

JOINT PUBLIC NOTICE

November 9, 2015

United States Army
Corps of Engineers
New Orleans District
Regulatory Branch
Post Office Box 60267
New Orleans, LA. 70160-0267

State of Louisiana
Department of Environmental Quality
Post Office Box 4313
Baton Rouge, La. 70821-4313
Attn: Water Quality Certifications

(504) 862-2548/ FAX (504) 862-2574
Project Manager
Johnny Duplantis
Permit Application Number
MVN-2014-00917-WPP

(225) 219-3225/FAX (225) 325-8250
Project Manager
Elizabeth Hill
WQC Application Number
WQC # 151105-01

Interested parties are hereby notified that a permit application has been received by the New Orleans District of the U.S. Army Corps of Engineers pursuant to: [X] Section 10 of the Rivers and Harbors Act of March 3, 1899 (30 Stat. 1151; 33 USC 403); and/or [X] Section 404 of the Clean Water Act (86 Stat. 816; 33 USC 1344).

Application has also been made to the Louisiana Department of Environmental Quality, for a Water Quality Certification (WQC) in accordance with statutory authority contained in Louisiana Revised Statutes of 1950, Title 30, Chapter 11, Part IV, Section 2074 A(3) and provisions of Section 401 of the Clean Water Act (P.L.95-17).

DRAINAGE CHANNEL IMPROVMENTS IN LAFAYETTE PARISH

NAME OF APPLICANT: Terrebonne Port Commission, c/o CB&I, 197 Elysian Drive, Houma, Louisiana, 70363.

DESCRIPTION: Proposed project consists of excavation for a new boat slip in the Port of Terrebonne. The slip would be approximately 300 feet wide by 4,815 feet long and approximately 12-14 feet deep. Approximately 622,000 cubic yards of dredged material would be disposed of at an adjacent, permitted, dredge disposal site. Approximately 28 acres of fresh marsh and 8 acres of bottomland hardwood habitat would be impacted. Approximately 15 acres of open water column would be dredged. The applicant is proposing a Permittee Responsible Mitigation Plan (PRMP) consisting of expanding the current terracing mitigation plan for the Terrebonne Levee and Conservation District's Reach E Levee permitted under MVN-2011-01090-WPP. The proposed mitigation plan (attached) would add 64 acres of additional brackish marsh terraces to the original terracing project. The proposed PRMP would address direct impacts to fresh marsh. The applicant would purchase credits from an approved mitigation bank to address direct impacts to bottomland hardwood wetlands.

LOCATION: Adjacent to the Houma Navigation Canal, Latitude 29.556667, Longitude - 90.690889, at the intersection of Woodlawn Ranch Road and Roland Road, within the City of Houma, Louisiana, in Terrebonne Parish. The Project is located within the Terrebonne/Barataria Watershed, Hydrologic Unit 08090302.

The comment period for the Department of the Army Permit and the Louisiana Department of Environmental Quality WQC will close **20 days** from the date of this joint public notice. Written

comments, including suggestions for modifications or objections to the proposed work, stating reasons thereof, are being solicited from anyone having interest in this permit and/or this WQC request and must be mailed so as to be received before or by the last day of the comment period. Letters concerning the Corps of Engineers permit application must reference the applicant's name and the Permit Application Number, and be mailed to the Corps of Engineers at the address above, **ATTENTION: REGULATORY BRANCH**. Similar letters concerning the Water Quality Certification must reference the applicant's name and the WQC Application number and be mailed to the Louisiana Department of Environmental Quality at the address above.

The application for this proposed project is on file with the Louisiana Department of Environmental Quality and may be examined during weekdays between 8:00 a.m. and 5:00 p.m. Copies may be obtained upon payment of costs of reproduction.

Corps of Engineers Permit Criteria

The decision whether to issue a permit will be based on an evaluation of the probable impacts, including cumulative impacts of the proposed activity on the public interest. That decision will reflect the national concern for both protection and utilization of important resources. The benefit which reasonably may be expected to accrue from the proposal must be balanced against its reasonably foreseeable detriments. All factors which may be relevant to the proposal will be considered including the cumulative effects thereof; among those are conservation, economics, aesthetics, general environmental concerns, wetlands, historic properties, fish and wildlife values, flood hazards, floodplain values, land use, navigation, shoreline erosion and accretion, recreation, water supply and conservation, water quality, energy needs, safety, food and fiber production, mineral needs, considerations of property ownership and, in general, the needs and welfare of the people.

The U.S. Army Corps of Engineers is soliciting comments from the public, federal, state, and local agencies and officials, Indian Tribes, and other interested parties in order to consider and evaluate the impacts of this proposed activity. Any comments received will be considered by the U.S. Army Corps of Engineers to determine whether to make, modify, condition, or deny a permit for this proposal. To make this decision, comments are used to assess impacts on endangered species, historic properties, water quality, general environmental effects, and other public interest factors listed above. Comments are used in the preparation of an Environmental Assessment and/or an Environmental Impact Statement pursuant to the National Environmental Policy Act. Comments are also used to determine the need for a public hearing and to determine the overall public interest of the proposed activity.

No properties listed on the National Register of Historic Places are near the proposed work. The possibility exists that the proposed work may damage or destroy presently unknown archeological, scientific, prehistorical, historical sites, or data. Copies of this notice are being sent to the State Archeologist and the State Historic Preservation Officer.

Our initial finding is that the proposed work would neither affect any species listed as endangered by the U.S. Departments of Interior or Commerce, nor affect any habitat designated as critical to the survival and recovery of any endangered species. Utilizing Standard Local

Operating Procedure for Endangered Species in Louisiana (SLOPES), dated October 22, 2014, between the U.S. Army Corps of Engineers, New Orleans and U.S. Fish and Wildlife Service, Ecological Services Office, the Corps has determined that the proposed activity would have no effect on any listed species.

This notice initiates the Essential Fish Habitat (EFH) consultation requirements of the Magnuson-Stevens Fishery Conservation and Management Act. The applicant's proposal may result in the destruction or alteration of 43.0 acre(s) of EFH utilized by various life stages of red drum and penaeid shrimp. Our initial determination is that the proposed action would not have a substantial adverse impact on EFH or federally managed fisheries in the Gulf of Mexico. Our final determination relative to project impacts and the need for mitigation measures is subject to review by and coordination with the National Marine Fisheries Service.

If the proposed work involves deposits of dredged or fill material into navigable waters, the evaluation of the probable impacts will include the application of guidelines established by the Administrator of the Environmental Protection Agency. Also, a certification that the proposed activity will not violate applicable water quality standards will be required from the Department of Environmental Quality, before a permit is issued.

Any person may request, in writing, within the comment period specified in this notice, that a public hearing be held to consider this application. Requests for public hearings shall state, with particularity, the reasons for holding a public hearing.

