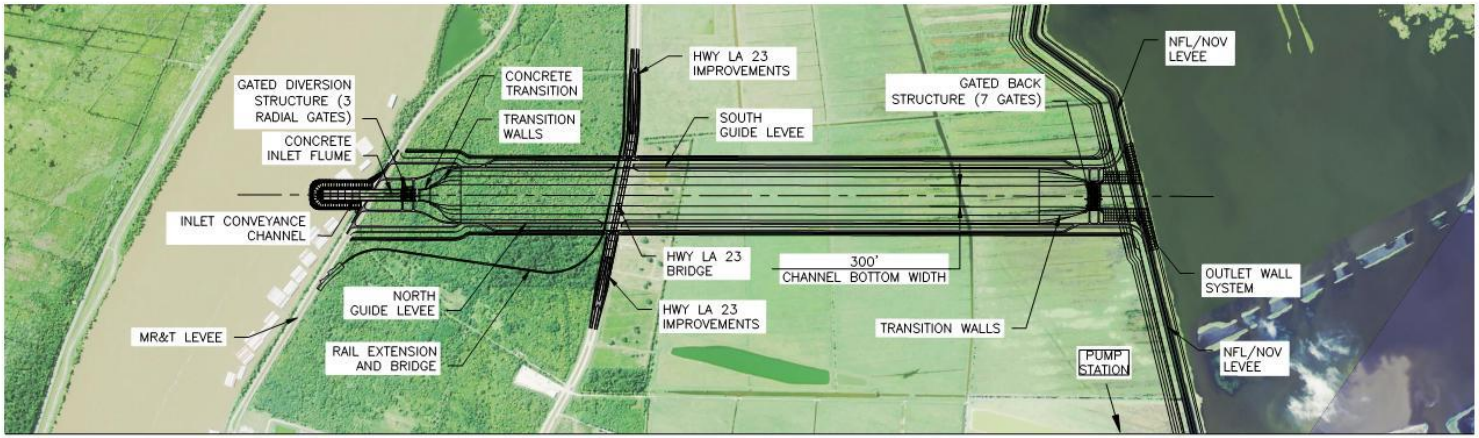
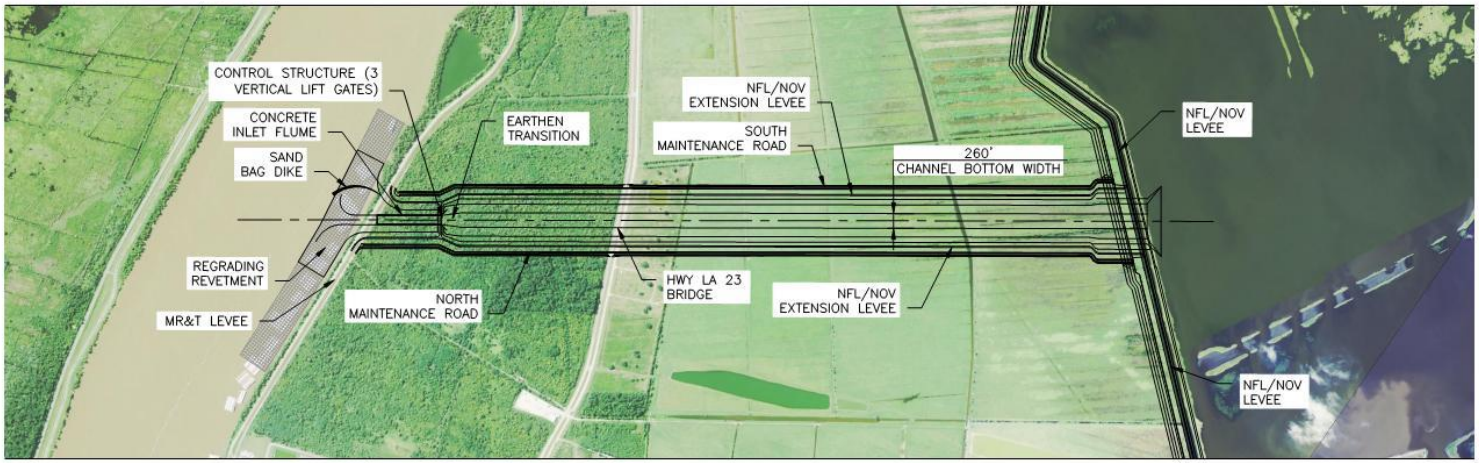
Diversion Panel Briefing 4/30/2014

Mid-Barataria Sediment Diversion Project

Major Design Elements



1/30/14 - 30% BASIS OF DESIGN



1/30/13 - CONCEPT

Adaptive Engineering and Design Planning

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Appendices

Managing Risks Started Early

PROJECT RISK REGISTER

Risk Identity & Cause				Current Assessment				Mitigation				
Risk ID	Risk Category	Risk Description	Cause & Effect	Probability	Cost Impact	Time Impact	Risk Score	Strategy	Risk Plan & Desired Outcome	HDR Action Items	CPRA Action Items	Status
R12	Technical	Diversion Location Pre-determined	Limitations on Diversion geometry	100%	Minor	Minor	High	Accept	Develop and implement adaptive management plan. Diversion geometry is satisfactory.	Design diversion per CPRA direction.	Acknowledge and document direction provided to HDR.	Completed
R13	Technical	Modeling Reliability	Adequacy of previous work/modeling output. Limitations on diversion performance.	100%	Moderate	Moderate	High	Accept	Develop and implement adaptive management plan. Previous modeling output is satisfactory.	Establish an approriate modeling timeline satisfactory to CPRA.	Acknowledge and document direction provided to HDR.	Active
R14	Technical	Data Collection Delays	Geotechnical sampling is not permitted within 1,500 ft of the MRT levee while the gage at Carrollton is at 11 ft or higher. Significant project schedule delays.	75%	Significant	Significant	Extreme	Mitigate	Expedite data collection activities. Completion of all data collection activities within 1,500 ft of MRT levee.	Provide Scope of Work for project initiation activities	Authorization of Scope of Work for project initiation activities.	Active
R15	Technical	Project Optimization	Expedited timeline/Phasing. Limitations on diversion performance.	100%	Moderate	Moderate	Medium	Accept				
R16	Technical	Soil Conditions	Unknown soil conditions. Poor soil conditions may complicate design.	25%	Significant	Significant	High	Accept	Detailed sampling and analyses. Good Soil Conditions.	Develop sampling plan.		Active
R17	Operations & Maintenance	Shoaling / Scour	Impacts to river sand bar and/or adjacent shorelines. Limitations on diversion performance.	25%	Minor	Minor	Medium	Mitigate	Develop Operations and Maintenance Plan. No effects to sand bar and adjacent shorelines.			Active
R18	Operations & Maintenance	Water Levels	Rise and/or drop in water levels in river and basin. Limitations on diversion performance.	50%	Moderate	Minor	Medium	Mitigate	Develop Operations and Maintenance Plan. Operation with minimal water level changes.			Active
R19	Operations & Maintenance	Navigation Constraints	Effects on ships in river. Limitations on diversion performance.	25%	Minor	Minor	Low	Accept	Develop Operations and Maintenance Plan. No effects on Navigation.			Active
R20	Operations & Maintenance	Diversion Operation / River Flows	Low river flow limits diversion operation. Limitations on diversion performance.	50%	Minor	Minor	Medium	Accept	Develop operations and maintenance Plan. Minimize operation during low flow.			Active
R28	Technical	Diversion Channel / Outlet Adequacy	Discovery of dispersive clays within project foorprint. High potential for scour.	100%	Significant	Significant	High	Mitigate	Conduct more extensive hydrualic modeing and engineering analyses. Limit scour within conveyance channel and outfall.	Design armor system suitable for scour control.		Active
R30	Technical / Construction	Competing Projects for Borrow Material	Federal and private project potentially occurring similtaneously in the vicinity. Higher construction cost to import borrow material.	75%	Significant	Significant	High	Accept	Develop design senarios that require less borrow material. Design a resonable constructable project.	Investigate addition borrow sites and structural alternatives.	Monitor USACE construction schedule for NOV Levee project.	Active
R31	Management	Design progressing ahead of Third Party EIS	Delayed Coordination with USACE. Current Design work product is at Risk and subject to significant revisions.	100%	Moderate	Moderate	Medium	Accept	Align Permitting and Design Schedules. Align Permitting and Design Schedules.	Conduct Alternatives Analysis and slow design effort to suit	Expedite Section 214 Agreement with USACE.	Active
R32	Management	Design progressing ahead of Section 408 Process	Delayed Coordination with USACE. Current Design work product is at Risk and subject to significant revisions.	100%	Moderate	Moderate	Medium	Accept	Align Permitting and Design Schedules. Align Permitting and Design Schedules.	Conduct Alternatives Analysis and slow design effort to suit	Expedite Section 214 Agreement with USACE.	Active
R33	Technical	Unexpected Physical Model Results	Limited confidence in numerical modeling.	50%	moderate	moderate	Medium	Accept	Conduct Physical Model. Numerical Models and Physical Model in Agreement.	Compare modeling results.	Delay desired design schedule to suit results of physical model.	Active

