

## 2.0 ALTERNATIVES

### 2.1 Alternatives Development Process

#### 2.1.1 *Detour Feasibility Study*

Three build alternatives in addition to the No-Build Alternative were studied during the Detour Feasibility Study. As this project is intended to serve only as a temporary solution in an emergency situation, only one of the build alternatives studied was chosen by the Louisiana Department of Transportation and Development (DOTD) project team to continue through the Environmental Assessment (EA) process as the Preferred Alternative.

The Detour Feasibility Study termed the three build alternatives Detour Routes 1, 2, and 3 (see **Figure 3**). Detour Route 3 was developed to avoid the AT&T cell tower that is affected by Detour Routes 1 and 2. Avoiding the cell tower resulted in excessive impacts to area wetlands. Adopting the concept that a mobile cell tower could be utilized to avoid impacts to communication during construction allowed for Detour Route 3 to be eliminated prior to the Detour Feasibility Study public meeting.

**Table 2-1** presents the preliminary comparison matrix for Detour Routes 1 and 2, as defined in the Detour Feasibility Study. As evidenced by the table, utility relocations associated with Detour Route 1 are excessive. This is due to two natural gas pipelines that run parallel with the route and will require relocation. While Detour Route 2 will impact an additional six acres of potential wetlands, it could be constructed during an emergency in a more expeditious manner than Detour Route 1, due to the time required to safely and effectively relocate the pipelines in the right-of-way (ROW) of Detour Route 1. Therefore, the DOTD selected Detour Route 2 to move forward into the EA as the Preferred Alternative.

**TABLE 2-1  
DETOUR FEASIBILITY STUDY BUILD ALTERNATIVES COMPARISON MATRIX <sup>1</sup>**

| Evaluation Criteria                                   | Detour Route 1 | Detour Route 2 |
|---|----------------|----------------|
| <b>Purpose and Need</b>                               |                |                |
| Meets Purpose and Need                                | Yes            | Yes            |
| <b>Engineering and Utilities</b>                      |                |                |
| Length (in miles)                                     | 1.06           | 1.09           |
| Estimated Construction Cost (in millions)             | \$12.6         | \$12.7         |
| Estimated Utility Relocation Cost (in millions)       | \$7.3          | \$2.6          |
| Total Preliminary Cost (in millions)                  | \$19.9         | \$15.3         |
| <b>Cultural Resources</b>                             |                |                |
| Potential to Impact Historical Resources              | Yes            | Yes            |
| Potential to Impact Archaeological Resources          | No             | No             |
| <b>Potential Wetlands</b>                             |                |                |
| NWI Wetlands (acres)                                  | 16             | 22             |
| <b>Threatened/Endangered/Protected Species</b>        |                |                |
| Potential Impact to Threatened and Endangered Species | None           | None           |
| <b>Community Impacts</b>                              |                |                |
| Residential Structures                                | 0              | 0              |
| Commercial Property                                   | 1              | 0              |
| Churches  | 0              | 0              |
| Recreational Areas                                    | 0              | 0              |
| Other Community Facilities                            | 0              | 0              |
| <b>Visual Quality</b>                                 |                |                |
| Potential Visual Quality Impacts                      | Low            | Low            |
| <b>Land Use</b>                                       |                |                |
| Prime Farmland (acres)                                | 31             | 31             |
| 100-yr Floodplain (acres)                             | 33             | 34             |
| <b>Environmental Liability Concerns</b>               |                |                |
| Potential Impacts to Hazardous Sites                  | Medium         | Low            |
| Active Oil and Gas Well Locations                     | 0              | 0              |
| Observation Relief Wells Affected                     | Yes            | Yes            |

**NOTES:**

1. Data on this table does not represent the Preferred Alternative impacts but are based on the preliminary alternatives developed during the Detour Feasibility Study.

**2.1.2 Traffic**

The traffic information utilized during the Planning/Environmental process was derived from the traffic study performed during the Detour Feasibility Study portion of this project. A copy of the final Detour Feasibility Study with the traffic study is included as **Attachment 1** at the end of this document. According to the Detour Feasibility Study, average daily traffic from April 2013 was 7,517 immediately west of LA 69. The analysis considered two alternatives for the detour route with an implementation year of 2018 and a design year of 2038. The design year of 2038 was assumed in the case that

the detour route may remain permanent. The alternatives were very similar regarding traffic impacts. Therefore, no distinction was made between the two alternatives. The results of the traffic study analysis suggested that three (3) turn lanes be considered for the project:

- LA 69 northbound turning west onto LA 70 Detour Route with a storage length of 400 feet.
- LA 69 southbound turning west onto LA 70 Detour Route with a storage length of 270 feet.
- LA 70 Detour Route eastbound turning south onto LA 69 with a storage length of 380 feet.

