MOTT MACDONALD

City of Port Lavaca - Living Shoreline Breakwater

Kickoff Meeting and Site Visit

Project:	CPL - Living Shoreline Breakwater		
Prepared by:	Thomas Everett	**Date:**	06/21/2022
Approved by:	Aaron Horine	**Checked by:**	Josh Carter
Subject:	Kickoff Meeting and Site Visit		

1 Kickoff Meeting

Mott MacDonald met with the City of Port Lavaca (CPL) and project grant managers to kickoff the Port Lavaca Living Shoreline Project proposed for the downtown Port Lavaca shoreline. Meeting attendees and contact information are provided in Table 1.1.

Table 1.1: Project member contacts

Name	*Organization*	*Role*	*Phone*	*Email*
Jody Weaver, PE	City of Port Lavaca	Project Manager	361-827-3601	jweaver@portlavaca.org
Susan Lang	City of Port Lavaca	Project Financials	361-552-9793 ext. 234	slang@portlavaca.org
Derek Spence[1]	City of Port Lavaca	Deputy Project Manager		
Josh Carter, PE	Mott MacDonald	Project Manager	504-383-9785	Joshua.carter@mottmac.com
Aaron Horine, PE	Mott MacDonald	Project Principal	361-661-3061	Aaron.horine@mottmac.com
Thomas Everett, PE	Mott MacDonald	Project Engineer	512-777-3075	Thomas.everett@mottmac.com
Veronica Pauda	KSBR	Grant Manager	817-856-9021	veronica@ksbr-llc.com
Katy Sellers	KSBR	Grant Manager	903-243-0481	katy@ksbr-llc.com

[1] *Derek Spence did not attend the meeting*

The project proposes to reduce wave energy and storm surge acting on the shoreline during cold fronts and extreme events. Mott MacDonald (MM) representatives gave a presentation at the town hall outlining the project objectives, data collection and coastal analyses, schedule, and budget. The presentation is attached as a PDF to this document.

Discussion points that came up during the meeting included:

Design considerations

- City of Port Lavaca future plans:
    - Boardwalk on the north side of the project site. CPL plans to add the proposed boardwalk to the living shoreline project permit as little additional effort is anticipated for permitting. Note that MM is not designing the boardwalk as part of this project; instead we will take the City's proposed boardwalk layout and insert into this project's permit application.

  - Peninsula expansion on the east side of smith harbor. This will need to be coordinated with the installation of the proposed marsh creation cell.
- The south breakwater alignment cannot tie into Fisher Harbor. Need to leave a gap since this land is private. MM to get land ownership map from CPL/Calhoun County
- Smith Harbor was recently dredged and spoil material was sidecasted. Material is still on the shoreline and can potentially be used for marsh creation.
- CPL can request extension for grant after 1-year of work has started. CPL can only request 1 extension so it would be advantageous to wait until the construction phase when we have a confident timeline for project completion.

Figure 1.1: Conceptual project layout along with City proposed future plans. Grey block is proposed breakwater, brown block is proposed oyster reef, and green block is proposed marsh creation.

Other Considerations

1. The City is pursuing a RESTORE grant for barge removal. The grant is in process; timeline for grant award is unknown. The grant includes $500,000 from RESTORE and the balance provided by the GLO. Mott MacDonald will need to consider timing of barge removal grant and work. All agree proposed marsh creation should not be constructed over existing barges to be removed.
2. Mott discussed project construction contracting. Mott proposed to use EJCDC contract documents; City confirms that is acceptable.

2 Data request from the City

Existing data collection was discussed during the meeting. Items that the City will provide include:

1. As-built plans of recent Smith Harbor dredging
2. Pre-construction and post-construction surveys of recent Smith Harbor dredging
3. Land ownership maps of project vicinity, as available, including boundaries of city-owned land.
4. Any information on as-builts of marina entrance, existing navigation channel, remnant navigation channel from Fisher Harbor, and similar.

3 Site Visit

3.1 Smith Harbor

Smith Harbor was recently dredged and material was side casted on the shore on the east and west side of the harbor. Spoil mounds contained shell hash and trash. The material could potentially be used for marsh creation cells.

Figure 2. Spoil mound from recent dredging of Smith Harbor (foreground) and a sunken barge just offshore. There are no plans in the grant to remove the barge and should be considered when designing the marsh creation cells.

Figure 3. Spoil mound on the west side of Smith Harbor.

