

EXECUTIVE SUMMARY

EXECUTIVE SUMMARY

E.1 INTRODUCTION

E1.1. Background

In August 2012, a sinkhole was discovered south of Louisiana Highway 70 (LA 70) on the western edge of the Napoleonville Salt Dome. According to the latest available data (April 2014 Survey) the sinkhole and surrounding subsidence area is approximately 55.2 acres. The northern containment berm is located approximately 700 feet south of LA 70. Due to concerns for the safety of the roadway, the Louisiana Department of Transportation and Development (DOTD) installed monitoring equipment along LA 70. To date, monitoring data has not indicated a threat to the integrity of LA 70. However, in order to be proactive, the DOTD has developed two projects (the LA 70 Detour Route and the LA 70 Bypass) in the event conditions change. The LA 70 Detour Route Environmental Assessment (EA) evaluated the construction of an emergency detour route, and the EA was completed in January 2015. This EA evaluates the LA 70 Bypass.

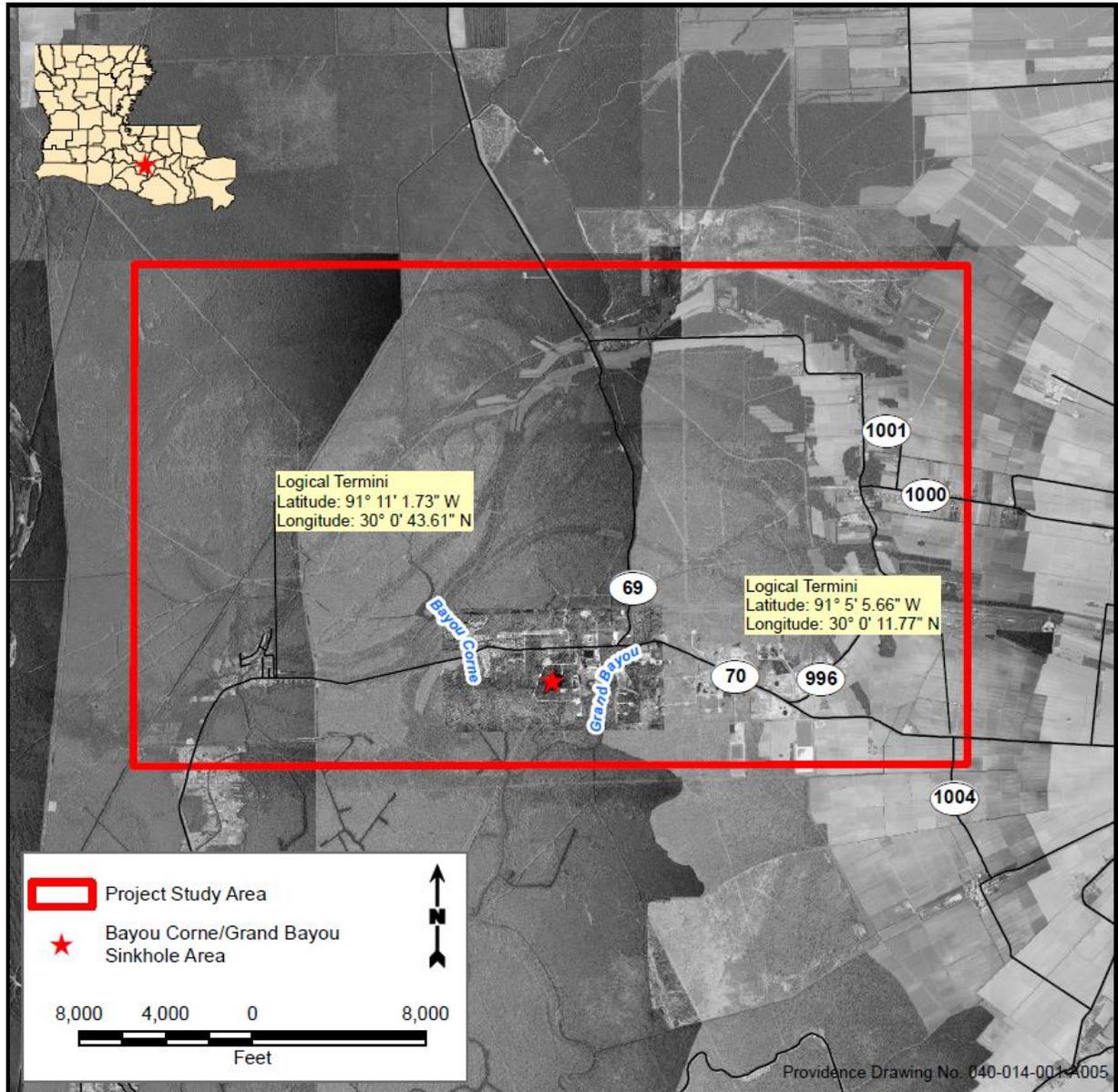
The DOTD has proposed a permanent bypass of LA 70 in the vicinity of Louisiana Highway 69 (LA 69) in Assumption Parish. The LA 70 Bypass is proposed to provide system linkage and to protect the welfare of area residents in the event that LA 70 or the LA 70 Detour Route is threatened as a result of the Napoleonville Salt Dome mining activities. It is assumed in this document that if the bypass is deemed necessary, the LA 70 Detour Route is already in place.

