

Memorandum



April 5, 2016

RE: City of Seabrook / Economic Development Council / Galveston Bay Foundation
Habitat Island Project

Below is a summary of action items taken by the Seabrook EDC and the Seabrook City Council in relation to the Seabrook Habitat Island Project.

Starting in early 2008 – the Galveston Bay Foundation met with staff and the EDC board to discuss a feasibility study for the creation of a natural habitat island off The Point. In March of 2009, the Seabrook EDC entered into an Agreement with the Galveston Bay Foundation to administer the Habitat Island Feasibility Study. By September of 2009, the feasibility study was concluded and presented to the EDC and City Council.

At this point, the project was put on hold until late 2013, when the Galveston Bay Foundation secured the appropriate funding to move the project forward. Below are notes from the Galveston Bay Foundation on the project's action items since funding was secured from the Coastal Impact Assistance Program (CIAP).

2014

- GBF executed agreement with AECOM (February)
- GBF hosted a project kick-off meeting with AECOM and the technical advisory committee (May)
- AECOM completed project layout design (October)

2015

- GBF hired a new Habitat Restoration Coordination who was assigned as the new project manager for the Seabrook Island project (March)
- GBF completed the first draft of the permit and lease application documents (June)
- GBF requested de-obligation of Phase II funds for construction from CIAP (December)
- Due to delays in the engineering and design phase of the project, as well as a lack of required outside funding for construction, GBF will not be able to utilize the remaining funds in the Phase II budget nor begin construction of the Seabrook Island project by the required CIAP deadline, May 31, 2016

2016

- GBF met with stakeholders (board members, advisory team members, Seabrook Sailing Club members) to discuss project status and select the preferred design
- Seabrook Sailing Club sent letter of objection to Mayor of Seabrook (February)
- GBF met with the City of Seabrook (March 8, 2016)

(additional details from the Galveston Bay Foundation are below)

Due to delays in the engineering and design phase of the Seabrook Island project, as well as a lack of outside funding for construction, GBF will not be able to utilize the remaining funds (\$580,172.02) in the Phase II budget for the construction of the Seabrook Island project by the required CIAP deadline, May 31, 2016. Therefore, GBF is requesting to de-obligate \$580,172.02 of the Seabrook Island Phase II funds. The specific reasons for the inability to utilize the Phase II funds are described below:

1) Engineering & Design Delays

Based on the results of the geo-technical survey (November 2015), the consulting engineer (AECOM) and GBF determined that the original project location would not be feasible due to the soft clays found in that area. Therefore, GBF and AECOM have proposed a new project site that is more conducive to breakwater and marsh mound construction based on the sandy sediments found in that location. The new project site is located directly adjacent to the original site and the footprint acreage will remain the same. At this time, GBF and AECOM have proposed two alternative design plans within the new location (please see Attachment A for the proposed design plans). Upon approval of a design by U.S Fish and Wildlife Services, GBF's Advisory Team, the Seabrook Sailing Club, and the City of Seabrook, AECOM will proceed with the remaining engineering and design tasks. The sediment findings and subsequent re-location of the project have delayed the completion of Phase I and as a result delayed the initiation of Phase II.

2) Lack of Additional Construction Funds

AECOM has estimated that the construction of the marsh mounds and breakwaters will require over \$3,000,000 in addition to the \$581,827.30 awarded by CIAP. It is unlikely that these additional construction funds will be secured in the next three months. Furthermore, it will take a minimum of three to six months to obtain the permits needed to begin construction. Therefore, it has been determined that the construction of the Seabrook Island project (Phase II) will not be feasible within the set timeframe.

###

Proposed Construction Methodology

Phase 1 – Construct Perimeter Rubble Mound Breakwaters:

The rubble mound breakwaters will be constructed first to define the overall marsh shape and size, and will be designed to contain the dredged material and to protect the marsh from wave-driven erosion. Barges will be loaded with clay material from a donor site located on the upper reaches of the Houston Ship Channel and towed to the project site. Once on site, the material will be hydraulically unloaded and then mechanically shaped to create the interior cores of the rubble mound breakwaters. To encourage tidal circulation within the marsh and to retain hydrologic connectivity with Galveston Bay, the rubble mound breakwaters will be constructed with gaps. The gaps are expected to function as the terminus of establishing marsh channels. Last, geotextile and armor stone will be added to protect the marsh. The armor stone will likely be composed of limestone in order to attract oyster growth.

