REGION 3

Coastal Wetlands Planning Protection & Restoration Act

22nd Priority Project List

Region 3

Regional Planning Team Meeting

January 25, 2012
Morgan City, LA

1. Welcome and Introductions

- RPT Region 3 Leader: Ron Boustany - NRCS

Announcements

- PPL 22 Selection Process Packages

- PPL 22 RPT meetings to accept project nominees:
  - Region IV, Vermilion LSU Ag Center, Jan. 24, 2012, 1:00 pm
  - **Region III, Morgan City Auditorium (W Concourse), Jan. 25, 2012, 9:00 am**
  - Region II, New Orleans Corps of Engineers, Jan. 26, 2012, 9:00 am
  - Region I, New Orleans Corps of Engineers, Jan. 26, 2012, 1:00 pm

- Coastwide Voting Meeting to select project nominees for all basins:
  - February 15, 2012, 10:00 am
  - LA Department of Wildlife and Fisheries, 2000 Quail Dr., Baton Rouge

- Parish representatives must identify themselves during the RPT meetings and **fill out a voting registration form**, including contact information for the primary and secondary voting representatives that will cast votes at the Coastwide Voting Meeting.

- CWPPRA agencies will be assigned responsibilities for preparing nominee fact sheets after the Coastwide Voting Meeting.

Region 3 Parishes

- Eligible parishes for basins in Region 3 include:
- Terrebonne Basin
  - St. Mary Parish
  - Terrebonne Parish
  - Assumption Parish
  - Lafourche Parish
  - Iberia Parish
  - St. Martin Parish
- Atchafalaya Basin
  - St. Mary Parish
  - Iberia Parish
  - Terrebonne Parish
- Tech-Vermilion Basin
  - St. Mary Parish
  - Iberia Parish

2. PPL 22 Process and Ground Rules

RPT Meetings

- Jan. 24-26, 2012 to accept project and demo proposals in 4 coastal regions broken into 9 basins (no limit on number of projects that can be proposed).
- Project proposals should support a Coast 2050 Regional or Coastwide Strategy.
- A project can only be nominated in one basin (except for coastwide projects – more info on coastwide projects after the following “RPT Meetings” slide).
- Proposals that cross multiple basins, excluding coastwide projects, shall be nominated in one basin only, based on the majority area of project influence.
- Coastwide projects apply across basin boundaries; their benefits are not tied to one basin. They can be nominated from any basin and can be presented in all RPT meetings.

RPT Meetings

- Project presenters can split multi-basin or coastwide projects into multiple individual projects. This must occur during the RPT meeting where the project is first presented. If a presenter does not choose a basin from which to propose a project, the RPT leaders, in conjunction with the CWPRPA Planning & Evaluation (P&E) Committee, will decide collectively after the RPT meetings but before the Coastwide Voting Meeting.
- Public comments on project proposals will be accepted orally during the RPT meetings and in writing by February 3, 2012.
- Limit project proposals to 3 to 5 minutes.
- Limit comments/questions during meeting to PPL 22 subject proposals and processes.

Coastwide Voting Meeting

- Feb. 15, 2012: Coastwide Voting Meeting
- RPTs, consisting of CWPPRA agencies & coastal parishes, will select 2 nominees per basin, except 3 each in Barataria, Terrebonne, & Pontchartrain, and 1 in the Atchafalaya, plus 6 demos. If proposed, 1 coastwide may be chosen for inclusion as a nominee.
- Selection will be by consensus if possible. If not, CWPPRA agencies and parishes will submit ranked votes by basin.
- Parishes vote only in basins they occupy. Parishes vote on all demonstration and coastwide projects.
- No public comments will be allowed during the Coastwide Voting Meeting (public comments will be heard today & written comments should be submitted by 2/3/2012 to the CWPPRA Program Manager, Mr. Brad Inman – POC details on next to last slide).

Nominee Project Evaluations

- Following the Coastwide Voting Meeting, an agency will be assigned to each project to prepare a Nominee Project factsheet (1 page + map).
- CWPPRA Engineering & Environmental Workgroups review draft features and assign preliminary cost and benefit ranges.
- Work groups will also review demo & coastwide projects and verify that they meet PPL 22 criteria.
- CWPPRA Planning and Evaluation Committee prepares cost/benefit summary matrix for Technical Committee.

PPL 22 Candidate Project Selection

- CWPPRA Technical Committee meeting, April 19, 2012 at 9:30 am, New Orleans District Corps of Engineers.
- Technical Committee ranks nominees and votes to select 10 candidate projects and up to 3 demos.
- Written public comments should be submitted to Corps of Engineers prior to Tech Comm meeting by April 2, 2012.
- Public comments also accepted orally during meeting.
- Technical Committee will assign CWPPRA agencies to develop Phase 0 candidate projects.

PPL 22 Candidate Project Evaluation

- Candidates evaluated between May and October
- CWPPRA Workgroups
  - Workgroups conduct site visits and meetings to identify needs and establish project baselines and boundaries.
  - Environmental Workgroup WVA meetings to calculate benefits.
  - Engineering Workgroup meetings to refine features and project costs.
  - Engineering and Environmental Workgroup meetings to develop demonstration project scopes and costs.
  - Economics Workgroup conducts economic analyses to develop fully funded cost estimates for 20 year project.

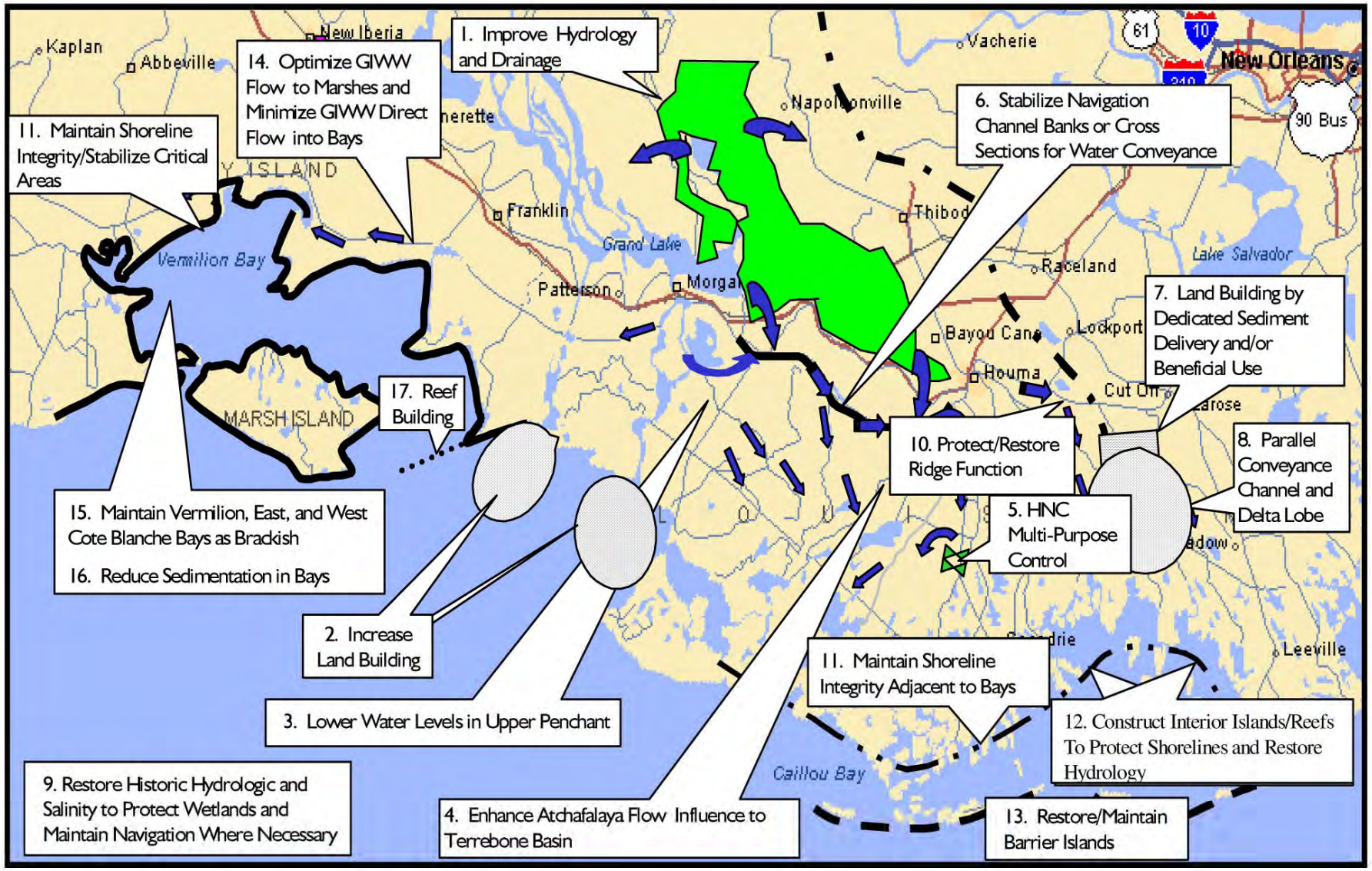
CWPPRA PPL 22 Selection

- 2 public meetings to present Phase 0 evaluation results:
  - Abbeville, Courthouse, Nov. 14, 2012, 7:00 pm
  - New Orleans, Corps of Engineers, Nov. 15, 2012, 7:00 pm
- Technical Committee votes to select up to 4 candidate projects and up to 1 demo to recommend for Phase 1.
  - Dec. 12, 2012, Baton Rouge, 9:30 am
- Task Force final decision to select PPL 22 in January 2013.

3. Region 3 Coast 2050 Regional Strategies

Coastwide 2050 Strategies

- Projects nominated should be consistent with the Coast 2050 Regional Ecosystem or Coastwide Strategies



Coast 2050 Region 3 regional ecosystem strategies.

4. PPL 22 Project Nominations

Coastwide Projects

- Proposes a technique applicable across the coast (e.g. vegetative planting)
- Nominated at any RPT meeting
- All coastal parishes & agencies will vote on selection of coastwide nominee
- Only one coastwide nominee may be selected from the coastwide nominee pool at the Coastwide Voting Meeting on February 15, 2012
- The Technical Committee may or may not select a coastwide project in April 2012.

Demonstration Projects

- Demonstrates a new technology
- Demonstrates a technology which can be transferred to other areas in coastal Louisiana
- Are unique and not duplicative in nature
- Engineering/Environmental Workgroups will validate that demos fit CWPPRA Standing Operating Procedures criteria and select sites for proposed demonstration projects.
- The RPTs select 6 demos at the Feb. 15 Coastwide Voting Meeting.
- The Technical Committee selects up to 3 demos in April 2o12.
- Previous demo candidates must be ***re-nominated*** for PPL 22.

5. Announcement of Coastwide Voting Meeting

Coastwide Voting Meeting

- **Feb. 15, 2012**: meet in Baton Rouge to choose 2 project nominees per basin (except will choose 3 in Barataria, Terrebonne, & Pontchartrain Basins and 1 in Atchafalaya basin). If only 1 project is nominated for Mississippi River Basin, 3 nominees will be assigned to Breton Sound Basin. Plus, 1 coastwide project and 6 demos may be selected.
- Parishes of each basin are asked to ***identify who will vote*** at the Coastwide Voting Meeting **TODAY**.
- No additional projects can be nominated after the RPTs.
- No significant changes to projects proposed at the first round of RPT meetings will be allowed (this includes combining projects).
- No public comments will be accepted at the Coastwide Voting Meeting (public comments will be heard today and written comments must be submitted by 2/3/2012).

Coastwide Voting Meeting

- Each officially designated parish representative, each Federal agency, and the State (CPRA) will have one vote.
- Voting will be by ranked vote.
- Each voting entity will be provided a ballot.
- Each voting entity will provide a ranked score for all projects – the highest ranking project will receive the highest vote and the lowest will receive a vote of “1”.
- Points will be totaled for all projects within each basin.

Coastwide Voting Meeting: Coastwide Category

- The two nominees per basin (three each in Barataria, Terrebonne & Pontchartrain Basins, three in Breton Sound Basin if only one in Mississippi River Basin, and one in Atchafalaya Basin) receiving the highest vote will be included in the list of 20 nominee projects. If a coastwide project is selected, the total will increase to 21 nominees.
- All demo projects will be voted upon in same manner with one coastwide ballot.
- 15 minutes will be allowed for voting in each basin as well as for demos and coastwide projects.

6. Announcements of Upcoming Meetings

PPL 22 Upcoming Meetings

- **Coastwide Voting Mtg, Feb. 15, 2012, Baton Rouge**
  - 20 basin-project nominees, 1 coastwide nominee, and 6 demos selected
- **Technical Committee Mtg, Apr. 19, 2012, New Orleans**
  - Selection of 10 candidates and up to 3 demos
- **PPL Public Comment Mtgs**
  - Nov. 14, 2012, Abbeville
  - Nov. 15, 2012, New Orleans
- **Technical Committee Mtg, Dec. 12, 2012, New Orleans**
  - Recommend up to 4 projects for Phase 1 funding
- **Task Force Mtg, Jan. 2013, New Orleans**
  - Final Selection of projects for Phase 1 funding

Written Comments

- Send written comments on projects & demos proposed today to the CWPPRA program manager
- **Deadline: February 3, 2012**

Brad Inman
CWPPRA Program Manager
U.S. Army Corps of Engineers
P.O. Box 60267
New Orleans, Louisiana 70160

Fax: 504-862-2572
(Attn: Brad Inman)

Email: Brad.L.Inman@usace.army.mil

ATTENDANCE RECORD

DATE	SPONSORING ORGANIZATION	LOCATION
January 25, 2012 9:00 A.M.	COASTAL WETLANDS PLANNING, PROTECTION AND RESTORATION ACT	Morgan City Auditorium 728 Myrtle Street Morgan City, LA

PURPOSE

MEETING OF THE REGIONAL PLANNING TEAM REGION III

PARTICIPANT REGISTER*

NAME	JOB TITLE AND ORGANIZATION	PHONE NUMBER/EMAIL
Whitney Thompson	CPE - Shaw	225-932-2568 whitney.thompson@shawgrp.com
Adrian Chavarria	EPA - Engineer	214-665-3107 chavarria.adrian@epa.gov
Chris Llewellyn	EPA · Scientist	214-665-7239 llewellyn.chris@epa.gov
Ron Boustany	NRCS ron.boustany@la.usda.gov	(337) 291-3067
Nathan Dayan	USACE - Biologist	504-862-2530
Chad Courville	Miami Corporation	337.264.1695
Paul Naquin	St. Mary Parish President	337-230 0374
KAREN WICKER	SR. V.P. COASTAL ENVIRONMENTS / SM ENERGY	225.383.7455 x 119
Rob Bourgeois	LDWF	225 765-0765
FRANCIS FIELDS	APACHE LA. MINERALS LLC	985-879-3528 francis.fields@apachecorp.com
Kodi Collins	CPRA	225-342-4106 Kodi.collins@la.gov
Sydney Dobson	CPRA	2253425374 sydney.dobson@la.gov
Bren Haase	CPRA	225-342-1475 bren.haase@la.gov
Cassidy Lejeune	LDWF	337-373-0032 Clejeune@wlf.la.gov
Todd Baker	LDWF	337 373 0032 tbaker@wlf.la.gov
David M. LEE	CPRA	985 · 447 · 0991 DAVID.LEE@LA.GOV
Kevin Voisin	St. Mary Parish Councilman	kjvoisin@atci.net
Kevin Roy	USFWS	337-291-3120 Kevin_roy@fws.gov
Robert Dubois	"	337-291-3127 robert_dubois@fws.gov
Bret Allain	State Senate	337-319-0677 bretallain@aol.net
Patrick Williams	NOAA/NMFS	225-389-0508 patrick.williams@noaa.gov
Phillip Parker	NOAA/NMFS	225-578-9341 phillip.parker@noaa.gov

LMV FORM 583-R
JAN 88

* If you wish to be furnished a copy of the attendance record, please indicate so next to your name.

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PARTICIPANT REGISTER*

NAME	JOB TITLE AND ORGANIZATION	PHONE NUMBER/EMAIL
Catherine Siracusa	Black Bear Conflict Officer St. Mary Parish Government	337-350-0608
Judge Edwards	Vermilion Corporation	337.893.0268
Sharrill Sagrera	Vermilion RLA	337 652 4436
J. P. Hebert	St Mary SWCD	337-828-1967
Mary Ann Hebert	" " "	" " "
Chris Allen	CPRA	225-336-9264
Kim Clements	NOAA/NMFS	225-389-0508
Tammy Luke	S.M.P.G.	337-828-4100
Lolland Broussard	USDA/NRCS	337-391-3069
Michael C Hubbard	Port of Morgan City	985-686-8391
Russell Waters	JMB	337 962 0139
Catherine Loupe	KWBJ News	news
Cindy Steyn	CUS, NRCS	225-389-0334
Edward Payton	St. Mary SWCD	337-319-0680
Jennifer Visser	ULL	337 482 6966
Mark Hester	ULL	504 237-1151
Mark Leadon	CPRA	225-342-1286
Kristin DeMarco	CPRA	225 342 4629
Stuart Brown	CPRA	225-342-4596
Jeff DeBlieux	ConocoPhillips	985-853-3009
Nic Matherne	Terrebonne Parish Govt	985-873-6881
Zahid Mohammed	CPRA	225-342-4746

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PARTICIPANT REGISTER*

NAME	JOB TITLE AND ORGANIZATION	PHONE NUMBER/EMAIL
Randy Moertle	McIlhenny Co.	985-956-3630
Ken Teague	EPA	214-665-6687
Kimberly Walden	THPO Chitimacha Tribe of LA	337-923-9923
Sophe Kilchrist	Admin Coordinator St. Mary Soil + Water Dist.	337-254-1902
ARCHIE CHAISSON	LAFOURCHE PARISH COURT	985-446-8427
Patra Ghergich	St. Mary SWCD	
Sophe Kilchrist	St. Mary SWCD	
Dan Hidalgo	St. Mary SWCD	

LMV FORM 583-R
JAN 88

* If you wish to be furnished a copy of the attendance record, please indicate so next to your name.

Region 3 – TECHE-VERMILION BASIN

Project Number	Project Proposals
R3-TV-01	South Little Vermilion Bay Terracing and Planting
R3-TV-02	Cote Blanche Island Shoreline Protection
R3-TV-03	Cote Blanche Freshwater and Sediment Introduction and Shoreline Protection
R3- TV-04	Southeast Marsh Island Marsh Creation
R3- TV-05	State Wildlife Refuge Shoreline Protection and Terrace

Region 3 – ATCHAFALAYA BASIN

R3-AT-01	West Wax Lake Wetlands Diversion

Region 3 – TERREBONNE BASIN

R3-TE-01	Bay Raccourci Marsh Creation
R3-TE-02	Falgout Canal Terraces
R3-TE-03	North Lake Boudreaux Marsh Creation and Shoreline Protection
R3-TE-04	Lake Tambour Marsh Creation
R3-TE-05	Terraces on Point aux Chene WMA
R3-TE-06	Grand Bayou Freshwater Enhancement/Introduction and Terraces
~~R3-TE-07~~	*Original proposed project was combined with R3-TE-06*
R3-TE-08	East Island Beach & Barrier Marsh Restoration
R3-TE-09	Timbalier Island Shoreline Sediment Nourishment
R3-TE-10	Marsh Creation on Point au Fer Island by Beneficial Use

R3-TE-11	Wine Island Restoration
R3-TE-12	North Catfish Lake Marsh Creation
R3-TE-13	Bayou Terrebonne Ridge Restoration
R3-TE-14	Bayou DuLarge Ridge Restoration
R3-TE-15	West Belle Pass Marsh Creation
R3-TE-16	Lake Decade Marsh Creation and Nourishment
R3-TE-17	Island Road Restoration

Region 3 – TECHE-VERMILION BASIN

R3-TV-01

South Little Vermilion Bay Terracing and Planting

R3-TV-01 (combined)

Region 3-RPT
PPL22 PROJECT NOMINEE FACT SHEET

January 25, 2012

Project Name:
South Little Vermilion Bay Terraces

Coast 2050 Strategy:
Region 3. #12. Maintain shoreline integrity and stabilize critical areas.

Project Location:
Region 3, Teche/Vermilion, Vermilion Parish, Northwestern portion of Vermilion Bay extending southward from TV-12 (Little Vermilion Bay Sediment Trapping).

Problem:
Continuous wind-wave energy in the bay is preventing sediments from the Gulf IntraCoastal Waterway through Freshwater Bayou and Schooner Bayou from becoming subaerial features, and is also responsible for shoreline erosion. Continued shoreline retreat in Vermilion Bay is threatening the integrity of Bay rim, which if compromised would expose surrounding marsh to open bay energies. In addition, several oil and gas canals within the project area would be opened to Vermilion Bay, if the shoreline were compromised.

Goals:
- Create approximately 26,000 LF of distribuary channels in Little Vermilion Bay.
- Create approximately 22,000 LF of earthen terraces (37 acres).
- Increase sediment deposition to create emergent marsh base.
- Abate wind-driven wave erosion along Vermilion Bay

Proposed Solutions:
This project features include the construction of a series of vegetated terraces to diminish waves in Little Vermilion Bay, helping to increase sediment deposition and reduce the rate of shoreline erosion. The pattern of channels would be dredged 100-feet wide and 6-feet deep to beneficially distribute sediment from the GIWW through the Freshwater and Schooner bayous. Dredged sediments would be used to construct 22,000 LF of earthen terraces.

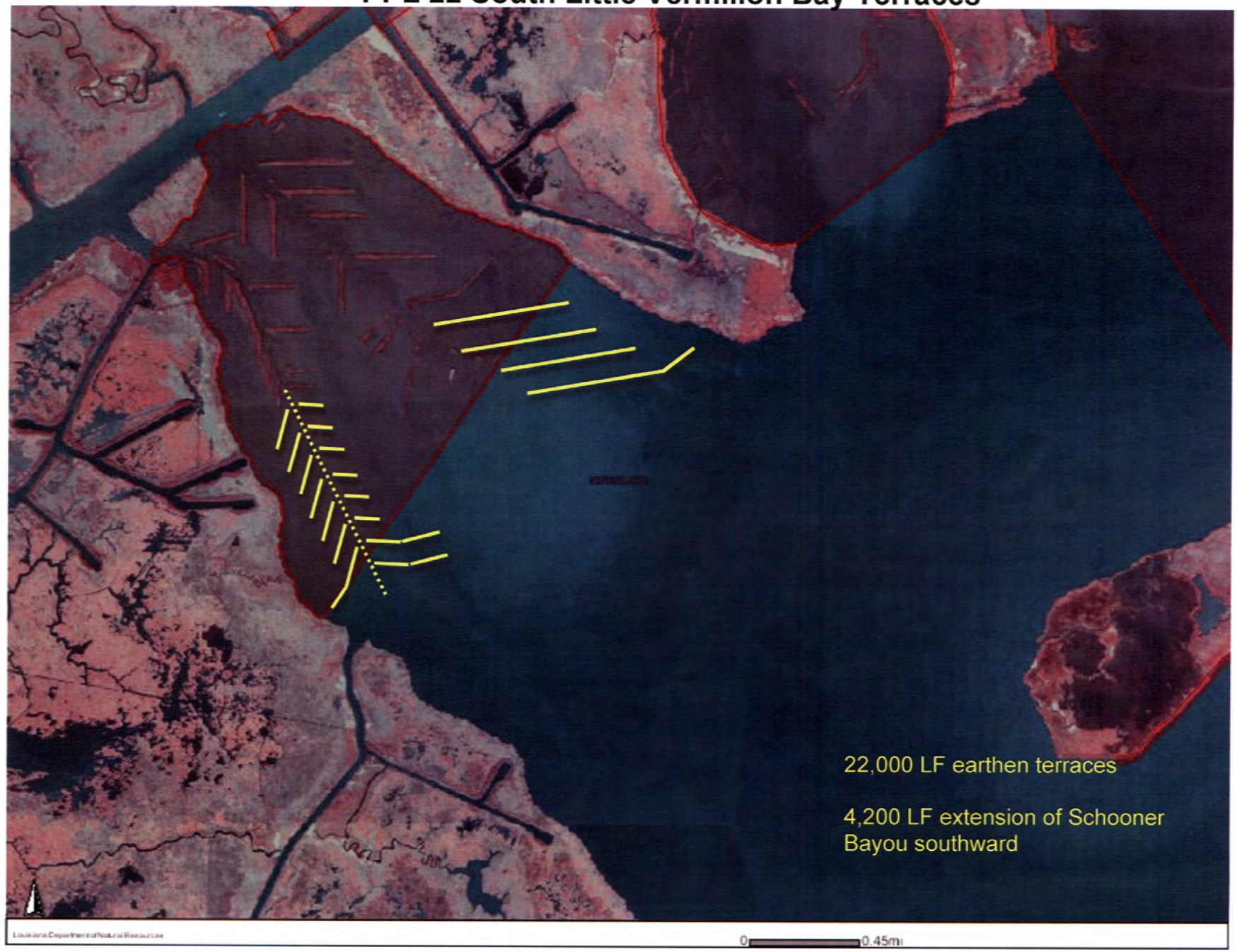
The bases of the terraces would be planted with 26,000 containers of smooth cordgrass (Spartina alterniflora).

Identification of Potential Issues:
Oil and gas infrastructure could be a potential issue. This area is also classified as an oyster seed ground.

Preliminary Construction Costs:
Estimated construction costs plus 25% contingency = $2.9M.

Preparer(s) of Fact Sheet:
John D. Foret. Ph.D., NOAA Fisheries Service, (337) 291-2107, john.foret@noaa.gov

PPL 22 South Little Vermilion Bay Terraces



R3-TV-01 (combined)

Region 3-RPT
PPL22 PROJECT NOMINEE FACT SHEET

January 25, 2012

Project Name:
Northwest Vermilion Bay Vegetative Planting and Maintenance (R3-TV-01)

Coast 2050 Strategy:
Region 3. #12. Maintain shoreline integrity and stabilize critical areas

Project Location:
Region 3, Teche/Vermilion, Vermilion Parish, Northeastern shore of Vermilion Bay extending from Mud Point, around Little Vermilion Bay to State Wildlife Refuge.

Problem:
Continued shoreline retreat in Vermilion Bay is threatening the integrity of Bay rim, which if compromised would expose surrounding marsh to open bay energies. In addition, several oil and gas canals within the project area would be opened to Vermilion Bay, if the shoreline were compromised. Continued shoreline retreat in Vermilion Bay is threatening the integrity of Bay rim, which if compromised would expose surrounding marsh to open bay energies. Comparing 1998 and 2007 photography of three locations within the project area estimated an average annual weighted shoreline loss of 3.77 ft/yr for this area.

Goals:
- Abate wind-driven wave erosion along Vermilion Bay
- Stabilize approximately 31,400 linear feet of bay shoreline through five years of intensive vegetative plantings
- Create approximately 11 acres of emergent marsh through the expansion of vegetative plantings

Proposed Solutions:
The TV-13a Oak/Avery Hydrologic Restoration project included 5.1 miles of vegetative plants along the north Vermilion Bay shoreline between Oaks and Avery Canals. In addition, Avery Island Inc. in conjunction with the Natural Resource Conservation Service (NRCS) has been planting the north shore of Vermilion Bay with smooth cordgrass (Spartina alterniflora) since 1990. The plantings have been highly successful in reducing the rate of shoreline erosion by capturing and accreting sediments from the Atchafalaya River and proving quite resilient in the wake to two major hurricanes – Lili and Rita. Other reaches of the Vermilion Bay shoreline have site specific areas of the vegetative planting areas become denuded annually due to hurricane and other wave generated conditions.
- The project calls for annual vegetative planting of impacted areas along the north shore of Vermilion Bay through an intensive maintenance-planting program. Vegetative planting would be installed along 31,415 linear feet along the Vermilion Bay shoreline 5 rows at 2'OC * 31,415 LF of shoreline ~ 79,000 plugs of smooth chord grass
- During the next four years, maintenance plantings (assume replacement of 15%, or 11,800 plugs)
- O&M event planned for 50% of shoreline to be replanted (15,700 LF)

Preliminary Project Benefits:

Vegetative planting and maintenance along the North Vermilion Bay shoreline have been extremely successful at halting shoreline erosion and retreat between Avery Canal and Weeks Island. In many areas, established plantings have captured the westerly sediments moving down the GIWW from the Atchafalaya River and Wax Lake Outlet causing accretion and advancement of the plantings seaward into the Bay. This project would create emergent marsh and protect the existing shoreline.
What is the total acreage benefited both directly and indirectly? The proposed project would benefit 65 acres of brackish intermediate marsh and open water. Approximately 11 acres of brackish marsh would be created over the 20-year project life. Shoreline protection will be provided by vegetative plantings, which has been shown to reduce erosion rates by 100%, and as evidenced in the Boston Canal and Oaks Avery Projects, expand towards Vermilion Bay. Therefore, the anticipated loss rate reduction of direct and indirect benefits over the project life should exceed 75%.

Identification of Potential Issues:
DNR landrights has identified one potential landowner that could be an issue.

Preliminary Construction Costs:
Estimated construction costs plus 25% contingency = $1.6M.

Preparer(s) of Fact Sheet:
John D. Foret. Ph.D., NOAA Fisheries Service, (337) 291-2107, john.foret@noaa.gov

Northwest Vermilion Bay Vegetative Planting and Maintenance

USGS
science for a changing world

N

Vegetative Plantings *

Possible Project Location

*** denotes proposed features**

0.5 0 0.5 1 Kilometers

0.5 0 0.5 1 Miles

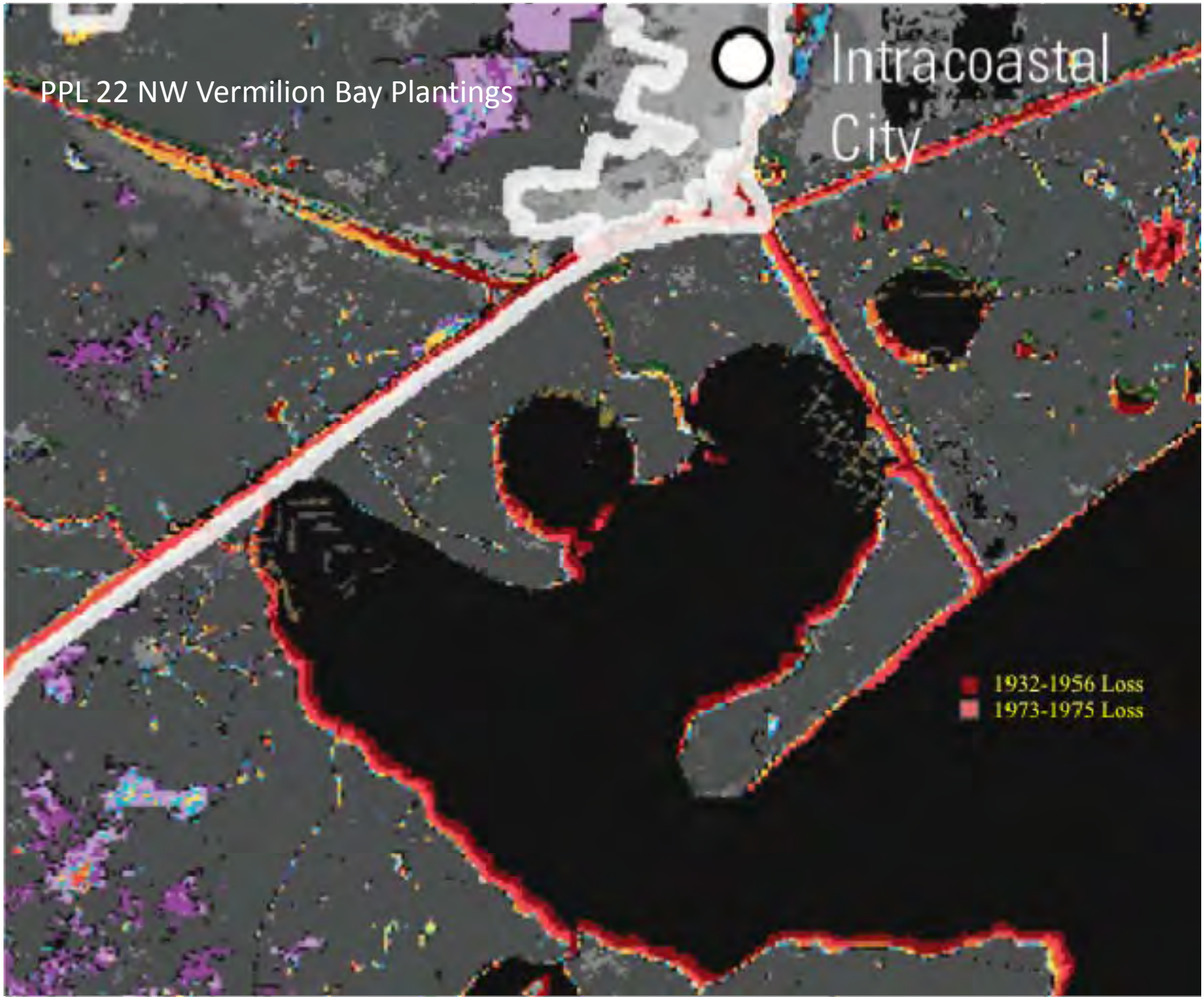
Scale: 1:60,000

Map Produced By:
U.S. Department of the Interior
U.S. Geological Survey
National Wetlands Research Center
Coastal Restoration Field Station
Baton Rouge, LA

Image Source:
2005 Digital Orthophoto Quarter Quadrangle

Map ID: USGS-NWRC 2008-11-0376
Map Date: August 14, 2008

PPL 22 NW Vermilion Bay Plantings

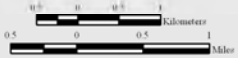

PPL 22 NW Vermilion Bay Plantings
Intracoastal City
1932-1956 Loss
1973-1975 Loss

Northwest Vermilion Bay Vegetative Planting and Maintenance (PPL18 Candidate)

Vegetative Plantings *

Possible Project Location

* denotes proposed features



Scale: 1:60,000

Map ID: USGS-NWRC 2008-11-0376
Map Date: August 14, 2008

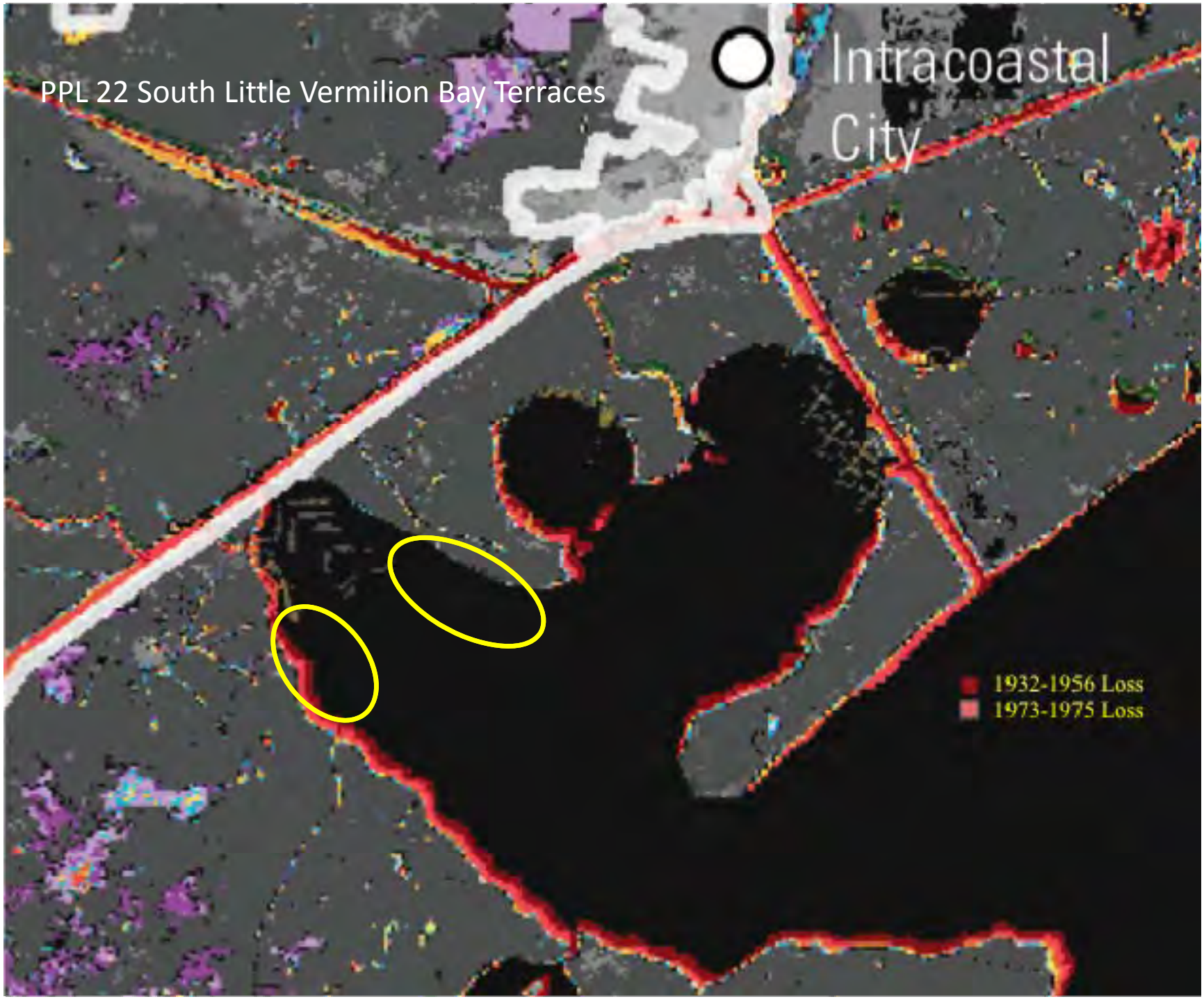
Map Produced By:
U.S. Department of the Interior
U.S. Geological Survey
National Wetlands Research Center
Coastal Restoration Field Station
Baton Rouge, LA

Image Source:
2005 Digital Orthophoto Quarter Quadrangle

PPL 22 NW Vermilion Bay Planting Project

- **Plant 31,000 LF of shoreline**
- **Maintenance plant up to 15% of original project area each year for 4 years**
- **Construction + 25% = $1.6 M ($0-$5M)**

PPL 22 South Little Vermilion Bay Terraces


PPL 22 South Little Vermilion Bay Terraces
Intracoastal City
1932-1956 Loss
1973-1975 Loss

PPL 22 South Little Vermilion Bay Terraces

PPL 22 South Little Vermilion Bay Terracing Project

- **Create 26,000LF of distributary channels in LV B.**
- **Creation 22,000 LF of earthen terraces (37 ac).**
- **Plant terraces**
- **Construction + 25% = $2.9 M ($0-$5M)**

R3-TV-02

Cote Blanche Island Shoreline Protection

R3-TV-02

Region 3-RPT
PPL22 PROJECT NOMINEE FACT SHEET
January 25, 2012

Project Name:
Cote Blanche Island Shoreline Protection Project

Coast 2050 Strategy:
Restore and Sustain Wetlands *(Regional Ecosystem Strategy)*
Maintain shoreline integrity *(Regional Ecosystem Strategy)*
Vegetative Plantings *(Coastwide Common Strategy)*

Project Location:
Region 3, Teche /Vermilion Basin, St. Mary Parish, adjacent to Cote Blanche Island.

Problem:
Project area wetlands and Cote Blanche Island are undergoing losses from shoreline erosion. Continuous wind and wave energy in the bay is preventing sediments from the Gulf Intracoastal Waterway from becoming marsh. In addition, these energies are causing a shoreline erosion rate of approximately 12-15 feet/year. It is unlikely that any of these areas will recover unaided.

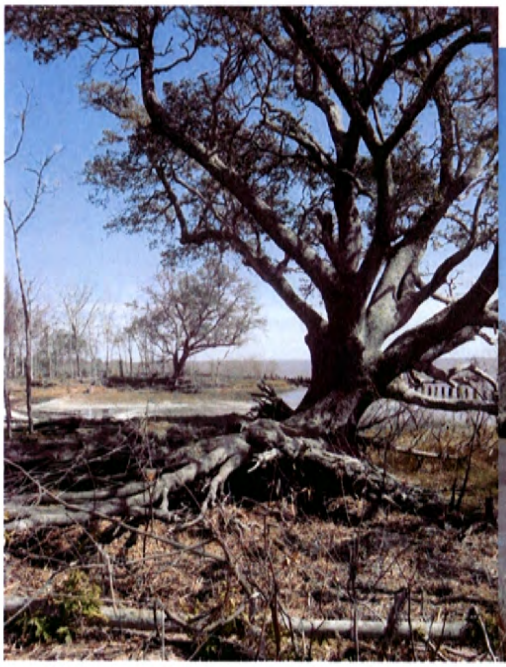
Goals:
(1) Create approximately 16,000 LF of distributary channel in West Cote Blanche Bay along the shoreline in front of Cote Blanche Island through the construction of earthen terraces (27 acres); and
(2) Create approximately 5,300 LF of distributary channels in West Cote Blanche Bay at the mouth of Ivanhoe Canal through the construction of earthen terraces;
(3) Increase sediment deposition to enhance emergent marsh expansion; and
(4) Abate wind-driven erosion along this portion of West Cote Blanche Bay.

Proposed Solutions:
This project features include the construction of a series of vegetated terraces to diminish waves in West Cote Blanche Bay, helping to increase sediment deposition and reduce the rate of shoreline erosion. The pattern of channels would be dredged 100-feet wide and 6-feet deep to beneficially distribute sediment from the GIWW through the Ivanhoe Canal. Dredged sediments would be used to construct 16,000 LF of armored, segmented, earthen terraces along the shoreline, and 5,300 LF of earthen terraces at the mouth of Ivanhoe Canal.

Identification of Potential Issues:
Oil and gas infrastructure is within the project area and would need to be avoided by dredge/fill activities.

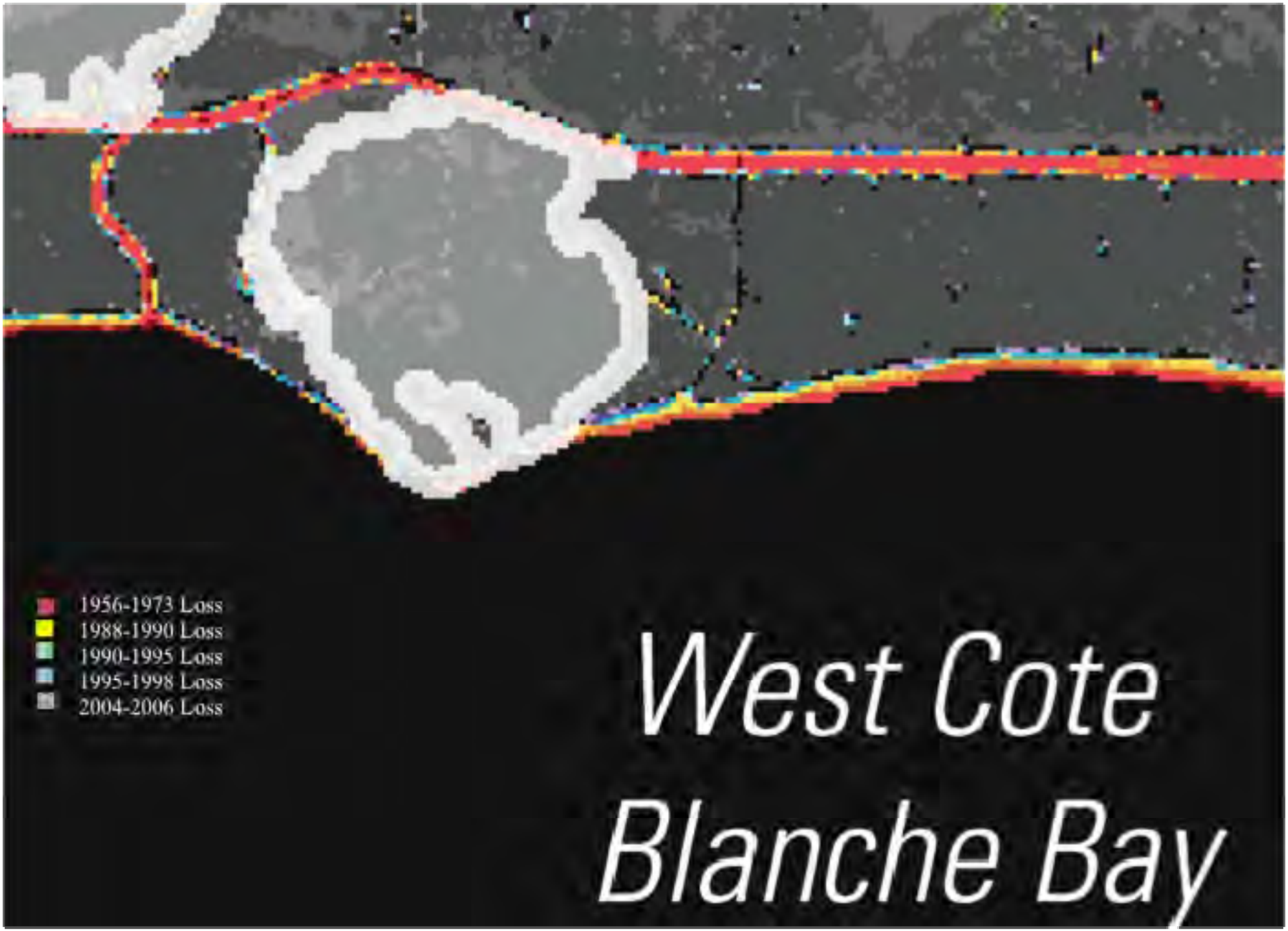
Preliminary Construction Costs:
The estimated construction cost range including 25% contingency is $5M-$10M.

Preparer of Fact Sheet:
John D. Foret. Ph.D., NOAA Fisheries Service, (337) 291-2107, john.foret@noaa.gov.



PPL 22 Cote Blanche Island Shoreline Protection

PPL 22 Cole Blanche Island Shoreline Protection


1956-1973 Loss
1988-1990 Loss
1990-1995 Loss
1995-1998 Loss
2004-2006 Loss
West Cote
Blanche Bay

PPL 22 Cote Blanche Island Shoreline Protection

PPL 22 Cote Blanche Island Shoreline Restoration

- **Create 21,300LF of distributary channels in West Cote Blanche Bay.**
- **Creation 26,000 LF of earthen, armored terraces (37 ac).**
- **Creation of 5,300 LF of earthen terraces**
- **Plant terraces**
- **Increase sediment deposition to enhance marsh expansion.**
- **Construction + 25% = $5-$10M)**

R3-TV-03

Cote Blanche Freshwater and Sediment Introduction and Shoreline Protection

R3-TV-03

PPL 22 Project Nominee Final Fact Sheet
January 25, 2012

Project Name:
Cote Blanche Freshwater & Sediment Introduction & Shoreline Protection Project

Coast 2050 Strategy:
Coast wide: Goal 1 – Assure Vertical Accumulation to Achieve Sustainability
Strategy 5 – Maintenance of Gulf, Bay and Lake Shoreline Integrity
Strategy 11 –Utilize Diversion & Riverine Discharge

Regional: 12. Maintain shoreline integrity and stabilize critical shoreline areas of the Teche-Vermilion system
15. Optimize Atchafalaya River flow in Gulf Intracoastal Waterway into marshes and minimize direct flow into bays & Gulf of Mexico
17. Reduce sedimentation into bays

Mapping Units - Cote Blanche Wetlands, East Cote Blanche Bay, and West Cote Blanche Bay:
80. Protect Bay/Lake Shorelines

Louisiana State Master Plan:
Atchafalaya River Delta & Chenier Plain:
Managing Water & Sediment - Opportunistic use of GIWW to distribute existing Atchafalaya freshwater & sediment flows to interior marshes
Bay/Lake Shoreline Stabilization – Prevent expansion of Vermilion, East and West Cote Blanche Bays and prevent wave erosion impacts to surrounding marsh.

Project Location:
The project is located in Region 3, Teche/Vermilion Basin, St. Mary Parish, within the TV-4 Cote Blanche Hydrologic Restoration Project interior, and along portions of the northern shoreline of East Cote Blanche Bay and southeastern shoreline of West Cote Blanche Bay.

Problem:
Substantial loss of emergent wetlands, up to .45% per year, was occurring in the project interior prior to TV-4 Project construction. The TV-4 Project has reduced water level variability and hydrologic energy, and this is facilitating accretion of the sediment entering from the adjacent bays and achieving the objective of reducing the rate of interior marsh loss. Unfortunately, in 2002 Hurricane Lili caused direct removal of approximately 1,750 acres of emergent marsh within the project area (Barras 2004), which was followed by additional loss from Hurricane Rita in 2005 (Barras 2005).

Significant quantities of freshwater and sediment are available to be tapped from the GIWW, but only a small portion is currently reaching the adjacent interior marshes for a number of reasons. Continuous stretches of spoil banks bordering some canals prevent the nourishing flows to the wetlands. Additionally, the storms blocked some avenues that previously allowed some low-level freshwater and sediment flows to interior marsh areas. In other areas, some flows that should be circulating through interior areas have been short-circuited back into the canal systems. The TV-4 project structures have continued to function as intended; however, increasing sediment inputs through improved paths would accelerate accretion and restoration of damaged interior marsh areas adjacent to the GIWW.

The targeted Marone Point shoreline area has historic shoreline erosion rates of 9-20 ft/year. If left unchecked, the rapidly eroding shoreline along East Cote Blanche Bay will lead to a conversion of the highly organic interior wetlands to open bay. Installing shoreline protection would also preserve the hydrologic integrity of water control structures installed under the TV-04 Project.

Goals:
Reduce and/or reverse shoreline erosion rates, reduce interior land loss and promote land building, protect critical marsh habitat and maintain lower energy hydrology of the East Cote Blanche Bay wetlands established through the TV-04 project. The marsh habitat provides important habitat for wintering migratory waterfowl, alligator, bald eagles, black bear, and other furbearers. These wetlands also provide vital protection from storm surges to vulnerable inland areas of St. Mary Parish.

Proposed Solution:
Project features will include channel improvement or enlargement and a structural measure where necessary to increase freshwater & sediment input from the GIWW into interior Cote Blanche marshes. This will optimize the distribution through multiple avenues to further reduce emergent marsh loss and accelerate sediment accretion to promote land building in isolated areas. Benefits analysis estimated that project implementation would yield a net flow increase of 930 cfs to be delivered to the project area's interior marshes.