The LA 70 Bypass Stage 0 Feasibility Study and Environmental Inventory (Bypass Feasibility Study) was initiated in March 2013 and completed in November 2013. The bypass project was authorized to move forward into Stage 1 Planning and Environmental, with the class of action defined as an EA.

E1.2. Project Description

LA 70 is a state emergency evacuation route that has been closed three times since 2003 due to public welfare concerns associated with industrial activities along LA 70 in the vicinity of LA 69. A temporary detour route will be constructed in the event that LA 70 is threatened by the Bayou Corne/Grand Bayou Sinkhole to allow traffic to continue to flow in the area. The bypass is a more permanent solution that will either make the detour route a permanent solution or implement a new route in the event the temporary detour route is threatened by the sinkhole or other salt dome related activity. The LA 70 Bypass is proposed to consist of two, 12-foot travel lanes, minimum eight-foot shoulders, and a majority of the structure will be elevated. **Figure ES-1** demonstrates the approved logical termini and location of the project study area.

**FIGURE ES-1
STUDY AREA MAP**



Base map provided by CB&I on 4/15/14.

E.2 PURPOSE AND NEED

The purpose of the proposed bypass build alternatives is to:

- Provide system linkage in the event of a closure along LA 70 associated with mining activities at the Napoleonville Salt Dome
- Protect human welfare by providing a safe, efficient route that allows travelers and first responders to continue east/west movement through the project area.

