

3.0 AFFECTED ENVIRONMENT

Since the DOTD selected Detour Route 2 as the Preferred Alternative the initial study area for the EA was created using a 500-foot buffer of the centerline developed under the Detour Feasibility Study. SOV letters were mailed on June 10, 2013, to federal, state, and local agencies and elected officials along with a map of the initial study area. A full list of recipients and agency correspondence is located in **Appendix B**, unless stated otherwise.

As discussed in Chapter 2.2, DOTD expressed concern whether the intersection of LA 69 and LA 70 could accommodate truck traffic in the area. Since it was determined that the current intersection does not accommodate the turning movement of a WB-67 design vehicle (tractor-trailer truck), the project study area was expanded south along LA 69 to include this intersection. The project study area boundary defines the geographic area discussed in this chapter (see **Figure 1** at the end of Chapter 1). All figures referenced in this chapter are located at the end of this chapter unless otherwise noted.

3.1 Project Setting

The proposed project is in the northern portion of Assumption Parish, which is located in south Louisiana. The parish is bordered to the east by Bayou Lafourche and the Mississippi River; Belle River and the Atchafalaya River to the west; and United States Highway 90 to the south. Assumption Parish's history is tied to Native Americans, agriculture, and periods of French and Spanish settlement. The Chitimacha tribe, considered to be the largest of the tribes in the parish, was virtually replaced by the French and Spanish settlers by the mid-1800s. Trapping and sugarcane farming supported early settlers, who built sugar plantations that bring visitors from all over the state and beyond to Assumption Parish. Sugarcane remains one of the parish's most profitable enterprises ("About Assumption Parish").

Due to its location between the Mississippi River, Bayou Lafourche, and the Atchafalaya, Assumption Parish is uniquely suited not only to agricultural, but also industrial pursuits and ecotourism. In addition to its surviving historic plantation homes, the parish boasts the oldest church in the state. Built in 1793, the Church of the Assumption of the Blessed Virgin Mary is located in Plattenville on the east bank of Bayou Lafourche ("About Assumption Parish" and "Church History"). Petroleum and agricultural related industries including marine fabrication and sugar processing support the parish's population. There is a natural trail in Bayou L'Ourse, Elm Hall Wildlife Management Area southwest of Napoleonville and east of north Lake Verret, and numerous lakes and bayous between Pierre Part/Belle River and Lake Verret ("Destination Louisiana").

3.1.1 Bayou Corne/Grand Bayou Sinkhole

On August 3, 2012, a sinkhole was discovered on the western edge of the Napoleonville Salt Dome in Bayou Corne, Louisiana. Air, water and seismic monitoring had been underway for approximately two months prior due to the observation of gas bubbling in area waterways and unexplained seismic

activity. The sinkhole has been determined to be the result of a collapsed solution-mined brine cavern within the salt dome and it has continued to expand in both width and depth since its discovery.

As a result of the sinkhole, the project setting reflects activities associated with the response and monitoring of the sinkhole and surrounding area. The following activities are ongoing in the project area:

- The community of Bayou Corne was placed under a mandatory evacuation order on August 3, 2012, affecting 350 residents.
- DOTD, Louisiana Department of Environmental Quality (LDEQ), Louisiana Department of Natural Resources, the United States Geological Survey (USGS), and local entities are continuously monitoring air, water, subsidence, and seismic activity.

As of August 2014 and based on data provided by both the LDNR and Texas Brine Company, LLC (Texas Brine) Bayou Corne Incident 2012 websites, the current status of the sinkhole and monitoring actions are as follows:

- Sinkhole is approximately 32.2 acres, with a subsidence area of approximately 23.0 additional acres according to the April 2014 survey
- Subsidence area ranges in depth from two up to ten feet
- Anything ten feet or deeper is considered the sinkhole area
- 9,100 linear feet of new berm was added to the 2,600 feet of existing facility berm to comprise the 11,700 foot sinkhole containment berm
- 52 Observation Relief Wells (ORWs) have been installed and are being monitored, 26 of which are connected to flares
- 33.9 million cubic feet of gas has been vented to date
- 6 helicorders are monitoring micro-seismic activities
- LDEQ continues monitoring air in and around the Bayou Corne community and water in wells, ambient stations, and area waterways where bubbling is observed
- Bayou Corne residents presently remain under a mandatory evacuation order
- Texas Brine reached settlements with 66 residences, which is over 70% of the Bayou Corne residents who participated in the voluntary settlement process. Texas Brine reached a \$48.2 million class action settlement agreement that is currently being implemented with the remaining homeowners.

3.2 Land Use and Development Trends

The project study area encompasses approximately 208.7 acres in Assumption Parish. Current land use is represented in **Figure 5**. As demonstrated in the figure, land use in the vicinity of the project is forested wetlands, commercial, residential, or industrial related to mineral resources (brine mining and injections wells).