Project features also include construction of approximately 27,150 linear feet of armored protection parallel to the northern shoreline of East Cote Blanche Bay. The proposed location of the shoreline protection feature is approximately 21,950 linear feet, starting from 3300 feet west of Humble Canal and extending around Marone Point, and approximately 5,200 feet to the east of the Humble Canal between existing shoreline protection segments.

Preliminary Project Benefits:
1) What is the total acreage benefited both directly and indirectly?
The proposed shoreline protection feature would directly benefit approximately 129 acres by eliminating the average annual shoreline loss of 9.28 ft/yr. Approximately 375 acres of intermediate marshes would benefit indirectly by preventing the breaching of, and tidal exchange through, several natural bayous and open water ponds lying adjacent to the E Cote Blanche Bay shoreline. Therefore the total acreage potentially benefitted by the shoreline protection would be 504 acres.

With the estimated additional flows and improved distribution, the freshwater and sediment introduction component is expected to beneficially influence an approximate total of 10,722 wetland acres, of which approximately 9,411 acres is emergent marsh.
Therefore, for both project components, the total acreage benefitted would be approximately 11,251 acres.

2) How many acres of wetlands will be protected/created over the project life?
Approximately 120 emergent acres would be protected at the end of the project life due to the shoreline protection component.

For the freshwater & sediment introduction component, a total of 194 acres of emergent wetlands is estimated to be protected and 449 acres is projected to be created for a net total of 643acres over the project life.
Therefore, for both project components, a total of 763 acres would be protected/created over the project life.

3) What is the anticipated loss rate reduction throughout the area of direct benefits over the project life?
Shoreline protection will be provided by some form of foreshore structural protection which, when properly designed and installed, would reduce the shoreline erosion rates by 100% over the project's life.

The current land loss rate is anticipated to be reversed by the freshwater and sediment introduction component throughout the areas of direct benefit and result in an estimated land gain rate of 0.25% per year (23.5 acres per year) over the project life.

4) Do any project features maintain or restore structural components of the coastal ecosystem such as barrier islands, natural or artificial levee ridges, beach and lake rims, cheniers, etc?
Shoreline protection feature will provide protection and serve to maintain a significant critical section of the East & West Cote Blanche Bays' shoreline, as well as Marone Point which is a key feature influencing the Cote Blanche bays' current circulatory patterns.

5) What is the net impact of the project on critical and non-critical infrastructure?

The project area would serve to protect the inland oilfield and well locations, and the GIWW transportation corridor from exposure to open bay conditions, and from increased wave energy generated by marsh fragmentation and expansion of interior open water areas. In addition, the project area is a significant portion of the wetland area that buffers the vulnerable Franklin and Baldwin municipal areas and the tribal lands of the Chitimacha Nation from storm impacts.

6) To what extent does the project provide a synergistic effect with other approved and/or constructed restoration projects?
The project features will provide a synergistic effect with the TV-04 Cote Blanche Hydrologic Restoration Project, TV-20 Bayou Sale Shoreline Protection Project, and TV-15 Sediment Trapping at the Jaws by extending shoreline protection around the entire northern shore of East Cote Blanche Bay, and ultimately providing contiguous protection and promoting sustainable restoration to thousands of acres of deteriorating marsh in St. Mary parish.

Identification of Potential Issues:
No significant potential issues are expected from the project implementation. St. Mary Parish and major landowners are in full support of the project.

Preliminary Construction Costs:
The estimated construction cost plus 25% contingency is $24,078,477.

Preparer of Fact Sheet
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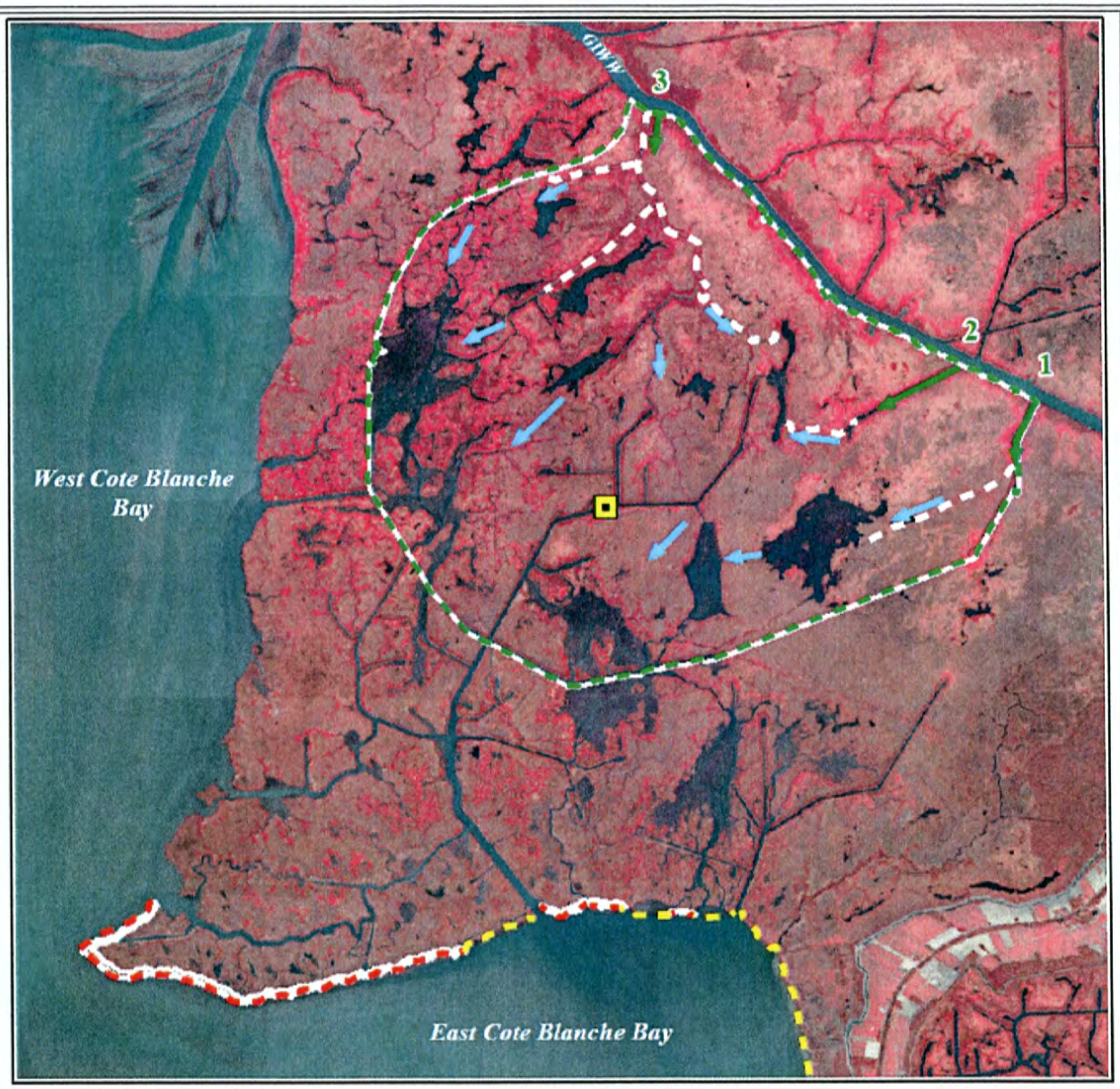
Ron Boustany/NRCS (337) 291-3060 ron.boustany@la.usda.gov
Patra Ghergich/NRCS (337) 828-1461 ext 3 patra.ghergich@la.usda.gov



Cote Blanche Freshwater & Sediment Introduction & Shoreline Protection

PPL 22 Nominee

- Freshwater & Sediment Introduction *
- Channel Improvement *
- Distributary Flow *
- Plug with Boat Bay *
- Freshwater & Sediment Introduction Area *
- Shoreline Protection *
- Existing and/or Authorized Shoreline Protection
- Project Boundary *

* denotes proposed features

1 0 1 Kilometers

1 0 1 Miles

Scale 1:80,000

USGS
science for a changing world

Produced by:
U.S. Department of the Interior
U.S. Geological Survey
National Wetlands Research Center
Coastal Restoration Field Station
Baton Rouge, La

Image Source:
2008 Digital Orthophoto Quarter Quadrangles

Map ID: USGS-NWRC 2011-11-0002
Map Date: October 8, 2010

Southeast Marsh Island Marsh Creation and Nourishment (PPL21 Candidate)

USGS
science for a changing world

Marsh Creation/Nourishment *

Project Boundary *

* denotes proposed features

0.4 0 0.4
Kilometers
0.4 0 0.4
Miles

Scale 1:30,000

Map ID: USGS-NWRC 2011-11-0053
Map Date: August 11, 2011

Produced by:
U.S. Department of the Interior
U.S. Geological Survey
National Wetlands Research Center
Coastal Restoration Field Station
Baton Rouge, La.

Image Source:
2010 NAIP Photography

R3-TV-04

Southeast Marsh Island Marsh Creation

PPL22 Southeast Marsh Island Marsh Creation Project
January 25, 2012

Coast 2050 Strategy:
Coastwide Common Strategies: Dedicated dredging to create, restore, or protect wetlands; Offshore and riverine sand and sediment resources.

Project Location:
Region 3, Teche-Vermillion Basin, Iberia Parish, Southeast end of Marsh Island Wildlife Refuge.

Problem:
Areas of interior emergent marsh on Marsh Island have been converted to open water, primarily due to hurricane activity and subsidence. Marsh Island has been projected to lose 12.9% of its marsh habitat through 2050. Areas targeted by this project are those with the greatest historic land loss and are proximal to East Cote Blanche Bay. Land loss is estimated to be 0.46 percent/year based on USGS data from 1985 – 2010.

Goals:
The primary goal of this project is to create and restore brackish marsh habitat in deteriorated areas of the interior marsh on Marsh Island primarily formed as a result of hurricane activity and subsidence. Borrow material will be targeted from the state offshore area to limit water quality impacts, avoid *in situ* deltaic sediments and minimize impacts to potential oyster lease areas. Specific phase 0 goals include creating 341 acres of brackish marsh and nourishing 269 acres of brackish marsh.

Proposed Solution:
The project would utilize hydraulic dredging from an offshore borrow site and place approximately 1.3 million cubic yards of material into two marsh creation areas to create 341 acres and nourish 269 acres of brackish marsh and use unconfined or limited confinement techniques allowing finer material to flow through the interior marsh areas and provide nourishment. This project would complement the constructed Marsh Island Hydrologic Restoration (TV-14) and the East Marsh Island Marsh Creation (TV-21) projects on the east-end of Marsh Island.

Project Benefits:
The project would result in approximately 610 net acres of brackish marsh over the 20-year project life.

Project Costs:
The preliminary construction cost plus 25% is $17.1 Million.

Preparer of Fact Sheet:
Paul Kaspar, EPA, (214) 665-7459; kaspar.paul@epa.gov

Southeast Marsh Island Marsh Creation and Nourishment (PPL21 Candidate)

USGS
science for a changing world

Marsh Creation/Nourishment *

Project Boundary *

* denotes proposed features

0.4 0 0.4
Kilometers
0.4 0 0.4
Miles

Scale 1:30,000

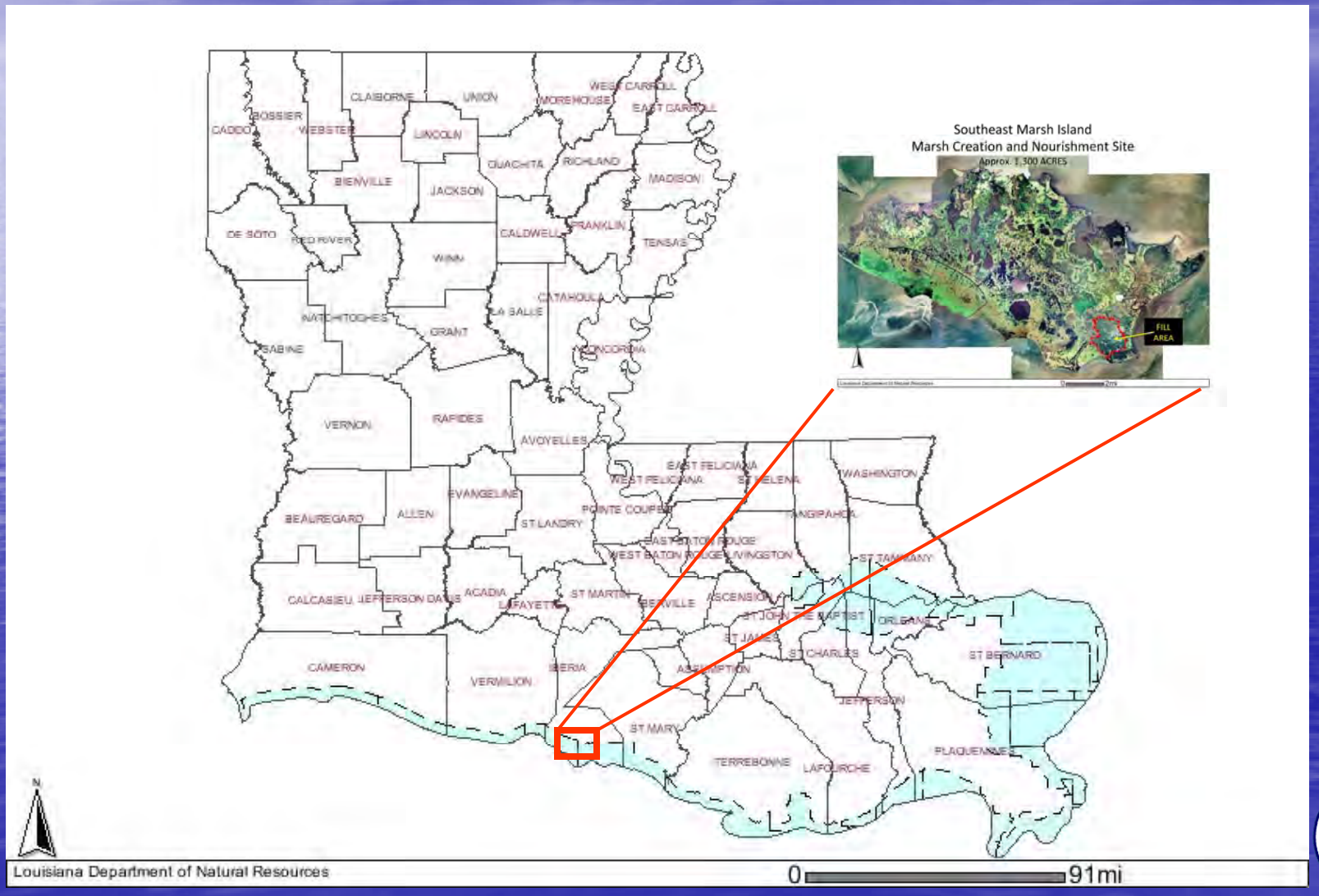
Map ID: USGS-NWRC 2011-11-0053
Map Date: August 11, 2011

Produced by:
U.S. Department of the Interior
U.S. Geological Survey
National Wetlands Research Center
Coastal Restoration Field Station
Baton Rouge, La.

Image Source:
2010 NAIP Photography

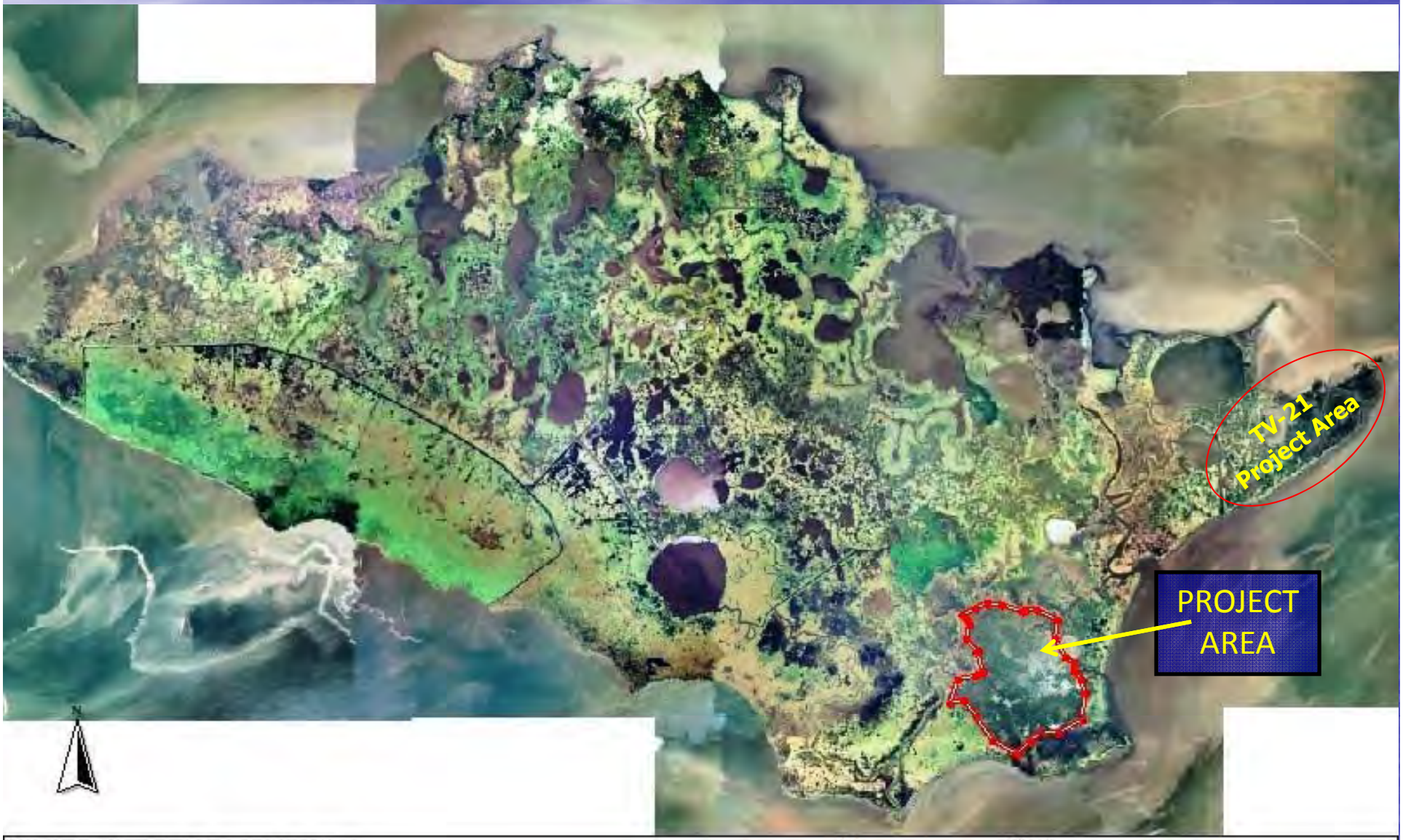
Southeast Marsh Island Marsh Creation Project

PPL 22 Nominee – January 25, 2012



Southeast Marsh Island Marsh Creation Project

Approx. 610 ACRES

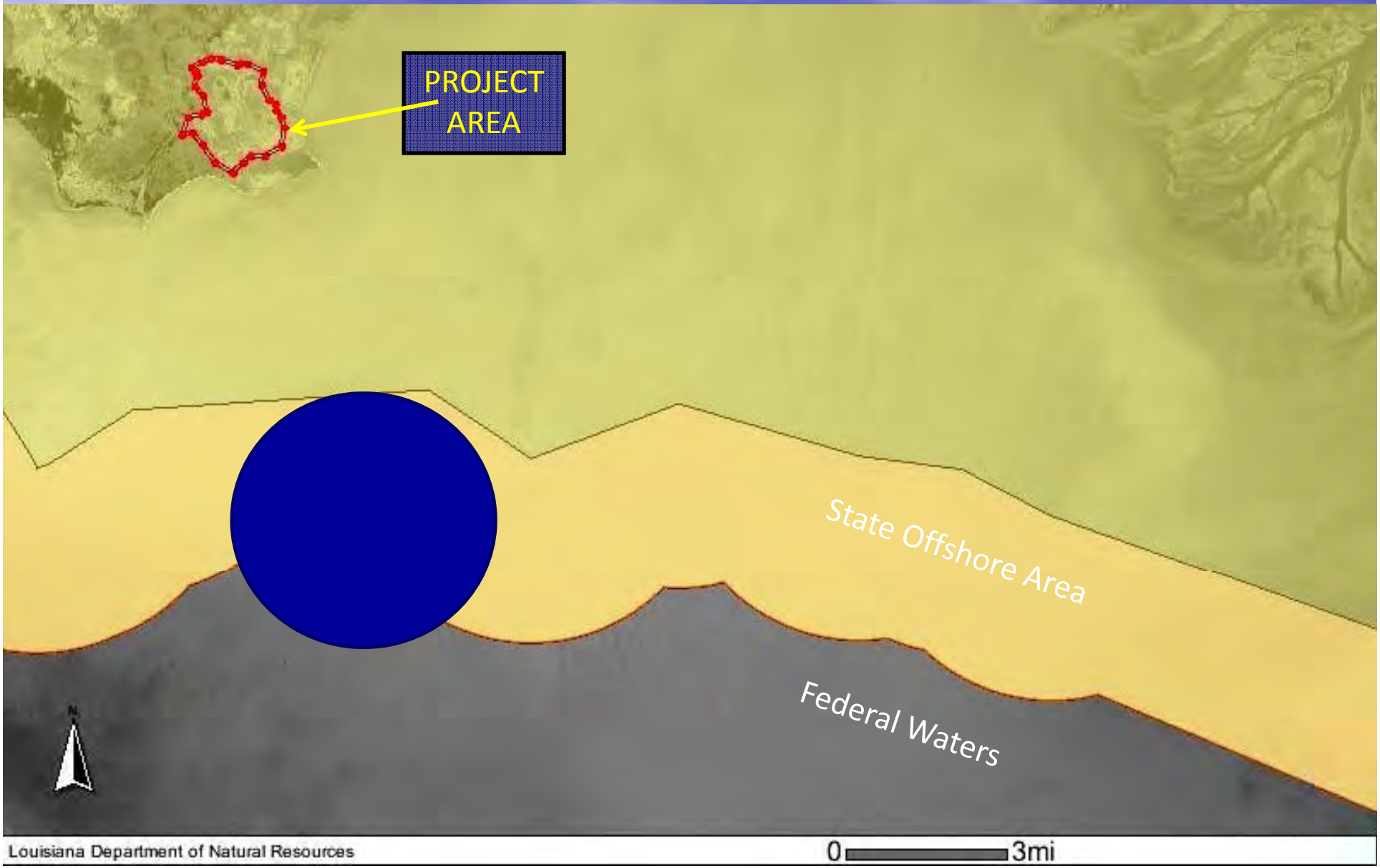


Marsh Island - Interior Marsh Degradation Over Past Decade

Marsh Island - Interior Marsh Degradation Over Past Decade

Southeast Marsh Island Marsh Creation Project
Approx. 610 ACRES

Southeast Marsh Island - Potential Borrow Area
Pending Surveys and Water Bottom Assessment



Marsh Creation on East Marsh Island

Start of Construction

Immediately Post-Construction

1-yr Post-Construction

Southeast Marsh Island Marsh Creation Project

- Create approx. 610 ac brackish marsh
- Continues TV-21 construction success
- Hydraulically dredge from offshore borrow source
- Introduces new sediment into the system
- Minimizes impacts to oyster beds
- Incorporate tidal creeks, ponds & plantings
- Marsh Island protects 3 coastal Parishes
- Restoration on a valuable State WMA
- Evaluate unconfined/limited confinement techniques
- Preliminary Construction plus 25% - $17.1 million

Southeast Marsh Island Marsh Creation Project

Questions?

Paul Kaspar
EPA Region 6
(214)665-7459
kaspar.paul@epa.gov

R3-TV-05

State Wildlife Refuge Shoreline Protection and Terrace

R3-TV-05

State Wildlife Refuge Shoreline Protection and Terrace Project

Project Fact Sheet

January 2012

Location

This project is located in southeastern Vermilion Parish, Louisiana. The site is located approximately 6.5 miles north of the Gulf of Mexico and approximately 7.5 miles south of Intracoastal City, LA. The project area encompasses approximately 250 acres at the State Wildlife Refuge, which is administered by the Louisiana Department of Wildlife and Fisheries.

Problems

North Lake and Fearman Lake are areas of high shoreline loss rates at State Wildlife Refuge. Currently North Lake is isolated from Vermilion Bay by a bulkhead, large boulders/rocks, and a narrow sliver of shoreline (less than 50'). Historically, this lake was a functional part of a marsh management unit and provided foraging habitat for waterfowl due to the presence of submerged aquatic vegetation. However, the lake is on the verge of breaching due to shoreline erosion and a compromised bulkhead. Thus, restoration is needed to keep the lake from becoming a "cove" of the bay. If breached, water exchange would result in deep water conditions, increased erosion within the interior marsh, and decreased wildlife habitat.

Fearman Lake Peninsula was a complete peninsula as recent as 1998. It served as a natural terrace that reduced wave energy in the lake. It is currently breached in several areas which has caused increased fetch in the lake and additional shoreline loss. As of 2011, erosion has reduced the size of the peninsula to less than five acres.

Restoration Strategy

The goal of this project is to rebuild the Fearman Lake Peninsula and construct an earthen barrier to keep North Lake isolated from Vermilion Bay. To fulfill this goal, a hydraulic dredge is needed to create approximately 35 acres of marsh within the footprint of the peninsula and create approximately 30 acres of earthen berm along the western shoreline of North Lake. Material would be borrowed from Vermilion Bay and pumped to an elevation of approximately +2.5'elevation for the Fearman Peninsula and approximately +5' elevation for the North Lake berm. These project features would provide shoreline protection and help maintain the area's historic hydrology. The North Lake berm will also provide similar benefits as coastal chenier habitat.

Additionally, this proposal includes two terrace fields within Lake Fearman and one field in North Lake to provide shoreline protection, potentially reclaim lost shoreline, and possibly promote the growth of submerged aquatic vegetation which would beneficial to fish and wildlife that inhabit the refuge. Approximately 85,000 linear feet of earthen terraces (30-foot crown, 1:3 slopes, +2.5' elevation) would be constructed using a marsh buggy and in-situ materials. All of the constructed features of the project would be planted with appropriate vegetation (herbaceous vegetation for terraces and marsh creation; woody vegetation for berm). See attached map for additional project details.

Preliminary Project Benefits

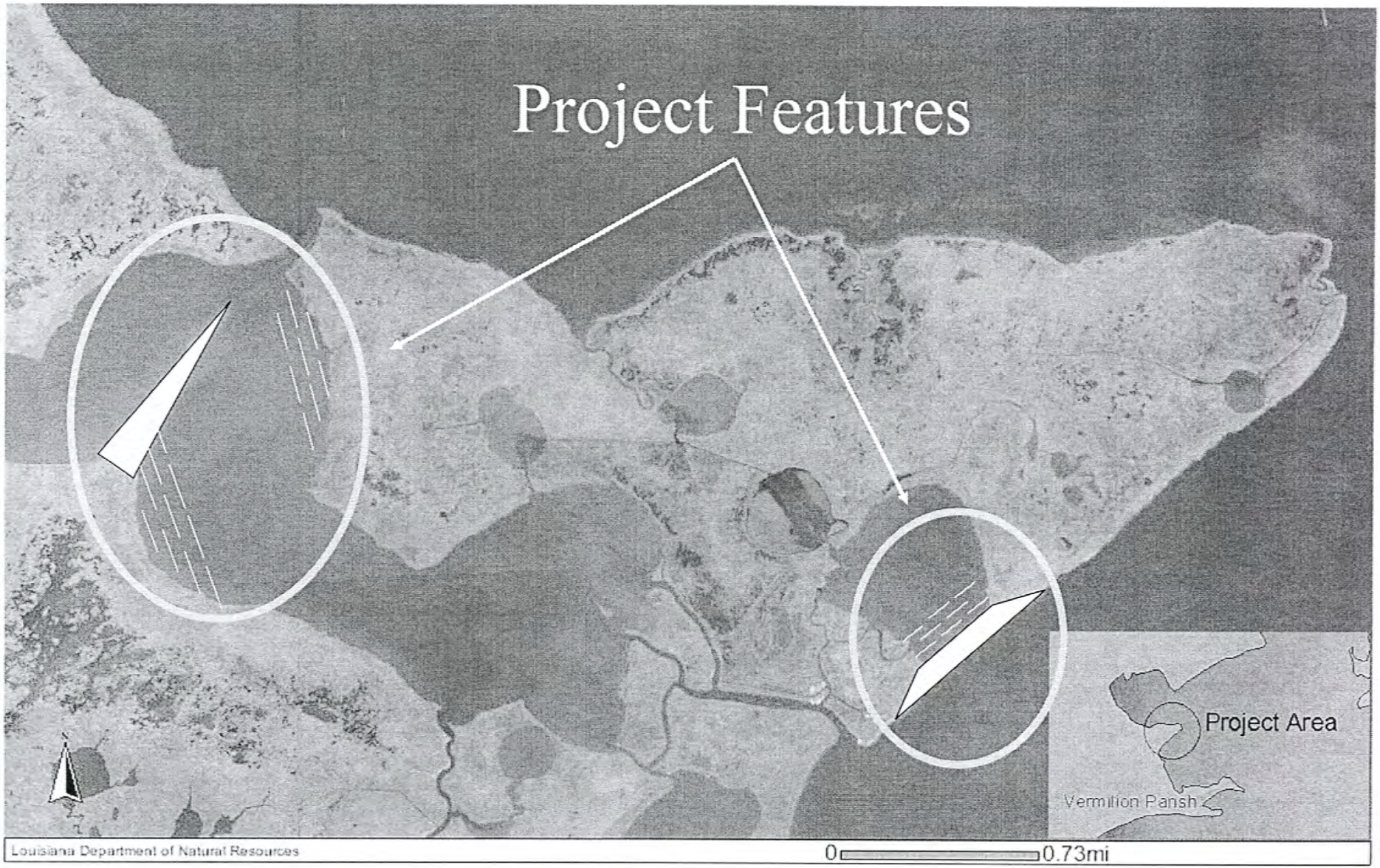
Approximately 150 acres of wetlands would be created from the construction of the terraces and marsh/berm creation Approximately 50 acres of marsh would be protected by reducing shoreline erosion. The project would increase the colonization of submerged aquatic vegetation by reducing water turbidity.

Construction Costs

The State Wildlife Refuge Shoreline Protection and Terrace Project is estimated to cost between 5,000,000 and 10,000,000 million dollars.

Contact Information

For more project information, please contact:
Cassidy Lejeune, clejeune@wlf.la.gov
Louisiana Department of Wildlife and Fisheries
337-373-0032


Project Features
Project Area
Vermilion Pansh
Louisiana Department of Natural Resources
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State Wildlife Shoreline Protection and Restoration Project

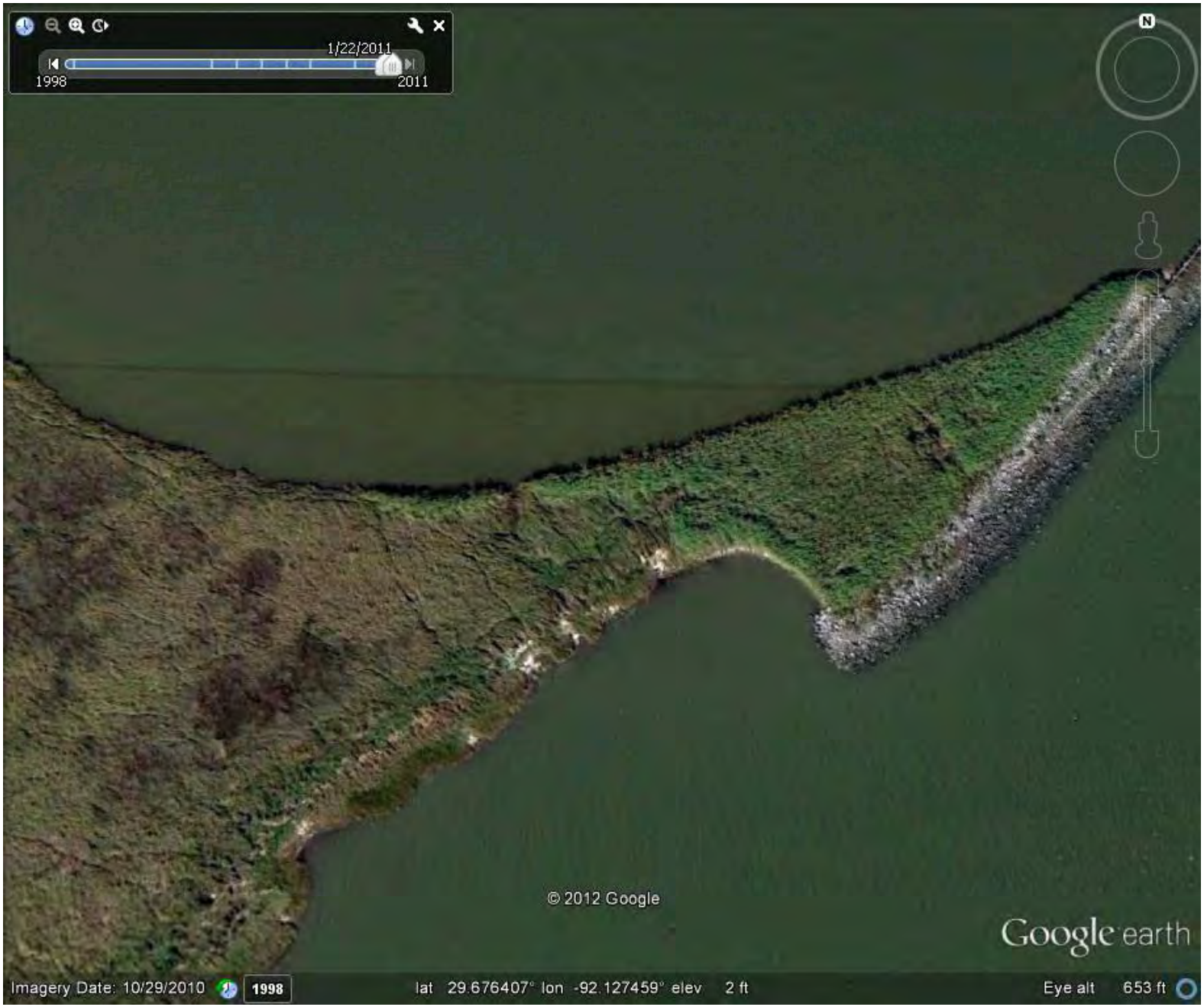
PPL 22 – Morgan City, LA

Cassidy Lejeune
LDWF – Coastal and Nongame Resources Division
New Iberia, LA

State Wildlife Refuge – 7.5 miles south of Intracoastal City

Problems – Shoreline Erosion

Problems – Shoreline Erosion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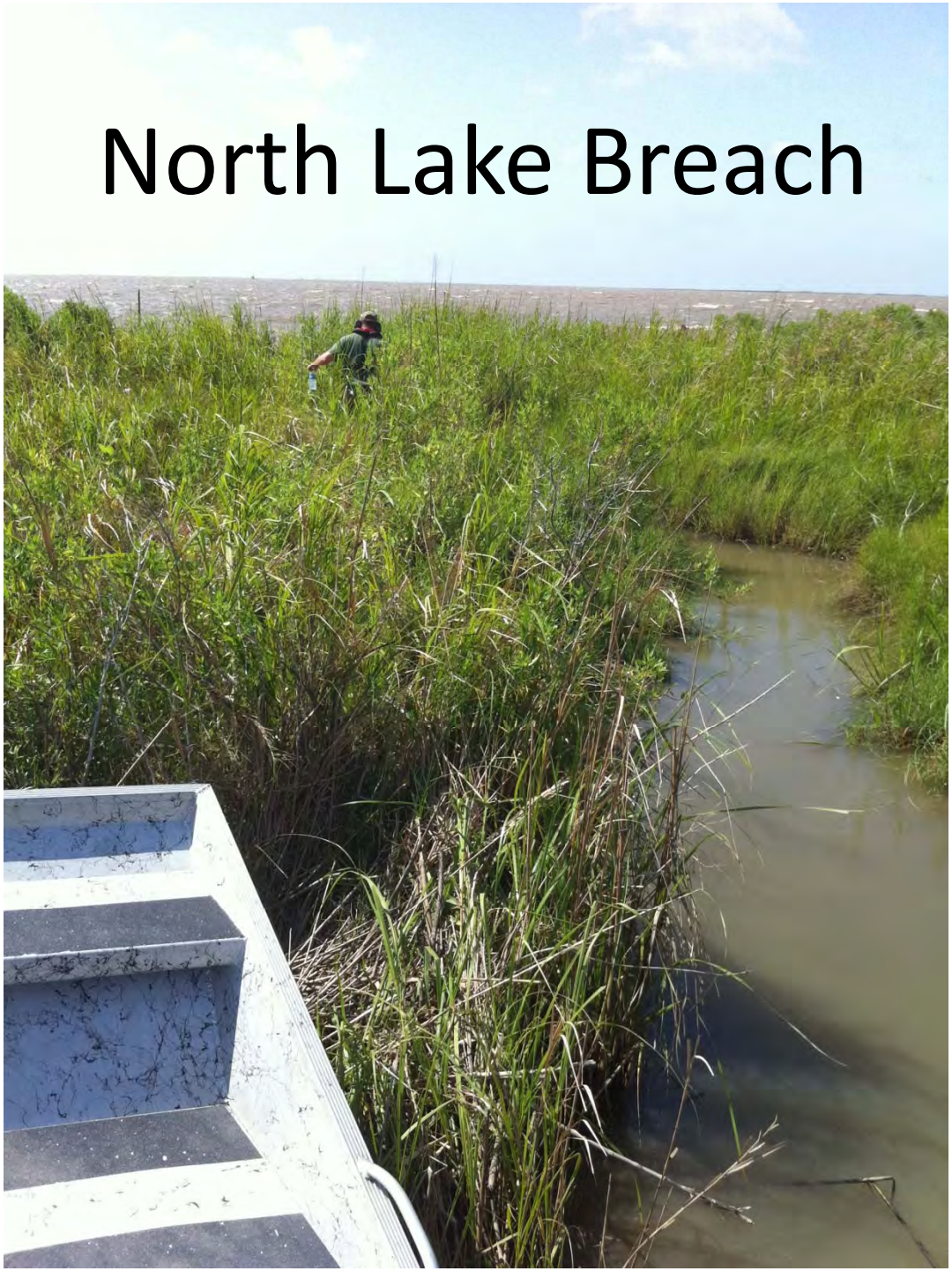
© 2012 Google
Google earth
Imagery Date: 10/29/2010
1998
lat 29.676407° lon -92.127459° elev 2 ft
Eye alt 653 ft

North Lake Breach



Project Features
Project Area
Vermilion Parish
Louisiana Department of Natural Resources
0
0.73mi

Questions or Comments?

Region 3 – ATCHAFALAYA BASIN

R3-AT-01

West Wax Lake Wetlands Diversion

R3-AT-01

PPL-22 PROJECT NOMINEE FACT SHEET

January 25, 2012

Project Name: West Wax Lake Wetlands Diversion

Coastwide 2050 Strategy:

- Coastwide Strategy: Dedicated Dredging for Wetland Creation
- Regional Strategies: Restore and Sustain Marshes - Maximize Atchafalaya Land Building
- Mapping Unit Strategies (Wax Lake Wetlands Unit):
  - #61 Beneficial use of dredged material
  - #62 **Maintain distributaries (e.g., Hog Bayou**, *Leopard Bayou and Bayou Blue*)

State Master Plan 2007:

- Planning Unit 3b: Atchafalaya and Teche-Vermilion Basins
- Atchafalaya River Diversion - Freshwater (*nutrients & sediments*) Conveyance
  - D3b-9 Increase Sediment Transport Down Wax Lake Outlet (*and distributaries*)
  - D3b-14 Convey Atchafalaya River Water Westward via GIWW (*and distributaries*)

Draft State Master Plan 2012 (Central Coast):

- Maintain land building capacity of Atchafalaya region
- Increase use of Atchafalaya River sediment & water east to Terrebonne Parish to sustain coastal ecosystem (*CEI Note: should also send sediment & water west to sustain ecosystem in vicinity of Bayou Sale and along East Cote Blanche Bay*).

Project Location: Region 3b-Atchafalaya Basin, Wax Lake Wetlands (West side), St. Mary Parish, LA.

Problem: Three Wax Lake Outlet (WLO) bayous (Hog, Leopard and Blue) are becoming blocked by development of the WLO's west bank natural levee (evidenced through airphoto analysis and depth changes between 1941 outlet construction and the present) and are reducing diversion of fresh water, nutrients and sediment to the West Wax Lake Wetlands east of Bayou Sale.

Goals: 1) Restore and maintain three major bayou openings and promote through-flow of fresh water, sediments and nutrients to create and sustain freshwater marshes and swamps and promote firmer marsh substrate and natural levee development along distributary channels; 2) Offset tidal influence and substrate erosion associated with access canals in western portion of subunit by maintaining a westward moving head of fresh water and introduction of sediments and nutrients that promote vigorous plant growth and sustain wetlands; 3) facilitate infilling of abandoned access canals off of major bayous with distributary channel sediments; 4) create wetlands with material dredged for channel maintenance.

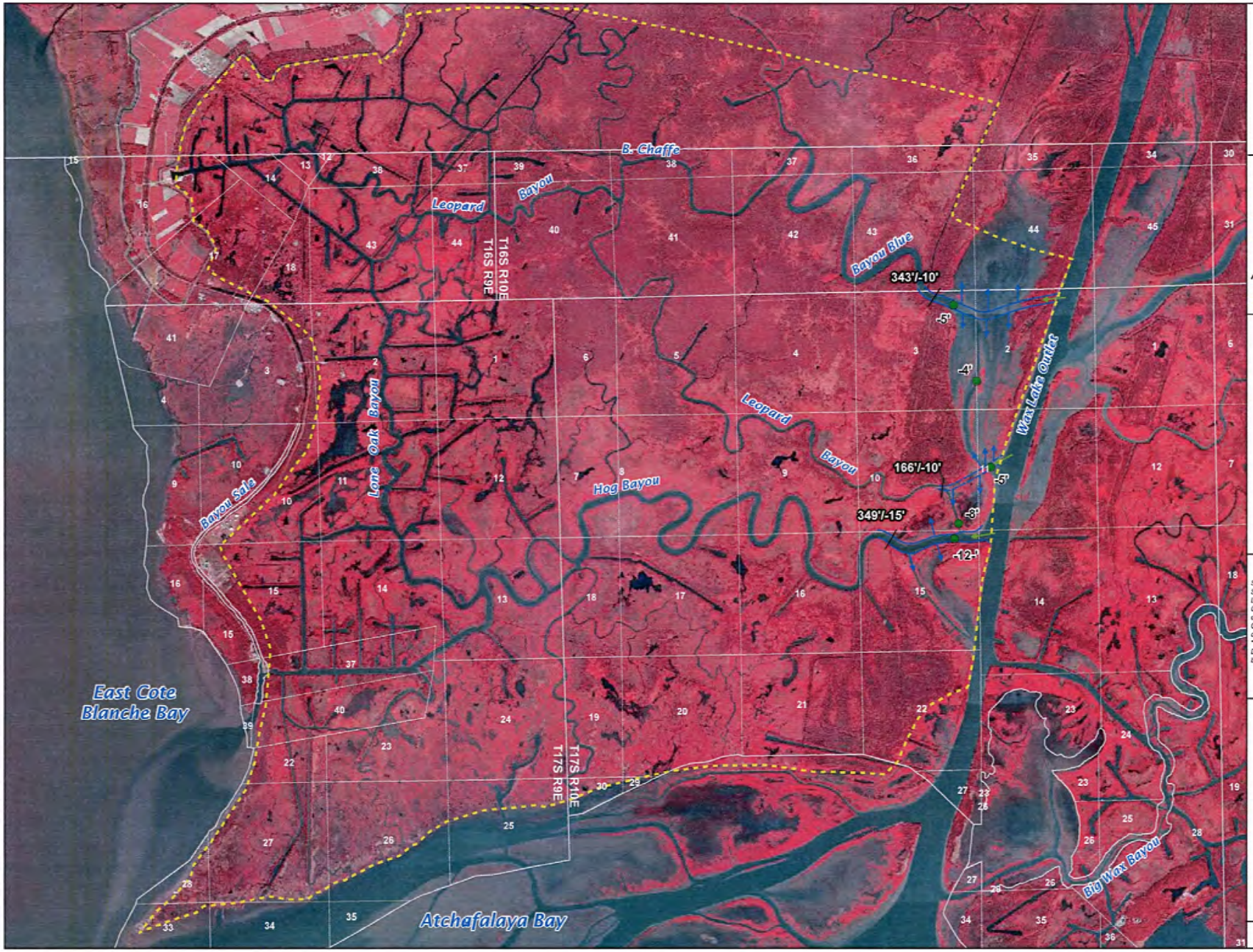
Proposed Solutions: Restore and maintain hydrologic connection between WLO (Atchafalaya River water) and distributary channels to sustain hydrologic processes and wetlands.

Preliminary Project Benefits: 1) Restore/maintain hydrologic connection between WLO & distributary channels; 2) Create directly ~64 ac of freshwater wetlands with deposition of dredged channel material; 3) Create indirectly ~55 ac of freshwater wetlands through accretion in access canals & shallow ponds adjacent to distributary channels; 4) Benefit ~20,480 ac of freshwater wetlands through input & through-flow of sediments, nutrients and fresh water; 5) Improve water quality in interior wetlands & water bodies through flood pulse flushing; 6) Promote natural levee formation; 7) No apparent impact on infrastructure, 8) Contributes to planning efforts of local, state and federal governments & private landowners to create & sustain landscape integrity, maintain hydrologic processes & water quality and sustain natural land-building processes associated with freshwater & sediment diversions.

Identification of Potential Issues: There do not appear to be any potential issues at this time.

Preliminary Construction Costs: 2011 preliminary estimate is $5,328,891; fully loaded $9,592,005.

Preparer of Fact Sheet: Karen Wicker, Ph.D., Coastal Environments, Inc., for SM Energy, Co., (225) 383-7455 x 119, kwicker@coastalenv.com / Cost estimates: Loland Broussard, NRCS, (337) 291-3060



W. WAX LAKE WETLANDS DIVERSION

Legend

- Water Depths
- Channel Maintenance
- Dredge Material Disposal
- 343'/-10' Channel Width and Depth (01/2010)
- Indirect Impact Area

Project Location

St. Mary Parish
Louisiana

Source:
Section, Township & Range data Tobin International, Ltd. (February 9, 2004).
Channel Maintenance and Dredge Material Disposal data digitized by CEI, 2010. Background Image: October 27, 2008 USGS Color-Infrared DOQQ obtained from the LaCoast website, 2009.
***Note: CEI does not warrant the validity of these data. Data not derived from a registered survey and should be considered approximate.*

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MAP 1

CEI 93032 January 25, 2010

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WEST WAX LAKE WETLANDS DIVERSIONS

Prepared by

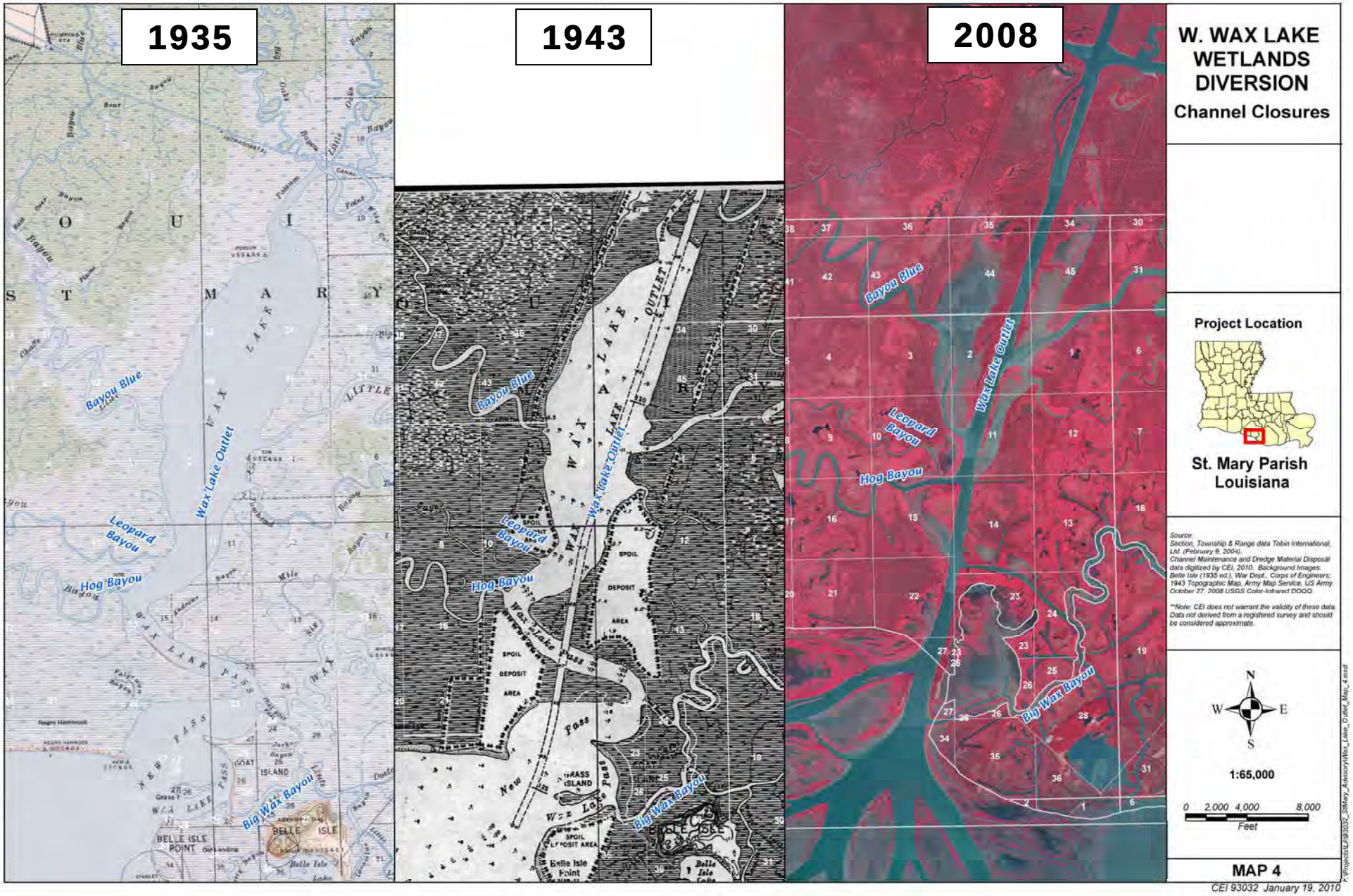
Karen M. Wicker, Ph.D.
Coastal Environments, Inc.