E.3 ALTERNATIVES DEVELOPMENT AND SCREENING

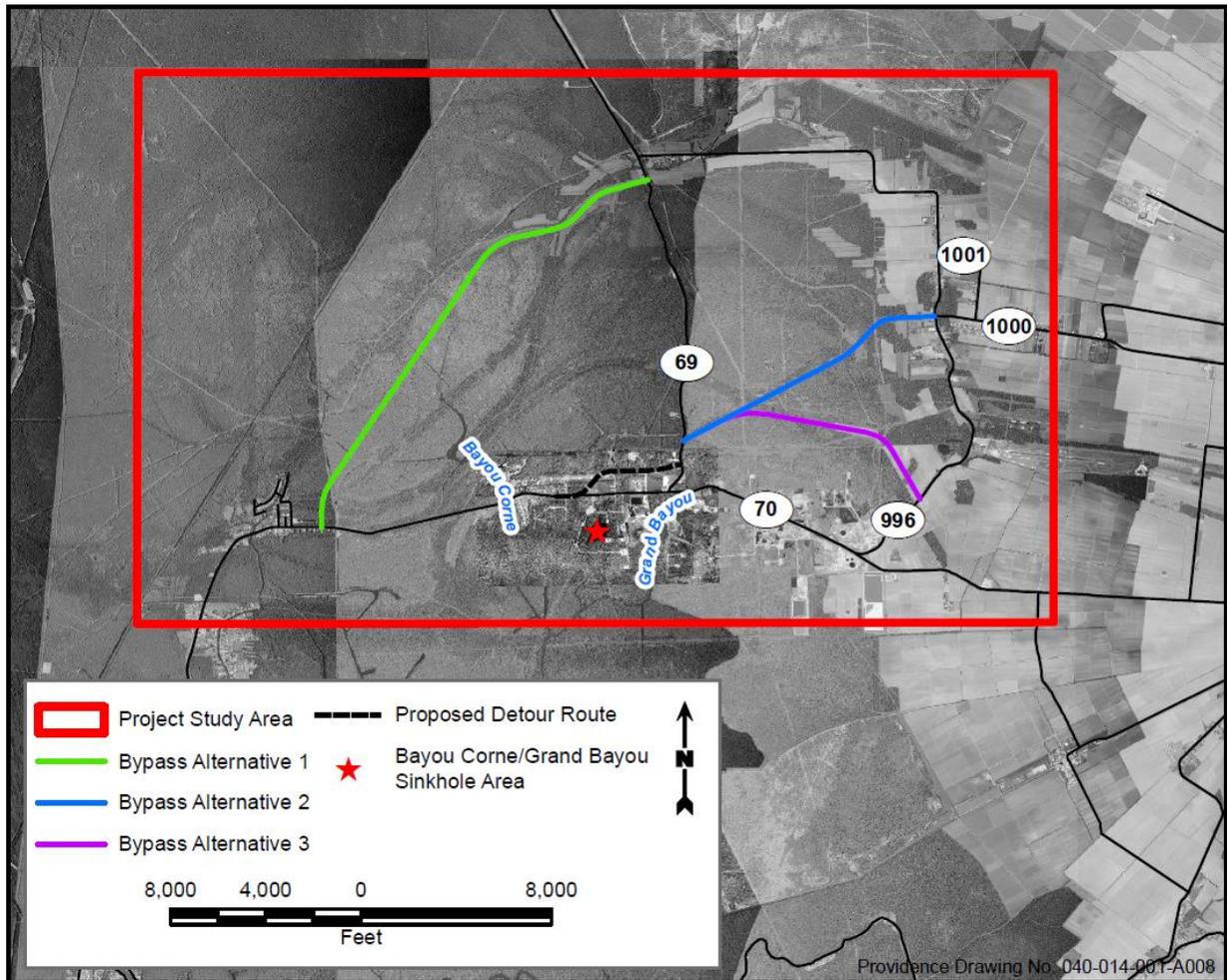
E3.1. Alternatives Considered

The Bypass Feasibility Study considered six build alternatives on three alignments (three primarily elevated facilities and three primarily at-grade facilities). None of the three at-grade options were considered feasible due to excessive impacts to wetlands. Therefore, three primarily elevated build alternatives were carried forward for consideration during the EA process. These alternatives were renamed during the planning/environmental process, but the numbering remained consistent (see **Figure ES-2**). The build alternatives include the following:

- Bypass Alternative 1
Originates at LA 70 near Rue De Kajun and ends at LA 69 south of its intersection with Louisiana Highway 996 (LA 996), and is approximately 4 miles in length
- Bypass Alternative 2
Originates on LA 69 north of LA 70 and ends at the intersection of LA 996 and Louisiana Highway 1000 (LA 1000), and is approximately 2 miles in length
- Bypass Alternative 3
Originates on LA 69 north of LA 70 and ends on LA 996 between LA 1000 and LA 70, and is approximately 2 miles in length

The Bypass Feasibility Study also noted conflicts with pipelines, and the need for additional bridges associated with Bypass Alternative 1 made it more expensive and less feasible than the other two proposed alignments. However, it was carried forward because it was the only one of the three preliminary build alternatives that connected to LA 70 west of LA 69.

**FIGURE ES-2
PRELIMINARY ALTERNATIVES**



Stage 0 alternatives obtained from CB&I on 1/21/14. Base map provided by CB&I on 4/15/14.

E3.2. Alternatives Eliminated

Public and agency comments received during the Bypass Feasibility Study outreach events resulted in the modification of Bypass Alternative 3 to connect the route to LA 70 to the east and west of LA 69. This included two extensions to the preliminary route studied in the Bypass Feasibility Study. The first extension occurs on the west side to connect the alternative to LA 70 near Bayou Corne, and the second will extend the route on the east side past LA 996 to reconnect back to LA 70 near Dow Road. With the modification of Bypass Alternative 3, Bypass Alternative 1 could be eliminated, thereby preventing additional wetland impacts and increased construction costs.