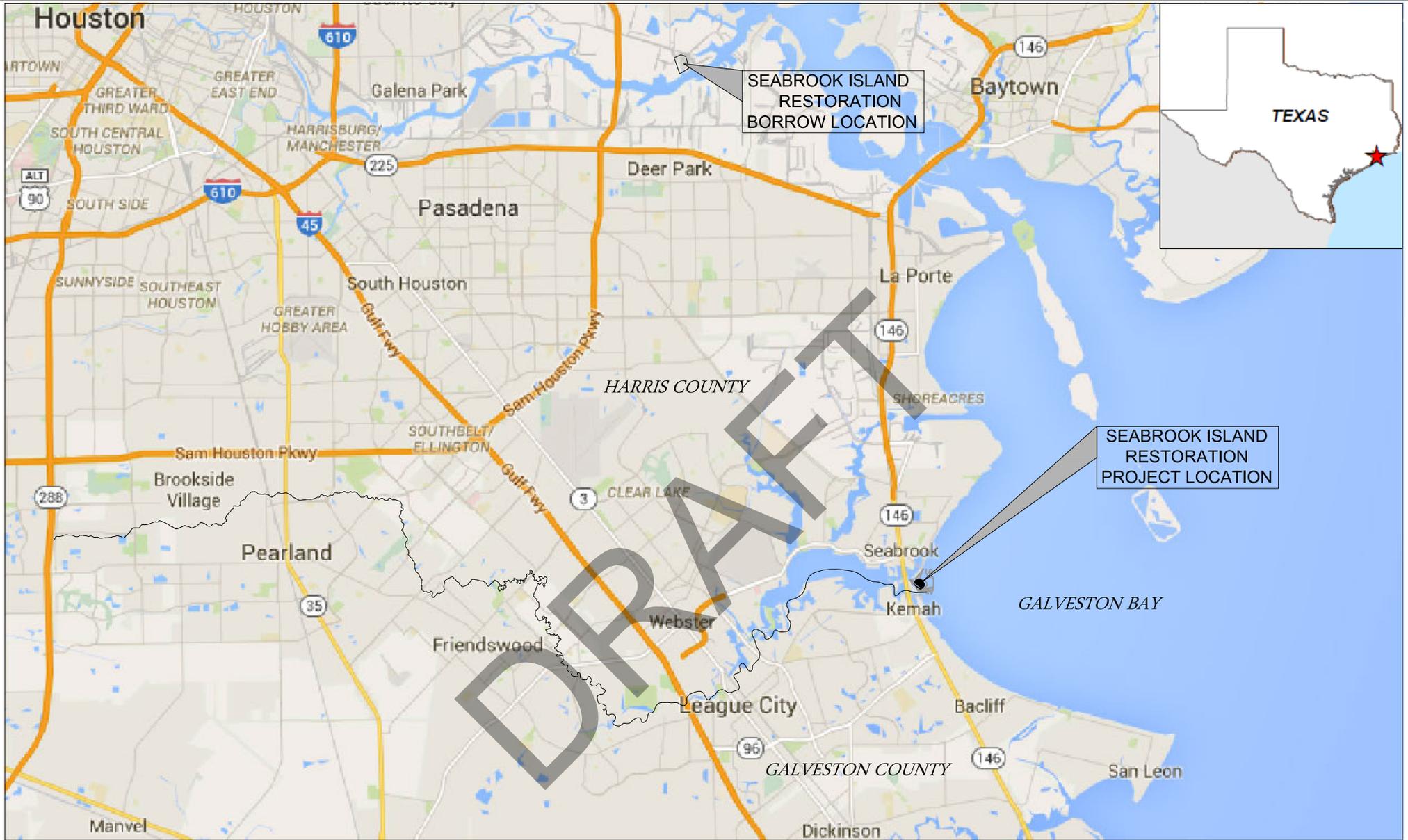
Phase 2 – Construct Interior Marsh Mounds:

Sediment will be hydraulically dredged from nearby channels placed within the perimeter rubble mound breakwaters to construct each marsh mound individually. The marsh mounds will be placed directly on the bay bottom, resulting in mounds that overlap underwater. The mound side slopes will be approximately 5:1 but, the resulting side slopes could be on the order of 10:1 to 20:1 depending on the degree of settlement.

SEABROOK ISLAND DESIGN COMPARISON

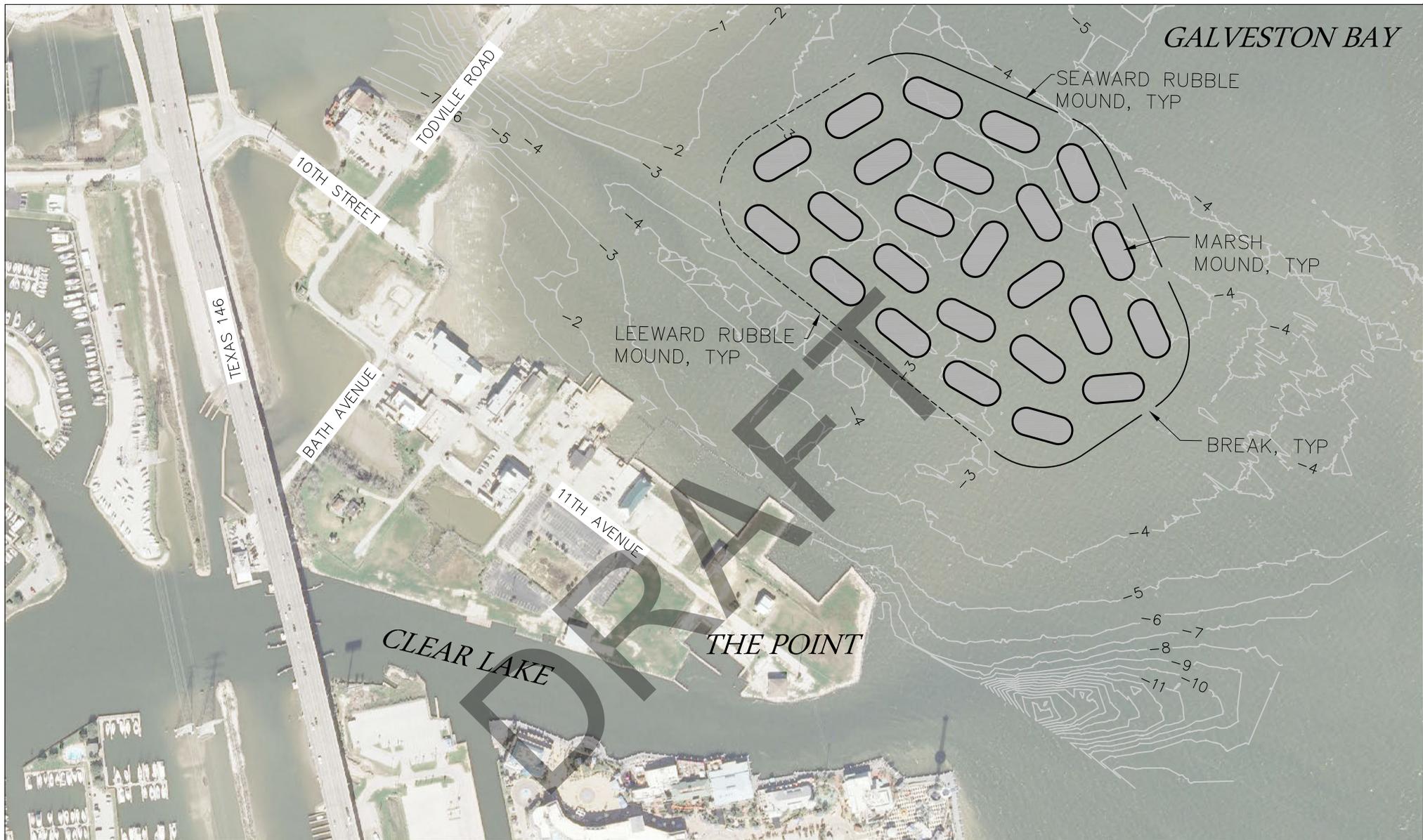
(updated 12/9/15)

