



Coastal Protection and
Restoration Authority of Louisiana

Mid-Barataria Sediment Diversion – Overview

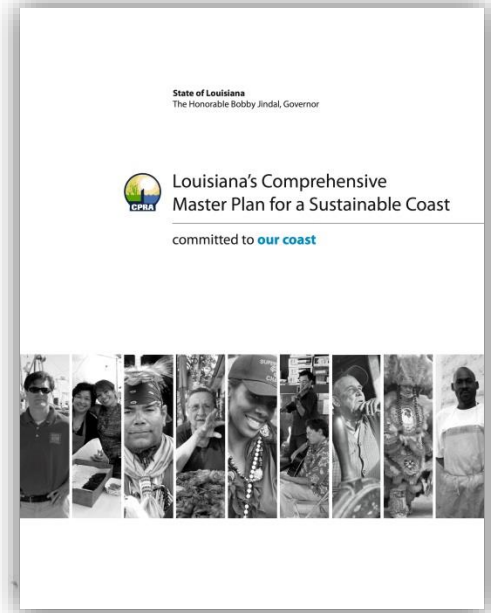
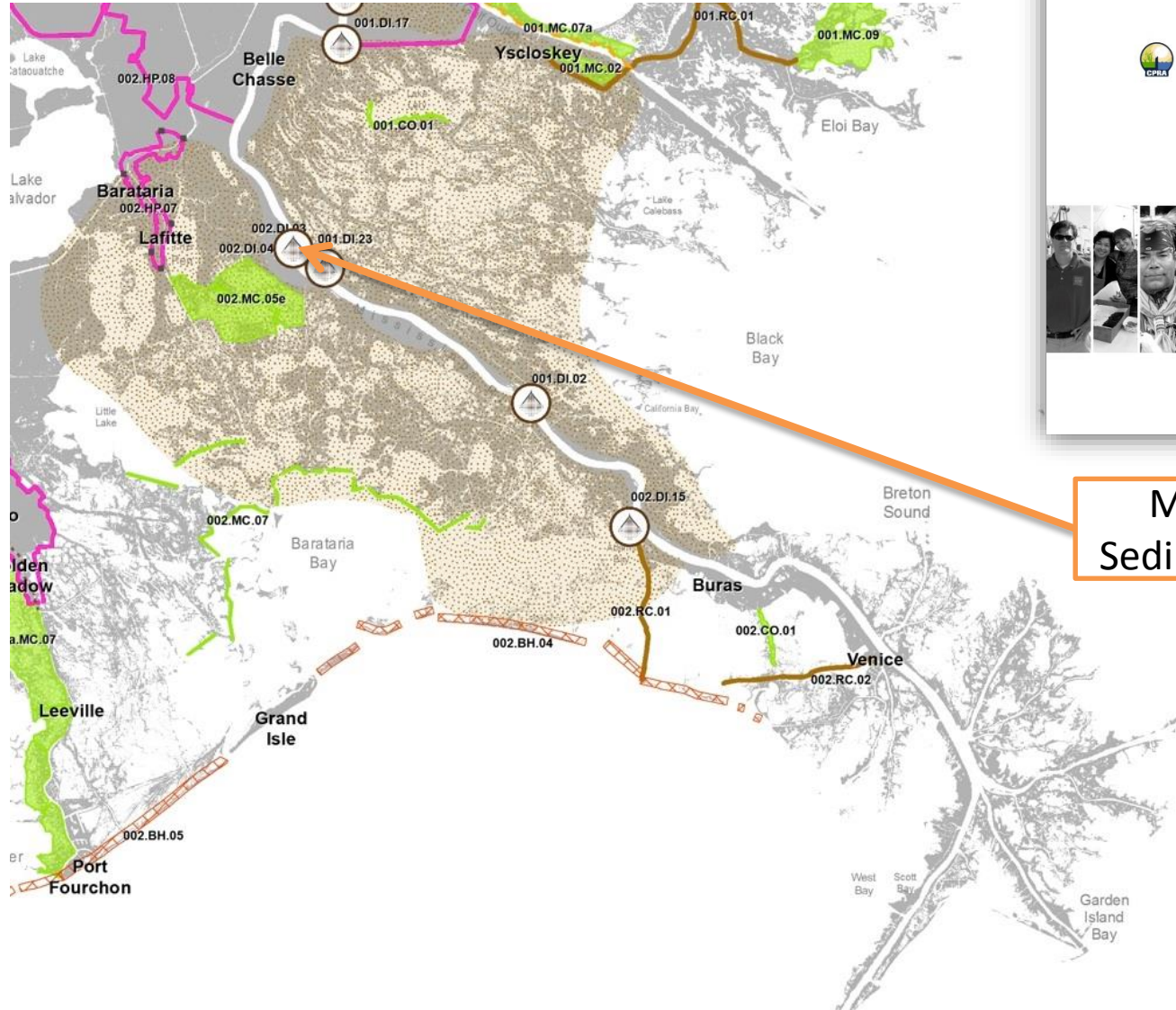
Presentation to the Diversion
Panel
April 30, 2014



committed to our coast

Louisiana Coastal Protection and
Restoration Authority

2012 Coastal Master Plan



Mid-Barataria Sediment Diversion

Master Plan Assumptions

- The 50,000 cfs sediment diversion would **build and maintain 30 to 50 square miles of land over 50 years** depending on future environmental conditions.
- Land building potential was analyzed under two scenarios – a moderate and a less optimistic.

