

St. Tammany Parish Coastal Flood Protection Project - Professional Geotechnical Engineering Services

PRESENTATION TO ST. TAMMANY PARISH LEVEE DRAINAGE &
CONSERVATION DISTRICT

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Agenda

- Purpose of Geotechnical Engineering
- Overview of the Project
- Review of Existing Geotechnical Data
- Overview of Current Investigation Efforts
- Future Plan for a Final Geotechnical Design

Geotechnical Engineering

- A specialized subset of Civil Engineering
- Characterizes how soils affect designs of structures
- Critical to the design of flood protection (levees, flood walls, gates, pump stations)
 - How high and wide are the levees?
 - How deep are the driven piles? How many piles are required?
- Can have big impact on project feasibility (cost, constructability)

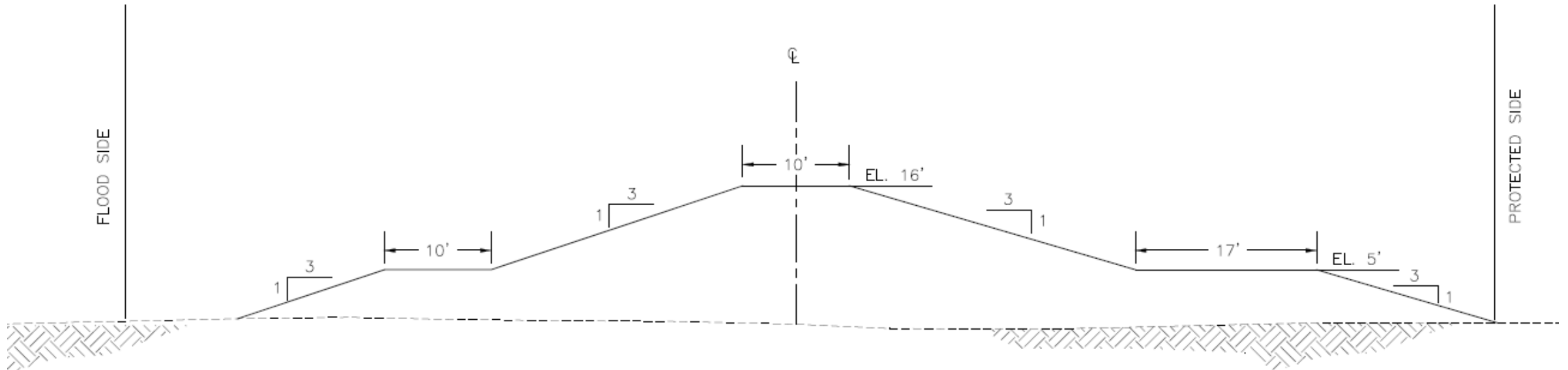
Geotechnical Engineering

- Final designs require soil data at 500-ft spacing along a flood protection alignment
- Design approach is typically done in phases
 - Conceptual – based on existing information
 - Preliminary – based on limited site-specific soil data
 - Final – based on all site-specific data

Project Overview – Planning

- Performed Planning and Initial Conceptual Design in 2021
- Considered Three Alignments
- Used Existing Geotechnical & Geologic Data
- Conceptual geotechnical design of levees and floodwalls