3.3 Community Facilities and Services

Schools

There are no schools located directly adjacent to LA 70 in the study area. However, LA 70 is utilized to transport high school students from Pierre Part to Assumption Parish High School in Napoleonville, Louisiana.

Day Cares

No day care facilities were observed in the study area.

Libraries

No libraries were observed or listed for the project study area.

Houses of Worship and Cemeteries

No churches or cemeteries were observed or listed for the project study area.

Police and Fire

No police or fire stations were observed or listed for the project study area.

Hospitals

No hospitals are located on or adjacent to LA 70 in the study area.

Public Transportation

No public transportation facilities are located off of LA 70 in the project study area.

3.4 Community Demographic

A majority of the project study area falls within Census Tract 501, Block Group 3 in Assumption Parish. A small portion east of Grand Bayou and south of LA 70 falls within Census Tract 503, Block Group 3. However, this area does not contain any residences so it was not included in the analysis discussed for the project study area. **Figure 6** and **Table 3-1** provide details on the population in the project study area according to the United States Census Bureau's (USCB's) 2010 Census for Census Tract 501, Block Group 3. Demographic data for this tract relating to

housing units, educational attainment, age groups, and language spoken was obtained from the American Community Survey (ACS) 5-Year Estimates for 2008-2012 (see **Table 3-2**). This data was available on the USCB's American Fact Finder (AFF) website and is the most recent data currently available for the project study area.

TABLE 3-1
POPULATION DATA

Census Tracts within the Project Study Area	Block Groups within the Project Study Area	Subject	Total Population (all races)	White Alone	Black or African American Alone	American Indian and Alaska Native Alone	Asian Alone	Native Hawaiian and Other Pacific Islander Alone	Some Other Race Alone	Two or More Races	Hispanic ¹	Minority Data ²
Tract 501	3	Number	978	731	210	4	4	0	0	4	25	247
		Percent	-	74.7%	21.5%	0.4%	0.4%	0.0%	0.0%	0.4%	2.6%	25.3%

NOTES:

1. Since all Hispanics regardless of race are considered a minority, the population with Hispanic ethnicity is identified in this column, and all the other race categories do not include Hispanic ethnicity.
2. In accordance with FHWA Order 6640.23 and DOT Order 5610.2, a minority means a person who is Black, Asian American, American Indian/Alaskan Native, or Hispanic (regardless of race). To determine the number of minorities, the total population minus the "white alone" population was determined.

Source: USCB, 2010 Census Summary File, 100-Percent Data, Table P9: Hispanic or Latino, and Not Hispanic or Latino by Race

TABLE 3-2
DEMOGRAPHIC DATA

Census Tracts within the Project Study Area	Assumption - Tract 501	
	Estimate	Percent
Housing Data		
Total housing units	1,664	-
Occupancy status		
Occupied housing units	1,324	79.6%
Vacant housing units	340	20.4%
Tenure		
Occupied housing units	1,324	-
Owner occupied	1,035	78.2%
Renter occupied	289	21.8%
Educational Attainment		
Population 25 years and over	2,368	-
Less than 9th grade	352	14.9%
9th to 12th grade, no diploma	277	11.7%
High school graduate (includes equivalency)	1,014	42.8%
Some college, no degree	430	18.2%
Associate's degree	139	5.9%
Bachelor's degree	139	5.9%
Graduate or professional degree	17	0.7%
Age Groups		
Total Population	3,568	-
0-9 years	464	13.0%
10-19 years	550	15.4%
20-24 years	186	5.2%
25-44 years	972	27.2%
45-64 years	918	25.7%
65 years and over	478	13.4%
Language Spoken at Home		
Population 5 years and over	3,313	-
English only	2,773	83.7%
Language other than English	540	16.3%
Spanish	126	3.8%
Other Indo-European Languages	414	12.5%
Asian and Pacific Islander Languages	0	0.0%
Other Languages	0	0.0%

NOTES:

1. Although the ACS produces population demographic and housing unit estimates, it is the USCB Population Estimates Program that produces and disseminates the official intercensal estimates of the population.
2. An estimated margin of error was given for each category and is available on the AFF website.

Sources: USCB, 2008-2012 ACS 5-Year Estimates, Table DP02: Selected Social Characteristics in the United States, DP04: Selected Housing Characteristics, and DP05: ACS Demographic and Housing Estimates

3.5 Employment and Economic Trends

Of the parish’s approximate population of 23,000 people, the labor force is approximately 18,000 individuals earning an average salary of \$33,676 (“Economy”).

The parish’s economy is rooted in agricultural, with sugar related industries supporting a large number of employees. The school board and other parish community services such as police employ the highest number of individuals (“Economy”). Fabrication and chemical industries including McDermott and Dow Grand Bayou utilize the parish’s labor force to support their ventures. Recreational interests including fishing and hunting also provide employment and tax dollars to the parish. Located in Belle Rose, No Problem Raceway is a multi-use sports park featuring drag and road racing events as well as camping, garages, and food outlets that brings visitors and tax dollars to the parish.



