

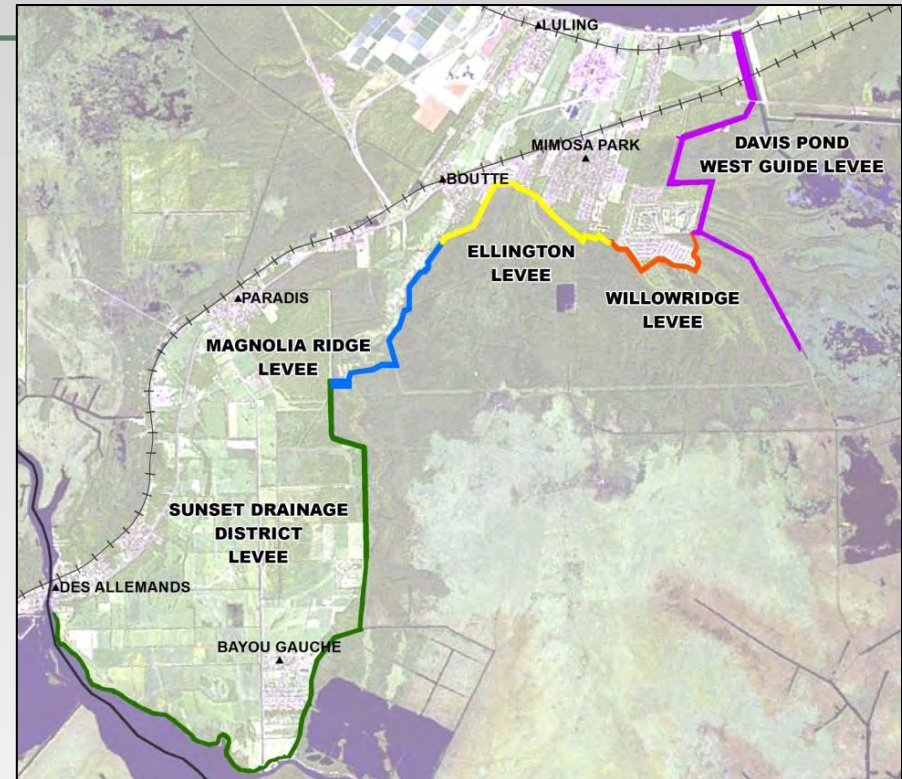
**HURRICANE PROTECTION
PROJECTS COMMITTEE
MEETING PRESENTATION
SEPTEMBER 15, 2014**





West Bank Levee Overview

- Outer Levee System
 - Davis Pond Guide Levee
 - Willowridge Levee
 - Ellington Levee
 - Magnolia Ridge Levee
 - Sunset Levee
- Parish & Levee District proceeding with the FEMA LAMP analysis
- Levee District proceeding with State/CPRA alignment reviews (Hwy 90 & Ridge)





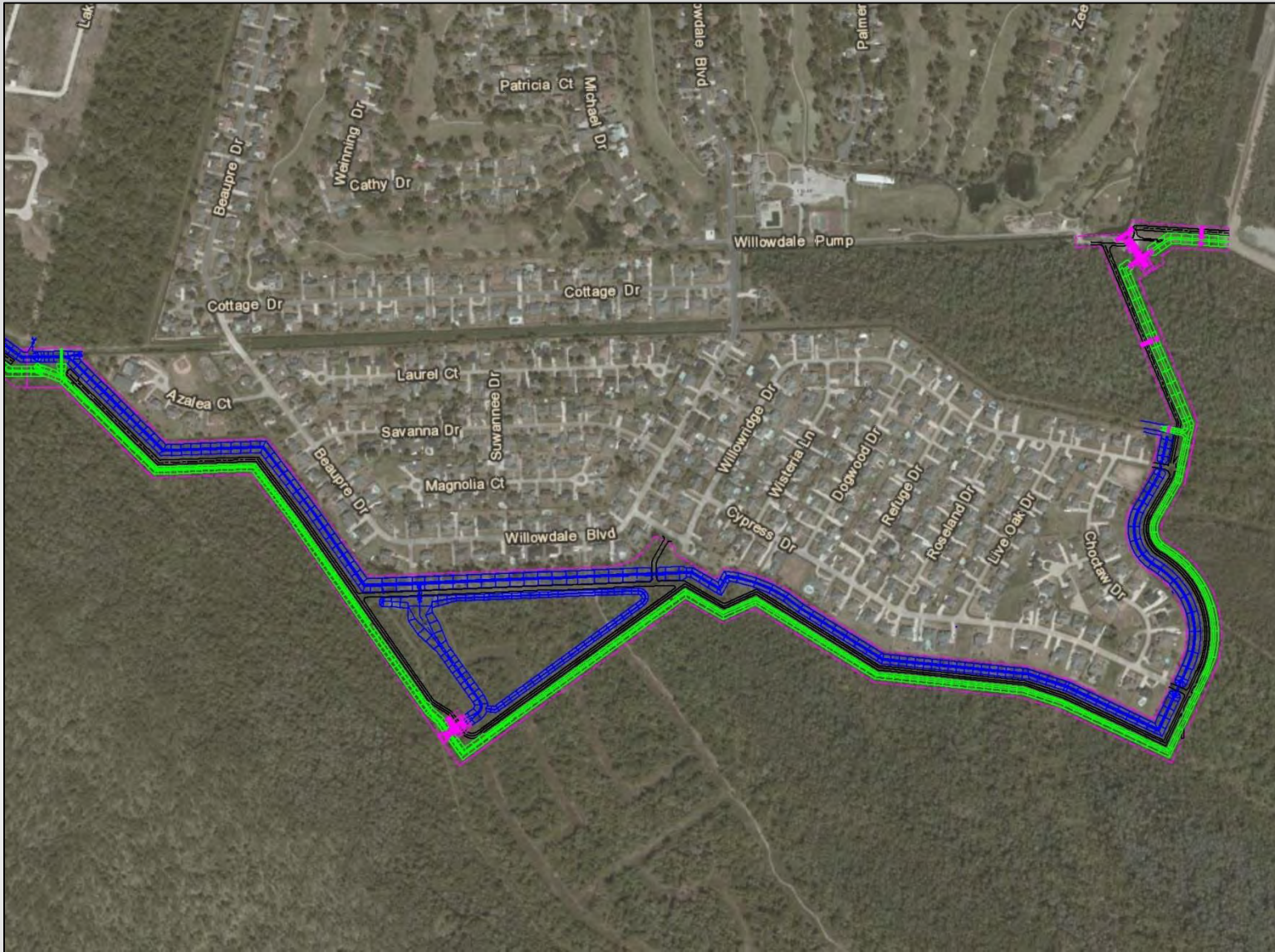
Davis Pond West Guide Levee



- Constructed by U.S. Army Corps of Engineers
- Right-of-way held by State of Louisiana
- Coastal Restoration Levee with typical elevation height of +7 feet
- Parish maintains it through agreement with the State



Willowridge Levee





Willowridge Levee

- First phase of elevation +7.5' under construction
- Tie-in to Davis Diversion in Final Design Phase
- Willowridge PS in Final Design Phase
- Both to be bid in 2015





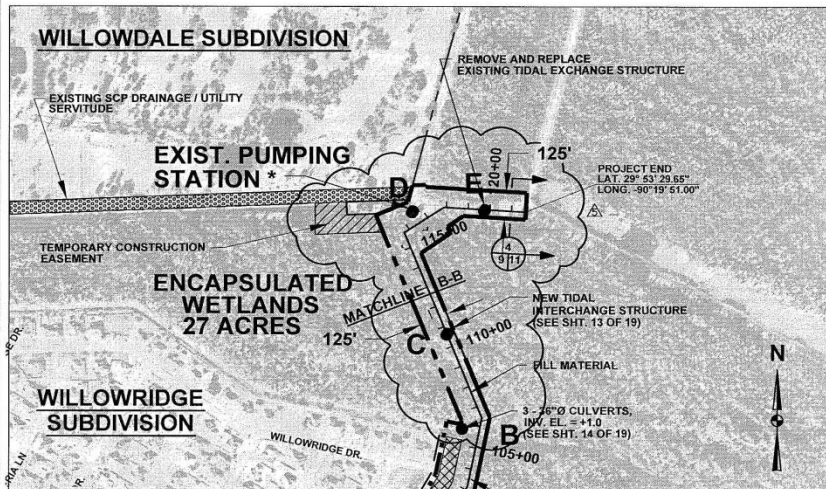
Construction Photos





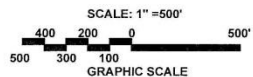
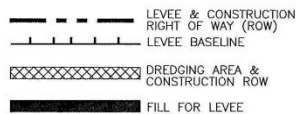
Permits & Land Acquisition

PROPOSED HURRICANE PROTECTION LEVEE WILLOWRIDGE AREA ST. CHARLES PARISH, LOUISIANA



* WITH NEW PERMANENT T-WALL
(INTERIM PROTECTION TO BE EARTHEN LEVEE TIEING
INTO EXISTING LEVEE). (SEE SHT. 18 OF 19)

LEGEND:



ALL ELEVATIONS ARE NAVD 88

REV	08/12/14	REVISION TO RIGHT-OF-WAY	S.B.
4	06/21/10	GENERAL REVISION	H.V.H.

PARISH OF ST. CHARLES
APPLICATION BY: PARISH OF ST. CHARLES

SHEET: 9 OF 19

PARTIAL PLAN 3 of 3

BURK-KLEINPETER, INC.
ENGINEERS, ARCHITECTS, PLANNERS, ENVIRONMENTAL SCIENTISTS
4176 CANAL STREET, NEW ORLEANS, LOUISIANA 70119-5994
(504) 488-5901 FAX (504) 488-1714

BKI PROJ. NO. 10475-0200

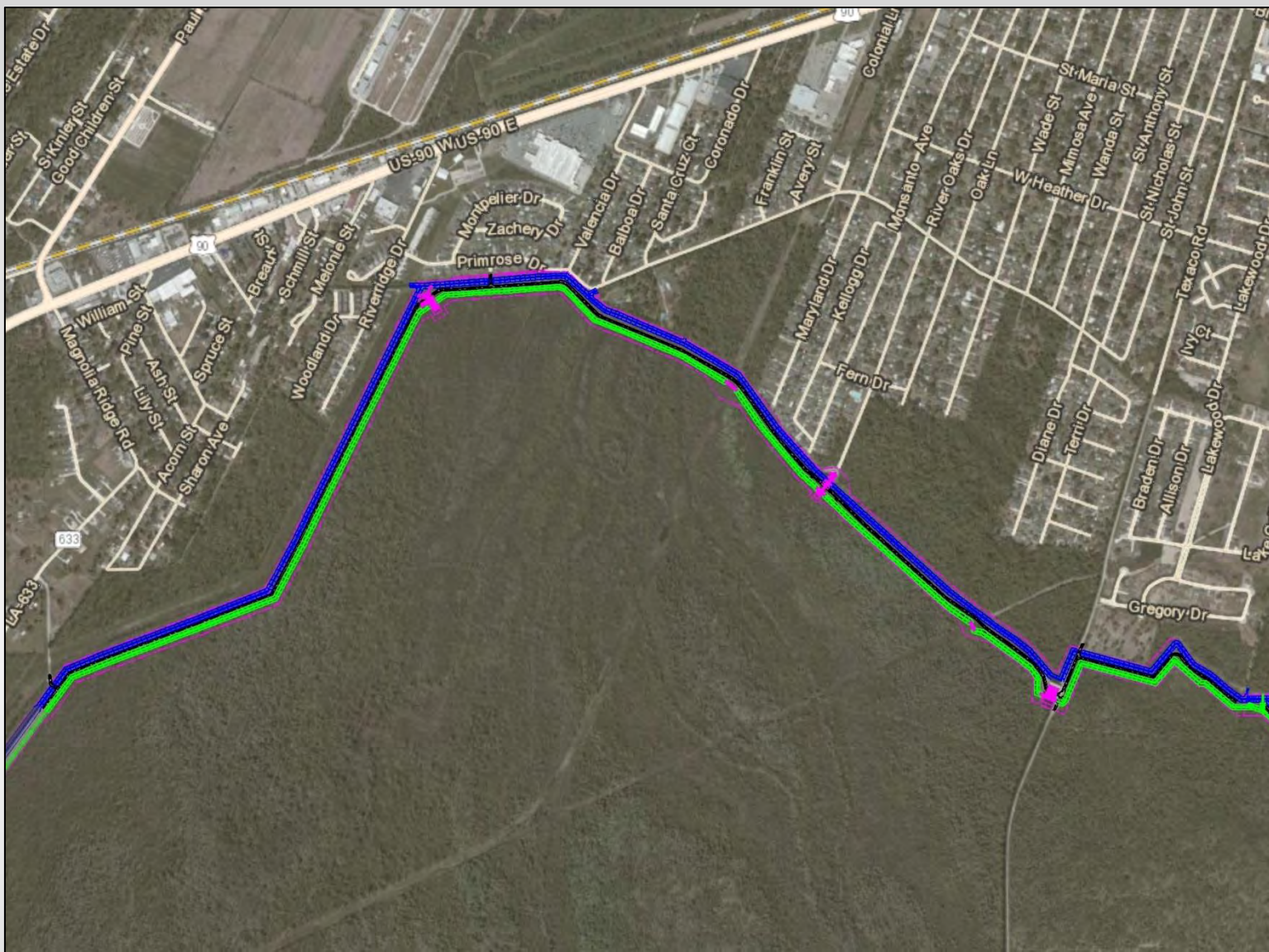
AUGUST 2014

- Revised Permit Application submitted on September 3, 2014
 - Increase the height of the frontal protection at Willowdale PS to +14.5 feet
 - Requested permission to construct an access corridor to connect Willowdale PS to Willowridge levee without using the crown of the levee
 - Solves constructability issue with dewatering and future maintenance access
 - Changes require that an additional 1.7 acres of wetlands be mitigated
- Survey underway by Bayou Country Surveying to finalize design plans for frontal protection and establish property boundaries for right-of-way impacts
- Estimated that one (1) parcel will be required from J.B. Levert Land Co and one (1) parcel from Rathborne Land Co





Ellington Levee





Ellington Levee

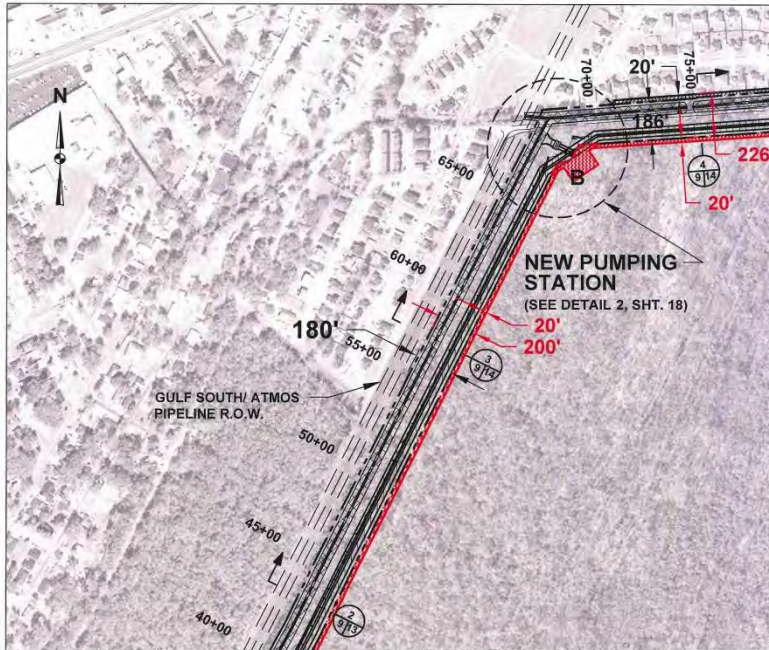
- Soil-Boring analysis being finalized
- Final Design Phase underway for Levee
- Pump Station in Preliminary Design Phase, grant application submitted
- Earthen levee to be bid in 2015





Permits

PROPOSED HURRICANE PROTECTION LEVEE ELLINGTON PLANTATION AREA ST. CHARLES PARISH, LOUISIANA



TOTAL DREDGED MATERIAL : 106,000 C.Y.
TOTAL FILL MATERIAL : 77,000 C.Y.
TOTAL MATERIAL HAULED OFFSITE TO APPROVED DISPOSAL AREA:
92,000 C.Y.