Footprint	BW Clay Core Leeward	BW Clay Core Seaward	Riprap BW Leeward	Riprap BW Seaward	Marsh Mound Material	Total CY	Total Construction Cost Estimate
Original	4,317	8,571	3,500	6,947	145,170	168,505	\$4,622,650.00
Alternative 1	4,005	14,628	2,006	5,540	159,434	185,613	\$4,489,600.00
Alternative 2	3,898	17,887	1,929	6,665	156,011	186,390	\$4,727,650.00



Seabrook Habitat Island
Pre-Construction Notification

Vicinity Map



LEGEND

-  SEAWARD RUBBLE MOUNDS TO +5.00' NAVD88
-  LEEWARD RUBBLE MOUNDS TO +3.50' NAVD88
-  MARSH MOUNDS TO +2.50' NAVD88

VOLUMES

BREAKWATER	LEEWARD	4,317 CY
CLAY CORE	SEAWARD	8,571 CY
GRADE 2 RIPRAP	LEEWARD	3,500 CY
BREAKWATER	SEAWARD	6,947 CY
IN-SITU MATERIAL (MARSH MOUNDS)		145,170 CY
TOTAL		168,505 CY

TOTAL PROJECT FOOTPRINT

25.00 ACRES

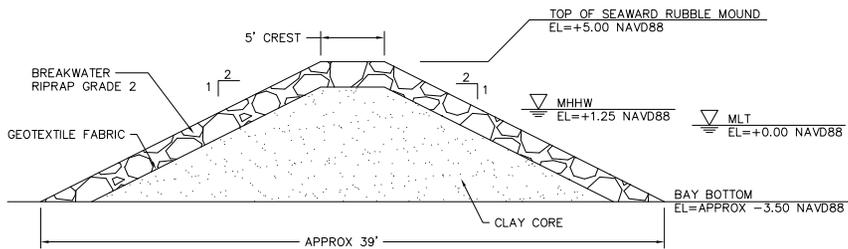
AREA OF COMBINED FEATURES

13.41 ACRES