3.2 City of Port Lavaca Drainage Culverts

Figure 4. Existing drainage culvert near Nautical Landing marina.

Figure 5. Existing drainage culverts draining the northwest part of Port Lavaca.

3.3 Veterans Memorial Shoreline

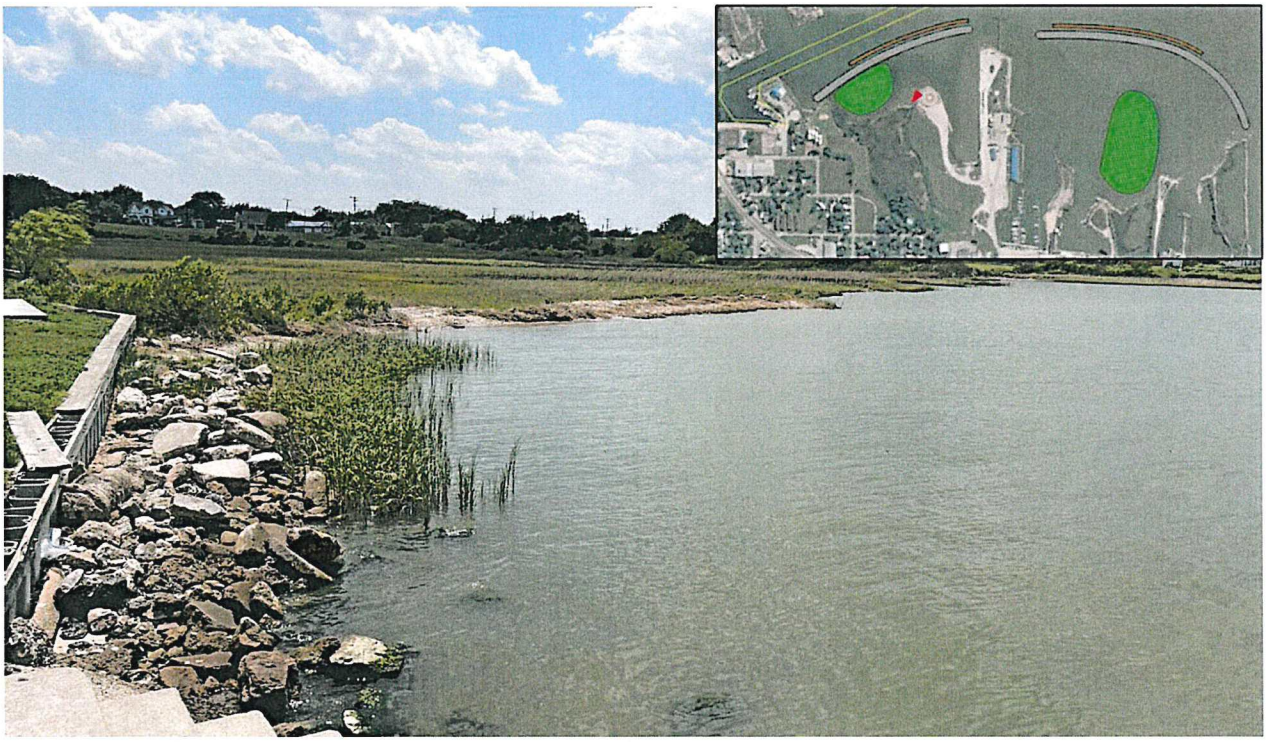


Figure 6. Old riprap near Veterans Memorial Park and marsh shoreline on the western side of the project site.

3.4 Northwestern Project Shoreline

Figure 7. Northwestern project shoreline facing southeast. Note spartina alterniflora colonies nearshore and the old remnant structure. Proposed breakwater would end near the end of the remnant structure.

Project Overview

Project Goals as defined in the Grant

1.

Reduce storm impact

Mitigate impact of storm surge on Port Lavaca Downtown through breakwaters and living shorelines

2.

Reduce flooding

Protect stormwater outfalls to help reduce street flooding during heavy rains combined with high tides

3.

Enhance ecosystem

Create marsh habitat to add to natural line of storm defence and enhance ecosystem

4.