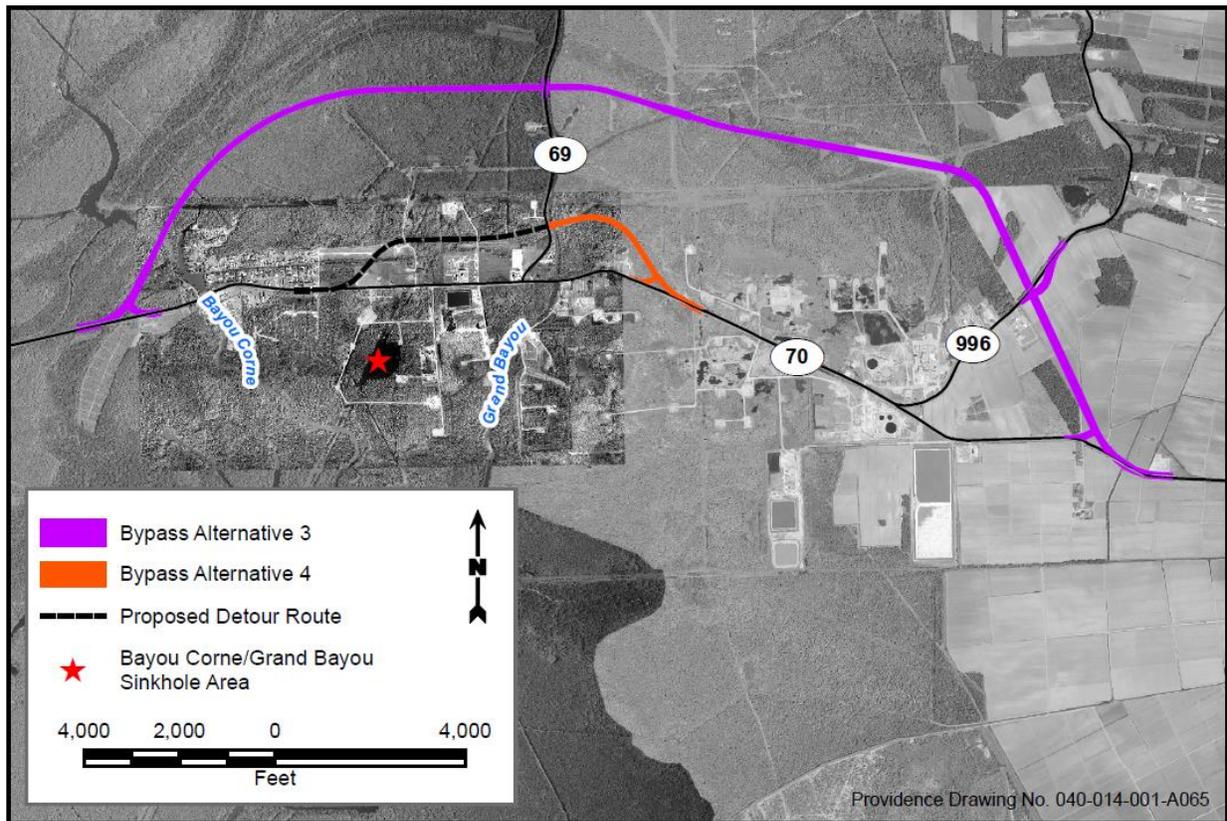
This EA assumes the detour route is constructed, and if constructed the detour route could be extended to provide a continuous route with dual connections to LA 70,

meeting the purpose and need. Therefore, Bypass Alternative 2 was determined to not be reasonable and eliminated from further study. The detour route with the extension to LA 70 is now referred to as Bypass Alternative 4.

E3.3. Preferred Alternatives

Bypass Alternatives 3 and 4 are studied in detail in this EA (see **Figure ES-3**). Due to the uncertainty surrounding the growth of the Bayou Corne/Grand Bayou Sinkhole, this EA recommends both Bypass Alternatives 3 and 4 as “Scenario-based” Preferred Alternatives. In the event that the LA 70 Detour Route is constructed and deemed not threatened at the time the LA 70 Bypass is determined necessary, this EA recommends Bypass Alternative 4. In the event the LA 70 Detour Route is constructed, but determined to be threatened and not a viable long-term facility, this EA recommends Bypass Alternative 3.

**FIGURES ES-3
BUILD ALTERNATIVES**



Base map provided by CB&I on 4/15/14.

E.4 ENVIRONMENTAL CONSEQUENCES

Table ES-1 is a Build Alternatives Comparison Matrix demonstrating the environmental consequences of the two Preferred Alternatives. The impacts are based on the concept that the LA 70 Detour Route was constructed, and impacts of that route were incurred under a separate budget allocation.