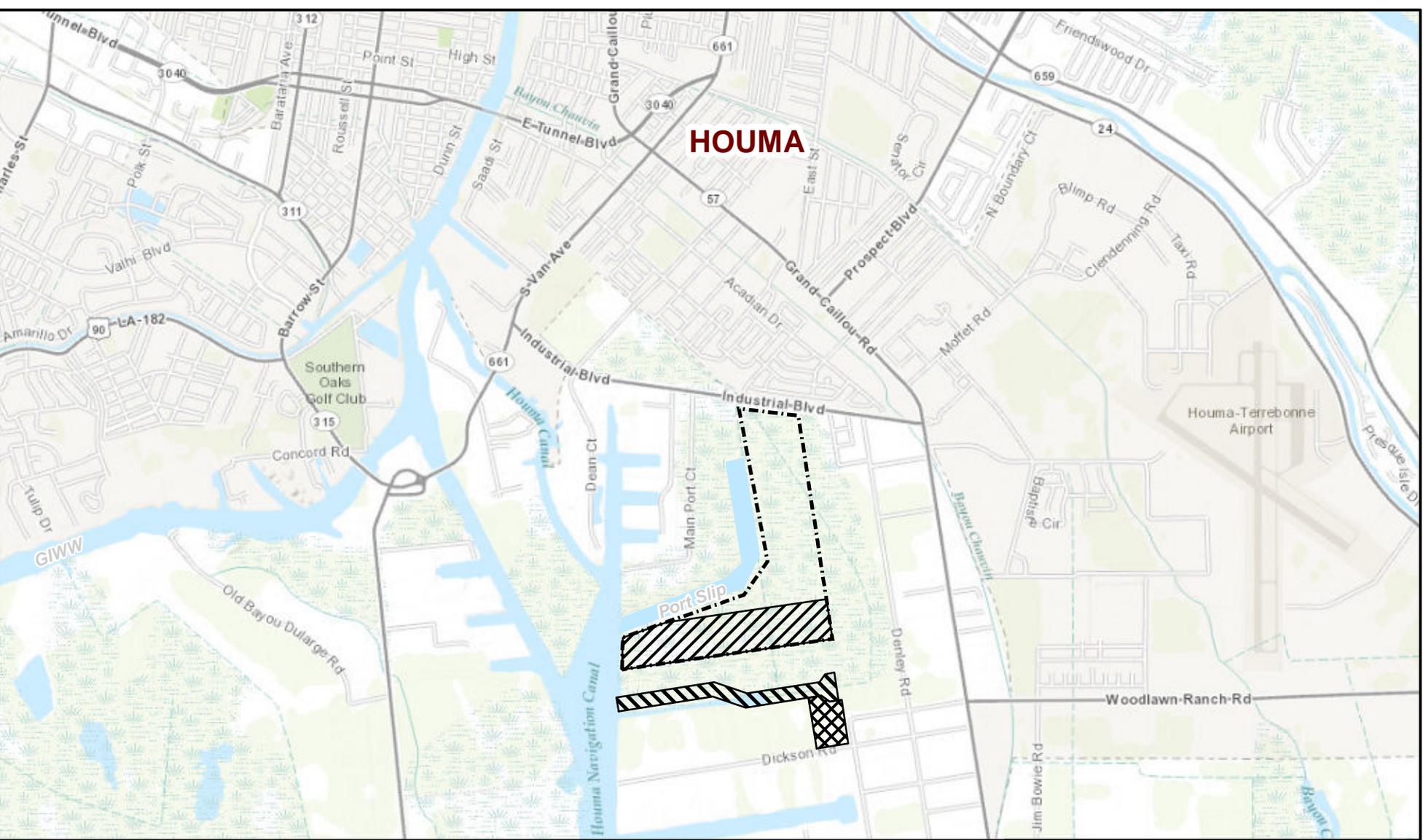
You are requested to communicate the information contained in this notice to any other parties whom you deem likely to have interest in the matter.

The applicant has certified that the proposed activity described in the application complies with and will be conducted in a manner that is consistent with the Louisiana Coastal Resources Program. The Department of the Army permit will not be issued unless the applicant received approval or a waiver of the Coastal Use Permit by the Department of Natural Resources.

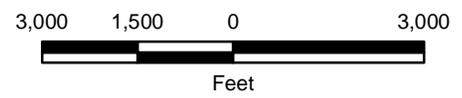
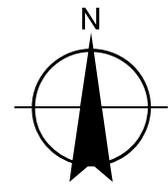
Darrell S. Barbara
Chief, Western Evaluation Section
Regulatory Branch

Attachments

Sheet 1 Vicinity
 DRAWING NUMBER
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 CHECKED BY
 DRAWN BY
 OFFICE



- Legend**
-  Proposed Slip (35 acres)
 -  Disposal Area (16 acres, ~75,000 cubic yards)
 -  Additional Disposal Area
 -  Permitted Disposal Area