Status Key:

Cultural Resource Evaluations

- Surveyed only areas not previously surveyed
- Utilized phased approach with varying sampling density to streamline surveys and minimize costs

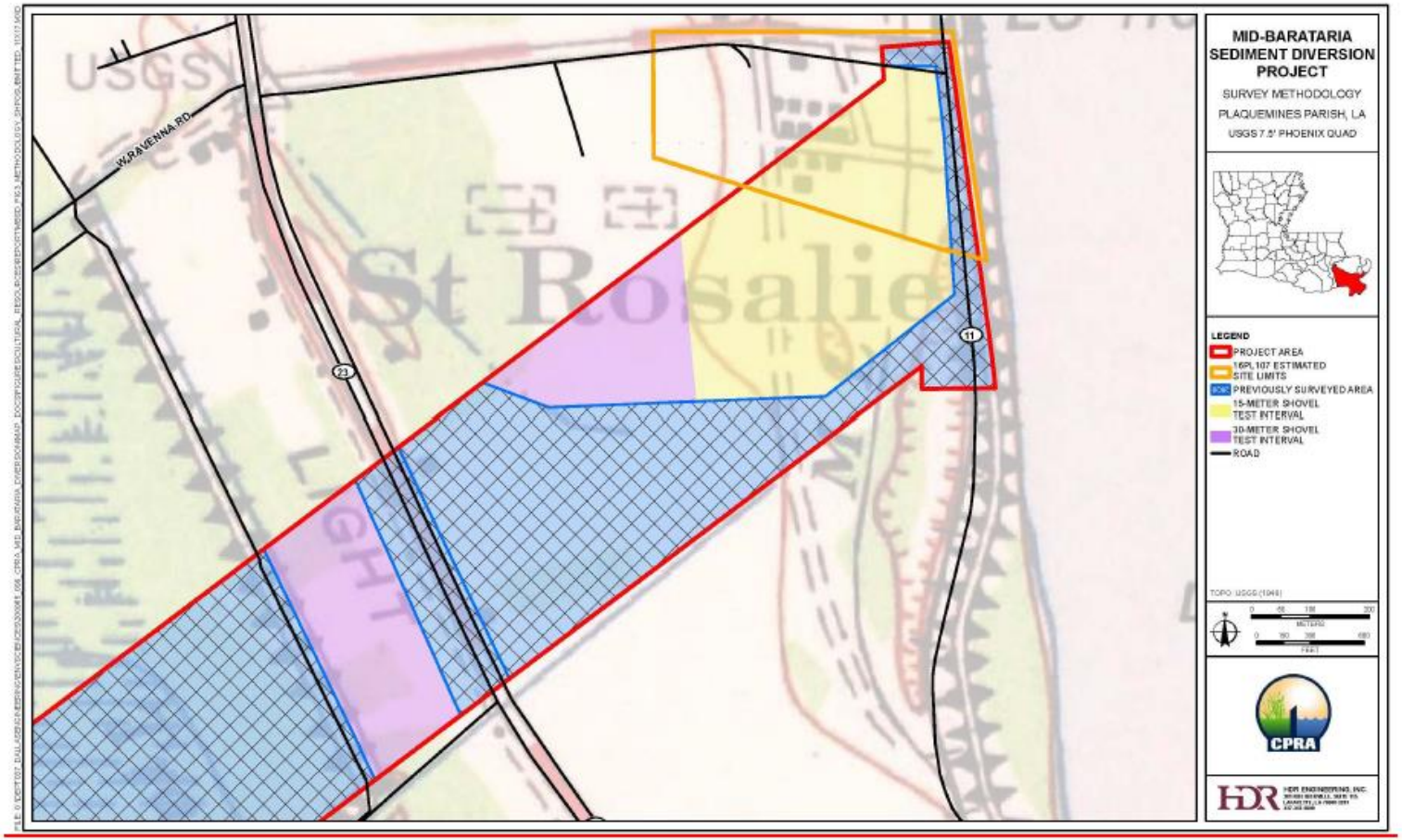
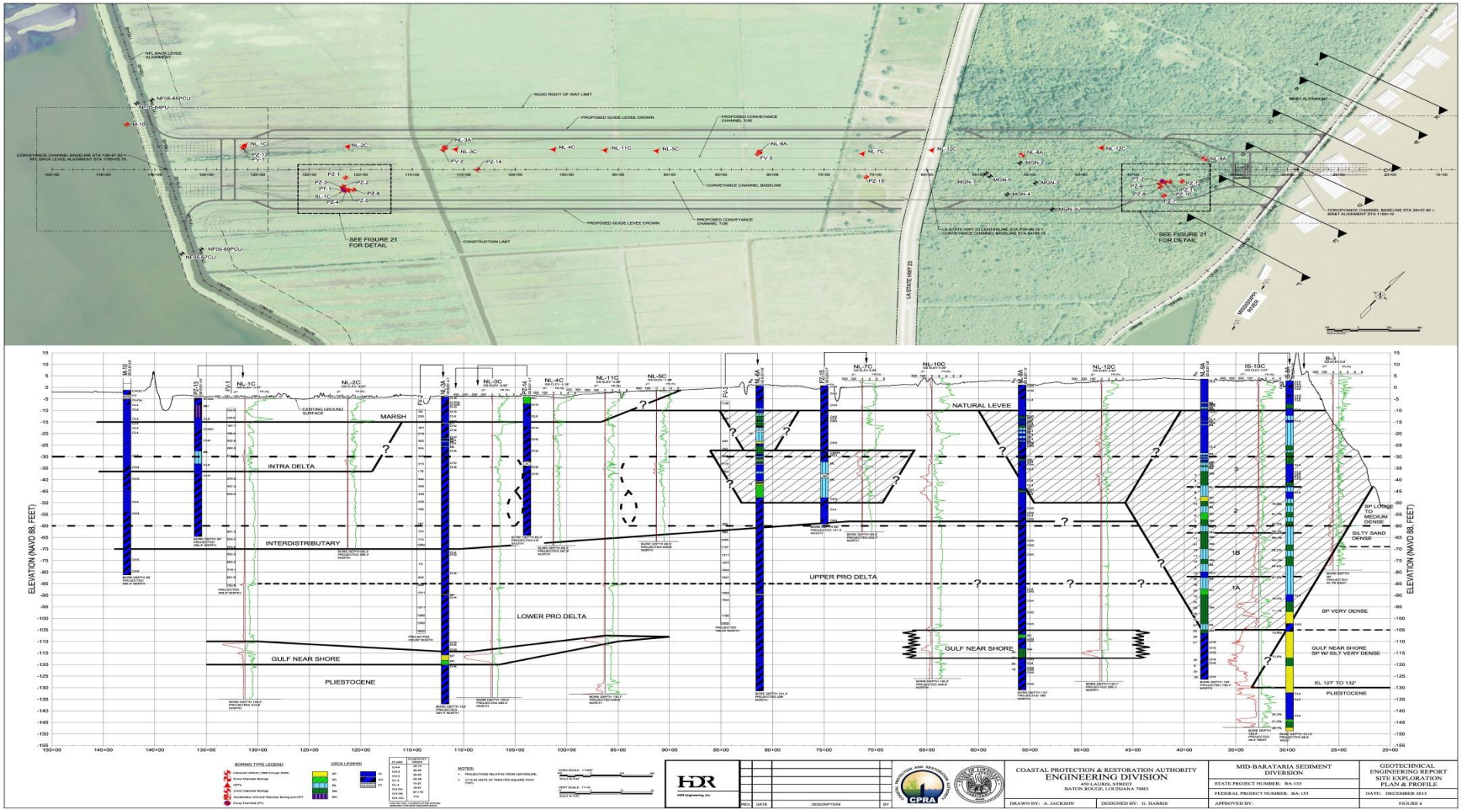
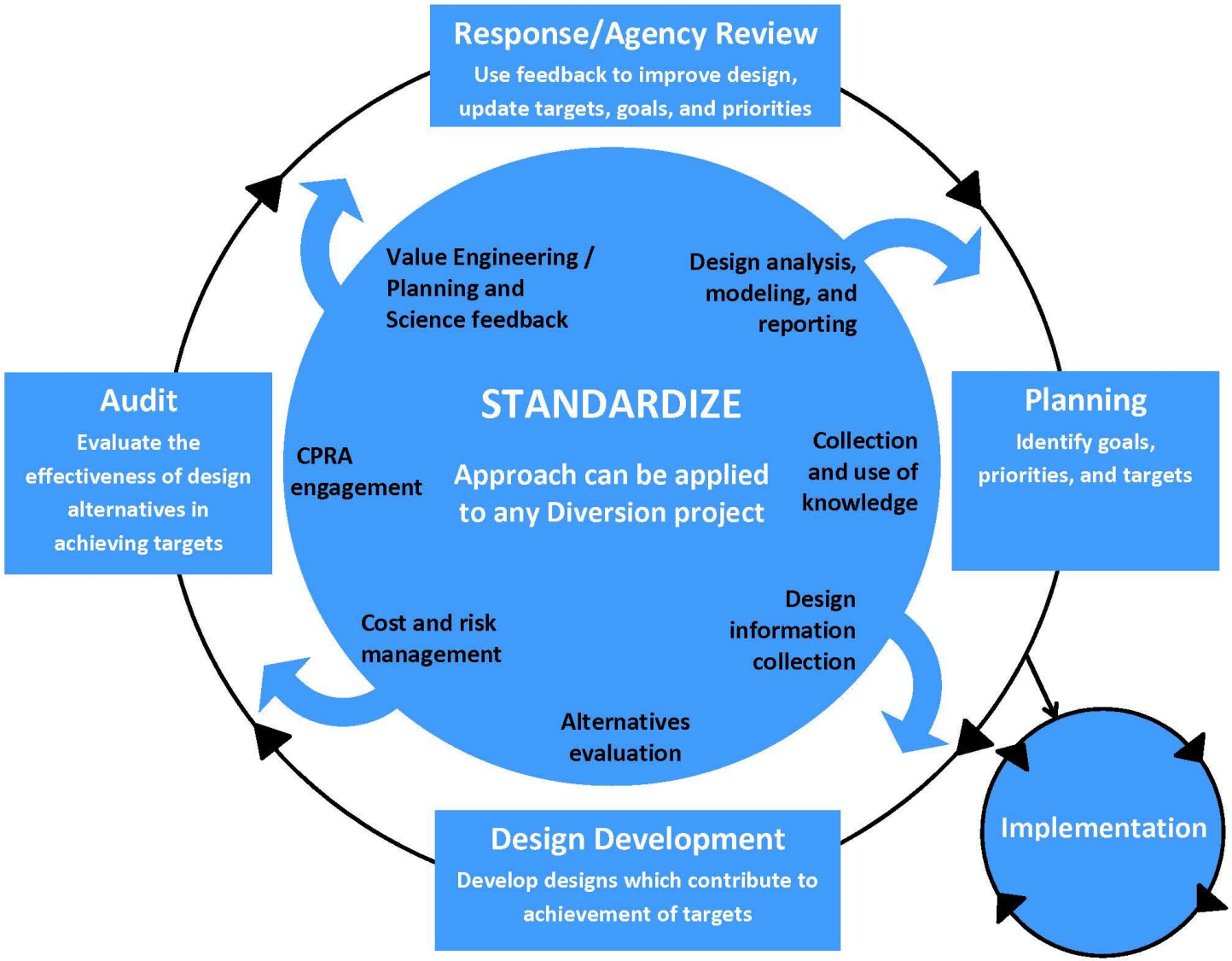


FIGURE 11. PROJECT AREA AND METHODOLOGY OVERLAID ON USGS 1948 TOPOGRAPHIC MAP.