S12 – Moderate

Near Term 20 years – (7089 acres)
Long Term 50 years – (32152 acres)

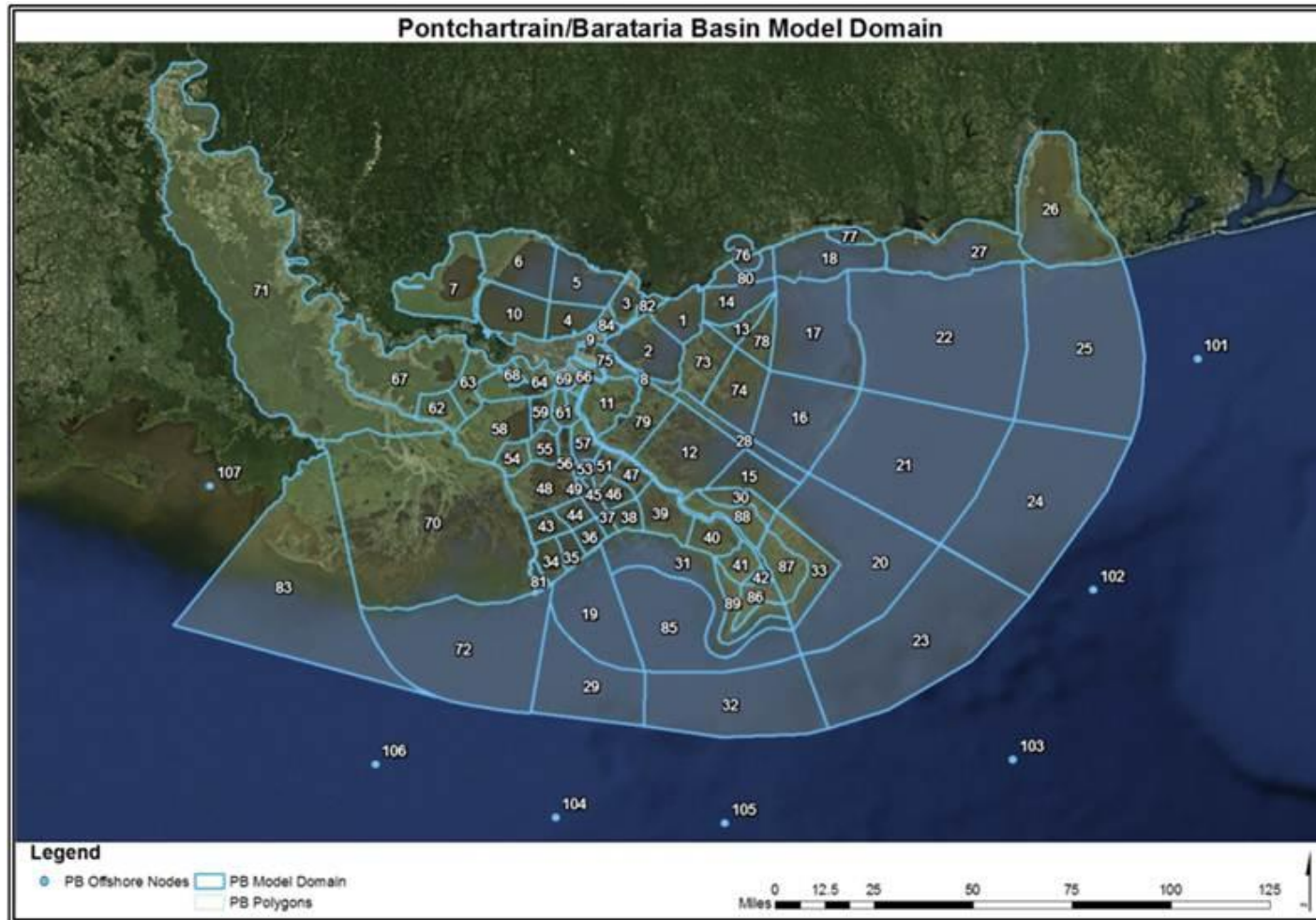
S13 – Less Optimistic

Near Term 20 years – (2944 acres)
Long Term 50 years – (19705 acres)

Master Plan Assumptions cont.