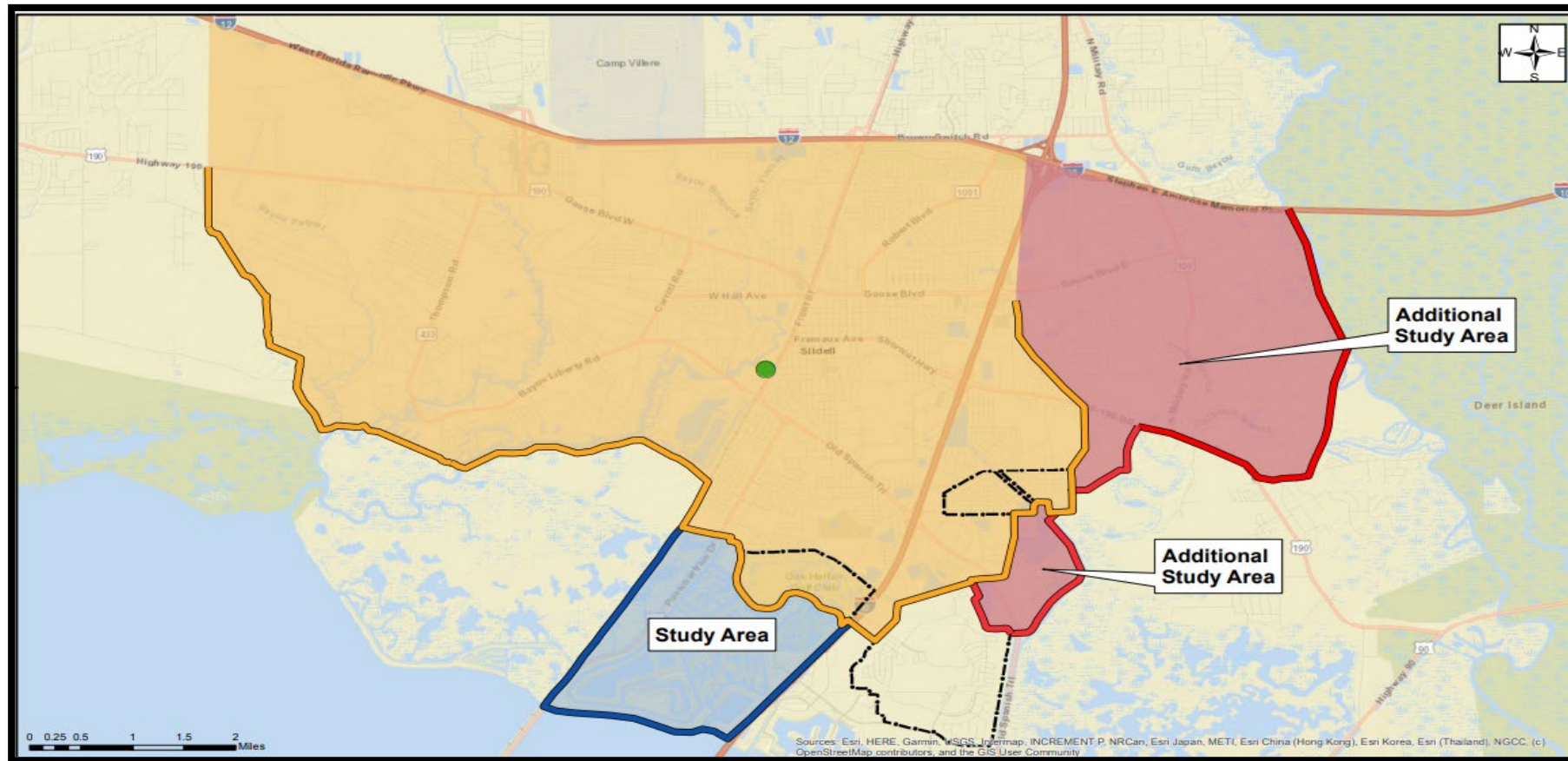
Project Overview – Conceptual Design



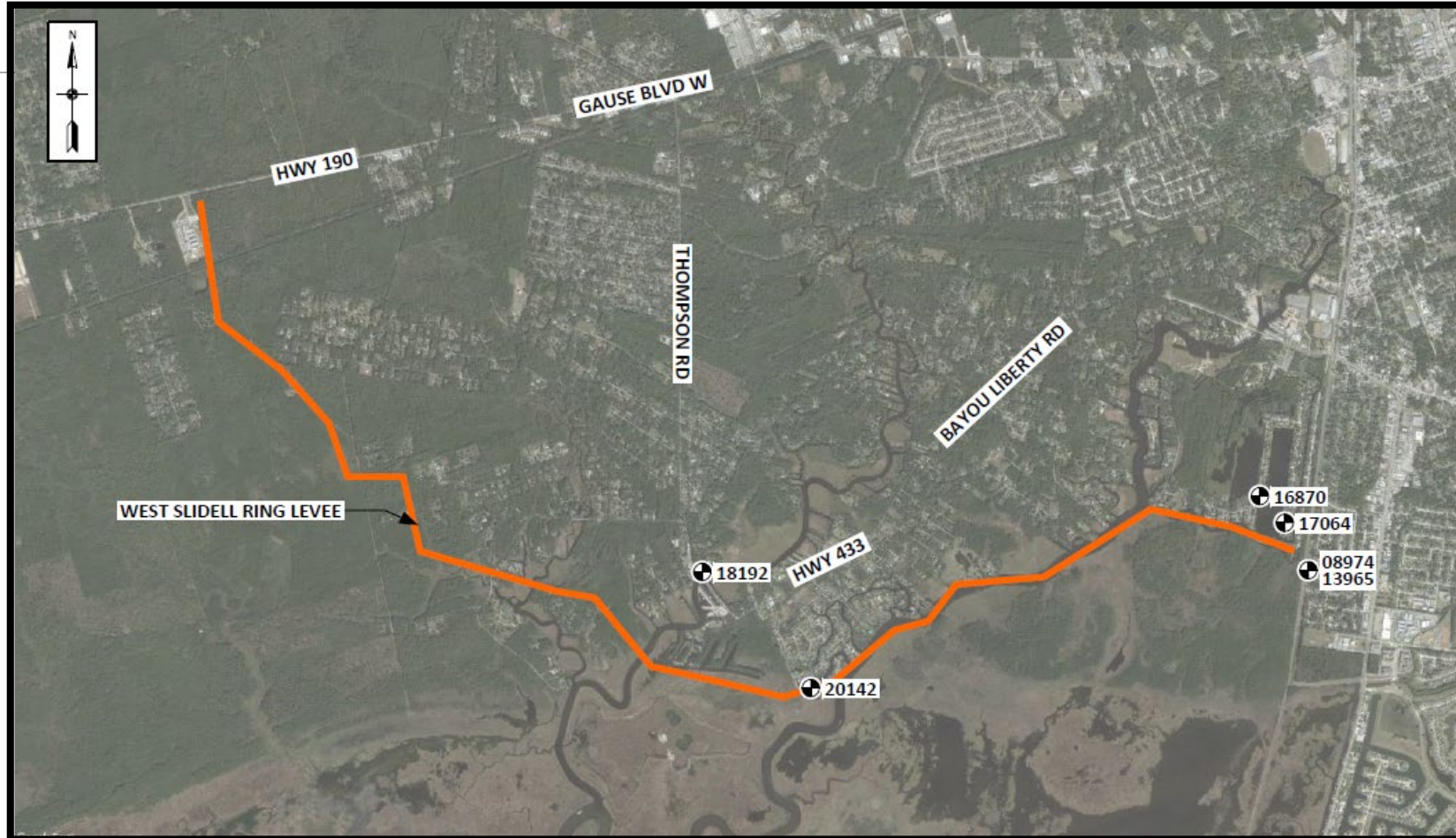
WEST SLIDELL ALIGNMENTS – TYPICAL LEVEE SECTION

- Evaluate slope stability to define a suitable geometry
- Evaluate the long-term settlement of soils to estimate a suitable levee crown elevation