An acceptable level of service for all routes was obtained for both the implementation year and design year with the recommended turn lanes in place. These turning lanes were incorporated into the design of the detour route considered during the Planning/Environmental stage.

## **2.2 Line and Grade Development**

During the Detour Feasibility Study, it was determined that LA 69 should include turn lanes for both northbound and southbound traffic at the detour route tie-in. In order to accommodate those turn lanes and associated storage lengths, LA 69 would need to be widened. The limits of that widening are detailed in **Appendix A**. During the detour route alternatives development process, the DOTD expressed concern that there is a large amount of truck traffic on LA 69 and LA 70 and the existing intersection of the two roadways does not provide an adequate turning radius to accommodate truck traffic moving along the designated detour route. The existing intersection was examined to determine if a WB-67 design vehicle (tractor-trailer truck) could perform a turning movement without impacting other lanes or tracking off of the existing pavement. It was determined that the current intersection does not accommodate that movement. Therefore, a corrective action was designed in the line and grade submittal. This extended the detour route project area south along LA 69 to tie back into LA 70 (see **Figure 4**).

Consideration for maintaining access to existing local roadways was included during detour line and grade development. Since a potential failure location is impossible to predict, maintaining connectivity for local residents and businesses, no matter where a failure may occur, was necessary along the proposed detour route. The western end of the detour alignment was designed to include a gooseneck intersection to maintain access to the existing LA 70. The gooseneck intersection on the western end of the detour was designed to accommodate the WB-67 design vehicle. AutoTurn simulations were performed to ensure that no overtracking occurs. To the east, the intersection of LA 69 and existing LA 70 will remain open and provide access to existing LA 70 to a point where the roadway is still considered safe for travel.

There are two private roads servicing local oil and gas companies that required connectivity. Stop control will be specified for the private roads. These roadways will be paved to the required ROW limits. The private road intersections were designed in accordance with the DOTD Road Design Manual.

A copy of the Planning/Environmental line and grade for the Preferred Alternative is included as **Appendix A** along with a detailed Opinion of Probable Cost. Additional line and grade comments were received from DOTD after the final line and grade submittal. These comments from Mr. Hoan Dang, dated November 3, 2014, are included at the end of **Appendix A** and should be considered during the final design.

### **2.3 Alternatives Screening Process**

Only one build alternative, Detour Route 2, in addition to the No-Build Alternative was studied in detail for this EA. The emergency nature of the project negated the need for additional build alternatives to be carried from the Detour Feasibility Study into the EA. Direct impacts associated with the construction of the Preferred Alternative are presented in **Table 2-2**.

**TABLE 2-2  
PREFERRED ALTERNATIVE IMPACTS**

| Evaluation Criteria                                   | Detour Route 2 |
|---|----------------|
| <b>Purpose and Need</b>                               |                |
| Meets Purpose and Need                                | Yes            |
| <b>Cultural Resources</b>                             |                |
| Potential to Impact Historical Resources              | No             |
| Potential to Impact Archaeological Resources          | No             |
| <b>Potential Jurisdictional Wetlands <sup>1</sup></b> |                |
| Palustrine Emergent (acres)                           | 1.16           |
| Palustrine Forested (acres)                           | 4.97           |
| Cypress/Tupelo (acres)                                | 2.16           |
| Potential Other Waters of the United States           | 0.13           |
| <b>Threatened/Endangered/Protected Species</b>        |                |
| Potential Impact to Threatened and Endangered Species | None           |
| <b>Community Impacts</b>                              |                |
| Residential Structures                                | 0              |
| Commercial Property <sup>2</sup>                      | 1              |
| Churches  | 0              |
| Recreational Areas                                    | 0              |
| Other Community Facilities                            | 0              |
| <b>Land Use</b>                                       |                |
| Prime Farmland (acres) <sup>3</sup>                   | 13.50          |
| 100-yr Floodplain (acres)                             | 18.90          |
| <b>Environmental Liability Concerns</b>               |                |
| Potential Impacts to Hazardous Sites                  | Low            |
| Active Oil and Gas Well Locations                     | 0              |
| Observation Relief Wells (ORWs) Affected <sup>4</sup> | 6              |
| <b>Other Environmental Concerns</b>                   |                |
| Potential Impacts to Noise Receptors                  | Yes            |
| Air Quality Impacts                                   | None           |
| Potential Visual Quality Impacts                      | Low            |

**NOTES:**

1. Wetland data is based on the wetlands delineation conducted on 2/3/14 and 6/10/14 by Providence personnel. A preliminary jurisdictional determination was received from USACE, dated 8/11/14 concurring with these findings.
2. Property includes an AT&T cell tower that may need to be relocated.
3. Based on NRCS-CPA-106 form completed by the USDA on 6/17/14.
4. According to the Well Avoidance Study any ORWs within 160 feet of the proposed ROW will need to be plugged and abandoned.