- For the modeling, the diversion was
 - operated at 50,000 cfs capacity when Mississippi River discharge exceeds 600,000 cfs,
 - operated at 8% of the river flow when the Mississippi River discharge was between 200,000 to 600,000 cfs, and
 - closed with the Mississippi River flow was below 200,000 cfs.
- The diversion was included in the 1st Implementation Period (2012-2032) of the Master Plan.

Modeling Analysis



Project Specific Background Information

Project History

Project Concept

CWPPRA



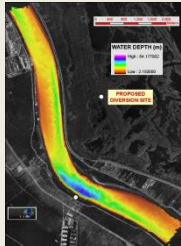
Planning

CPRA Master Plan



Preliminary E&D

State/NGO Effort



Feasibility

LCA Myrtle Grove



Detailed E&D

CPRA Mid-Barataria



This Project Has Been Planned, Evaluated and Discussed with Stakeholders For 10+ Years

The E&D Phase of the Project is Being Funded by the National Fish and Wildlife Foundation through the Gulf Environmental Benefit Fund

Mid-Barataria Basis for Design

#1 – Capacity

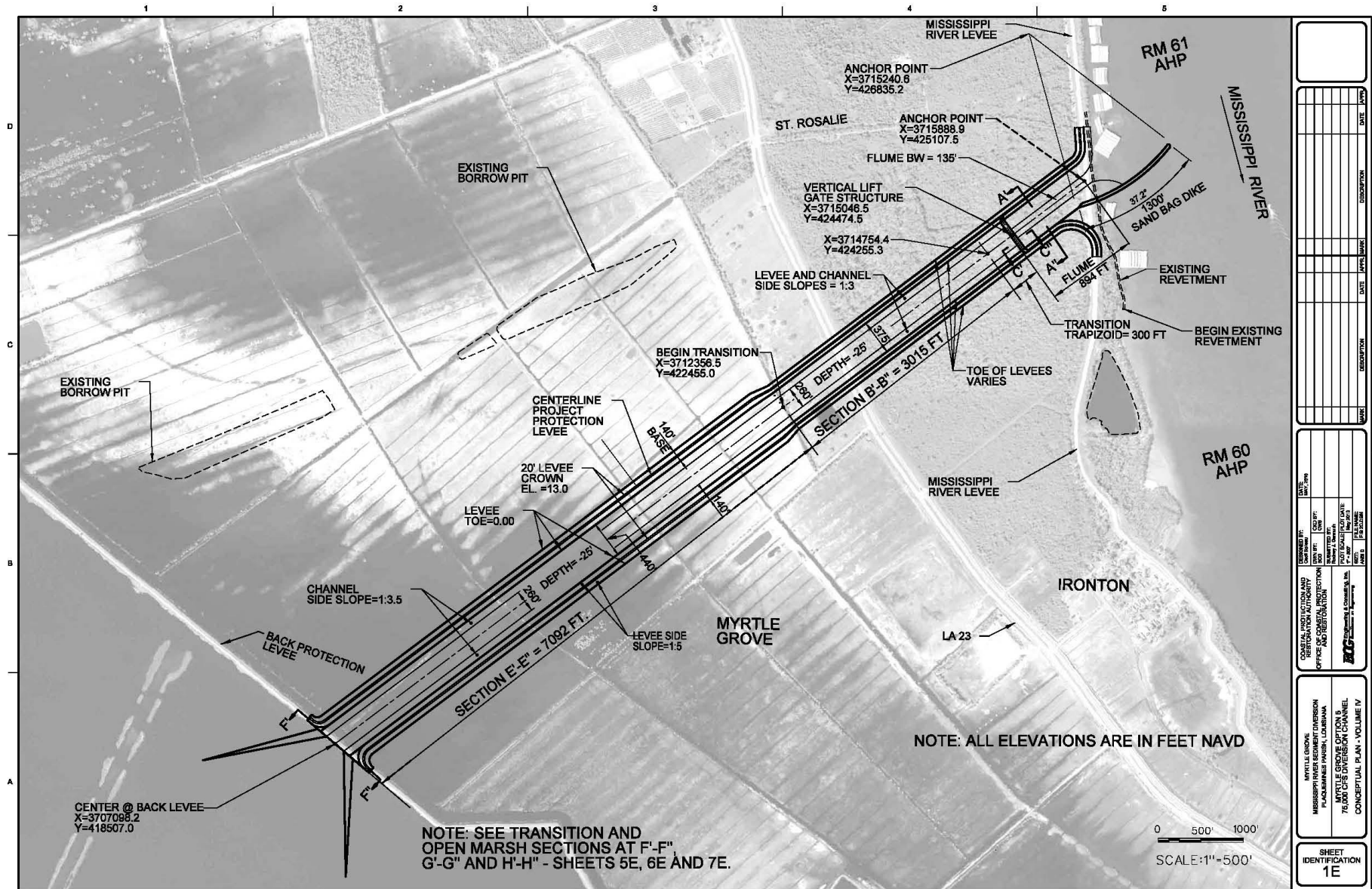
75,000 cfs – Dr. Ehab Meselhe’s results (sediment/water ratios)