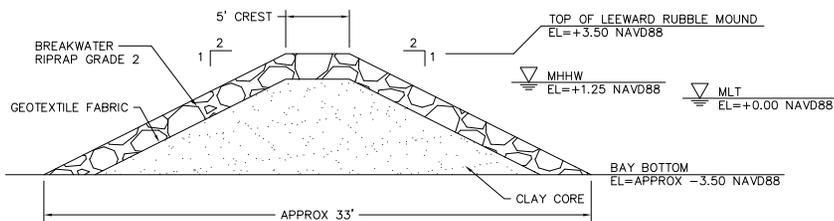


Seabrook Habitat Island
Pre-Construction Notification

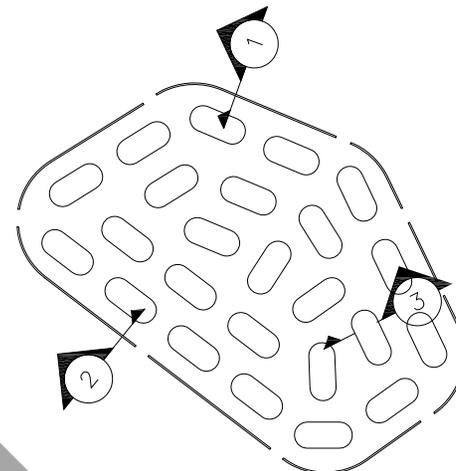
Project Area



1 TYPICAL SECTION - SEAWARD SIDE
SCALE: NTS

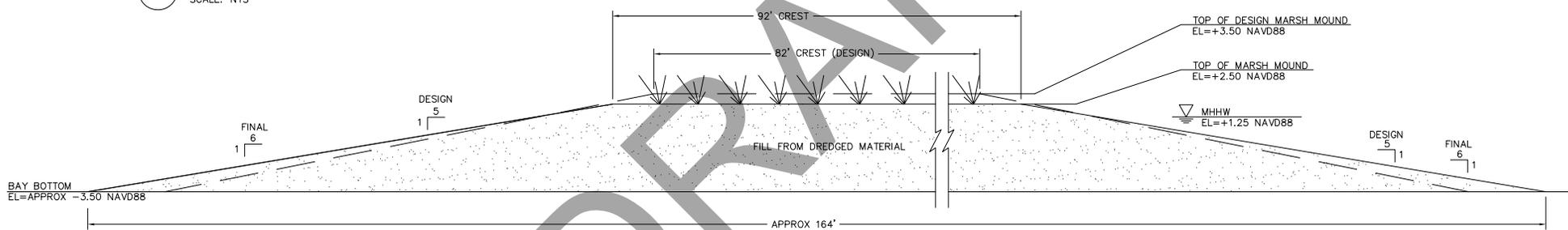


2 TYPICAL SECTION - LEEWARD SIDE
SCALE: NTS



4 SITE PLAN
SCALE: NTS

NOTE:
THE RESTORED ISLAND
WILL INCLUDE 24
MARSH MOUNDS

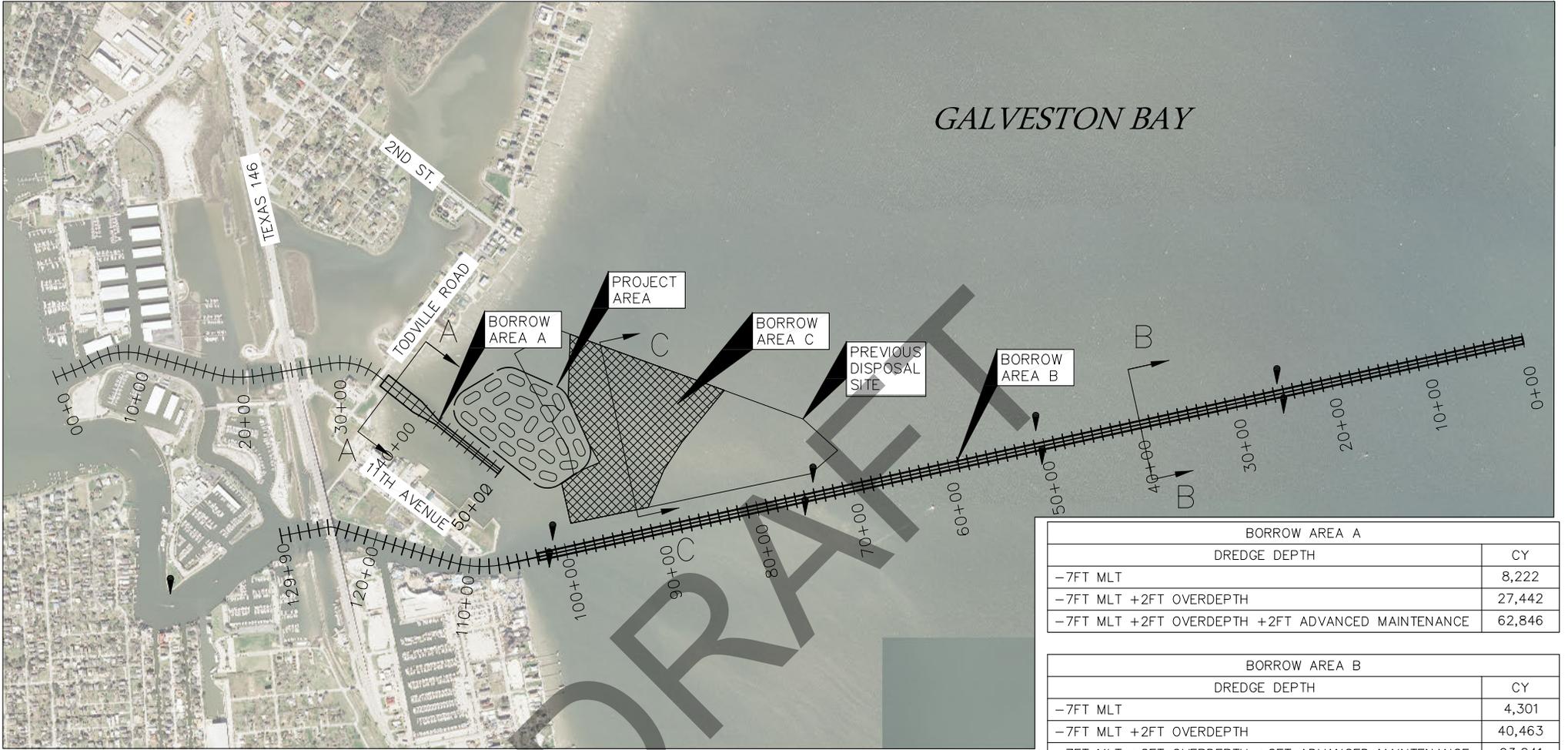


3 TYPICAL SECTION - MARSH MOUND
SCALE: NTS

Seabrook Habitat Island
Pre-Construction Notification

CROSS SECTIONS

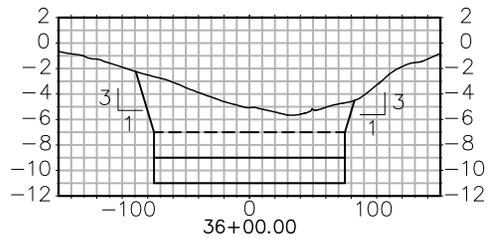
GALVESTON BAY



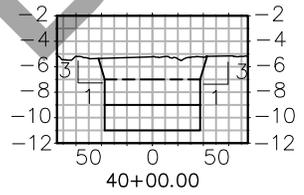
BORROW AREA A	
DREDGE DEPTH	CY
-7FT MLT	8,222
-7FT MLT +2FT OVERDEPTH	27,442
-7FT MLT +2FT OVERDEPTH +2FT ADVANCED MAINTENANCE	62,846

BORROW AREA B	
DREDGE DEPTH	CY
-7FT MLT	4,301
-7FT MLT +2FT OVERDEPTH	40,463
-7FT MLT +2FT OVERDEPTH +2FT ADVANCED MAINTENANCE	93,241