**TABLE ES-1
BUILD ALTERNATIVES COMPARISON MATRIX**

Evaluation Criteria	Alternative 3	Alternative 4
Purpose and Need		
Meets Purpose and Need	Yes	Yes
Cultural Resources		
Potential to Impact Historical Resources	No	No
Potential to Impact Archaeological Resources	No	No
Potential Jurisdictional Wetlands ¹		
Total Potential Jurisdictional Wetlands (acres)	50.99	11.43
Palustrine Emergent (acres)	3.64	3.51
Palustrine Forested (acres)	14.27	1.88
Cypress/Tupelo (acres)	33.08	6.04
Potential Other Waters of the U.S. (acres)	1.43	0.17
Threatened/Endangered/Protected Species		
Potential Impact to Threatened and Endangered Species	None	None
Community Impacts		
Residential Structures	1	0
Commercial Property	0	0
Churches	0	0
Recreational Areas	0	0
Other Community Facilities	0	0
Land Use		
Prime Farmland (acres) ²	37.10	0.11
100-yr Floodplain (acres)	65.83	9.30
Environmental Liability Concerns		
Potential Impacts to Hazardous Sites	Low	None
Active Oil and Gas Well Locations	1	0
Observation Relief Wells Affected (ORWs) ³	1	0
Other Environmental Concerns		
Potential Impacts to Noise Receptors	Yes	Yes
Air Quality Impacts	None	None
Potential Visual Quality Impacts	Low	Low

NOTES:

1. Data based on wetlands delineation conducted on 11/17/14 and 11/19/14 by Providence personnel.
2. Based on NRCS-CPA-106 form completed by United States Department of Agriculture (USDA) on 12/18/14.
3. According to the Well Avoidance Study, any ORWs within 160 feet of proposed right-of-way (ROW) will need to be plugged and abandoned.

E.5 COST SUMMARY

A cost comparison of the preliminary build alternatives was prepared during the Bypass Feasibility Study, which is included at the end of this document as **Attachment 1**. The cost for the two Preferred Alternatives was further refined during the EA process. Bypass Alternative 3 cost is estimated to be \$222.6 million. The anticipated cost for Bypass Alternative 4 is estimated to be \$43.0 million. Additional details regarding the opinion of probable cost is provided in **Table ES-2**.

**TABLE ES-2
OPINION OF PROBABLE COST FOR BYPASS ALTERNATIVES 3 AND 4**

Item Description	Bypass Alternative 3	Bypass Alternative 4
Estimated Construction Cost	\$162,997,340.54	\$33,025,985.03
Contingency (20%)	\$32,599,468.11	\$6,605,197.01
Engineering Design (8%)	\$13,039,787.24	\$2,642,078.80
Required ROW ¹	\$274,800.00	\$9,300.00
Utility Relocations ²	\$9,686,458.85	\$481,884.40
Environmental Mitigation ³	\$3,971,530.00	\$207,570.00
TOTAL ⁴	\$222,569,384.73	\$42,972,015.24

NOTES:

1. ROW costs for Bypass Alternative 3 are derived from the Conceptual Stage Relocation Plan appended to the EA document. ROW costs for Bypass Alternative 4 are based on raw land impacts of 9.30 acres valued at \$1,000/acre as derived from the DOTD.
2. Utility relocation costs were based on the assumptions made in the Bypass Stage 0 Feasibility Study (Appendix I: Utility Location Survey and Relocation Cost Estimate, dated November 2013). These costs only include utilities directly impacted by the ROW and do not include relocating roadside utilities from the existing LA 70 to the bypass. All underground utilities crossing the bypass are assumed to be encased from ROW to ROW. Any utility crossing the roadway at less than 20° is assumed to require relocation at a cost of \$200 per linear foot.
3. Wetlands mitigation costs were calculated by using acreage data collected during the wetlands delineation and estimating \$27,000 per acre for palustrine emergent wetlands, \$60,000 per acre for palustrine forested wetlands, and \$80,000 per acre for cypress/tupelo forested wetlands. Noise mitigation costs for Bypass Alternative 3 are approximately \$370,650 and were derived from the Traffic Noise Analysis appended to the EA document.
4. This is a preliminary cost estimate. Costs will be adjusted during the Stage 3 Design once the survey and geotechnical studies are complete.

E.6 PERMITS, MITIGATIONS, AND COMMITMENTS

E6.1. Permits

Permits required to be obtained prior to construction of the bypass include:

- United States Army Corps of Engineers (USACE) Section 404 Permit for impacts to jurisdictional wetlands
- USACE Section 10 Permit for impacts to navigable waters
- Coastal Use Permit (CUP) issued by the Louisiana Department of Natural Resources (LDNR) for activities within the Louisiana Coastal Zone
- Section 401 Water Quality Certification issued by the Louisiana Department of Environmental Quality (LDEQ) in support of the Section 404 permit
- Louisiana Pollutant Discharge Elimination System (LPDES) Storm Water Discharge Permit for Construction Activities (greater than five acres) issued by the LDEQ
- Assumption Parish construction permit for roadway construction, as applicable

E6.2. Mitigation and Comments

All ROW purchased will be in accordance with the Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970 and will be based on fair market value as determined by local, recent real estate transactions as approved by the DOTD.