On Behalf of

SM Energy Company

NRCS Project Sponsor

2012


1935
1943
2008
W. WAX LAKE WETLANDS DIVERSION
Channel Closures
Project Location
St. Mary Parish Louisiana
Bayou Blue
Wax Lake Outlet
Leopard Bayou
Hog Bayou
Big Wax Bayou
Belle Isle Point
Source:
Section, Township & Range data Tobin International, Ltd. (February 9, 2004).
Channel Maintenance and Dredge Material Disposal data digitized by CEI, 2010. Background Images:
Belle Isle (1935 ed.), War Dept., Corps of Engineers;
1943 Topographic Map, Army Map Service, US Army.
October 27, 2008 USGS Color-Infrared DOQQ.
**Note: CEI does not warrant the validity of these data. Data not derived from a registered survey and should be considered approximate.
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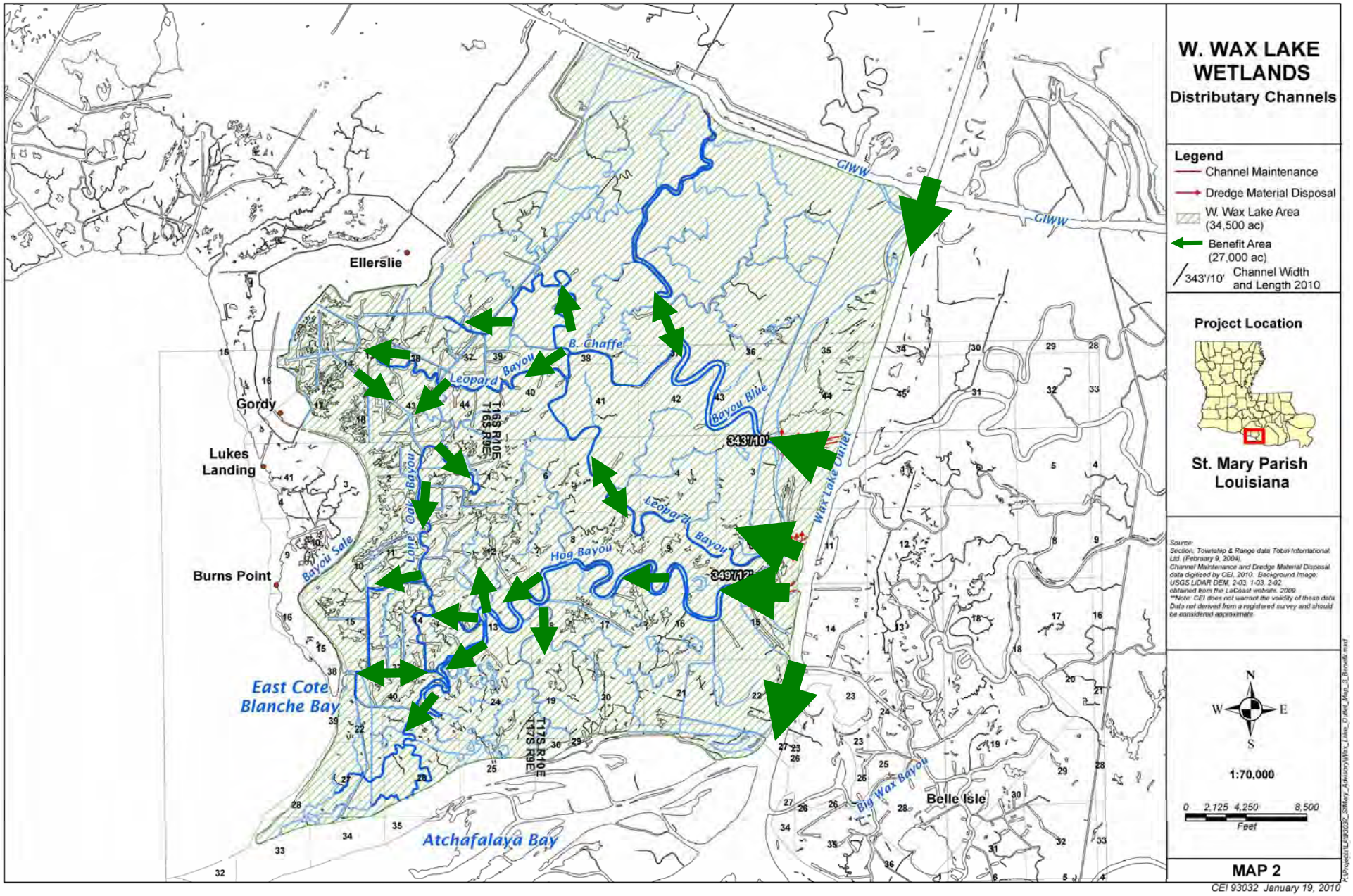
MAP 4
CEI 93032 January 19, 2010


W. WAX LAKE WETLANDS
Distributary Channels
Legend
Channel Maintenance
Dredge Material Disposal
W. Wax Lake Area (34,500 ac)
Benefit Area (27,000 ac)
343'/10' Channel Width and Length 2010
Project Location
St. Mary Parish Louisiana
Source:
Section, Township & Range data: Tobin International, Ltd. (February 9, 2004).
Channel Maintenance and Dredge Material Disposal data digitized by CEI, 2010. Background image: USGS LiDAR DEM, 1-03, 2-02, obtained from the LaCoast website, 2009.
**Note: CEI does not warrant the validity of these data. Data not derived from a registered survey and should be considered approximate.
N
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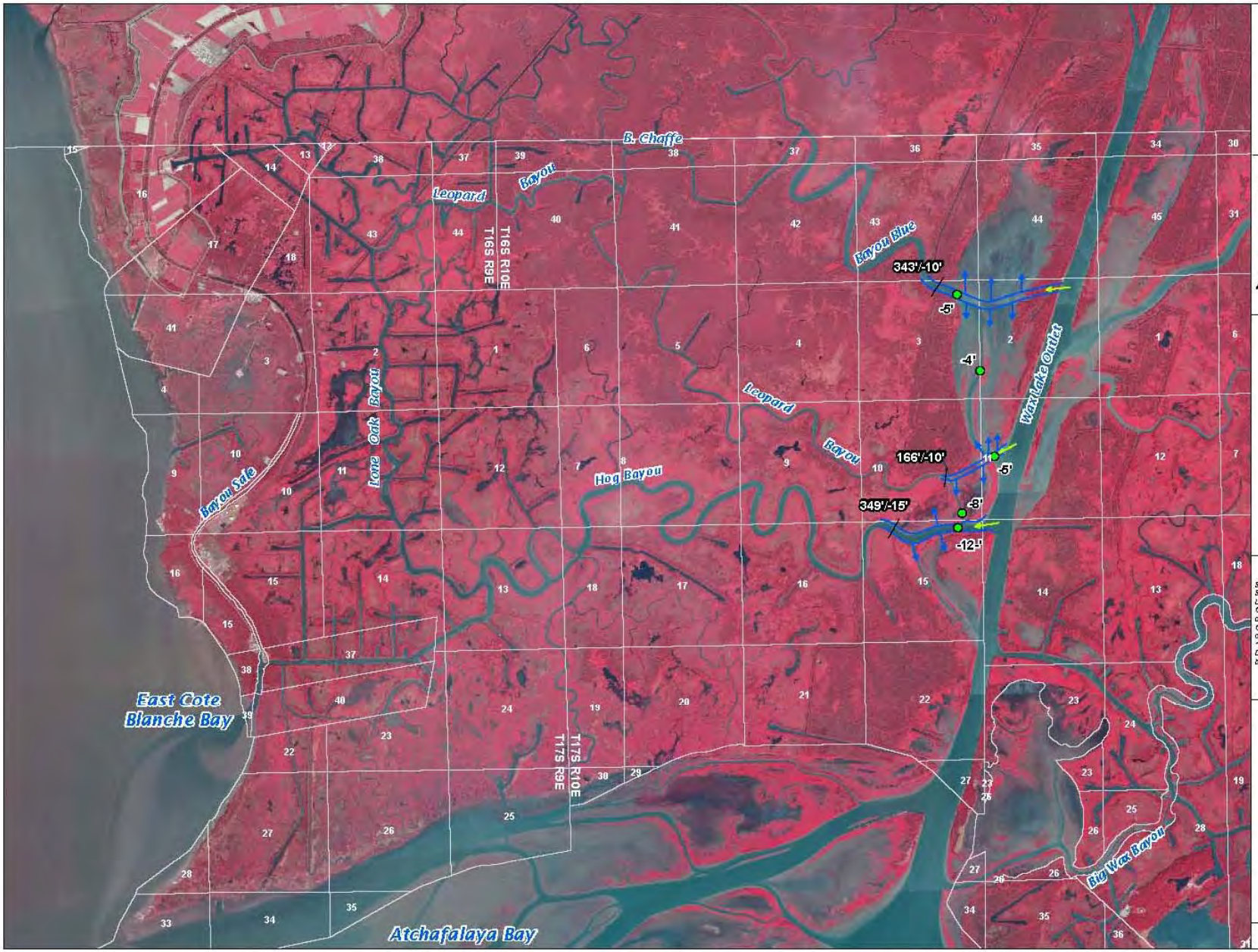
1:70,000
0 2,125 4,250 8,500
Feet
MAP 2
CEI 93032 January 19, 2010
GIWW
GIWW
Ellerslie
Gordy
Lukes Landing
Burns Point
East Cote Blanche Bay
Atchafalaya Bay
Belle Isle
B. Chaffe
Leopard Bayou
Bayou Blue
343'/10'
Wax Lake Outlet
Lone Oak Bayou
Bayou Sale
Hog Bayou
Leopard Bayou
349'/12'
Big Wax Bayou
T16S R10E
T16S R9E
T17S R10E
T17S R9E



W. WAX LAKE WETLANDS DIVERSION

Legend

- Water Depths
- Channel Maintenance
- Dredge Material Disposal
- 343'/-10' Channel Width and Depth (01/2010)

Project Location

St. Mary Parish Louisiana

*Source: Section, Township & Range data Tobin International, Ltd. (February 9, 2004). Channel Maintenance and Dredge Material Disposal data digitized by CEI, 2010. Background Image: October 27, 2008 USGS Color-Infrared DOQQ obtained from the LaCoast website, 2009. **Note: CEI does not warrant the validity of these data. Data not derived from a registered survey and should be considered approximate.*

N
W E
S

1:47,000

0 1,500 3,000 6,000
Feet

MAP 1

CEI 93032 January 25, 2010

K:\Projects\93032_Shell_Advisory\Wax_Lake_Outlet\Map_1.mxd

PROBLEMS:

- NATURAL CHANNELS (BLUE, LEOPARD & HOG) BEING BLOCKED BY DEVELOPMENT OF WAX LAKE OUTLET (WLO) WEST BANK LEVEE
- WEST WAX LAKE INTERIOR WETLANDS EXPERIENCING DECREASE IN FRESH WATER, SEDIMENTS & NUTRIENTS
- LOCALIZED AREAS OF MARSH LOSS DUE TO: SUBSIDENCE, INCREASED TIDAL PUMPING ON WEST, EROSION ALONG ACCESS/PIPELINE CANALS, HURRICANE REMOVAL OF MARSH MAT & HERBIVORY

GOALS:

- RESTORE/MAINTAIN NATURAL HYDROLOGIC PROCESSES & FLOW PATTERNS
- RESTORE/MAINTAIN HYDROLOGIC CONNECTION BETWEEN WLO & BAYOUS BLUE, LEOPARD & HOG
- MAINTAIN/SUSTAIN LANDSCAPE INTEGRITY (FRESHWATER MARSH & SWAMP, NATURAL LEVEES & DRAINAGE/DISTRIBUTARY CHANNELS)
- MAINTAIN NATURAL PUMPING MECHANISM TO ALLOW STAGNENT, OXYGEN-DEPLETED WATERS TO BE PUSHED WESTWARD THROUGH SUBBASIN BY W FLOWING PULSE OF SEDIMENT & NUTRIENT CHARGED FRESH WATER
- COMPLIMENT LANDOWNER RESTORATION & MANAGEMENT ACTIONS

PROPOSED SOLUTIONS:

- DREDGE NEW, DIRECT CHANNEL (-15') FROM WLO TO BAYOU BLUE
- DREDGE NEW, DIRECT CHANNEL (-15') FROM WLO TO LEOPARD BAYOU
- DEEPEN/MAINTAIN EXISTING, DIRECT CONNECTION FROM WLO TO HOG BAYOU
- USE DREDGED MATERIAL TO CREATE MARSH & LOW LEVEE ALONG NEW/DEEPENED CHANNEL REACHES

BAYOU BLUE AT WAX LAKE

BACK LEVEE AT WAX LAKE OUTLET

MOUTH OF LEOPARD BAYOU

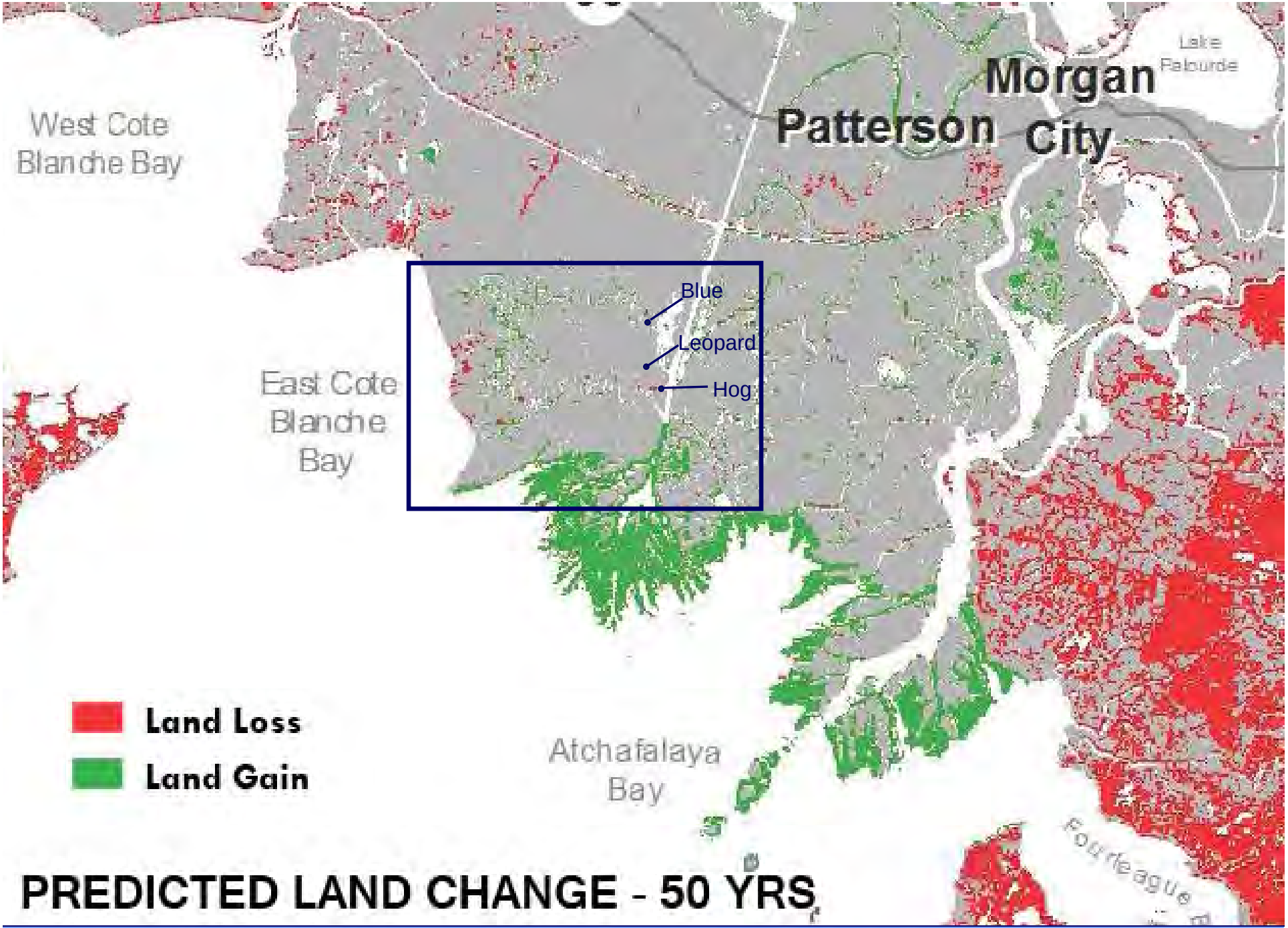
MOUTH OF HOG BAYOU

PRELIMINARY PROJECT BENEFITS:

- RESTORATION/MAINTENANCE OF HYDROLOGIC CONNECTION BETWEEN WLO & BLUE, LEOPARD & HOG BAYOUS
- DIRECT CREATION OF ~64 AC FRESHWATER WETLANDS W/DREDGING OF NEW, DIRECT CHANNEL CONNECTIONS
- INDIRECT CREATION OF ~55 AC OF FRESHWATER WETLANDS IN ACCESS CANALS AND SHALLOW PONDS ADJACENT TO DISTRIBUTARY BAYOUS
- BENEFIT ~20,000 AC FRESHWATER WETLANDS THROUGH INPUT & THROUGH-FLOW OF SEDIMENTS, NUTRIENTS & FRESH WATER
- IMPROVEMENT IN WATER QUALITY OF INTERIOR WETLANDS/ & WATER BODIES THROUGH REGULAR HYDROLOGIC FLUSHING

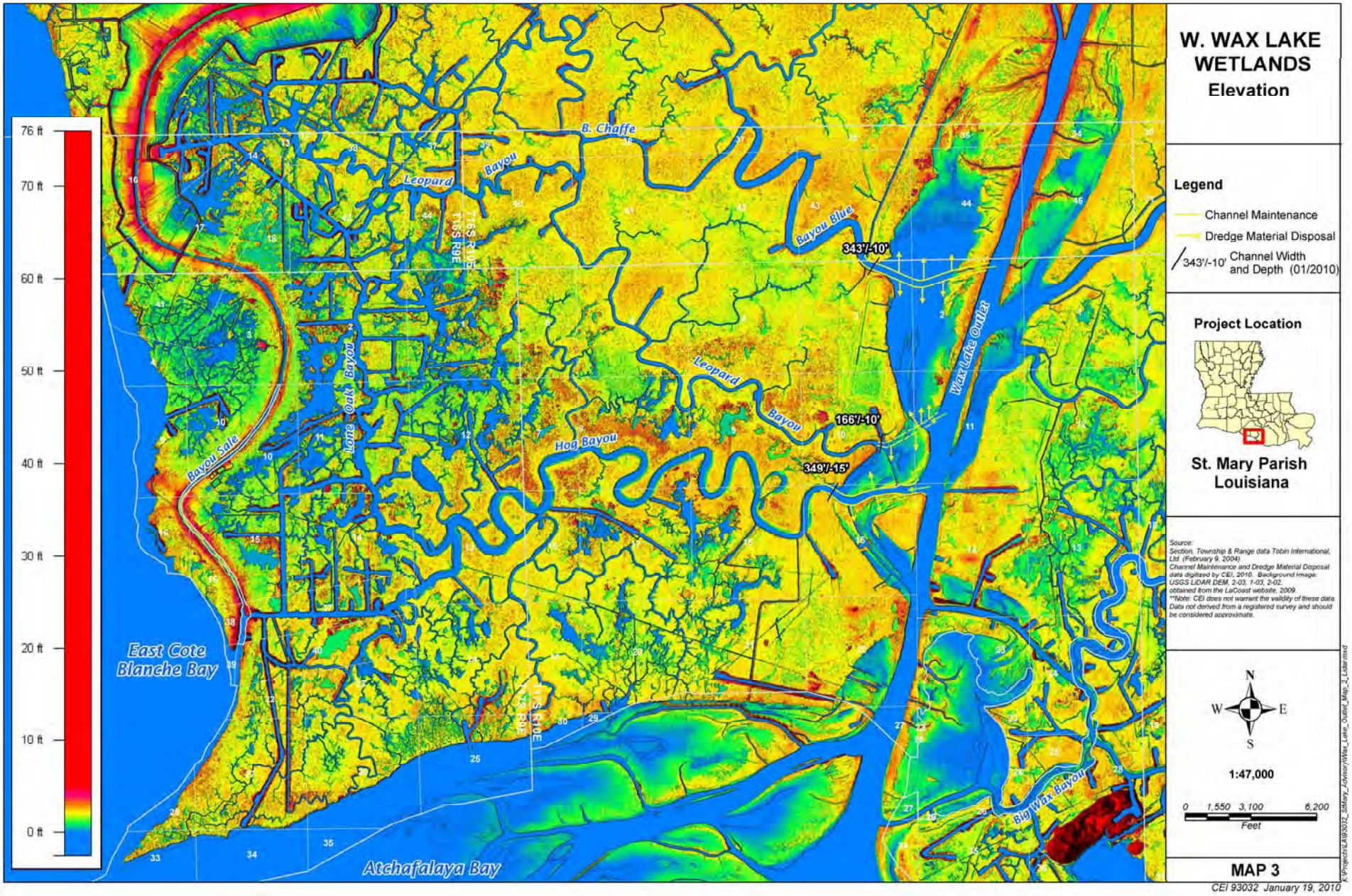
PRELIMINARY PROJECT BENEFITS:

- DEVELOPMENT OF NATURAL LEVEES & FIRMER MARSH SUBSTRATE ALONG BANKS OF MAJOR DISTRIBUTARY CHANNELS
- DEVELOPMENT OF BAR FORMATION AT JUNCTURE OF ABANDONED CANALS WITH DISTRIBUTARY CHANNELS & REDUCTION IN FLOW VELOCIATY & WETLAND SCOURING AT BACK OF CANALS
- WOULD NOT NEGATIVELY IMPACT INFRASTRUCTURE
- MAINTENANCE OF NATURAL HYDROLOGIC / LAND BUILDING PROCESSES IN W WAX LAKE SUBBASIN COMPLIMENTS PRIVATE MANAGEMENT EFFORTS
- REPRESENTS ONE COMPONENT OF STATE'S OVERALL MANAGEMENT PLAN FOR RESTORATION & PROTECTION



PREDICTED LAND CHANGE - 50 YRS

Source: CPRA Draft Master Plan 2012.01.12


W. WAX LAKE WETLANDS
Elevation
76 ft
70 ft
60 ft
50 ft
40 ft
30 ft
20 ft
10 ft
0 ft
Legend
Channel Maintenance
Dredge Material Disposal
343'/-10' Channel Width and Depth (01/2010)
Project Location
St. Mary Parish
Louisiana
Source:
Section, Township & Range data Tobin International, Ltd. (February 9, 2004).
Channel Maintenance and Dredge Material Disposal data digitized by CEI, 2010. Background image: USGS LiDAR DEM, 2-03, 1-03, 2-02, obtained from the LeCoast website, 2009.
**Note: CEI does not warrant the validity of these data. Data not derived from a registered survey and should be considered approximate.
N
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1:47,000
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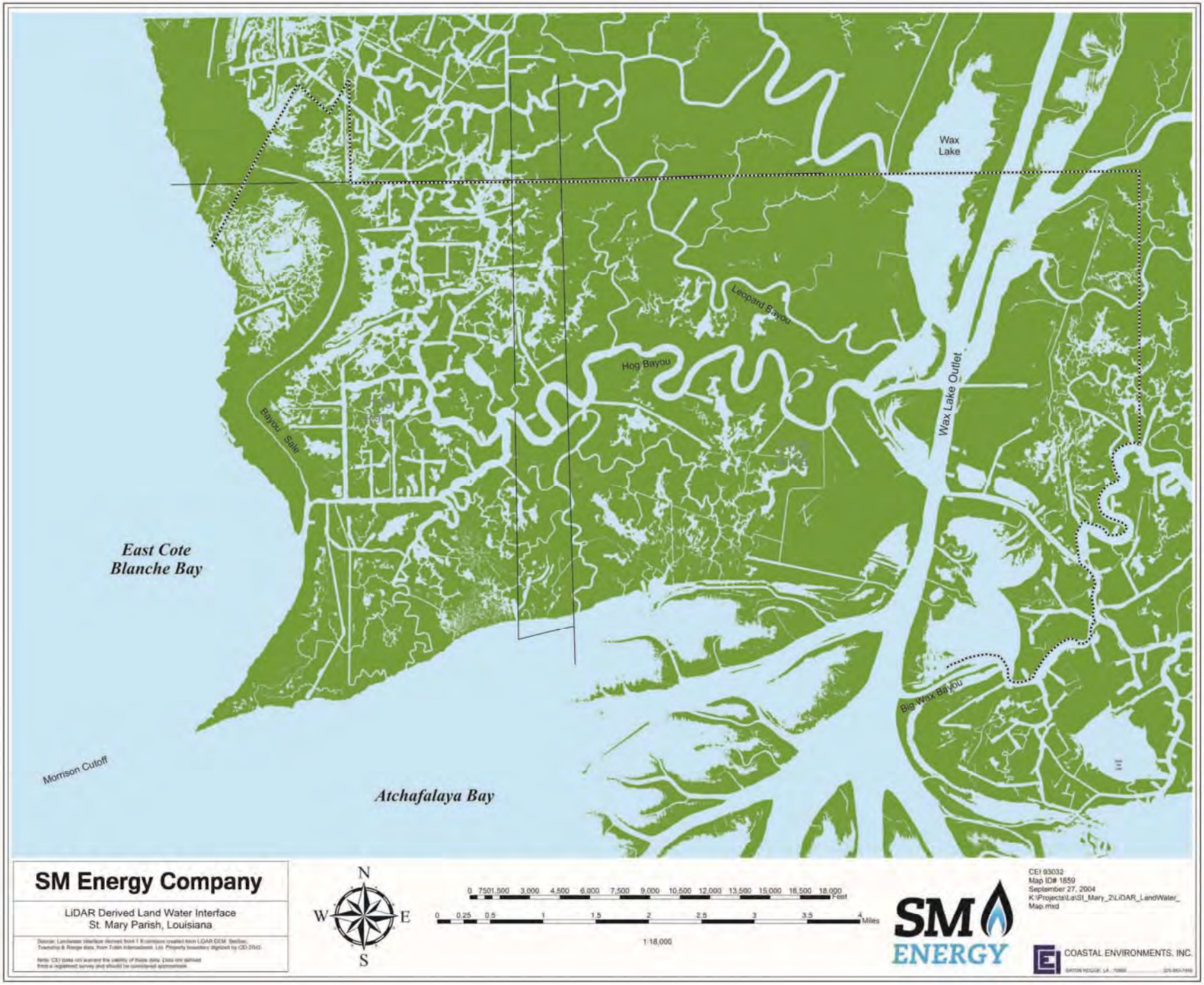
Feet
MAP 3
CEI 93032 January 19, 2010
B. Chaffe Bayou
Leopard Bayou
Bayou Blue
343'/-10'
Wax Lake Outlet
Leopard Bayou
166'/-10'
Hog Bayou
349'/-15'
Lone Oak Bayou
Bayou Sale
East Cote Blanche Bay
Atchafalaya Bay
Big Wax Bayou
T16S R10E
T16S R9E
T17S R10E
T17S R9E


Wax Lake
Leopard Bayou
Hog Bayou
Wax Lake Outlet
Bayou Sale
East Cote Blanche Bay
Big Wax Bayou
Morrison Cutoff
Atchafalaya Bay
SM Energy Company
LiDAR Derived Land Water Interface
St. Mary Parish, Louisiana
N
W
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S
0 7501,500 3,000 4,500 6,000 7,500 9,000 10,500 12,000 13,500 15,000 16,500 18,000 Feet
0 0.25 0.5 1 1.5 2 2.5 3 3.5 4 Miles
1:18,000
SM ENERGY
CEI 93033
Map ID# 1859
September 27, 2004
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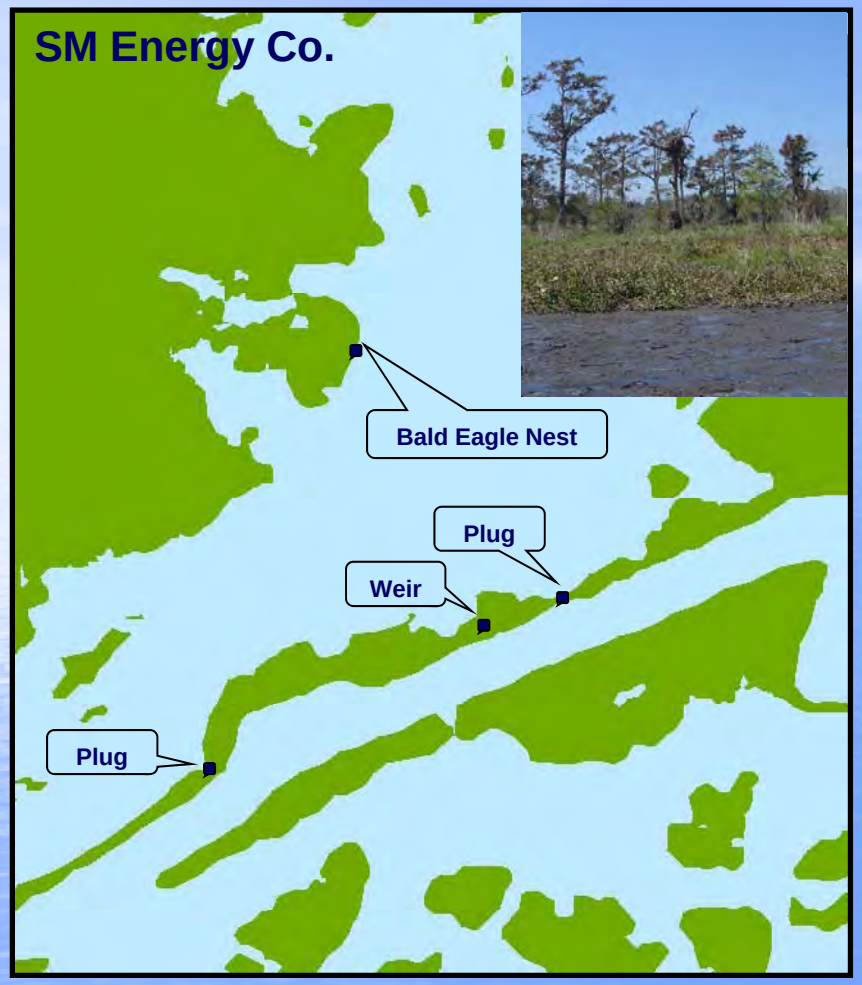
COASTAL ENVIRONMENTS, INC.

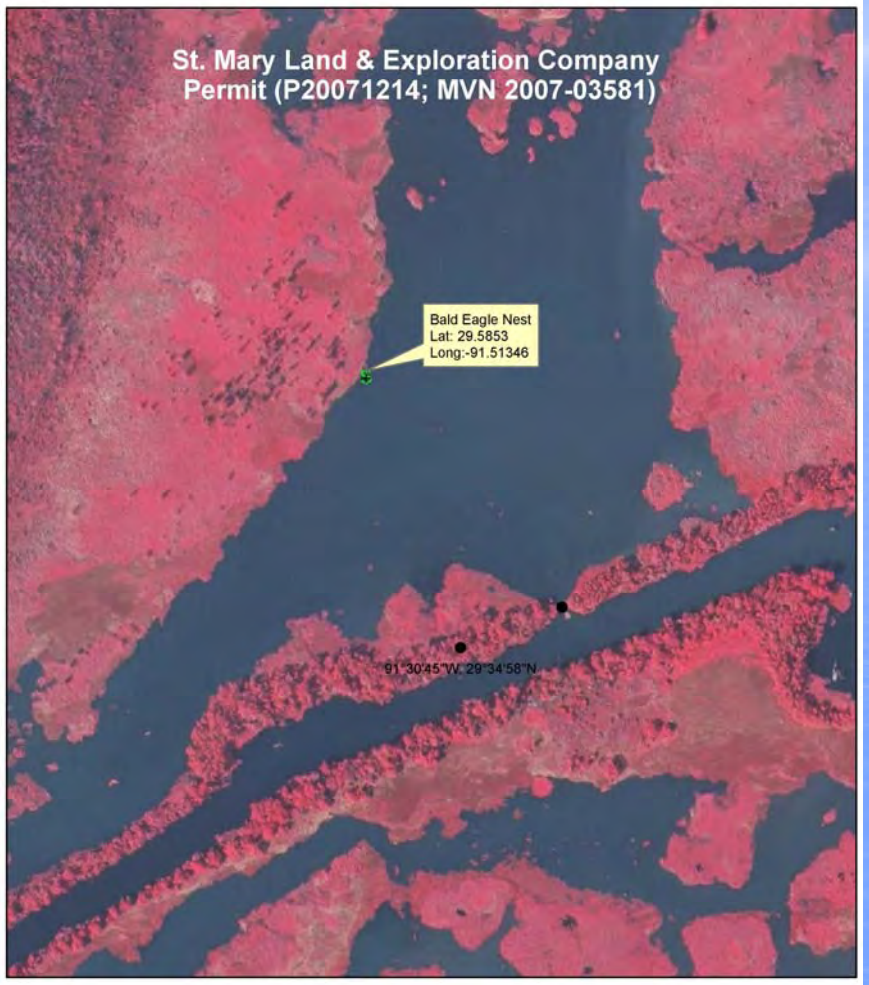


Elevation

0 ft

> 0 ft

LIDAR 2002/03



2005 DOQQ

LAND WATER ON LIDAR AND DOQQ

MARSH/OPEN WATER/EAGLE NEST EAST OF BAYOU SALE, 2006

MARSH / OPEN WATER
WEST OF LONE OAK BAYOU, 2006

Region 3 – TERREBONNE BASIN

R3-TE-01

Bay Raccourci Marsh Creation

R3-TE-01

PPL22 PROJECT NOMINEE FACT SHEET
January 25, 2012

Project Name-Bay Raccourci Marsh Creation Project

Coast 2050 Strategy:
Region 3 Strategy #8- Dedicated delivery of sediment for marsh building by any feasible means
Coastwide Strategy: Maintain bay and shoreline integrity; Vegetative plantings; #2: Maintain estuarine gradient to achieve diversity

Project Location:
Region 3, Mechant/de Cade Basin, Terrebonne Parish. This project is located north of Lake Mechant.

Problem:
High saline waters from Lake Mechant have directly contributed to the loss and/or conversion of much of the historically intermediate marshes to low salinity brackish marshes north of Lake Mechant. The zone of intermediate marsh in this area is very narrow and is located directly north of Lake Mechant. This transition zone (between fresh and brackish marshes) is becoming increasingly scarce along coastal Louisiana. Currently, the largest exchange point between Lake Mechant and the lower salinity marshes north of the lake is Bayou Raccourci. High salinity water entering Bay Raccourci via Bayou Raccourci/Lake Mechant effectively short circuits the TE-44 project and flows unimpeded into lower salinity marshes surrounding Bay Raccourci. This project will help reduce the effects of that water exchange point which could not be addressed by the TE-44 project, by restoring the integrity of the Bay Raccourci shoreline through marsh creation and planting.

Goals:
The goal of this project is to slow the northern movement of high salinity water surrounding Bay Raccourci and to retain the zone of intermediate marsh that historically ran north of Bay Raccourci. *Specific goals*: 1) Create approximately 430 acres and restore approximately 100 acres of low salinity marsh around the perimeter of Bay Raccourci. 2) Plant 20,000 ft. of newly constructed shoreline surrounding Bay Raccourci and Bayou Decade.

Proposed Solutions:
This project would create 430 acres of marsh and nourish 100 acres of broken marsh along the shorelines of Bay Raccourci and Bayou Decade. Approximately 20,000 linear feet of bayou and bay shorelines would be planted with *Spartina alterniflora* to reduce the erosion of those shorelines. Marsh would be created by dredging material from the bottom of Lake Mechant with a hydraulic dredge and pumped into contained earthen cells to a target height of +1.5 ft. NAVD 88. The earthen containment dikes would be gapped within 3 years of construction.

Preliminary Project Benefits:
This project has 382 net acres of emergent mash at the end of the 20 year project life.

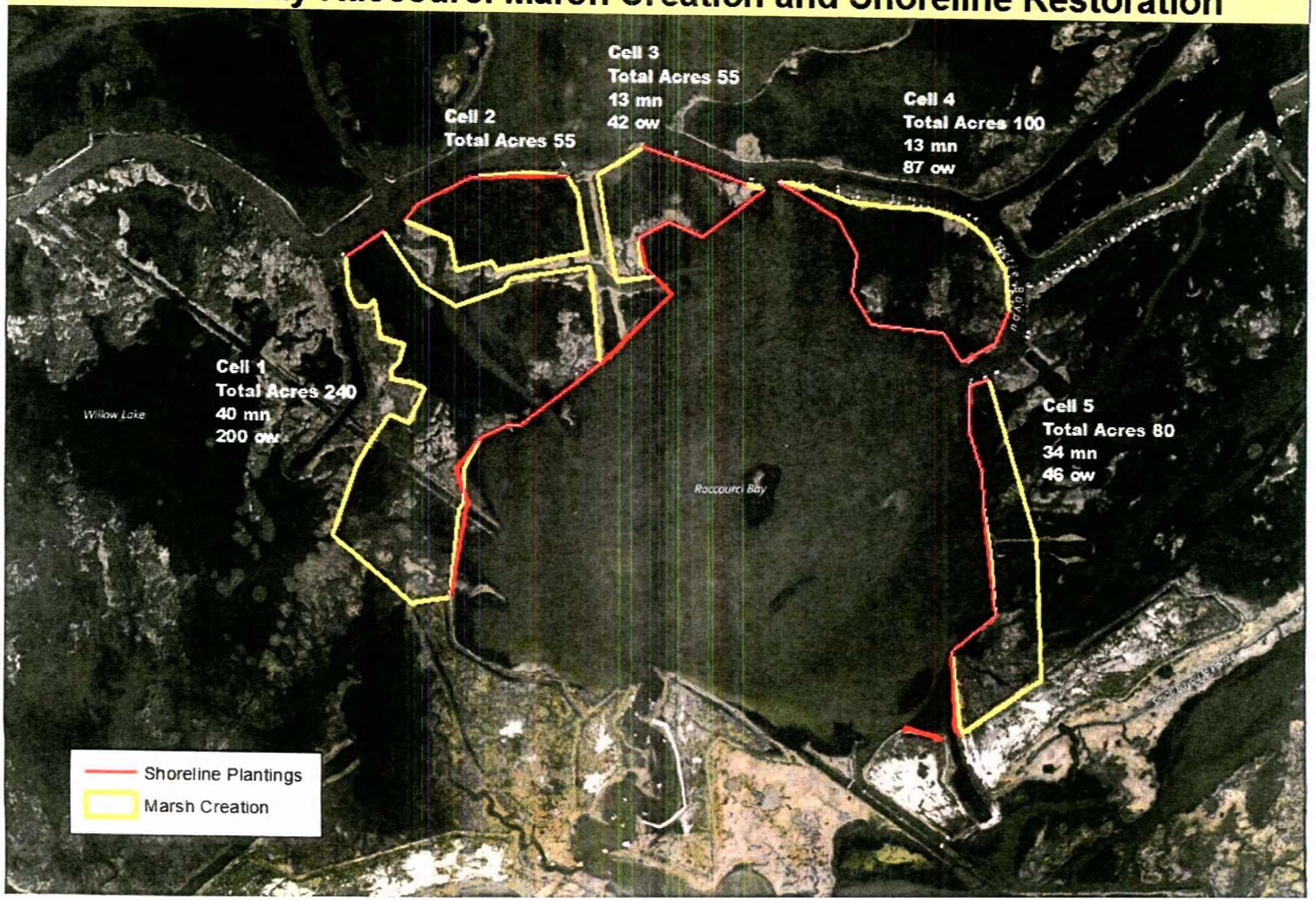
Identification of Potential Issues:
There are no known issues associated with this project.

Preliminary Construction Costs:
Lump sum construction costs for this project are estimated to be approximately $14.9 million (18.6 million with a 25% contingency).

Preparer(s) of Fact Sheet:
Robert Dubois U.S. Fish and Wildlife Service 337-291-3127 robert_dubois@fws.gov

U.S Fish and Wildlife Service - Louisiana Ecological Sevices Field Office

PPL22 - Bay Raccourci Marsh Creation and Shoreline Restoration



U.S Fish and Wildlife Service - Louisiana Ecological Sevices Field Office

PPL22 - Bay Raccourci Marsh Creation and Shoreline Restoration

Project Name- Bay Raccourci Marsh Creation Project

Problem:

High saline waters from Lake Mechant have directly contributed to the loss and/or conversion of much of the historically intermediate marshes to low salinity brackish marshes north of Lake Mechant. The zone of intermediate marsh in this area is very narrow and is located directly north of Lake Mechant. This transition zone (between fresh and brackish marshes) is becoming increasingly scarce along coastal Louisiana. Currently, the largest exchange point between Lake Mechant and the lower salinity marshes north of the lake is Bayou Raccourci. High salinity water entering Bay Raccourci via Bayou Raccourci/Lake Mechant effectively short circuits the TE-44 project and flows unimpeded into lower salinity marshes surrounding Bay Raccourci. This project will help reduce the effects of that water exchange point which could not be addressed by the TE-44 project, by restoring the integrity of the Bay Raccourci shoreline through marsh creation and planting.

Project Name- Bay Raccourci Marsh Creation Project

Proposed Solutions:

This project would create **430** acres of marsh and nourish **100** acres of broken marsh along the shorelines of Bay Raccourci and Bayou Decade. Approximately **20,000** linear feet of bayou and bay shorelines would be planted with *Spartina alterniflora* to reduce the erosion of those shorelines. Marsh would be created by dredging material from the bottom of Lake Mechant with a hydraulic dredge and pumped into contained earthen cells to a target height of +1.5 ft. NAVD 88. The earthen containment dikes would be gapped within 3 years of construction.

Goals:

The goal of this project is to slow the northern movement of high salinity water surrounding Bay Raccourci and to retain the zone of intermediate marsh that historically ran north of Bay Raccourci.

Specific goals: 1) Create approximately **430** acres and restore approximately **100** acres of low salinity marsh around the perimeter of Bay Raccourci. 2) Plant **20,000** ft. of newly constructed shoreline surrounding **Bay Raccourci and Bayou Decade**.

Project Name- Bay Raccourci Marsh Creation Project

Preliminary Project Benefits:

This project has **382 net acres** of emergent mash at the end of the 20 year project life.

Preliminary Construction Costs:

Lump sum construction costs for this project are estimated to be approximately $**14.9 million (18.6 million with a 25% contingency**).

This Project would work synergistically with the recently constructed TE-44 North Lake Mechant Marsh Creation Project

R3-TE-02

Falgout Canal Terraces

R3-TE-02

PPL22 PROJECT NOMINEE FACT SHEET
January 25, 2012

Project Name-Falgout Canal Terraces Project

Coast 2050 Strategy
Coastwide Strategy: Terracing with accompanied vegetative planting.
Region 3: Optimize Gulf Intracoastal Waterway flows into marshes and minimize direct flow into bays.

Project Location
Located in Region 3, Terrebonne Basin, Terrebonne Parish, south of Falgout Canal between Hwy. 315 and Houma Navigational Canal.

Problem
Marshes south of Falgout Canal have subsided leaving more than 4,000 acres of shallow open water approximately 1.0-2.5 feet in depth. This area is located within an oil and gas field which has been impounded on three sides by levees for many years. Currently the only fresh water reaching this area is by rainfall or a pump station near Hwy. 315 that is currently not working. High saline waters work their way from Terrebonne Bay into the marshes during the summer and fall months by the daily tidal pumping action. Once the high saline water are in this oil and gas field there are no sources of freshwater to help flush the saline water out of marsh.

Proposed Solution
This project would create a terrace field in the 3,700 acres of open water within the oil and gas field located below Falgout Canal. Approximately 179 acres of emergent marsh and 89 acres of shallow open water (<1.5 ft.) would be constructed. The terraces would be constructed with a top width of 20 feet and a 1:5 side slope. The terraces will be planted with *Spartina alterniflora* along the top crest and sides. The Morganza Levee will be built adjacent and running parallel to the Falgout Canal and will have an unknown number of culverts that will allow fresh and low salinity waters to enter the 3,700 acre project area via Falgout Canal. This freshwater will nourish the 179 acres of emergent marsh created with this project. This project will work synergistically with the Morganza Flood Levee system.

Goals
Create marsh with the construction of terraces in the shallow open water areas south of Falgout Canal which would help protect the levees along Falgout Canal and the local forced drainage levee east of Hwy. 315 by reducing wave fetch.
Specific Project Goals: 1) Create 3,700 acres of terraces which would equal 179 acres of intertidal emergent marsh and 89 acres of shallow open water, 2) Protect Falgout canal and Hwy. 315 forced drainage levees.

Preliminary Project Benefits
There would be 179 acres of emergent marsh created and 89 acres of shallow open water.

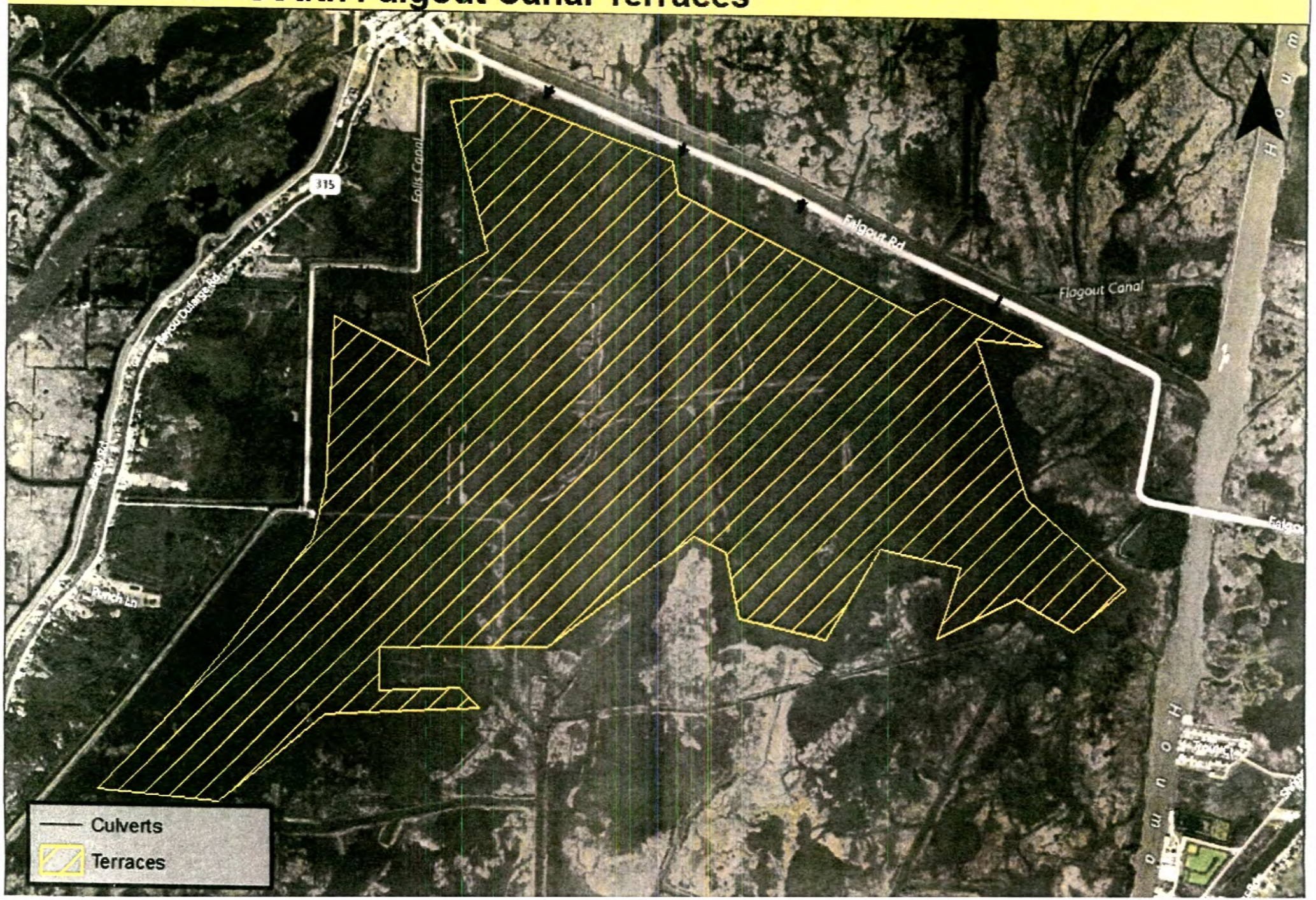
Identification of Potential Issues
There should not be any problems within the project area.