Enhance ecosystem

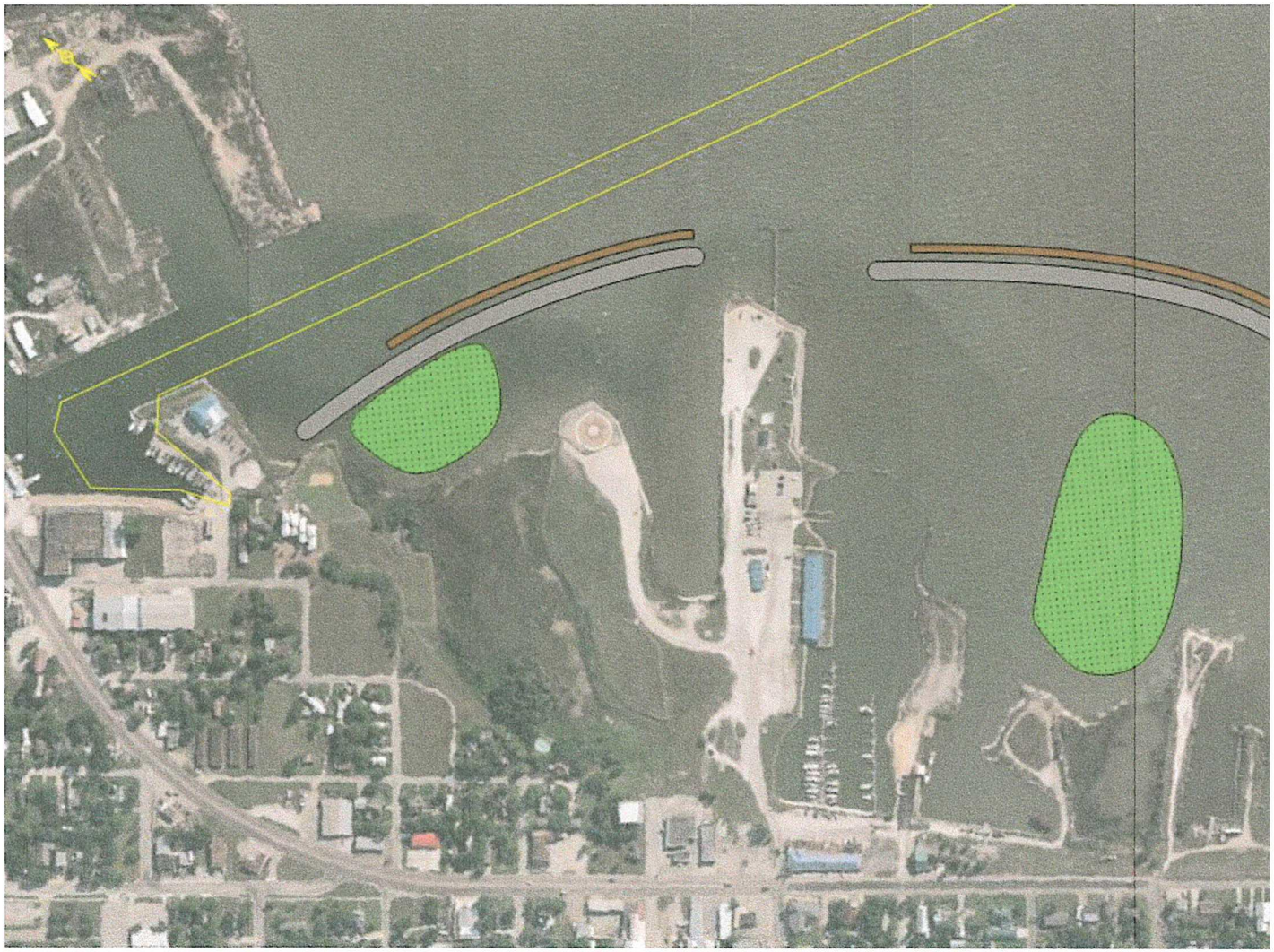
Create oyster reef to enhance ecosystem, increase visitation, education, and environmental sustainability and provide additional natural storm defence

Project Overview

Project features defined in the Grant

Breakwater: 3160'
Oyster Reef: 2160'
Marsh: 30000 cy

Note: Barge removal not specified in grant



Project Overview

Breakwater:
North ~1,260'
South ~1900'

Gaps to provide navigation and fish passage

Crest elevation to reduce wave impacts at storm conditions

Oyster Reef:
North ~960'
South ~1200'