Geotechnical/Geologic Characterization



Diversion Design Process

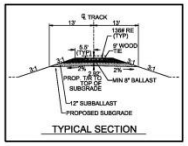


Back Structure Decision

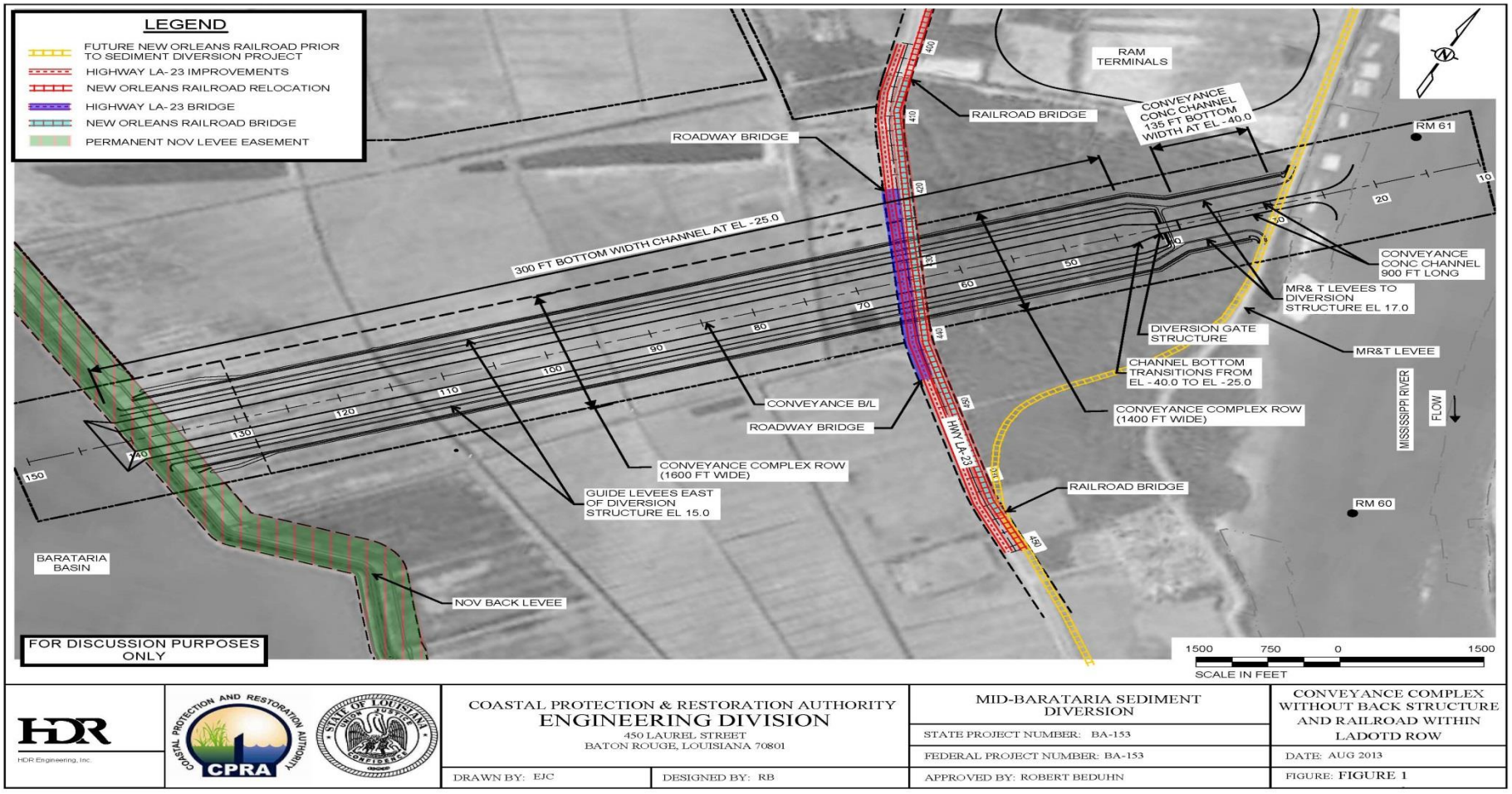
STATE OF LOUISIANA
COASTAL PROTECTION
AND
RESTORATION
AUTHORITY

MID - BARATARIA
SEDIMENT DIVERSION
(BA-153)
Plaquemines Parish, LA

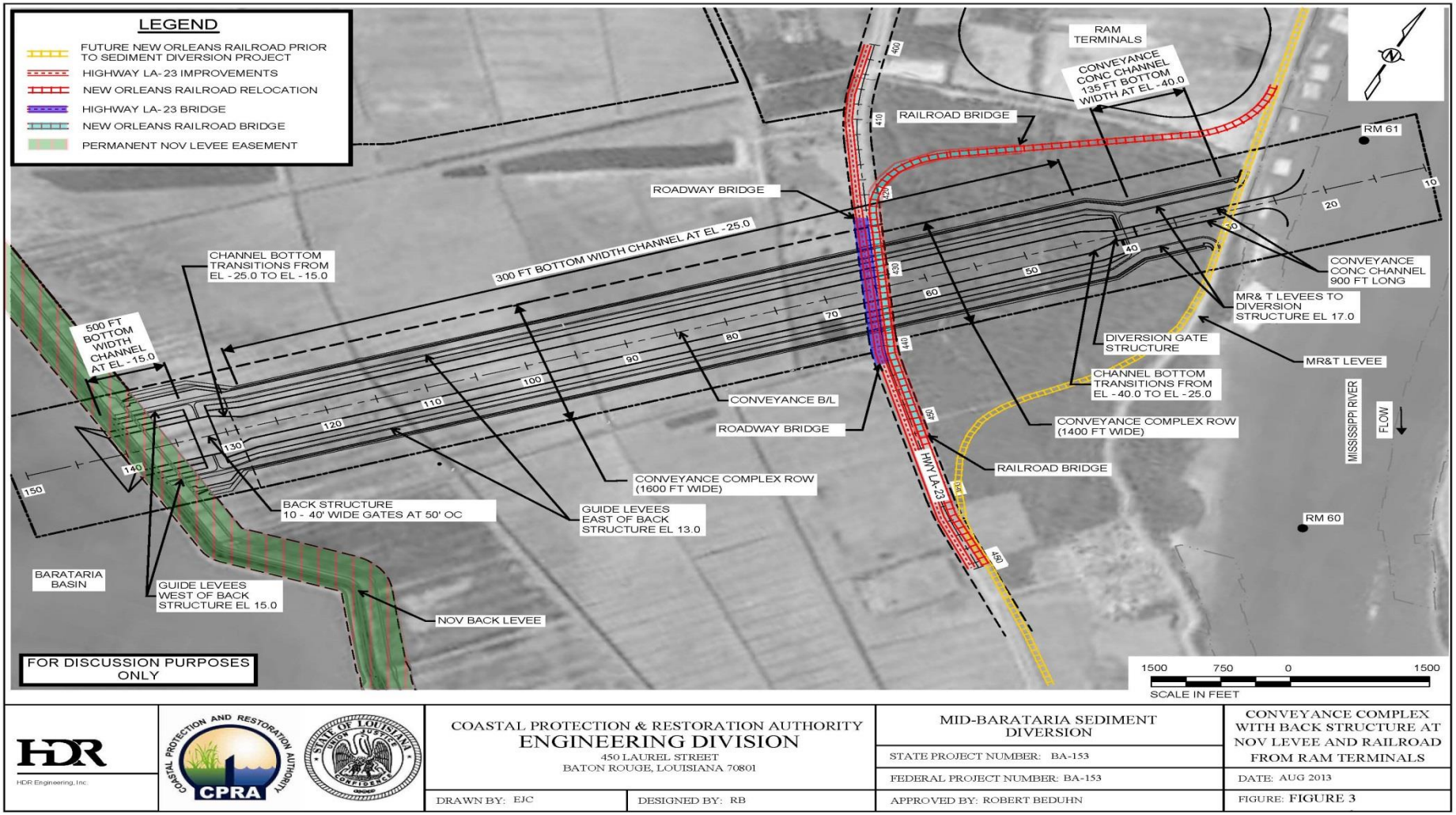
Prepared by
HDR Engineering, Inc



Back Structure Decision

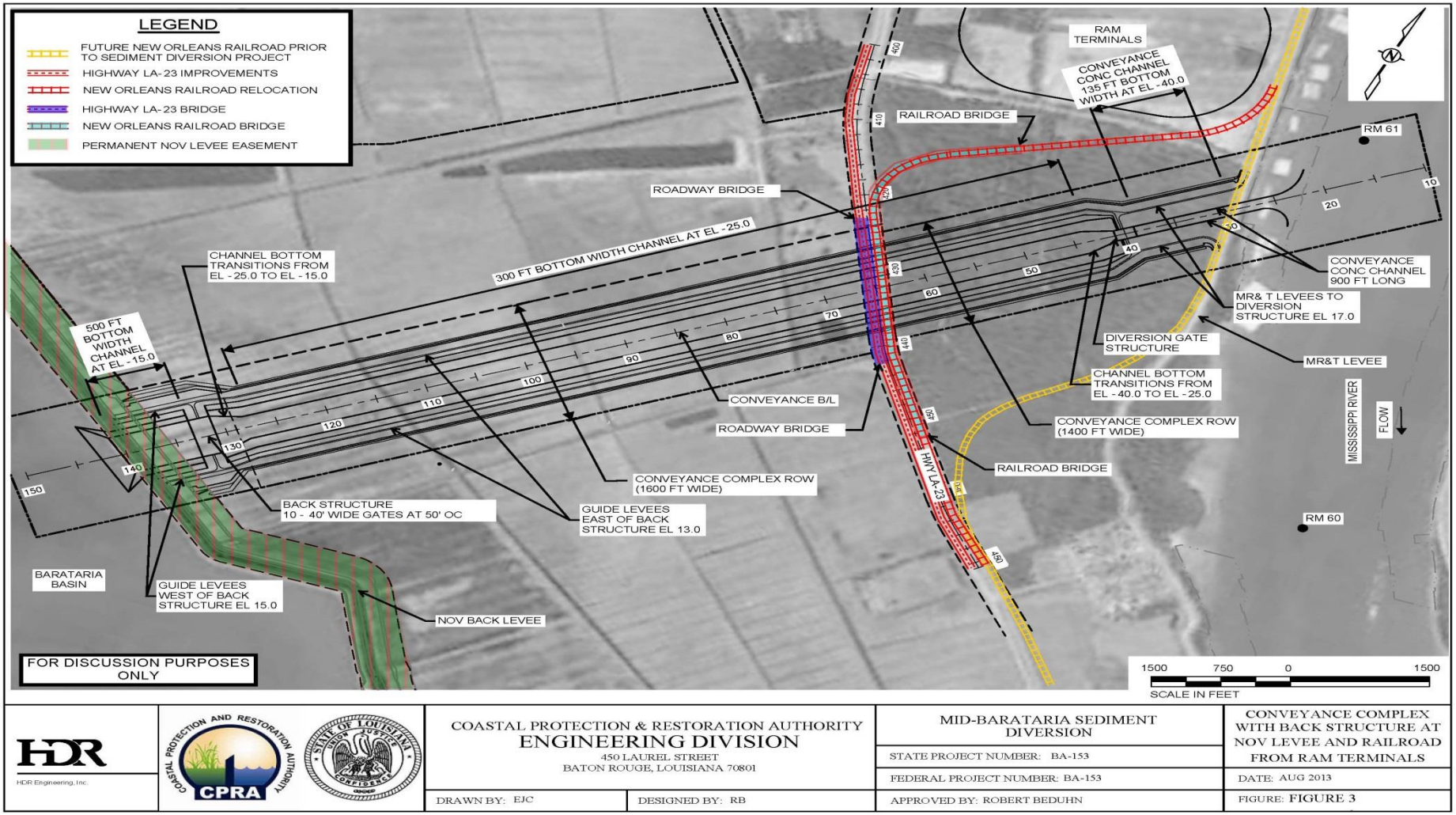