In the event LA 70 is closed and the No-Build Alternative is chosen, the immediate impact to wetlands and agricultural lands would not be realized. However, should the closure become permanent, the need may arise to upgrade or widen portions of the existing 44-mile local detour route and 70-mile truck detour route, which could result in substantial impacts to wetlands and agricultural lands. Such action

could also result in economic losses to area businesses, such as the Gator Gold Casino and Truck Stop, depending on the location of the closure.

## **2.4 Alternatives Cost Comparison**

The preliminary cost comparison of the build alternatives was prepared during the Detour Feasibility Study. The Detour Feasibility Study estimated Detour Route 1 to cost approximately \$4,495,000 more to permit and build than Detour Route 2, the Preferred Alternative.

A more detailed opinion of probable cost for the Preferred Alternative was developed as part of this EA process. The anticipated cost of the Preferred Alternative is \$10,173,897 as outlined in **Table 2-3** below. The true cost of not constructing the Preferred Alternative during an emergency closure of LA 70 will be the inability for emergency services to reach residences, which will no longer be readily accessible due to the closure and length of current detour routes. Other factors to consider include additional gas cost, lost time, and wear on existing detour routes, which require traveling approximately 44 miles to get to Napoleonville by passenger vehicle and 70 miles on the truck detour route.

**TABLE 2-3  
OPINION OF PROBABLE COST FOR PREFERRED ALTERNATIVE**

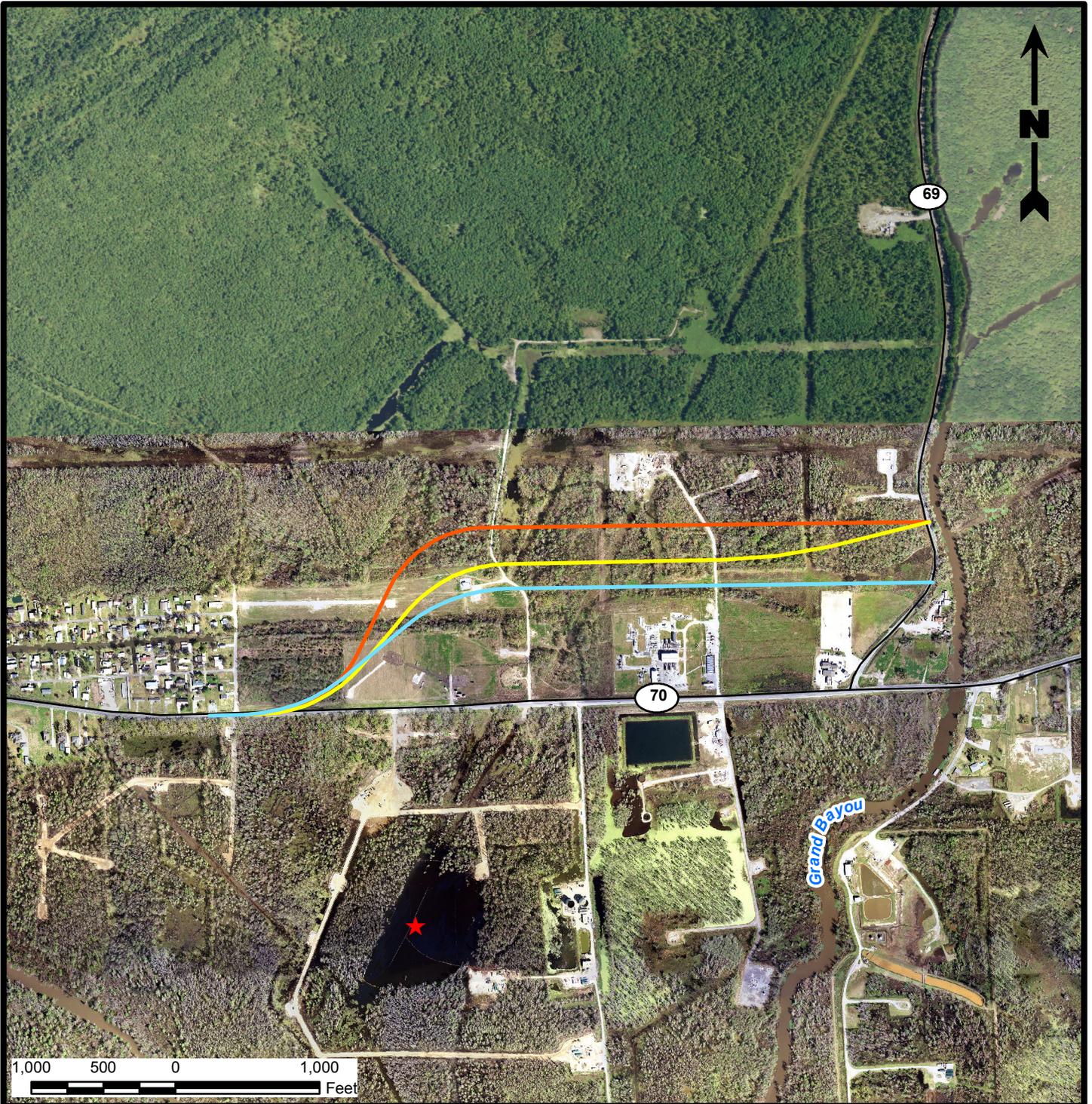
| Item Description                      | Unit Price     | Unit | Qty   | Total Price         |
|---------------------------------------|----------------|------|-------|---------------------|
| Construction <sup>1</sup>             |                |      |       | \$5,041,357         |
| Contingency (20%)                     |                |      |       | \$1,008,271         |
| Engineering Design (8%)               |                |      |       | \$403,309           |
| Required Right-of-Way <sup>2</sup>    | \$1,000.00     | ACRE | 12.50 | \$12,500            |
| Utility Relocations <sup>3</sup>      | \$3,162,229.00 | LS   | 1.00  | \$3,162,229         |
| Plug and Abandon ORWs <sup>4</sup>    | \$45,660.00    | LS   | 1.00  | \$45,660            |
| Environmental Mitigation <sup>5</sup> | \$470,140.00   | LS   | 1.00  | \$500,570           |
| <b>TOTAL <sup>6</sup></b>             |                |      |       | <b>\$10,173,897</b> |