View of entrance and track at No Problem Raceway.

Table 3-3 provides economic and employment details as reported by the USCB ACS 2012 5-year Estimates for Census Tract 501.

**TABLE 3-3
EMPLOYMENT AND ECONOMIC STATUS**

Location	Assumption Parish Census Tract 501	
	Estimate	Percent
Employment Status		
Population 16 years and over	2,658	-
In labor force	1,494	56.2%
Civilian labor force	1,494	56.2%
Employed	1,356	51.0%
Unemployed	138	5.2%
Armed Forces	0	0.0%
Not in labor force	1,164	43.8%
Occupation		
Civilian employed population 16 years and over	1,356	-
Management, business, science, and arts occupations	301	22.2%
Service occupations	164	12.1%
Sales and office occupations	184	13.6%
Natural resources, construction, and maintenance occupations	330	24.3%
Production, transportation, and material moving occupations	377	27.8%
Industry		
Civilian employed population 16 years and over	1,356	-
Agriculture, forestry, fishing and hunting, and mining	143	10.5%
Construction	233	17.2%
Manufacturing	241	17.8%
Wholesale trade	72	5.3%
Retail trade	35	2.6%
Transportation and warehousing, and utilities	102	7.5%
Information	0	0.0%
Finance and insurance, and real estate and rental and leasing	20	1.5%
Professional, scientific, management, administrative, and waste management services	26	1.9%
Educational services, and health care and social assistance	269	19.8%
Arts, entertainment, and recreation, and accommodation and food services	86	6.3%
Other services, except public administration	66	4.9%
Public administration	63	4.6%
Income and Benefits (in 2010 inflation-adjusted dollars)		
Total households	1,324	-
Median household income (dollars)	31,680	-
Mean household income (dollars)	57,753	-
With earnings	837	63.2%
With Social Security	518	39.1%
With retirement income	167	12.6%
With Supplemental Security Income	155	11.7%
With cash public assistance income	56	4.2%
With Food Stamp/SNAP benefits in the past 12 months	305	23.0%

NOTES:

1. An estimated margin of error was given for each category and is available on the AFF website.

Source: USCB, 2008-2012 ACS 5-Year Estimates, Table DP03: Selected Economic Characteristics

3.6 Environmental Justice Analysis

Executive Order 12898, Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations (February 11, 1994), specifies actions to be taken on a range of issues that are intended to promote nondiscrimination in federal actions to provide minority and low-income communities equal access to public information regarding a federal action, and to provide an opportunity for public participation in the evaluation of a federal action in matters relating to human health and the environment. A demographic profile for the census tracts comprising the project study area was prepared to answer the following questions posed by Executive Order 12898:

- Does the potentially affected community include minority and/or low-income populations?
- Are the environmental impacts likely to fall disproportionately on minority and/or low-income members of the community and/or tribal resources?

The population/minority and poverty data obtained from the USCB AFF website are illustrated on **Tables 3-1** and **3-4** and **Figures 6** and **7**. Based on the data presented, Census Tract 501 does not support a poverty population, nor does Block Group 3 support a minority population. Within the project study area and immediately affected areas, there are no environmental justice concerns.

**TABLE 3-4
POVERTY STATUS IN THE PAST 12 MONTHS**

Census Tracts within the Project Study Area	Subject	Population for whom Poverty Status is Determined ¹
Tract 501	Total Population Status Determined	3,568
	Below Poverty Level	777
	Percent Below Poverty Level	21.8%

NOTES:

1. An estimated margin of error was given for each category and is available on the AFF website.

Source: USCB, 2008-2012 ACS 5-Year Estimates, Table S1701: Poverty Status in the Past 12 Months.

3.7 Public Lands and Recreation

The project study area does not contain any state parks or wildlife management areas, nor does it contain any federally protected lands, such as wildlife refuges or national parks. This information was verified with the United States Fish and Wildlife Service (USFWS) *Information, Planning, and Conservation System* database. A letter from the Louisiana Department of Wildlife and Fisheries (LDWF)

received on June 13, 2013, confirms there are no state or federal parks, wildlife refuges, or wildlife management areas located in the project study area. A windshield survey verified there are also no parish or community parks located in the project study area.

3.8 Cultural Resources

A preliminary cultural resources assessment was conducted for the project study area using the Louisiana Department of Cultural, Recreation, and Tourism (LDCRT's) Louisiana Cultural Resources Map Geographic Information System (GIS) database and the National Register of Historic Places (NRHP) database for previously recorded historic structures and archeological sites and properties. Based on this preliminary search, one archeological site (16AS45) was found on the west side of the project study area. Previously recorded historic structures can be seen in **Figure 8**.