PORT OF TERREBONNE
 HOUMA, LA

VICINITY MAP

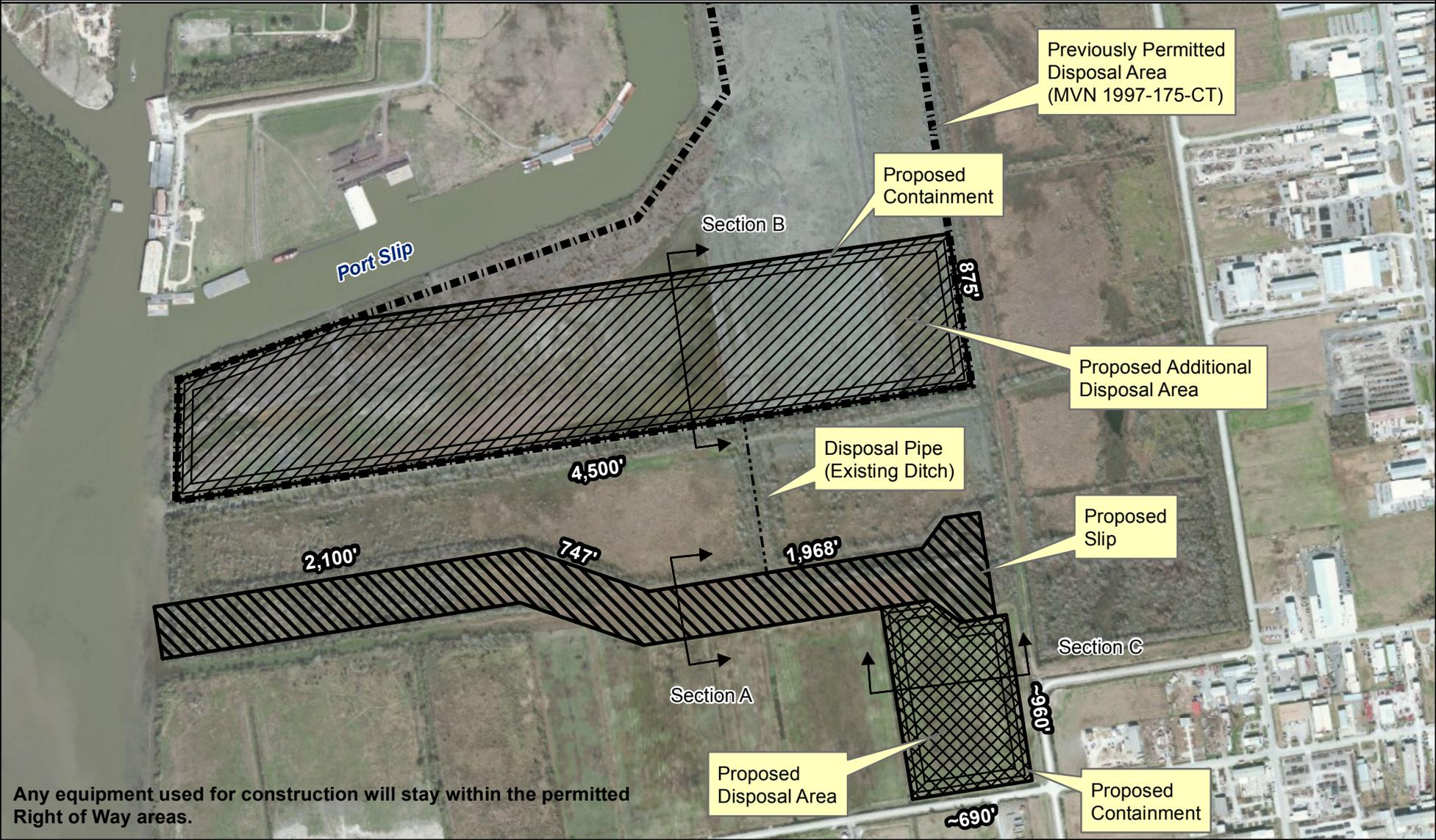
FIGURE
 NUMBER
 1 OF 4

**PROPOSED SLIP
 PHASE 1 - LOGAN'S SLIP
 SECTION 12, T17S-R17E
 TERREBONNE PARISH, LA**



Shaw Coastal, Inc.
 (A CB&I Company)
 197 Elysian Drive
 Houma, Louisiana 70363

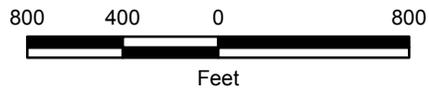
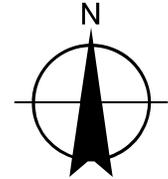
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Any equipment used for construction will stay within the permitted Right of Way areas.

Legend

-  Proposed Slip (35 acres)
-  Disposal Area (16 acres, ~75,000 cubic yards)
-  Additional Disposal Area
-  Permitted Disposal Area



PORT OF TERREBONNE
HOUMA, LA

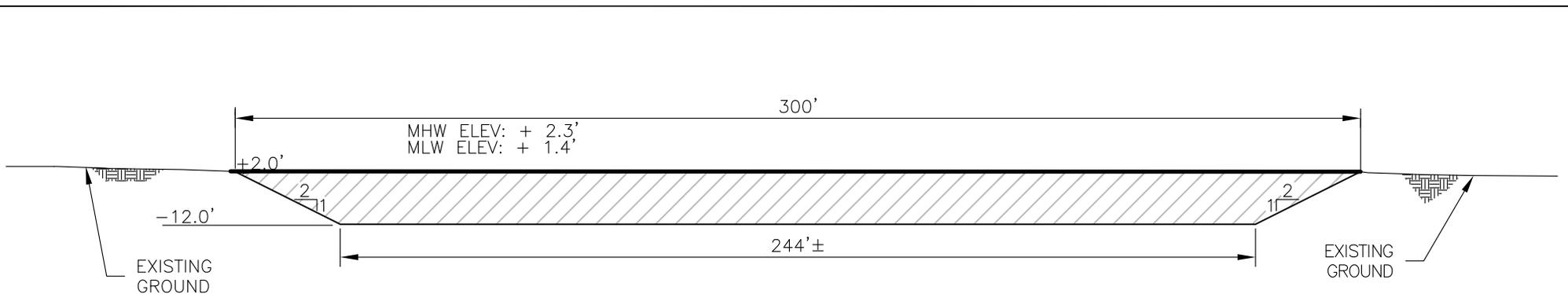
PLAN VIEW

FIGURE NUMBER
2 OF 4

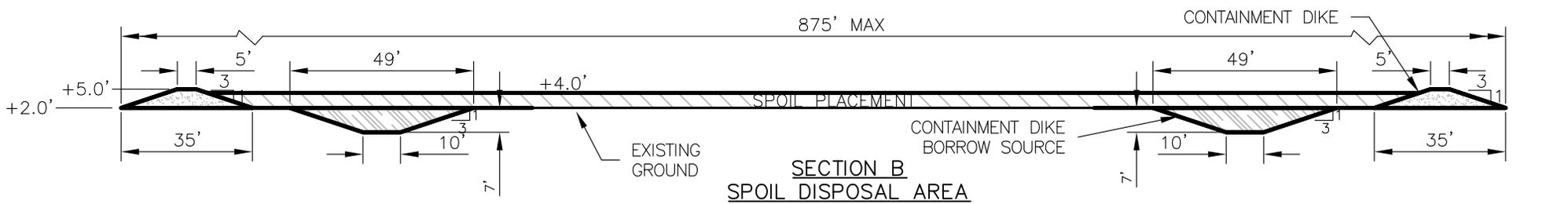
**PROPOSED SLIP
PHASE 1 - LOGAN'S SLIP
SECTION 12, T17S-R17E
TERREBONNE PARISH, LA**



Shaw Coastal, Inc.
(A CB&I Company)
197 Elysian Drive
Houma, Louisiana 70363



SECTION A
SLIP TYPICAL SECTION



SECTION B
SPOIL DISPOSAL AREA

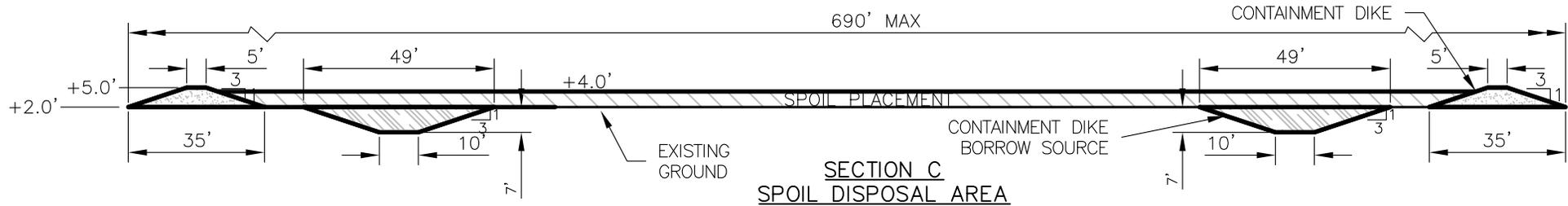
TYPICAL SECTION

PORT OF TERREBONNE
PROPOSED SLIP EXPANSION
PHASE 1 - LOGAN'S SLIP
SECTION 12, T17S-R17E
TERREBONNE PARISH, LOUISIANA

Date: 03/18/14	Drawn By: CDL	Sheet No.: 3 of 4	Revisions:	
Scale: NTS	Approved By: ST	File No.: 144025	No.:	Date:



Shaw Coastal, Inc.
(A CB&I Company)
197 Elysian Drive
Houma, LA 70363



NOTES:

1. APPROXIMATELY 38 ACRES OF WETLANDS AND 13 ACRES OF WATERBOTTOMS WILL BE IMPACTED BY THIS ACTIVITY.
2. APPROXIMATELY 570,000 CUBIC YARDS OF MATERIAL WILL BE DREDGED FROM THE PROPOSED SLIP AND DEPOSITED IN THE PROPOSED DISPOSAL AREA AND THE PREVIOUSLY PERMITTED DISPOSAL AREA (MVN 1997-174-CT).
3. APPROXIMATELY 52,000 CUBIC YARDS OF MATERIAL WILL BE USED FOR CONTAINMENT DIKES.

TYPICAL SECTION

PORT OF TERREBONNE
 PROPOSED SLIP EXPANSION
 PHASE 1 - LOGAN'S SLIP
 SECTION 12, T17S-R17E
 TERREBONNE PARISH, LOUISIANA

Date: 03/18/14

Drawn By: CDL

Sheet No.: 4 of 4

Revisions:	
No.:	Date:
1	04/30/14

Scale: NTS

Approved By: ST

File No.: 144025



Shaw Coastal, Inc.
 (A CB&I Company)
 197 Elysian Drive
 Houma, LA 70363

PROPOSED PHASE 1 SLIP EXPANSION (LOGAN'S SLIP)

***REVISED Mitigation Plan
Terracing South of Falgout Canal
CUP # P20140445
COE # MVN 2014-00917-WPP***

Prepared for

***Terrebonne Port Commission
2503 Petroleum Drive
Houma, LA 70363***

By

***CBI, Inc.
197 Elysian drive
Houma, Louisiana 70363***

CBI Project No. 144025

October 2015

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1.0 Introduction

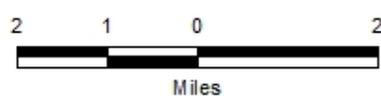
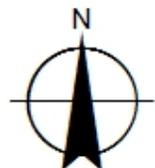
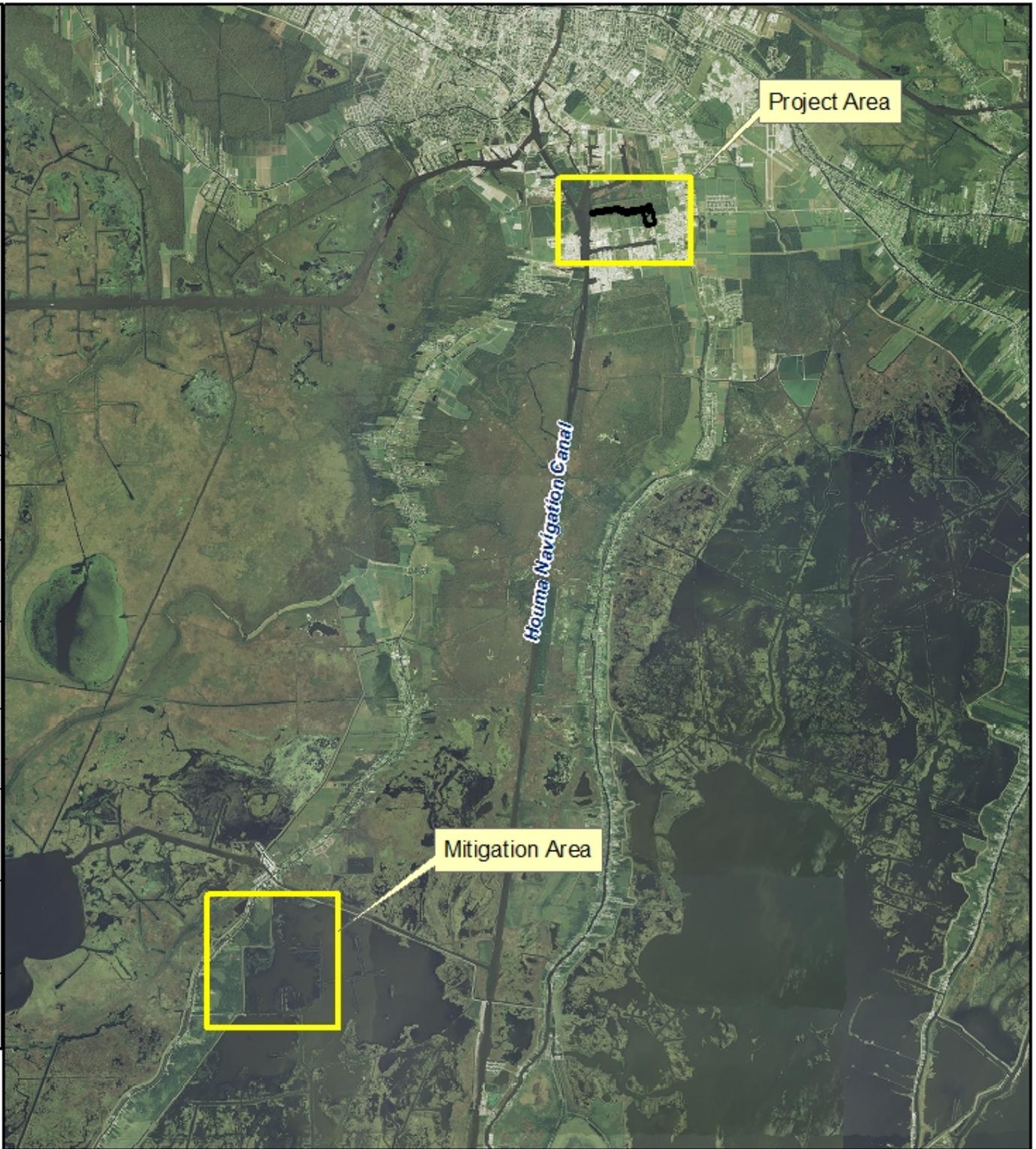
Terrebonne Port Commission (TPC), the permittee for MVN 2014-00917-WPP, is proposing to excavate a new slip within the Port of Terrebonne to expand the Port's industrial complex. The proposed slip will not only benefit the Port of Terrebonne, but also the adjacent landowners by encouraging future private development in conjunction with the industrial development within the Port of Terrebonne. The proposed slip will create approximately 10,355 linear feet of new waterfront development for the area. The construction of the slip will impact 28 acres of fresh marsh and 8 acres of bottomland hardwoods habitat. This Mitigation Plan (MP) is proposed to compensate for the unavoidable impacts.