Flood Protection Alignments



West Slidell Alignment – Limited Data



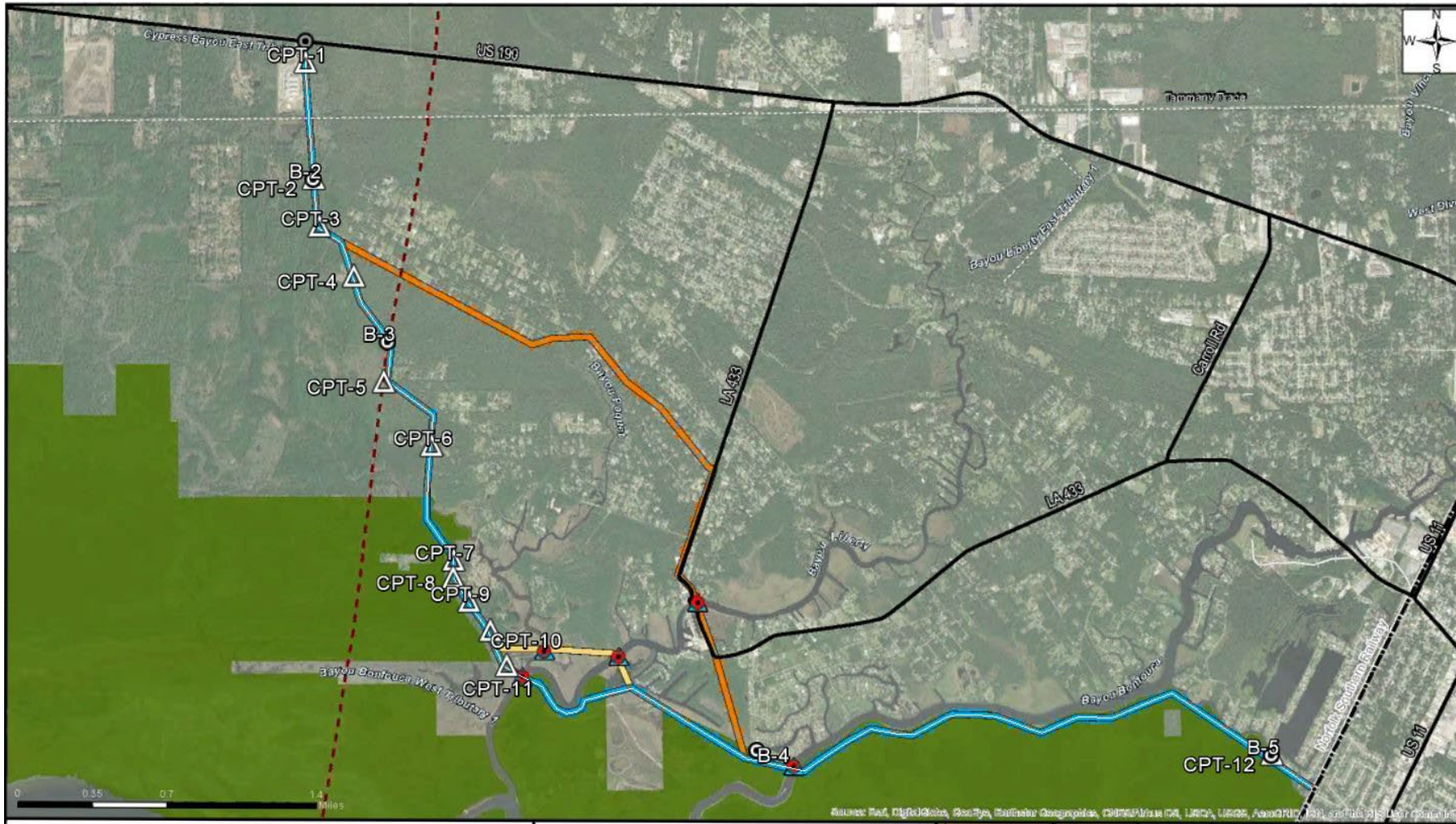
Eden Isles Alignment – Limited Data



Project Overview – Preliminary Design

- Performing Conceptual/Preliminary Design in 2022
- Identify Data Gaps
- Require soil borings and cone penetration tests (CPTs)
- Perform site visit to identify areas for equipment access
- Access needs to be with truck-mounted equipment and no impacts (no clearing, only public property)

West Slidell Alignment – Proposed Data



- 5 Soil Borings and 12 CPTs
- 1,000 to 3,000-ft spacing between data points along western side
- Very limited access along Bayou Bonfouca

Eden Isles Alignment – Proposed Data



- 5 Soil Borings and 14 CPTs
- 1,000 to 2,500-ft spacing between data points

Project Overview – Next Phase of Work

- Fill in Data Gaps not covered in Preliminary Design Phase
- Final design for West Slidell and Eden Isles will require approximately 65 more borings/CPTs for each alignment
- Next Phase - Equipment access will likely require marsh buggies and marine equipment in some areas
- Geotechnical and structural engineering will be finalized based on the site-specific soil data

Questions?

Study Area

Additional Study Area

Additional Study Area