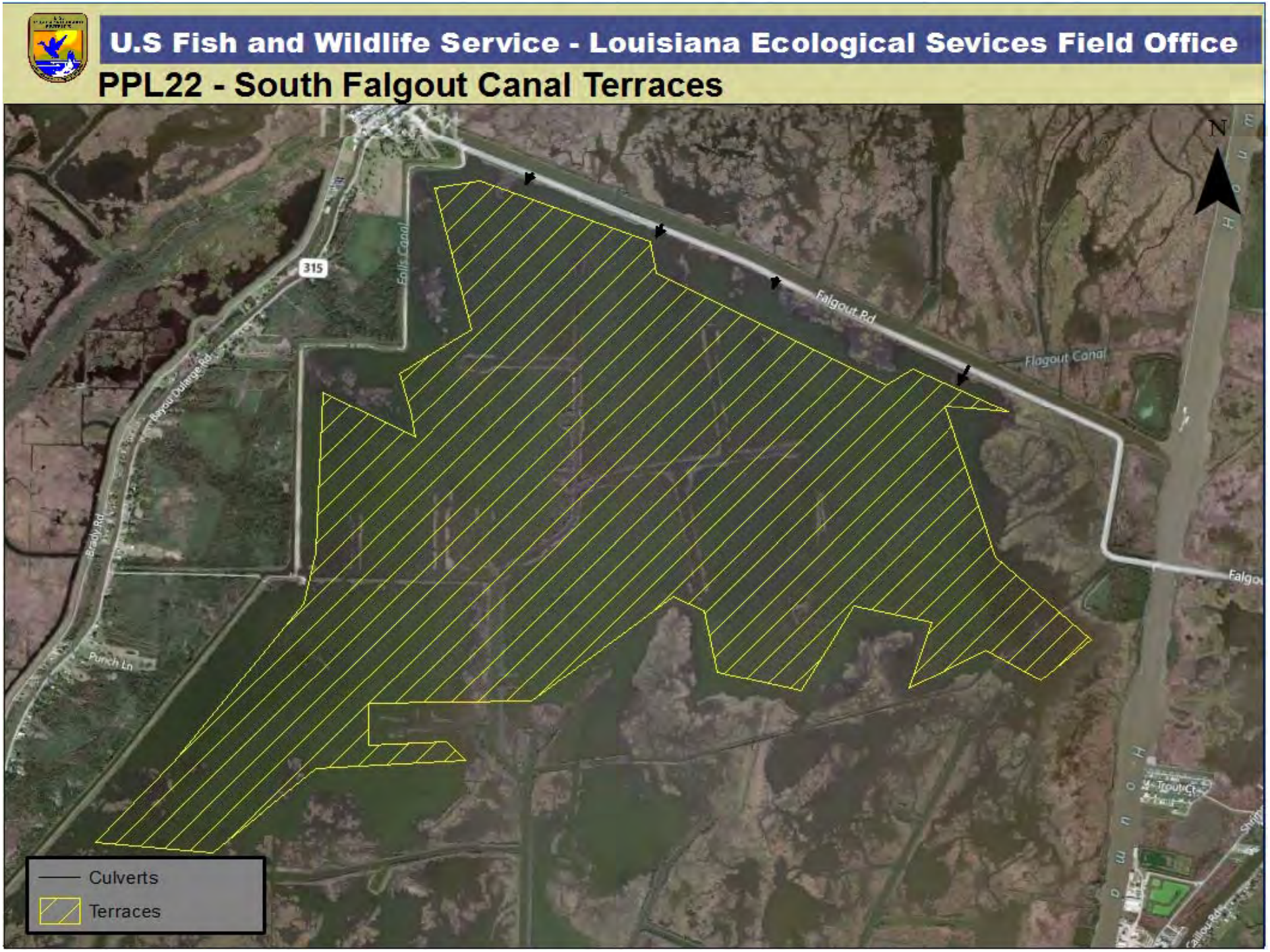
Preliminary Construction Costs
The estimated lump sum construction cost is $6.9 million ($8.6 M with 25% contingency).

Preparer(s) of Fact Sheet:
Robert Dubois U.S. Fish and Wildlife Service Robert_duboid@fws.gov (337) 291-3127

U.S Fish and Wildlife Service - Louisiana Ecological Sevices Field Office

PPL22 - South Falgout Canal Terraces




U.S Fish and Wildlife Service - Louisiana Ecological Sevices Field Office
PPL22 - South Falgout Canal Terraces
N
315
Falgout Rd
Falgout Canal
Bayou Dularge Rd
Brady Rd
Punch Ln
Culverts
Terraces

Project Name- Falgout Canal Terrace Project

Problem:

Marshes south of Falgout Canal have subsided leaving more than 4,000 acres of shallow open water approximately 1.0-2.5 feet in depth. This area is located within an oil and gas field which has been impounded on three sides by levees for many years. Currently the only fresh water reaching this area is by rainfall or a pump station near Hwy. 315 that is currently not working. High saline waters work their way from Terrebonne Bay into the marshes during the summer and fall months by the daily tidal pumping action. Once the high saline water are in this oil and gas field there are no sources of freshwater to help flush the saline water out of marsh

Project Name- Falgout Canal Terrace Project

Proposed Solution:

This project would create a terrace field in the **3,700 acres of open water** within the oil and gas field located below Falgout Canal. Approximately **179 acres of emergent marsh and 89 acres of shallow open water** (<1.5 ft.) would be constructed. The terraces would be constructed with a **top width of 20 feet and a 1:5 side slope**. The terraces will be **planted with *Spartina alterniflora*** along the top crest and sides. The **Morganza Levee** will be built adjacent and running parallel to the Falgout Canal and will have an unknown number of **culverts that will allow fresh and low salinity waters** to enter the 3,700 acre project area via Falgout Canal. This freshwater will nourish the 179 acres of emergent marsh created with this project. This project will work synergistically with the Morganza Flood Levee system.

Project Name- Falgout Canal Terrace Project

Goals:

Create marsh with the construction of terraces in the shallow open water areas south of Falgout Canal which would help protect the levees along Falgout Canal and the local forced drainage levee east of Hwy. 315 by reducing wave fetch.

***Specific Project Goals**:* 1) Create **3,700 acres of terraces** which would equal **179 acres of intertidal emergent marsh and 89 acres of shallow open water,** 2) Protect Falgout canal and Hwy. 315 forced drainage levees.

Preliminary Project Benefits
There would be 179 acres of emergent marsh created and 89 acres of shallow open water.

Preliminary Construction Costs
The estimated lump sum construction cost is **$6.9 million ($8.6 M with 25% contingency).**

R3-TE-03

North Lake Boudreaux Marsh Creation and Shoreline Protection

R 3 - TE - 03

PPL22 PROJECT NOMINEE FACT SHEET
January 25, 2012

Project Name-North Lake Boudreaux Marsh Creation and Shoreline Protection Project

Coast 2050 Strategy
Region 3 Strategy #8- Dedicated delivery of sediment for marsh building by any feasible means
Coastwide Strategy: Maintain bay and shoreline integrity; #2: Maintain estuarine gradient to achieve diversity

Project Location
Region 3, Boudreaux Basin, Terrebonne Parish. This project is located south of Houma, Louisiana between Highway 57 and 56.

Problem
High saline waters enter Lake Boudreaux via Robinson and Boudreaux Canals impacting the low salinity marshes north of Lake Boudreaux. This high saline water, lack of sediment and freshwater inputs coupled with the historic dredging of oil and gas canals have directly contributed to the loss and/or conversion of much of the historically fresh/intermediate marshes to low/moderate brackish marshes. Several projects have been constructed along the northern shorelines of Lake Boudreaux in an effort to combat this problem, but have left several stretches of vulnerable shoreline without any protection.

Proposed Solution
The proposed project features would include construction of approximately 9,900 linear feet of rock revetment/dike in three non-contiguous sections along portions of the western, northern, and eastern shorelines of Lake Boudreaux and the creation of 413 acres of emergent marsh. The rock would provide protection for the newly created marsh as well as the vulnerable marsh along the unprotected portions of the lake. The newly created marsh would be created by pumping sediment from the bottom of Lake Boudreaux into the shallow water marsh creation areas to a target height of +1.4 NAVD 88. Containment dikes will be constructed around the marsh creation area to keep material on site during pumping. Containment dikes will be gapped/degraded within 3 years of construction to facilitate the exchange of water and estuarine organism. This project would tie together several projects into one continuous shoreline protection and marsh creation project.

Goals
The goal of this project is to slow the northern movement of high saline water that enter the low salinity marshes directly north of the lake and protect the marshes that are currently intact.
Specific goals: 1) Create approximately 413 acres of low salinity marsh around the perimeter of the northern shoreline of Lake Boudreaux. 2) Protect approximately 76 acres of existing fragile marsh/shoreline and shallow water habitat by constructing 9,900 lf of rock revetment/foreshore dike.

Preliminary Project Benefits
This project would create/protect 324 net acres of emergent marsh at the end of the 20 year project life.

Identification of Potential Issues-The proposed project has potential utility/pipeline issues.

Preliminary Construction Costs
Lump sum construction costs for this project are estimated to be approximately $12.4 million ($15.5 million with a 25% contingency).

Preparer(s) of Fact Sheet:
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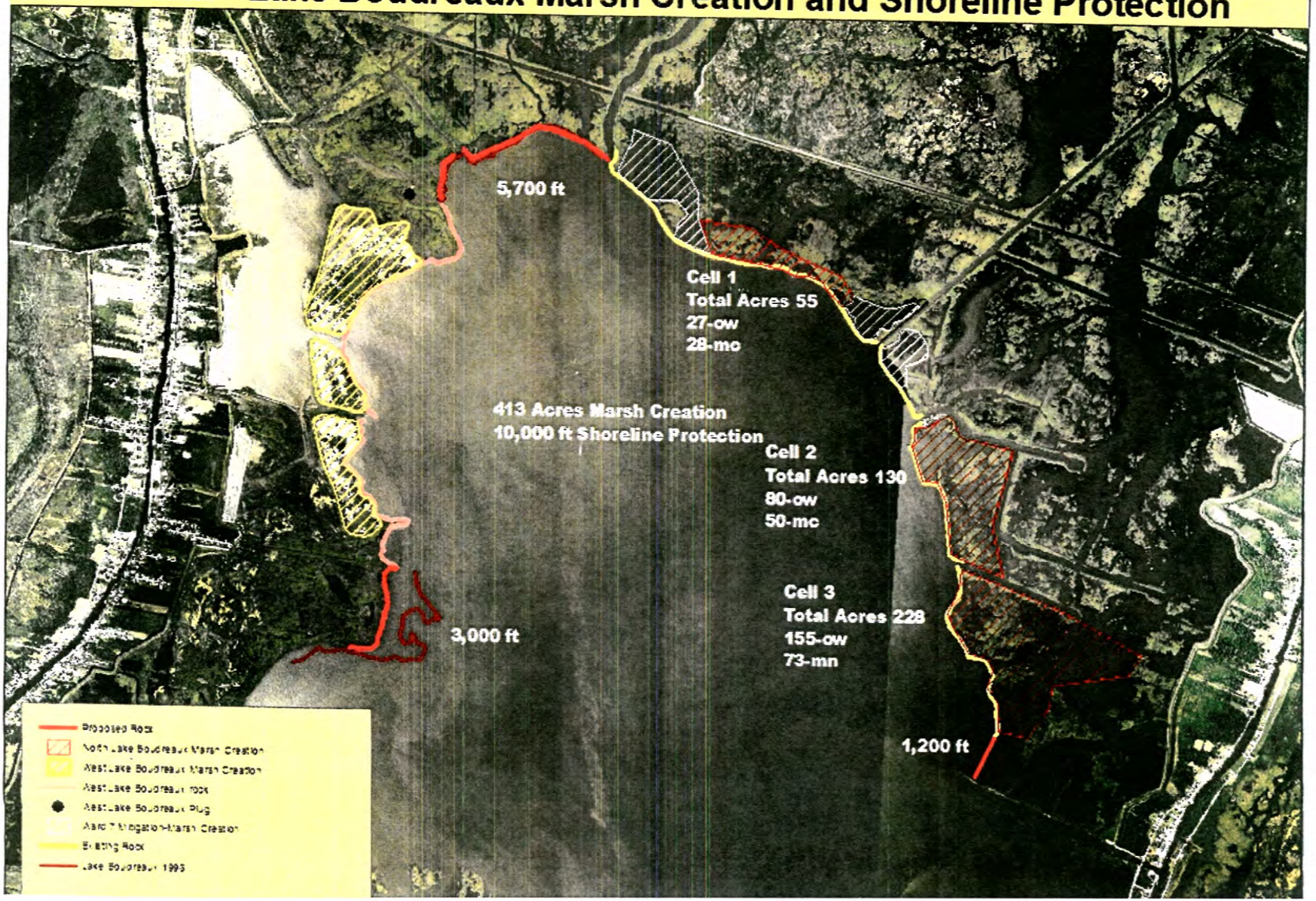
U.S Fish and Wildlife Service - Louisiana Ecological Sevices Field Office

PPL22 - Lake Boudreaux Marsh Creation and Shoreline Protection



U.S Fish and Wildlife Service - Louisiana Ecological Sevices Field Office

PPL22 - Lake Boudreaux Marsh Creation and Shoreline Protection

U.S Fish and Wildlife Service - Louisiana Ecological Sevices Field Office

PPL22 - Lake Boudreaux Marsh Creation and Shoreline Protection

Project Name-

North Lake Boudreaux Marsh Creation and Shoreline Protection Project

Problem:

High saline waters enter Lake Boudreaux via Robinson and Boudreaux Canals impacting the low salinity marshes north of Lake Boudreaux. This high saline water, lack of sediment and freshwater inputs coupled with the historic dredging of oil and gas canals have directly contributed to the loss and/or conversion of much of the historically fresh/intermediate marshes to low/moderate brackish marshes. Several projects have been constructed along the northern shorelines of Lake Boudreaux in an effort to combat this problem, but have left several stretches of vulnerable shoreline without any protection.

Project Name-

North Lake Boudreaux Marsh Creation and Shoreline Protection Project

Proposed Solution:

The proposed project features would include construction of approximately **9,900 linear feet of rock** revetment/dike in three non-contiguous sections along portions of the western, northern, and eastern shorelines of Lake Boudreaux and the **creation of 413 acres of emergent marsh**. The rock would provide protection for the newly created marsh as well as the vulnerable marsh along the unprotected portions of the lake. The newly created marsh would be created by pumping sediment from the bottom of Lake Boudreaux into the shallow water marsh creation areas to a target height of +1.4 NAVD 88. Containment dikes will be constructed around the marsh creation area to keep material on site during pumping. Containment dikes will be gapped/degraded within 3 years of construction to facilitate the exchange of water and estuarine organism. This project would tie together several projects into one continuous shoreline protection and marsh creation project

Project Name:

North Lake Boudreaux Marsh Creation and Shoreline Protection Project

Goals:

The goal of this project is to slow the northern movement of high saline water that enter the low salinity marshes directly north of the lake and protect the marshes that are currently intact.

Specific goals: 1) Create approximately **413 acres of low salinity marsh** around the perimeter of the northern shoreline of Lake Boudreaux. 2) Protect approximately **76 acres** of existing fragile marsh/shoreline and shallow water habitat by constructing **9,900 lf of rock revetment/foreshore dike.**

Preliminary Project Benefits:

This project would create/protect **324 net acres of emergent marsh** at the end of the 20 year project life.

Preliminary Construction Costs

Lump sum construction costs for this project are estimated to be approximately **$12.4 million ($15.5 million with a 25% contingency).**

R3-TE-04

Lake Tambour Marsh Creation

R3 - TE - 04

PPL22 PROJECT NOMINEE FACT SHEET
January 25, 2012

Project Name-Lake Tambour Marsh Creation Project

Coast 2050 Strategy
Coastwide Strategy: Maintenance of Bay and Lake Shoreline Integrity
Region 3 Strategy #8; Dedicated Dredging for Wetland Creation, #11- Maintain shoreline integrity of marshes adjacent to Caillou, Terrebonne, and Timbalier Bays

Project Location
Located in Region 3, Terrebonne Basin, Terrebonne Parish, along the northern shoreline of Lake Barre/Terrebonne Bay from Bayou Chitique to the western shoreline of Lake Tambour.

Problem
Emergent marshes north of Terrebonne Bay have been eroding as fast or faster than almost any other marshes along coastal Louisiana. Reasons for this include subsidence, a lack of sediment input, and a limited supply of fresh water coupled with past dredging of oil and gas canals. As these marshes convert to shallow open water, the tidal prism will increase which will in turn increase the frequency and duration of tides north of Terrebonne Bay.

Proposed Solution
The proposed features of this project consist of filling approximately 425 acres of shallow open water and nourishing 420 acres of broken marsh with material hydraulically dredged from Terrebonne Bay/Lake Barre. The target settled elevation will be +1.4 NAVD 88, but will ultimately correspond to surrounding healthy marsh. Containment dikes would be constructed around each marsh creation/nourishment site and be of sufficient height to retain the dredged slurry. Containment dikes would be gapped within 3 years to allow for tidal and estuarine organism access. This project would be the second phase of a comprehensive plan to protect the northern shoreline of Terrebonne Bay and the interior marshes from further erosion and reduce the tidal prism. This would also work synergistically with the Terrebonne Bay Demonstration Project, Terrebonne Bay Marsh Creation Project, and possibly the Madison Bay project.

Goals
Fill shallow open water areas north of Terrebonne Bay/Lake Barre which would reduce the tidal prism north of Terrebonne Bay and reduce interior land loss from tidal scouring.
Specific Project Goals: 1) Create 425 acres of intertidal emergent marsh and nourish 420 acres of broken marsh 2) Reduce shoreline erosion along 12,000 ft of the northern shoreline of Terrebonne Bay and major bayous.

Preliminary Project Benefits
There would be 420 net acres of emergent marsh at the end of the 20 year project life.

Identification of Potential Issues
There could be some pipelines issues as well as numerous oyster leases within the project area.

Preliminary Construction Costs
The estimated lump sum construction cost is estimated to be $19.6 ($24.5 M with 25% contingency).

Preparer(s) of Fact Sheet:
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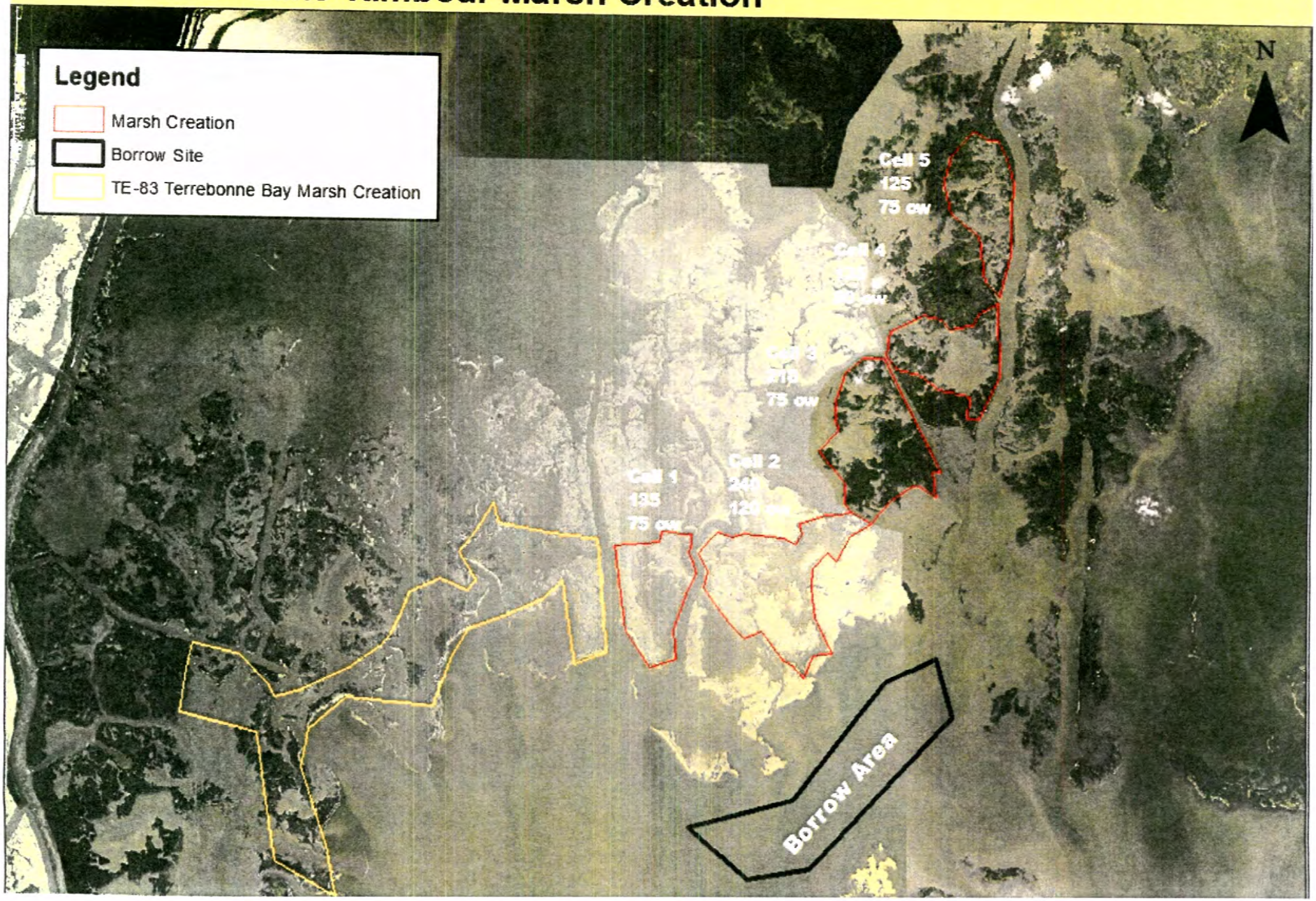
U.S Fish and Wildlife Service - Louisiana Ecological Sevices Field Office

PPL22 - Lake Tambour Marsh Creation



U.S Fish and Wildlife Service - Louisiana Ecological Sevices Field Office
PPL22 - Lake Tambour Marsh Creation
Legend
Marsh Creation
Borrow Site
TE-83 Terrebonne Bay Marsh Creation
N
Cell 5
125
75 ow
Cell 4
135
80 ow
Cell 3
210
75 ow
Cell 2
240
120 ow
Cell 1
135
75 ow
Borrow Area

U.S Fish and Wildlife Service - Louisiana Ecological Sevices Field Office
PPL22 - Lake Tambour Marsh Creation
Legend
Marsh Creation
Borrow Site
TE-83 Terrebonne Bay Marsh Creation
N
Cell 5
125
75 ow
Cell 4
135
80 ow
Cell 3
210
75 ow
Cell 2
240
120 ow
Cell 1
135
75 ow
Borrow Area

U.S Fish and Wildlife Service - Louisiana Ecological Sevices Field Office

PPL22 - Lake Tambour Marsh Creation

Project Name- Lake Tambour Marsh Creation Project

Problem

Emergent marshes north of Terrebonne Bay have been eroding as fast or faster than almost any other marshes along coastal Louisiana. Reasons for this include subsidence, a lack of sediment input, and a limited supply of fresh water coupled with past dredging of oil and gas canals. As these marshes convert to shallow open water, the tidal prism will increase which will in turn increase the frequency and duration of tides north of Terrebonne Bay.

Proposed Solution

The proposed features of this project consist of filling approximately 425 acres of shallow open water and nourishing 420 acres of broken marsh with material hydraulically dredged from Terrebonne Bay/Lake Barre. The target settled elevation will be +1.4 NAVD 88, but will ultimately correspond to surrounding healthy marsh. Containment dikes would be constructed around each marsh creation/nourishment site and be of sufficient height to retain the dredged slurry. Containment dikes would be gapped within 3 years to allow for tidal and estuarine organism access. This project would be the second phase of a comprehensive plan to protect the northern shoreline of Terrebonne Bay and the interior marshes from further erosion and reduce the tidal prism. This would also work synergistically with the Terrebonne Bay Demonstration Project, Terrebonne Bay Marsh Creation Project, and possibly the Madison Bay project.

Project Name- Lake Tambour Marsh Creation Project

Goals

Fill shallow open water areas north of Terrebonne Bay/Lake Barre which would reduce the tidal prism north of Terrebonne Bay and reduce interior land loss from tidal scouring.

Specific Project Goals*:* 1) Create **425** acres of intertidal emergent marsh and nourish **420** acres of broken marsh 2) Reduce shoreline erosion along **12,000** ft of the northern shoreline of Terrebonne Bay and major bayous.

Preliminary Project Benefits

There would be **420 net acres** of emergent marsh at the end of the 20 year project life.

Preliminary Construction Costs

The estimated lump sum construction cost is estimated to be **$19.6 ($24.5 M with 25% contingency).**

R3-TE-05

Terraces on Point aux Chene WMA

R3-TE-05

PPL22 PROJECT NOMINEE FACT SHEET
January 25, 2012

Project Name- Terraces on Point aux Chene WMA

Coast 2050 Strategy
Coastwide Strategy: Terracing with accompanied vegetative planting.

Project Location
Located in Region 3, Terrebonne Basin, Lafourche Parish, west of Grand Bayou on the Point aux Chene WMA

Problem
As marshes in the Terrebonne and South Bully Camp sub basins have been disappearing through a combination of subsidence and erosion high saline water from lakes Tambour and Lake Felicity have increasingly moving further north into the lower salinity marshes of St. Louis Canal and North Bully Camp Marshes. In recent years, several large areas of emergent marsh have converted into areas of shallow open water. The area between Grand Bayou and Hwy. 665 is one of the areas that have converted to open water. This large open water will increase the fetch which will increase the erosion of the banks of Grand Bayou and along Hwy. 665.

Proposed Solution
This project would create a terrace field in the 2,000 acres of open water within the Point aux Chene WMA project area. Approximately 92 acres of emergent marsh and 46 acres of shallow open water (<1.5 ft.) would be constructed. The terraces would be constructed with a top width of 20 feet and a 1:5 side slope. The terraces will be planted with *Spartina alterniflora* along the top crest and sides. Several project have been submitted to bring more freshwater from the GIWW into this unit which would further benefit this created marsh.

Goals
Create marsh with the construction of terraces in the shallow open water areas east of Grand Bayou which would help protect the levees along Grand Bayou and Hwy. 665 by reducing the wave fetch.
Specific Project Goals: 1) Create 1,900 acres of terraces which would equal 92 acres of intertidal emergent marsh and 46 acres of shallow open water, 2) Protect Grand Bayou levee and Hwy. 665.

Preliminary Project Benefits
There would be 92 acres of emergent marsh created and 46 acres of shallow open water.

Identification of Potential Issues
There should not be any problems within the project area.

Preliminary Construction Costs
The estimated lump sum construction cost is $3.9 million ($4.9 M with 25% contingency).

Preparer(s) of Fact Sheet:
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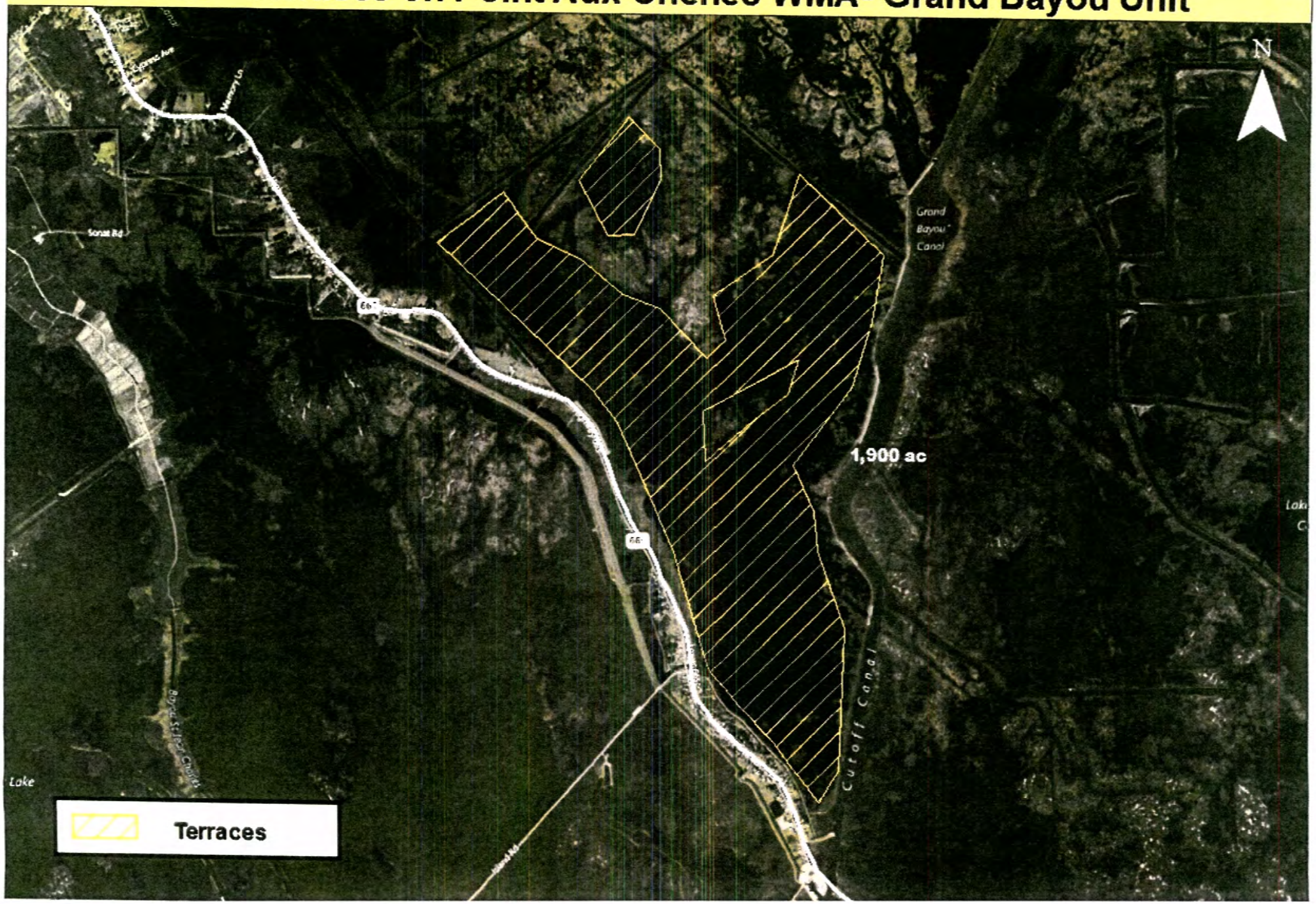
U.S Fish and Wildlife Service - Louisiana Ecological Sevices Field Office

PPL22 - Terraces on Point Aux Chenes WMA- Grand Bayou Unit



U.S Fish and Wildlife Service - Louisiana Ecological Sevices Field Office

PPL22 - Terraces on Point Aux Chenes WMA- Grand Bayou Unit

Project Name-Terraces on Point aux Chene WMA

Problem:

As marshes in the Terrebonne and South Bully Camp sub basins have been disappearing through a combination of subsidence and erosion high saline water from lakes Tambour and Lake Felicity have increasingly moving further north into the lower salinity marshes of St. Louis Canal and North Bully Camp Marshes. In recent years, several large areas of emergent marsh have converted into areas of shallow open water. The area between Grand Bayou and Hwy. 665 is one of the areas that have converted to open water. This large open water will increase the fetch which will increase the erosion of the banks of Grand Bayou and along Hwy. 665.

Proposed Solution:

This project would create a terrace field in **the 2,000 acres of open water** within the Point aux Chene WMA project area. Approximately **92 acres of emergent marsh and 46 acres of shallow open water** (<1.5 ft.) would be constructed. The terraces would be constructed with a **top width of 20 feet and a 1:5 side slope.** The terraces will be **planted with *Spartina alterniflora*** along the top crest and sides. Several project have been submitted to bring more freshwater from the GIWW into this unit which would further benefit this created marsh.

Project Name-Terraces on Point aux Chene WMA

Goals:

Create marsh with the construction of terraces in the shallow open water areas east of Grand Bayou which would help protect the levees along Grand Bayou and Hwy. 665 by reducing the wave fetch.

***Specific Project Goals**:* 1) Create **1,900 acres of terraces** which would equal **92 acres of intertidal emergent marsh and 46 acres of shallow open water,** 2) Protect Grand Bayou levee and Hwy. 665.

Preliminary Project Benefits:
There would be **92 acres of emergent marsh created and 46 acres of shallow open water.**

Preliminary Construction Costs:
The estimated lump sum construction cost is **$3.9 million ($4.9 M with 25% contingency).**

R3-TE-06

Grand Bayou Freshwater Enhancement/Introduction and Terraces

PPL22 PROJECT NOMINEE FACT SHEET
January 25, 2012

Project Name-Grand Bayou Freshwater Enhancement and Terracing

Coast 2050 Strategy:
Coastwide Strategy: Maintain estuarine gradient to achieve diversity, Diversions and riverine discharge, Management of diversion outfall for wetland benefits
Region 3 Strategy: Enhance Atchafalaya River water influence to Central Terrebonne Marshes, Restore and Sustain Marshes.

Project Location:
Region 3, Terrebonne Basin, Lafourche Parish; North Bully Camp Marsh and St. Louis Canal Marshes.

Problem:
High salinity waters are pushed northward into the marshes within the project area from Lake Felicity and Lake Raccourci. The amount of high salinity waters moving north is increasing as the marshes continue to breakup. Freshwater inflows to this area originate from precipitation events and the Gulf Intracoastal Waterway (GIWW) along the northern project boundary. The freshwater inflow from the GIWW is restricted by the small cross-section of the channel above the Hwy. 24 bridge and the cross-section of the channel for several thousand feet below that bridge. There is also a restriction in Margaret's Bayou which keeps freshwater from moving east into the broken marshes.

Goals:
The primary goal of this project is to increase the flow of freshwater from the GIWW down Grand Bayou into the wetlands south of the GIWW and north of Bully Camp. Construction of terraces would help retain freshwater inputs from the north and slow the northern movement of higher salinity water from the south. ***Specific goals*:** 1) Increase the flow of freshwater south along Grand Bayou into the marshes east of Grand Bayou, 2) Create 60,000 linear feet of terraces along the southern Point aux Chene boundary.

Proposed Solutions:
This project would increase the cross sectional area of the Grand Bayou channel to 1,000 sq. ft. from its confluence with the GIWW to Margaret's Bayou approximately 25,000 ft. south of the GIWW. Also, we would increase the depth and width of a small drainage ditch that connects the GIWW to Grand Bayou south of Hwy. 24. A small wing wall structure would be built in Grand Bayou near the Margaret's Bayou to the east, which would assist in directing water flow to the east. Approximately 60,000 linear feet of terraces would be built along Point aux Chene's southern boundary to help retain the freshwater and slow the northern movement of higher saline waters.

Preliminary Project Benefits:
This project would create 60,000 linear feet of terraces and should reduce salinities within Point aux Chene WMA benefitting an area approximately 9,000 acres east and west of Grand Bayou that is largely made of emergent mash and shallow open water habitat.

Identification of Potential Issues:
There could be some utility and pipeline issues associated with this project.

Preliminary Construction Costs:
Preliminary construction costs plus 25% contingency is approximately $15.7 million.

Preparer(s) of Fact Sheet:
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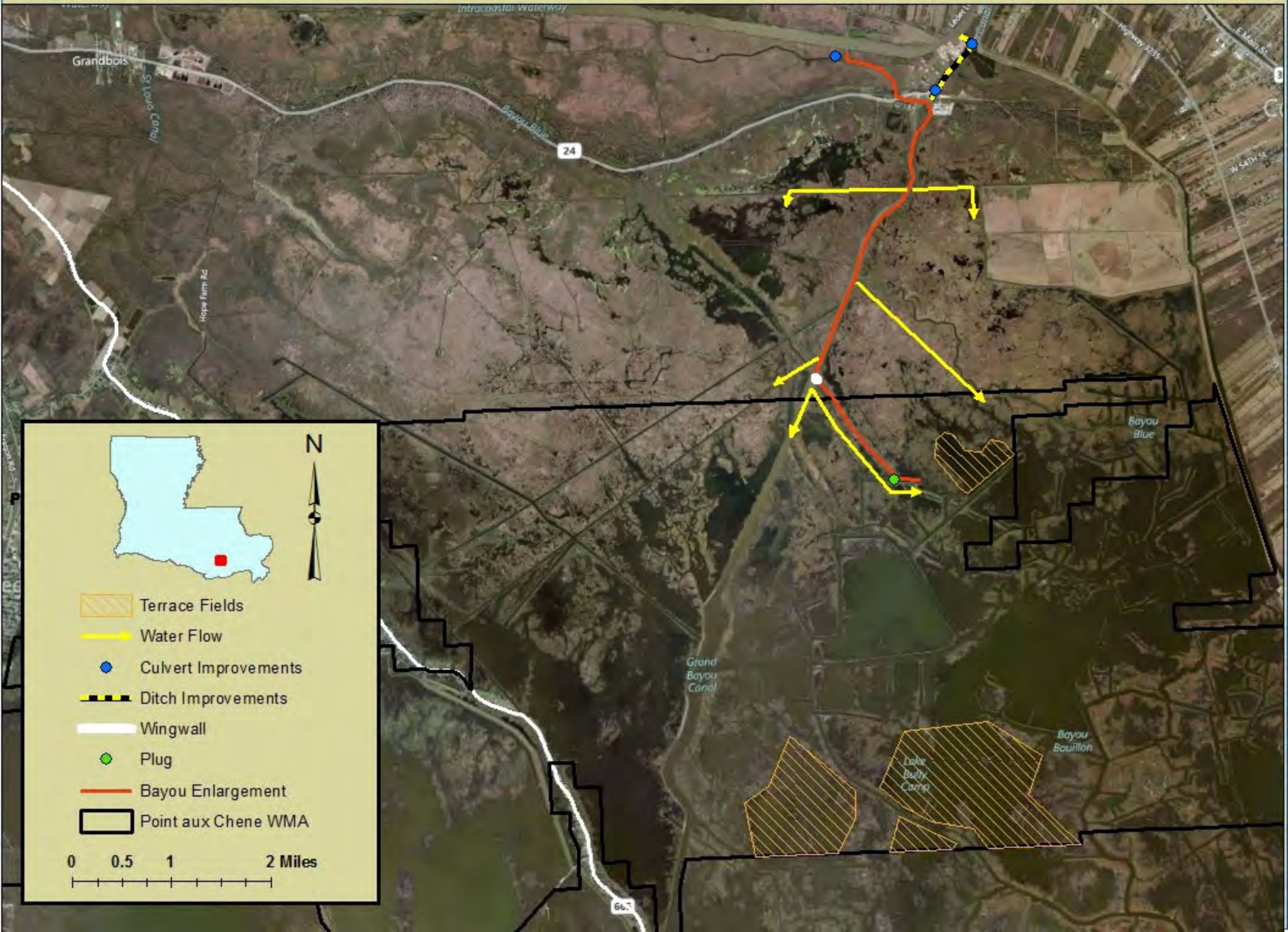
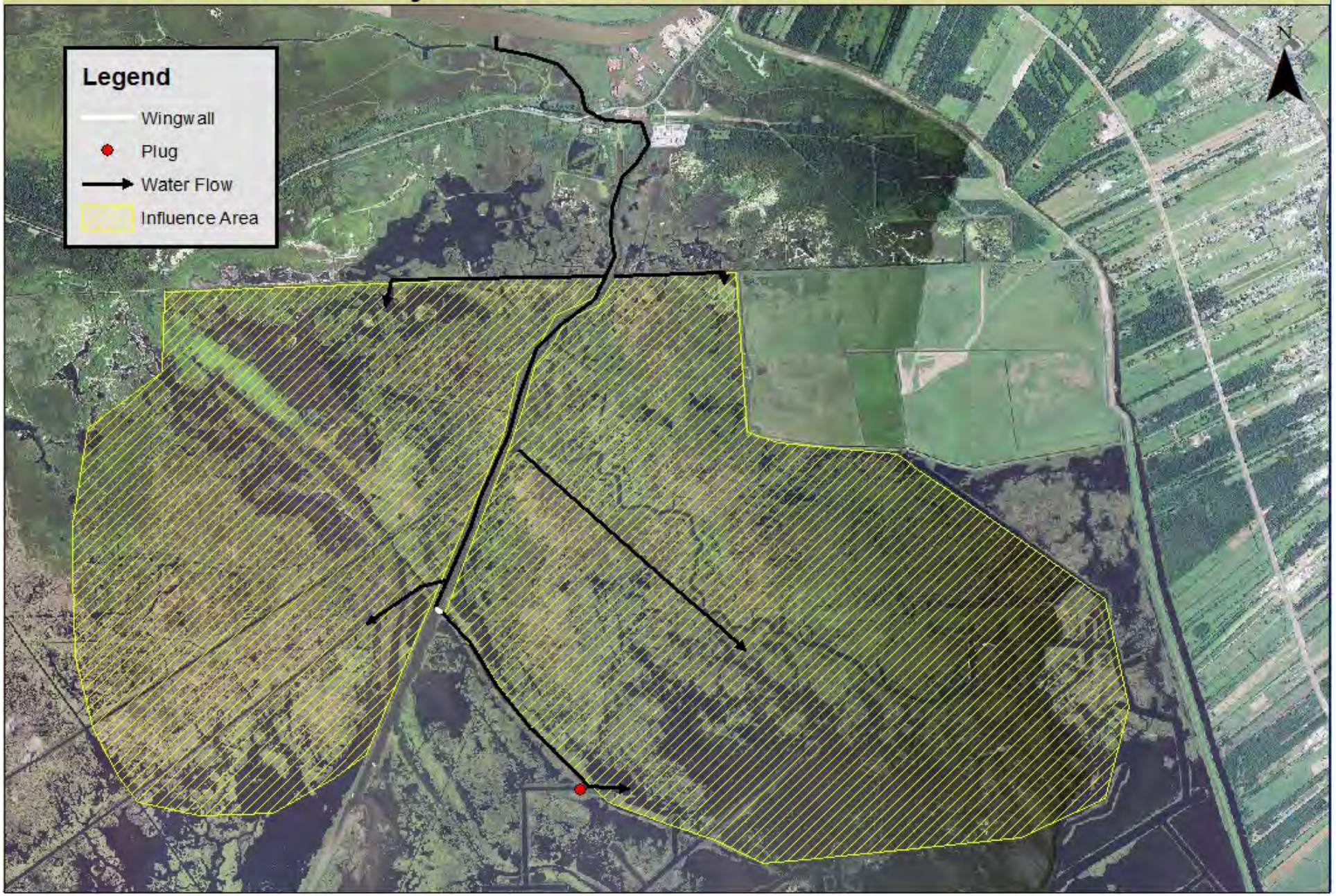
Robert Dubois, U.S. Fish and Wildlife Service, (337) 291-3127; robert_dubois@fws.gov

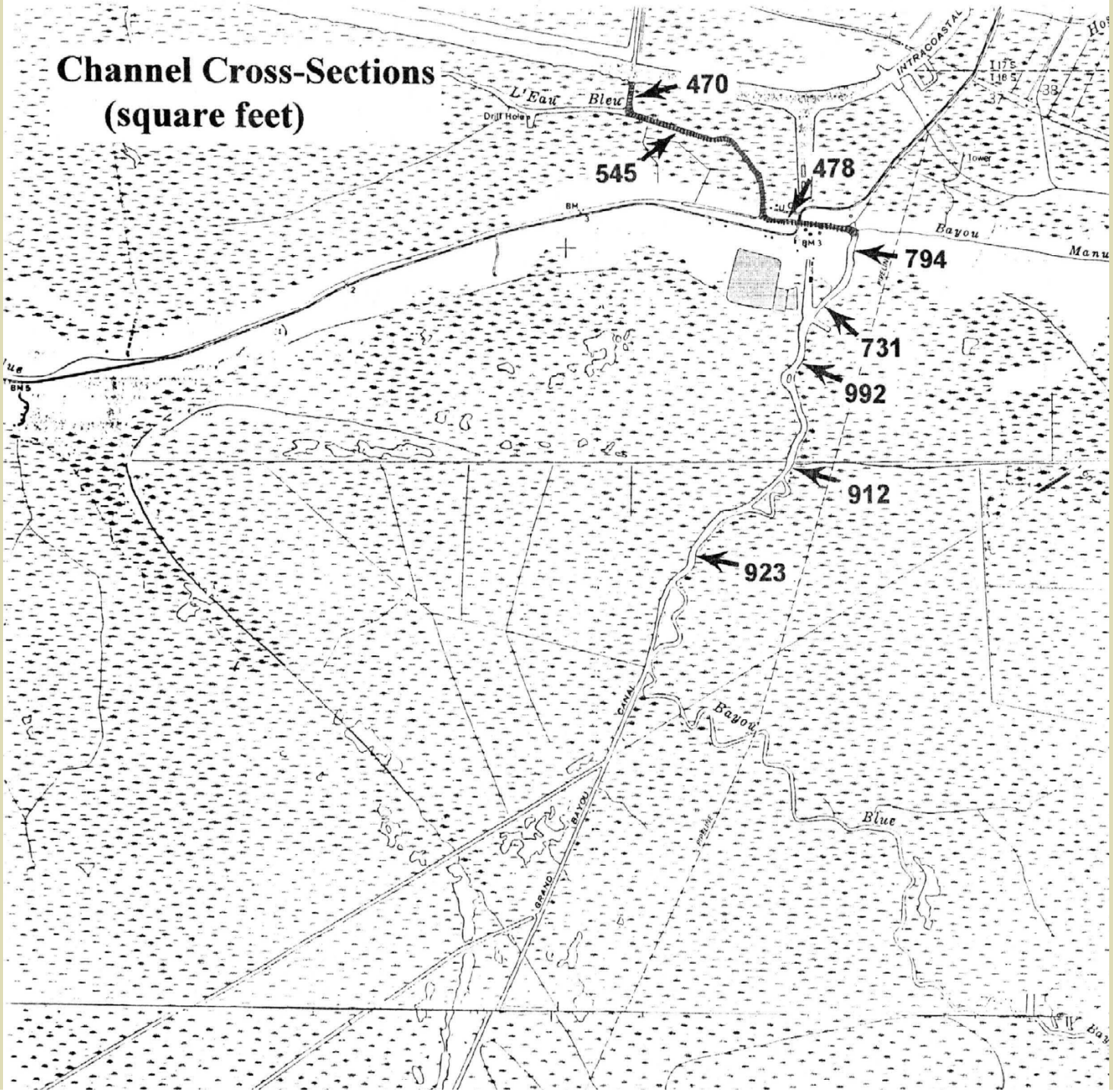
PPL22 - Grand Bayou Freshwater Enhancement and Terracing



U.S Fish and Wildlife Service - Louisiana Ecological Sevices Field Office

PPL22 - Grand Bayou Freshwater Enhancement




Channel Cross-Sections
(square feet)
470
545
478
794
731
992
912
923
L'Eau Bleue
INTRACOASTAL
Bayou
Blue
CANAL
BAYOU
GRAND

Project Name-Grand Bayou Freshwater Enhancement

Problem:

High saline waters are pushed northward into the marshes within the project area from Lake Falicity and Lake Raccourci. The amount of high salinity waters moving north is increasing as the marshes continue to breakup. Freshwater that influences this area, originates from the GIWW along the northern project boundary. That freshwater flow is restricted by the small cross-section of the channel above the Hwy. 24 bridge and the cross-section of the channel for several thousand feet below that bridge. There is also a restriction in Margaret's Bayou which runs southeast at the southernmost extent of the project area.

Proposed Solutions:

This project would **increase the cross sectional area of the Grand Bayou channel to 1,000 sq. f**t. from its confluence with the GIWW to an unnamed cannel approximately 25,000 south of the GIWW. **A small wing wall structure would be built in the Grand Bayou channel near Margaret's Bayou to the east**, which would assist in the capture of more water flows into Margaret's Bayou. A **plug** would also need to be placed in one of the oil and gas channels so that freshwater would be forced out of the channels and into the marshes and shallow open waters. Some of this freshwater would also make its way down **several open channels to the west** and influence much of that shallow broken marsh.