This plan is referred to as the "Terracing South of Falgout Canal" project. The project vicinity of the slip and MP site is detailed in Figure 1. This plan proposes to expand on the current terracing mitigation plan for Terrebonne Levee and Conservation District's (TLCD) Reach E Levee permitted under MVN 2011-01090-WPP and P20110522. The mitigation plan shall result in the creation of 64 acres of terraces. Objectives, site considerations, a work plan, existing conditions, credit determination methods, a site protection instrument, performance standards, monitoring and long term performance assurances are presented. This plan was developed so that regulatory and resource agencies can review and provide comments. Upon approval of this plan and accompanying permit, design activities will be implemented in an effort to construct the mitigation project concurrently with TLCD's mitigation project.

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Figure 1

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REFERENCE:

TERREBONNE PORT COMMISSION
HOUMA, LOUISIANA

TERRACING SOUTH OF FALGOUT CANAL

FIGURE NUMBER
1

VICINITY MAP

**MVN 2014-00917-WPP
P20140445**



Environmental & Infrastructure, Inc.
(A CB&I Company)
197 Elysian Drive
Houma, Louisiana 70363

2.0 Avoidance and Minimization

An exercise with a sequence of three phases: avoidance, minimization, and compensation was carried out as part of the mitigation process to eliminate or reduce the adverse impacts associated with this project by reviewing the slip location and alignment. In the initial phase of our review, we attempted to avoid adverse impacts to the environment. In the second phase of our review we attempted to minimize, to the maximum extent practicable the adverse impacts of the project by fully reviewing the environmental conditions of the project area and evaluating alternative construction techniques in an attempt to reduce the overall total direct impacts.

Based on our review, it was determined that adverse impacts could not be avoided. The unavoidable impacts associated with the project will be compensated through approved mitigation.

The expansion of the Port on its existing non-wet property is not an option due to the lack of currently available resources. Walter Land Company, by Act of Donation, has agreed to transfer 284 acres of property to the Port. A provision of this donation agreement requires the Port to permit and construct a slip, known as Logan Slip, at the proposed location, and if the Port fails to permit and construct the slip within five (5) years, Walter Land Company has the option to revoke the Act of Donation. With that being understood, the Port has listed Logan Slip as their top priority and Phase 1 project in their Master Plan.

The addition of this slip to the Port would continue the economic growth of Terrebonne Parish and the State of Louisiana. This will allow for potential expansion of the LA SHIP industrial complex, along with other potential port tenants. In our rapidly growing local and state economy, which is largely influenced by the expansion into deep water oil & gas exploration, the need for industrial, waterfront property is continuous and these locations are extremely limited.

Regarding the size of the proposed slip, as a part of the expansion of the Port, and in the best interests of navigation along this dead end slip, the proposed width is necessary. Barges, tug

boats, and other marine vessels will be moored and docked along the slip, and a 300' wide slip will allow the safe passage of two-way vessel traffic.

3.0 Objectives

3.1 Proposed Action

TPC is proposing to construct the proposed slip by dredging approximately 570,000 cubic yards of material which will be placed adjacent to the slip (Figure 2). Approximately 36 acres of wetland will be directly impacted by this activity. (Table 1).

3.2 Determination of Credits

The proposed project impacts a total of 28 acres of marsh and 8 acres of bottomland hardwood impacts. A ratio of 1:1.794 was assumed to obtain the compensatory mitigation project acreage of the marsh habitat. Once this report is reviewed and the Wetland Value Assessment and MCM are complete, it will determine if the proposed terracing is adequate to compensate for the wetland impact. Impacts to the 8 acres of bottomland hardwood habitat will be mitigated for through the purchase of credits from a State- and Corps-approved mitigation bank. Credits required for adequate mitigation will be determined through the Louisiana Department of Natural Resources Office of Coastal Management (OCM) Wetland Value Assessment and the U.S. Army Corps of Engineers, New Orleans District (USACE) Ratio Method.

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Figure 2

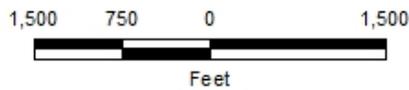
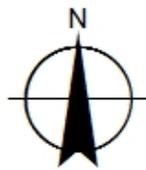
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REFERENCE:

TERREBONNE PORT COMMISSION
HOUMA, LOUISIANA

TERRACING SOUTH OF FALGOUT CANAL

FIGURE NUMBER

2

SLIP LOCATION MAP

MVN 2014-00917-WPP
P20140445



Environmental & Infrastructure, Inc.
(A CB&I Company)
197 Elysian Drive
Houma, Louisiana 70363

Table 1 Levee Impact Calculations

Construction	Dredge Required (Cubic Yards)	Right-of-Way Impact			
		Bottomland Hardwoods (acres)	Marsh (acres)	Open Water (acres)	Total Impact not including water (acres)
Logan Slip	570,000	8	28	14.9	36

Mitigation	Fill Material Required (Cubic Yards)	Mitigation Proposed				Total Mitigation Platform Area (acres)
		Bottomland Hardwoods (acres)	Terrace Creation (acres)	Marsh Impact (acres)	Marsh Creation for Construction Impacts (acres)	
Marsh Mitigation Plan	600,000	0	64.6	0	0	64.6

3.3 Mitigation Objectives - Terraces

The mitigation project proposed consists of construction of earthen terraces located south of Falgout Canal. The objective of this mitigation proposal is to create a terraced marsh system complex that will result in a diversity of emergent marsh, shallow water habitat, and marsh edge. The project will be consistent with the recently approved Reach E Levee Mitigation project and provide synergy to the area.

These constructed terraces should provide stable substrate for the growth and development of native vegetation and be functional for wildlife and fisheries resources, have long-term sustainability, and have low maintenance costs. Specifically, TPC would like to create a terrace complex in a protected area with reduced wave fetch for resiliency and longevity. Additionally, the system should have access for estuarine dependent species.

Engineering and environmental criteria including impacts, cost, constructability, and maintenance were considered to develop the proposed compensatory mitigation plan. The mitigation needs to be cost effective and easily constructible. Additionally, the plan should take advantage of existing, minimally invasive, technology so as to reduce the costs.

4.0 Terrace Creation Site Selection

The proposed slip to be excavated is located along the eastern bank of the Houma Navigation Canal (HNC) in the lower Terrebonne Hydrologic Basin. Due to its surroundings being largely urbanized, the siting of a near-site, fresh marsh mitigation project would be impractical. The nearest reasonable location to establish a fresh marsh mitigation site would be in the upper Lake Boudreaux Basin. The northern portions of the Lake Boudreaux Basin, which have historically boasted pristine cypress and other fresh wetland species, have, however, become increasingly saline over the past few decades. Due to the uncertainty surrounding restoration efforts of the Coastal Wetlands Planning, Protection, and Restoration Act (CWPPRA) North Lake Boudreaux Freshwater Introduction and Hydrologic Management Project (TE-32a), which will be constructed in tandem with a planned Terrebonne Parish Consolidated Government forced drainage levee project, we feel it would not be prudent to attempt to site a mitigation project in this area, for which the Terrebonne Port Commission (TPC), a public entity, would be responsible for a period of twenty years. After the establishment and proven success of a viable freshwater introduction project in this portion of the basin, TPC may be interested in considering the area for future mitigation projects. At this time, however, attempting to establish a fresh marsh mitigation site located approximately five miles away from the impacted area, and in an increasingly saline environment is too risky of an investment for public funds.