	Mississippi River (Main Stem)	Diversion Channel OA-RM60.2-15K	Diversion Channel ND-RM60.7-15K	Diversion Channel MA-RM60.7-45K	Diversion Channel ND-RM60.7-45K	Diversion Channel ND-RM60.7-75K
Water Discharge (m3/s)	19,821	322	361	955	937	1,725
Water Discharge (CFS)	700,000	11,369	12,733	33,735	33,075	60,918
Sediment Load (metric tons/d) - 32 Micron	233,539	2,786	4,189	15,306	13,819	24,789
Sediment Load (metric tons/d) - 63 Micron	10,839	104	188	663	619	1,156
Sediment Load (metric tons/d) - 96 Micron	21,816	144	335	1,230	1,150	2,357
Sediment Load (metric tons/d) - 125 Micron	34,437	133	420	1,637	1,675	3,726
Sediment Load (metric tons/d) - 250 Micron	23,460	2	44	218	528	1,607
Total 63 - 250 Micron Load (metric tons/d)	90,554	383	987	3,748	3,972	8,847
Sediment/Water Ratio (SWR)		0.26	0.60	0.85	0.93	1.12

#2 – Alignment

Based on an intensive Mississippi River data collection and modeling effort, the location of ***the intake channel and the outfall channel alignment*** has been ***carefully selected at river mile 60.7 above Head of Passes to optimize the capture of sediment*** from the river.