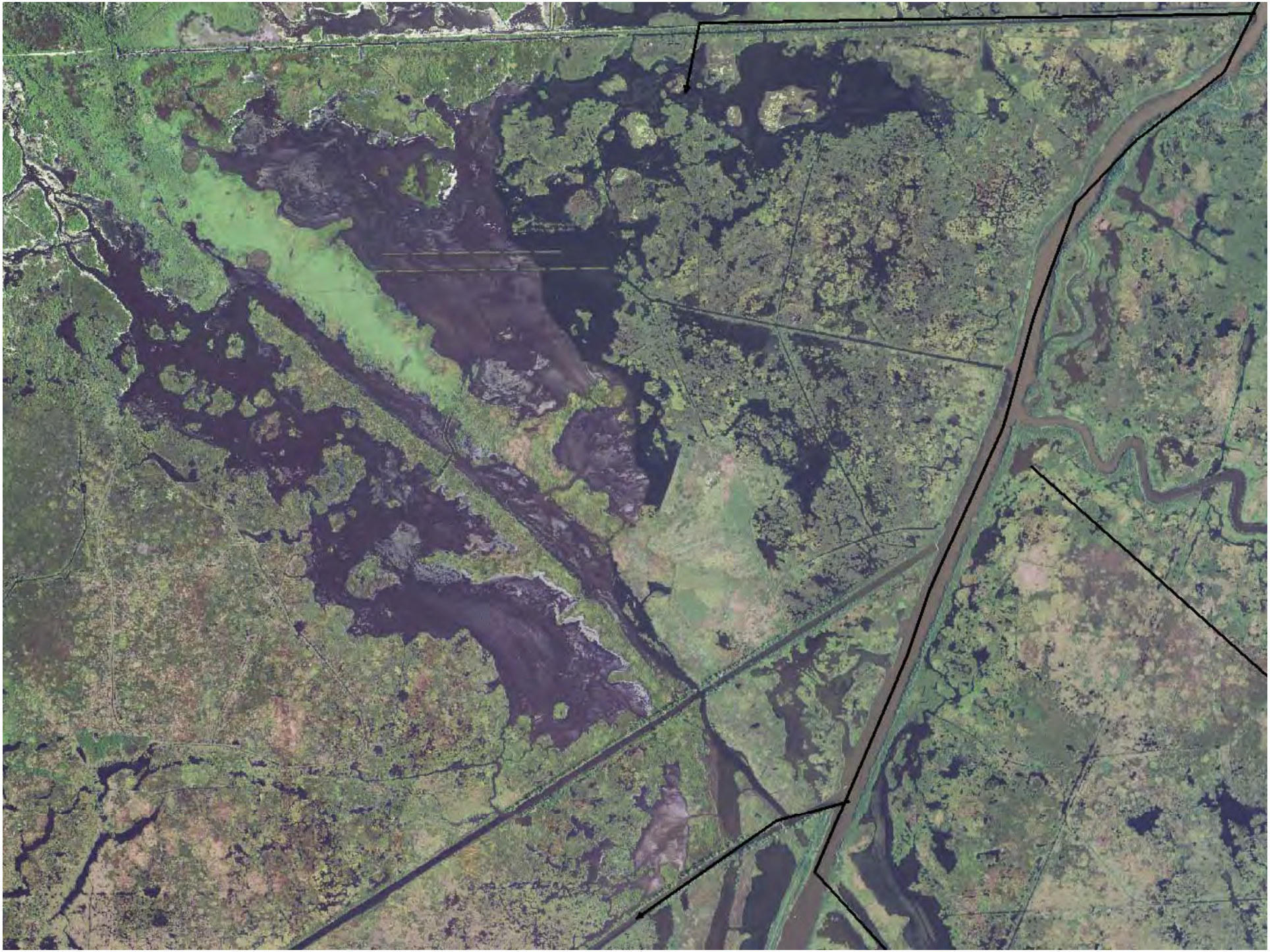
Project Name-Grand Bayou Freshwater Enhancement

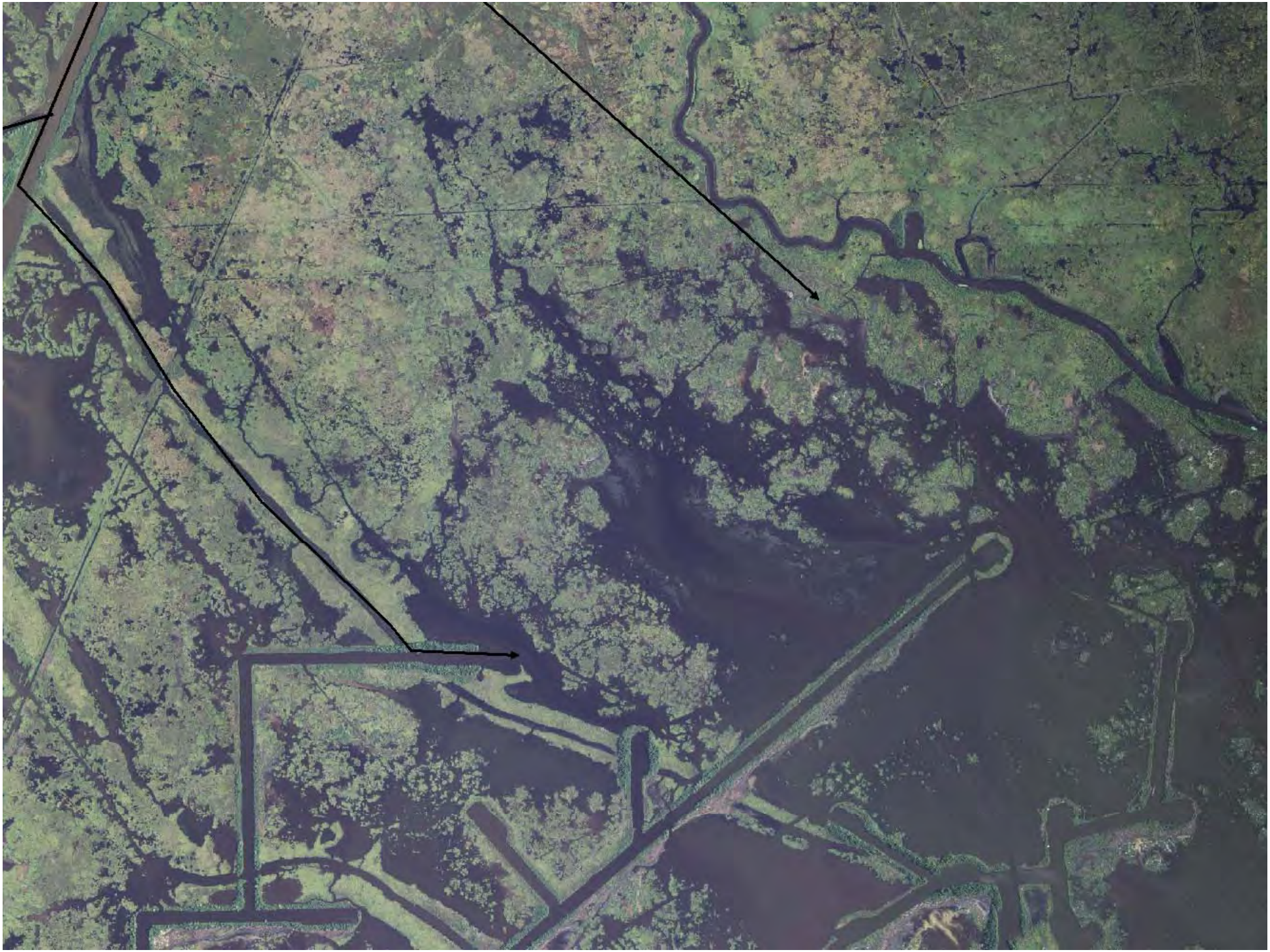
Goals :
The goal of this project is to increase the flow of freshwater south down Grand Bayou and into the marshes to the east and west of that bayou.

Specific goals: 1) **Increase the flow of freshwater** south along Grand Bayou, lowering the salinities in an area of influence that would be approximately 4,000 acres on the west and 5000 acres on the east.

Preliminary Project Benefits:
This project should influence salinities within an area approximately **9,000 acres east and west of Grand Bayou** that is largely made of emergent mash and shallow open water habitat.

Preliminary Construction Costs:
Lump sum construction costs for this project are estimated to be approximately **$2.8 million (3.5 million with a 25% contingency).**





Grand Bayou Freshwater Introduction and Terraces

Coastal Wetlands Planning, Protection and Restoration Act

Grand Bayou Freshwater Introduction and Terraces

Purpose and Need

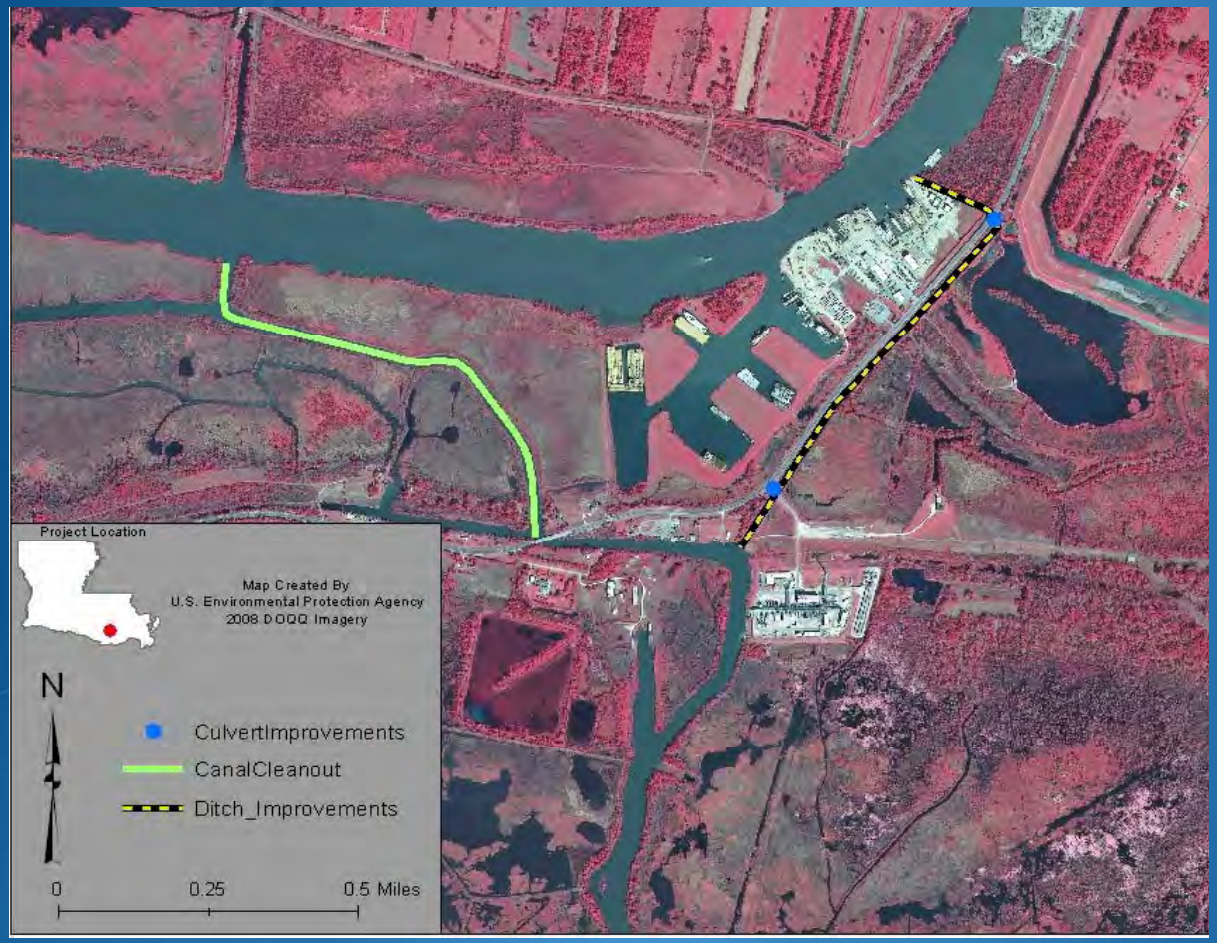
- Wetlands in Terrebonne Basin suffer from a lack of freshwater

Proposed Solution

- Clean out Grand Bayou at the GIWW
- Use drainage ditch as additional freshwater conveyance from GIWW
- Construct 60,000 linear feet of terraces

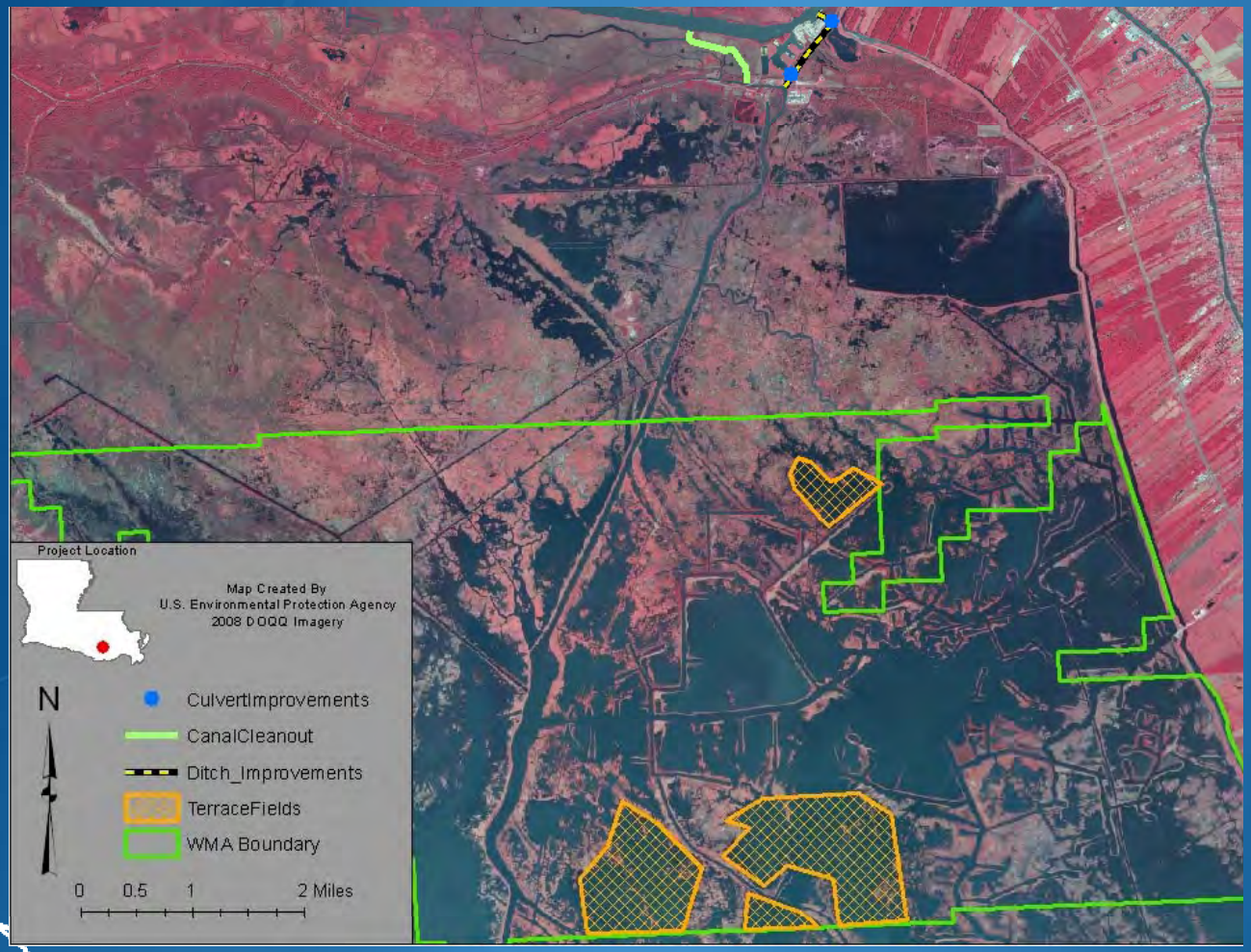
Coastal Wetlands Planning, Protection and Restoration Act

Grand Bayou Freshwater Introduction and Terraces



Coastal Wetlands Planning, Protection and Restoration Act

Grand Bayou Freshwater Introduction and Terraces



Coastal Wetlands Planning, Protection and Restoration Act

Grand Bayou Freshwater Introduction and Terraces

Benefits

- Reduced Salinities
- Increased Sustainability
- Creation of fish and wildlife habitat

Preliminary Construction Costs +25%

- Approx. $13.5 million

Coastal Wetlands Planning, Protection and Restoration Act

Questions

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Coastal Wetlands Planning, Protection and Restoration Act

R3-TE-08

East Island Beach & Barrier Marsh Restoration

R3-TE-08

PPL22 Project Nominee Fact Sheet
January 25, 2012

Project Name
East Island Beach and Backbarrier Marsh Restoration

Coast 2050 Strategy
Coastwide Common Strategies-Dedicated dredging to create, restore, or protect wetlands; Vegetative planting; Offshore and riverine sand and sediment resources.
Region 2 Ecosystem Strategies- Restore and sustain marshes- #8. Dedicated delivery of sediment for marsh building by any feasible means; Restore barrier islands and Gulf shorelines-#12. Restore and maintain the Isles Dernieres and Timbalier barrier island chains, Marsh Island, Point au Fer, and Cheniere au Tigre (including back barrier beaches).
Mapping Unit Strategies- #33. Protect bay/gulf shorelines

Project Location
Region 3, Terrebonne Basin, Terrebonne Parish, part of the Isles Dernieres, approximately 38 miles south of Houma, LA

Problem
East/Trinity Island is part of the Isles Dernieres barrier island chain, one of the most rapidly deteriorating barrier shorelines in the U.S. These barrier islands ensure that the estuaries behind them are low energy environments capable of supporting wetlands and emerging deltas where Mississippi River water is reintroduced. These islands lack a stable subaerial backbarrier platform upon which the islands can migrate landward.

Proposed Project Features
Dredged material will be placed on the back side of the island creating additional backbarrier marsh, and along the Gulf shoreline. The former will provide a stable backbarrier platform on which the island can migrate landward, while the latter will provide additional sand for redistribution by currents and waves along the entire island's Gulf beach.

Goals
1) provide a backbarrier platform to enable successful island migration;
2) extend the life of this barrier island by increasing its width;
3) create 232 ac of vegetated intertidal marsh using new dredged material and vegetative plantings;
4) protect the Terrebonne estuary and vegetated wetlands against direct exposure to the Gulf of Mexico.
5) add sand to this sand-starved barrier island system

Preliminary Project Benefits
The project would benefit about 2148 acres of barrier island habitat. Approximately 272 acres of barrier island habitat would be created initially with an estimated 175 protected over the 20-year project life.

Preliminary Construction Costs
The preliminary construction costs plus 25% contingency is $30 Million.

Preparers of Fact Sheet:
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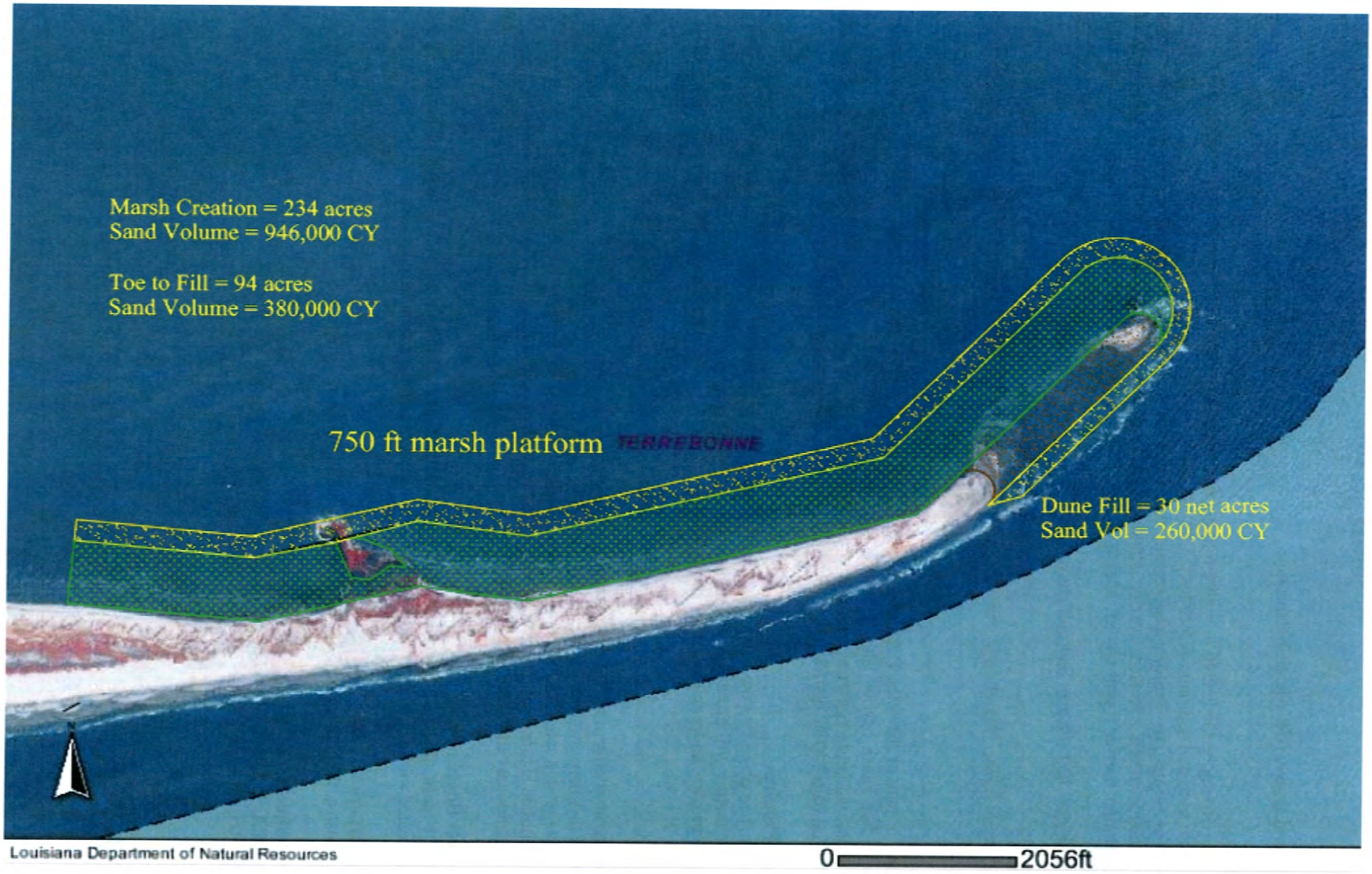
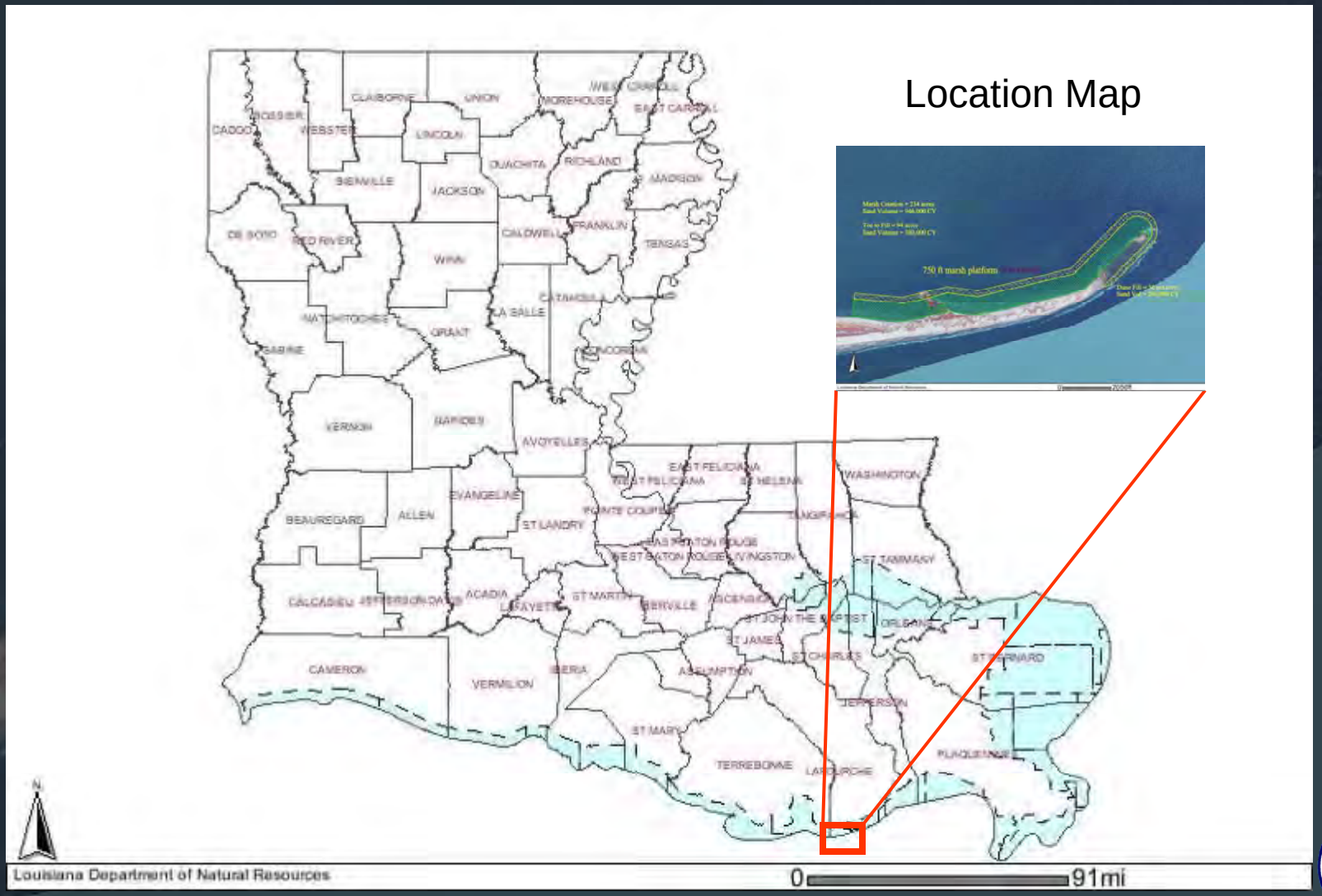
Paul Kaspar, EPA Region 6, (214) 665-7459, kaspar.paul@epa.gov


Marsh Creation = 234 acres
Sand Volume = 946,000 CY
Toe to Fill = 94 acres
Sand Volume = 380,000 CY
750 ft marsh platform
TERREBONNE
Dune Fill = 30 net acres
Sand Vol = 260,000 CY
Louisiana Department of Natural Resources
0
2056ft

East Island Dune and Marsh Restoration



East Island Dune and Marsh Restoration

East Island Dune and Marsh Restoration

Goals:

- Create 272 acres intertidal
- Create 20 acres dune
- Create 10 acre of supratidal
- Total of 302 acre of BI habitat

Preliminary Project Benefits:

- 175 net ac over 20 years

Preliminary Construction Costs + 25%:

- $30 million

East Island Dune and Marsh Restoration

Key Points:

- Barrier Island restoration consistently recommended as a critical restoration approach by coastal scientists

- Backbarrier marsh restoration consistently recommended as key to barrier island restoration

- Consistently included in most coastal restoration strategies (e.g. Coast2050, LCA, Gulf of Mexico Regional Ecosystem Restoration Strategy, State Plan, Terrebonne Parish Restoration Strategy, and Governors' Restoration Plan (GOMA)

East Island Dune and Marsh Restoration

Questions?

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R3-TE-09

Timbalier Island Shoreline Sediment Nourishment

R3-TE-09

PPL22 PROJECT NOMINEE FACT SHEET

January 25, 2012

Project Name
Timbalier Island Shoreline Sediment Nourishment

Coast 2050 Strategy
Coastwide Common Strategies-Dedicated dredging to create, restore, or protect wetlands; Vegetative planting; Offshore and riverine sand and sediment resources. Region 2 Ecosystem Strategies- Restore and sustain marshes; 8) Dedicated delivery of sediment for marsh building by any feasible means; Restore barrier islands and Gulf shorelines; 12) Restore and maintain the Isles Derrieres and Timbalier barrier island chains, Marsh Island, Point au Fer, and Cheniere au Tigre (including back barrier beaches). Mapping Unit Strategies – 33) Protect bay/gulf shorelines

Project Location
Region 3, Terrebonne Basin, Terrebonne Parish, approximately 38 miles south of Houma, LA.

Problem
Barrier islands are the first line of defense against storm surge and protect the interior wetlands and infrastructure from open ocean wave effects. They ensure the estuaries behind them are low energy environments capable of supporting wetlands and emerging deltas. Timbalier Island is part of the Lafourche Delta headland and barrier island system, one of the rapidly deteriorating barrier shorelines in Louisiana averaging -13.1 ft/yr of erosion from 1990's thru 2005 in the proposed project area. Additionally, the pass east of Timbalier Island (Little Pass Timbalier) is moving westerly. Hurricanes Katrina, Rita, Gustav, and Ike have breached the island in the proposed project area. This breach has the potential to increase erosion of the island, as well as to coalesce with Little Pass Timbalier as it migrates westward.

Proposed Project Features
This project will place sediment on the bay side of Timbalier Island, increasing the area of backbarrier marsh which will in turn, provide a stable platform which the island needs to migrate landward. Placement of dredge material on the Gulf side of Timbalier Island will provide sand that can be redistributed along the island's shoreline by currents and waves along the entire island's Gulf shore. Sediment fences and plantings will be utilized to manage newly placed sediments.

Goals:

- Close the cut in the island from Hurricane Gustav to slow shifting of the tidal pass
- Provide a backbarrier platform to enable sustainable and successful island migration
- Extend the life of this barrier island by increasing its width
- Create about 60 acres of intertidal marsh using new dredged material and vegetative plantings
- Fortify/protect the platform and marsh by creating 100 acres of beach.
- Protect Terrebonne estuary and vegetated wetlands against direct exposure to the Gulf of Mexico
- Add sand to this sand-starved barrier island system

Preliminary Project Benefits

- Creation of 160 ac of beach and marsh habitat
- Protect approximately 130 ac of barrier island habitat over 20 years
- Synergistic affects with other CWPPRA and LCA Terrebonne Barrier Shoreline restoration efforts

Preliminary Construction Costs
The preliminary construction costs plus 25% is $30.5 Million

Preparers of Fact Sheet:
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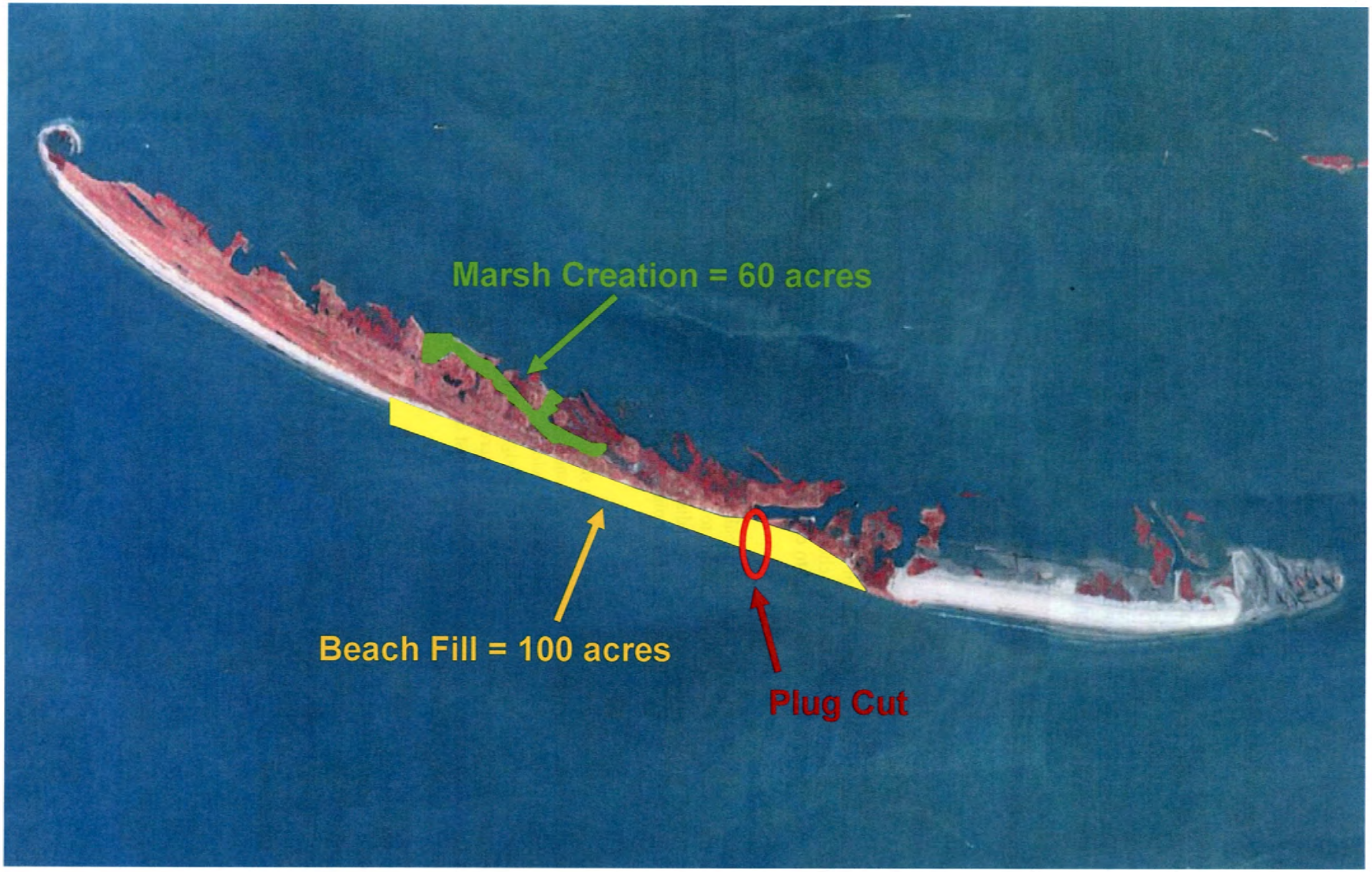
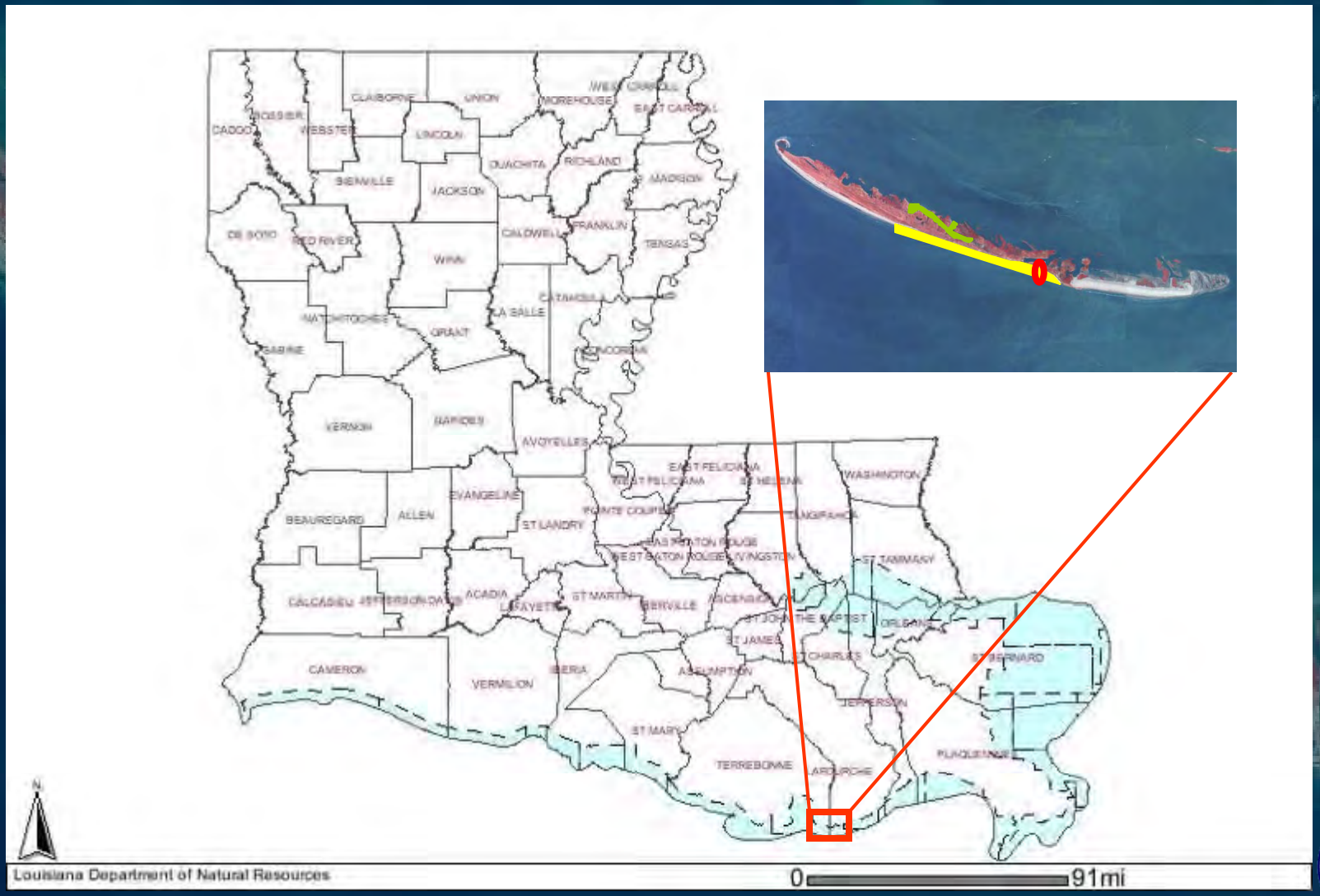
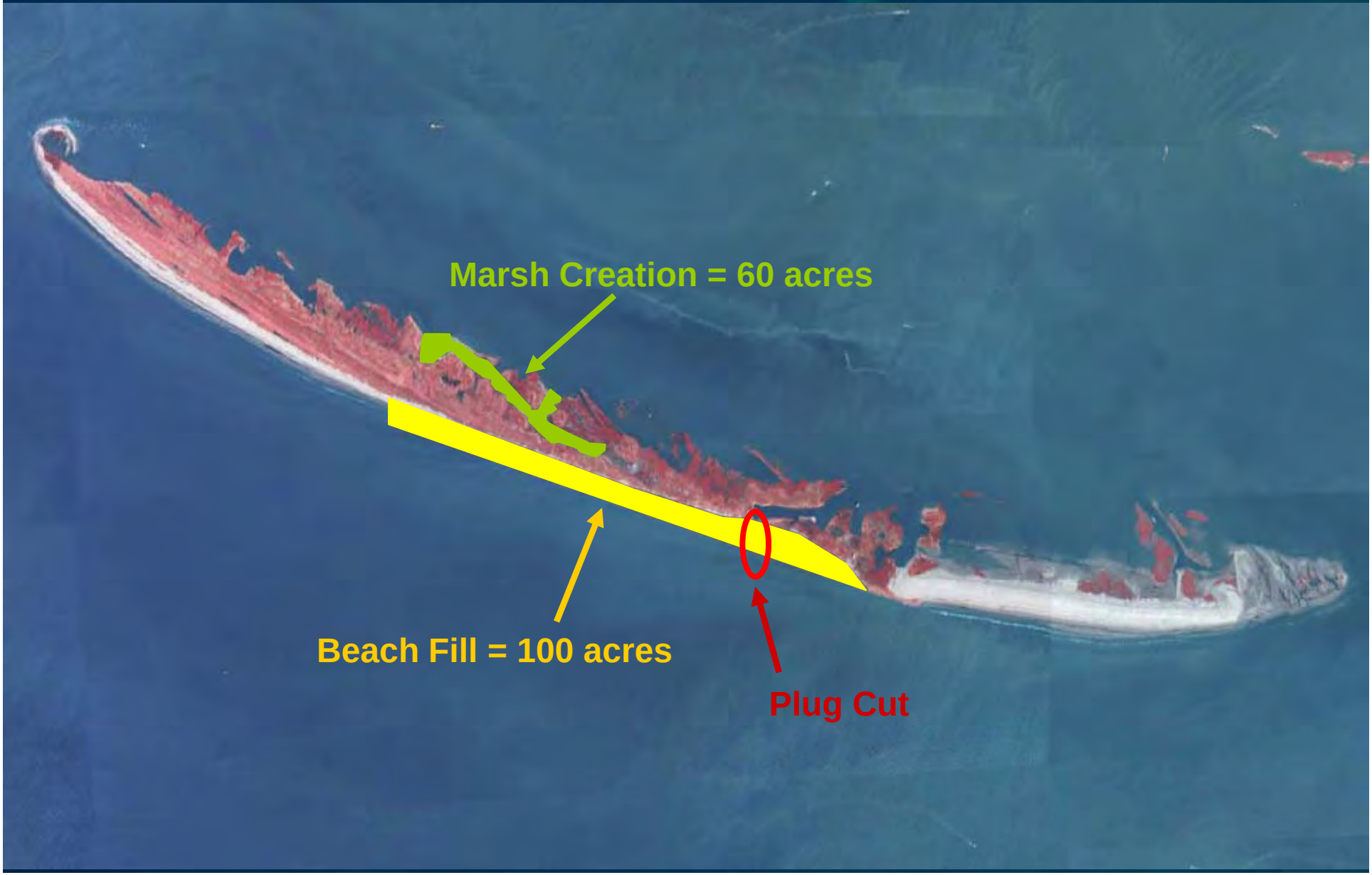

Marsh Creation = 60 acres
Beach Fill = 100 acres
Plug Cut

Timbalier Island Shoreline Sediment Nourishment



Timbalier Island Shoreline Sediment Nourishment



Timbalier Island Shoreline Sediment Nourishment

Goals:

- Close the cut in the island
- Create a backbarrier platform
- Increase the sustainability and life of this barrier island
- Fortify/protect the platform and marsh
- Add sand to this sand-starved barrier island system

Preliminary Project Benefits:

- Create 100 ac of beach and 60 ac of marsh habitat
- Protect ~130 ac of barrier island habitat over 20 years

Preliminary Construction Costs + 25%:

- $30.5 million

September, 2011

Timbalier Island Shoreline Sediment Nourishment

Questions?

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R3-TE-10

Marsh Creation on Point au Fer Island by Beneficial Use

PPL22 PROJECT NOMINEE FACT SHEET
January 25, 2012

Project Name
Marsh Creation on Point au Fer Island by Beneficial Use of Dredged Material or Dedicated Dredging in the Gulf of Mexico

Coast 2050 Strategy
Coastwide Strategy: Restore/sustain marshes
Region 3 Regional ecosystem strategies: Dedicated delivery of sediment for marsh building by any feasible means
Point au Fer mapping unit strategies: Beneficial use of dredged material

Project Location
Region 3, Terrebonne Basin, Terrebonne Parish, Point au Fer Island

Problem
Despite the existence of high concentrations of sediment and nutrients in the water surrounding Point au Fer Island, brackish marshes here have continued to be lost over time, presumably due to a combination of insufficient accretion and various effects from oil and gas canals. In addition, marsh management by semi-impoundment may play a role. Finally, as shoreline erosion moves the Gulf shoreline landward on Point au Fer Island, internal marsh system streams (e.g. bayous) are directly connected to the nearshore Gulf of Mexico, potentially greatly increasing hydrologic exchange between the marsh system and the Gulf of Mexico, and thus also potentially increasing marsh erosion.

Proposed Project Features
This project would restore approximately 200 ac of brackish marsh in open water areas on Point au Fer Island, as well as nourish existing degraded marshes there. This is to be accomplished either by beneficially using dredged material from the Atchafalaya navigation channel to the west in Atchafalaya Bay and in the nearshore Gulf of Mexico, or by "dedicated dredging" in the nearshore Gulf of Mexico. We will explore the possibility of not confining the dredged material, but costs are included for this feature anyway, at this time. Vegetative plantings may or may not be required, but funds are included in the budget to provide for this contingency. The project would also include a feature to "plug" the breach at Burke's Bayou, to the south of the proposed marsh creation area. This feature would probably include an earthen plug with a shell berm and vegetative plantings, to simulate the existing natural shoreline.

Goals/Benefits
- Create 200 ac of brackish marsh on Point au Fer Island
- Nourish an estimated 50 ac of brackish marsh
- Plug the breach at Burke's Bayou
- Reduce exchanges of water, sediment, organic matter, and other materials, between the interior of Pt. au Fer Island and the nearshore Gulf of Mexico, that have probably been increased recently as a result of the breach at Burke's Bayou
- Reduce marsh loss rates on Pt. au Fer Island, attributable to the breach at Burke's Bayou
- Maintain a minimum of 196 ac of brackish marsh in the project area over 20 years

Preliminary Construction Costs
The estimated construction cost including 25% contingency is $20 million.

Preparer of Fact Sheet
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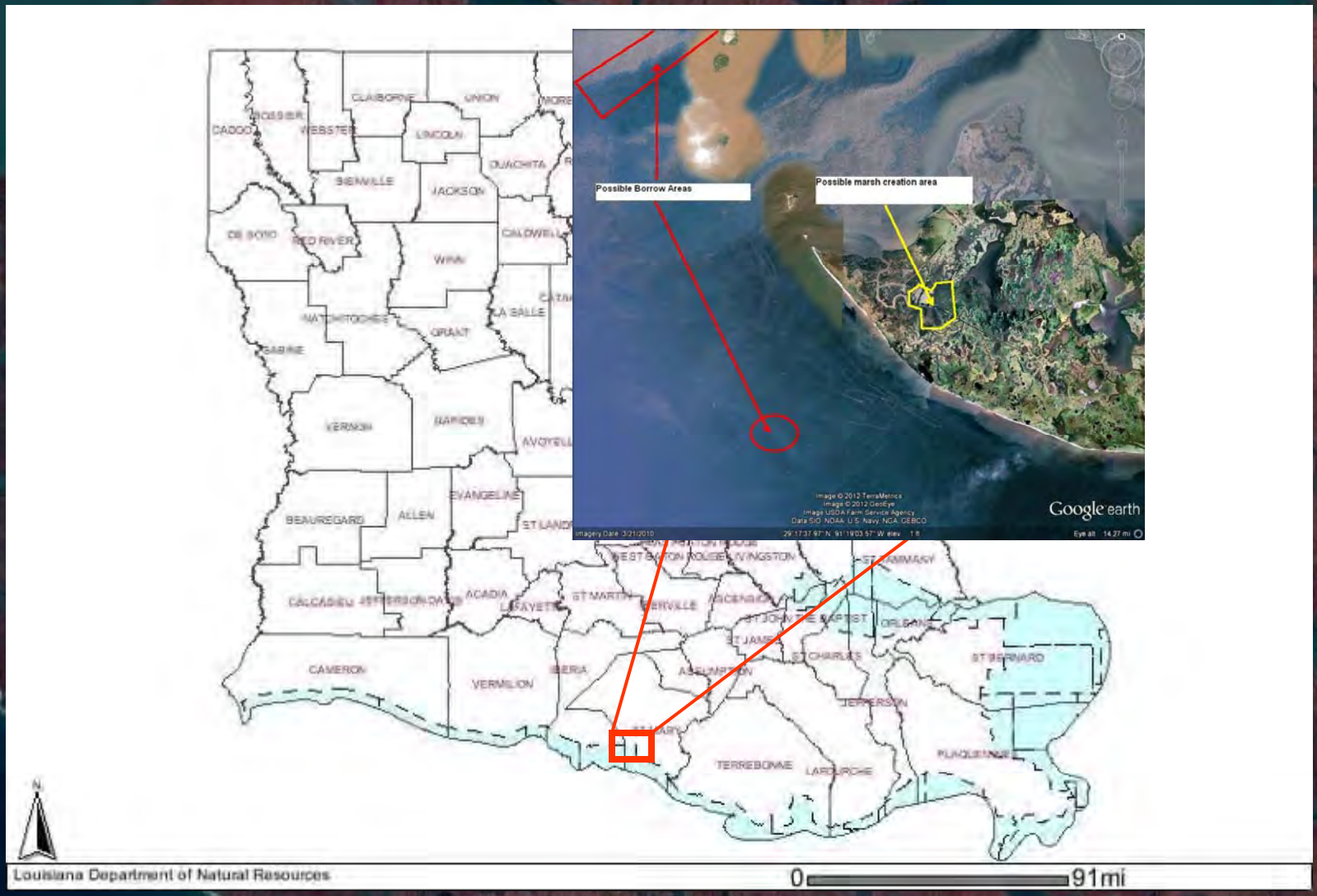
Map of proposed project area on Pt. au Fer Island. Proposed marsh creation area shown in yellow. Proposed alternative sediment borrow locations shown in red.

Marsh Creation on Point au Fer Island



Marsh Creation on Point au Fer Island

Marsh Creation on Point au Fer Island

Goals / Benefits:

- Create 200 ac brackish marsh on Pt. Au Fer Island, using sediment from the Gulf of Mexico
- Nourish approximately 50 ac of marsh
- Incorporate tidal creeks, ponds, vegetative plantings

Preliminary Construction Costs:

- The estimated construction cost including 25% contingency is $19 million.

Marsh Creation on Point au Fer Island

Why Do This?

- Pt au Fer Island probably performs a similar function to a barrier island
- “Mining” sediment from outside of the Delta/Marsh system is probably preferable to doing so “internally”
- Called for in draft State Master Plan

Marsh on Point au Fer Island

Questions?

Ken Teague
EPA Region 6
(214)665-6687
teague.kenneth@epa.gov

R3-TE-11

Wine Island Restoration

R3-TE-11

PPL22 PROJECT NOMINEE FACT SHEET
January 2012

Project Name:
Wine Island Restoration Project

Project Location:
Region III, Terrebonne Basin, Terrebonne Parish, Isle Dernieres Barrier Islands Refuge (LDWF ownership)

Problem:
The Isles Dernieres barrier island chain is experiencing some of the highest rates of erosion of any coastal region in the world. Past studies have revealed that the shoreline loss rate averages approximately 37 feet per year and as much as 195 feet per year during 1992 as a result of Hurricane Andrew (Penland et al. 2003 and McBride et al. 1989). In the early 1990s, Water Resource Development Act funds were used to recreate Wine Island of Isle Dernieres chain after it had eroded to a partially emerged sand shoal. Material from the Houma Navigation Canal was used to build the island to a +4' to +7' elevation during channel maintenance events in 1991 and 1993-94. The island was approximately 34 acres after completion. During the years of peak habitat conditions, Wine Island served as breeding bird habitat for a variety of avian species including brown pelicans, terns, gulls, and wading birds. During peak years of nest success, over 15,000 nests were documented at Wine Island. As a result of erosional processes (particularly hurricane activity over the past 10 years), Wine Island has degraded again to pre-1990s conditions. Over the past 10 years, only one Houma Navigation Canal maintenance event resulted in material being pumped at Wine Island. It was ineffective due to the low quality of material excavated from the channel. At present, the island is less than five acres and is at risk of being a subaqueous sand shoal in the near future. The island no longer serves as breeding bird habitat due to lack of elevation and rapid shoreline loss.

Goals:
The goal of this project is to restore Wine Island and expand its footprint to include a shallow sand shoal southwest of the island.

Proposed Solutions:
Project features include the restoration of approx. 300 acres of barrier island habitat including beach, dune, swale, and salt marsh habitat types. The island would be recreated by depositing offshore dredge material in the vicinity of Wine Island and a subaqueous shoal southwest of Wine. Vegetative plantings, both herbaceous and woody, will follow the construction of the dune/beach platform.

Preliminary Project Benefits:
Wine Island will be restored to productive avian habitat and expand the storm buffering capabilities of the Isle Dernieres barrier island chain. Approximately 30 acres will be dune habitat, 120 acres will become supratidal habitat, and 150 acres will comprise tidal/subtidal habitat.

Identification of Potential Issues:
There are no potential issues anticipated with this proposed project.

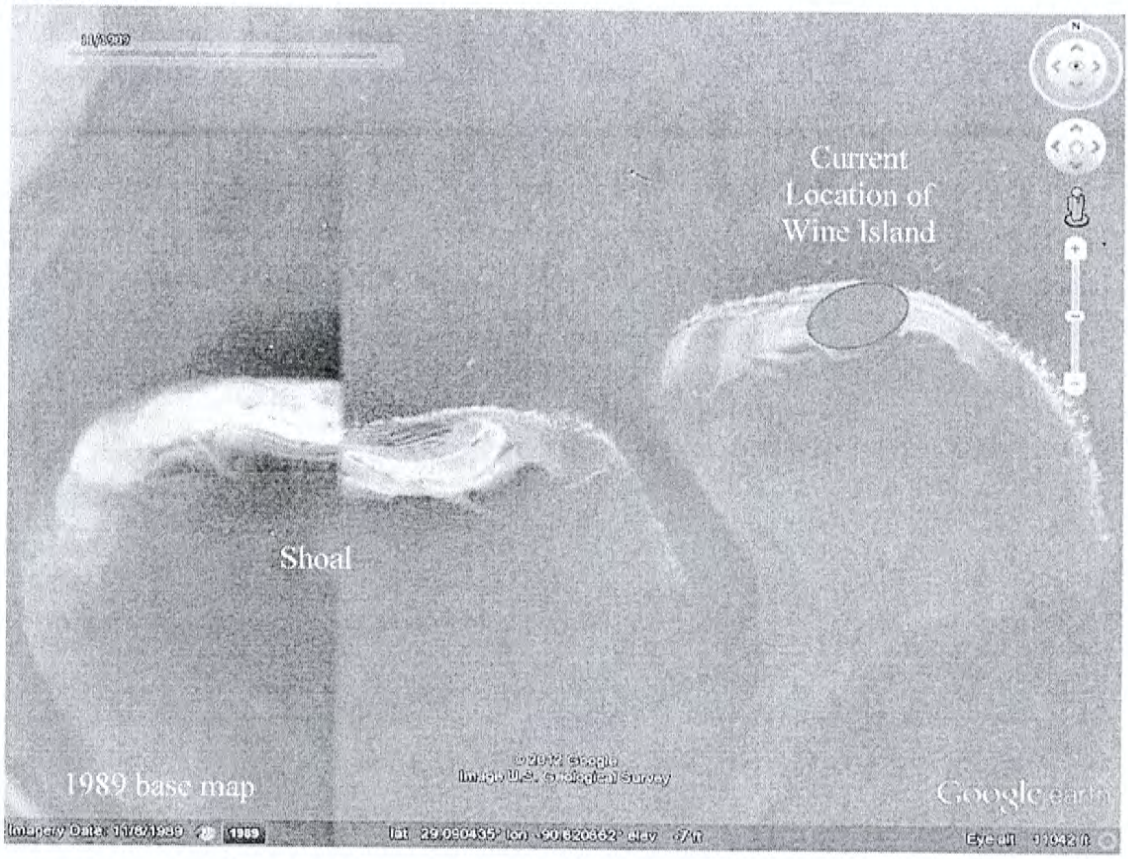
Preliminary Construction Costs:
The anticipated construction cost, with contingency, is $15,000,000 to $20,000,000.