According to the Well Avoidance Study conducted during the LA 70 Detour Route Stage 0 Feasibility Study (see **Attachment 2**), any ORWs within 160 feet of the proposed ROW should be plugged and abandoned. One ORW is located within 160 feet of the proposed ROW for Bypass Alternative 3. It will be the DOTD's responsibility to coordinate with the LDNR, the well owner, to determine if these wells can be plugged and abandoned. This will be done in accordance with the LDNR Office of Conservation requirements.

Hydrologic and hydraulic studies will be conducted during final design to ensure the construction of the detour route results in no increase in flood elevation on surrounding properties.

Best Management Practices (BMPs) will be defined in the Storm Water Pollution Prevention Plan required to be developed as part of the construction-related LPDES permit. Any BMPs defined as conditions in the Section 404/CUP permit will also be followed.

Fugitive dust control measures will be implemented during construction to minimize the potential release of particulate matter from the construction site. Such measures may include cover or treatment of disturbed areas with dust suppression techniques.

In accordance with the United States Fish and Wildlife Service (USFWS) and the Louisiana Department of Wildlife and Fisheries (LDWF), wading and nesting bird surveys will be conducted in the ROW no sooner than two weeks prior to construction. The LDWF will be consulted if construction activities will come within 400 meters of nesting colonies, or within 700 meters of brown pelican nesting colonies.

A preliminary jurisdictional determination request will be submitted to the USACE. This determination confirms the presence of jurisdictional wetlands or navigable waters in the project area and if a Section 404/10 Permit is required prior to the deposition or redistribution of dredged or fill material into wetlands or navigable waters. Jurisdictional wetland impacts are anticipated. Therefore, a joint permit application will be submitted to the LDNR for the proposed project prior to construction.

Should any significant cultural resources be unearthed during construction, the Louisiana Department of Culture, Recreation, and Tourism, Offices of Archaeology and Historic Preservation will be contacted immediately. If the cultural resources are Native American, the Jena Band of Choctaw Indians along with any other tribe that may have an interest will also be contacted. Construction will cease in the area of the discovery until a plan is developed for the recovery of the resources.

The potential exists for a former well site and well pit to be within the proposed ROW of the bypass routes. During final design, a Phase II Site Investigation/ Assessment will be conducted to assess whether the site represents an environmental liability concern that requires remediation prior to construction. Remediation of the site will be conducted, if required.

Utilities that may require relocation for the construction of Bypass Alternatives 3 and 4 are defined in **Tables ES-3** and **ES-4**, respectively.

Additional information regarding mitigation and commitments can be found in the Summary of Permits, Mitigation, and Commitments section.

**TABLE ES-3
UTILITIES POTENTIALLY IMPACTED BY BYPASS ALTERNATIVE 3**

Station	Owner/Operator	Contents	Mitigation Description	Pipe Diameter (inches)	Length (linear feet)	Unit Cost	Total
123+00	Assumption Parish	Water	Encasement	4	107.44	\$400.00	\$42,976.00
241+00	Assumption Parish	Water	Encasement	8	635.74	\$800.00	\$508,592.00
0+00 to 9+00 277+00 to 284+00	Assumption Parish	Water	Relocation	14	764.5	\$20.00	\$15,290.00
206+00	Boardwalk	Highly Volatile Liquid	Encasement	6	175.19	\$600.00	\$105,114.00
151+00	Boardwalk	Ethane	Encasement	12	162.02	\$1,050.00	\$170,121.00
255+50	Boardwalk	Natural Gas	Encasement	?	170.04	\$1,200.00	\$204,048.00
255+50	Boardwalk	Natural Gas	Encasement	?	170.28	\$1,200.00	\$204,336.00
208+00	Chevron/Bridgeline	Highly Volatile Liquid	Encasement	4	148.56	\$400.00	\$59,424.00
206+00	Chevron/Bridgeline	Highly Volatile Liquid	Encasement	6	174.98	\$600.00	\$104,988.00
168+00	Chevron/Bridgeline	Highly Volatile Liquid	Encasement	8	120.01	\$800.00	\$96,008.00
34+00	Chevron/Bridgeline	Natural Gas	Encasement	24	122.18	\$1,495.00	\$182,659.10
34+03	Chevron/Bridgeline	Natural Gas	Encasement	24	122.03	\$1,495.00	\$182,434.85
206+00	Chevron/Bridgeline	Natural Gas	Encasement	24	318.48	\$1,495.00	\$476,127.60
210+00	DOW	Butane	Encasement	8	150.21	\$800.00	\$120,164.71
210+00	DOW	LPG	Encasement	8	148.97	\$800.00	\$119,175.12
210+00	DOW	LPG	Encasement	8	149.42	\$800.00	\$119,537.65
210+50	DOW	Butane	Encasement	8	150.30	\$800.00	\$120,239.20
210+00	DOW	Propane	Encasement	12	149.79	\$1,050.00	\$157,274.37
210+00	DOW	Propylene	Encasement	12	150.61	\$1,050.00	\$158,143.39
210+00	DOW	Ethylene	Encasement	16	150.23	\$1,200.00	\$180,276.05
210+00	DOW	Butane	Encasement	20	149.50	\$1,350.00	\$201,828.85
210+00	DOW	Brine	Encasement	24	149.88	\$1,495.00	\$224,066.81
210+50	EnLink Midstream	Highly Volatile Liquid	Encasement	4	145.59	\$400.00	\$58,237.19
210+50	EnLink Midstream	Highly Volatile Liquid	Encasement	4	145.58	\$400.00	\$58,231.28