The State Historic Preservation Officer's (SHPO's) response, dated December 20, 2013, stated no known historic properties will be affected by this project. This letter was received related to the LA 70 Bypass project study area which includes the project study area for the LA 70 Detour Route. Correspondence from the Choctaw Nation of Oklahoma, dated November 9, 2013, stated they were unaware of any Choctaw cultural or sacred sites located in the project area. However, the project is located in an area that is of general historic interest to the Tribe. Any work should be stopped and their office contacted immediately if any Native American cultural materials are encountered. Additional correspondence was received from the Jena Band of Choctaw Indians, dated December 30, 2013, stating there are no concerns at this time. However, if any culturally significant artifacts are discovered their office should be contacted immediately. This correspondence was related to the bypass project study area which also includes the detour route area.

TRC Environmental Corporation (TRC) performed a Phase I cultural resource investigation on the Preferred Alternative which is described in further detail in Chapter 4.9.

3.9 Section 4(f) and or 6(f) Properties

Title 49 United States Code (USC) Section 303, previously Section 4(f) of the Department of Transportation (DOT) Act of 1966, and 23 Code of Federal Regulations (CFR) 774 state that the DOT and Federal Highway Administration (FHWA) agencies may not approve the use of land from significant publicly owned parks, recreational areas, wildlife and waterfowl refuges, or public and private historical sites. However, a taking may be approved if a determination is made that there is no feasible and prudent alternative to the use of the land and the action includes all possible planning to minimize harm to the property resulting from use. The FHWA determines the application of Section 4(f) unless the federal, state, or local officials having jurisdiction over the land determines that the entire site is not significant. In the absence of a determination, the Section 4(f) land is presumed to be significant. Safe, Accountable, Flexible, and Efficient Transportation Equity Act:

A Legacy for Users Section 6009 simplified the process and approval for projects that have only *de minimis* impacts.

The United States Department of the Interior (DOI), National Park Service's (NPS), Land and Water Conservation Fund (LWCF) provides grants to state and local governments for the acquisition and development of public outdoor recreation areas and facilities. Section 6(f) of the Land and Water Conservation Act (CFR Title 36, Chapter 1, Part 59) requires the acquisition of Section 6(f) lands and facilities be coordinated with the DOI. Typically, replacement in kind is required for acquisition of Section 6(f) lands and facilities.

A search conducted through the NPS's LWCF website revealed that three LWCF grants were issued for parks and recreation facilities in Assumption Parish since 1980. None of the facilities listed are in or adjacent to the project study area. The cultural resources report searched for 4(f) or 6(f) sites; none were found within the boundaries of the project study area. As mentioned in Chapter 3.7, a letter from the LDWF confirms there are no wildlife refuges in the project study area. Correspondence with the LDCRT's Office of State Parks received on May 27, 2014, concurs with the findings that no LWCF grant properties are located in the project study area. This letter was received related to the LA 70 Bypass project study area which includes the project study area for the LA 70 Detour Route.

3.10 Visual Environment

The visual environment of the project study area in Assumption Parish primarily consists of undeveloped wetlands, a commercial enterprise (Gator Gold Casino and Truck Stop), subsurface mining/injection facilities, and a neighborhood.

3.11 Geology/Topography

According to the United States Department of Agriculture's (USDA's) *Soil Survey of Assumption Parish*, Assumption Parish lies in south-central Louisiana entirely within the Mississippi River alluvial plain. The parish's elevation is highest near the natural levees of Bayou Lafourche (23 feet above sea level) and lowest in the swamps associated with Lake Verret (sea level). More than 60-percent of the area of Assumption Parish is water or flooded wetlands. There are two notable physiographic features, natural levees and backswamps.

The project study area has elevations ranging from three-feet below mean sea level to 12-feet above mean sea level. A majority of the project study area has an elevation of one-foot above mean sea level.

3.12 Water Resources

3.12.1 Surface Water

Surface waters in the project study area include wetlands, drainage ditches, and Grand Bayou. **Figure 9** shows area water resources. Water quality in

the project study area is affected by both natural occurring conditions and point source and nonpoint source discharges. Point sources include mainly industrial and sewer discharges. Nonpoint sources may include storm water runoff, industrial discharges, landscape maintenance activities, forestry, agriculture, and natural sources (LDEQ).

Subsegment 120206 (Grand Bayou and Little Grand Bayou) from headwaters to Lake Verret of the Terrebonne Water Quality Basin drains the project study area. The *2012 Louisiana Water Quality Inventory: Integrated Report - Fulfilling the Requirements of the Federal Clean Water Act Sections 305(b) and 303(d)* indicates this subsegment has designated uses of primary contact recreation, secondary contact recreation, and fish and wildlife propagation. This subsegment is meeting its designated use for secondary contact recreation but not for primary contact recreation or fish and wildlife propagation. Suspected causes of impairment include dissolved oxygen, total suspended solids, and fecal coliform. Subsegment 120206 is not included in the Louisiana's 2012 303(d) list of impaired water bodies.