Adding a Back Structure Reduces Road and Rail Improvements

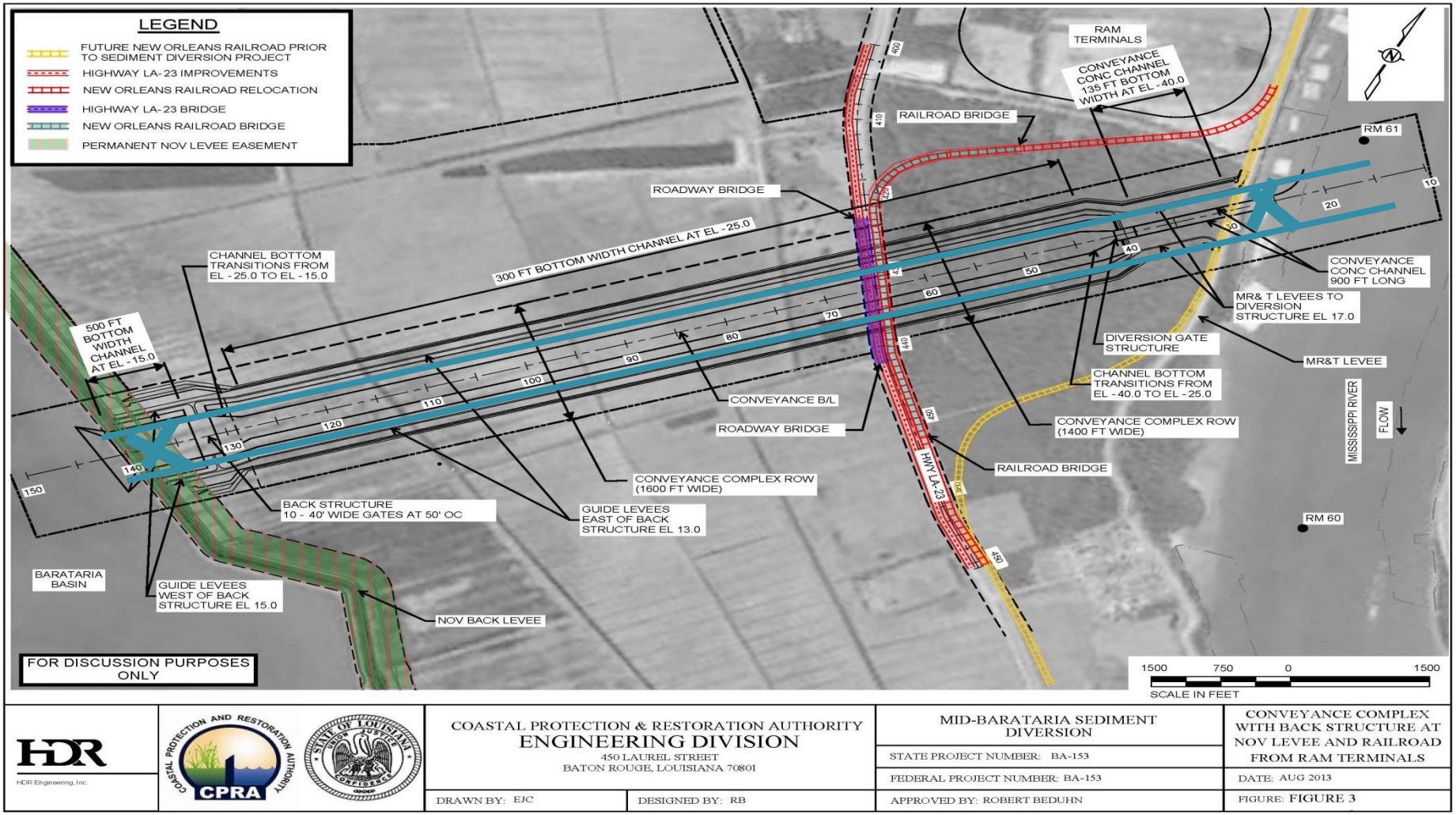


HDR Engineering, Inc.	COASTAL PROTECTION & RESTORATION AUTHORITY ENGINEERING DIVISION 450 LAUREL STREET BATON ROUGE, LOUISIANA 70801	MID-BARATARIA SEDIMENT DIVERSION	CONVEYANCE COMPLEX WITH BACK STRUCTURE AT NOV LEVEE AND RAILROAD FROM RAM TERMINALS
		STATE PROJECT NUMBER: BA-153	
		FEDERAL PROJECT NUMBER: BA-153	DATE: AUG 2013
	DRAWN BY: EJC DESIGNED BY: RB	APPROVED BY: ROBERT BEDUHN	FIGURE: FIGURE 3