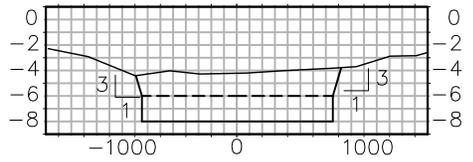
BORROW AREA C	
DREDGE DEPTH	CY
-6FT MLT	127,436
-6FT MLT +2FT OVERDEPTH	270,542



SECTION A-A



SECTION B-B



SECTION C-C

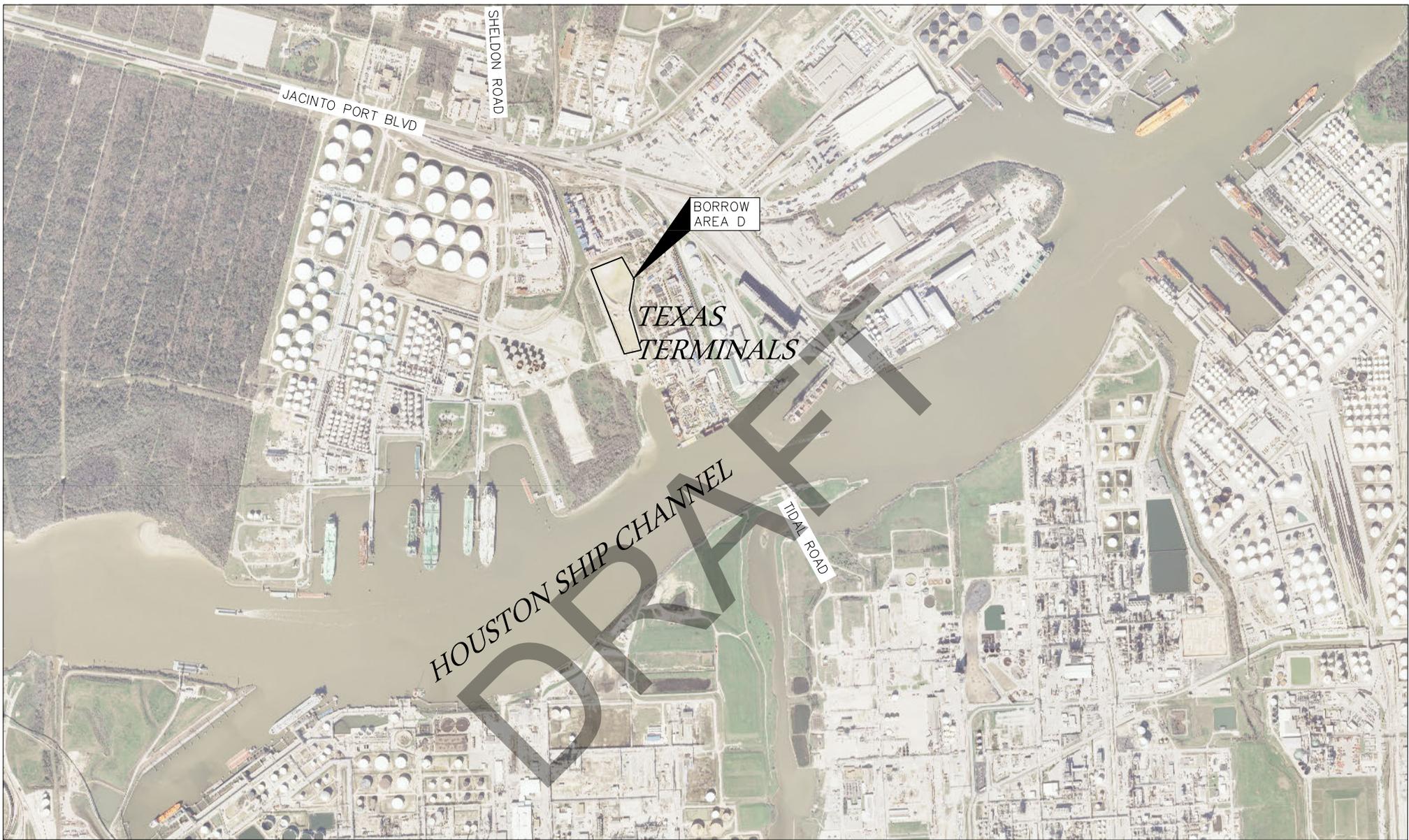
LEGEND

▲ AIDS TO NAVIGATION



Seabrook Habitat Island
Pre-Construction Notification

Borrow Area - Interior Marsh Mounds



DESCRIPTION

BORROW AREA D: APPROX. 13,000 CY REQUIRED

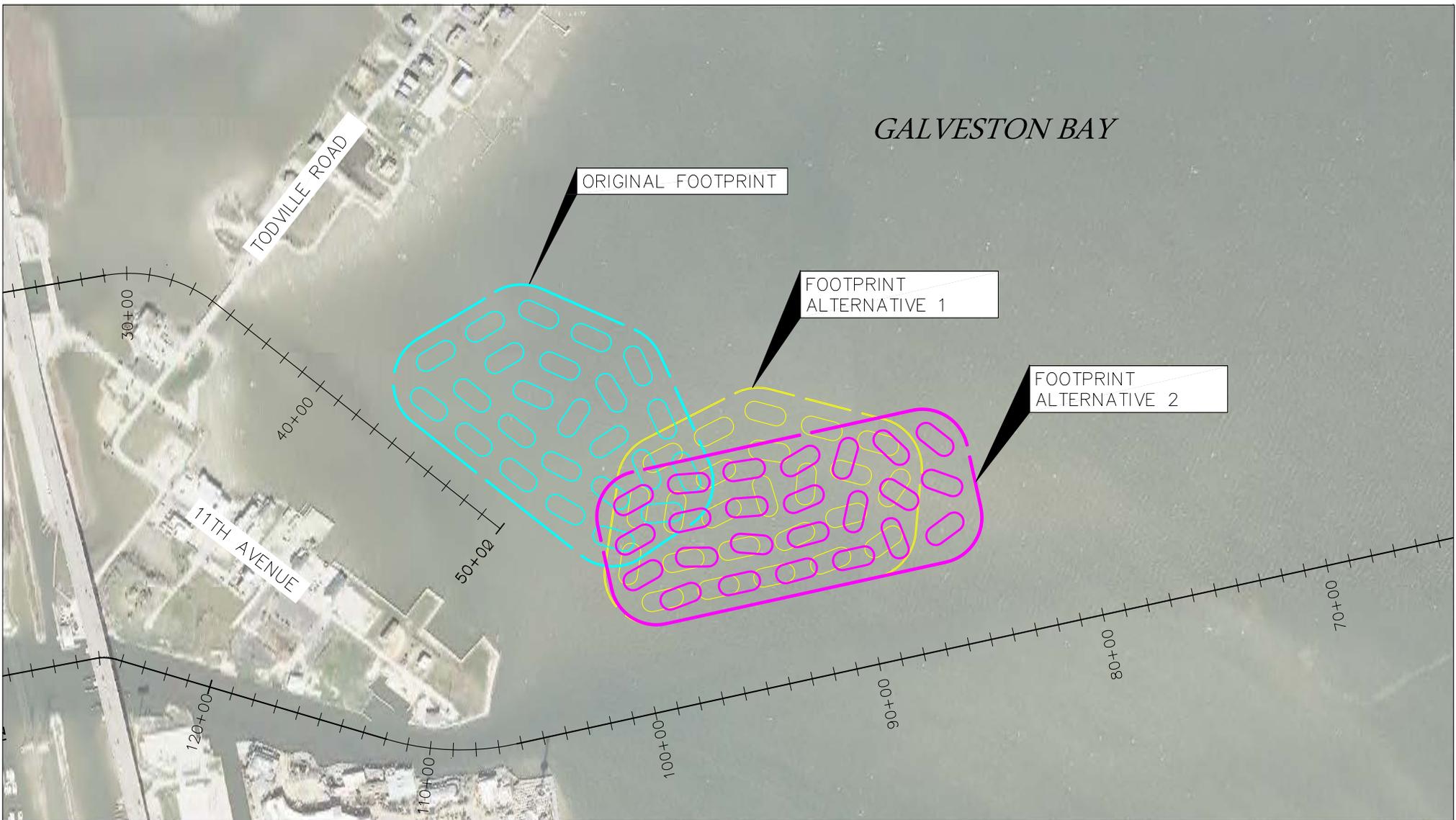


Seabrook Habitat Island
Pre-Construction Notification