SCALE: 1" = 500'
400 200 0 500
300 100
GRAPHIC SCALE

LEGEND:

- LEVEE RIGHT OF WAY
- LEVEE BASELINE
- [X] DREDGING
- [/] FILL
- [] ADDITIONAL R.O.W. REQUIRED
- == GULF SOUTH/ ATMOS PIPELINE R.O.W.

PARISH OF ST. CHARLES
APPLICATION BY: PARISH OF ST. CHARLES

SHEET: 9 OF 30

PARTIAL PLAN 2 of 5

BURK-KLEINPETER, INC.
ENGINEERS, ARCHITECTS, PLANNERS, ENVIRONMENTAL SCIENTISTS
4176 CANAL STREET, NEW ORLEANS, LOUISIANA 70119-5994
(504) 486-5901 FAX (504) 486-1714

BKI PROJ. NO. 10475-0300

AUGUST 2014

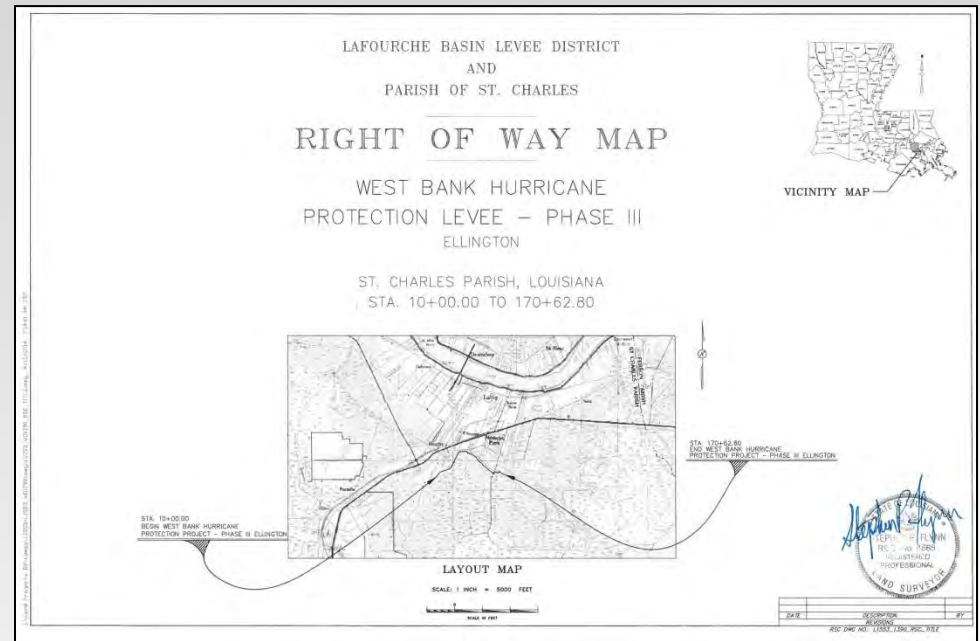
- U.S. Army Corps of Engineers permit issued March 6, 2013
- Coastal Use Permit from LDNR issued December 7, 2012
- Pre-Application meeting on August 5, 2014 to discuss revisions based on soil boring analysis and increasing structure heights to +14.5 feet
- Will require approximately 8 more acres of wetlands to be mitigated





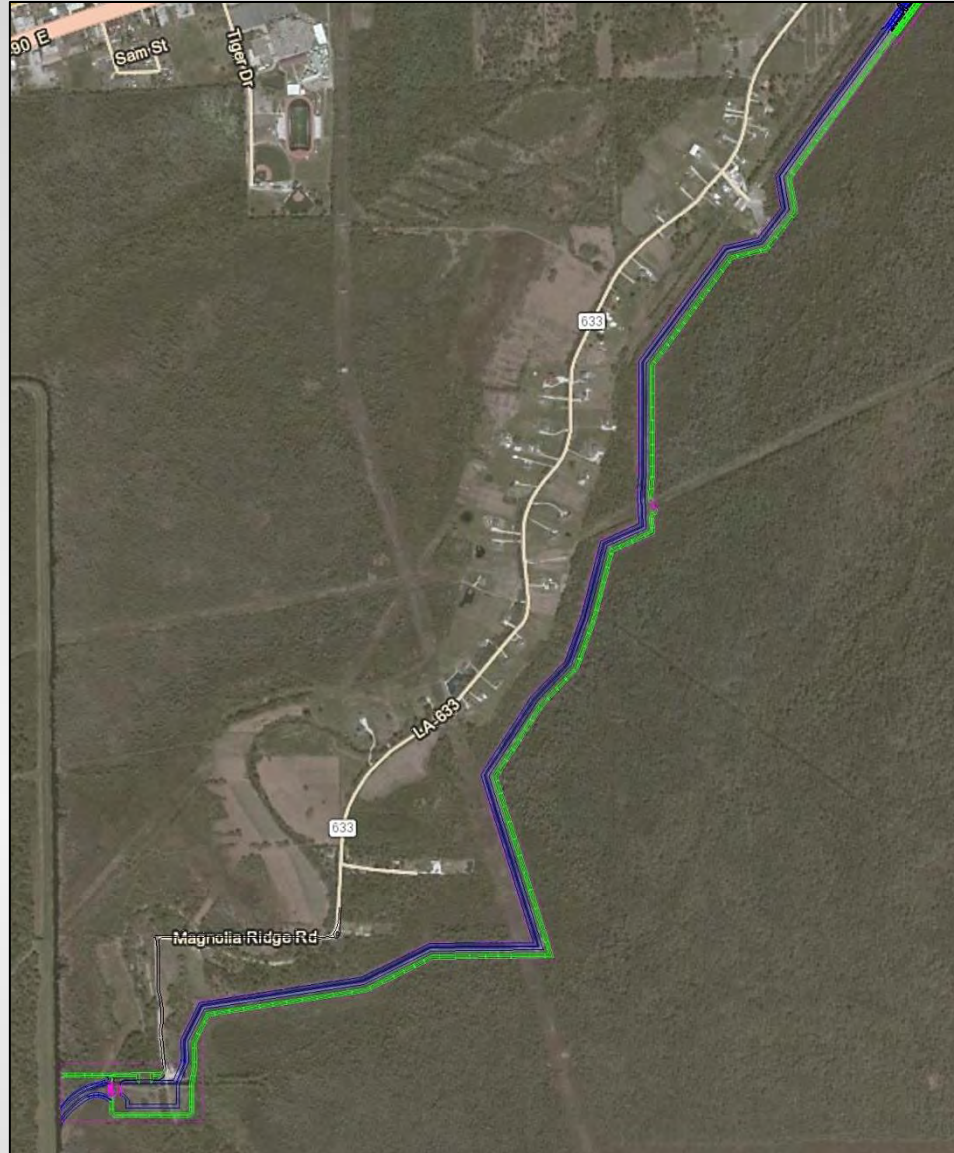
Land Acquisition

- Right-of-way maps were completed by Riverlands Surveying Co. on April 17, 2014
- Appraisals are ongoing with just compensation offer letter being sent to the landowners by the Levee District starting in Oct 2014
- Permit revisions will require additional parcels to be added to right-of-way maps
- Riverlands Surveying Co. to have updated maps reflecting proposed permit changes completed by Oct 15, 2014






Magnolia Ridge Levee





Magnolia Ridge Levee

- Reauthorized US Army Corps Permit issued Aug 12, 2014 and LDNR Permit issued Aug 8, 2014
- Rainfall operational parameter for PS to start at +0.5' elevation and stop at +0.1' elevation
- Eliminated requirement for tidal gates (cost savings)
- Magnolia Ridge Pump Station in Preliminary Design Phase
- Levee in Conceptual Design Phase
- Public Works will set gated culvert and temporary hydraulic pump

**DEPARTMENT OF NATURAL RESOURCES
OFFICE OF COASTAL MANAGEMENT**
P.O. BOX 44487
BATON ROUGE, LOUISIANA 70804-4487
(225)342-7591
1-800-257-3013

COASTAL USE PERMIT/CONSISTENCY DETERMINATION


C.U.P. No.: P2012173
C.O.E. No.: MVN-2000-0722-EOO
NAME: ST. CHARLES PARISH DEPT. OF PUBLIC WORKS
c/o GCR, INC.
2021 LAKESHORE DRIVE, SUITE 500
NEW ORLEANS, LA 70122
Attn: Lucas Luty

LOCATION: Saint Charles Parish, LA
POB near Paradis Canal, Lat. 29° 51' 49"N and Long. 90° 24' 47"W; POE near proposed Ellington Levee (#20100821), Lat. 29° 53' 24"N and Long. 90° 22' 17"W, Magnolia Ridge Ranchettes, Magnolia Ridge Road in Boutte, Louisiana.

DESCRIPTION: Proposed levee improvements and construction of the West Bank Hurricane Protection Levee - Phase I Magnolia Ridge to a height of +0.70 (NAVD). Levee improvements include storm drainage canals, pumping station, +1/100 weir, gated culverts, detention pond, rip rap, borrow canal, maintenance berm, access ramps, sheetpile, articulated concrete mattress, pipeline crossings thru 1-Wall, floodwalls, pumping station discharge pipes, closure structures and discharge pipes adjacent to the developed areas. Approximately 25,500 cubic yards of excavation required of which +11,250 cubic yards will be placed onsite and +14,250 cubic yards will be hauled offsite. Approximately 1,200 cubic yards of concrete, 7,800 cubic yards of crushed stone/gravel, 11,200 cubic yards of sand, 71,800 cubic yards of topsoil/mulch, and 550 cubic yards of rip rap will be hauled in and used as fill.

In accordance with the rules and regulations of the Louisiana Coastal Resources Program and Louisiana R.S. 49, Sections 214.21 to 214.41, the State and Local Coastal Resources Management Act of 1978, as amended, the permittee agrees to:

1. Carry out, perform, and/or operate the use in accordance with the permit conditions, plans and specifications approved by the Department of Natural Resources.
2. Comply with any permit conditions imposed by the Department of Natural Resources.
3. Adjust, alter or remove any structure or other physical evidence of the permitted use if, in the opinion of the Department of Natural Resources, it proves to be detrimental to the coastal resources.
4. Provide, if required by the Dept. adjustment, alteration, or removal.
5. Hold and save the State of Louisiana harmless from any damage to persons or property.
6. Certify that the use has been in accordance with the specifications approved by the Department of Natural Resources.
7. All terms of the permit shall be in this permit, or a copy thereof.
8. The permittee will notify the CEM under the "Coastal Use Description" enclosed green initiation card or in the "Use Description" for two years from the date of initiation.
9. Unless specified elsewhere in the permit, the permittee must, in good faith, use has been initiated.
10. The following special conditions apply to this permit:
11. All logs, stamps and other documents shall be submitted immediately after the act.

**DEPARTMENT OF THE ARMY
NEW ORLEANS DISTRICT, CORPS OF ENGINEERS**
P.O. BOX 9527
NEW ORLEANS, LOUISIANA 70160-0267
AUG 12 2014

SUBJECT: MVN-2000-0722-EOO

Sam Scholle
Saint Charles Parish Department of Public Works
100 River Oaks Drive
Destrehan, Louisiana 70047

Dear Mr. Scholle:

The enclosed drawings, numbered 1-23 and dated April 2013, furnished with your permit modification and time extension request to clear, grade, excavate, and deposit fill for levee improvements to the Magnolia Ridge Phase I West Bank Hurricane Protection Levee, adjacent to Paradis Canal and the Magnolia Ridge Ranchettes community of Boutte, in Saint Charles Parish, Louisiana, are approved and will be included in your plans for the work authorized by the Secretary of the Army in a permit dated March 19, 2002 and time extension dated April 27, 2007, from the District Engineer at New Orleans, Louisiana. Your authorization is valid until July 31, 2019.

Special conditions 12, 13, 16, 17, and 20 of the original permit remain in effect. In addition, this approval is subject to the following conditions:

1. Issuance of this permit confirms that the US Army Corps of Engineers, New Orleans District, Regulatory Branch (CEMNV) has been provided with written notification from Enterprise Woodlands LLC that the permittee has contracted for 5.2 acres of bottomland hardwood and 0.8 acres of cypress swamp mitigation credits at the Enterprise Woodlands Mitigation Bank. Enterprise Woodlands LLC has assumed responsibility for completing the mitigation in accordance with the Enterprise Woodlands Wetland Mitigation Banking Instrument and has recorded the allocation of the mitigation required by this permit in the Regulatory In-lieu Fee and Bank Information Tracking System (RIBITS).
2. Issuance of this permit confirms that CEMNV has been provided with written notification from Chevron U.S.A., Inc. that the permittee has contracted for 2.7 acres of bottomland hardwood and 1.4 acres of cypress swamp mitigation credits at the Paradis Mitigation Bank. Chevron U.S.A., Inc. has assumed responsibility for completing the mitigation in accordance with the Paradis Wetland Mitigation Banking Instrument and has recorded the allocation of the mitigation required by this permit in RIBITS.