Mid-Barataria Diversion Alignment



DATE	REVISION

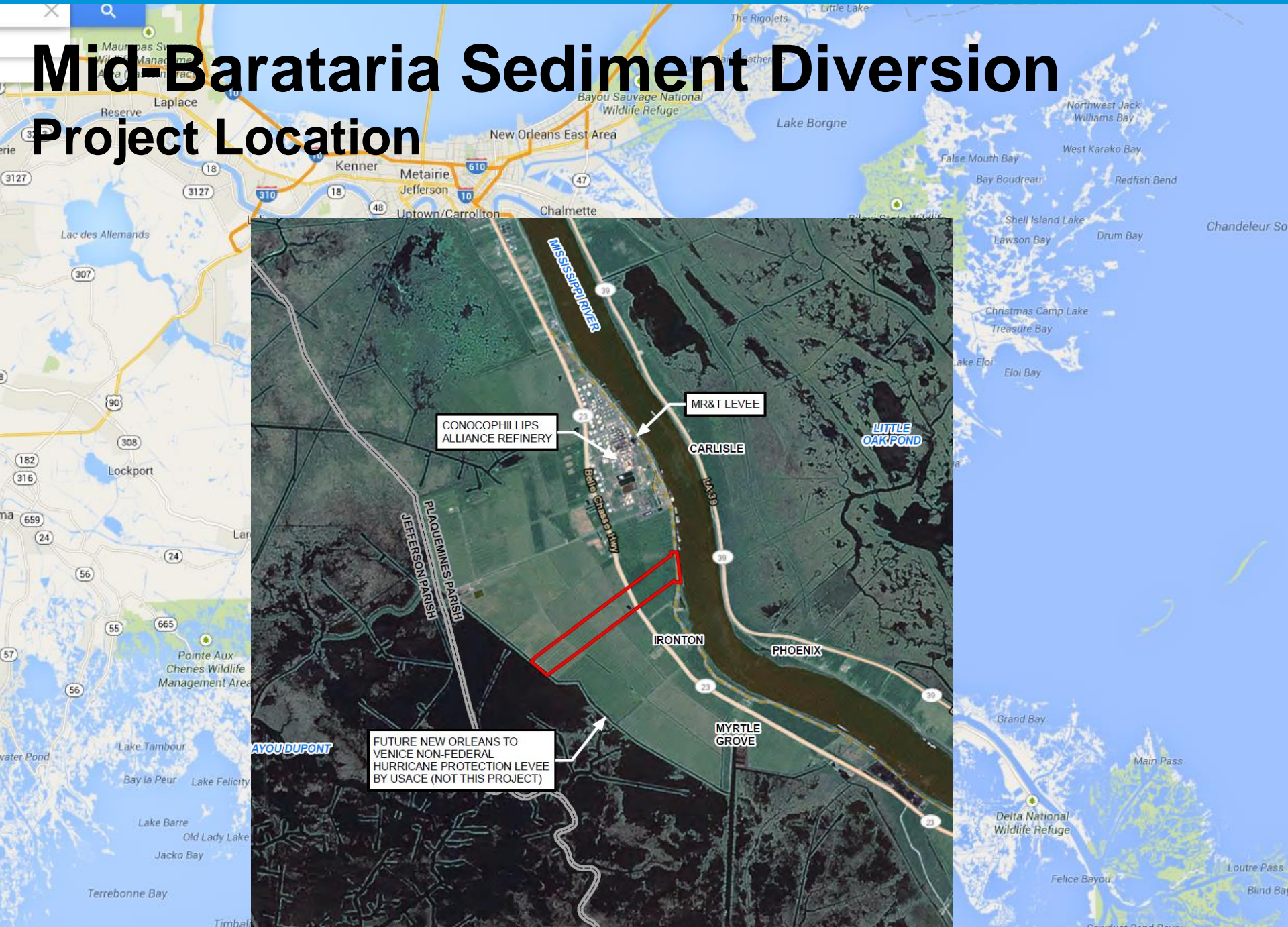
DATE	REVISION

DESIGNED BY:	DATE:
CHECKED BY:	DATE:
APPROVED BY:	DATE:
PROJECT NO.:	
PROJECT NAME:	
PROJECT LOCATION:	
PROJECT SCALE:	
PROJECT SHEET:	
PROJECT DATE:	
PROJECT TIME:	
PROJECT COST:	
PROJECT STATUS:	

MYRTLE GROVE
 MISSISSIPPI RIVER SEGMENT DIVERSION
 PLACHERVILLE PARISH, LOUISIANA
 MYRTLE GROVE OPTION B
 70,000 CFS DIVERSION CHANNEL
 CONCEPTUAL PLAN - VOLUME IV

SHEET IDENTIFICATION
1E

Mid-Barataria Sediment Diversion Project Location



MBSD Alternatives Analysis – Design

Use Previous Planning & Feasibility Models and Build Upon to Create Design Level Models

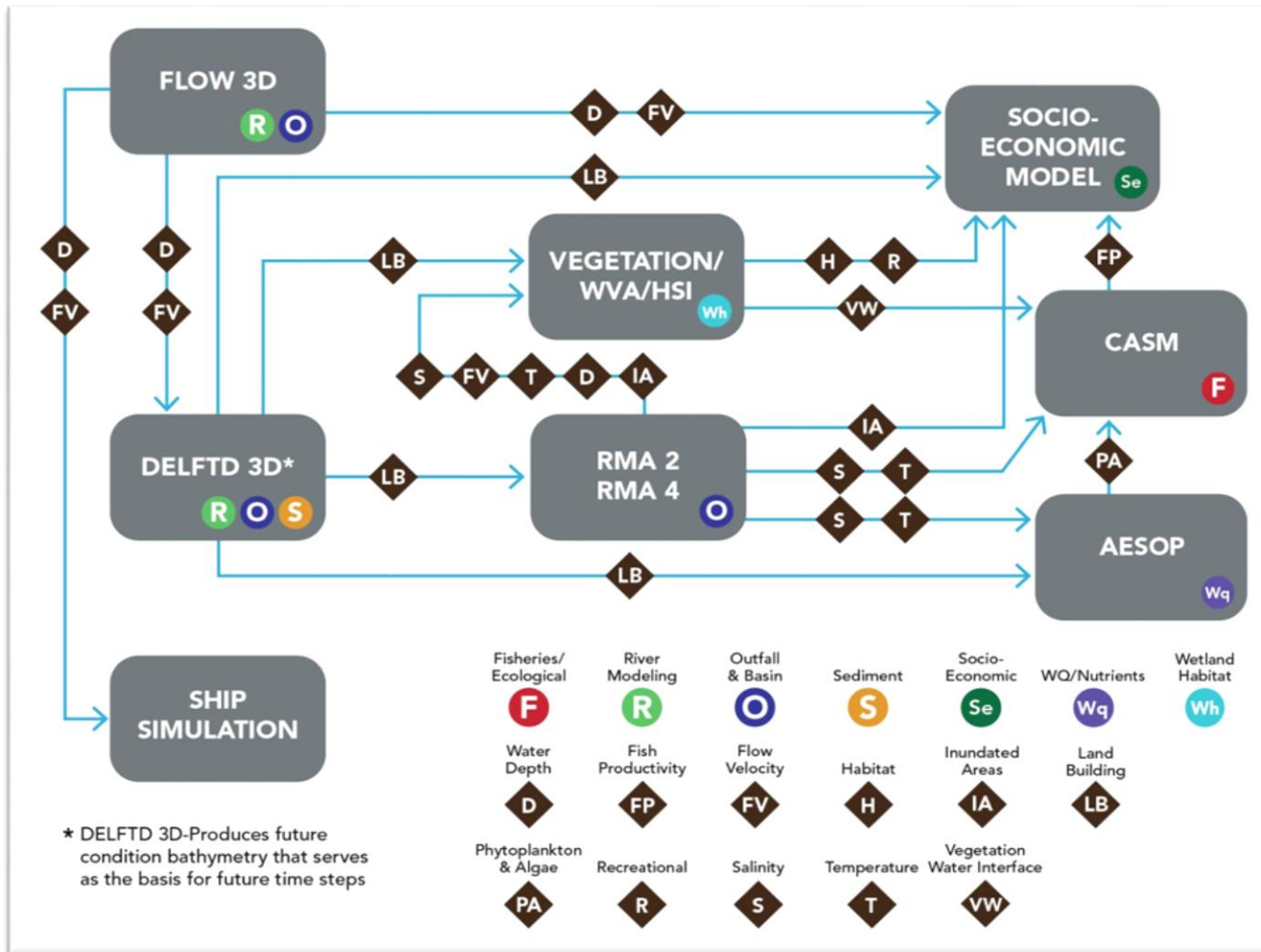


Evaluate Project Parameters to Minimize Impacts and Achieve Optimal Land Building