Borrow Area - Breakwater Clay Cores

County: Galveston
Application By: Galveston Bay Foundation
Sheet: 5 of 5

State: Texas
Date: September 2015



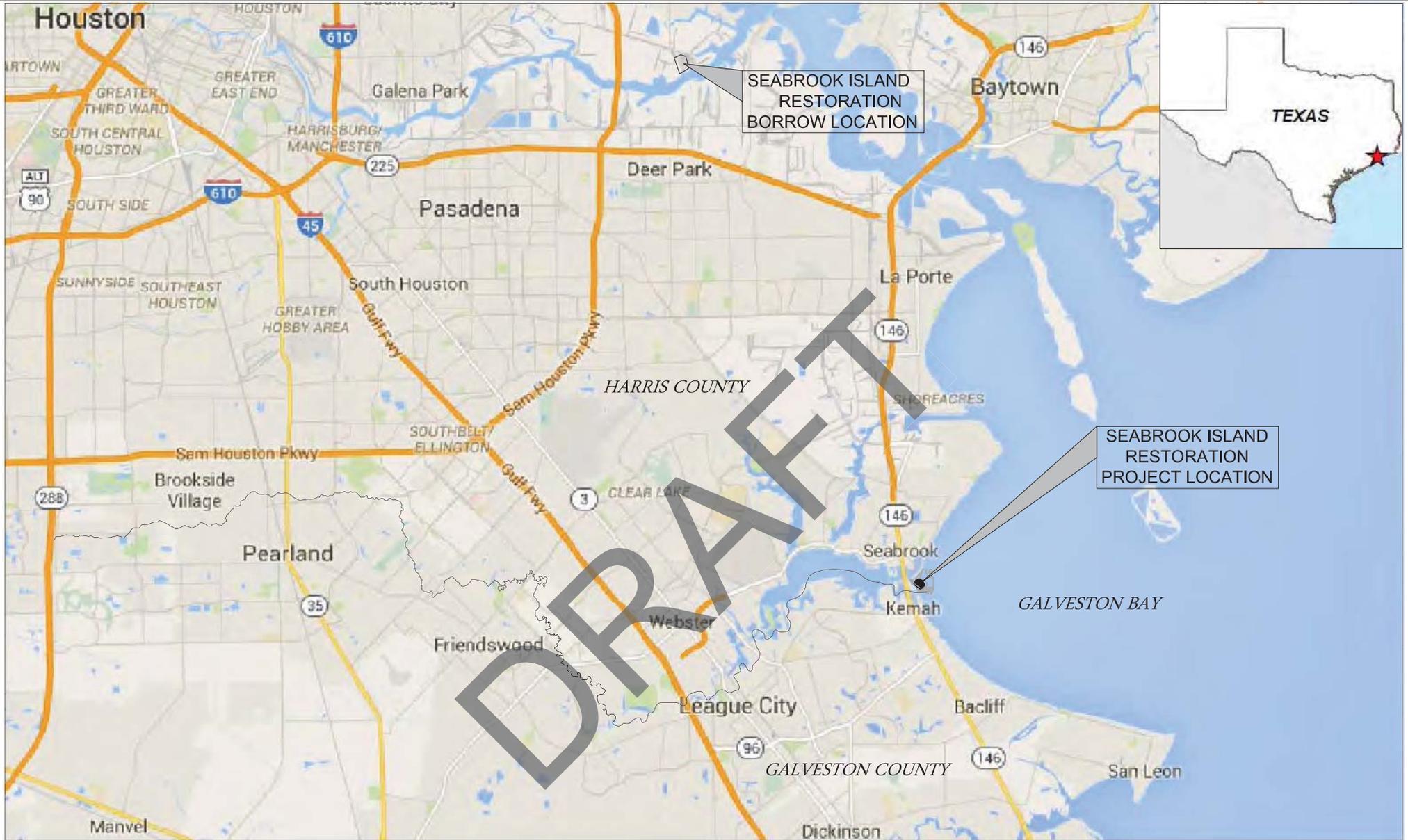
LEGEND

- ORIGINAL FOOTPRINT
- FOOTPRINT - ALTERNATIVE 1
- FOOTPRINT - ALTERNATIVE 2



Seabrook Habitat Island
Pre-Construction Notification

Project Areas

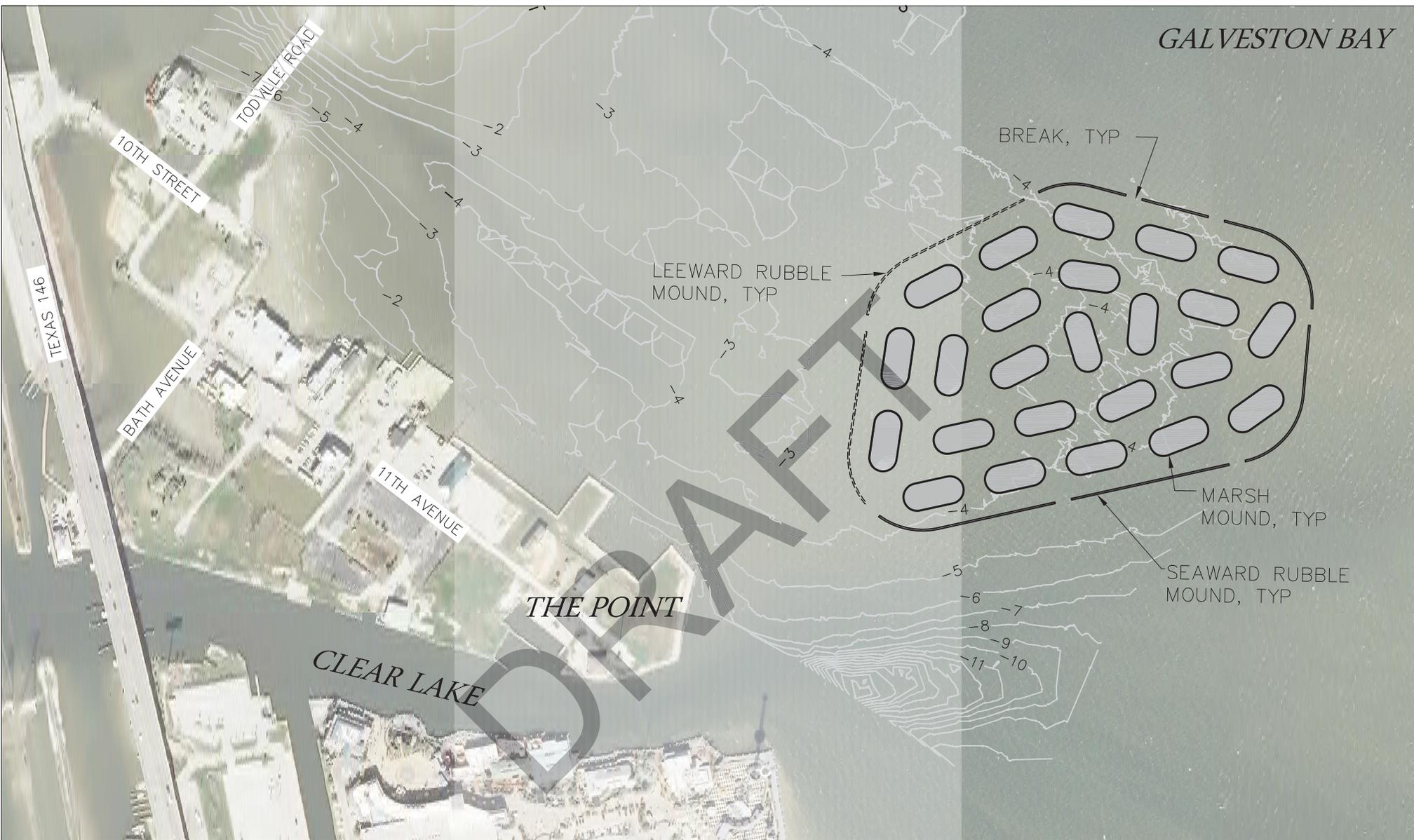


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Seabrook Habitat Island
Pre-Construction Notification