Surveys & Soil Borings

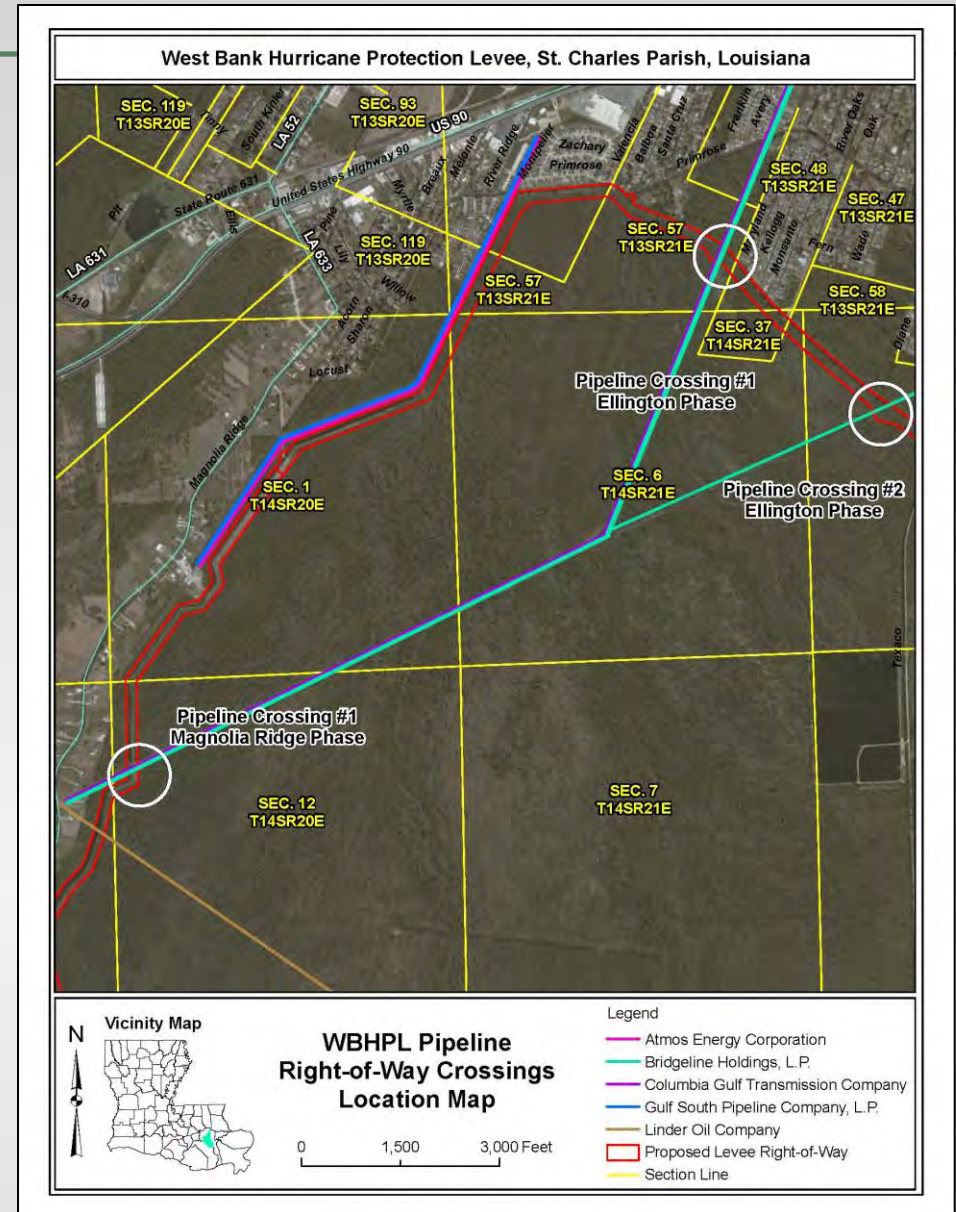
- Topographic surveys are currently being completed by Bayou Country Surveying
- Eustis Engineering has completed the northern soil borings (north of pipeline crossing)
- Plan to remobilize the week of Sept 22nd to start collecting the southern soil borings
- Preliminary soil boring analysis underway





Pipeline Crossings

- Bridgeline Holdings, L.P. (Chevron)
 - Ellington West Crossing
 - 14" natural gas line
 - 8" natural gas line
 - 14" natural gas line
 - Ellington East Crossing
 - 12" natural gas line
 - Magnolia Ridge Crossing
 - 16" natural gas line
 - 14" natural gas line
- Columbia Gulf Transmission Company (NiSource)
 - Ellington West Crossing
 - 16" natural gas line
 - Magnolia Ridge Crossing
 - 16" natural gas line





Sunset Levee



- CB&I to present preliminary findings of structural analysis
 - Topo Survey complete
 - Soil-Boring Analysis underway
- Levee District assumed mowing operations
- Parish performed Preventive Maintenance and installed generator for PS engines and pumps
- Grant for two additional 30-inch hydraulic pumps



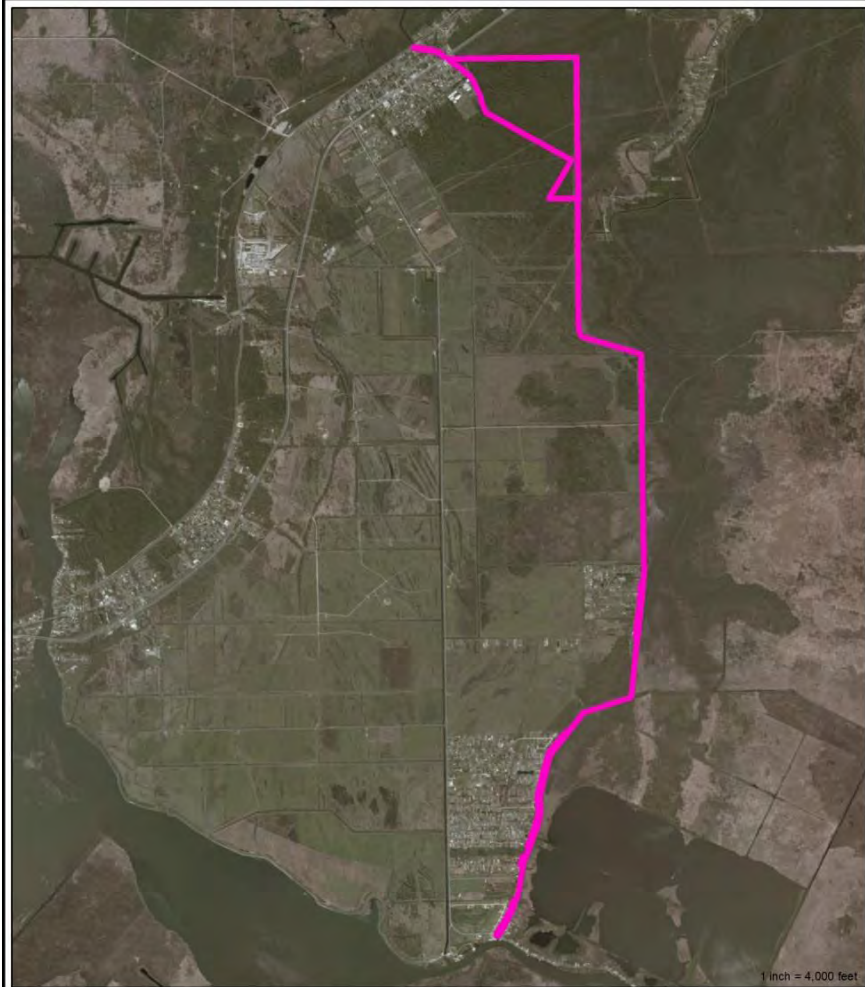
Sunset Drainage Pump Station



- Ordinance to award contract for Rehabilitation of Sunset Drainage Building Wall & Roof Panel Replacement introduced on Sept 15 agenda
- Public Works training additional personnel to operate and maintain PS



Land Acquisition




Location Map



Sunset Drainage District Levee
BNSF to LA HWY 306
West Bank Hurricane Protection Levee
St. Charles Parish, Louisiana
August 21, 2014

Legend

 Levee R/W Offset



0 1,500 3,000 4,500 6,000 Feet

- 80+ ownerships adjacent to east side of the District from the BNSF Railway to LA Hwy 306
- Servitude width varies from 75' to 100' south of US Hwy 90
- 25 ownerships with no record of servitude (notification letters sent)
- Notification letters prepared to landowners where servitudes have been identified
- Estimated right-of-way surveying and acquisition costs of \$740,000
- ROW acquisition required for removal of encroachments on property with no record of servitude





Levee Encroachments

- Fences & gates
- Boat docks & racks
- Trees & vegetation
- Need to clear levee from waters edge to protected toe
- Possible need for a setback requirement





Federal Levees

- West Shore Lake Pontchartrain Feasibility Study
 - Sept 16th (Tues) Civil Works Review Board Presentation
 - 30 day public comment period if approved
 - Commander of New Orleans District issues "Chief's Report"
- Lake Pontchartrain & Vicinity Levee
 - Raised to 100 year protection and Completed
 - Urban Storm Water Study
 - 65%- 35% cost share
 - Approximately 40 potential projects
 - Design for 3rd Pump Station along Levee
- West Bank & Vicinity Levee
 - Awaiting Final Completion and Close-out by Corps
 - Parish and LBLD operating and maintaining the levee
 - Inter-Governmental Agreement needed with CPRA

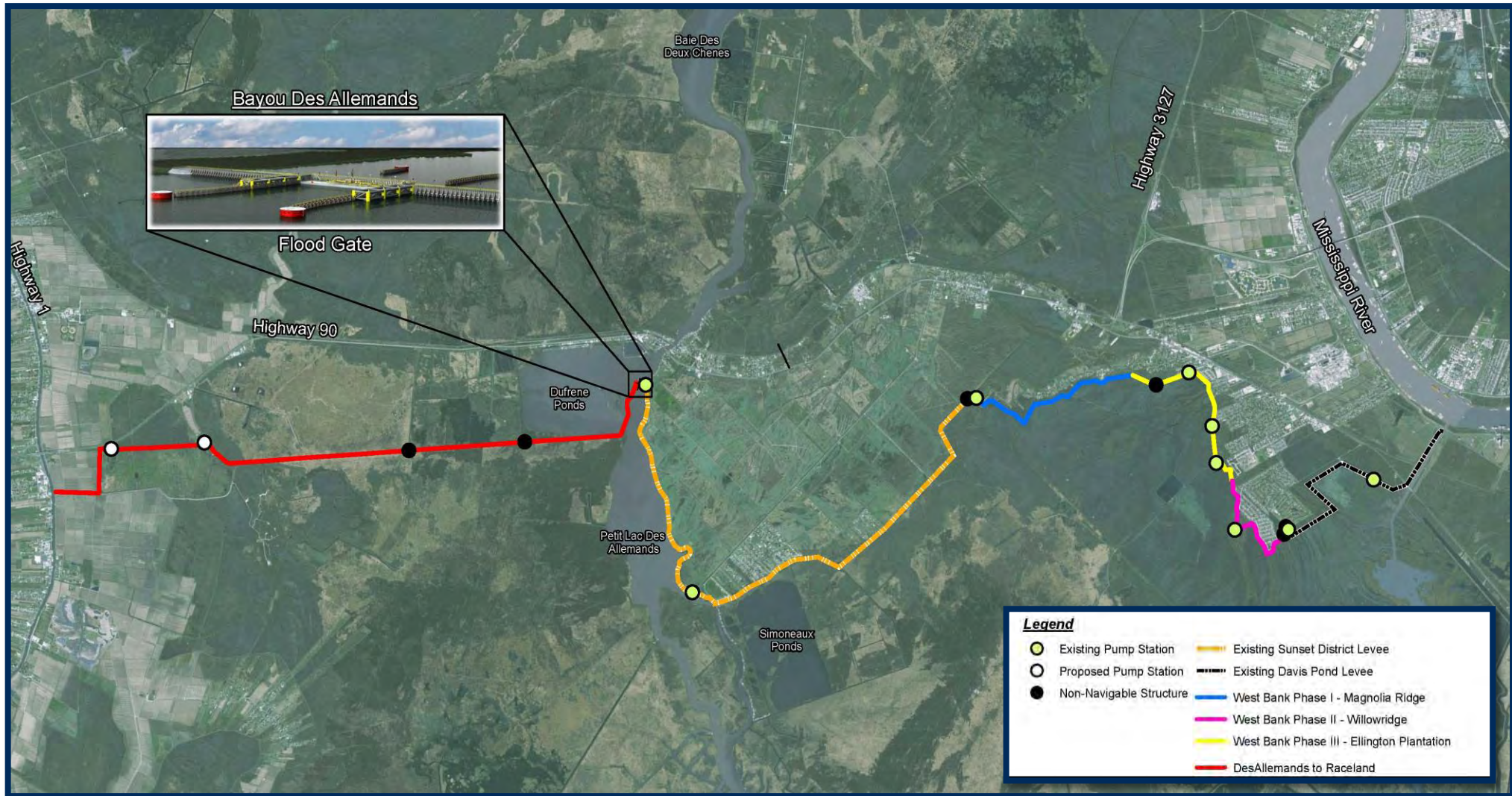


Lafourche Basin Levee District Board of Commissioners

Geotechnical Study and Investigation Sunset Drainage District Levee Improvements

Hurricane Protection Projects Committee Meeting
September 15, 2014





☐ Sunset Levee Geotechnical Services

- July 16, 2013, St. Charles Parish requested that Lafourche Basin Levee District conduct a soil boring investigation and geotechnical engineering study of the levees in the Sunset Drainage District.
- Original SOW to provide geotechnical investigation and study on 10.4 miles of the Sunset Drainage District Levees to raise the existing levees to an elevation of +10.0 ft. and then +12.5 ft. NAVD88.
 - Evaluate stability, settlement and seepage of levees and T-walls
 - Scope and Engineering in accordance with USACE HSDRRS guidelines