Preparer(s) of Fact Sheet:
Loland Broussard, (337) 291-3060, loland.broussard@la.usda.gov
Cassidy Lejeune, (337) 373-0032, clejeune@wlf.la.gov

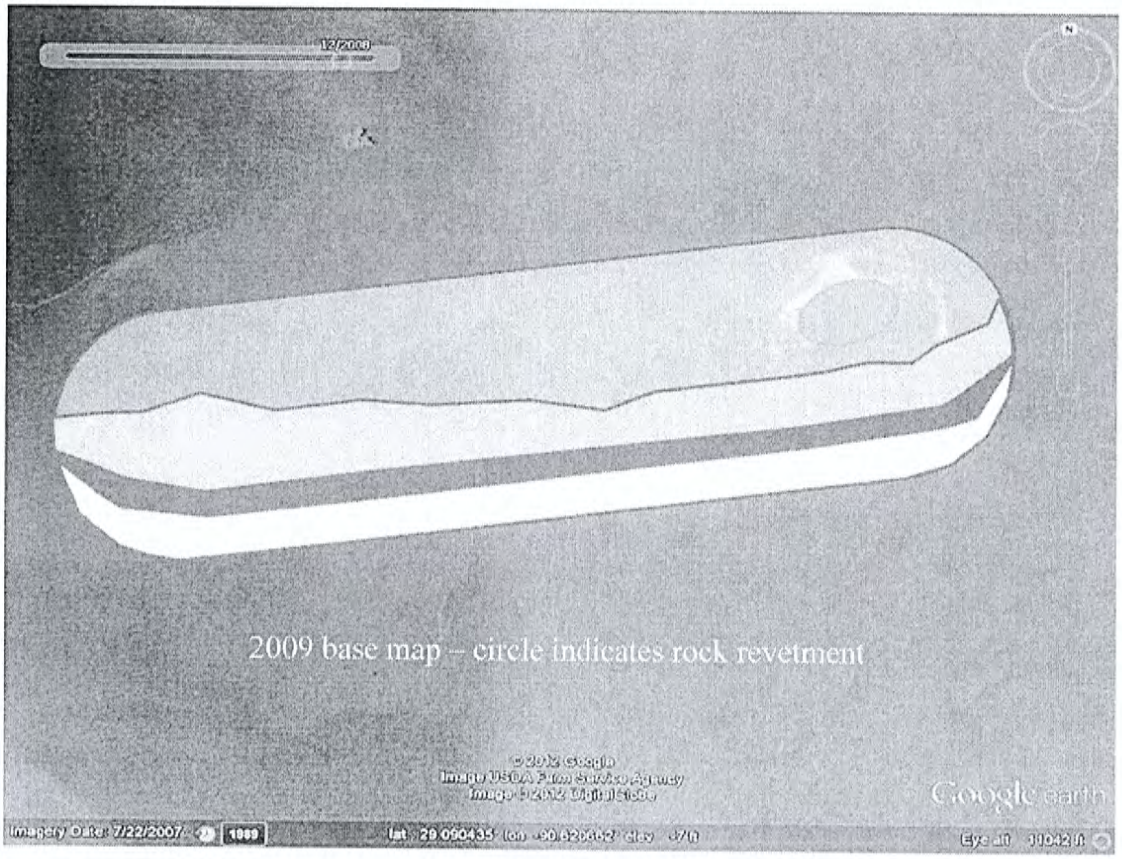
Sources:
McBride, R.A., K. Westphal, S. Penland, B. Jaffe, and S.J. Williams. 1989. Erosion and deterioration of Isle Dernieres Barrier Island Arc, Louisiana, 1842-1988. AAPG Bulletin 73: 1182- 1188.

Penland, S., C. Zganjar, K.A. Westphal, P. Connor, A. Beall, J.H. List, and S.J. Williams. 2003. Shoreline change posters of the Louisiana Barrier Islands, 1885-1996: U.S. Geological Survey Open-File Report 03-398, CD-ROM.

Pre-Construction Aerial



Post-Construction Aerial



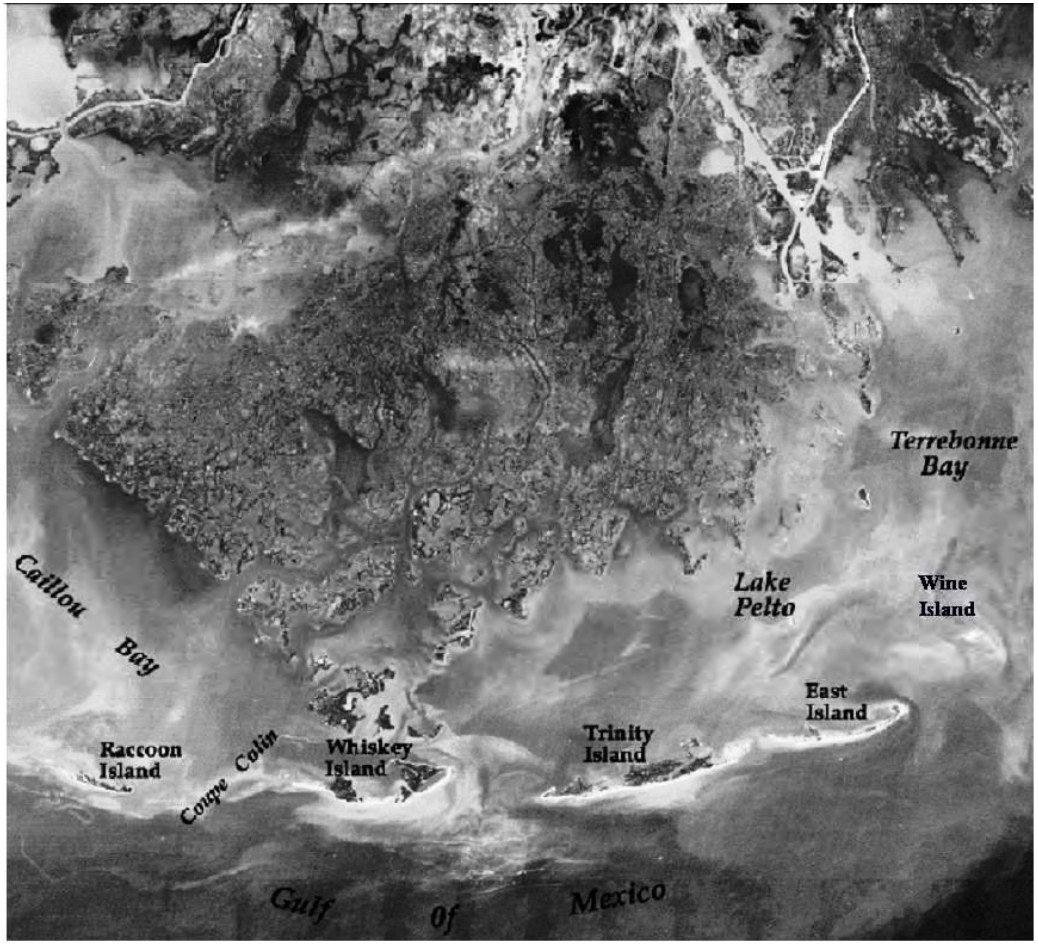
Wine Island Barrier Island Restoration Project

PPL 22 – Morgan City, LA

Cassidy Lejeune
LDWF – Coastal and Nongame Resources Division
New Iberia, LA

IDBIR – Background Info.

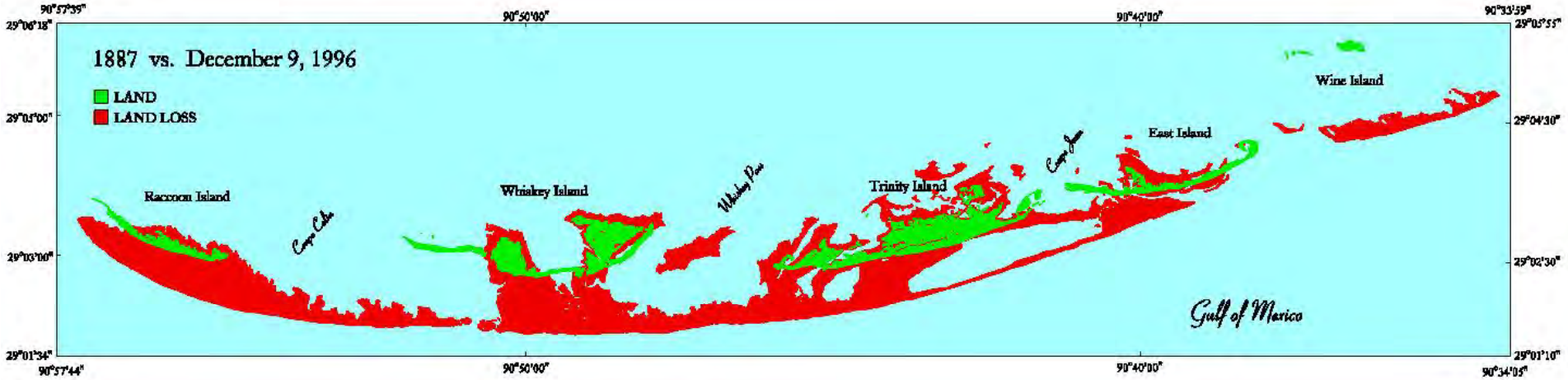
- Leased/Owned by State
  - 1992 – Raccoon, Whiskey, and Wine
  - 1997 to 1999 – Trinity, East, Raccoon and Whiskey donated to State
- Some of the highest erosional rates of any coastal region
- Approx. 37 feet per year and as much as 195 feet in 1992 as a result of Hurricane Andrew



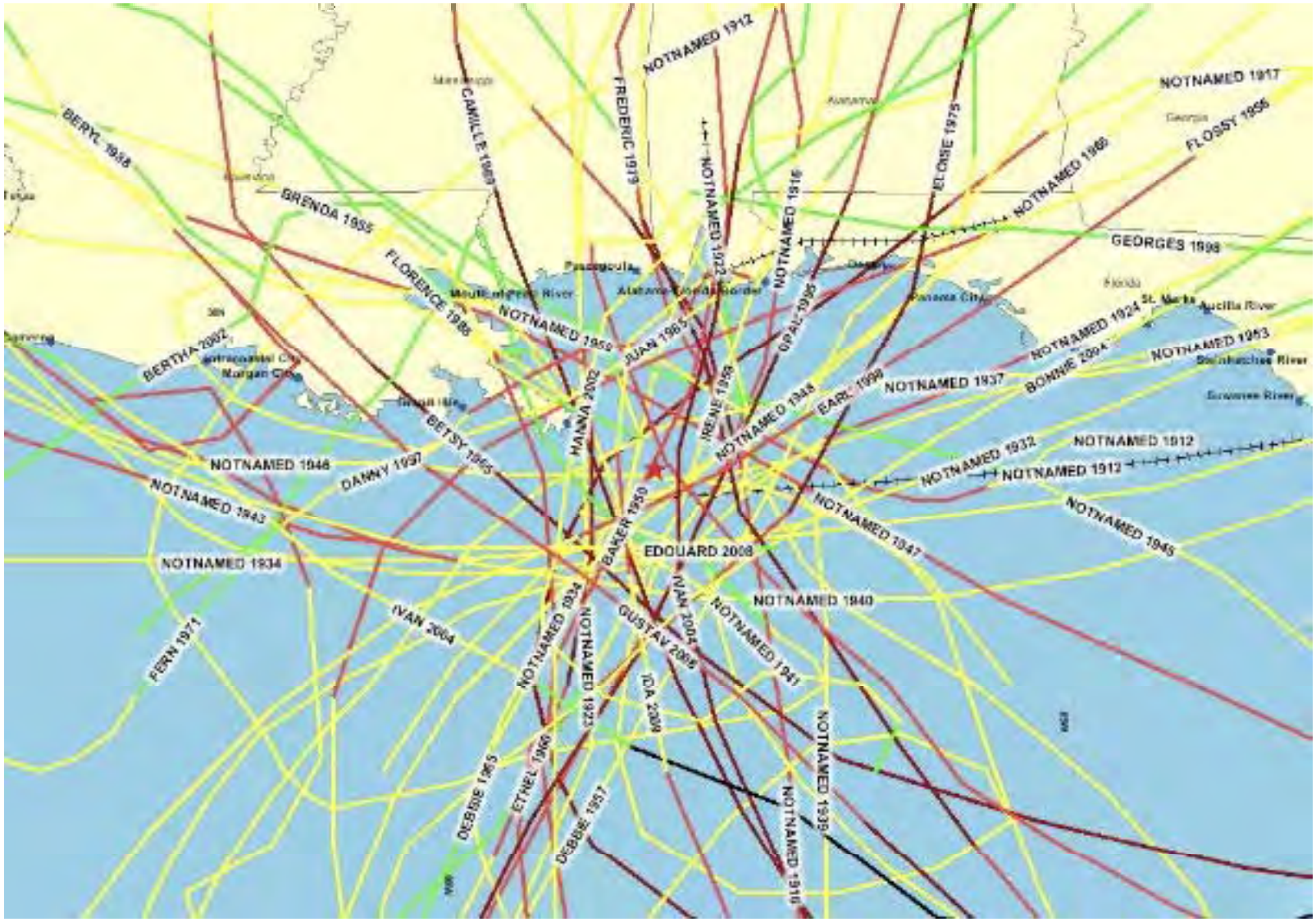
Sources:
McBride, R.A., K. Westphal, S. Penland, B. Jaffe, and S.J. Williams. 1989. Erosion and deterioration of Isle Dernieres Barrier Island Arc, Louisiana: 1842-1988. AAPG Bulletin 73: 1182-1188.

Penland, S., C. Zganjar, K.A. Westphal, P. Connor, A. Beall, J.H. List, and S.J. Williams. 2003. Shoreline change posters of the Louisiana Barrier Islands, 1885-1996: U.S. Geological Survey Open-File Report 03-398, CD-ROM.

Historical Footprint of IDBIR



Hurricanes in GOM - NOAA



IDBIR and Hurricane Impacts

- Cindy – July 7, 2005
- Katrina – August 29, 2005
- Rita – September 23, 2005
- T. Storm Edouard – August 5, 2008
- Gustav – September 1, 2008
- Ike – September 9, 2008
- Ida – November 9, 2009
- T. Storm Lee – September 1, 2011

Wine Island

Brief History

- Early 1990s – WRDA funds re-created Wine
  - 1991 and 1993-94 HNC maintenance events
  - +4’ to +7’ elevation
- July 2007 – Additional HNC maintenance event
  - Poor consistency of material lead to minimal benefit

1998 – 30+ acres

2008 – less than 7 acres

March 2010

1/2011
N
2010
© 2012 Google
Image © 2012 GeoEye
Google earth

TERREBONNE
N
Louisiana Department of Natural Resources
0
0.07mi

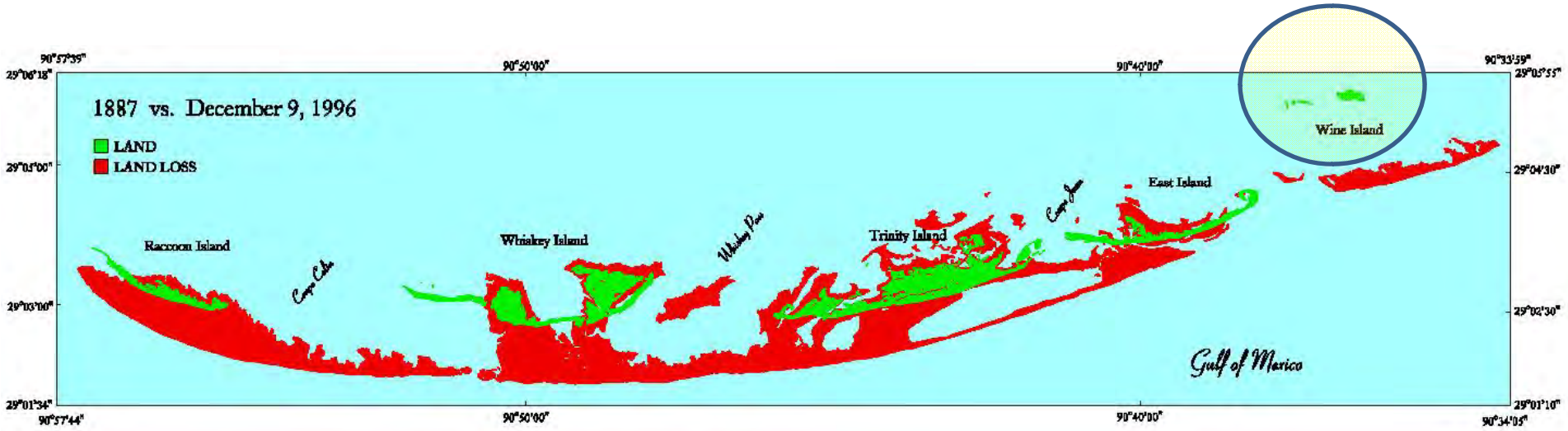
Over 15,000 nests…
• Brown Pelicans
• Black Skimmers
• Tern Species
• Wading Birds
• IDBIR also overwintering habitat for RTE species such as piping plover
• Wine no longer serves as breeding bird habitat due to lack of elevation and rapid shoreline loss

2009 – failed attempt at nesting
Subsequent failures in 2010 and 2011

2011 – Post TS LEE

11/1989
N
© 2012 Google
Image U.S. Geological Survey
Google earth
Imagery Date: 11/8/1989
1989
lat 29.090435° lon -90.620662° elev -7 ft
Eye alt 11042 ft

Historical Footprint of IDBIR



11/1989
1989
© 2012 Google
Image U.S. Geological Survey
Google earth
Imagery Date: 11/8/1989
1989
lat 29.090435° lon -90.620662° elev -7 ft
Eye alt 11042 ft

Questions or Comments?

R3-TE-12

North Catfish Lake Marsh Creation

R3-TE-12

PPL 22 PROJECT NOMINEE FACT SHEET
1/25/2012

Project Name
North Catfish Lake Marsh Creation Project

Coast 2050 Strategy
Region3. Protect Bay and Lake and Gulf shorelines; Strategy 12.

Project Location
Region 3, Terrebonne Basin, Lafourche Parish, Northern Shoreline of Catfish Lake

Problem
Eastern Terrebonne Basin is significantly isolated from riverine influences of the Mississippi and Atchafalaya Rivers. Consequently, both subsidence and erosion of shorelines have occurred at some of the highest rates in Louisiana. The northern half of the Catfish Lake shoreline has experienced an average erosion rate of approximately 9.8 ft with some areas losing as much as 40 ft per year. Interior marsh loss along the lake rim has also formed a large pond on the east side of the lake shoreline that has breach and threatens to greatly accelerate wetland loss in the area.

Proposed Project Features
The project will create marsh along the lake rim of the northern half of Catfish Lake using a hydraulic dredge and plantings of smooth cordgrass along the lake shore-face to reestablish a healthy and stable lake rim marsh community.

Goals
The goal of the project is to strategically create marsh and reduce shoreline loss by reconstructing the marsh along the lake rim of Catfish Lake, one of the most prominent interior lakes in the eastern Terrebonne Basin.

Preliminary Project Benefits
The project will create 212 acres of marsh and nourish 196 acres of existing marsh.

Identification of Potential Issues
The proposed project has the following potential issues: oyster leases, utilities/pipelines

Preliminary Construction Costs
$ 12.7 million

Preparer(s) of Fact Sheet
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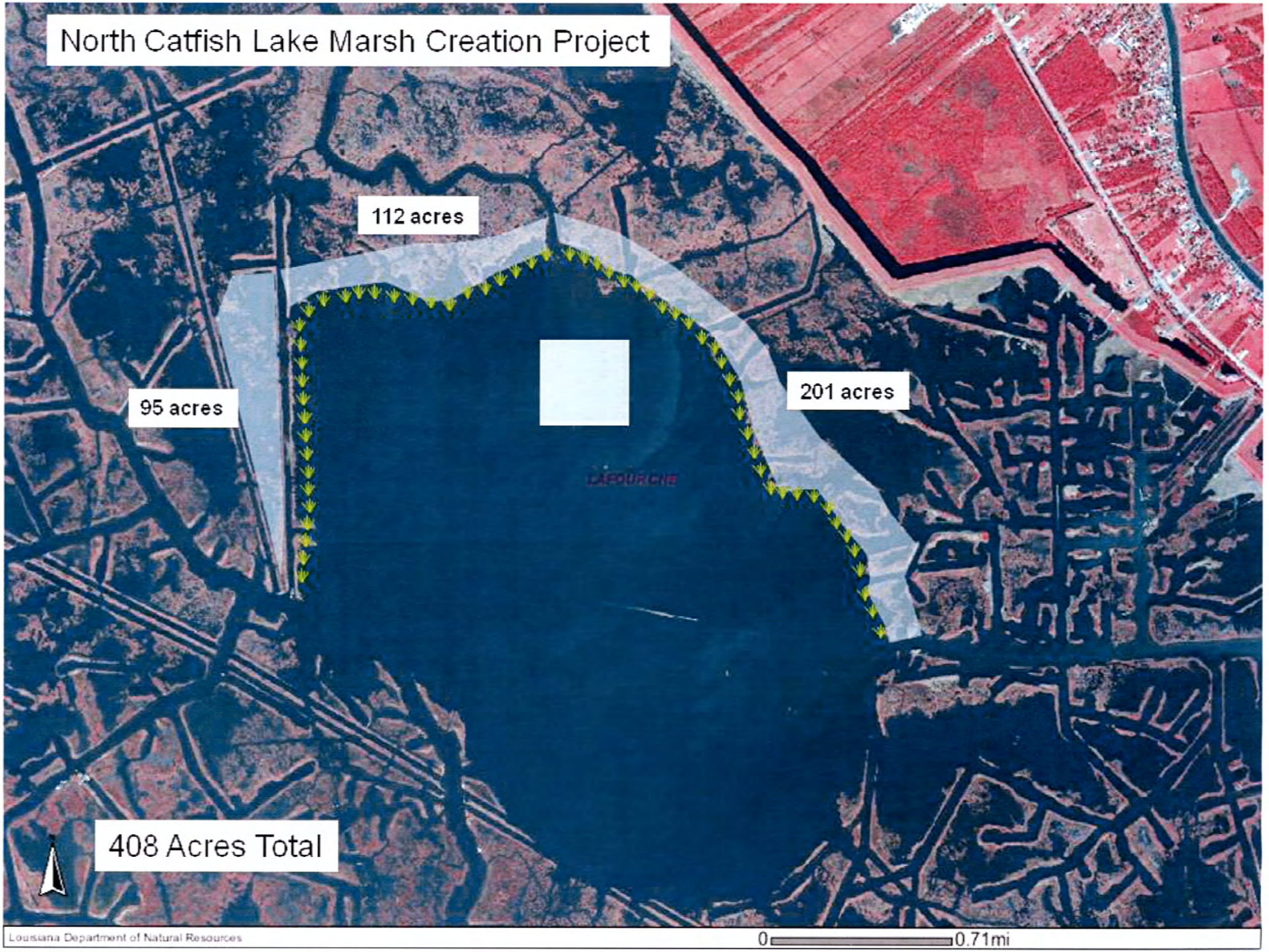
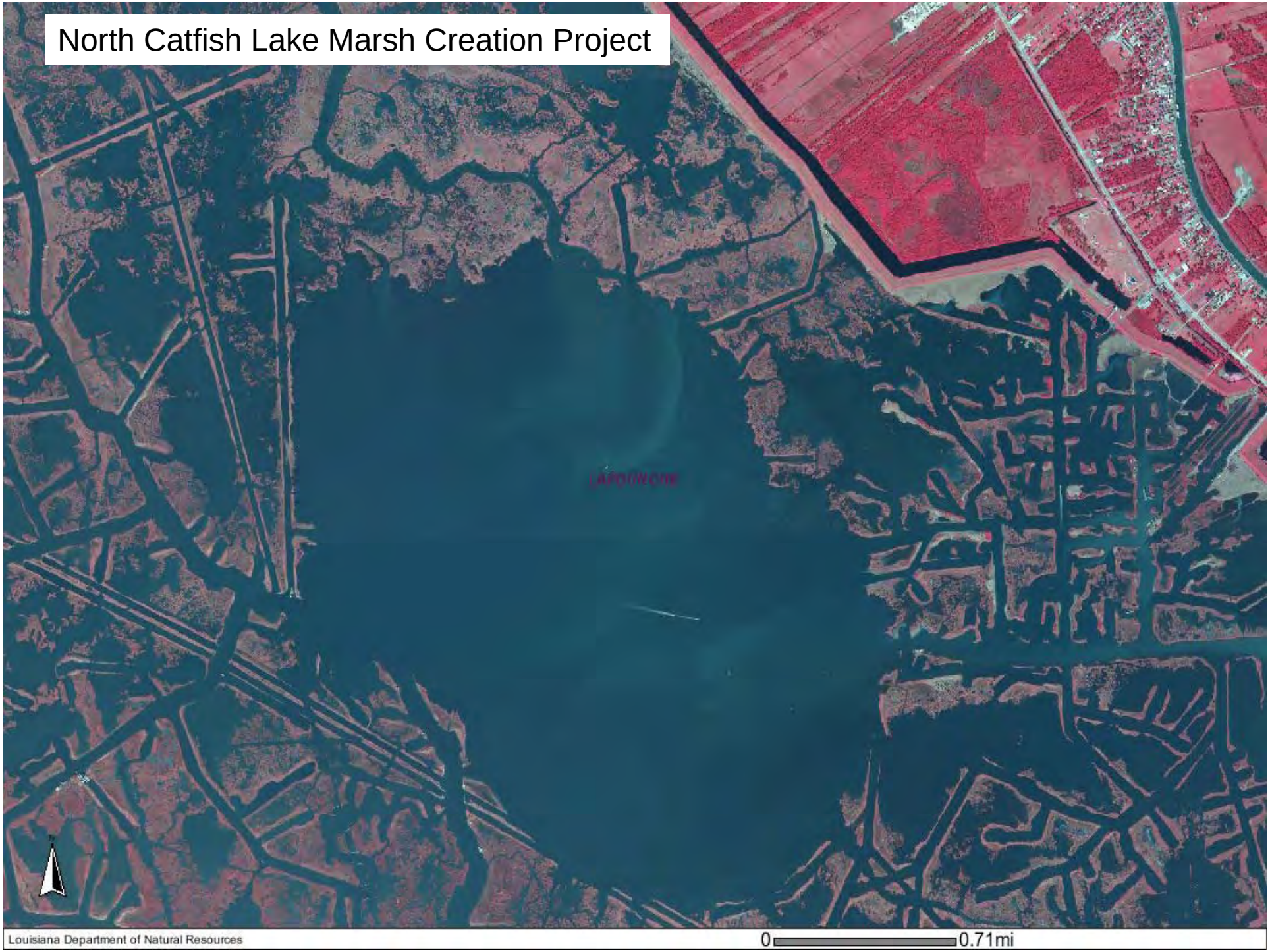
Ron Boustany, NRCS, (337) 291-3067, ron.boustany@la.usda.gov


North Catfish Lake Marsh Creation Project
112 acres
95 acres
201 acres
408 Acres Total
Louisiana Department of Natural Resources
0
0.71mi


North Catfish Lake Marsh Creation Project
Louisiana Department of Natural Resources
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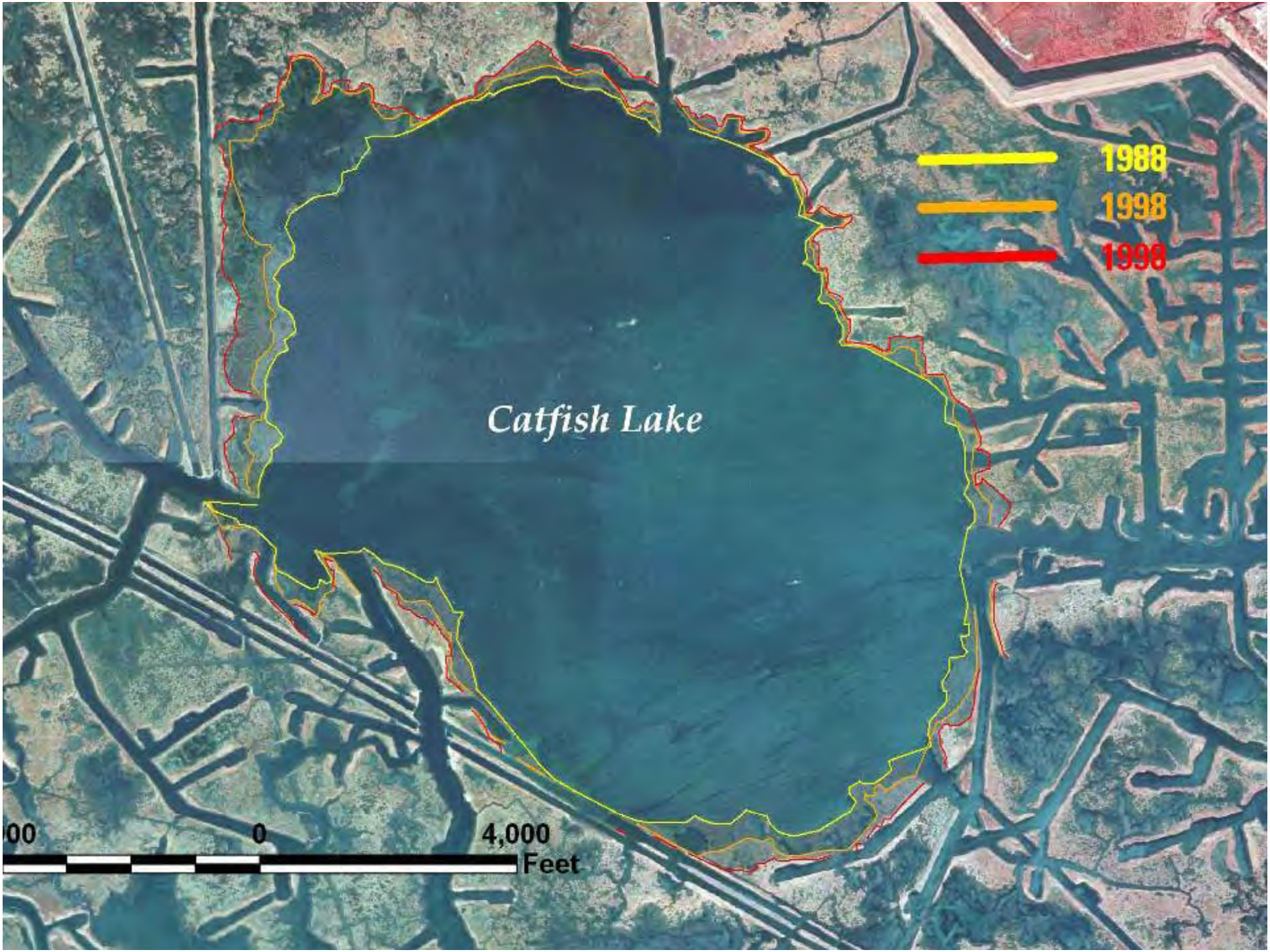
1988
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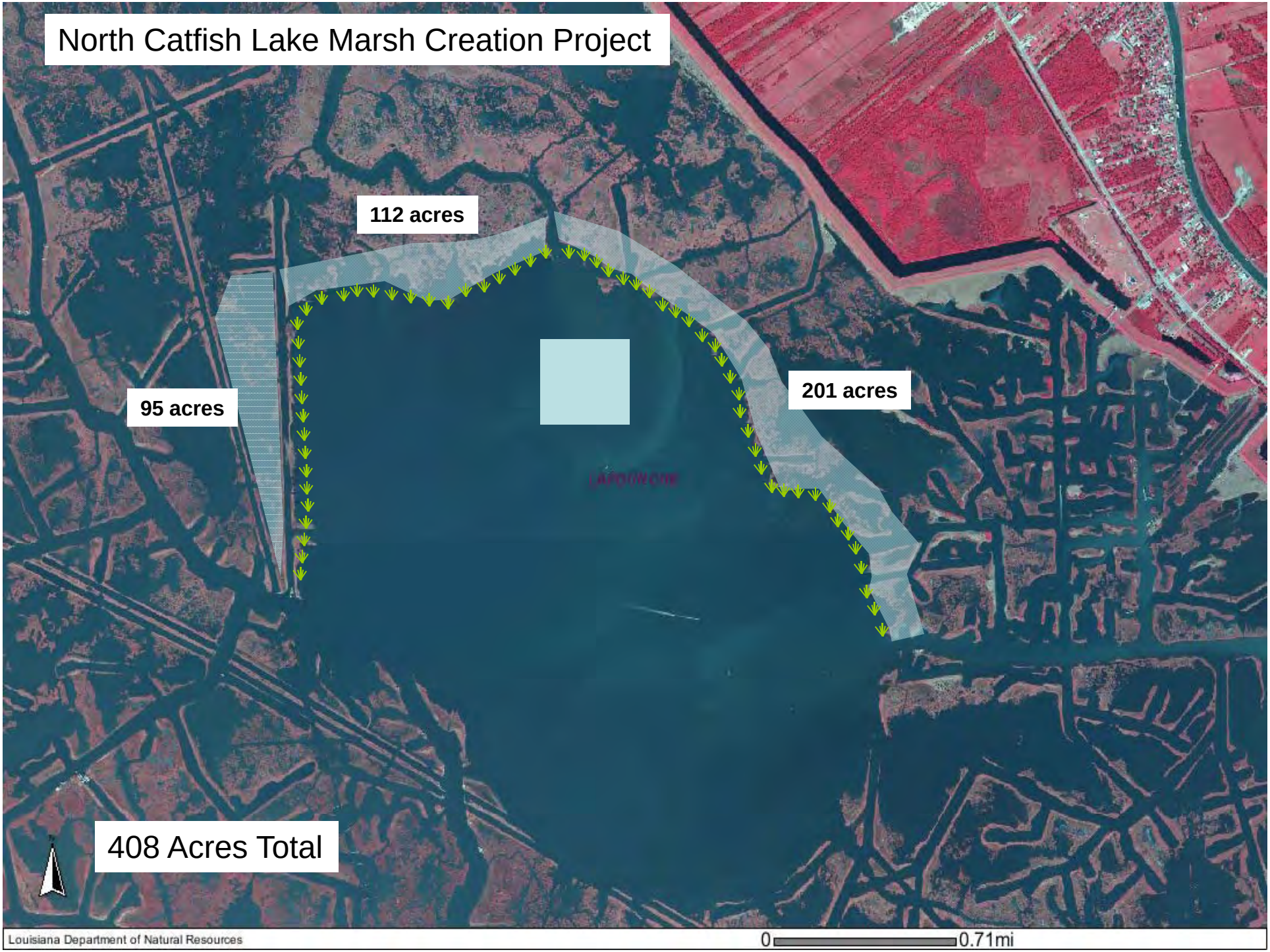

North Catfish Lake Marsh Creation Project
112 acres
95 acres
201 acres
408 Acres Total
Louisiana Department of Natural Resources
0
0.71mi

Local Project Marsh Creation Sites in Project Vicinity

2010 NAIP Photography

R3-TE-13

Bayou Terrebonne Ridge Restoration

R3-TE-13

PPL 22 PROJECT NOMINEE FACT SHEET

Project Name
Bayou Terrebonne Ridge Restoration

Coast 2050 Strategy
- Coastwide: Maintain, Protect, or Restore Ridge Functions
- Region: Establish/protect ridge function in Terrebonne Marshes.
- Region: Stabilize Banks of Bayou Terrebonne.

Project Location
The project is located on the east bank of Bayou Terrebonne, in Terrebonne Parish.

Problem
Terrebonne Bay was historically structured by a series of north-south ridges—remnants of the many distributaries of Bayou Lafourche. Much of the habitat function of these ridges has been lost over the last century to erosion, subsidence, and development. Landloss projections predict that the ridge and surrounding marshes will be converted to open water by 2050.

Goals
Restore both the structural and habitat functions of Bayou Terrebonne Ridge.

Proposed Project Features
Create a 65,000 foot ridge along the east bank of Bayou Terrebonne. The ridge will have a +5.0ft settled top height, a fifty foot top width, and a 7:1 side slopes. This feature would result in 42 acres of marsh and 139 acres of ridge habitat. Ridge material will be borrowed from Bayou Terrebonne.

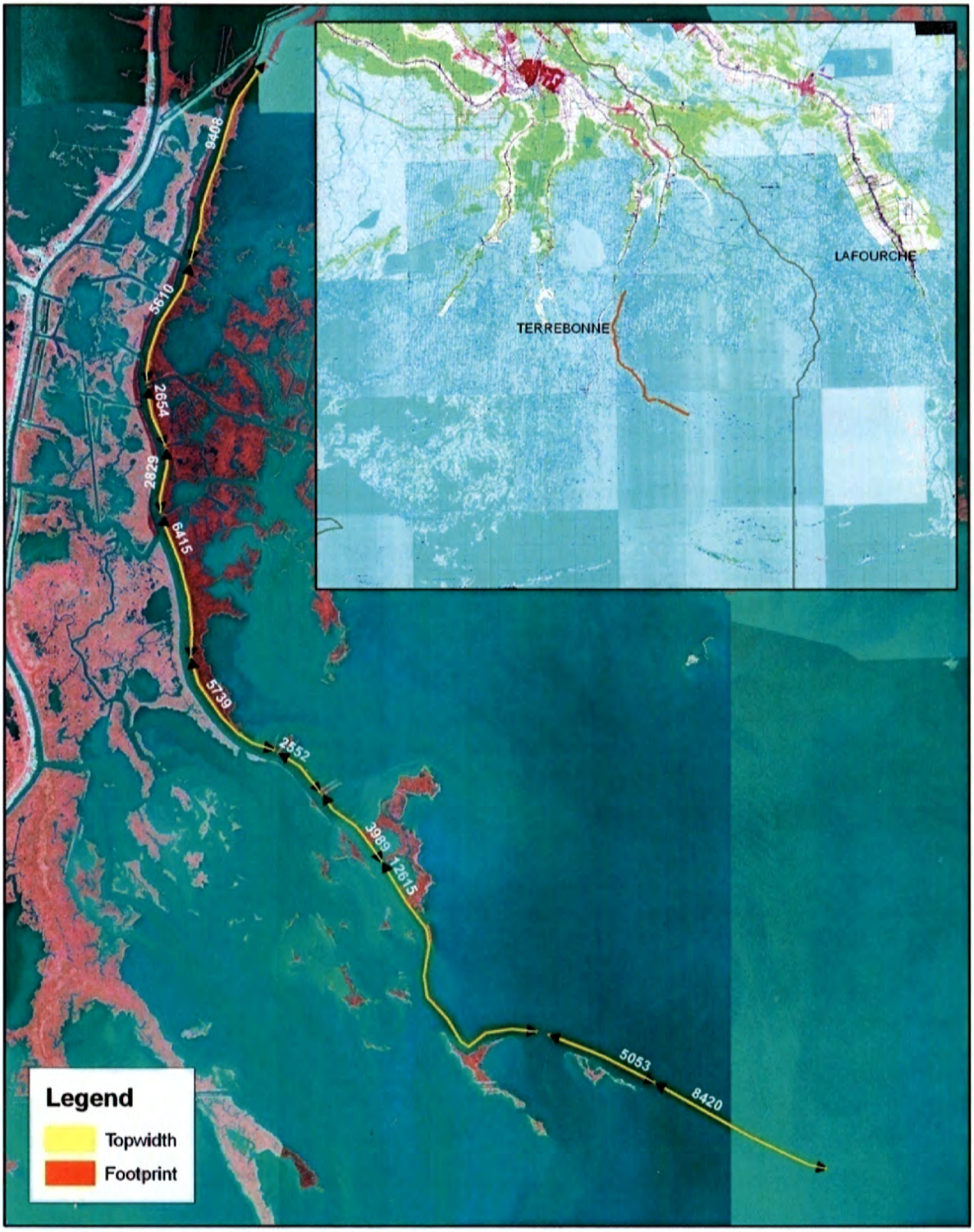
Preliminary Project Benefits
The project would restore 139 acres of resting and foraging habitat necessary to support transient migratory landbirds in the spring and fall. Additional benefits of restoring the ridge include helping reduce storm surge and restoring natural hydrologic patterns in the area.

Identification of Potential Issues
None.

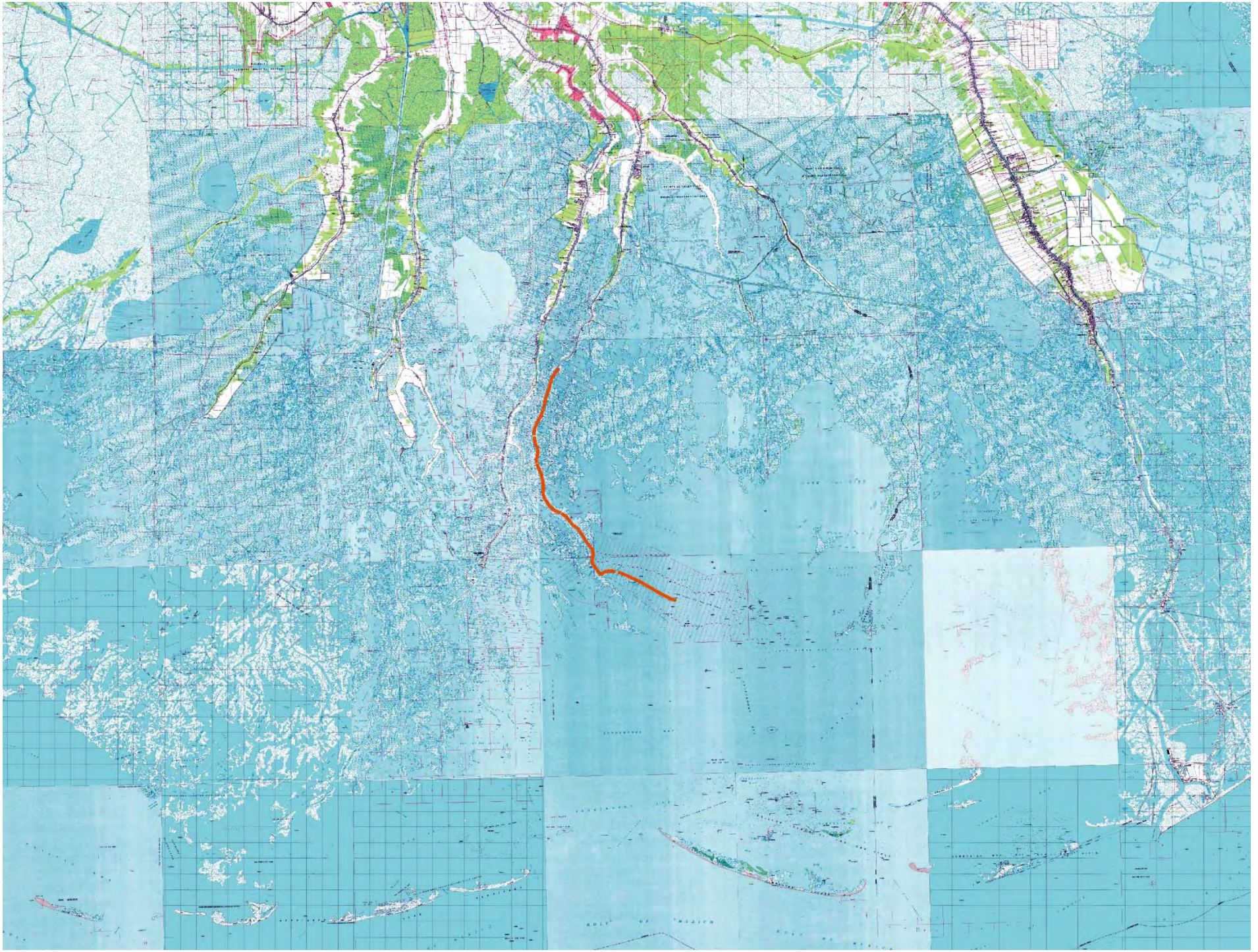
Preliminary Construction Costs
Estimated Construction +25% contingency: $48.8M

Preparer of Fact Sheet
Stuart Brown, CPRA (225) 342-4596, stuart.brown@la.gov

PPL22 - Bayou Terrebonne Ridge Restoration



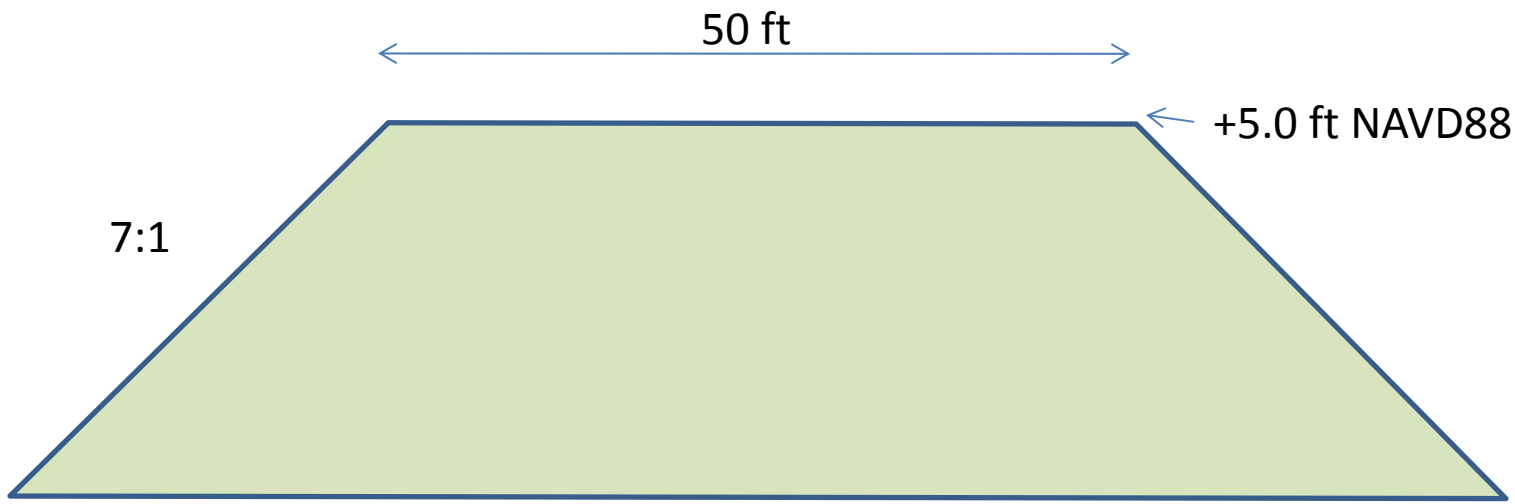
PPL 22
Bayou Terrebonne Ridge Restoration

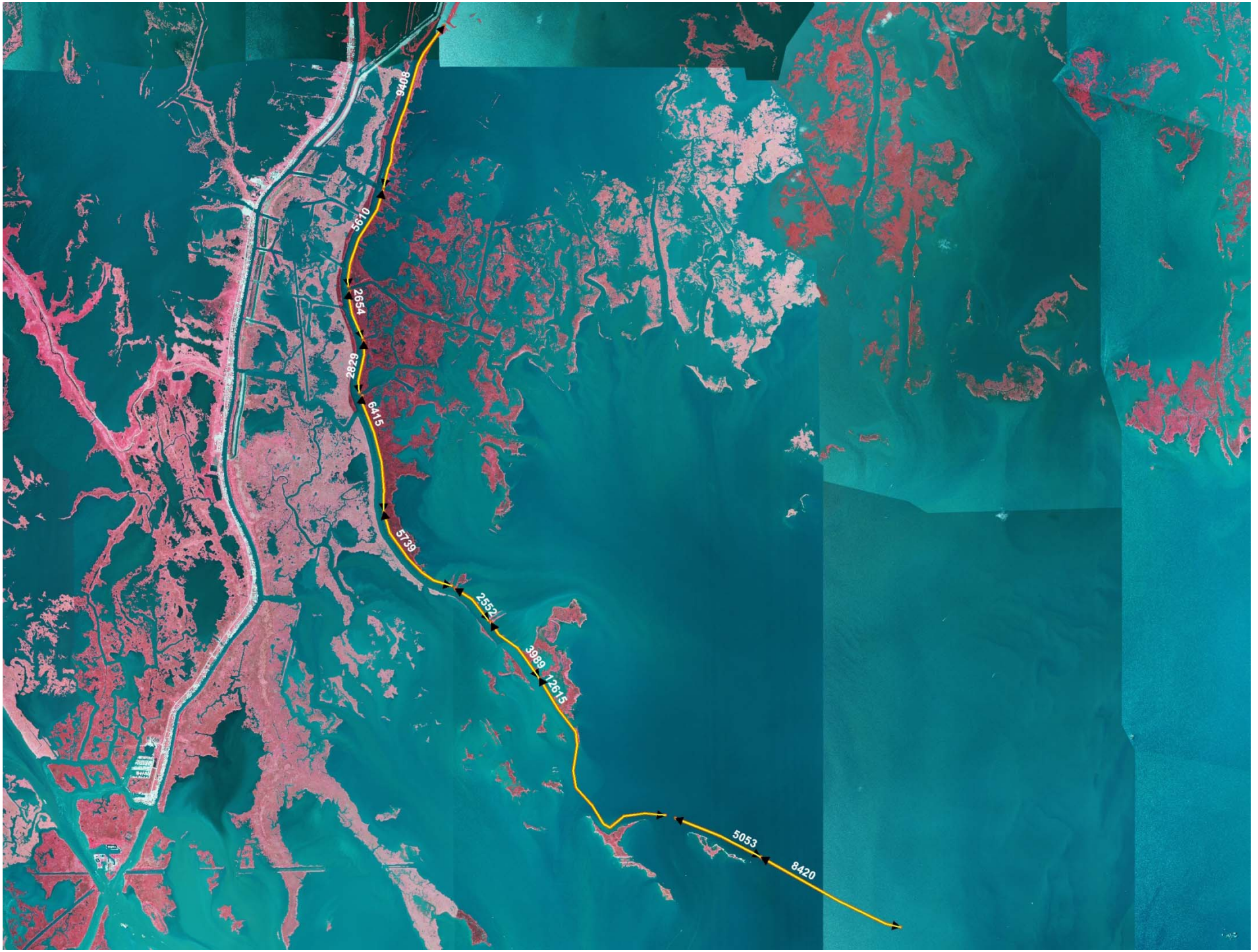


Ridge Dimensions

Settled top height: +5.0 ft NAVD88
(Assumes 40% settlement)
Side-Slopes: 7:1
Top width: 50 ft.
Length: 65,000 ft - Highly Scalable

Estimated Construction +25% contingency: **$48.8M**




9408
5610
2654
2829
6415
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2552
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12615
5053
8420

R3-TE-14

Bayou DuLarge Ridge Restoration

BA-TE-14

PPL 22 PROJECT NOMINEE FACT SHEET

Project Name
Bayou DuLarge Ridge Restoration

Coast 2050 Strategy
- Coastwide: Maintain, Protect, or Restore Ridge Functions
- Region: Establish/protect ridge function in Terrebonne Marshes.
- Region: Stabilize Banks of Bayou Terrebonne.