Vicinity Map



LEGEND

-  SEAWARD RUBBLE MOUNDS TO +5.00' NAVD88
-  LEEWARD RUBBLE MOUNDS TO +3.50' NAVD88
-  MARSH MOUNDS TO +2.50' NAVD88

VOLUMES

BREAKWATER	LEEWARD	4,005 CY
CLAY CORE	SEAWARD	14,628 CY
GRADE 2 RIPRAP	LEEWARD	2,006 CY
BREAKWATER	SEAWARD	5,540 CY
IN-SITU MATERIAL (MARSH MOUNDS)		159,434 CY
TOTAL		185,613 CY

TOTAL PROJECT FOOTPRINT

25.00 ACRES

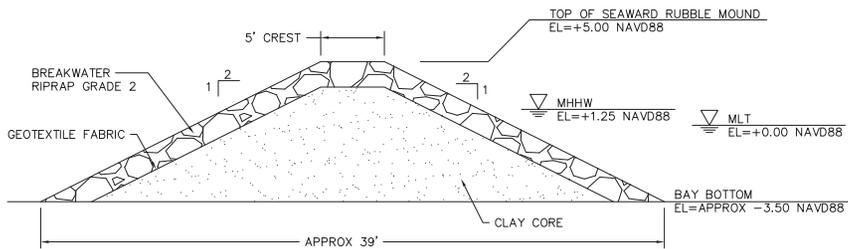
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13.41 ACRES