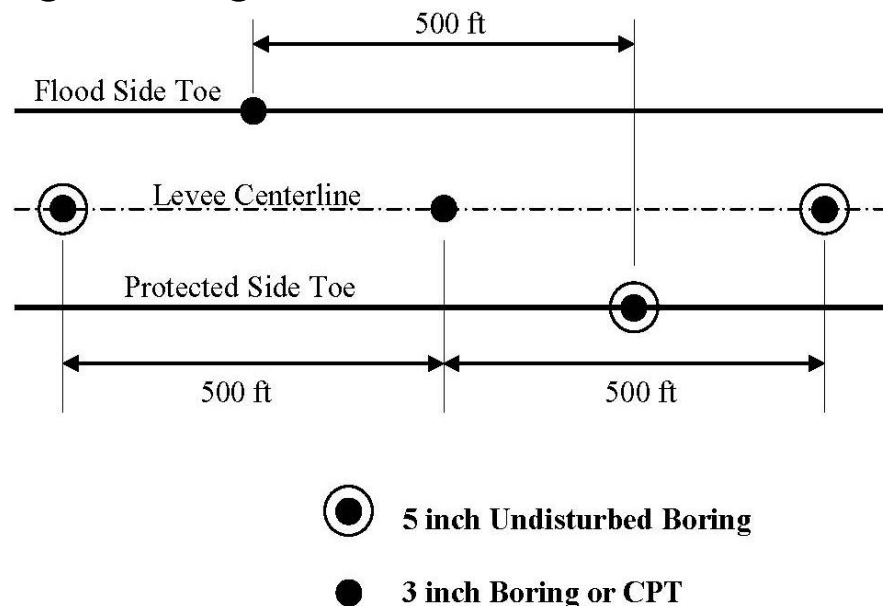


Figure 3.1 Boring Spacing

❑ Revision to SOW for Geotechnical Services

- Revise SOW to primarily reallocate Protected Side and Centerline Borings/CPTs and add Water Borings in Bayou Des Allemands and Paradis Canal
 - Approved by LBLD Board of Commissioners on August 6, 2014
- Original Scope (Boring Spacing Plan, Figure 3.1 HSDRRS):

Boring Type	Proposed Centerline of Levee/T-Wall	Flood Side (existing centerline)	Protected Side	TOTAL
5-inch Diameter Undisturbed	55	27	28	110
CPT Soundings	55	28	27	110

Revised Scope (Revised Boring Spacing Plan):

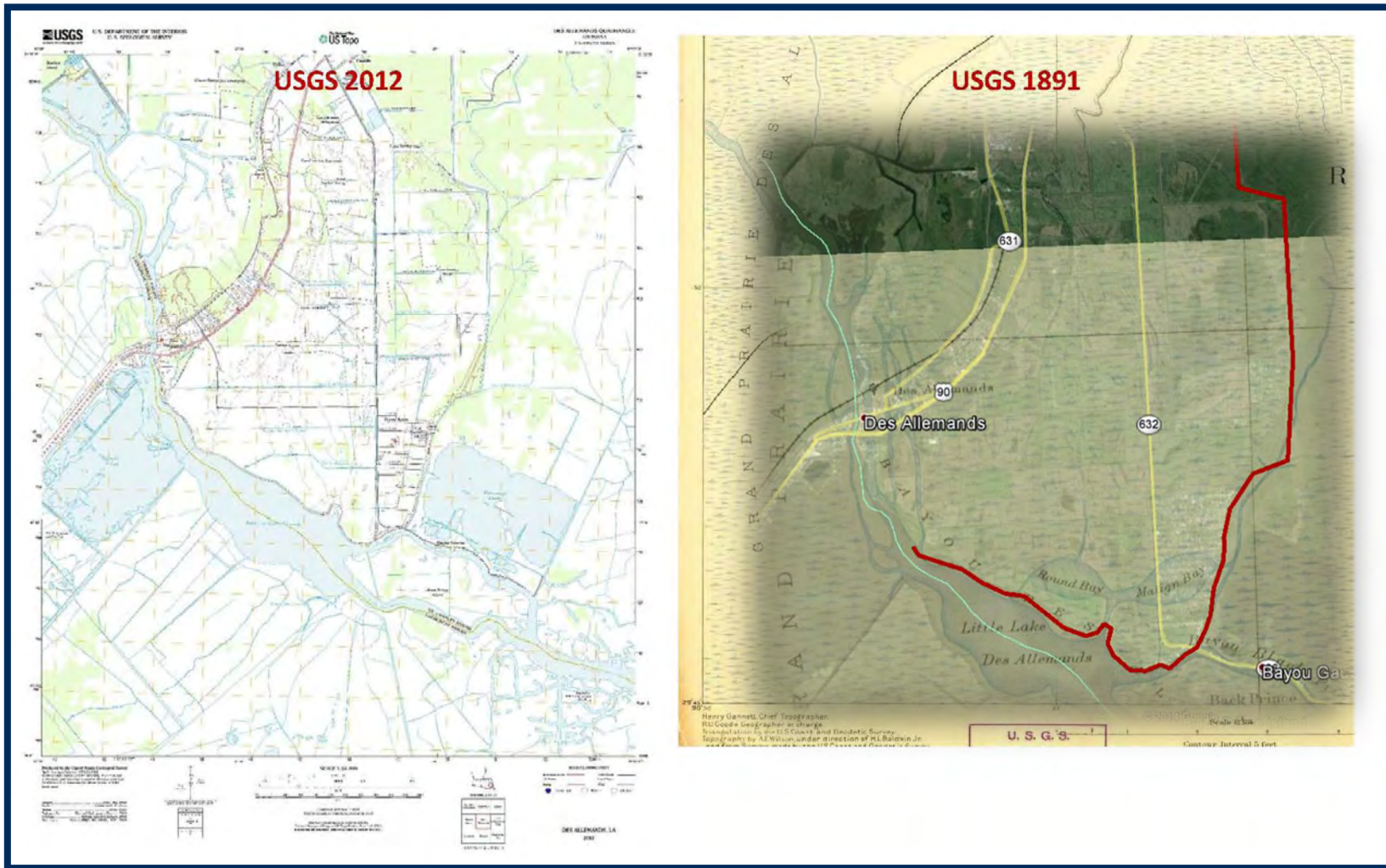
Boring Type	Proposed Centerline of Levee/T-Wall	Flood Side (existing centerline)	Water Borings	Protected Side (previously drilled)	TOTAL
5-inch Diameter Undisturbed	26	25	22	1	74
CPT Soundings	75	26	0	14	115

❑ Status of Geotechnical Work

- Status of Borings/CPT
 - Twelve(12) 5" Borings Completed
 - Sixty-Two (62) 5" Borings Remaining
 - Forty-Seven (47) CPT Borings Completed
 - Sixty-Eight (68) CPT Borings Remaining
 - 59 Borings/CPT and Corresponding Lab Work Completed
 - 31% Complete
- Engineering Ongoing
- ROE notification letters to landowners where soil borings will be taken outside of existing levee right-of-way
 - Letters Sent August 22nd
 - ROE on September 10th



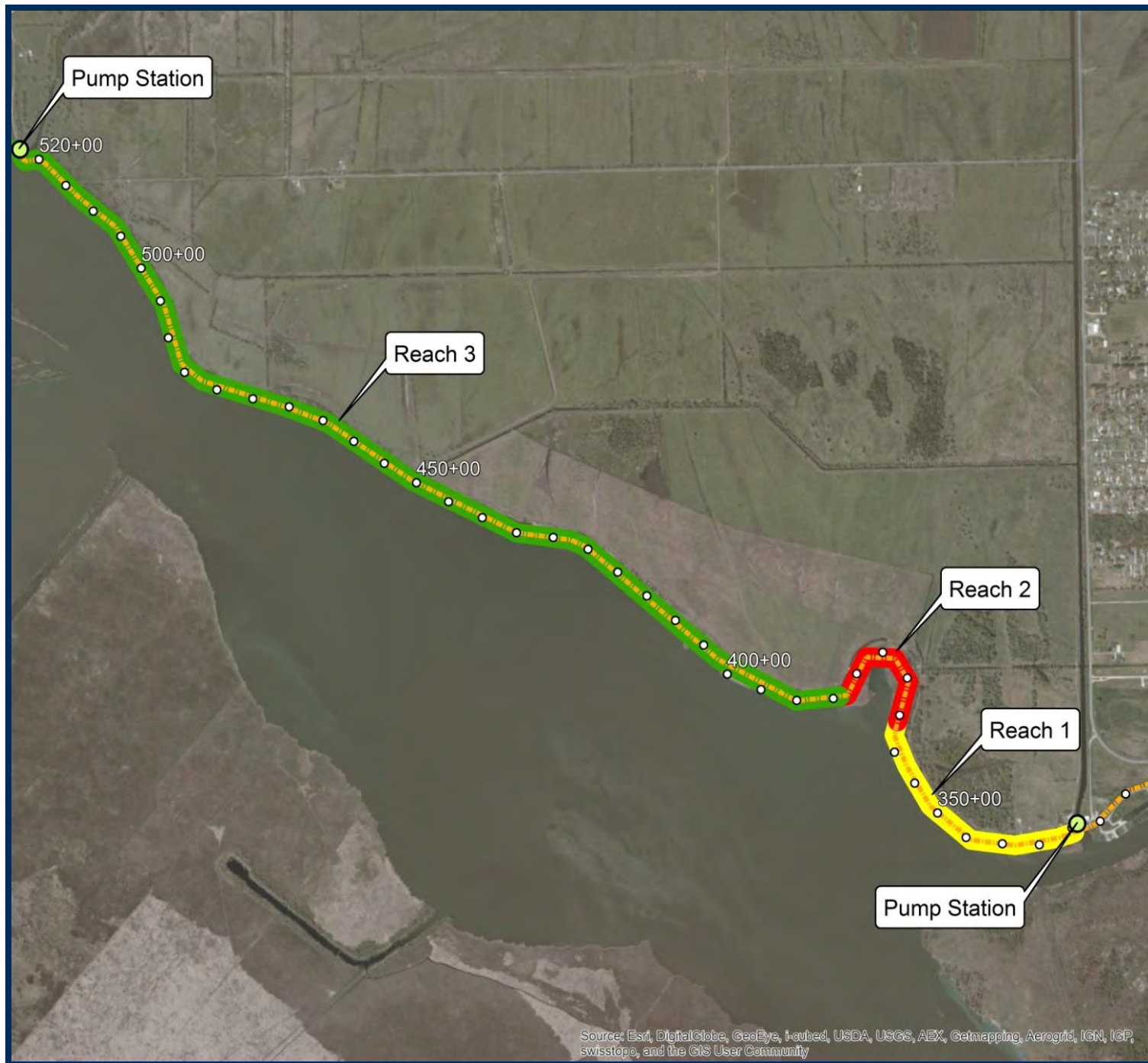
❑ Historical and Current USGS Maps



- Very Soft Underlying Soils
 - Swamp Filled in over last 100 years

□ Preliminary Work

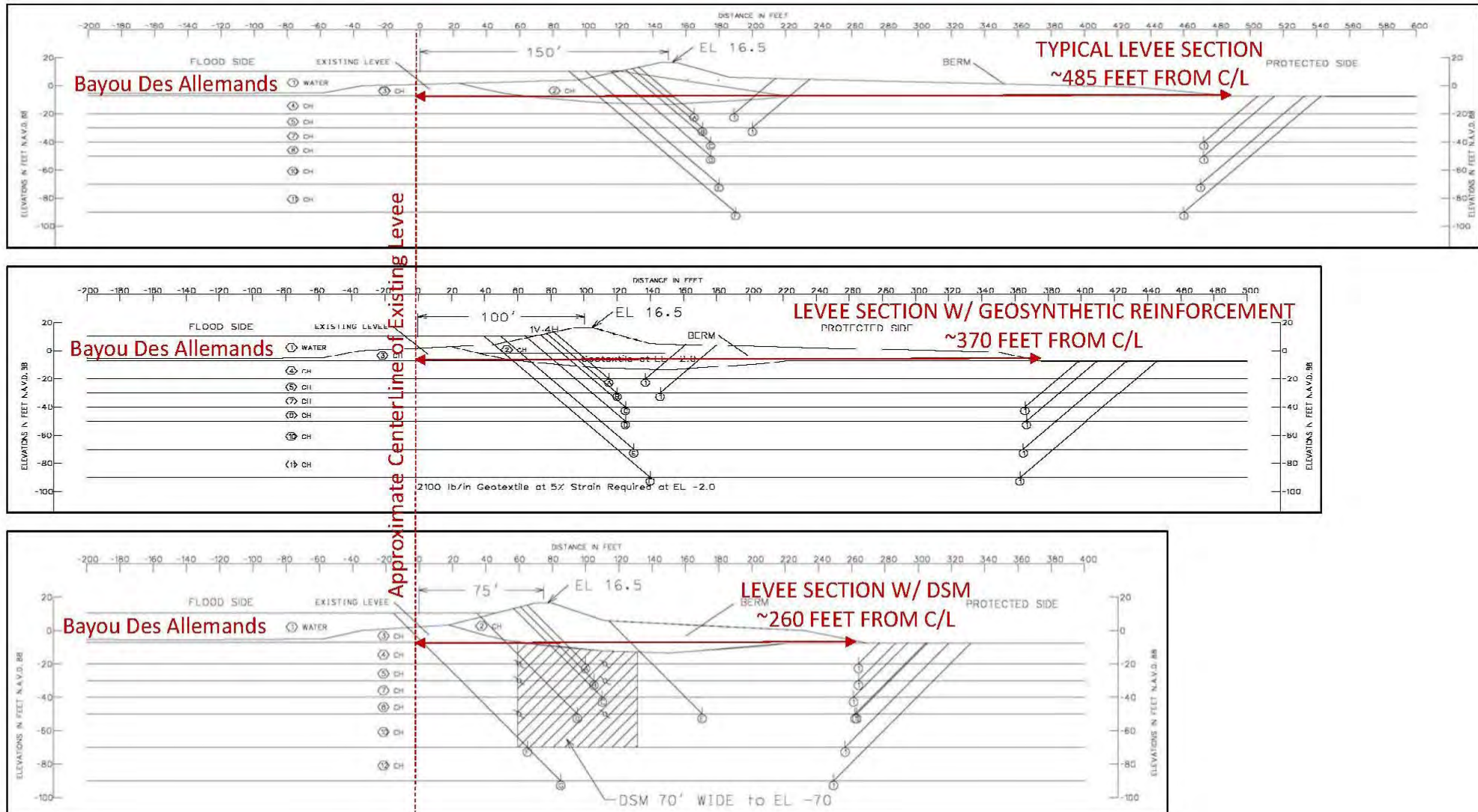




□ Preliminary Results

- Developed Typical Sections Using Three (3) Different Methods (for Reach 3):
 - Typical Earthen Levee Only
 - Levee and Berm 485 feet wide (from C/L)
 - Earthen Levee and Geosynthetic Reinforcement
 - Levee and Berm 370 feet wide (from C/L)
 - Earthen Levee with Deep Soil Mixing
 - Levee and Berm 260 feet wide (from C/L)