As a result of the sinkhole, surface water and groundwater quality is being monitored daily by multiple entities including Acadian Gas, Chevron, Crosstex, Dow Chemical, K/D/S Promix, Occidental Chemical, and Texas Brine to determine long term effects of the sinkhole. All companies are monitoring wells in the area. Acadian Gas and Chevron are also monitoring gas withdrawal and Texas Brine is monitoring sinkhole containment, shallow gas, and salt dome stability and conducting berm inspection. Since February 2013, the sinkhole has been contained by an earthen berm system. According to Texas Brine, over 3,950 water samples have been taken and to date none have indicated adverse water quality impacts to area surface water outside of the sinkhole containment berm ("Two-Year Progress").

3.12.2 Groundwater

According to the United States Environmental Protection Agency (USEPA), a Sole Source Aquifer (SSA) is an aquifer that normally supplies at least 50 percent of the drinking water for a particular community or area where no viable alternative drinking water sources exists. The project study area is not located above a designated SSA. Correspondence received from USEPA's SSA Program dated June 18, 2013, concurred that no review under the SSA program is required.

The project study area is located over the Mississippi River Alluvial Aquifer (MRAA). However, according the USGS data the portion of the aquifer under the project study area is not considered fresh groundwater due to chloride concentrations exceeding 250 milligrams per liter. In 2010, 9.03 million gallons per day of groundwater was withdrawn in Assumption Parish. Over 95% of the groundwater was for industrial use and less than 5% was withdrawn for rural domestic, general irrigation, and aquaculture. None of

the groundwater withdrawn was for public supply (Prakken and Lovelace). **Figure 10** demonstrates the limits of area aquifers. Aquifer recharge potential data was not available for this area.

A Public Water System (PWS) is any water system that provides water to at least 25 people for at least 60 days annually. A search was performed using the LDNR Strategic Online Natural Resources Information System (SONRIS) databases for PWS wells located within the project study area. The SONRIS database includes all water wells registered with the DOTD. No PWS wells were identified within the project study area.

All water wells that were identified are shown on **Figure 9** and are detailed in **Table 3-5**. This search was conducted on May 1, 2014, it is possible that additional wells have been drilled but are not registered.

**TABLE 3-5
REGISTERED WATER WELLS IN THE PROJECT STUDY AREA**

Well Type	Quantity
Monitor	19
Plugged and Abandoned Monitor	2
Heat Pump Hole	1
Plugged and Abandoned Industrial	1
Plugged and Abandoned Rig Supply	1
Total Wells	24

NOTES:

1. This data is based off a search of LDNR SONRIS water well server on May 1, 2014.

3.12.3 Observation Relief Wells (ORWs)

The collapse of the brine cavern that led to the formation of the sinkhole also created pathways from deeper formations allowing natural gas to release into the MRAA. The MRAA is composed of sand and gravel beginning 100 feet below the ground surface. Natural gas has migrated into the surface soils above the MRAA within a two square mile area around the collapsed cavern and sinkhole. Shallow ORWs were installed in an effort to vent the gas. According to the Texas Brine *ORW Fact Sheet*, ORWs are being utilized to target aquifer gas accumulations. A total of 51 ORW’s have been installed and 26 are currently connected to flare lines. Since the release of the June 2014 fact sheet Texas Brine has provided another update showing 52 ORWs now exist and a total of 33.9 million cubic feet of gas has been vented to date (“Two-Year Progress”). Of the 19 monitor wells identified in **Table 3-5**, nine are ORWs located in the project study area.

ORWs will be shown on **Figure 9** along with the other water wells since the LDNR classifies ORWs as water wells.

3.13 Floodplains

Federal Emergency Management Agency (FEMA) Flood Insurance Rate Maps (FIRMs) were used to determine the extent of the 100-year floodplain in the project study area. **Figure 11** shows the 100-year flood plain consisting of the entire 208.7 acres within the project study area.

3.14 Farmland

Prime farmland is land that has the best combination of physical and chemical characteristics for producing food, feed, forage, fiber, and oilseed crops. Per preliminary correspondence from the Natural Resources Conservation Service (NRCS) dated June 13, 2013, prime farmland may be affected by the project. **Figure 12** shows prime farmland data obtained from the NRCS Web Soil Survey within the project study area. The Louisiana Department of Agriculture and Forestry sent a letter of no objection, dated July 22, 2013.

3.15 Noise

According to the FHWA's Highway Traffic Noise: Analysis and Abatement Guidance, sound is when an object moves and the movement causes vibrations of the molecules in the air to move in waves. We hear what we call sound when the vibration reaches our ears. Sound from highway traffic is generated primarily from a vehicle's tires, engine, and exhaust. Sound pressure levels used to measure the intensity of sound are described in terms of decibels (dB). Sound occurs over a wide range of frequencies. However, not all frequencies are detectable by the human ear. Therefore, an adjustment is made to the high and low frequencies to approximate the way an average person hears traffic sounds. This adjustment is called A-weighting decibels (dBA). Generally, when the sound level exceeds the mid-60 dBA range, outdoor conversation in normal tones at a distance of three feet becomes difficult. **Table 1** shows the noise levels for common indoor and outdoor sounds.