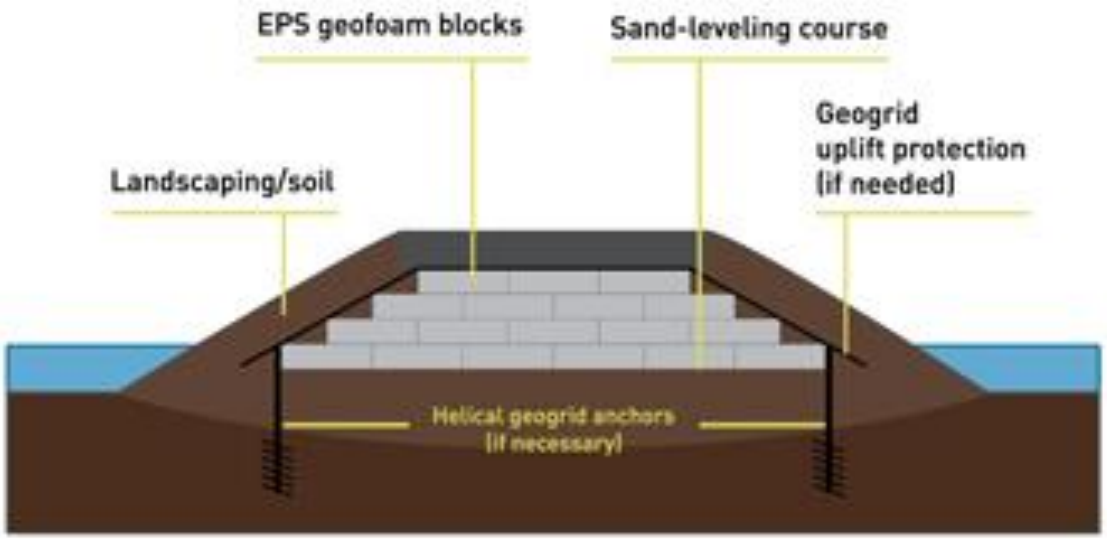
Infrastructure Mitigation



Or Can We Go Under?