REACH 3 COMPARISON OF PRELIMINARY LEVEE SECTIONS



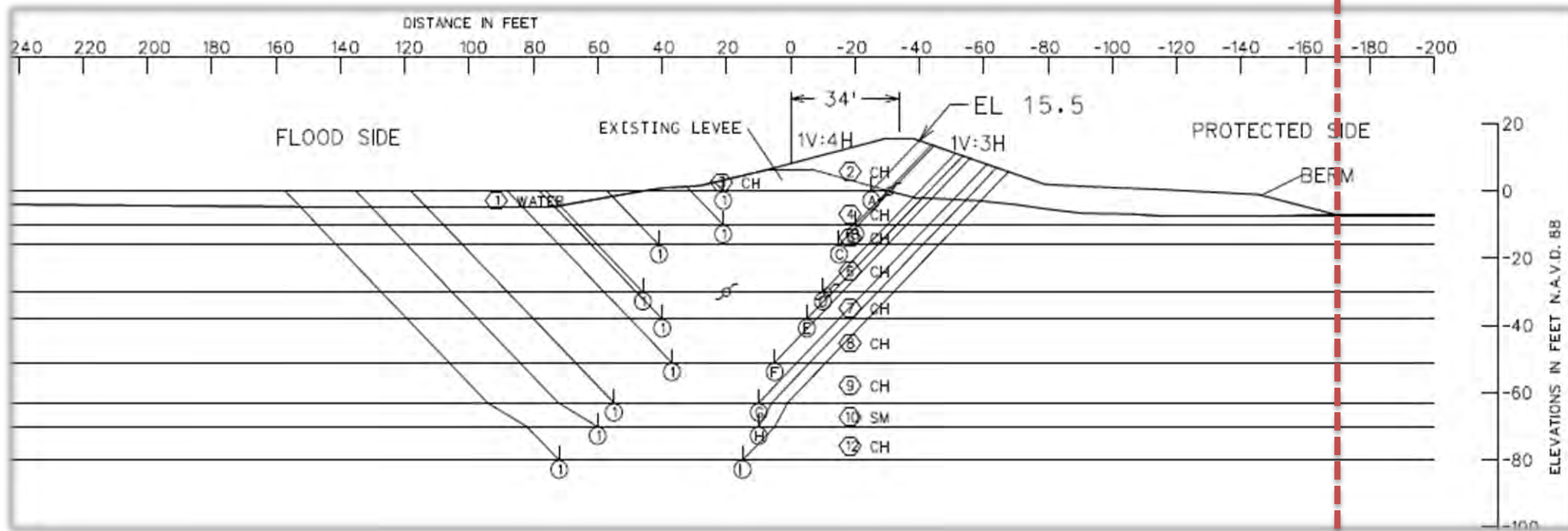
□ Preliminary Results

- 3 Reaches along Petit Lac Des Allemands
 - USACE recommends overbuild with 10 year settlement period
 - With Use of Geosynthetic Reinforcement:
 - Reach 1
 - 34-ft. Offset of CL
 - 3.0-ft. Overbuild
 - Reach 2
 - 34-ft. Offset of CL
 - 3.5-ft. Overbuild
 - Reach 3
 - 100-ft. Offset of CL
 - 4.0-ft. Overbuild



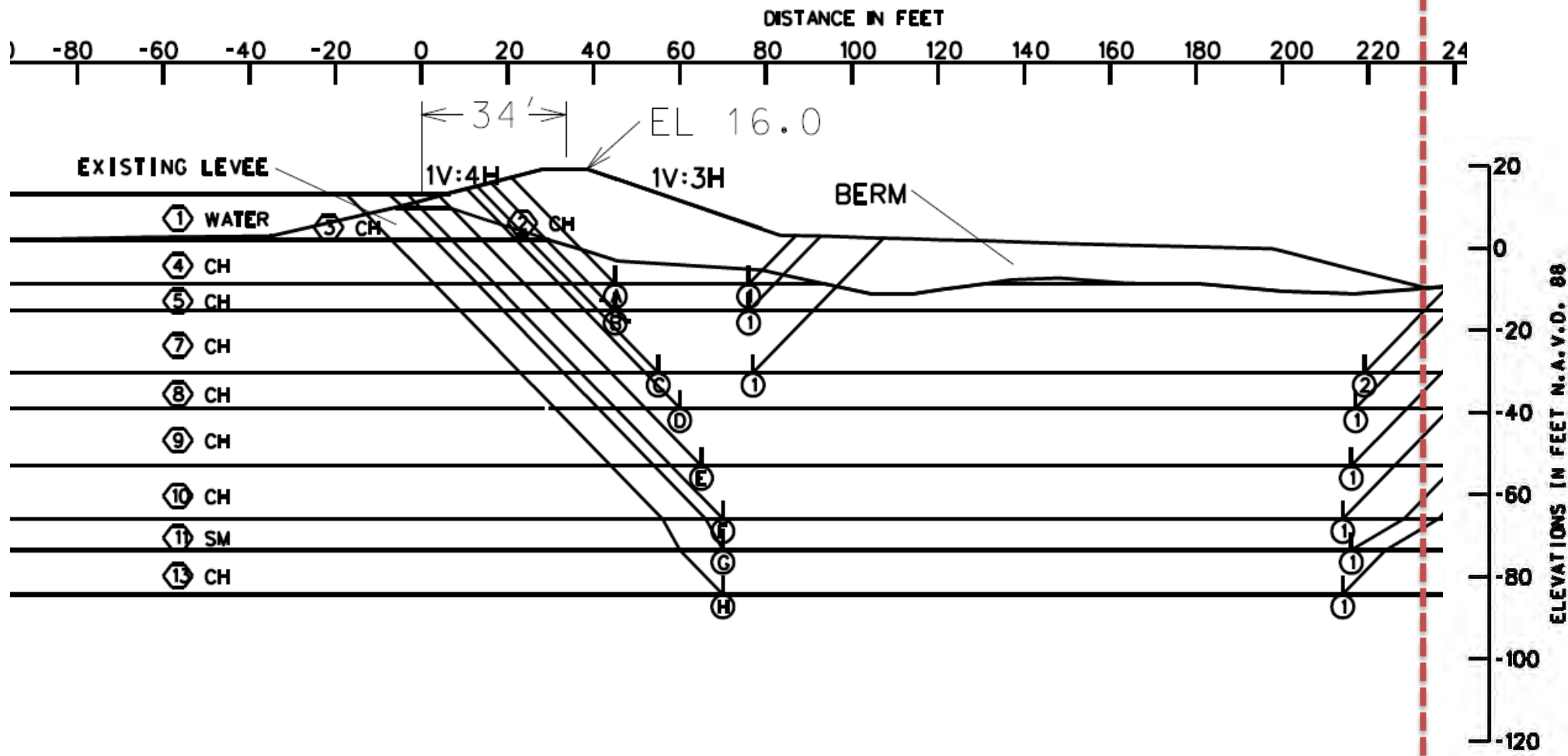
□ Preliminary Reach 1

~170 ft.



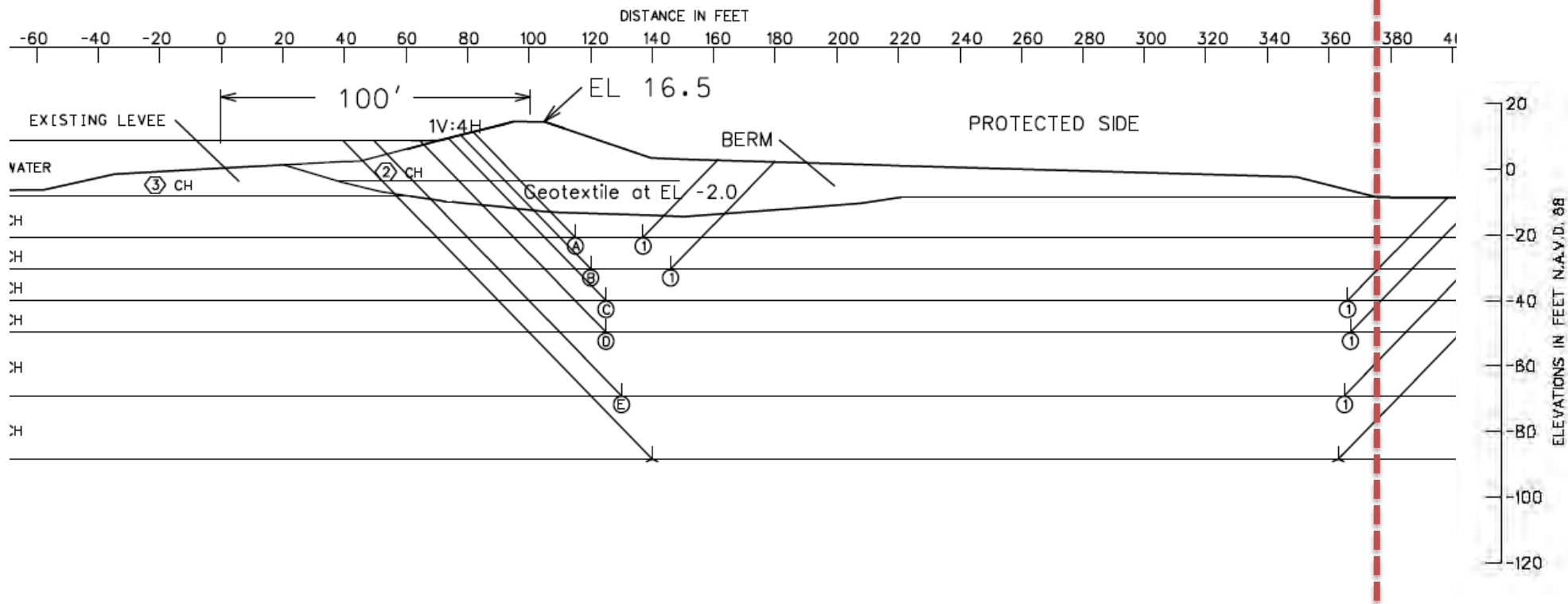
□ Preliminary Reach 2

~230 ft.



□ Preliminary Reach 3

~370 ft.



❑ Path Forward

- Geotechnical Reaches
 - Continue Field Work and Engineering on Reaches 1, 2 and 3 along Petit Lac Des Allemands
 - Complete Preliminary Work along Paradis Canal and define these reaches
- Schedule
 - CPTs to be Completed on October 31, 2014
 - 5" Borings to be Completed on January 31, 2015
 - Lab Testing to be Completed on February 27, 2015
 - Draft Report to be Completed on April 3, 2015

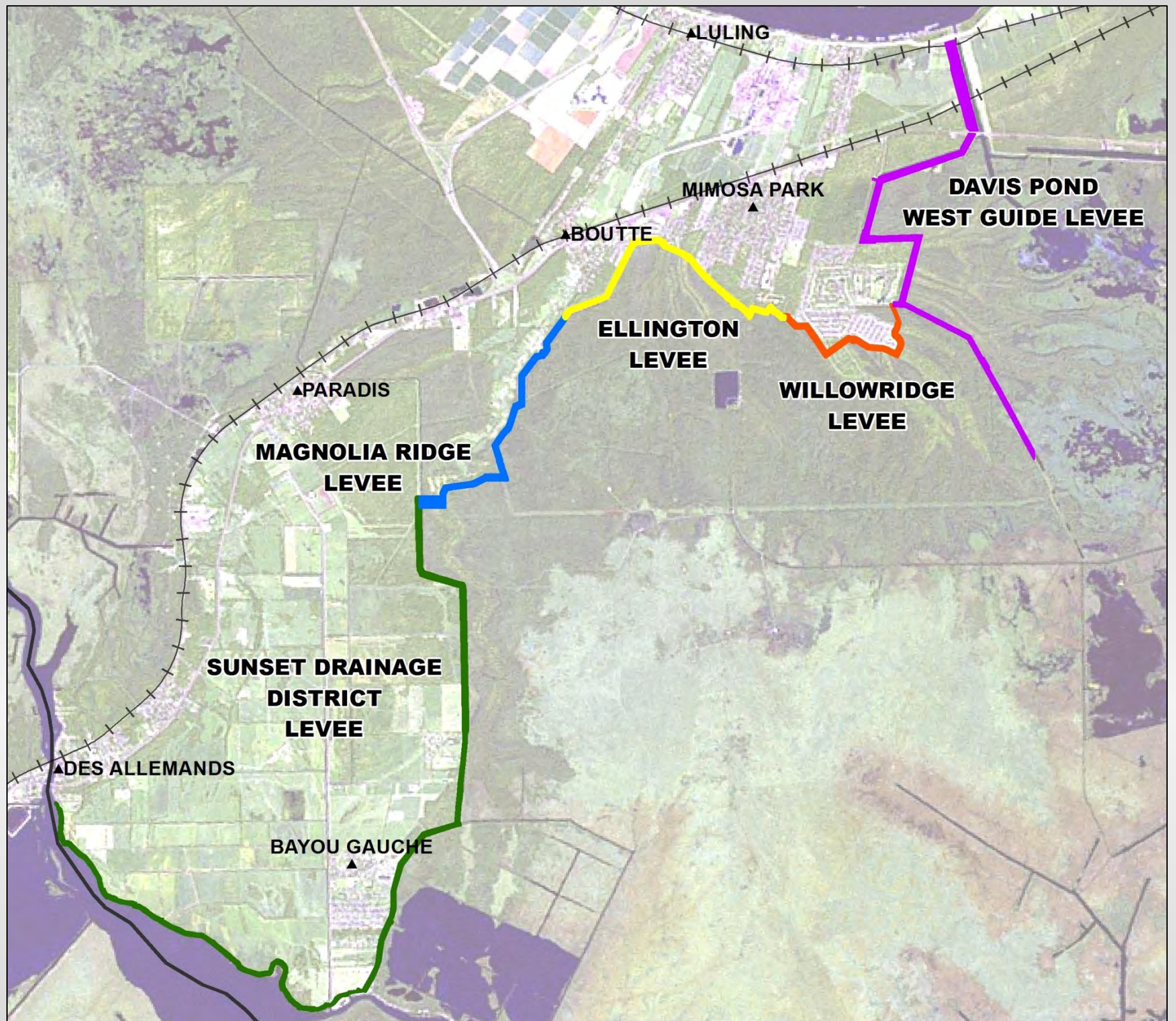
THANK YOU
QUESTIONS?