Identify Project Parameters for Design

MBSD Alternatives Analysis – Environmental Modeling Process to Support Design



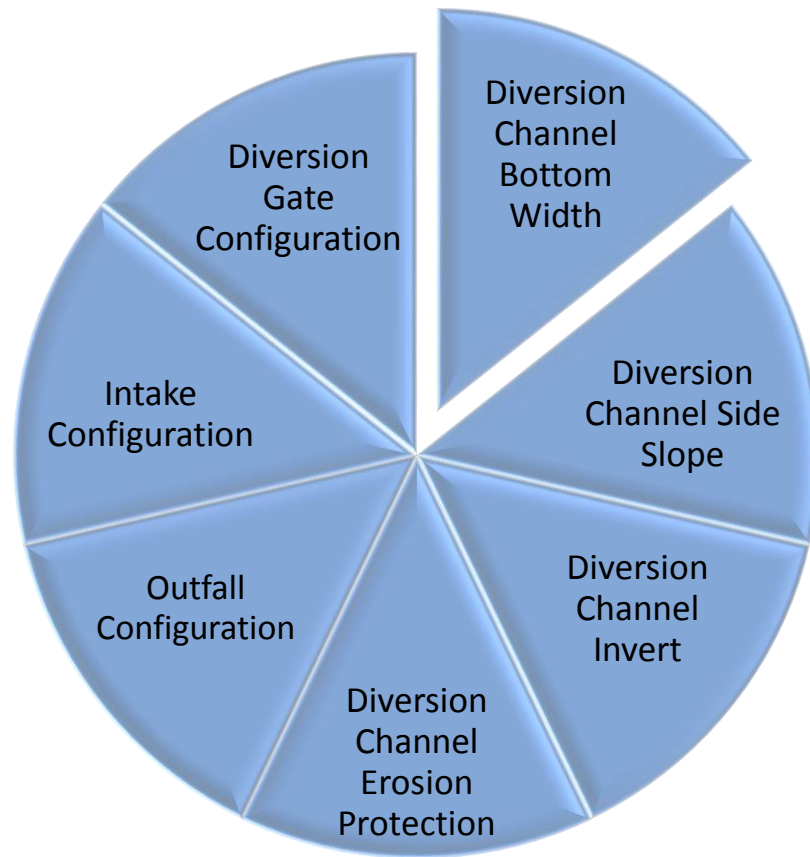
MBSD Alternatives Analysis – Engineering Tools/Models

Civil	Structural	Gates
Lidar, Bathymetry, Topography, Control Surveys	Type/Size and Location from Civil	Hydraulic Models
Hydraflow Hydrograph - Drainage	Guide Walls – SPW911	Wind/Debris Loads
Hydraflow Express- Drainage Structures	Transition Walls - Geostudio	Operating Range
AutoCAD Civil 3D - Earthworks	Outlet Armoring – Geostudio - SlopeW	GT Strudl (Finite element Analysis Software)
	Inlet Channel Walls – Shoring Suite	Bulkhead Design SAP (Finite element Analysis)