Project Location
The project is located along Bayou DuLarge, in western Terrebonne Parish.

Problem
Terrebonne Parish was historically structured by a series of ridges—remnants of the many distributaries of Bayou Lafourche. Much of the habitat function of these ridges has been lost over the last century to erosion, subsidence, and development. Bayou DuLarge ridge is a particularly critical east-west feature supporting what remains of the landbridge separating Caillou Lake and Lake Mechant. Deterioration of this landbridge has and will continue to allow saltwater to move more freely into the upper basin. Landloss projections predict that the ridge and surrounding marshes will be converted to open water by 2050.

Goals
Restore both the structural and habitat functions of Bayou DuLarge Ridge.

Proposed Project Features
Create a 55,000 foot ridge along the east bank of Bayou DuLarge. The ridge will have a +5.0ft settled top height, a fifty foot top width, and a 7:1 side slopes. This feature would result in 36 acres of marsh and 118 acres of ridge habitat. Ridge material will be borrowed from Bayou DuLarge.

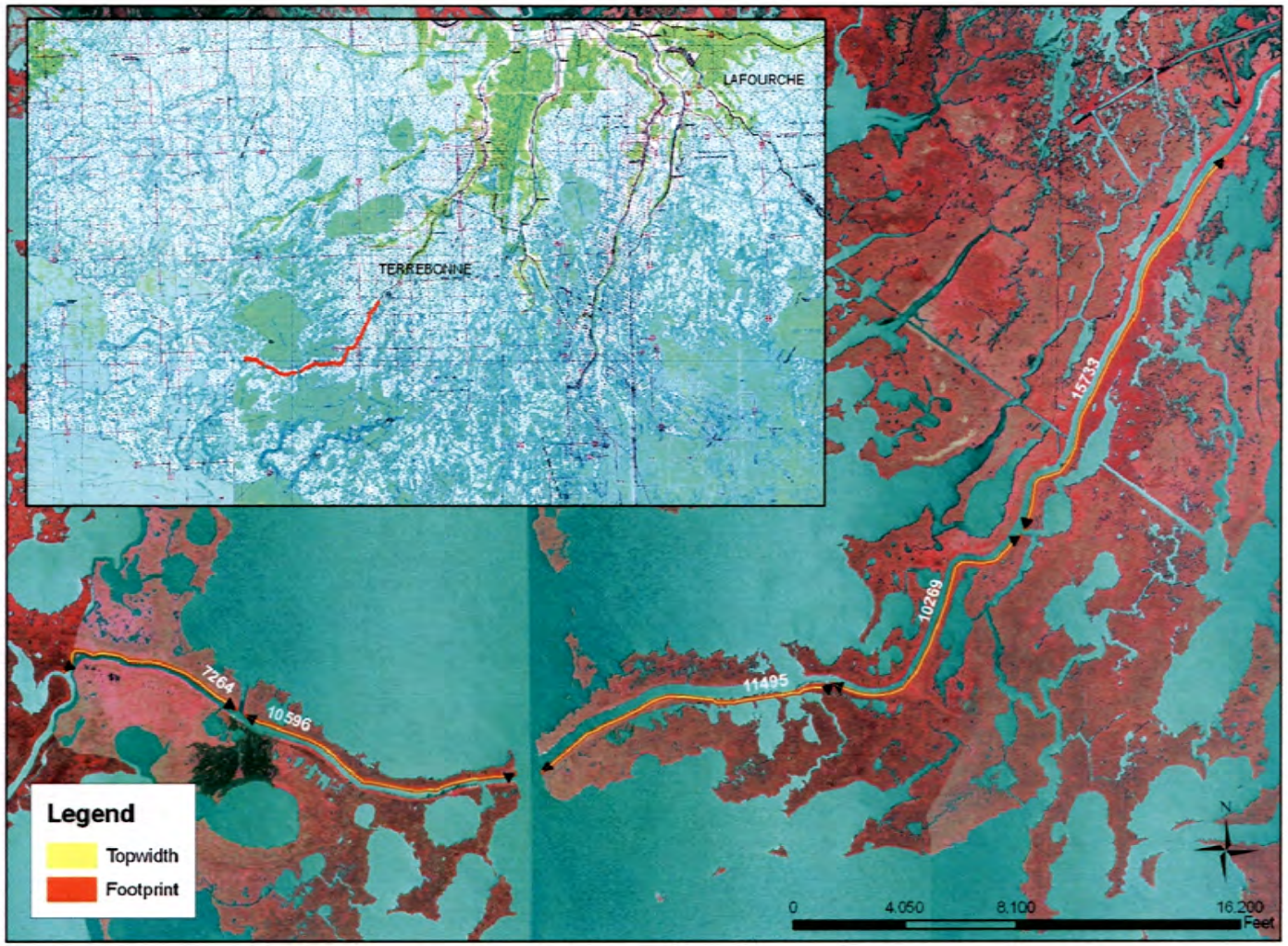
Preliminary Project Benefits
The project would restore 118 acres of resting and foraging habitat necessary to support transient migratory landbirds in the spring and fall. Additional benefits of restoring the ridge include helping reduce storm surge and restoring natural hydrologic patterns in the area. This project will work synergistically with TE-66 to limit salt water intrusion into the upper basin.

Identification of Potential Issues
Ridge alignment will have to account for existing camps.

Preliminary Construction Costs
Estimated Construction +25% contingency: $40.5M

Preparer of Fact Sheet
Stuart Brown, CPRA (225) 342-4596, stuart.brown@la.gov

PPL22 - Bayou Dularge Ridge Restoration



Bayou DuLarge Ridge Restoration

PPL 22 – Region 3

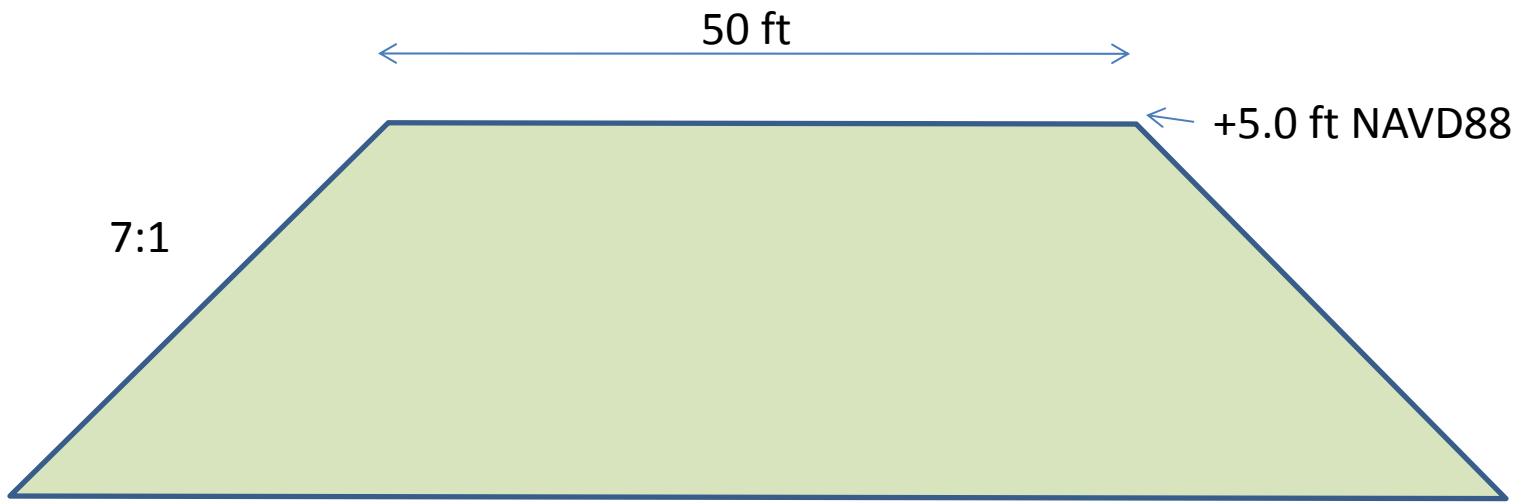
January 25, 2012

LAFOURCHE
TERREBONNE

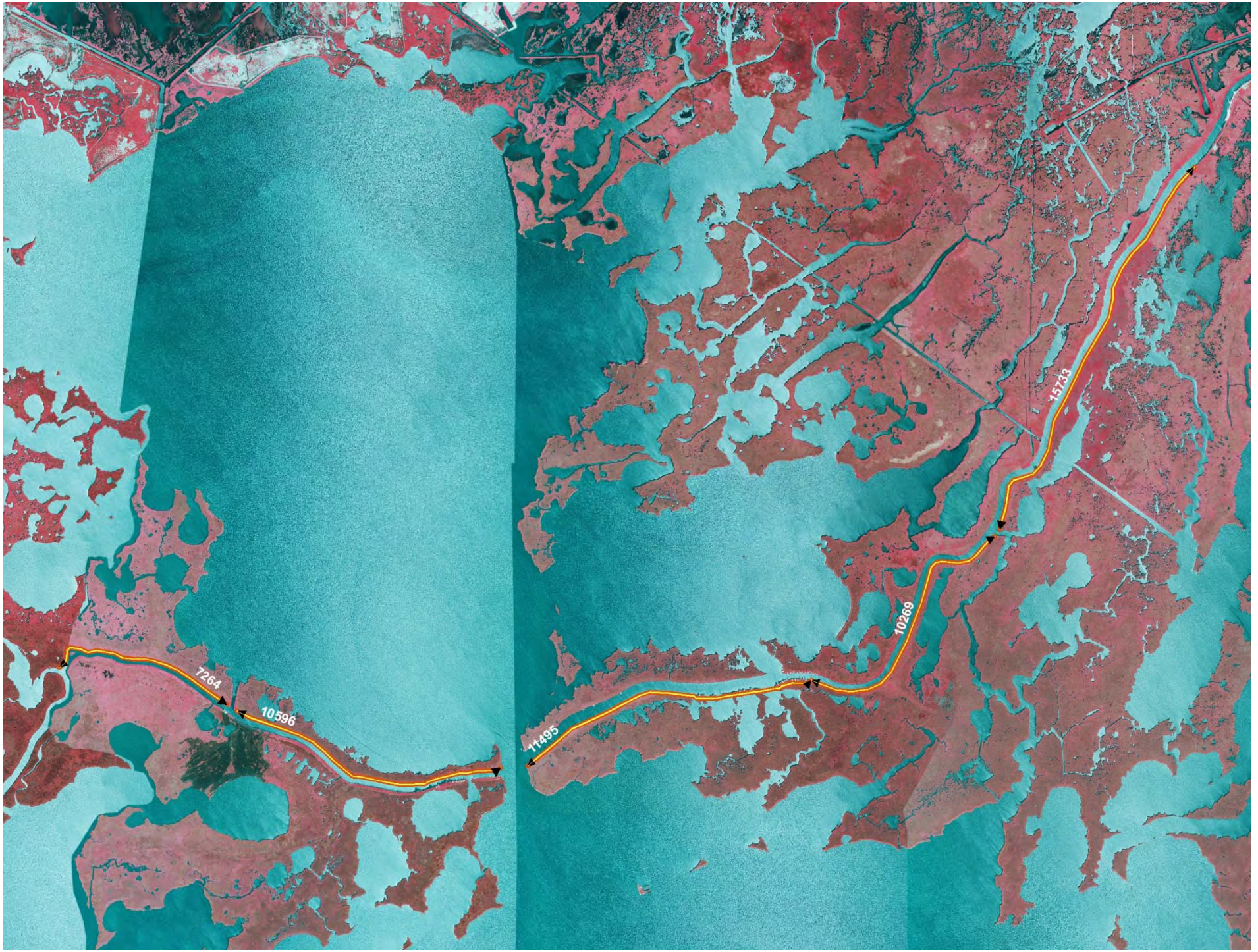
Ridge Dimensions

Settled top height: +5.0 ft NAVD88
(Constructed height: 8.88 ft)
Side-Slopes: 7:1
Top width: 50 ft.
Length: 55,000 ft

Estimated Construction +25% contingency: **$40.5M**



TERREBONNE


7264
10596
11495
10269
15733

R3-TE-15

West Belle Pass Marsh Creation

R3-TE-15

PPL 22 PROJECT NOMINEE FACT SHEET
January 2012

Project Name:
West Belle Pass Marsh Creation

Coast 2050 Strategy:
Beneficial use of dredged material

Project Location:
Region 3, Terrebonne Basin, Lafourche Parish, Louisiana, west of West Belle Pass jetties, approximately 3 miles southwest of Port Fourchon, and immediately north of the West Belle Pass Barrier Headland Restoration Project (TE-52)

Problem:
Records suggest that approximately 300,000 CY of material is dredged annually from West Belle Pass and placed along the Gulf shoreline adjacent to the jetties. While this method beneficially uses the dredge material, there is some debate as to its quality for beach construction due to high silt content. It is generally accepted that over time the silt fraction is released from the placed fill and lost offshore due to wave action. To reduce this large offshore loss, the material could provide longer term benefits if it were placed in an area with a lower wave climate.

In addition, interior marsh shorelines are subject to continuous erosion due to back-bay waves. Over time, erosion of the marshes exposes more shoreline to wave attack causing land loss rates to increase exponentially.

Goals:
- Create 244 acres of marsh to optimize the use of material dredged from Belle Pass during annual maintenance cycles and utilize material dredged from outside the system.
- Enhance the marsh behind the West Belle Pass barrier headland creating a synergistic effect with the TE-52 project.

Proposed Solution:
The proposed project would create a marsh creation area in which the dredged material could be placed during regular maintenance dredging cycles of Belle Pass.

The West Belle Pass Barrier Headland Restoration Project (TE-52) is currently under construction with completion anticipated for 2013. Its objective is to stabilize the shoreline west of the Belle Pass jetties and restore the backing marsh to the north.

The proposed project would complement the current restoration efforts by creating additional marsh acreage immediately to the north and effectively reduce the marsh shoreline length exposed to wave attack. Construction of the marsh would require containment dikes around the perimeter of the creation area that would have to be maintained throughout construction.

Preliminary Construction Cost:
Construction cost: $8,359,000
Fully-funded cost: Approximately $13,000,000

Preparer of Fact Sheet:
Whitney Thompson, P.E., Coastal Planning & Engineering/The Shaw Group
225-932-2568
Whitney.thompson@shawgrp.com

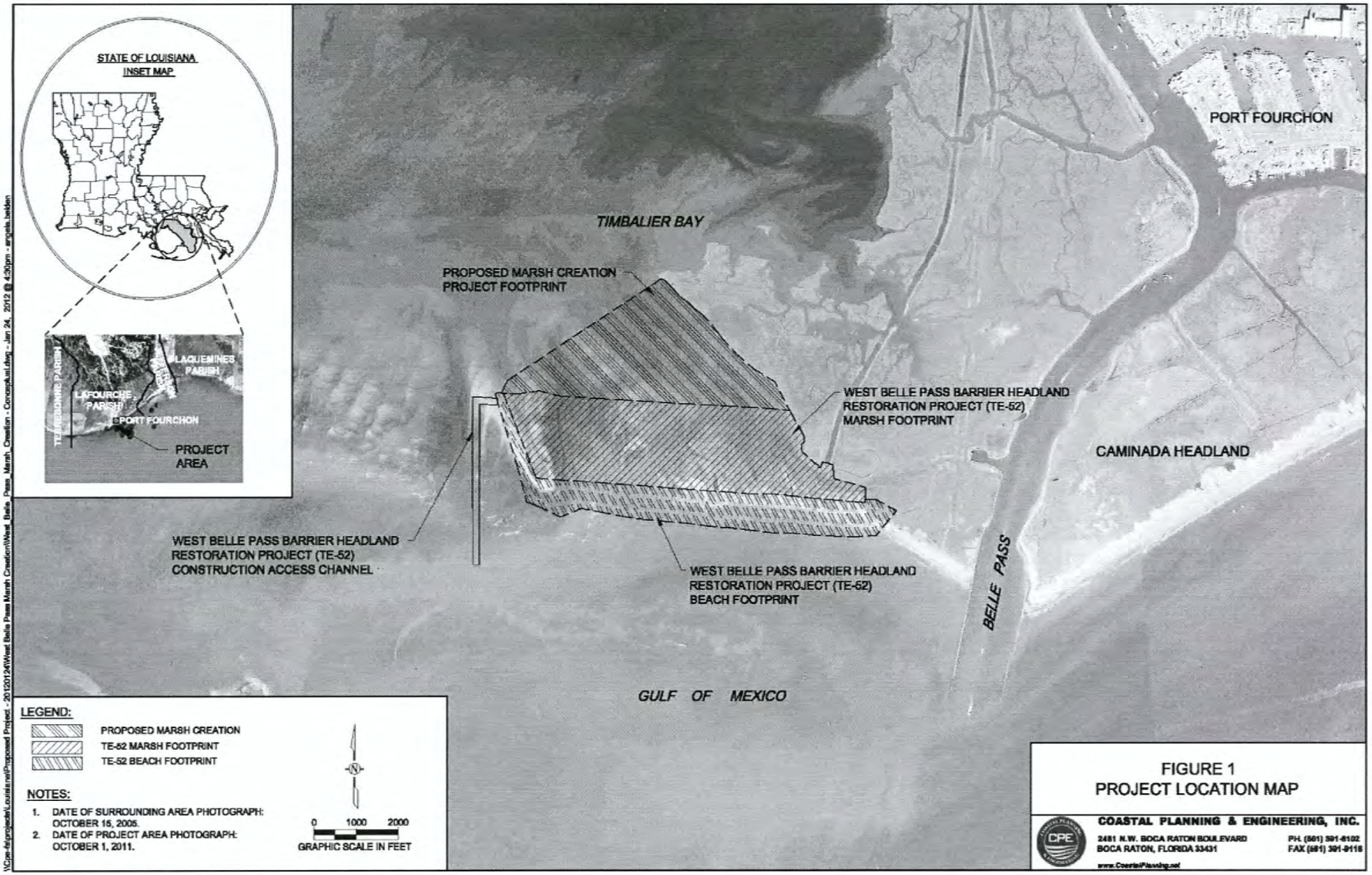


FIGURE 1
PROJECT LOCATION MAP

COASTAL PLANNING & ENGINEERING, INC.
2481 N.W. BOCA RATON BOULEVARD
BOCA RATON, FLORIDA 33431
PH. (561) 391-6102
FAX (561) 391-9116
www.CoastalPlanning.net

W:\pe-file\projects\Louisiana\Proposed Project - 2012\12\4\West Belle Pass Marsh Creation\West_Belle_Pass_Marsh_Creation - ConceptLuni.dwg - Jan 24, 2012 @ 4:30pm - angela.belden

West Belle Pass Marsh Creation

Prepared by:
Whitney C. Thompson, P.E.
Coastal Planning & Engineering, Inc.
A Shaw Group Company

January 25, 2012

Project Location

- **Region 3, Terrebonne Basin, Lafourche Parish**
- **West of Belle Pass jetties, approximately 3 miles southwest of Port Fourchon**

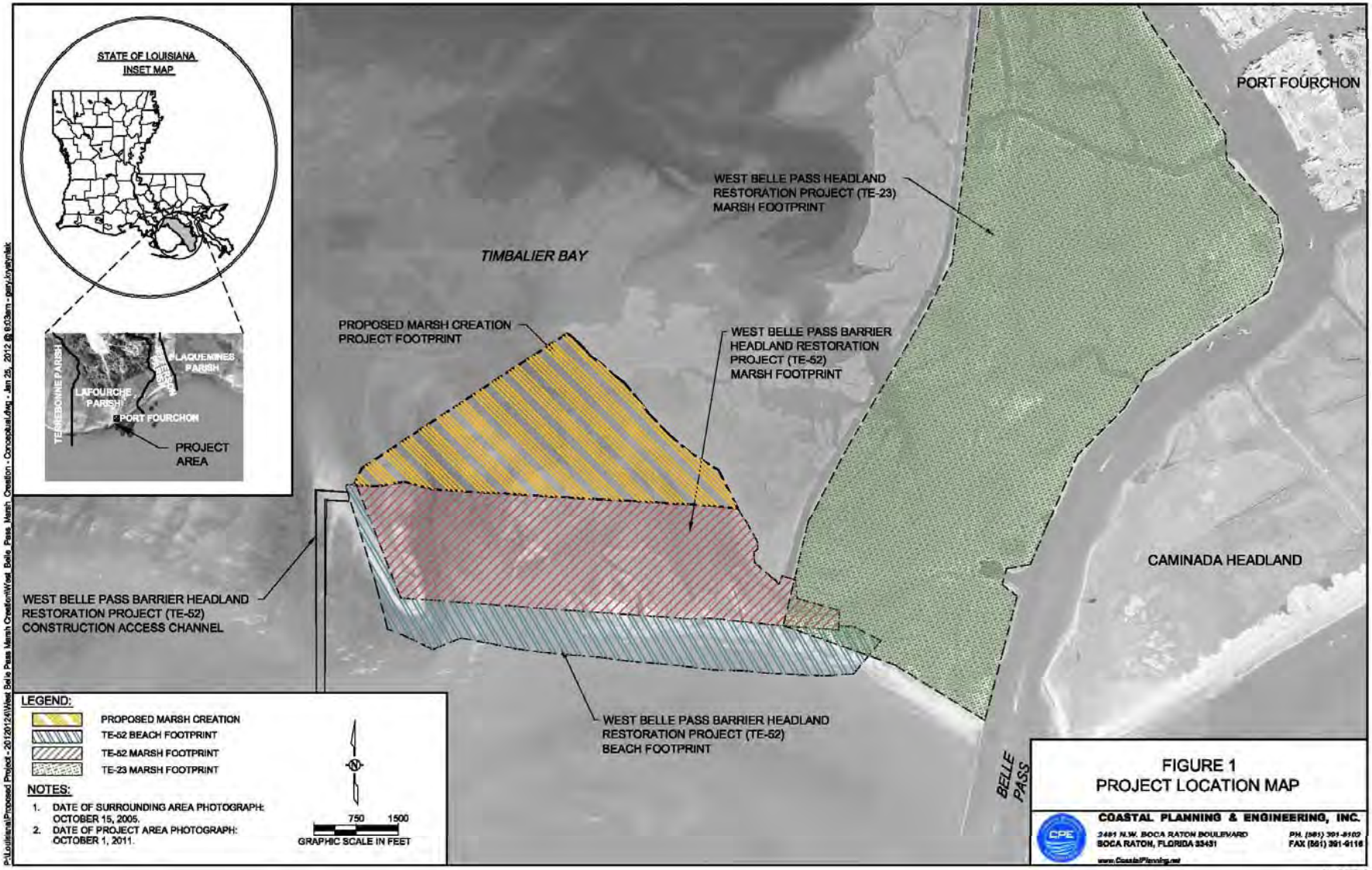

STATE OF LOUISIANA
INSET MAP
TERREBONNE PARISH
LAFOURCHE PARISH
PLAQUEMINES PARISH
PORT FOURCHON
PROJECT AREA
PORT FOURCHON
WEST BELLE PASS HEADLAND RESTORATION PROJECT (TE-23) MARSH FOOTPRINT
TIMBALIER BAY
PROPOSED MARSH CREATION PROJECT FOOTPRINT
WEST BELLE PASS BARRIER HEADLAND RESTORATION PROJECT (TE-52) MARSH FOOTPRINT
CAMINADA HEADLAND
WEST BELLE PASS BARRIER HEADLAND RESTORATION PROJECT (TE-52) CONSTRUCTION ACCESS CHANNEL
WEST BELLE PASS BARRIER HEADLAND RESTORATION PROJECT (TE-52) BEACH FOOTPRINT
BELLE PASS
LEGEND:
PROPOSED MARSH CREATION
TE-52 BEACH FOOTPRINT
TE-52 MARSH FOOTPRINT
TE-23 MARSH FOOTPRINT
NOTES:
1. DATE OF SURROUNDING AREA PHOTOGRAPH: OCTOBER 15, 2005.
2. DATE OF PROJECT AREA PHOTOGRAPH: OCTOBER 1, 2011.
750 1500
GRAPHIC SCALE IN FEET
FIGURE 1
PROJECT LOCATION MAP
COASTAL PLANNING & ENGINEERING, INC.
2481 N.W. BOCA RATON BOULEVARD
BOCA RATON, FLORIDA 33431
PH. (561) 391-9102
FAX (561) 391-9116
P:\Louisiana\Proposed Project - 2012\2012\West Belle Pass Marsh Creation\West Belle Pass Marsh Creation - Conceptual.dwg - Jan 25, 2012 @ 8:03am - gary.lovshin

FIGURE 1

Problem

- Approximately 300,000 cubic yards of material is dredged annually from Belle Pass and placed along the Gulf shoreline

- Due to the high silt content of this material, most of this material is lost offshore due to wave action (CPE, 2009)

Dredging History within Bayou Lafourche

Completion Date	Placement Location	Volume (cy)
July 1998	Marsh West of Belle Pass	1,500,000
July 1998	Beach West of Belle Pass	240,000
August 2001	Bank East of Belle Pass	128,000
August 2001	Beach West of Belle Pass	1,830,700
December 2004	Beach West of Belle Pass	1,020,300
May 2006	Beach West of Belle Pass	605,000
2007	Marsh West of Belle Pass	426,000
2007	Beach West of Belle Pass	111,000
October 2008	Beach East of Belle Pass	425,000

Proposed Solution

- **Beneficially use material dredged from Belle Pass at a discounted cost to CWPPRA:**
  - **Incremental cost of dredging**
  - **Construction of containment dike**
- **Optimize the use of sediment dredged from outside the system**

Project Benefits

- Create 244 acres of new marsh area (with negligible impact to existing marsh)
- Beneficially use 2.0M cubic yards of fill material over 7 years
- Use material from outside of the system

Project Benefits

- Synergistic effects with two other CWPPRA projects
  - West Belle Pass Headland Restoration (TE-23)
  - West Belle Pass Barrier Headland Restoration (TE-52)
- In compliance with the State Master Plan

Construction Cost Estimate

Item	Quantity	Units	Unit Price	Cost
Mobilization	1	LS	$3,492,500.00	$3,492,500.00
Primary Dike*	18,400	LF	$150.00	$2,760,000.00
Marsh Fill**	2,000,000	CY	$0.25	$500,000.00
Settlement Plates	5	EACH	$3,500	$17,500.00
Pre-Construction Surveys	1	LS	$75,000	$75,000.00
As-built Surveys	1	LS	$50,000	$50,000.00
Vegetative Plantings	244	Acre	$6,000	$1,464,000.00
Subtotal (rounded)				$8,359,000.00
25% Contingency				$2,089,750.00
Construction Total (include 25% contingency)				**$10,448,750.00**

*Dike construction would be required twice before marsh creation area would be completed.

**Incremental unit cost to pump the additional distance to the marsh creation area.

Fully Funded Cost Estimate

Item	Cost
Construction Total (include 25% contingency)	$10,448,750.00
Engineering & Design, Design Surveys, WVA, CR & NEPA	$850,000.00
Construction Management	$350,000.00
Project Management (State & Federal)	$600,000.00
Monitoring	$700,000.00
Oyster Leases*	$0.00
Land Rights	$20,000.00
Fully Funded Cost (rounded)	**$12,968,750.00**

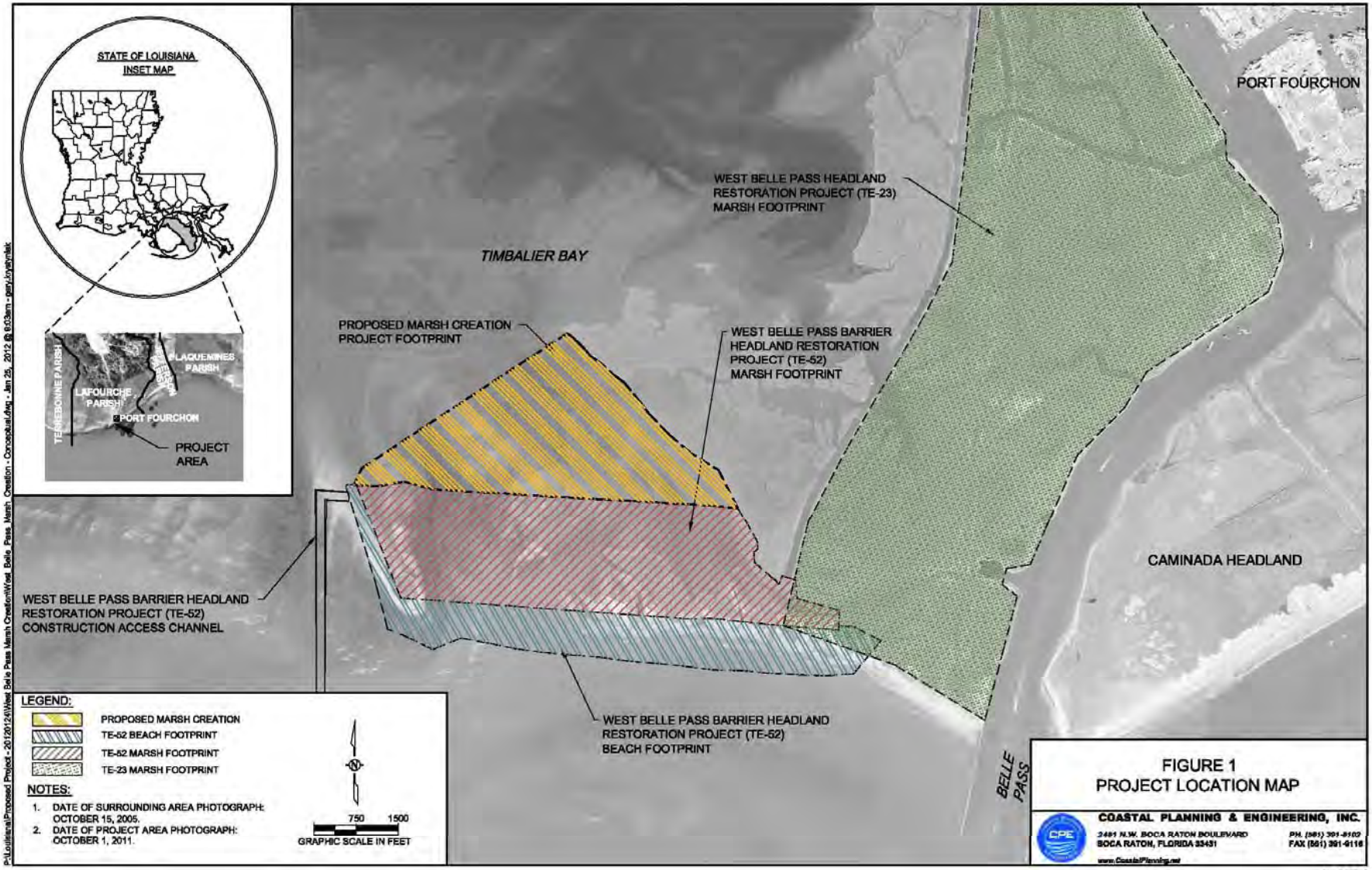
* No oyster leases in proposed project footprint

Summary

- Create 244 acres of marsh
- Maximize use of beneficial dredge material
- Synergistic with other projects
- Construction cost = $8,359,000
- Fully funded cost = $12,968,750

Questions?

Whitney C. Thompson, P.E.
Coastal Planning & Engineering, Inc.
A Shaw Group Company
225-932-2568
Whitney.thompson@shawgrp.com


STATE OF LOUISIANA
INSET MAP
TERREBONNE PARISH
LAFOURCHE PARISH
PLAQUEMINES PARISH
PORT FOURCHON
PROJECT AREA
TIMBALIER BAY
PORT FOURCHON
WEST BELLE PASS HEADLAND RESTORATION PROJECT (TE-23) MARSH FOOTPRINT
PROPOSED MARSH CREATION PROJECT FOOTPRINT
WEST BELLE PASS BARRIER HEADLAND RESTORATION PROJECT (TE-52) MARSH FOOTPRINT
CAMINADA HEADLAND
WEST BELLE PASS BARRIER HEADLAND RESTORATION PROJECT (TE-52) CONSTRUCTION ACCESS CHANNEL
WEST BELLE PASS BARRIER HEADLAND RESTORATION PROJECT (TE-52) BEACH FOOTPRINT
BELLE PASS
LEGEND:
PROPOSED MARSH CREATION
TE-52 BEACH FOOTPRINT
TE-52 MARSH FOOTPRINT
TE-23 MARSH FOOTPRINT
NOTES:
1. DATE OF SURROUNDING AREA PHOTOGRAPH: OCTOBER 15, 2005.
2. DATE OF PROJECT AREA PHOTOGRAPH: OCTOBER 1, 2011.
750 1500
GRAPHIC SCALE IN FEET
FIGURE 1
PROJECT LOCATION MAP
COASTAL PLANNING & ENGINEERING, INC.
2481 N.W. BOCA RATON BOULEVARD
BOCA RATON, FLORIDA 33431
PH. (561) 391-8102
FAX (561) 391-9116
www.CoastalPlanning.net
FIGURE 1

R3-TE-16

Lake Decade Marsh Creation and Nourishment

R3-TE-16

PPL22 PROJECT NOMINEE FACT SHEET
January 25, 2012

Project Name:
Lake Decade Marsh Creation and Nourishment

Coast 2050 Strategy:
Coastwide Stategy –Dedicated dredging to create, restore, or protect wetlands
Regional Strategy – Dedicated delivery and/or beneficial use for marsh building by any means feasible means
Mapping Unit Strategy - Beneficial use of dredged material

Project Location:
Region 3, Terrebonne Basin, Mechant/Decade Mapping Unit, Terrebonne Parish, located along the shorelines of Lake Decade southwest of Theriot.

Problem:
The project would restore lake edge and interior wetlands that have been lost and fragmented. The marsh creation and nourishment areas would maintain delineation of the lake rim if the lake shoreline levees are no longer possible to be maintained. What problem will the project solve? Wetland loss rates are evidence for the nature and scope of the problem in the project area. The wetland loss rate for the Lake Decade subunit polygon is -0.15%/year based on USGS data from 1985 to 2009. The lake shoreline breaches routinely even with efforts by the land owner. Generally, a breach or two develop in between the annual maintenance efforts to re-establish the integrity of the shoreline, but would not last more than two years without breaching. Construction of the South Lake Decade Freshwater Introduction Project (TE-39) has addressed the vulnerability of the lake shoreline east of Bayou Decade.

Goals:
The conceptual project goals are to accomplish approximately 346 acres of marsh creation and 153 acres of marsh nourishment in strategic locations to enhance and maintain the structural integrity of the lake shorelines.

Proposed Solutions:
Sediment would be dredged from Lake Decade and placed in a semi- to confined manner in strategic locations along the lake shoreline to create and nourish intertidal intermediate and fresh marsh. Approximately half of the created marsh acres would be planted with appropriate wetland vegetation. The borrow area in Lake Decade would be located and designed in a manner to avoid and minimize environmental impacts (e.g., to submerged aquatic vegetation and water quality) to the maximum extent practicable.

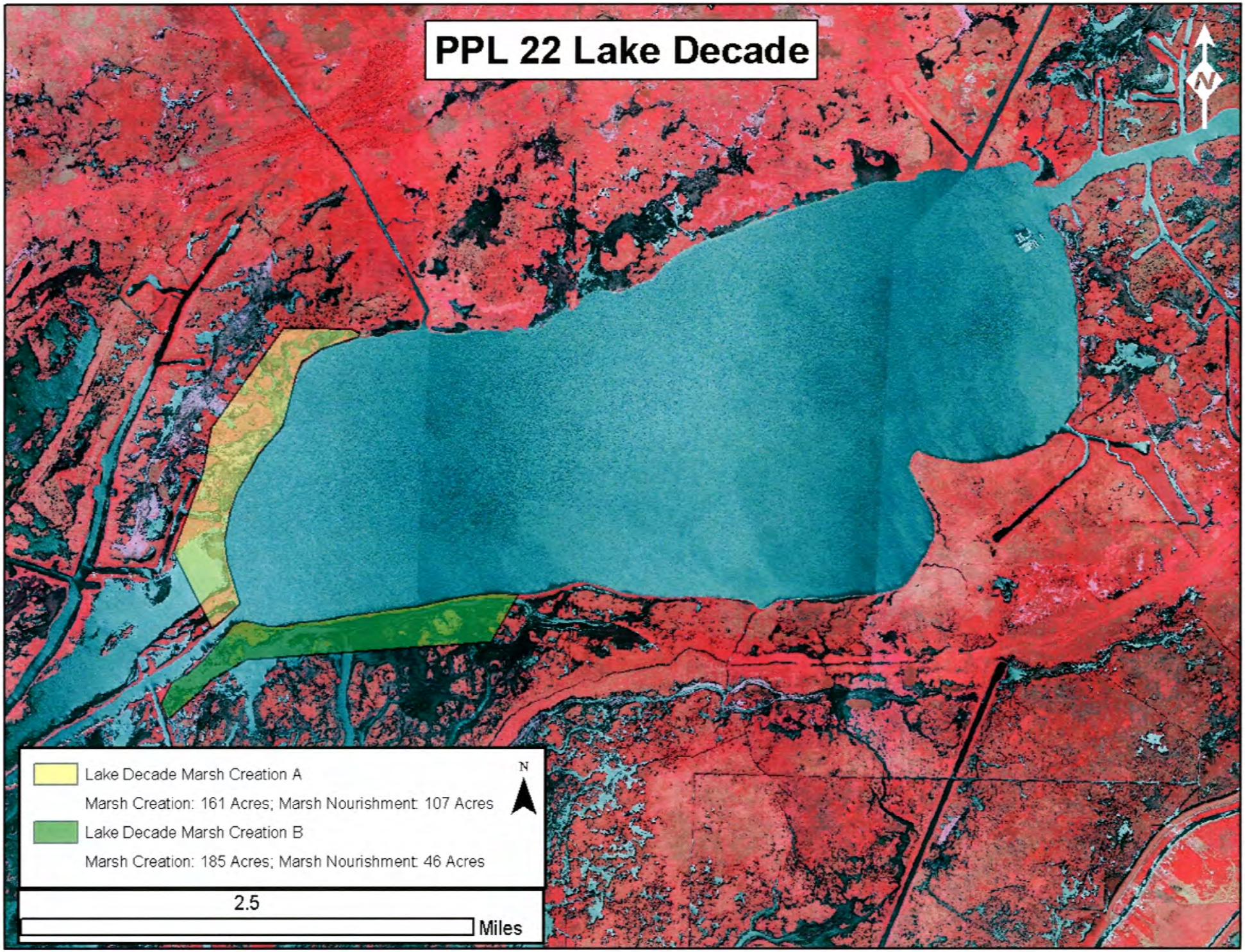
Preliminary Project Benefits:
The following questions should be addressed: 1) The total acreage benefited both directly and indirectly is 499 acres. 2) Approximately 343 net acres are expected at TY 20. *Note that this is a draft number subject to pro-rating revisions due to overlapping with the South Lake Decade TE-39.* 3) The anticipated loss rate reduction throughout the area of direct impacts is 50-74%. 4) The marsh creation would help maintain the structural limits of Lake Decade, especially if the existing levees can not be maintained. 5) The project would have not significant impact on

critical or non-critical infrastructure. 6) The project would have direct synergy with the TE-39, South Lake Decade Freshwater Introduction Project.

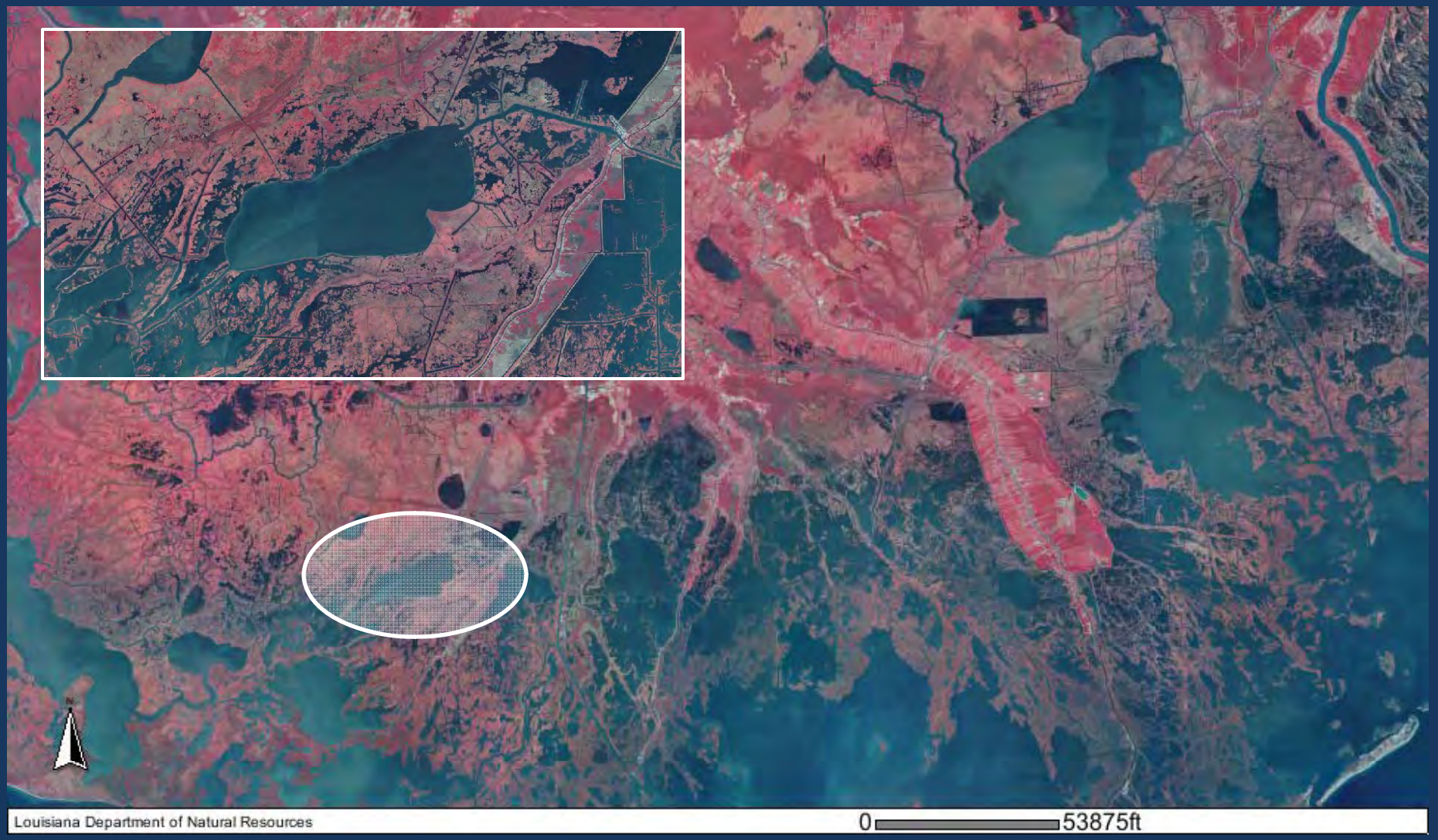
Identification of Potential Issues:
The proposed project has the following potential issues: utilities/pipelines, etc. The fill areas are located on Apache Corporation property and the conceptual features have been coordinated with them.

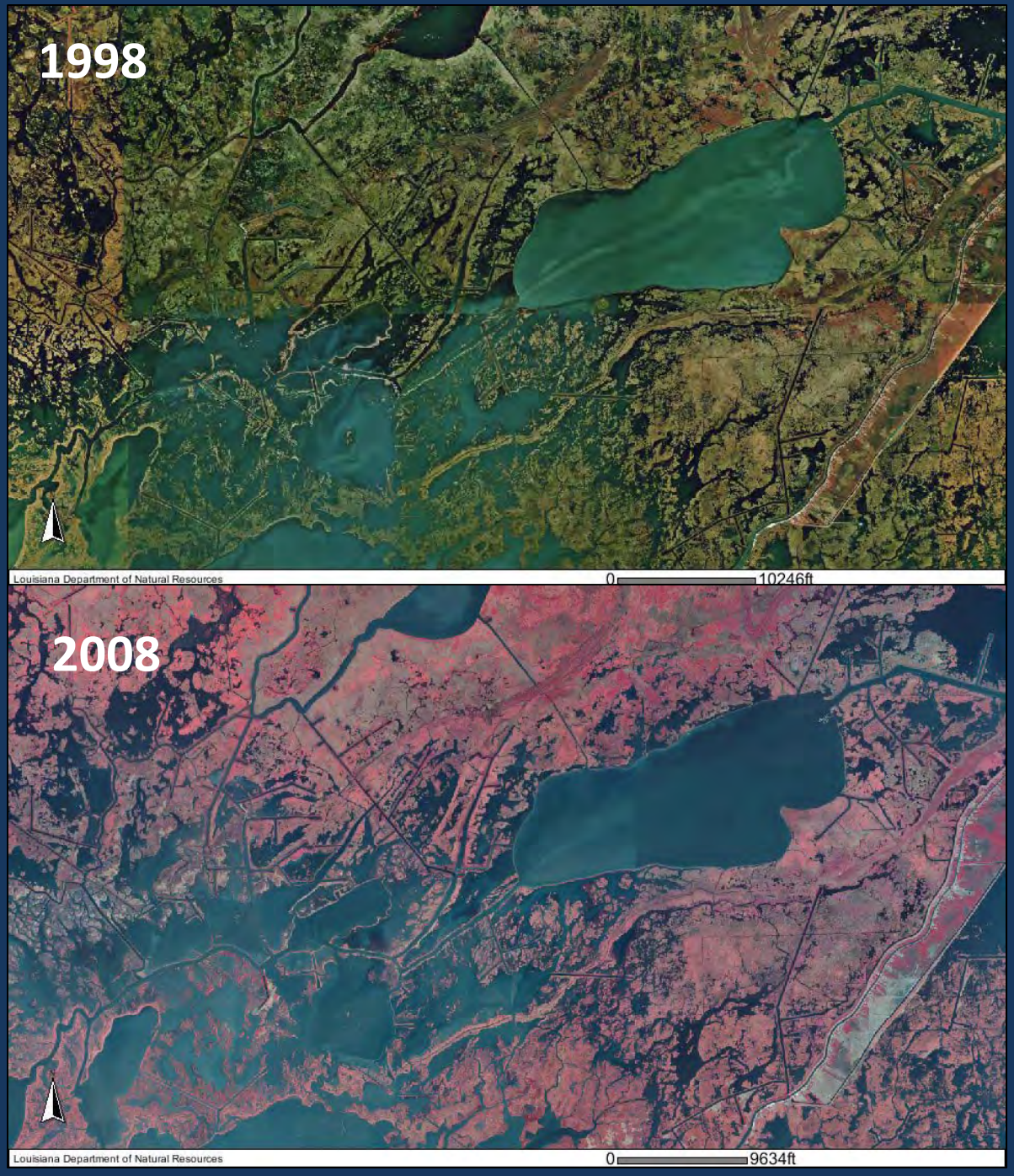
Preliminary Construction Costs:
The lump sum construction cost including 25% contingency is $21,630,616. The fully funded cost estimate is in the $25 - $30M range.