PROJECT FEATURES

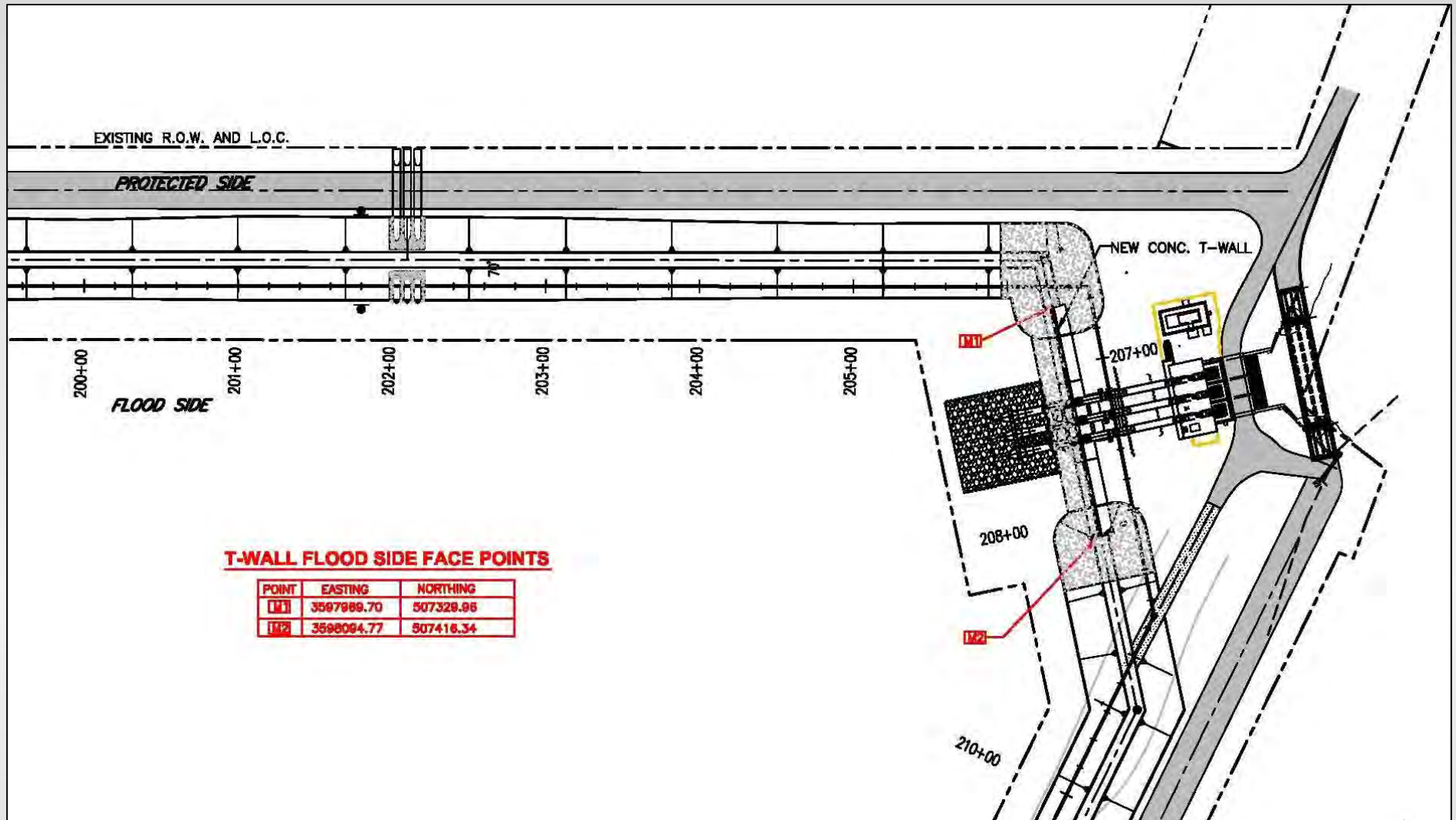
DISCUSSION SLIDES





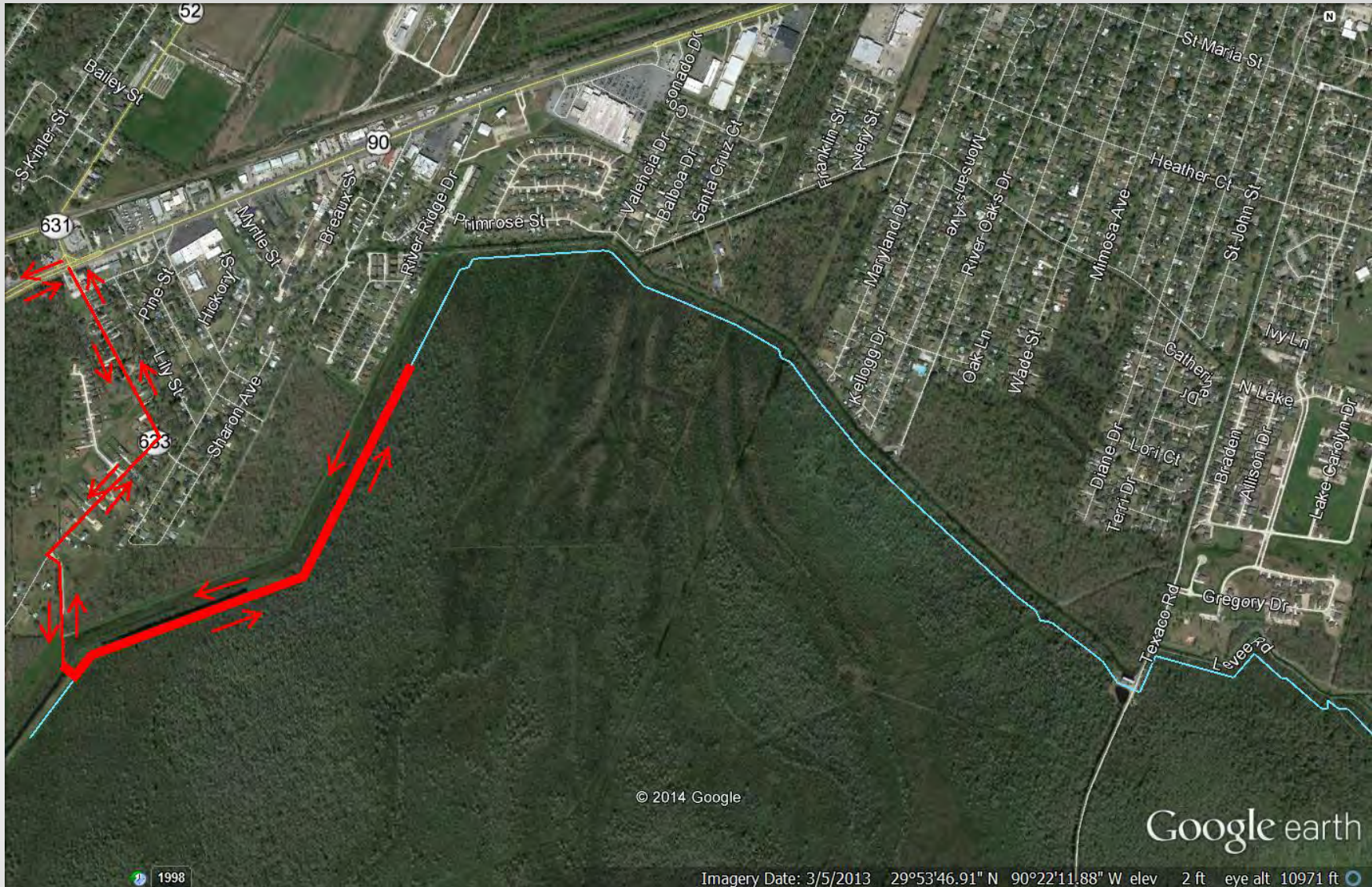


Willowdale PS Frontal Protection



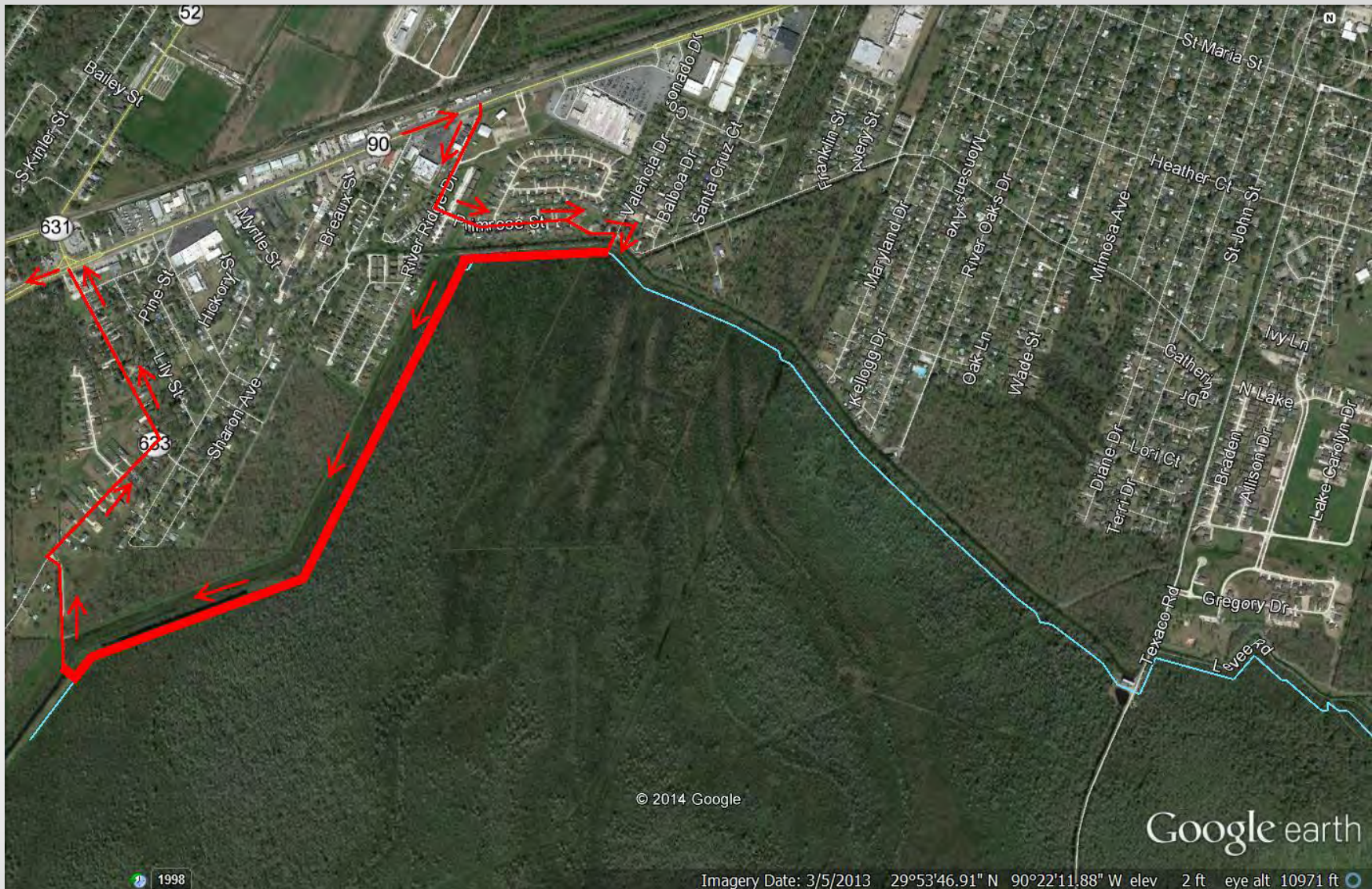


Ellington Construction Phasing



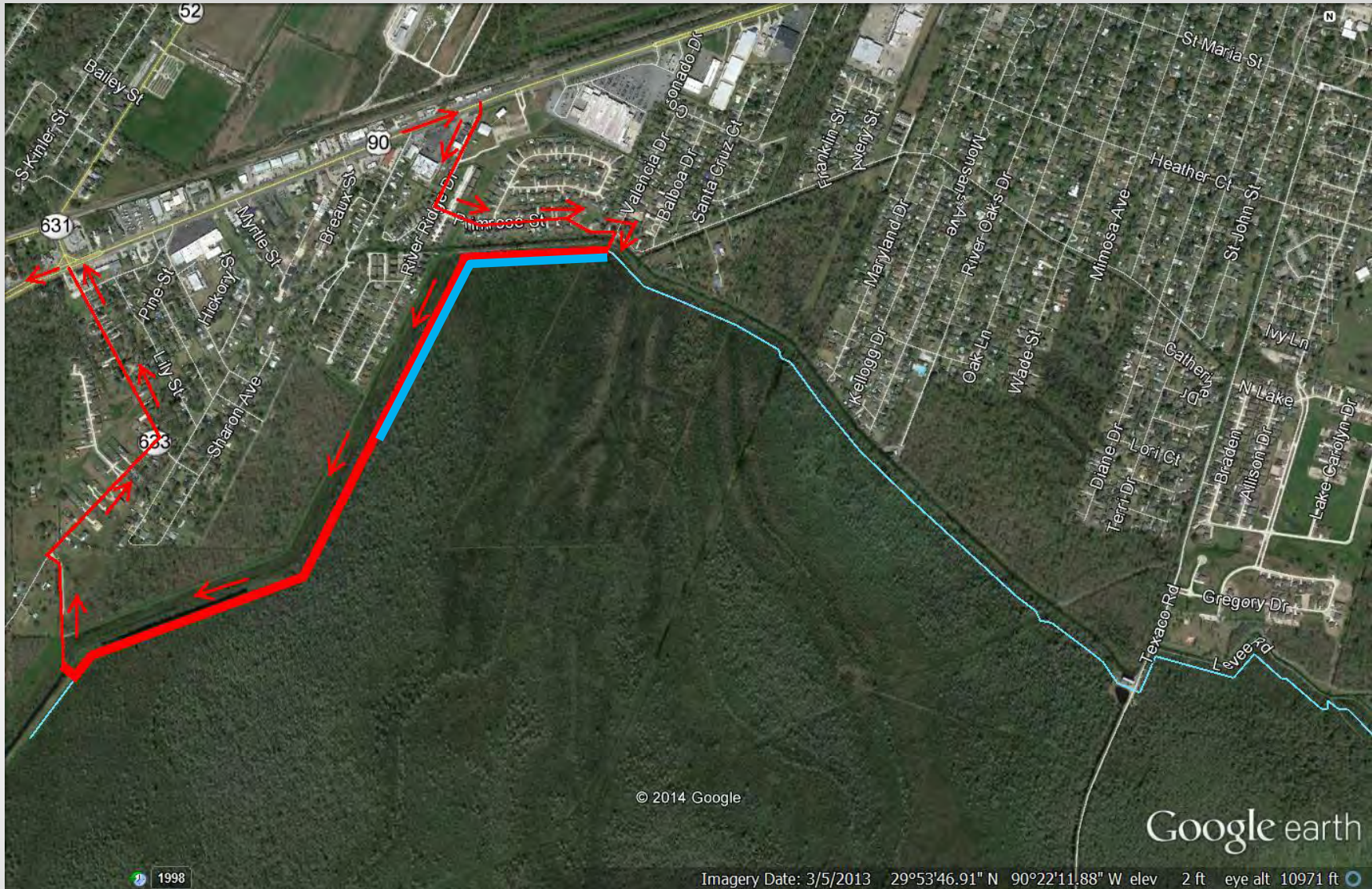


Ellington Construction Phasing