Crossing over to the western side of the lower Terrebonne Hydrologic Basin, similar lack of mitigation opportunities is evident. The northern portion of the basin, located between Bayou Dularge and the HNC, is a fairly healthy mixture of densely vegetated freshwater forested/shrub wetland and freshwater emergent wetland. The northernmost reasonable opportunity to site a mitigation project in this area would be the expanding open water areas north of Falgout Canal. Currently, however, this area, much like the northern Lake Boudreaux Basin, is also becoming increasingly saline. Terrebonne Parish Consolidated Government is currently pursuing a freshwater introduction project through the Coastal Impact Assistance Program (CIAP) to combat this intrusion effect. Modeling efforts associated with this project show the increased salinity trend mentioned above. The problem with siting a mitigation project in this area is that the CIAP project will not have been constructed in a timely enough manner to afford any

mitigation project—now required by the Corps of Engineers to be constructed concurrently with associated permitted activities—adequate time to establish itself before experiencing the debilitating effects of northward isohaline migration in the area.

The Bayou Terrebonne Mitigation Bank is the nearest option to the project with fresh marsh credits available for purchase. Because this mitigation bank lies outside the same Environmental Management Unit as the proposed permitted activities, it is not the ideal situation to compensate for the loss of wetland function due to the proposed activities. Because the project and associated mitigation will be constructed using public funds, TPC wishes to make every effort to ensure that the mitigation project occurs within Terrebonne Parish, as near to the project site as possible, while still ensuring project success. For this reason, we hold that the originally proposed mitigation site is the best alternative, given the associated circumstances.

TPC is a political Subdivision of the State of Louisiana and has a fiduciary responsibility to the tax payers of Louisiana to ensure that all expenditures are made responsibly. In reviewing options available for mitigation, TPC considered a wide range of criteria such as protection of the environment, quality of life, protection of life and limb, water quality, coastal erosion, and the protection and sustainability of its jurisdiction.

The Terrebonne Levee and Conservation District (TLCD) has been working diligently to protect all wetlands and water bottoms located inside the lower Terrebonne Hydrologic Basin through the construction of the Morganza to the Gulf hurricane protection system. TPC believes that because the survival of the entire lower basin is contingent upon the success of this hurricane protection system, this mitigation plan has the largest benefit to the basin from the impacts caused by this project, due to the fact that it not only mitigates for impacts from our proposed activities, but also serves as a wave attenuation feature south of Reach E of the Morganza to the Gulf system, reducing wave action

The plan maximizes the benefits to the environment and water quality by protecting these emerging levees that will serve as a barrier to coastal erosion. By enhancing the TLCD's mitigation efforts, TPC will be part of a system that will not only protect residences and

businesses, but also, due to the Morganza to the Gulf system's ability to allow for hydrologic exchange under non-storm conditions, will serve to buffer fragile inland wetland areas from devastating storm surge, enhancing quality of life for both people and wildlife. The combined impact of TLCD's and TPC's mitigation efforts will ensure sustainability of TPC's jurisdiction.

5.0 *Mitigation Plan*

The proposed mitigation plan will utilize approximately 600,000 cubic yards to create 64.6 acres of terraces. The terraces will create a marsh platform and also decrease further loss of wetland acres caused by shoreline erosion by dampening wind and wave energy. Terraces will be created by using existing bay bottom sediment to form a baffle system of ridges at marsh elevation after settlement. Terraces will be constructed in a staggered gap formation to minimize fetch and promote transport of aquatic organisms. A long-armed excavator mounted on a marsh buggy will excavate approximately 5 feet into the substrate. The dredged material will be placed on top of the adjacent bottom forming the terrace, the top of which will be at an elevation of 5.0 foot NAVD 88 with a 25 ft-wide berm and a top width of 10 feet, which will settle to 2.5 foot NAVD 88, level with the marsh surface after approximately five years of settlement. Post settlement elevations will be maintained at a minimum 45 foot wide marsh platform between 0.5 foot and 2.5 foot NAVD 88. When possible, excavation of the terraces will be on alternating sides in order to avoid creating continuous canals which could cause increased scouring. Gaps will be placed between terraces in order to facilitate the settling of suspended soil particles. A cross section of the typical terraces is shown on Figure 4.

Spartina alterniflora (smooth cordgrass) will be planted on 10' foot centers on the mean high water and mean water lines on both sides of each terrace, at approximately 2.0 foot NAVD 88 and 1.25 foot NAVD 88 in elevation. The marsh grass is expected to cover the terraces fairly quickly, and then spread into the shallow areas around the terraces over the course of ten years. The terraces themselves will provide additional wildlife habitat, and the shallow, vegetated areas around them will provide fisheries habitat. The terraces will stop or decrease shoreline erosion and provide platforms for plant growth as well as trap sediments. This project will convert areas of open water back to vegetated marsh as well as compliment the fresh water introduction provided by the environmental structures in this project.

Figure 3 rev

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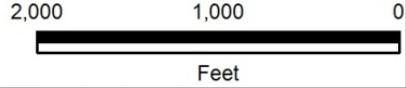
Legend

Proposed Terraces

- Borrow Area
- Terrace
- Terrace Centerline (62.600')