Or, Can We "Float" The Levee and Avoid Fill and Settlement Costs

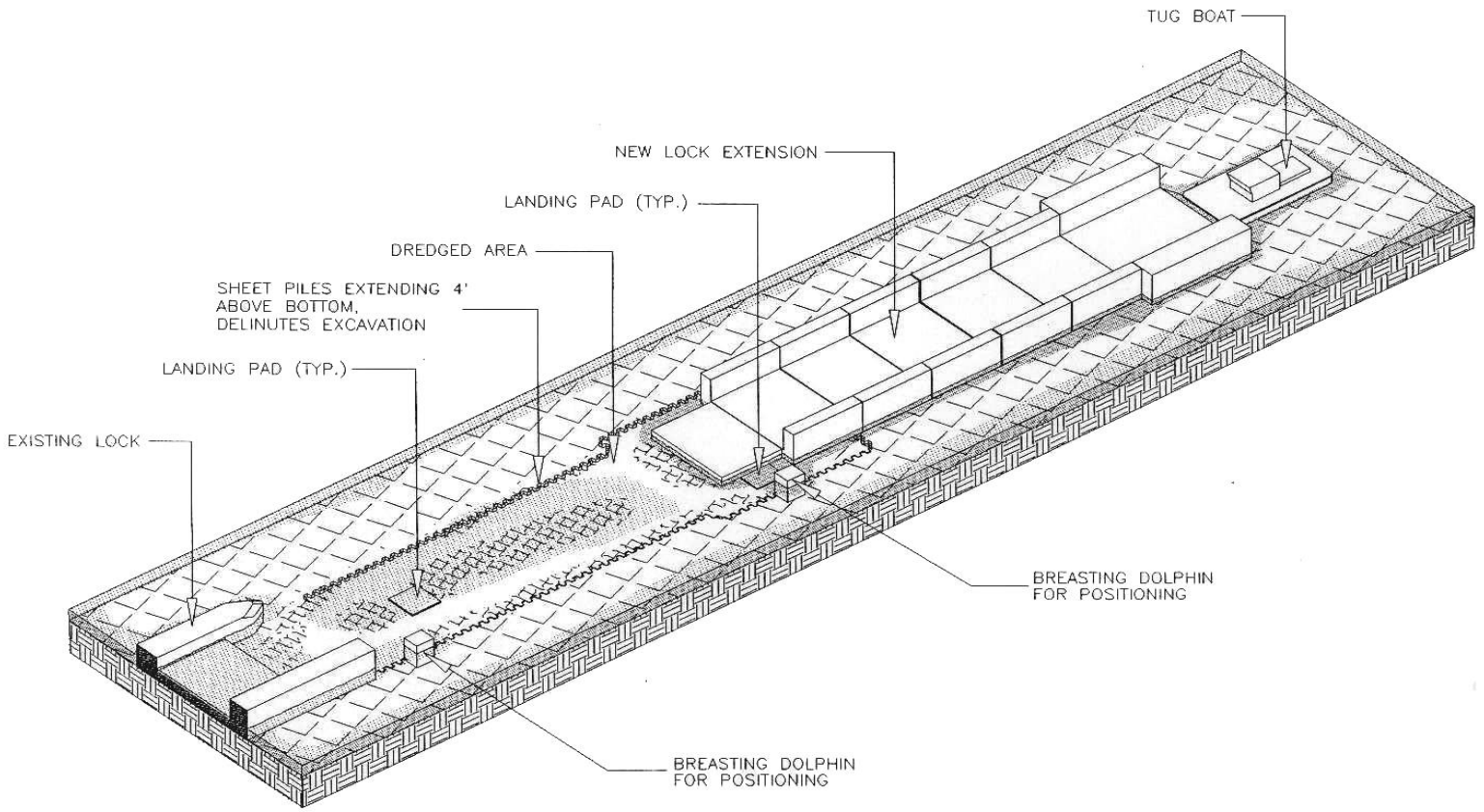


Schematic drawing of levee repair using EPS geofoam

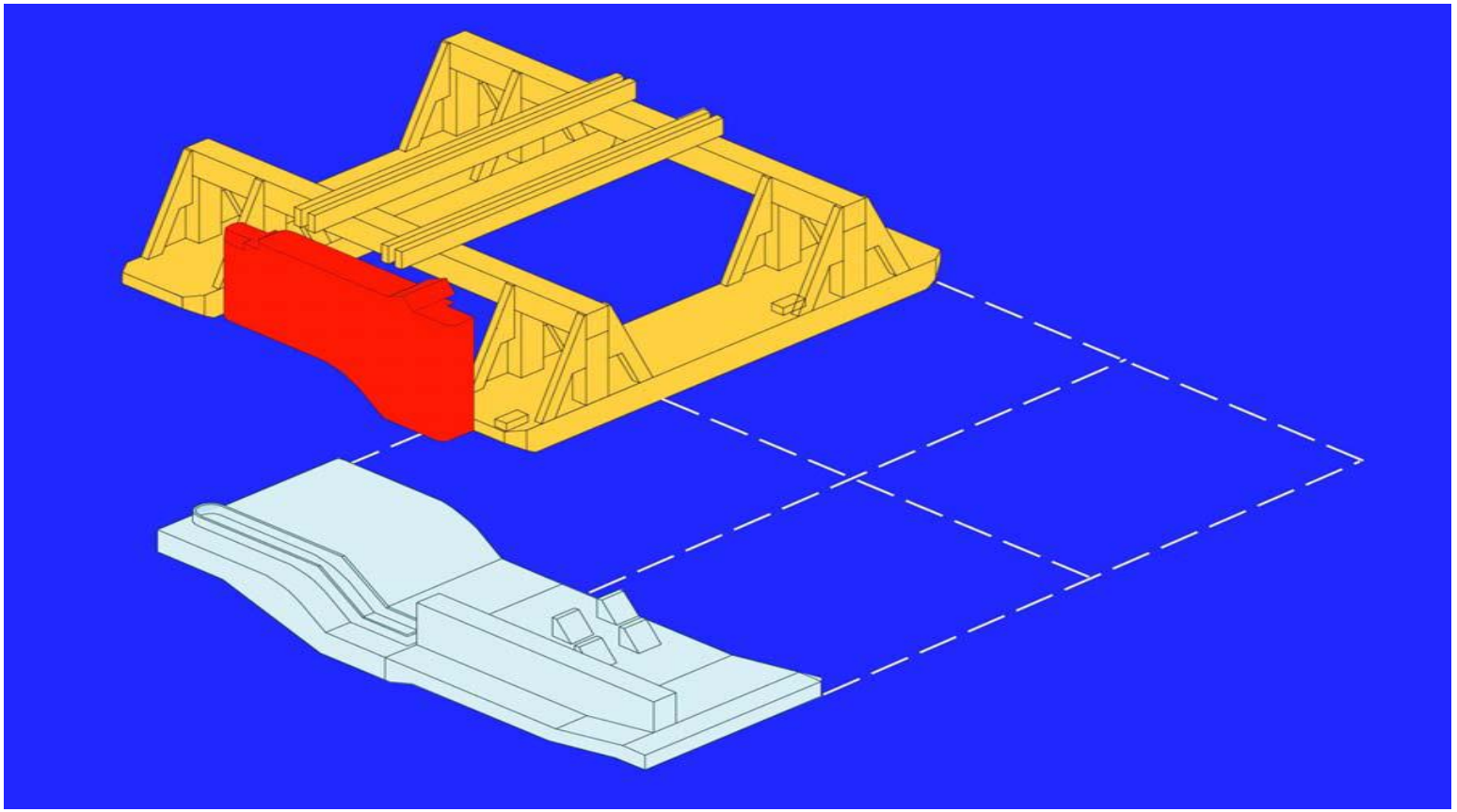
Base Design – In Dry Coffer Dam

Float In Construction

Float In Channel Segments

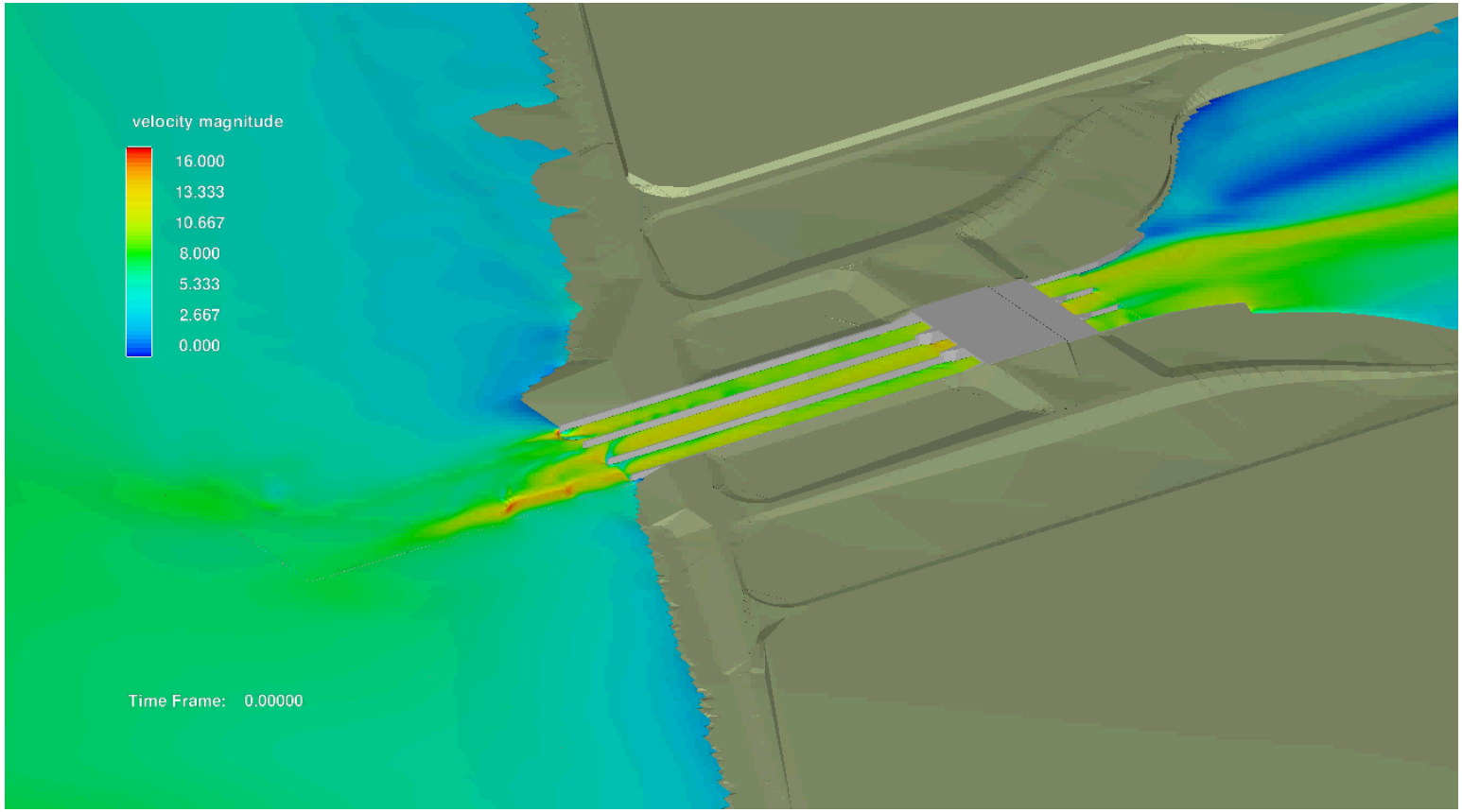