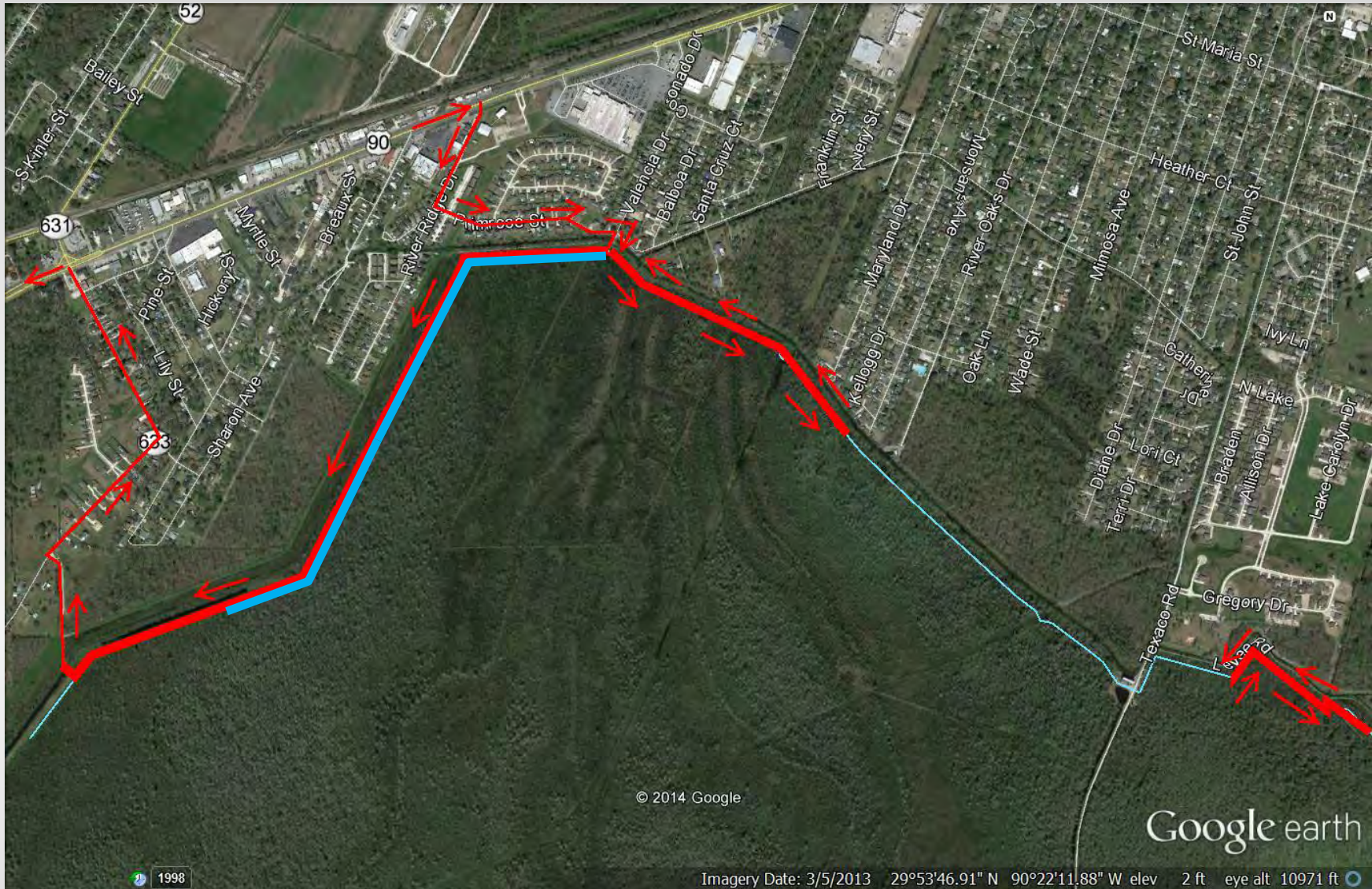


Ellington Construction Phasing



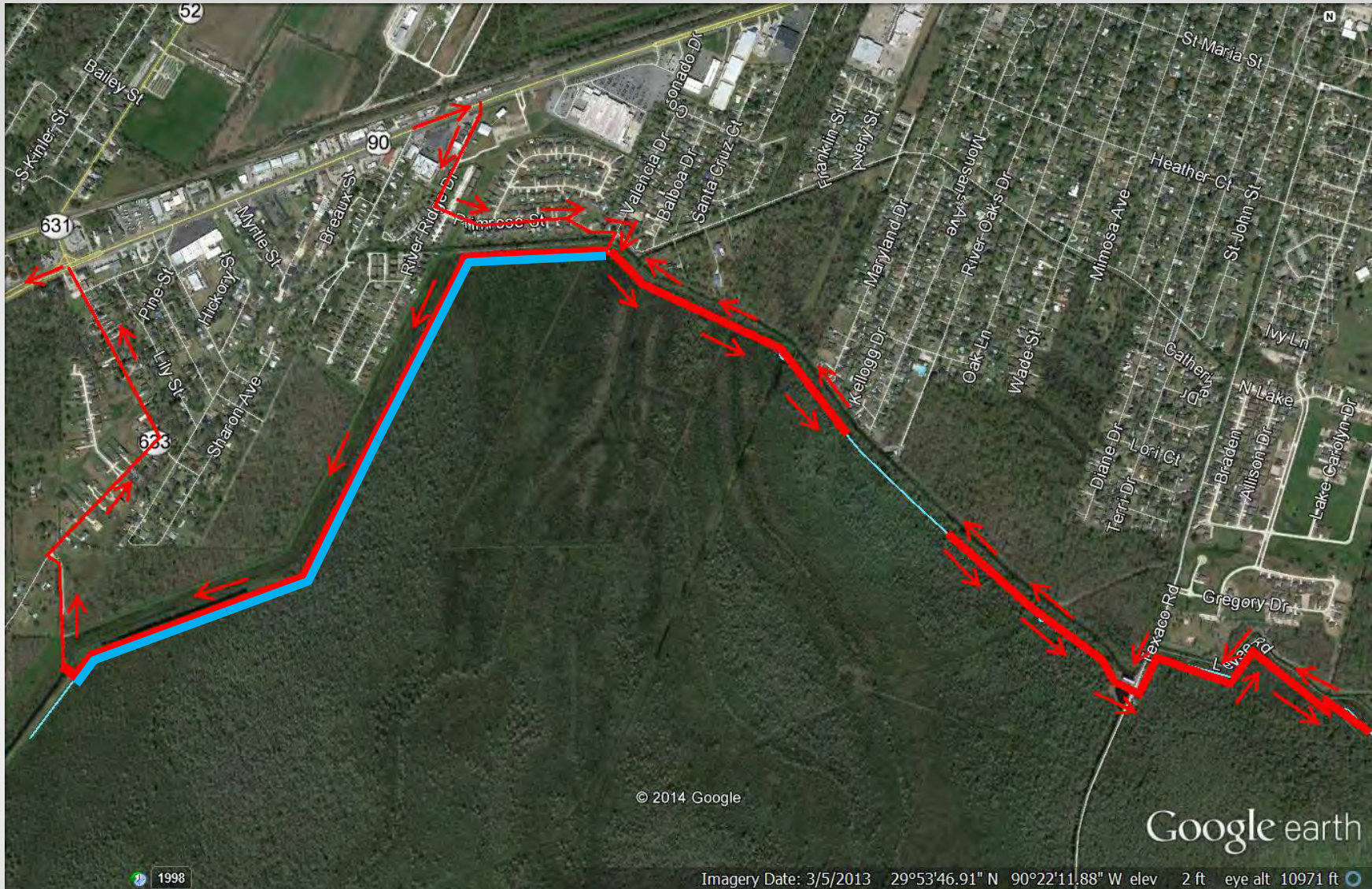


Ellington Construction Phasing



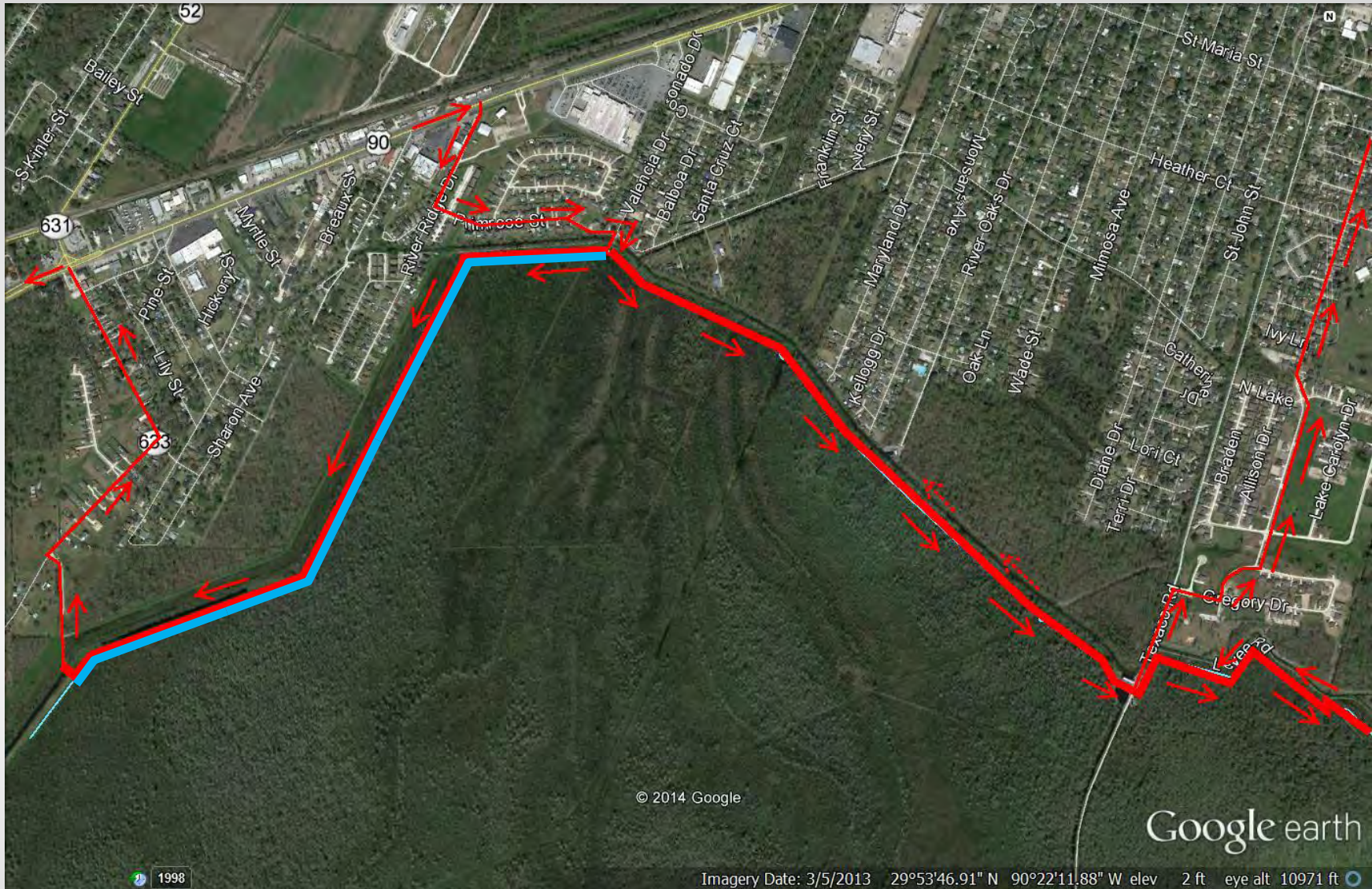


Ellington Construction Phasing



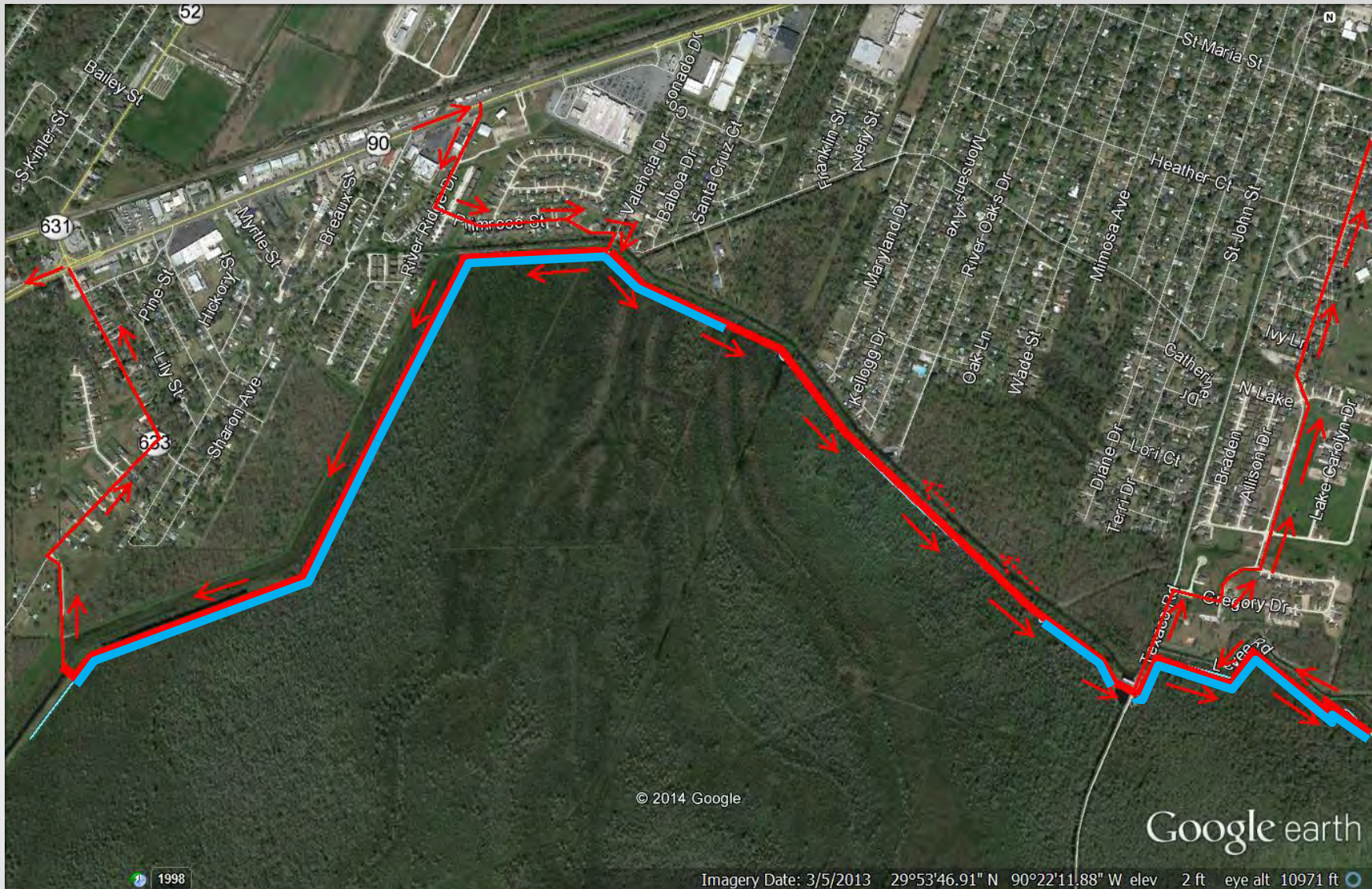


Ellington Construction Phasing