Reach E Terraces

- Borrow Area
- Terrace
- Terrace Centerline
- Reach E Alignment



TERREBONNE PORT COMMISSION

PROPOSED SLIP

FIGURE NUMBER
3

MITIGATION TERRACING PLAN VIEW

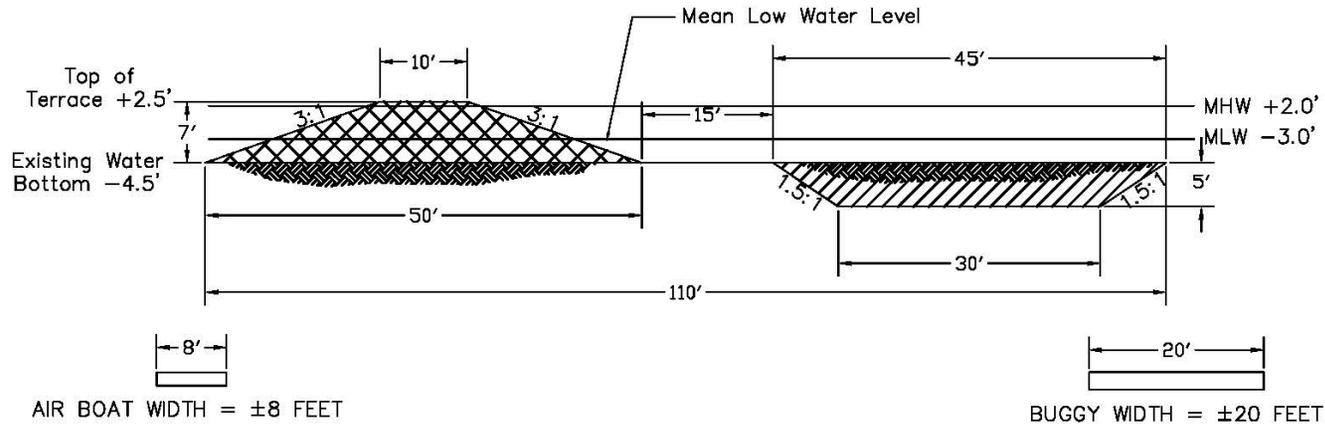


Environmental & Infrastructure, Inc.
197 Elysian Drive
Houma, LA 70363

VIC AD1144025 Logan Slip - General Eng/Permit/Mitigation Figures/Figure 3 rev.mxd; Analyst: ben.holt; Date: 6/25/2015 10:55:28 AM

 PROPOSED EXCAVATION
 PROPOSED FILL

MHW 2.0'
 MLW -3.0'



NOTE: AFTER SETTLEMENT +2.5'

TYPICAL CROSS SECTION

TERREBONNE PORT COMMISSION
 PROPOSED SLIP
 MITIGATION TERRACING
 TERREBONNE PARISH, LOUISIANA

Date: 12/16/14	Drawn By: CDL	Sheet No.: 4
Scale:	Approved By: DM	File No.: 144025

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No.:	Date:



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6.0 *Baseline Information*

The marsh type in this area would be classified as brackish/intermediate marsh experiencing deterioration to open water in majority of the areas. The site is characterized by shallow open water and remnant areas of degraded marsh. Open water comprises the majority of the proposed compensatory project site with some existing emergent wetlands. The area is and has been historically water of the U.S. with adjoining jurisdictional wetlands.

The wetland vegetation is consistent throughout the project area. The dominant plants in the area are wiregrass (*Spartina patens*), oystergrass (*Spartina alterniflora*), saltgrass (*Distichlis spicata*), hog cane (*Spartina cynosuroides*), three cornered grass - (*Schoenoplectus americanus*), leafy three – square (*Schoenoplectus robustus*), and black needle rush (*Juncus roemerianus*).

7.0 Site Protection Instrument (ownership arrangement)

CBI and TPC are currently in the process of coordinating the landowner agreements and servitudes on the proposed mitigation area. A conservation servitude (20 year) would be placed on the selected mitigation project to ensure long term protection of all lands included in the mitigation project. The servitude would be binding to and run with the title of the property. The servitude specifically prohibits certain activities (dumping, filling, etc.) that will reduce the quality of wetlands. The servitude will specify permissive activities such as hunting, fishing, recreational use, and mineral exploration, provided that the activity may not negatively affect the functions and values of the restored wetlands. Any negative impacts to the area from permissive activities will require permitting and subsequent mitigation for adverse impacts.

8.0 Performance Standards

8.1 Success Criteria

The goal of this mitigation plan is to establish a brackish/intermediate marsh habitat that meets the performance standards detailed in the USACE Attachment C: Mitigation Work Plan for Marsh Habitat. Success criteria for this project will be monitored through assessments conducted at years one, five, ten, and twenty, following initial construction.

1. Initial Success Criteria – Year One

- a. All mitigation work as described has been completed and the As-Built Reports regarding this work were submitted to the CEMVN within 60 days of completion or, if different, as per the requirements of the permit for this work.
- b. The average of the measurements from the post construction elevation survey in the As-Built Report is at or above the initial target construction elevation and a minimum of 80% of the site is within 6 inches of the initial target construction elevation. Resource agencies will review the Sponsor's proposed initial construction elevation, but it will be the Sponsor's responsibility to select the initial construction elevation based on the desired post compaction elevation of 2.5 foot NAVD 88.
- c. Planting has been completed per the requirements of this MWP.
- d. All permanent transects, elevation survey plots, and vegetative plots have been established.

2. Interim Success Criteria - Years Five and Ten

- a. Wetland vegetative coverage, determined from the interim success criteria monitoring event, is 80% of the target settled marsh elevation identified in the MWP. The species composition and diversity at this time are consistent with the intended community described in this MWP and contain less than 3% invasive/exotic species and less than 20% open water areas.
- b. The average of the elevation survey measurements taken from the site during the interim success criteria monitoring event, conducted per the requirements of the

MWP are at or above the terrace targeted settled marsh elevation and a minimum of 80% of the site is within 6 inches of the identified targeted settled elevation range (e.g., +2.5 ft NAVD88 +/- 6 inches).

3. Long Term Success Criteria – Year Twenty

- a. The average of the elevation survey measurements taken from the site during the long-term success monitoring event, conducted per the requirements of the MWP are at or above the terrace targeted settled marsh elevation and a minimum of 80% of the site is within 6 inches of the targeted settled marsh elevation identified in this MWP.
- b. Based on the vegetative data collected during the long-term monitoring event, per the requirements of the MWP, the vegetative coverage is 100% on the terrace targeted settled marsh elevation, identified in this MWP. In addition, the species composition determined at that time is comparable to the intended vegetative community described in this MWP and contains less than 3% invasive/exotic species.
- c. Observed use of restored and/or enhanced marsh by wildlife species typically found in natural marsh habitats of similar salinity regimes.

These criteria will be used to evaluate the performance of the mitigation plan. Performance against these metrics will be reported in the mitigation monitoring reports.

8.2 Maintenance and Adaptive Management Plan

Fill Material Elevations and Area:

1. Initial Success Criteria – Year 1

Should the initial placement of dredged material not meet the 80% target construction elevation or aerial coverage, the Sponsor shall either deposit additional material or redistribute existing material as necessary to achieve the target percentage and aerial coverage.

2. Interim Success Criteria – Years 5 & 10

If less than 80% of the terrace creation area contains emergent vegetation (predominantly FAC or wetter designation) then the Sponsor shall be required to plant these areas until a minimum of 80% coverage has been achieved through a complete growing season. Should it be decided that such measures are necessary, the location and extent of vegetative plantings will be determined in consultation with, and with the approval of, the natural resource agencies.

3. Long Term Success Criteria – Year 20

If less than 100% of the marsh creation area contains emergent vegetation (predominantly FAC or wetter designation), then the Sponsor may be required to plant these areas so that the extent of marsh coverage is at minimum 75% at year 20. Should it be decided that such measures are necessary, the location and extent of vegetative plantings will be determined in consultation with, and with the approval of, the natural resource agencies.