Because traffic sound levels are never constant due to the changing number, type, and speed of vehicles, a single value is used to represent the average or equivalent steady-state sound level (Leq). For traffic noise assessment purposes, Leq is typically evaluated over the worst one-hour period and is defined as Leq(h).

The FHWA has established noise abatement criteria (NAC) for various land use activity categories that can be used to determine when a traffic noise impact would be expected to occur. DOTD's noise policy defines traffic noise levels as "approaching" when the noise level is at least 1 dBA below FHWA NAC. The DOTD policy also states a 10 dBA increase over existing levels is a substantial increase. In accordance with current FHWA noise regulations, the Traffic Noise Model (TNM) version 2.5 computer program was used to predict the noise levels associated with

the proposed project including the existing, design year no-build, and design year build conditions. Twenty receivers representing single-family residences were modeled. For the existing conditions, six of the modeled receptors experienced noise impacts. The six receptors are located along LA 70 near Gumbo Street. The traffic noise analysis is detailed further in Chapter 4.15 and a complete copy of the analysis is contained in **Appendix C**.

3.16 Air Quality

Air quality is measured by the type and level of pollutants in the air. The 1990 Clean Air Act Amendment requires the USEPA to set National Ambient Air Quality Standards (NAAQS) (40 CFR Part 50) for pollutants considered harmful to public health and the environment. The USEPA has set NAAQS for six principal pollutants, which are called "criteria" pollutants as shown in **Table 3-6** (USEPA, NAAQS). In addition to criteria air pollutants for which NAAQS have been established, the USEPA regulates air toxics which mostly originate from human-made sources, including on-road mobile sources, non-road mobile sources (e.g., airplanes), area sources (e.g., dry cleaners), and stationary sources (e.g., factories, refineries)(USEPA, *Pollutants and Sources*).

**TABLE 3-6
CRITERIA POLLUTANTS**

Pollutant Name	Chemical Abbreviation
Ozone	O ₃
Carbon Monoxide	CO
Particulate Matter	PM ₁₀ and PM _{2.5}
Nitrogen Dioxide	NO ₂
Sulfur Dioxide	SO ₂
Lead	Pb

Highway agencies are required to consider the impacts of transportation improvement projects on a regional level in the Transportation Conformity analysis and at a statewide level in the State Implementation Plan (USEPA, *Transportation Conformity*) for those areas that are not in attainment with current standards. The proposed project is located in Assumption Parish in Louisiana, which is currently designated as attainment or unclassifiable for all NAAQS (USEPA, "Current Nonattainment"). An air quality conformity analysis to conform to the State Implementation Plan for attainment and maintenance of the NAAQS is not required.

A letter from the LDEQ was received, dated July 1, 2013, confirming that Assumption Parish is classified as an attainment parish with the NAAQS for all criteria air pollutants and has no general conformity determination obligations. An air quality review was conducted for the Preferred Alternative. The review is summarized in Chapter 4.16 and a complete copy is contained in **Appendix D**.

3.17 Hazardous Materials

A survey of a one-mile radius of the project study area was conducted to identify sites that contain or potentially contain hazardous or toxic materials and/or wastes. Environmental Data Resource, Inc. (EDR) was contracted to provide a preliminary corridor search of the project study area, using the standard American Society for Testing and Materials (ASTM) format for Phase I Environmental Site Assessments (ESAs). The EDR report contains regulatory agency record reviews, including a search of federal and state environmental compliance databases.

The database search and regulatory agency records review were conducted to determine what, if any, information, release reporting, or registrations exist, or have been applied for, which might reveal a potential for contamination, indicate the possible presence of contamination, or assist in identifying recognized environmental conditions in connection with the project study area. This procedure includes the examination of standard environmental record sources identified within Section 7.2.1.1 of ASTM Standard Practice E 1527-13, along with other appropriate agencies as deemed necessary. The databases searched include: Federal ASTM E 1527-13 Databases, Federal ASTM E 1527-13 Supplemental Databases, and State ASTM E 1527-13 Databases.

Two types of sites were considered to be of particular interest for this project:

- Sites where hazardous materials or wastes are generated, stored, handled, or disposed
- Sites containing underground storage tanks (USTs)

These sites, should they be contaminated, have the potential to directly impact the project study area if located in the existing or proposed ROW, or indirectly through migration of contamination off site and into the project ROW.

3.17.1 Hazardous Waste Sites

Hazardous waste is defined by 42 USC § 6903 as “a solid waste, or combination of solid wastes, which because of its quantity, concentration, or physical, chemical, or infectious characteristics may (A) cause, or significantly contribute to an increase in mortality or an increase in serious irreversible, or incapacitating reversible, illness; or (B) pose a substantial present or potential hazard to human health or the environment when improperly treated, stored, transported, or disposed of, or otherwise managed.” Federal and state databases were used to identify known hazardous waste sites. Potential hazardous waste sites in the project study area identified by the EDR report are shown on **Figure 13**. A copy of the EDR can be found in the Phase I ESA (see **Appendix E**).