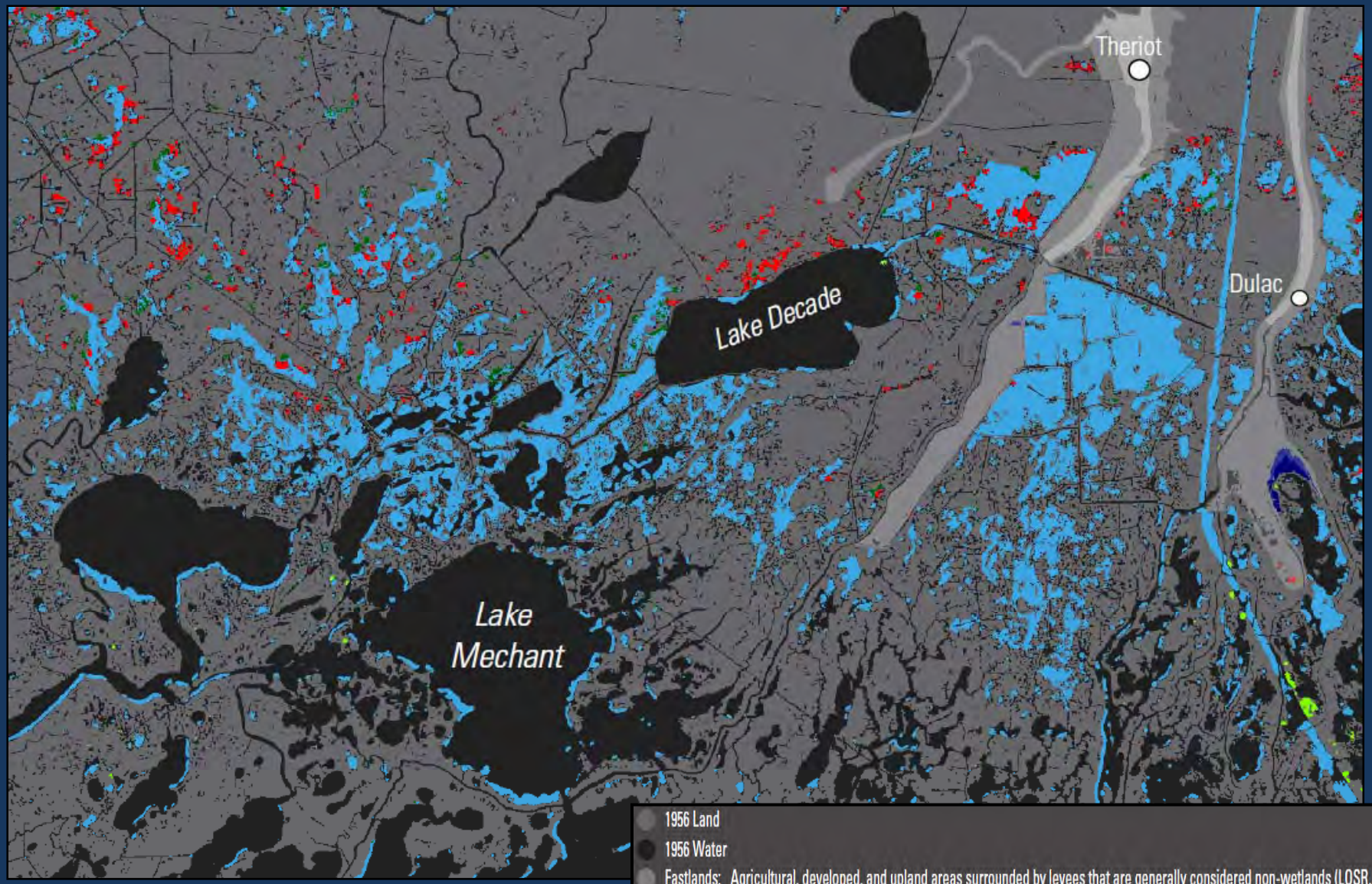
Preparer(s) of Fact Sheet:
Patrick Williams, NOAA's National Marine Fisheries Service, (225)389-0508, ext 208, patrick.williams@noaa.gov


PPL 22 Lake Decade
N
Lake Decade Marsh Creation A
Marsh Creation: 161 Acres; Marsh Nourishment: 107 Acres
Lake Decade Marsh Creation B
Marsh Creation: 185 Acres; Marsh Nourishment: 46 Acres
N
2.5
Miles

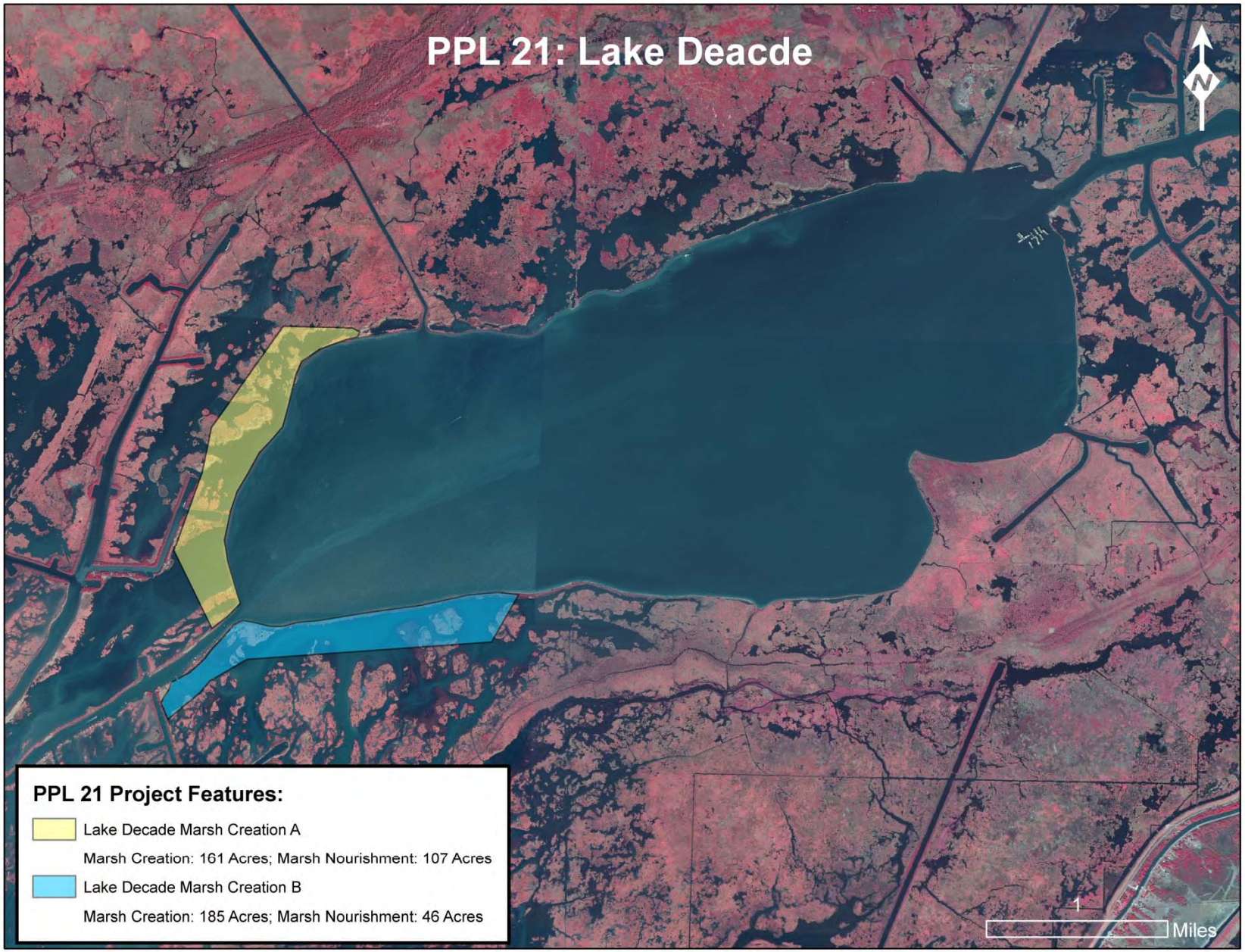
PPL22 LAKE DECADE MARSH CREATION PROJECT NOMINEE

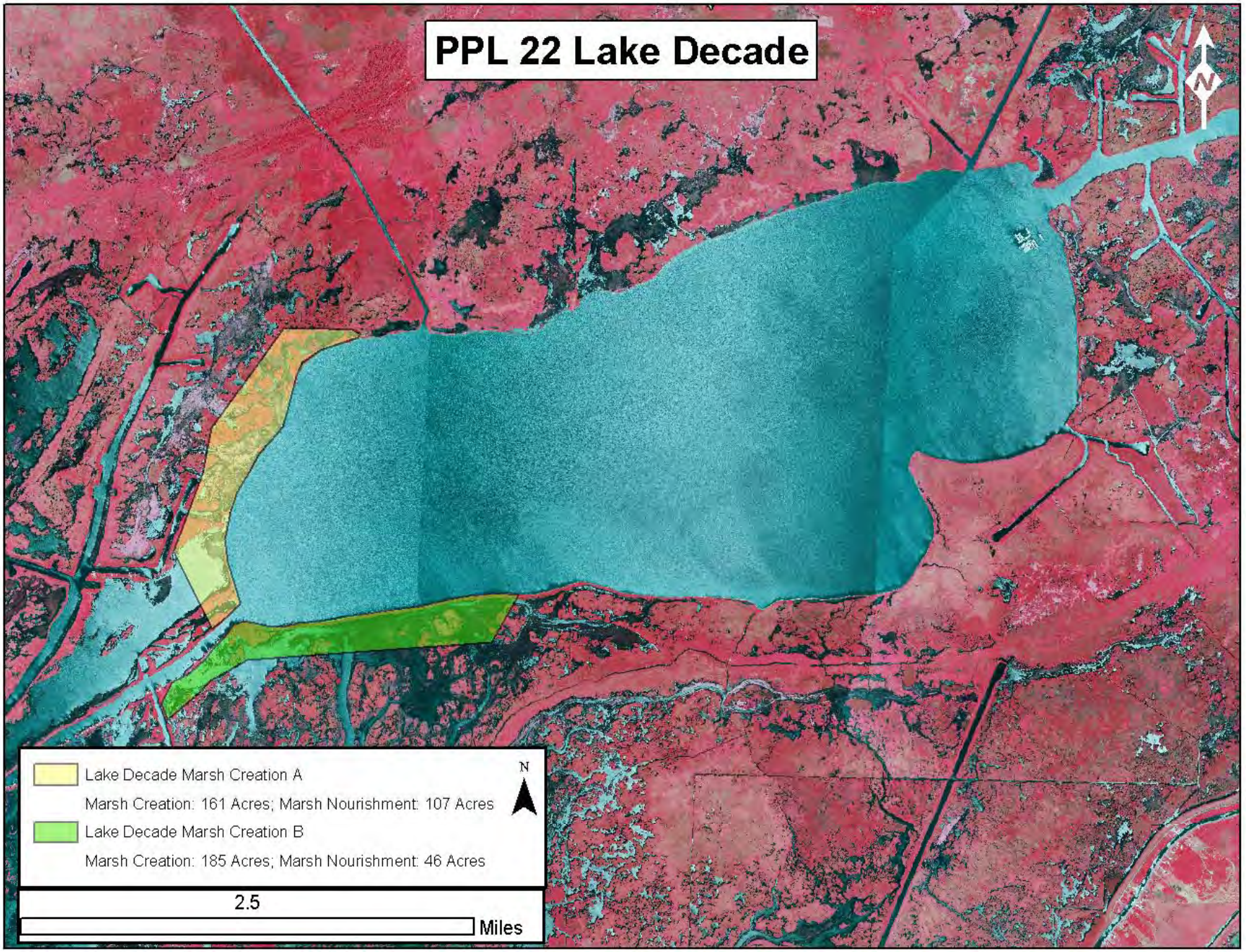



1998
Louisiana Department of Natural Resources
0
10246ft
2008
Louisiana Department of Natural Resources
0
9634ft


Theriot
Dulac
Lake Decade
Lake Mechant
1956 Land
1956 Water
Fastlands: Agricultural, developed, and upland areas surrounded by levees that are generally considered non-wetlands (LOSR, 2002) and that are excluded from calculations of net land area change.
LCA Area Not Included in the 1956 Data Coverage
1956 to 2004 Land Loss*: Based on direct comparison of 1956 and 2004 land-water data.
1956 to 2004 Land Gain*: Based on direct comparison of 1956 and 2004 land-water data.
2004 to 2005 New Water Areas (Decreased Land Areas)**: Includes flooded marsh, sheared marsh, eroded marsh, and scoured marsh.

2010
© 2011 Google
Image USDA Farm Service Agency
Google
Imagery Date: Jul 23, 2007
29°23'01.30" N
90°53'45.11" W
elev 0 ft
Eye alt 14743 ft


PPL 21: Lake Deacde
N
PPL 21 Project Features:
Lake Decade Marsh Creation A
Marsh Creation: 161 Acres; Marsh Nourishment: 107 Acres
Lake Decade Marsh Creation B
Marsh Creation: 185 Acres; Marsh Nourishment: 46 Acres
1
Miles


PPL 22 Lake Decade
N
Lake Decade Marsh Creation A
Marsh Creation: 161 Acres; Marsh Nourishment: 107 Acres
Lake Decade Marsh Creation B
Marsh Creation: 185 Acres; Marsh Nourishment: 46 Acres
N
2.5
Miles

Summary

- ~346 acres of marsh creation
- ~153 acres of marsh nourishment
- ~343 net acres after 20 years
- Construction cost + 25% contingency ~$22M
- Fully-funded cost range $25 - $30M

3,600 ft
2100 ft
TERREBONNE
5,100 ft
3,200 ft
3,800 ft
5,500 ft
Louisiana Department of Natural Resources
0
3800ft

QUESTIONS

Project: Lake Decade Marsh Creation **Dredge Mob estimator**

borrow location Lake Decade minimum of 2500 ft from shore

input

DA farthest point to BA midpoint (longest length)	5,000	LF - access measured along open waterways
EXTRA pipe	9,000	LF - if pumping to large/multiple project sites that need multiple discharge points and do not delay dredge
Pontoon line behind dredge (req'd for all)	3,000	LF - to allow for movement of dredge
MAX pipe to site (incl EXTRA)	17,000	LF = length to Mob/Demob

Assumed two pipelines; 9000 is the distance to Area B plus the length of Area B

Mob/Demob	subline (LF)	shoreline (LF)	pontoon (LF)	(CHECK total LF)
breakdown of pipe types (should equal MAX pipe)	14,000		3,000	17,000
pipe OVER 35,000 LF (assumes subline)	0			

Set up **(one or possibly both 7) and 8) should equal total longest pipe length in 1) above)**

prelay pipeline	3,000	3,000	= amount of pipe required to be in-place before dredging can begin
pickup pipeline	13,000	13,000	= length of pipe required to be picked up when dredging is completed

Pipeline **subline / pontoon**	**length (LF)**	**unit cost**	**cost**
mob (minus OVER 35,000 LF length)	17,000	$45.00	$765,000
prelay	3,000	$20.00	$60,000
pickup	13,000	$20.00	$260,000
shoreline (on dry land)			
mob	0	$15.00	$0
prelay - within project area	0	$40.00	$0
pickup - within project area	0	$40.00	$0
prelay + pickup outside project area (welded joint)		$125.00	$0
any pipe OVER 35,000 LF			
mob	0	$135.00	$0

Plant	**number**	**unit cost**	
24" dredge		$375,000	$0
27" dredge		$400,000	$0
30" dredge	1	$450,000	$450,000
booster	1	$150,000	$150,000
flotation contractor for dredge		$125,000	$0
rock or closure contractor/crew		$125,000	$0
		$0	$0
		TOTAL	**$1,685,000**

Definitions / Notes:

1. DA= Disposal Area
2. BA = Borrow Area
3. Mob/Demob = moving pipe/plant to/from jobsite
4. set up = installing / laying out / picking up pipe needed to work
5. subline = submerged pipeline (pipe placed in water)
6. shoreline = pipeline placed on dry land
7. pontoon line = floating pipeline typically directly behind dredge
8. prelay = amount of pipe required to be in-place before dredging can begin
9. pickup = length of pipe required to be picked up when dredging is completed
10. Either pickup or prelay or possibly both should equal the longest length of pipe.
11. Pipeline "OVER 35,000 LF" is assumed beyond the typical avail dredge plant and therefore will require pipe to be brought in from farther distances and by different methods.
12. Unit costs include Overhead, profit, and bond

Land Loss Spreadsheet

Project:	Lake Decade PPL 21 Nominee Polygon A				Loss Rate (%/yr)											
Total Acres		TY0 Marsh Acres		TY0 Water Acres	-0.15	1985 to 2009 USGS	Lake Decade Subunit Polygon									
268		107		161	FWP Land Loss Rate Reduction			0.50								

FWOP					FWP - Created Marsh			FWP - Nourished Marsh			FWP Totals				
					Created Marsh =		161	Nourished Marsh =		107					
TY	FWOP Loss Rate	Marsh (acres)	% Marsh (V1)	Water (acres)	FWP Loss Rate	Created Marsh Acreage	Adjusted Marsh Acreage (25% with veg plantings at TY1 and 100% at TY3)	FWP Loss Rate	Nourished Marsh Acreage	Adjusted Marsh Acreage (50% @ TY1 and 100% @ TY3	Water (acres)	Marsh (acres)	% Marsh (V1)	Net Acres of Marsh	Total Acres Check
2009	-0.0015	107	40%	161											
2010	-0.0015	107	40%	161											
0	-0.0015	**107**	**40%**	**161**					0						
1	-0.0015	**107**	**40%**	**161**	-0.00075	161	**40**	-0.00075	107	**53**	0	**94**	**35%**		268
2	-0.0015	106	40%	162	-0.00075	161		-0.00075	107		0				268
3	-0.0015	106	40%	162	-0.00075	161	**161**	-0.00075	107	**107**	1	**267**	**100%**		268
4	-0.0015	106	40%	162	-0.00075	161		-0.00075	107		1				268
5	-0.0015	106	40%	162	-0.00075	160	**160**	-0.00075	107	**107**	1	**267**	**100%**	161	268
6	-0.0015	106	39%	162	-0.00075	160	160	-0.00075	107	107	1	267	100%	161	268
7	-0.0015	106	39%	162	-0.00075	160	160	-0.00075	106	106	1	267	99%	161	268
8	-0.0015	105	39%	163	-0.00075	160	160	-0.00075	106	106	2	266	99%	161	268
9	-0.0015	105	39%	163	-0.00075	160	160	-0.00075	106	106	2	266	99%	161	268
10	-0.0015	105	39%	163	-0.00075	160	160	-0.00075	106	106	2	266	99%	161	268
11	-0.0015	105	39%	163	-0.00075	160	160	-0.00075	106	106	2	266	99%	161	268
12	-0.0015	105	39%	163	-0.00075	160	160	-0.00075	106	106	2	266	99%	161	268
13	-0.0015	105	39%	163	-0.00075	159	159	-0.00075	106	106	3	265	99%	161	268
14	-0.0015	104	39%	164	-0.00075	159	159	-0.00075	106	106	3	265	99%	161	268
15	-0.0015	104	39%	164	-0.00075	159	159	-0.00075	106	106	3	265	99%	161	268
16	-0.0015	104	39%	164	-0.00075	159	159	-0.00075	106	106	3	265	99%	161	268
17	-0.0015	104	39%	164	-0.00075	159	159	-0.00075	106	106	3	265	99%	161	268
18	-0.0015	104	39%	164	-0.00075	159	159	-0.00075	106	106	4	264	99%	161	268
19	-0.0015	104	39%	164	-0.00075	159	159	-0.00075	105	105	4	264	99%	161	268
20	-0.0015	**104**	**39%**	**164**	-0.00075	159	**159**	-0.00075	105	**105**	4	**264**	**99%**	**160**	268

Land Loss Spreadsheet

Project:	Lake Decade PPL21 Nominee B				Loss Rate (%/yr)											
Total Acres		TY0 Marsh Acres		TY0 Water Acres	-0.15	1985 to 2009 USGS	Lake Decade Subunit Polygon									
231		46		185	FWP Land Loss Rate Reduction			0.50								

A and B Combined		
Total Acres	Total Marsh Acres	Total Water Acres
499	153	346

FWOP					FWP - Created Marsh			FWP - Nourished Marsh			FWP Totals				
					Created Marsh =		185	Nourished Marsh =		46					
TY	FWOP Loss Rate	Marsh (acres)	% Marsh (V1)	Water (acres)	FWP Loss Rate	Created Marsh Acreage	Adjusted Marsh Acreage (25% with veg plantings at TY1 and 100% at TY3)	FWP Loss Rate	Nourished Marsh Acreage	Adjusted Marsh Acreage (50% @ TY1 and 100% @ TY3	Water (acres)	Marsh (acres)	% Marsh (V1)	Net Acres of Marsh	Total Acres Check
2009	-0.0015	46	20%	185											
2010	-0.0015	46	20%	185											
0	-0.0015	**46**	**20%**	**185**					0						
1	-0.0015	**46**	**20%**	**185**	-0.00075	185	**46**	-0.00075	46	**23**	0	**69**	**30%**		231
2	-0.0015	46	20%	185	-0.00075	185		-0.00075	46		0				231
3	-0.0015	46	20%	185	-0.00075	185	**185**	-0.00075	46	**46**	1	**230**	**100%**		231
4	-0.0015	46	20%	185	-0.00075	184		-0.00075	46		1				231
5	-0.0015	46	20%	185	-0.00075	184	**184**	-0.00075	46	**46**	1	**230**	**100%**	185	231
6	-0.0015	45	20%	186	-0.00075	184	184	-0.00075	46	46	1	230	100%	185	231
7	-0.0015	45	20%	186	-0.00075	184	184	-0.00075	46	46	1	230	99%	184	231
8	-0.0015	45	20%	186	-0.00075	184	184	-0.00075	46	46	1	230	99%	184	231
9	-0.0015	45	20%	186	-0.00075	184	184	-0.00075	46	46	2	229	99%	184	231
10	-0.0015	45	20%	186	-0.00075	184	184	-0.00075	46	46	2	229	99%	184	231
11	-0.0015	45	20%	186	-0.00075	183	183	-0.00075	46	46	2	229	99%	184	231
12	-0.0015	45	19%	186	-0.00075	183	183	-0.00075	46	46	2	229	99%	184	231
13	-0.0015	45	19%	186	-0.00075	183	183	-0.00075	46	46	2	229	99%	184	231
14	-0.0015	45	19%	186	-0.00075	183	183	-0.00075	46	46	2	229	99%	184	231
15	-0.0015	45	19%	186	-0.00075	183	183	-0.00075	45	45	3	228	99%	184	231
16	-0.0015	45	19%	186	-0.00075	183	183	-0.00075	45	45	3	228	99%	183	231
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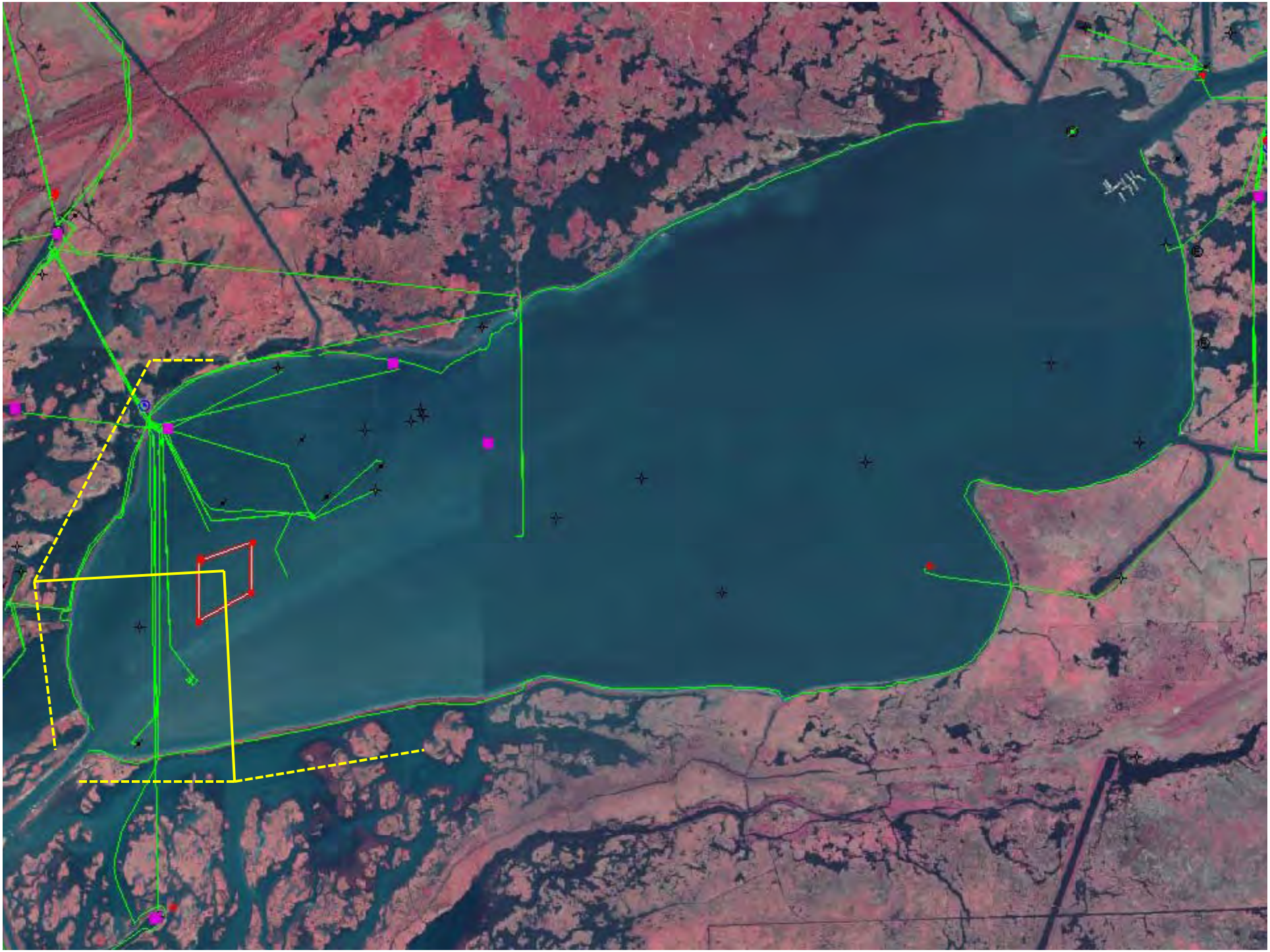
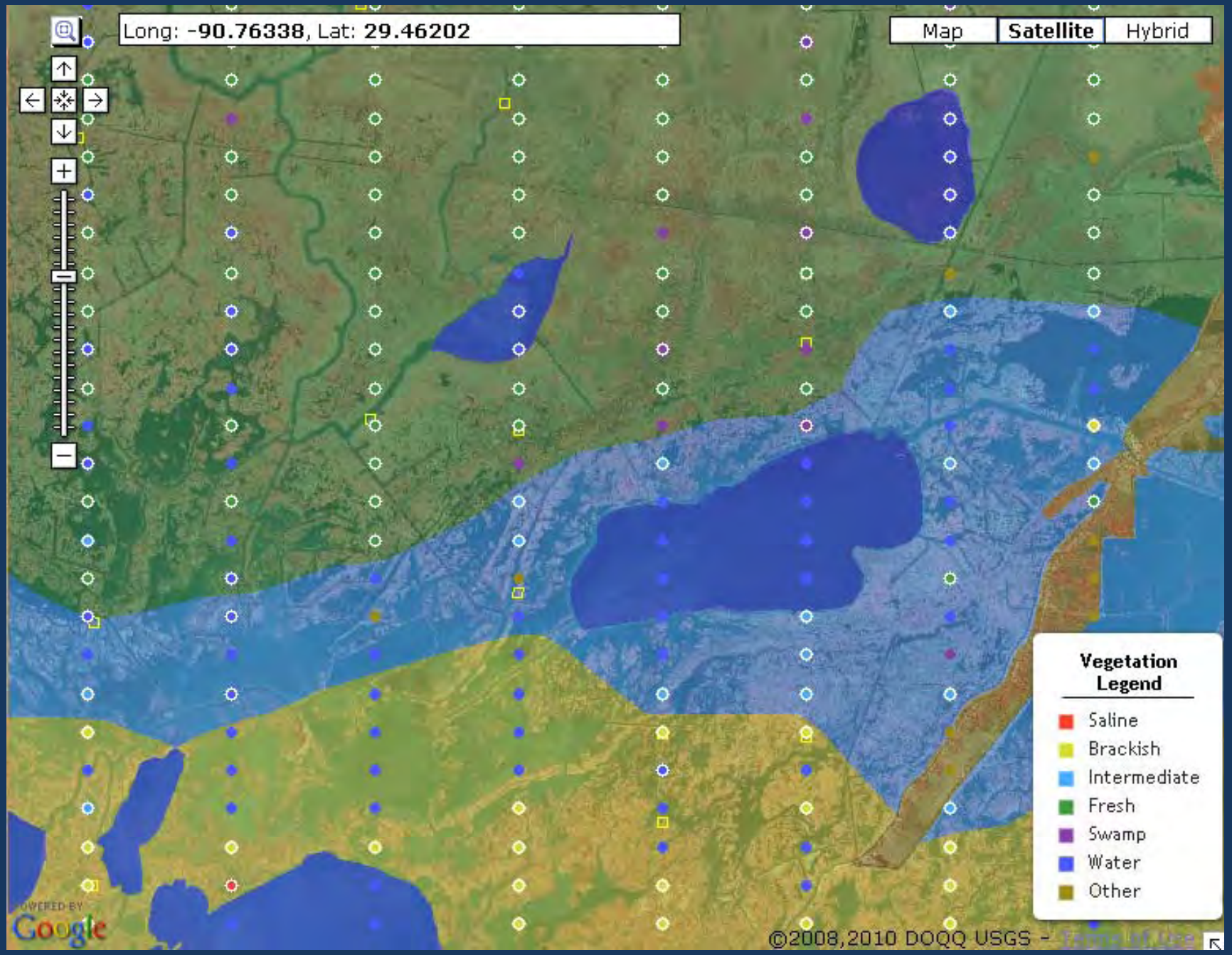
19	-0.0015	45	19%	186	-0.00075	182	182	-0.00075	45	45	3	228	99%	183	231
20	-0.0015	**45**	**19%**	**186**	-0.00075	182	**182**	-0.00075	45	**45**	3	**228**	**99%**	**183**	231
21	-0.0015	44	19%	187	-0.00075	182	182	-0.00075	45	45	4	227	98%	183	231

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Swamp
Water
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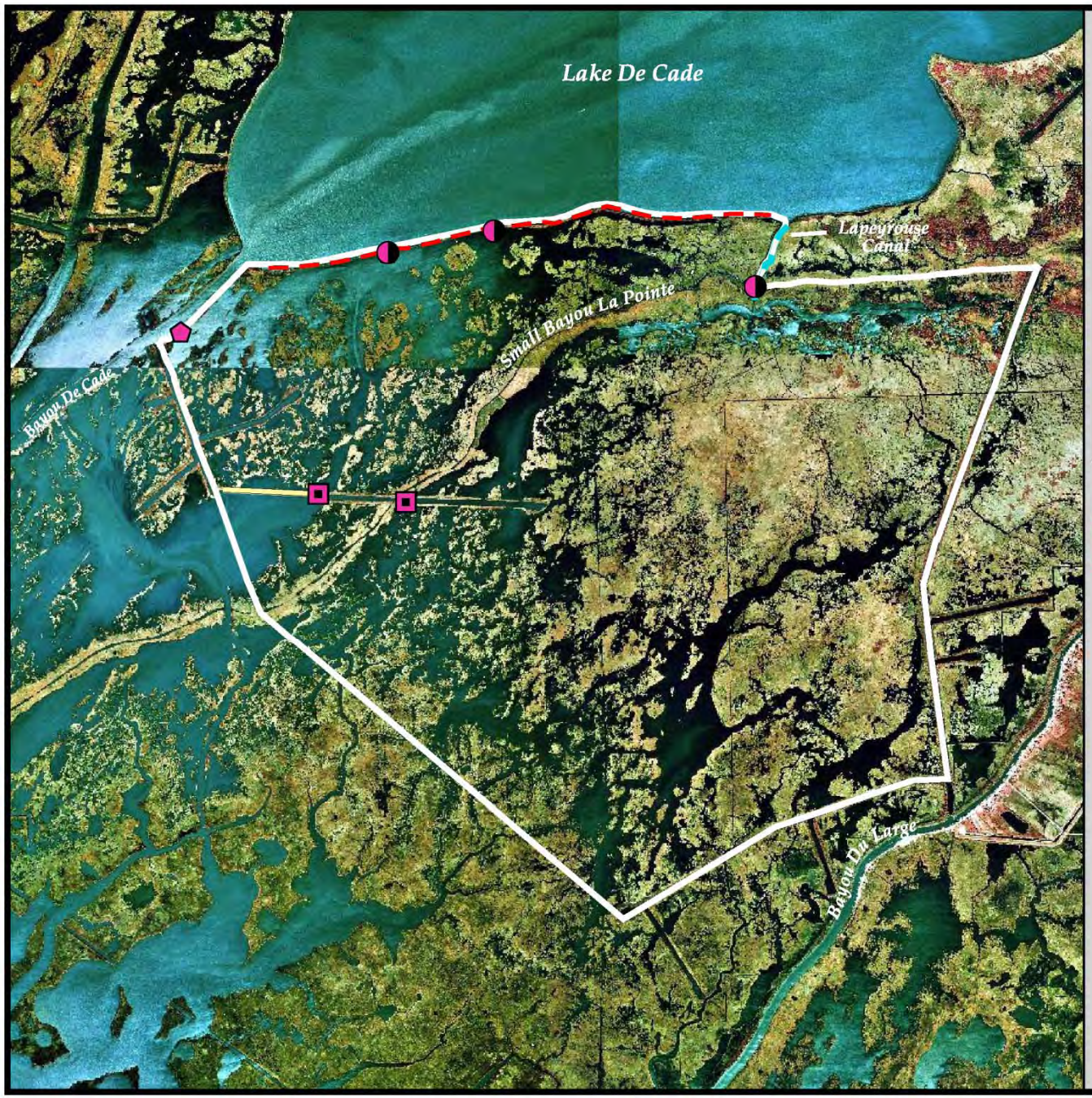
©2008,2010 DOQQ USGS - Terms of Use



South Lake De Cade Freshwater Introduction (TE-39)

Construction Unit 1

- Shoreline Protection *

Construction Unit 2

- Freshwater Introduction *
- Plug *
- Weir *
- Containment Dike *
- Dredge Channel *
- Project Boundary

* denotes proposed features

USGS science for a changing world

0.5 0 0.5 Kilometers

0.5 0 0.5 Miles

Map Produced By:
U.S. Department of the Interior
U.S. Geological Survey
National Wetlands Research Center
Coastal Restoration Field Station

Background Imagery:
1998 Digital Orthophoto Quarter Quadrangle

Map Date: October 1, 2003
Map ID: USGS-NWRC 2003-11-067
Data accurate as of: October 1, 2003

R3-TE-17

Island Road Restoration

R3-TE-17

PPL22 PROJECT NOMINEE FACT SHEET
January 25, 2012

Project Name
Island Road Restoration Project

Coast 2050 Strategy
Coastwide: Dedicated dredging to create, restore, or protect wetlands

Project Location
Region 2, Terrebonne Basin, Terrebonne Parish Parishes

Problem
The Terrebonne Basin is an abandoned delta complex, characterized by a thick section of unconsolidated sediments that are undergoing dewatering and compaction, contributing to high subsidence, and a network of old distributary ridges extending southward from Houma. Historically, numerous oil and gas canals in the area have contributed significantly to wetland losses. Since 1932, the Terrebonne Basin has lost approximately 20% of its wetlands. Current loss rates range from approximately 4,500 to 6,500 acres/year. This loss amounts to up to 130,000 acres during the next 20 years. One-third of the Terrebonne Basin's remaining wetlands would be lost to open water by the year 2040.

There has been a significant reduction is the marsh platform in the vicinity of Island Road that has provided some historical wave energy protection. Island Road is the only land access to the Isle of Jean Charles located west of Pointe Aux Chenes. The 2010 Census identifies 174 people that reside on Isle of Jean Charles of which 46% are Native American Indian and 90% are minority.

Proposed Solution
The proposed project's primary feature is to create and/or nourish existing marsh. In order to achieve this, sediment will be hydraulically pumped from an internal borrow source into the shallow water marsh creation areas. Containment dikes will be constructed around the marsh creation area to keep material on site during pumping. Once pumping has been completed, the containment dikes will be degraded to the current platform elevation and gaps will be made in the containment dike. Additionally, the newly constructed marsh will be assessed to determine if vegetative plantings will be necessary.

At this time, two fill options have been identified that each provides a distinctive benefit. Concept A provides for the creation and/or nourishment of approximately 434 acres that will form a land bridge along the perimeter along Cutoff Canal and the twin pipelines. Concept A allows for future restoration projects between Island Road and the newly constructed marsh platform providing further benefit to the area. Concept B provides for the creation and/or nourishments of approximately 324 acres along with terracing directly adjacent to Island Road. Concept B provides for direct protection to Island Road and will be scaled to the comparable cost of Concept A. At this time, Terrebonne Parish and the landowners support either option. One concept will be selected based upon public input.

Goals
The project goal is to create and/or nourish up to 434 acres of emergent brackish marsh.

Preliminary Project Benefits

1) *What is the total acreage benefited both directly and indirectly?*
This total project area is between 350 to 450 acres.

2) *How many acres of wetlands will be protected/created over the project life?*
Assuming a 50% reduction in the background loss rate of -0.87%/year terracing, marsh creation, and nourishment would result in 341 net acres after 20 years.

3) *What is the anticipated loss rate reduction throughout the area of direct benefits over the project life (<25%, 25-49%, 50-74%, and >75%)?*
A 50% loss rate reduction is assumed for the marsh creation, marsh nourishment, and terraces. (from -0.87%/year to -0.44%/year).

4) *Do any project features maintain or restore structural components of the coastal ecosystem such as barrier islands, natural or artificial levee ridges, beach and lake rims, cheniers, etc?*
The project will help provide an additional marsh platform to help maintain Island Road.

5) *What is the net impact of the project on critical and non-critical infrastructure?*
The project will provide protection to Island Road that provides access to the residents of Isle of Jean Charles. The project would also provide positive impacts to non-critical (i.e., minor oil and gas facilities) infrastructure. Oil and gas companies have facilities and pipelines in this area, which would benefit from an increase in marsh acreage. The loss of wetlands in this area increases the vulnerability of infrastructure to wave energy.

6) *To what extent does the project provide a synergistic effect with other approved and/or constructed restoration projects?*
The project will have a synergistic effect the Madison Bay Marsh Creation and Terracing (TE-51) project.

Identification of Potential Issues

The proposed project has potential utility/pipeline issues.

Preliminary Construction Costs

The estimated construction cost including 25% contingency is approximately $23.5 million. The fully funded cost estimate ranges between $25-35M.

Preparer(s) of Fact Sheet:

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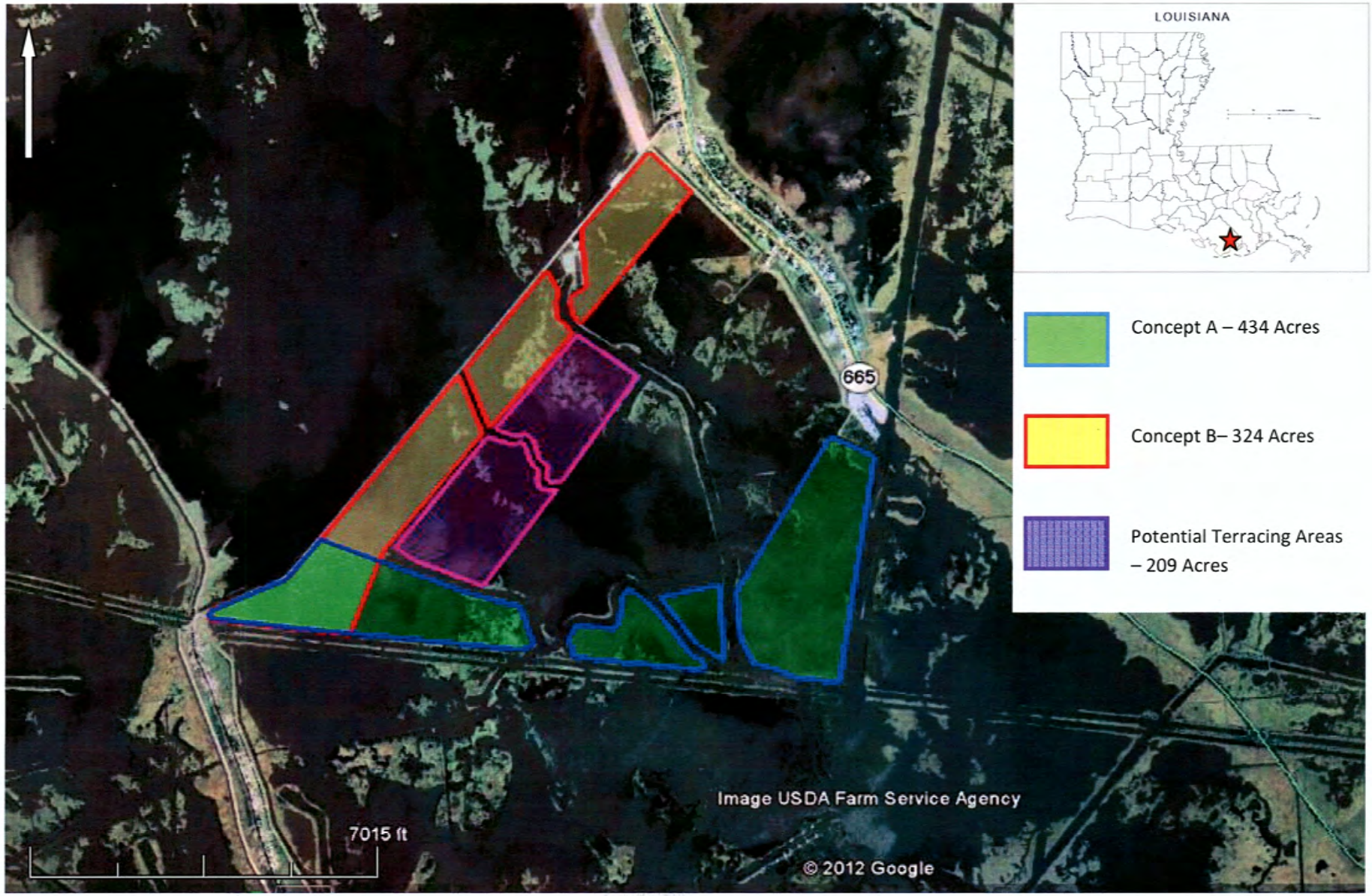
PPL 22: Island Road Restoration Project (Terrebonne Parish)



Science, Service, Stewardship

Island Road (Terrebonne Parish) Nomination
PPL 22 – Region III RPT

January 30, 2012

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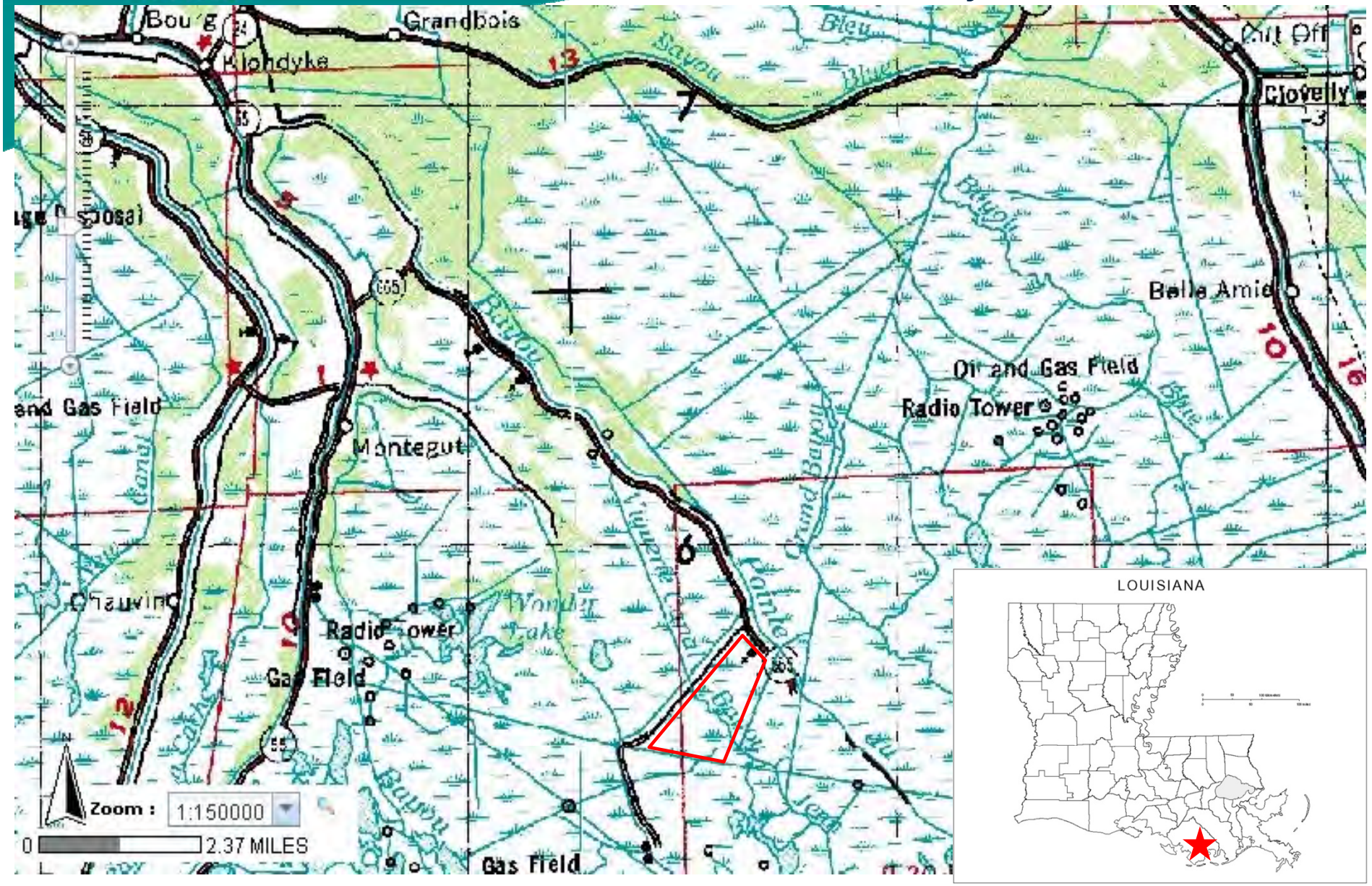
Project Location



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1990 Aerial Photograph

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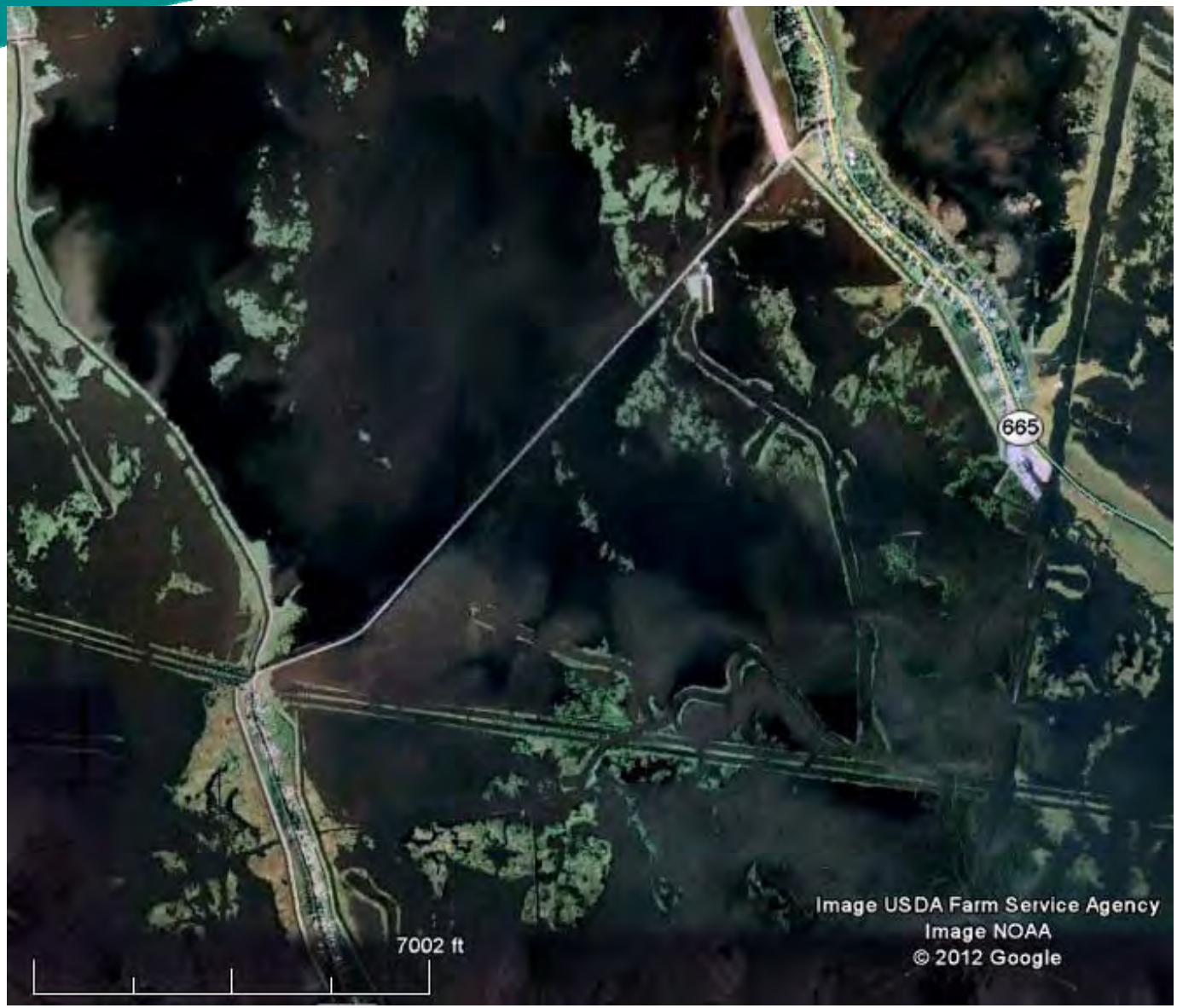
2010 Aerial Photograph



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2010 CIR Aerial Photograph

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Project Information

Problem

- High land loss rate
- Loss of buffer to Island Road
- Island Road allows access for residents of Isle of Jean Charles

Proposed Solution

- Create and/or nourish up to 434 acres of marsh
- Create necessary perimeter diking to contain hydraulic fill using existing canal ridges to extent possible
- Hydraulically fill marsh platform from internal borrow source

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Concept A – 434 Acres

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Concept B – 324 Acres plus Terracing

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Concept Comparison

Concept A

- 434 Acres
- Creates land bridge along Twin Pipelines and Cutoff Canal
- Allows for future restoration by other entities

Concept B

- 324 Acres
- Direct buffer along Island Road
- Includes terracing along marsh creation area

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Questions???

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