**TABLE ES-3
UTILITIES POTENTIALLY IMPACTED BY BYPASS ALTERNATIVE 3 (continued)**

Station	Owner/Operator	Contents	Mitigation Description	Pipe Diameter (inches)	Length (linear feet)	Unit Cost	Total
118+00	EnLink Midstream	Highly Volatile Liquid	Encasement	6	138.97	\$600.00	\$83,382.55
118+00	EnLink Midstream	Highly Volatile Liquid	Encasement	6	138.97	\$600.00	\$83,382.55
118+00	EnLink Midstream	Highly Volatile Liquid	Encasement	10	138.97	\$1,000.00	\$138,970.91
118+00	EnLink Midstream	Highly Volatile Liquid	Encasement	10	138.97	\$1,000.00	\$138,970.91
204+00	EnLink Midstream	Natural Gas	Encasement	36	318.04	\$1,850.00	\$588,370.08
207+00	EnLink Midstream	Natural Gas (Proposed Relocation)	Encasement	36	251.72	\$1,850.00	\$465,674.01
0+00 to 10+00 0+00 to 284+00	Entergy	Overhead Electric with Telecom and Cable	Relocation	-	628.95	\$70.00	\$44,026.49
122+00	Entergy	Overhead Electric with Cable	Relocation	-	56.80	\$70.00	\$3,976.24
241+00	Entergy	Overhead Electric Line	Relocation	-	748.89	\$70.00	\$52,422.05
3+00 to 3+50	Entergy	Overhead Electric with Telecom and Cable	Relocation	-	1598.93	\$70.00	\$111,925.42
3+00 to 3+50	Entergy	Overhead Electric with Telecom and Cable	Relocation	-	514.22	\$70.00	\$35,995.19
254+00	Enterprise Products/Acadian	Natural Gas	Encasement	4	174.30	\$400.00	\$69,719.99
254+00	Enterprise Products/Acadian	Natural Gas	Encasement	4	174.18	\$400.00	\$69,673.04
150+00	Enterprise Products/Acadian	Highly Volatile Liquid	Encasement	6	163.57	\$600.00	\$98,142.82
241+00	Enterprise Products/Acadian	Highly Volatile Liquid	Encasement	6	649.67	\$600.00	\$389,800.39
34+00	Enterprise Products/Acadian	Highly Volatile Liquid	Encasement	8	164.44	\$800.00	\$131,551.36
149+50	Enterprise Products/Acadian	Highly Volatile Liquid	Encasement	8	163.45	\$800.00	\$130,760.31
150+00	Enterprise Products/Acadian	Highly Volatile Liquid	Encasement	8	122.05	\$800.00	\$97,642.19
254+00	Enterprise Products/Acadian	Highly Volatile Liquid	Encasement	10	174.17	\$1,000.00	\$174,165.22
34+00	Enterprise Products/Acadian	Highly Volatile Liquid	Encasement	12	190.78	\$1,050.00	\$200,315.72
254+50	Enterprise Products/Acadian	Natural Gas	Encasement	12	171.33	\$1,050.00	\$179,900.38
256+50	Enterprise Products/Acadian	Highly Volatile Liquid	Encasement	12	167.74	\$1,050.00	\$176,129.72
256+50	Enterprise Products/Acadian	Highly Volatile Liquid	Encasement	12	122.06	\$1,050.00	\$128,159.23