Cultch (limestone aggregate) base with Concrete Reef Units

Reef units top at ~MSL

Project Overview

Marsh:
North ~12000 cy of fill
~2.4 acres

South ~28,000' cy of fill
~5.7 acres

Elevation determined by nearby reference marsh

Fill material determines geometry:
Sandy → marsh mounds or marsh with bayous

Silts → contained placement; can create bayous

Project Overview

Project cost defined in the Grant

Port Lavaca Living Shorelines Engineer's Estimate of Probable Construction Cos				
				last updated: 8/25/
Item	Quantity	Unit	Unit cost	Living Shorelines wi Marsh and Fish Habita
Marine Components				$1,000's
Mobilization/Demobilization	1	LS	10%	$1,009
Site work/ contractor surveys	6	LS	$50,000	$300
Environmental Protection [1]	1	LS	$75,000	$75
North Breakwater [2]	1,260	LF	$2,250	$2,835
South Breakwater	1,900	LF	$2,250	$4,275
North Oyster Reef	960	LF	$625	$600
South Oyster Reef	1200	LF	$625	$750
North Marsh	12,000	CY	$31	$375
South Marsh	28,000	CY	$31	$875
Construction total				**$11,094**

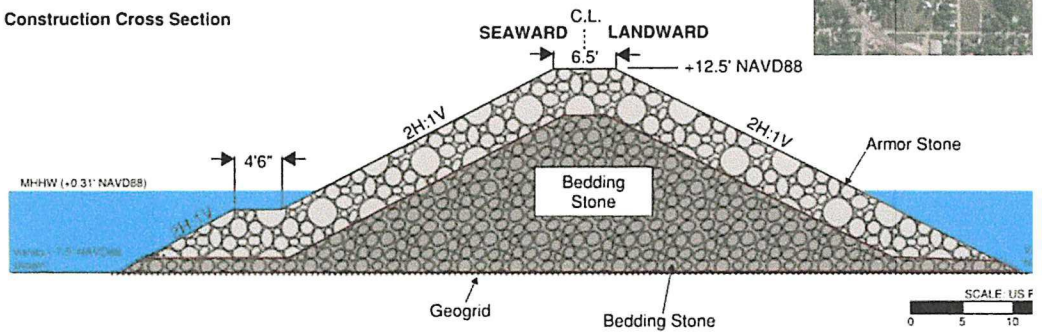
$11,094,000

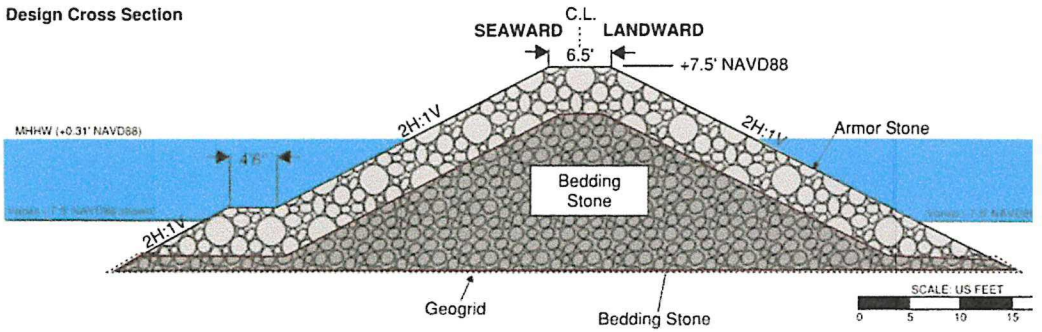
Task 4 – Preliminary Design

1. Breakwater
2. Oyster Reef
3. Marsh Creation
4. Borrow Area

- Design breakwater geometry: Crest, slope, stone size, etc.
- Establish preliminary alignment

Use data collection from Task 2 – geotech data, cultural resources, habitat surveys, topographic and bathymetric surveys to guide the design of all features