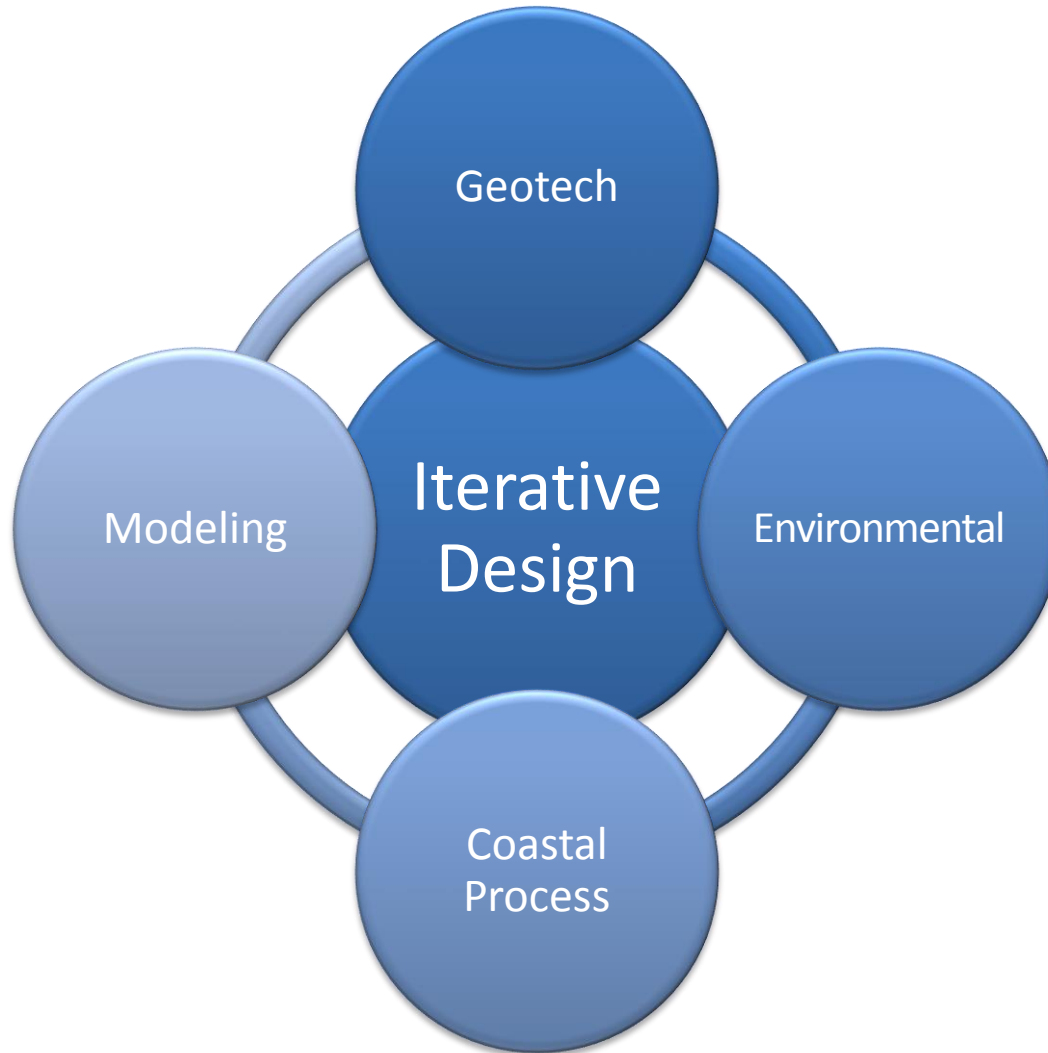
MBSD Alternatives Analysis – Geotechnical Models

Geotechnical Analysis	Current Phase	Final Design
Slope Stability	SlopeW ¹	SlopeW and Methods of Planes, PLAXIS ⁴ , FLAC ⁵
Seepage Analysis	SeepW ¹	SeepW ¹ , Blanket Theory Spreadsheet
Settlement Analysis	SigmaW ¹ , Settle ⁶ , Consol3 ⁷ Spreadsheet Based Analysis	SigmaW ¹ , Settle3D ⁶ , Consol3 ⁷ Spreadsheet Based Analysis
Pile Capacity	Spreadsheet Based Analysis	Spreadsheet based analysis, Lpile ² , Group ² , Driven ³ , Shaft ³
Shoring Wall Analysis	Shoring Suite ⁸	Shoring Suite ⁸ , PLAXIS ⁴