One Resource Conservation and Recovery Act - Small Quantity Generators was located in the search area, at 1282 LA 70. The preliminary EDR report

identified four Conditionally Exempt Small Quantity Generators in the search area. Of these, none are in the project study area or near the Preferred Alternative.

The Emergency Response Notification System (ERNS) records and stores information on reported releases of oil and hazardous substances. Four ERNS records were noted in the search area. Of these, none are in the project study area or near the Preferred Alternative.

One solid waste facility/landfill site was identified in the search area but is not in the project study area or near the Preferred Alternative.

The Hazardous Materials Incident Report System (HMIRS), which contains hazardous material spill incidents reported to the DOT, revealed that there are no HMIRS sites in the project study area.

The Section 7 Tracking System (SSTS) database contains information on facilities that produce pesticides. No SSTS facilities were identified in the project study area.

The USEPA maintains a “Watch List” to facilitate dialogue between the USEPA, state/local environmental agencies, and facilities with alleged violations that are identified as significant or high priority. There was one USEPA Watch List site found within the search area, but is not in the project study area.

There is one asbestos demolition and renovation notification project in the search area, but was not in the project study area.

A search was performed on EDR’s Historical Auto Gas Stations database within the search area and four sites were found. Of the four, two were within the project study area boundaries.

3.17.2 USTs

USTs are defined as any one or a combination of tanks used to contain regulated substances, the volume of which, including connecting underground pipes, is 10 percent or more beneath the surface of the ground. The LDEQ requires by law that all USTs within the state be registered. The data search queried UST records maintained by the LDEQ.

The preliminary EDR report identified seven USTs in the search area. Of these, four are active USTs, two were removed, and one is closed. The two removed USTs were located at 1177 LA 70. The four active and one closed USTs are at the Gator Gold Casino and Truck Stop, located at 1230 LA 70. This property is located within the project study area.

No Leaking USTs or Historical Incident Leaking USTs were identified in the search area.

A list of 74 orphan sites were included in the preliminary EDR report. Public data sources were exhausted, and based on this search it was determined none of the 74 orphan sites were located within the project study area.

3.17.3 Oil and Gas Wells

A letter from the LDNR dated July 11, 2013, confirms there are several wells in the vicinity of the project study area associated with the sinkhole monitoring activity. The LDNR stated most of the information concerning oil, gas, and injection wells can be obtained through the LDNR’s SONRIS database. To determine the location of oil and gas wells in the project study area, data was obtained from SONRIS on May 1, 2014. There are 18 oil and gas wells located in the project study area, as shown in **Figure 13**. **Table 3-7** provides information relative to the well type and status of these wells.

**TABLE 3-7
REGISTERED OIL AND GAS WELLS IN THE
PROJECT STUDY AREA**

Well Type	Quantity
Plugged and Abandoned Dry Hole	6
Plugged and Abandoned Oil Producer	5
Plugged and Abandoned Producer	3
Permit Expired/No Produce Code	2
Plugged and Abandoned Gas/Condensate Producer	1
Unknown	1
Total Wells	18

A secondary search was performed for oil and gas wells in the EDR Underground Injection Control (UIC) database. Forty-six wells were found within the search area. Of these, four are located in the project study area. These include two plugged and abandoned wells, one active injection well, and one dry and plugged well.

3.18 Wetlands

Wetlands are defined jointly by the United States Army Corps of Engineers (USACE) and the USEPA as “those areas that are inundated or saturated by surface or groundwater, at a frequency and duration sufficient to support, and that under normal circumstances, do support, a prevalence of vegetation typically adapted for life in saturated soil conditions” (40 CFR 230.3 and 33 CFR 328.3). In compliance with Executive Order 11990, a preliminary desktop wetland

investigation was conducted on the proposed project study area using soils data and local knowledge. **Figure 14** is a map demonstrating the location of potential wetland areas based on the National Wetlands Inventory (NWI) data and hydric soils in the project study area. Wetlands are potentially present where hydric soils exist.

Wetlands potentially present in the project area have been observed to be primarily comprised of cypress-tupelo swamp and bottomland hardwood forested wetlands. According to the NWI data for the project study area, approximately 143.2 acres are mapped as freshwater forested/shrub wetlands and 3.5 acres as freshwater emergent wetlands. Correspondence from the USACE, dated November 7, 2013, states USACE does not anticipate any adverse impacts to any USACE projects and based on the information provided the site may contain waters of the United States, including wetlands. Field investigations were required to accurately delineate the site. The results of the delineation are discussed in Chapter 4.18.

3.19 Coastal Zone

The project study area is located within Assumption Parish, Louisiana. All of Assumption Parish falls within the Louisiana Coastal Zone Boundary. As required by Section 307 of the Coastal Zone Management Act of 1972, correspondence, dated December 4, 2013, has been made to the LDNR Office of Coastal Management confirming a LDNR Coastal Use Permit will be required for the proposed project. This response was received in relation to the LA 70 Bypass project study area which also includes the project study area of the LA 70 Detour Route.