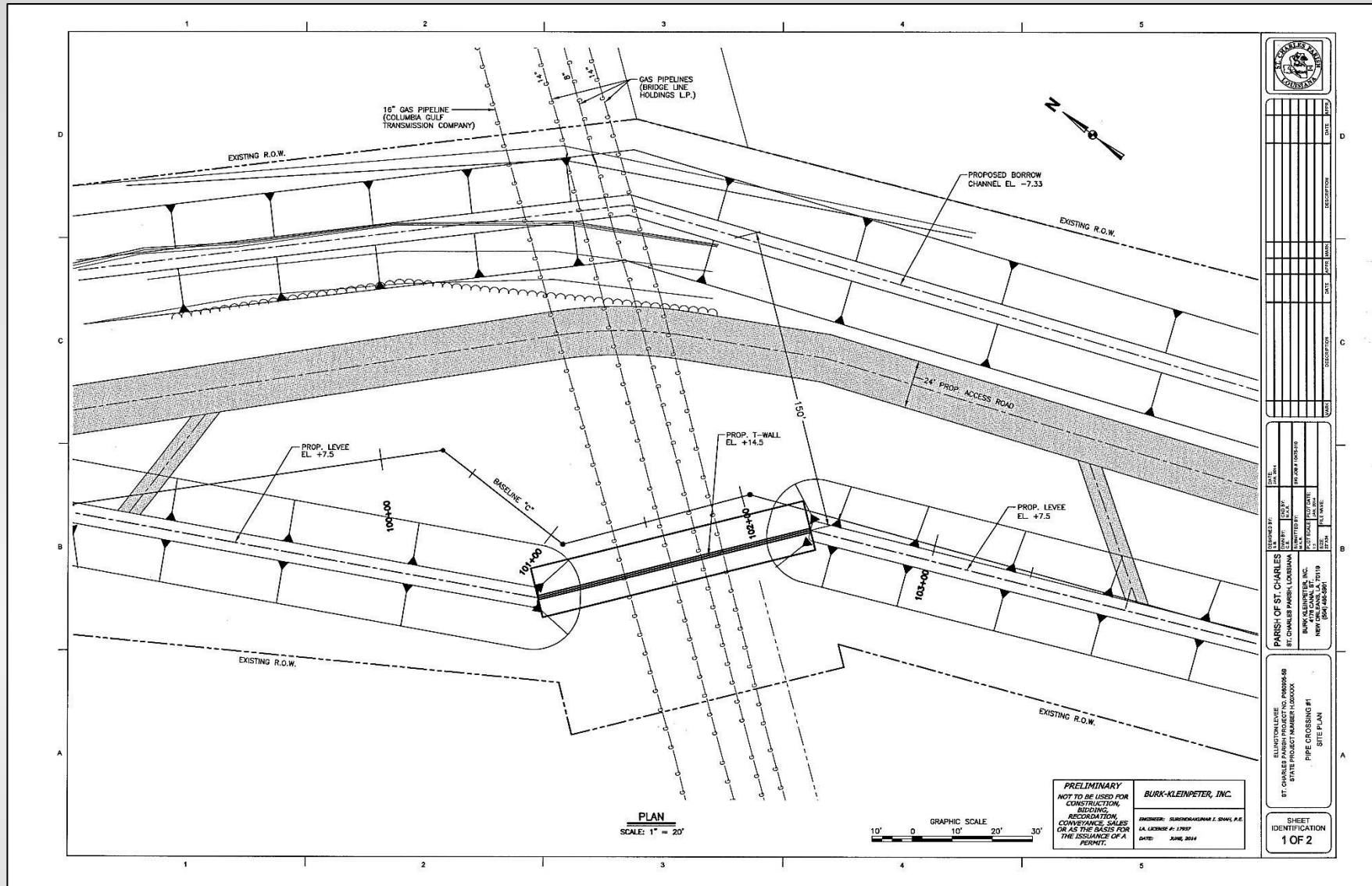


Ellington Construction Phasing





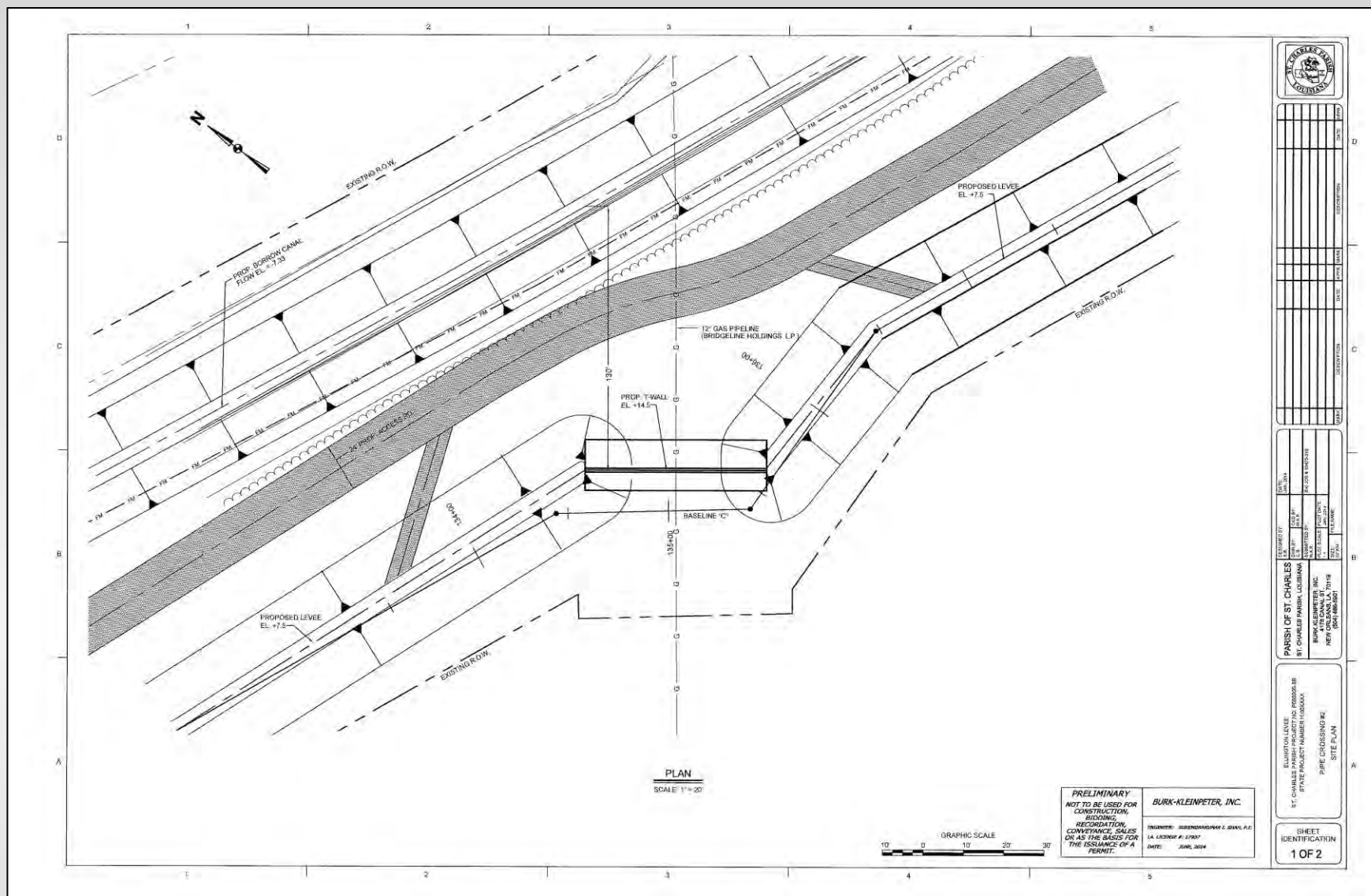
West Pipeline Crossing - Ellington







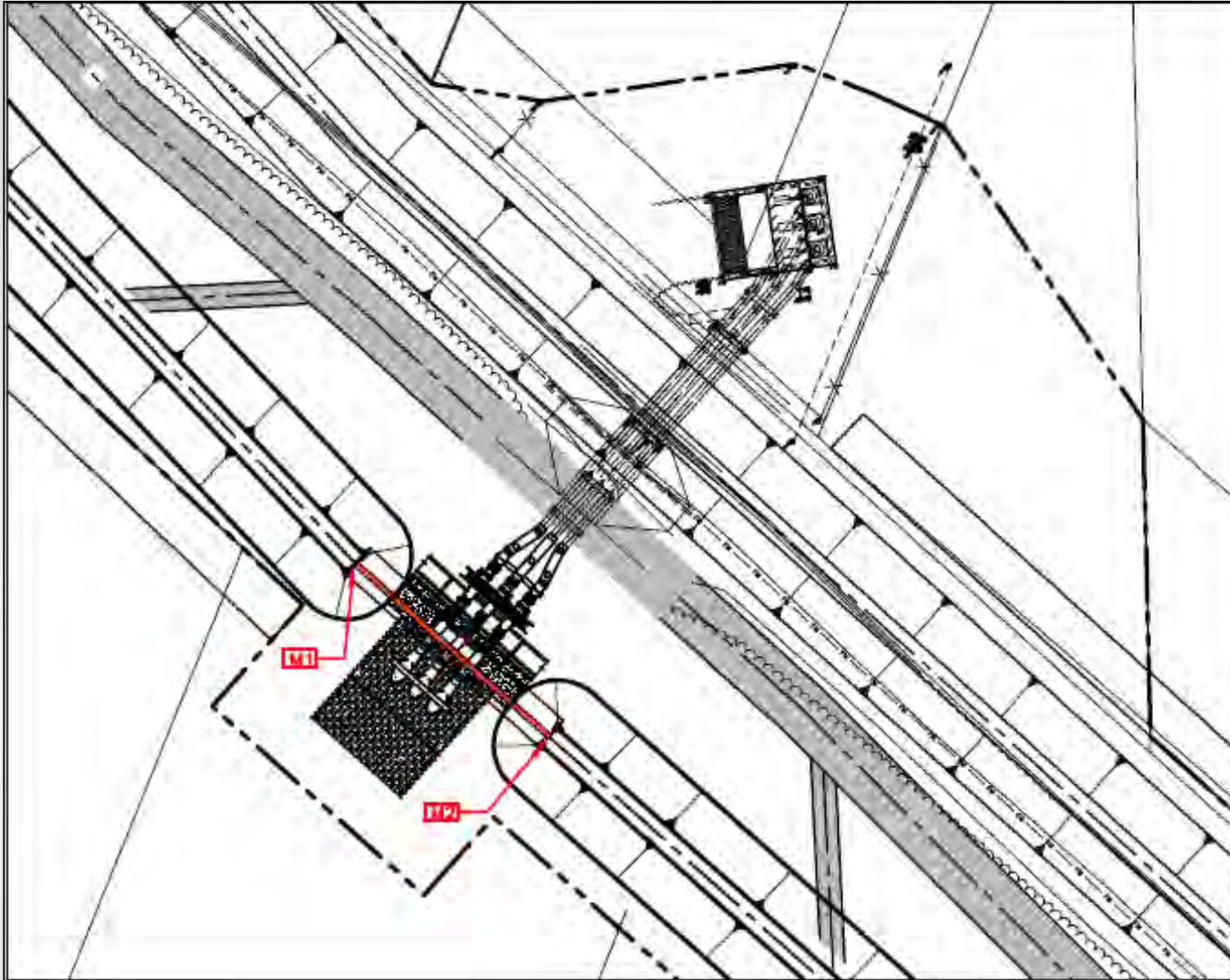
East Pipeline Crossing - Ellington







Kellogg PS Frontal Protection





Cousins PS Frontal Protection