**NOTES:**

1. Please refer to the Opinion of Probable Cost at the end of Appendix A for construction cost details.
2. ROW cost is based off values obtained from the DOTD District 61 Office.
3. Utility relocation costs were obtained from the Feasibility Study and then modified based on ROW changes during line and grade development. These costs include utilities directly impacted by the ROW including the turning lane along LA 69. These costs do not include relocating roadside utilities from the existing LA 70 to the proposed detour route if not directly impacted. The estimated cost is based solely on construction costs and does not account for items such as engineering design, environmental permitting, construction inspection, wetland mitigation, facility shut-in, etc.
4. Costs to plug and abandon six ORWs located within 160 feet of required ROW. This estimate was obtained from Walker Hill Environmental on August 14, 2014.
5. Environmental mitigation costs are based on acreages calculated as part of the wetlands findings, which is currently pending determination from the USACE. The cost estimates \$65,000 per acre for forested wetlands and \$32,000 per acre for emergent wetlands. During the JPA process the USACE will determine the required mitigation credits.
6. This is a preliminary cost estimate. Costs will be adjusted during Stage 3 Design once the survey and geotechnical studies are complete.

**2.5 Context Sensitive Solutions**

The proposed project is a temporary detour route to allow traffic and access in the event of an emergency closure of LA 70 in the vicinity of LA 69. Land use patterns, cultural resources, environmental resources, and community input were all considered in the development of the LA 70 Detour Route along with early stakeholder involvement during the Detour Feasibility Study process. The proposed route primarily utilizes undeveloped land and was designed to avoid cultural resources and impacts to businesses in the area. Significant utility impacts and potential impacts to the Gator Gold Casino and Truck Stop eliminated Detour Route 1, while wetland resources were a large factor for not selecting Detour Route 3.



**Legend**

- Detour Route 1
- Detour Route 2
- Detour Route 3
- ★ Bayou Corne/Grand Bayou Sinkhole Area

**Reference**

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

**Preliminary Build Alternatives**

LA 70 Detour Route  
 State Project No. H.010571.2 EA  
 Assumption Parish, Louisiana