9.0 *Mitigation Performance Monitoring Plan*

The performance of the proposed mitigation project will be monitored by conducting site visits as well as spatial analysis to determine project performance in accordance with the established success criteria. The monitoring schedule will commence following the time-span after construction of the terraces is completed: As-Built Report within 30 – 60 days, one year (Initial Success Monitoring – Year 1), five and ten years (Interim Success Monitoring – Years 3 and 10), and twenty years (Long Term Monitoring – Year 20). The calculations will be performed by using Geospatial Information Systems (GIS) software to examine USGS Digital Ortho Quarter Quadrangles for changes in land vs. water ratios within the project area. An “As Built” report as well as a monitoring report will be submitted to the regulatory stakeholders (USACE, USFWS, NMFS, LDNR, LDWF, and EPA) in a format to be determined. The general monitoring provisions are as follows:

Monitoring Provisions

1. TPC agrees to perform all necessary work to monitor the project to demonstrate compliance with the success criteria established in this MWP. The monitoring program shall follow the guidelines established below:
 - a. Visual Description. Visual descriptions shall be provided with each monitoring report by one of the following means:
 - i. Located adjacent to each vegetation plot [permanent markers shall be established to ensure that the same locations (and view directions) are monitored in each monitoring period], or
 - ii. One color aerial photograph (8" x 10" or larger) depicting the entire site. An aerial photograph should be taken once the site has been constructed and stabilized (preferably in the 3rd year following completion of initial work).

b. Vegetation.

- i. TPC shall establish vegetation monitoring plots at end of construction, and shall conduct a survey of each plot at or near the end of the first growing season following construction. Vegetation monitoring shall be conducted in accordance with an accepted academic or industrial sampling methodology. The Sponsor shall also perform a cursory examination of all terraces to determine if overall survival is adequate.
- ii. TPC shall provide a written report to the CEMVN indicating the number and percentage of surviving plants. In addition to plant material survivorship, the report shall describe the vegetative communities developing within and the overall condition of the entire project by determining:
 1. Dominant vegetation species;
 2. A coverage assessment;
 3. The number and species rated FAC or wetter (excluding FAC-) growing in wetlands (total and #/acre);
 4. The percentage of dominant species FAC or wetter (excluding FAC-); and
 5. An invasive/noxious species assessment.
- iii. The report shall describe the general condition of the vegetation, and discuss likely causes for any observed mortality within those tracts that did not exhibit a plant survival rate of those listed in the Success Criteria.
- iv. Upon confirmation by the USACE and LDNR that the project is progressing as predicted, TPC shall establish permanent continuous monitoring plots that account for at least 2 % of the total vegetated area. Those plots shall be established in a manner that is representative of the vegetation. A permanent marker shall mark each plot center. TPC shall document the species and percentage coverage by species within each plot. TPC will begin monitoring the vegetation plots and submit monitoring reports to the USACE and LDNR at required intervals.

- c. Site Elevation. TPC shall provide a topographic survey with elevations shot along the each terrace established for determining plant survivorship. Surveys should be included in monitoring reports for years 1, 5, 10 and 20.
- d. Timing.
 - i. Monitoring shall be conducted during the growing season following years 1, 5, 10, and 20.
 - ii. Monitoring for the first year or any year following construction shall take place between September and November;

Monitoring Reports.

1. Upon achievement of the initial success criteria, TPC shall document the results of this monitoring in a report submitted to the CEMVN and copies to each member of the natural resource agencies. Additional reports will be submitted following years 1, and 7.
2. The reports shall contain a description of the conditions of the project relating those conditions to the success criteria and shall contain the following;
 - a. An aerial photograph (only in report submitted after the 5th, 10th, or 20th year) taken during the growing season, depicting a completed tract of the project with the photo date and approximate scale noted;
 - b. Ground level photographs;
 - c. A detailed narrative summarizing the condition of the project and all regular maintenance activities;
 - d. A drawing based upon the site plans that depicts field measured topography, sampling plots and permanent photo stations;
 - e. Results of vegetation survey including visual estimates of percentage (%) overall cover and % cover by each species, % exotic vegetation, total % “facultative” and

total % “upland” species in each vegetation layer, survival rate of vegetation, an estimate of natural re-vegetation, and a qualitative estimate of plant vigor as measured by evidence of reproduction; and

3. If Year 1 success criteria is obtained, but all performance criteria have not been met in the 2nd year, a monitoring report shall be required for each consecutive year until two annual sequential reports indicate that all criteria have been successfully satisfied (i.e., that corrective actions were successful).
4. Reports will be submitted by December 31 of each monitoring year.
5. Monitoring reports shall be provided to the USACE and made available to other members of the natural resource agencies upon request.

10.0 Financial Assurances and Long Term Protection

TPC is the party responsible for long term management. TPC will provide a Financial Assurance letter guaranteeing the successful implementation and monitoring of this mitigation project.

11.0 Evaluation of Benefits

The mitigation plan will create and revitalize a marsh system complex through the construction of terraces with a diversity of marsh habitat: marsh, marsh edge, and shallow water habitats. This plan will protect areas east of the existing levee system and south of Falgout Canal that are in desperate need of marsh habitat. The goals of the proposed mitigation plan is to: establish protective marsh terraces and vegetation, create productive fish and wildlife habitat, reduce water level variability and wave fetch, protect levee function and increase storm surge attenuation. Once the mitigation project has been completed it will improve the habitat quality of the area; provide food, access, and cover for native wildlife, wading and migratory waterfowl, pelagic and demersal nekton as well as benthic flora and fauna.

12.0 Project Cost

The mitigation project involves engineering design, permitting, mobilization and demobilization of equipment, placement of material using a long armed excavator, and project monitoring over a twenty year period.

Table 2: Project Cost

Mobilization\Demobilization (Long Armed Excavators)	\$500,000
Dredging (600,000 cubic yards at \$6/yd ³)	\$3,600,000
Construction Total	\$4,100,000
Contingency (25 % of Construction Total)	\$1,025,000
Project Representative (10 % of Construction Total)	\$410,000
Engineering and Design (10 % of Construction Total)	\$410,000
Monitoring and Reporting	\$90,000
Total	\$6,035,000

13.0 Project Monitoring Cost

The project area will be monitored, over a twenty (20) year life cycle to measure the performance of the project. USGS Quarter Quadrangle Aerial photographs of the project area will be geospatially analyzed using ArcGIS (or compatible) software to determine the amount of visible wetlands habitat created within the project area versus the open water in the project area. The target Post-Construction analysis and surveys will be performed to establish a baseline to measure future project performance. This monitoring scheme will facilitate adaptive management of this project.

Table 3: Monitoring Costs – Terrace Creation

Monitoring Costs	Amount
As-Built Survey	\$ 15,000
1 year	\$ 20,000
5 year	\$ 25,000
10 year	\$ 30,000
20 year	
Total	\$90,000

The total cost for project monitoring is estimated at \$90,000.

14.0 Recommendations

TPC recommends that the regulatory and resource agencies consider the proposed compensatory mitigation plan to compensate for the unavoidable impacts that will be created by the construction of this project. TPC believes that this plan will offset the unavoidable losses, yet be effective, practicable, and sustainable.