MBSD Alternatives Analysis – Design Components



MBSD Alternatives Analysis – Mid-Barataria Sediment Diversion Design



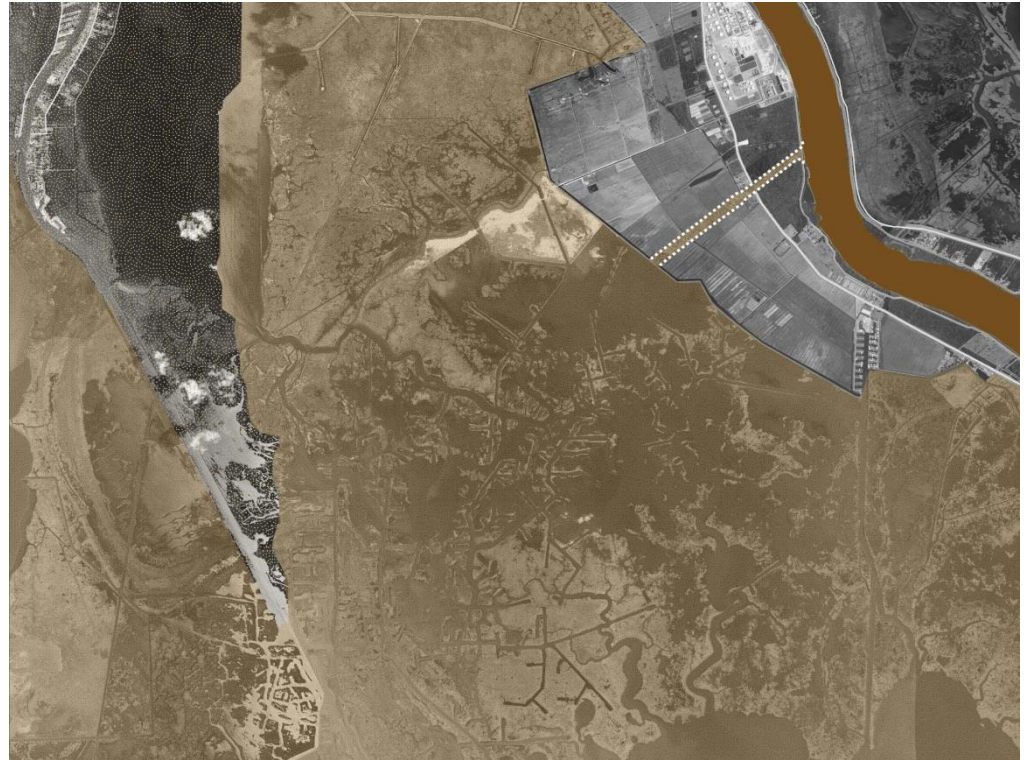
Section 10/404

ABOUT SECTION 10:

Section 10 of the Rivers and Harbors Act of 1899 requires authorization for the **construction of any structure in or over any navigable water** of the United States.

ABOUT SECTION 404:

Requires a permit for any category of activities involving **discharges of dredged or fill material** into waters of the United States, including wetlands.



Section 408

ABOUT:

Section 408, authorized in the Rivers and Harbors Act of 1899 and as amended in 1985 to include “public works”, allows the Secretary of the Army to grant permission to **alter completed federal public works projects** so long as the alteration does not impair the usefulness of the project and is not injurious to the public interest.

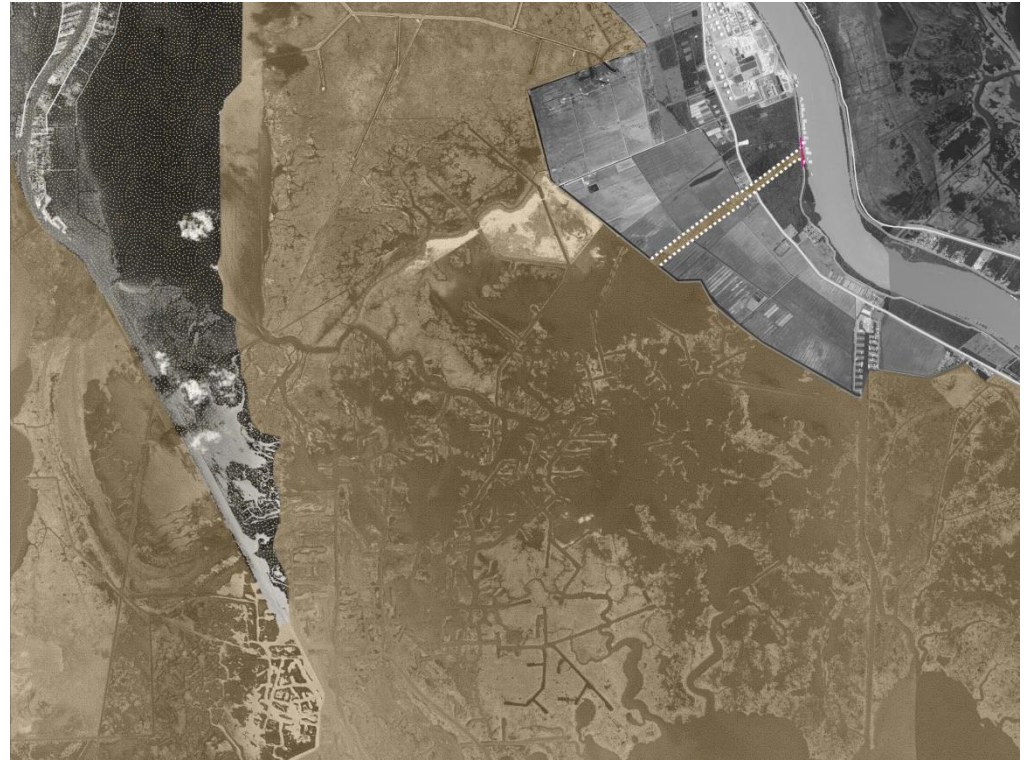
Examples: Levees, weirs, dams, etc.



Coastal Use Permit

ABOUT:

The purpose of the Coastal Use Permit process is to make certain that any **activity affecting the Coastal Zone** is performed in accordance with guidelines established in the Louisiana Coastal Resources Program.



Environmental Impact Statement

ABOUT :

An Environmental Impact Statement (EIS) is an environmental document required by the National Environmental Policy Act (NEPA) for actions that **significantly affect the quality of the human environment** (42 USC §4332).





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Thank You