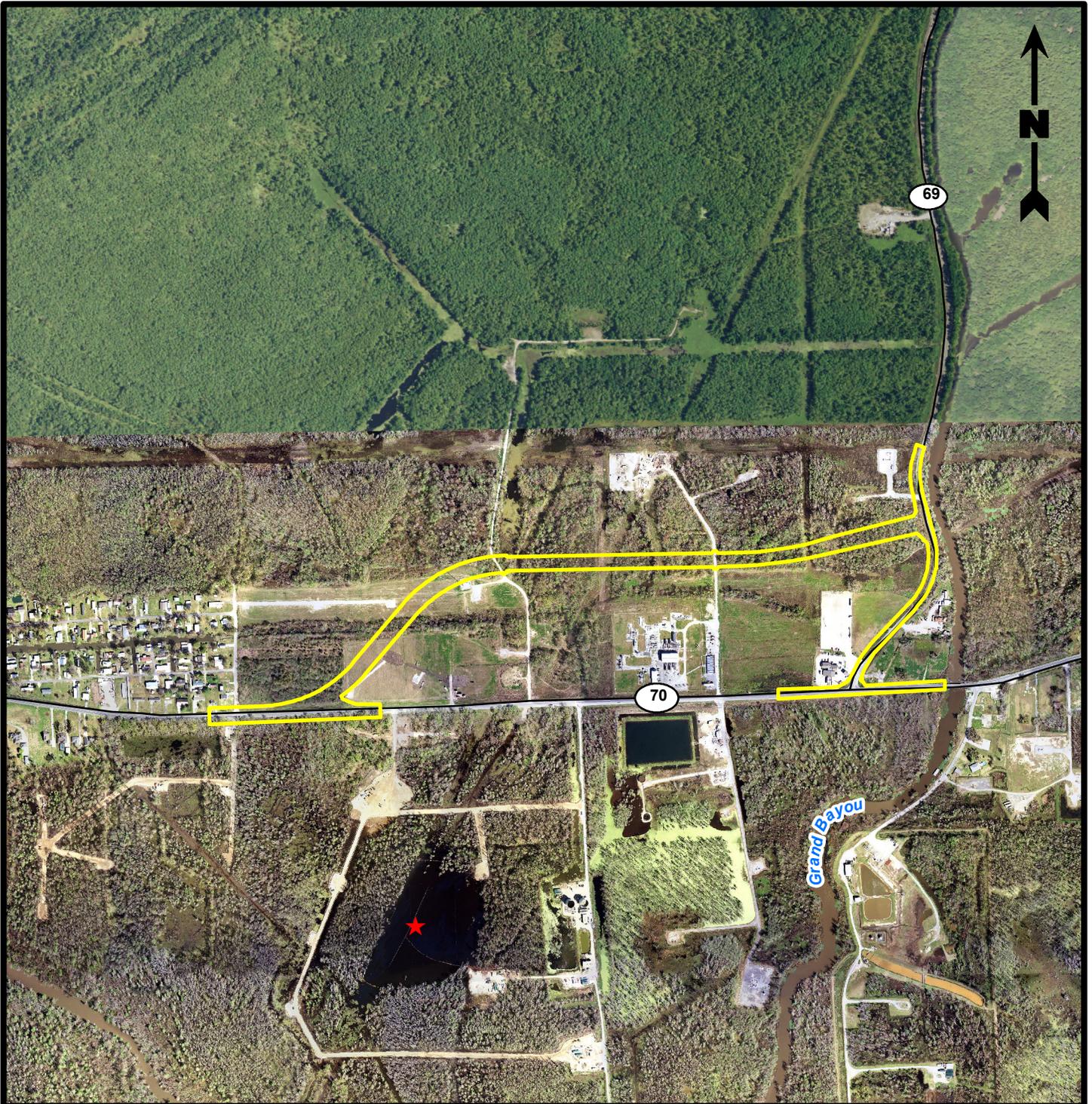
**Louisiana Department  
 of Transportation and Development**



**PROVIDENCE**

|             |     |          |
|-------------|-----|----------|
| Drawn By    | ECL | 12/12/13 |
| Checked By  | MEH | 5/27/14  |
| Approved By | MEH | 11/4/14  |

|                                    |                    |
|------------------------------------|--------------------|
| Project Number<br>040-014-000      | <b>3</b><br>Figure |
| Drawing Number<br>040-014-000-A021 |                    |



**Legend**

- Detour Route 2
- ★ Bayou Come/Grand Bayou Sinkhole Area

**Reference**

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

**Preferred Alternative**

LA 70 Detour Route  
 State Project No. H.010571.2 EA  
 Assumption Parish, Louisiana

**Louisiana Department  
 of Transportation and Development**



**PROVIDENCE**

|             |     |          |
|-------------|-----|----------|
| Drawn By    | ECL | 12/12/13 |
| Checked By  | MEH | 5/27/14  |
| Approved By | MEH | 11/4/14  |

|                                    |                    |
|------------------------------------|--------------------|
| Project Number<br>040-014-000      | <b>4</b><br>Figure |
| Drawing Number<br>040-014-000-A070 |                    |