Frame Barge and Pre-Fabricated Wall Sections



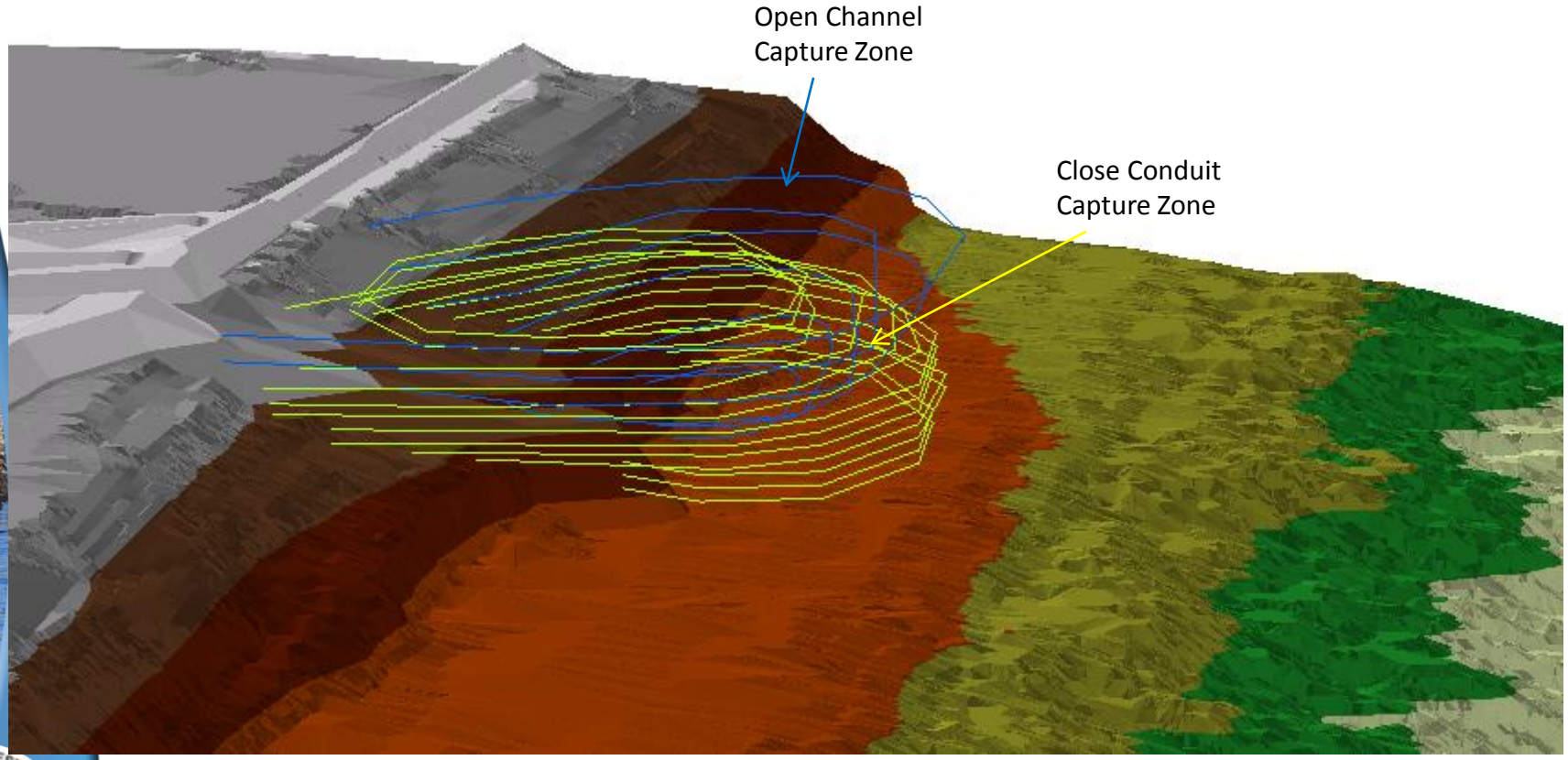
Float In Construction Traditionally Uses At Grade Foundation MBSD Has Deep Cut

Hydraulic Design

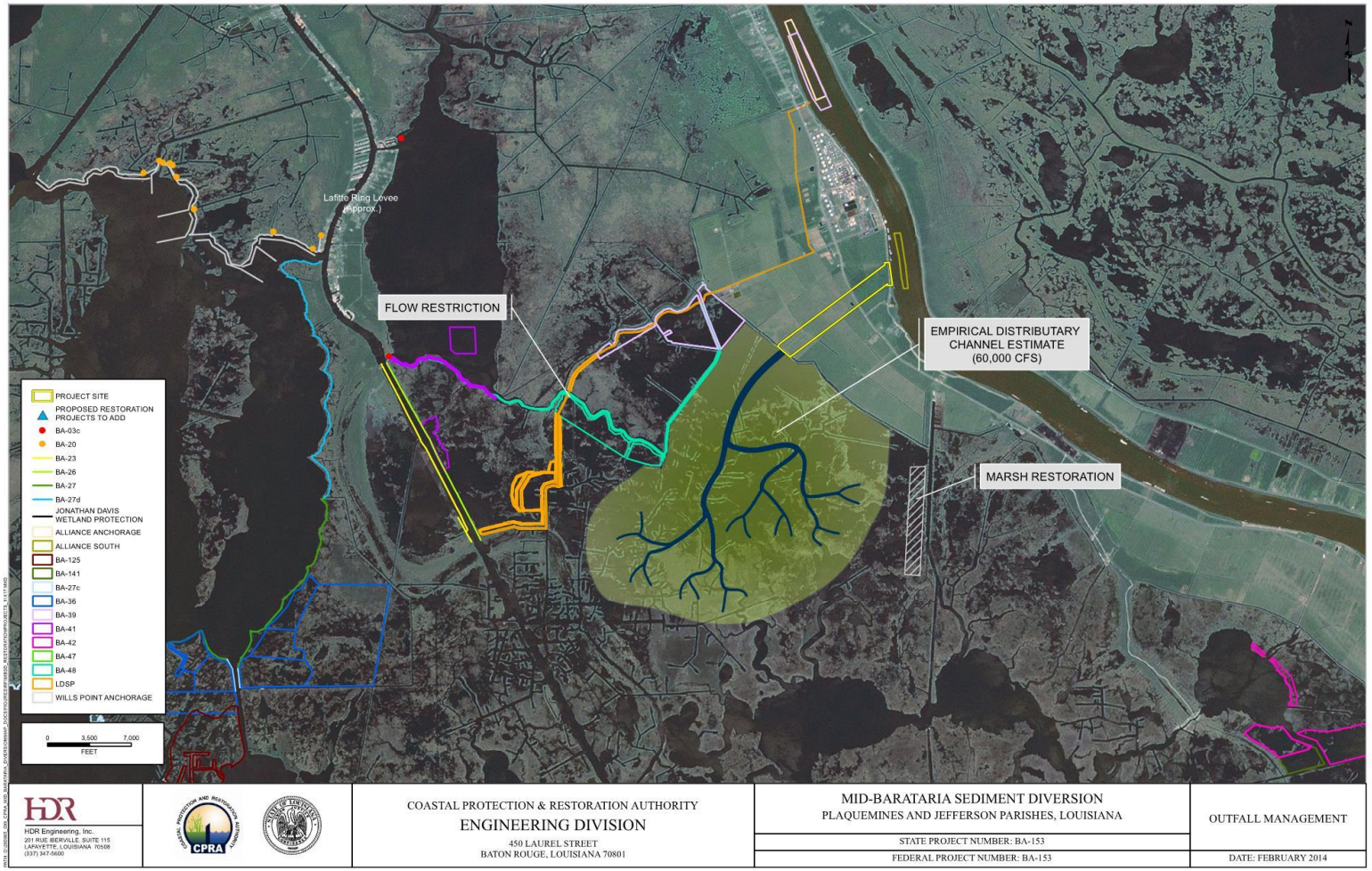



Diversion
Structure
Inlet
Flume
Inlet
Channel
Revetment
Levee
Batture
Ed of Sand Bar

Flow Capture Zone Differences



Basin Variable Boundary Conditions Drive Performance



EIS Scoping and Environmental Analysis will Provide Important Design Feedback

- Boundary Conditions
- Flow Regimes
- Operating Plan
- Permit Conditions
- Maintenance
- Adaptive Management Plan/Monitoring