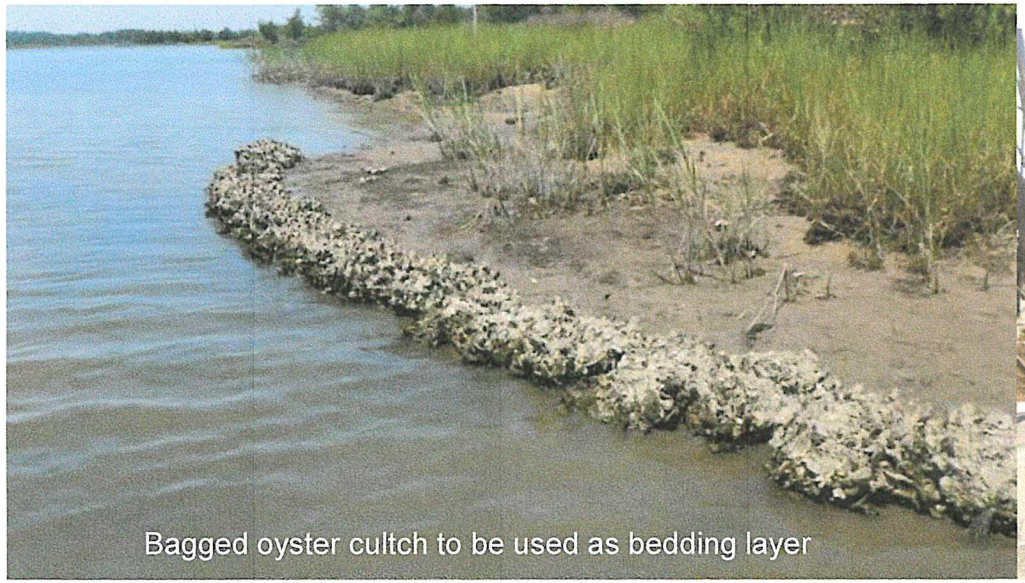
Task 4 – Preliminary Design

1. Breakwater
2. Oyster Reef
3. Marsh Creation
4. Borrow Area

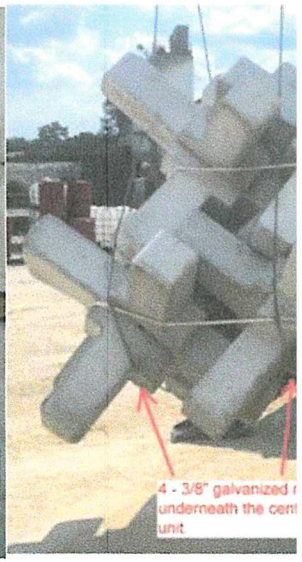
- Establish preliminary alignment
- Combination of Oyster cultch + Artificial reef unit

Oyster cultch base

Artificial reef unit



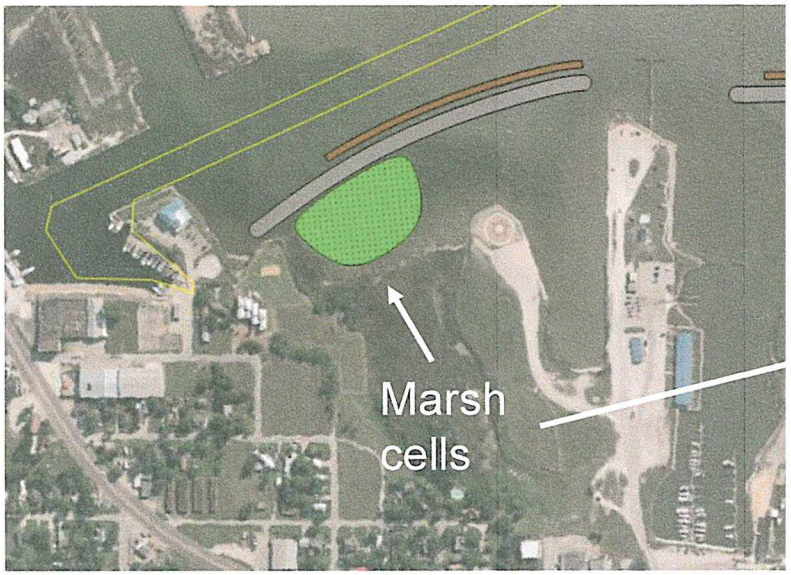
Bagged oyster cultch to be used as bedding layer