**TABLE ES-3
UTILITIES POTENTIALLY IMPACTED BY BYPASS ALTERNATIVE 3 (continued)**

Station	Owner/Operator	Contents	Mitigation Description	Pipe Diameter (inches)	Length (linear feet)	Unit Cost	Total
117+00	Enterprise Products/Acadian	Natural Gas (Chico D)	Encasement	20	326.41	\$1,350.00	\$440,652.65
205+00	Enterprise Products/Acadian	Natural Gas	Encasement	20	148.18	\$1,350.00	\$200,048.76
211+00	Enterprise Products/Acadian	Natural Gas	Encasement	20	130.03	\$1,350.00	\$175,535.07
256+00	Enterprise Products/Acadian	Highly Volatile Liquid	Encasement	20	169.90	\$1,350.00	\$229,367.42
42+00	Enterprise Products/Acadian	Natural Gas	Encasement	36	104.88	\$1,850.00	\$194,028.04
150+00	Exxon	Highly Volatile Liquid	Encasement	8	166.03	\$800.00	\$132,824.08
41+00	Florida Gas	Natural Gas	Encasement	12	105.65	\$1,050.00	\$110,929.88
150+00	Shell	Highly Volatile Liquid	Encasement	10	164.96	\$1,000.00	\$164,962.88
150+00	Shell	Highly Volatile Liquid	Encasement	12	164.94	\$1,050.00	\$173,187.67
116+00	Texas Brine	Brine (Abandoned)	Encasement	10	129.61	\$1,000.00	\$129,613.02
117+00	Texas Brine	Brine	Encasement	12	130.00	\$1,050.00	\$136,501.85
118+00	Texas Brine	Brine	Encasement	12	129.96	\$1,050.00	\$136,457.60
Total Cost for Bypass 3 Utility Impacts							\$9,686,458.85

Notes:

- Utility line locations were estimated based on available data from the Feasibility Study and through contact with the various utility companies. This data should not be used for construction purposes, and a detailed survey will need to be conducted during final design.
- For costing purpose, split casing of active pipelines for the entire ROW width was the assumed mitigation option. Additional options such as rerouting and matting may be feasible and will be determined during the final design.
- Unit costs are based on the assumptions made in the Bypass Feasibility Study (see Attachment 1).

**TABLE ES-4
UTILITIES POTENTIALLY IMPACTED BY BYPASS ALTERNATIVE 4**

Station	Owner/ Operator	Contents	Mitigation Description	Pipe Diameter (inches)	Length (linear feet)	Unit Cost	Total
0+50	Assumption Parish	Water	Relocation	4	189.03	\$20.00	\$3,780.60
2+50 to 5+50	Chevron/Bridgeline	Natural Gas	Relocation	24	434	\$200.00	\$86,800.00
3+00 to 6+00	Chevron/Bridgeline	Natural Gas	Relocation	24	350.75	\$200.00	\$70,150.00
4+00 to 7+00	Chevron/Bridgeline	Water	Relocation	12	323.05	\$200.00	\$64,610.00
4+00 to 7+00	Chevron/Bridgeline	Water	Relocation	12	326.18	\$200.00	\$65,236.00
27+50 to 40+50	Entergy	Overhead Electric with Telecom and Cable	Relocation	-	984.93	\$70.00	\$68,945.10
25+00 to 40+50	Entergy	Overhead Electric with Telecom	Relocation	-	482.89	\$70.00	\$33,802.30
40+00	Enterprise Products/Acadian	Natural Gas (Proposed)	Encasement	8	53.63	\$800.00	\$42,904.00
40+00	Chevron/Bridgeline	Highly Volatile Liquid	Encasement	8	41.65	\$800.00	\$33,320.00
36+00 to 40+58	Assumption Parish	Water	Relocation	6	435.35	\$20.00	\$8,707.00
38+00 to 40+00	Assumption Parish	Water	Relocation	14	181.47	\$20.00	\$3,629.40
Total Cost for Bypass 4 Utility Impacts							\$481,884.40

Notes:

1. Utility line locations were estimated based on available data from the Feasibility Study and through contact with the various utility companies. This data should not be used for construction purposes, and a detailed survey will need to be conducted during final design.
2. For costing purpose, split casing of active pipelines for the entire ROW width was the assumed mitigation option. Additional options such as rerouting and matting may be feasible and will be determined during the final design.
3. Unit costs are based on the assumptions made in the Bypass Feasibility Study (see Attachment 1).