶ Prepare contract documents for contractor solicitation. (90 Days from Permit Issuance)
  - ▶ Construction (100 Days, based on a production rate of 120 cubic yards per day)
- 