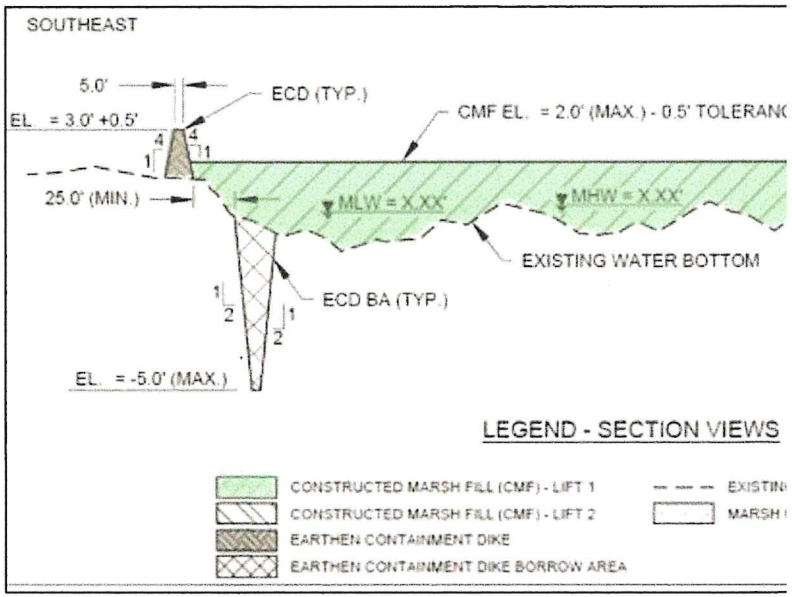


Task 4 – Preliminary Design

1. Breakwater
2. Oyster Reef
3. Marsh Creation
4. Borrow Area

- Design marsh creation cells and containment dikes on the protected side of the breakwaters
  - Water levels and nearby reference sites will be used to determine marsh elevation and expected vegetation
- Source material type, volume, and location used for design



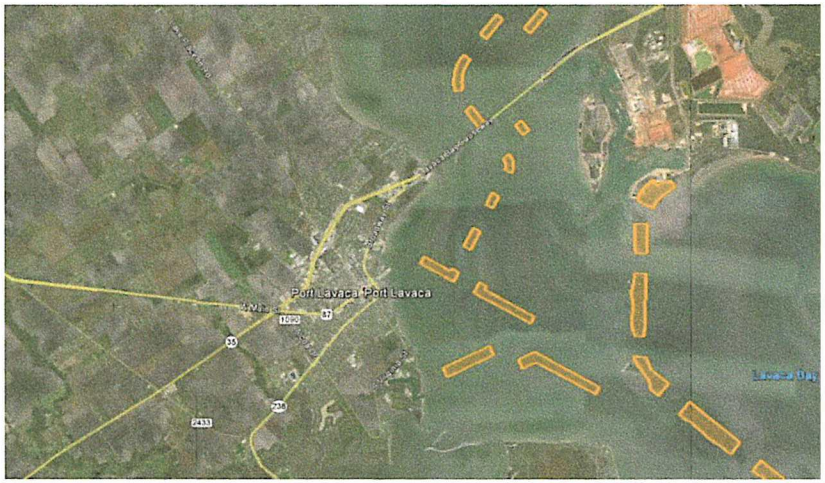


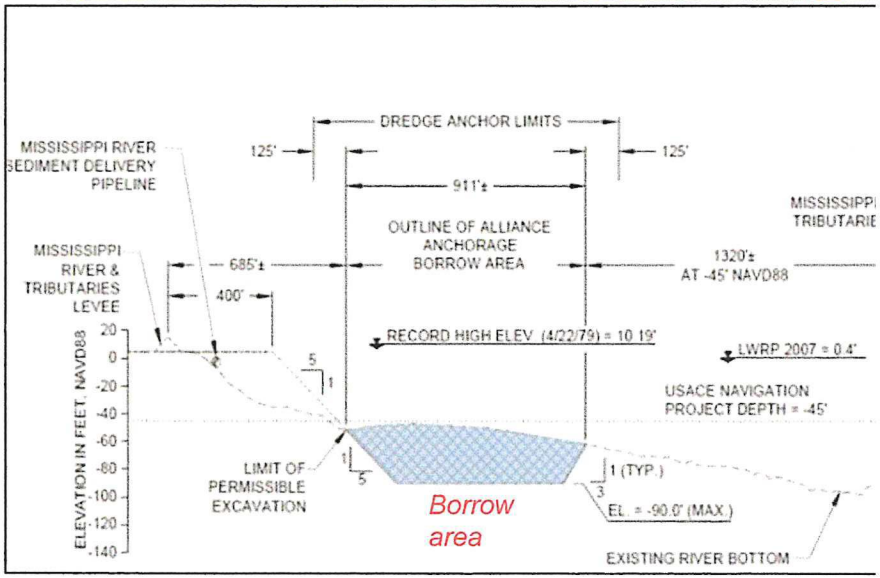
Marsh creation area and earthen containment dike typical

Task 4 – Preliminary Design

1. Breakwater
2. Oyster Reef
3. Marsh Creation
4. Borrow Area

- Navigation channel spoil sites
  - Water levels and nearby reference sites will be used to determine marsh elevation and expected vegetation
- Source material type, volume, and location used for design





Borrow area section view example