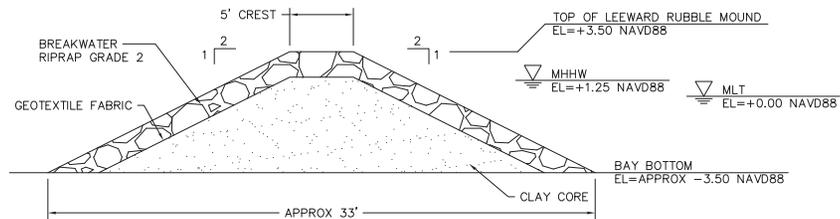


**Seabrook Habitat Island
Pre-Construction Notification**

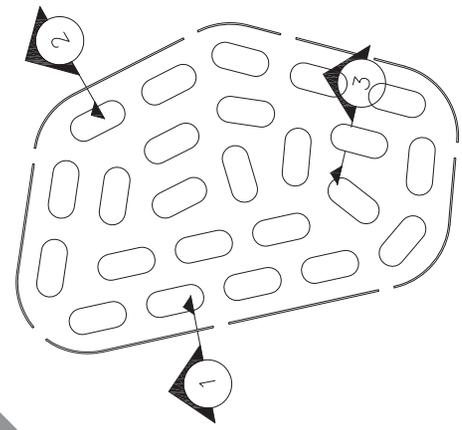
Project Area



1 TYPICAL SECTION - SEAWARD SIDE
SCALE: NTS

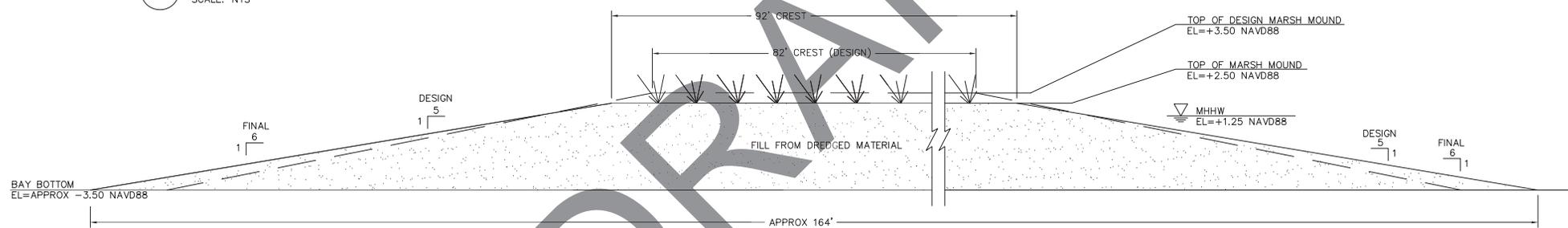


2 TYPICAL SECTION - LEEWARD SIDE
SCALE: NTS



4 SITE PLAN
SCALE: NTS

NOTE:
THE RESTORED ISLAND
WILL INCLUDE 24
MARSH MOUNDS



3 TYPICAL SECTION - MARSH MOUND
SCALE: NTS

Seabrook Habitat Island
Pre-Construction Notification

CROSS SECTIONS

GALVESTON BAY

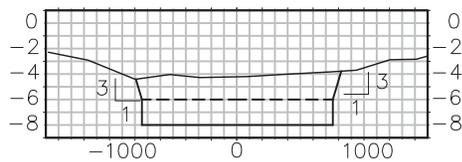


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LEGEND

📍 AIDS TO NAVIGATION

BORROW AREA A	
DREDGE DEPTH	CY
-7FT MLT	130,217
-7FT MLT +1FT OVERDEPTH	49,993
TOTAL	180,210



SECTION A-A



Seabrook Habitat Island
Pre-Construction Notification

Borrow Area - Interior Marsh Mounds



DESCRIPTION

BORROW AREA B: APPROX. 19,000 CY REQUIRED

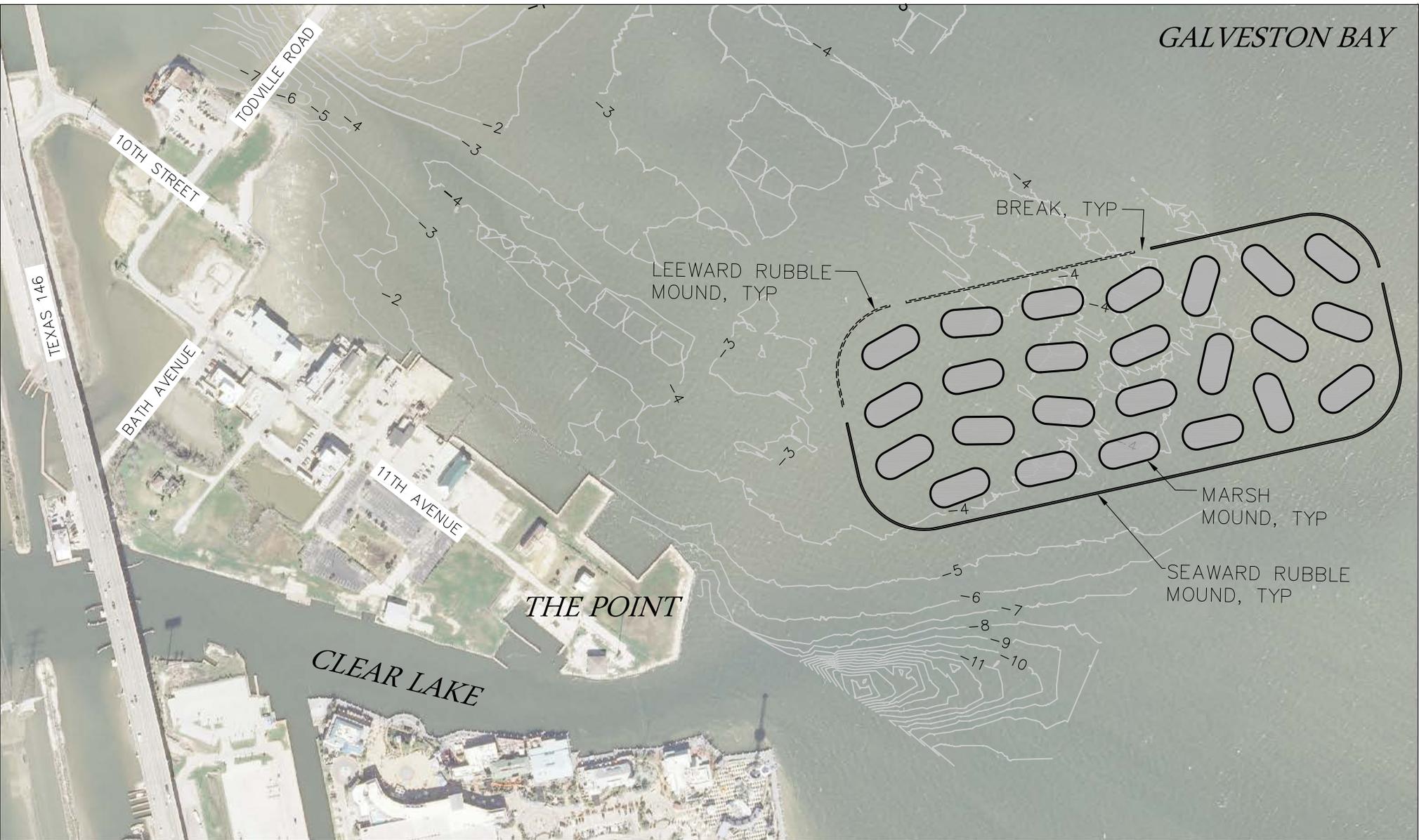


Seabrook Habitat Island
Pre-Construction Notification

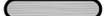
Borrow Area - Breakwater Clay Cores

County: Galveston
Application By: Galveston Bay Foundation
Sheet: 5 of 5

State: Texas
Date: December 2015



LEGEND

-  SEAWARD RUBBLE MOUNDS TO +5.00' NAVD88
-  LEEWARD RUBBLE MOUNDS TO +3.50' NAVD88
-  MARSH MOUNDS TO +2.50' NAVD88

VOLUMES

BREAKWATER CLAY CORE	LEEWARD	3,898 CY
	SEAWARD	17,887 CY
GRADE 2 RIPRAP BREAKWATER	LEEWARD	1,929 CY
	SEAWARD	6,665 CY
IN-SITU MATERIAL (MARSH MOUNDS)		156,011 CY
TOTAL		186,390 CY

TOTAL PROJECT FOOTPRINT

25.00 ACRES

AREA OF COMBINED FEATURES

13.41 ACRES



Seabrook Habitat Island
Pre-Construction Notification

Project Area

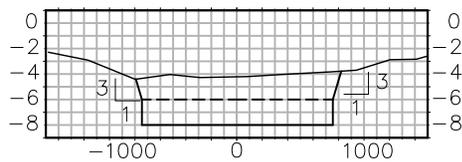
GALVESTON BAY



LEGEND

📍 AIDS TO NAVIGATION

BORROW AREA A	
DREDGE DEPTH	CY
-7FT MLT	145,907
-7FT MLT +1FT OVERDEPTH	55,283
TOTAL	201,190



SECTION A-A



Seabrook Habitat Island
Pre-Construction Notification

Borrow Area - Interior Marsh Mounds

County: Galveston
Application By: Galveston Bay Foundation
Sheet: 4 of 5

State: Texas
Date: December 2015