3.20 Rivers and Scenic Streams

The National Wild and Scenic Rivers System was created by Congress in 1968 to preserve certain rivers throughout the country demonstrating “outstanding natural, cultural, and recreational values in a free-flowing condition for the enjoyment of present and future generations”. According to the Wild and Scenic Rivers System’s website, there is only one waterway in Louisiana protected under this program, Saline Bayou, and it is located in LaSalle Parish (“Saline Bayou, Louisiana”).

The NPS’s Nationwide Rivers Inventory “is a listing of more than 3,400 free-flowing river segments in the United States that are believed to possess one or more outstanding remarkable natural or cultural values judged to be of more than local or regional significance”. According to the NPS’s Nationwide Rivers Inventory webpage, there are 11 free-flowing Louisiana Segments. However, none are located in Assumption Parish.

The Louisiana Natural and Scenic River Act of 1970 established the Louisiana Natural and Scenic River System. According to the LDWF’s Scenic Rivers webpage, there are no Louisiana designated scenic streams in Assumption Parish. A letter from the LDWF, dated June 13, 2013, confirms this information.

3.21 Wildlife

Wildlife present in the project study area include those expected to be present in wetland environments adjacent to the project study area. Alligators, snapping turtles, sliders, nutria, mink, muskrat, hogs, raccoons, squirrels, deer, armadillo, rabbits, wading birds, song birds, and raptors (eagles, owls, hawks, etc.) are expected to be present in and around the project study area. Recreationally and commercially important fish including buffalo, crappie, other sunfish, bass, and gar are also expected to be present (LDWF, “Elm Hall”).

3.22 Threatened and Endangered Species

The Endangered Species Act of 1973 allows the USFWS to manage threatened and endangered species and their ecosystems. According to the USFWS *Information, Planning, and Conservation System*, there are no threatened or endangered species or protected habitats listed for the project study area or Assumption Parish. This information has been confirmed through correspondence with the USFWS, dated June 20, 2013, and the LDWF, dated June 13, 2013. The LDWF did note that surveys for wading bird and pelican colonies will be required no more than two-weeks prior to construction.

3.23 Unique and Environmentally Sensitive Areas

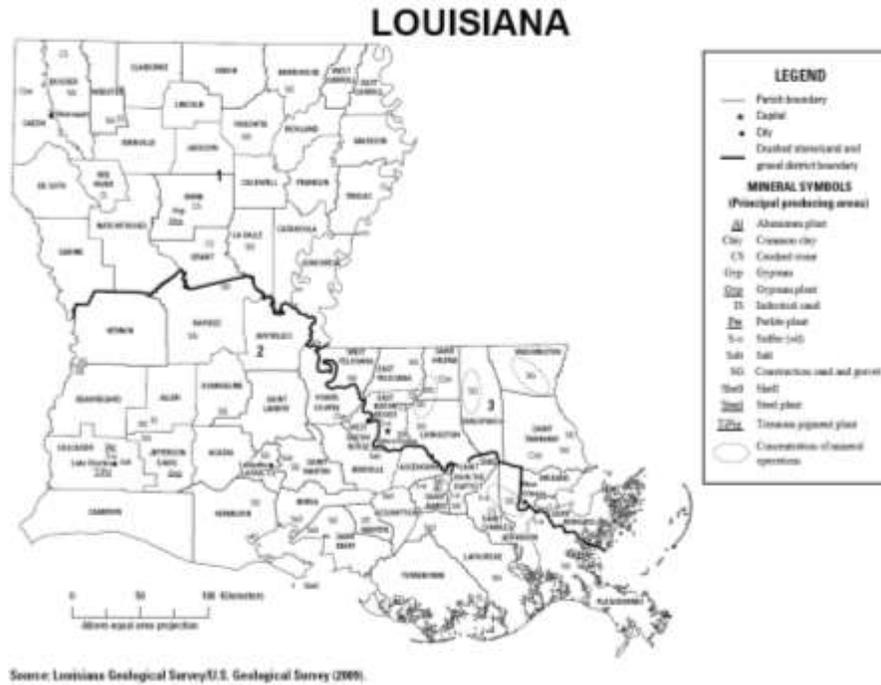
The DOTD Engineering Directives and Standards, Treatment of Significant Trees in DOTD Right-of-Way (EDSM No: I.1.1.21) defines significant trees as a live oak, red oak, white oak, magnolia, or cypress that is considered aesthetically important, has a diameter at breast height of 18 inches, and having a form that separates it from the surrounding vegetation or is considered historic. One of these trees was observed within the project study area and is a live oak located behind the Gator Gold Casino and Truck Stop at the intersection of LA 70 and 69. A substantial wetland environment exists in the project study area that may contain additional significant trees.



Live Oak behind Gator Gold Casino and Truck Stop.

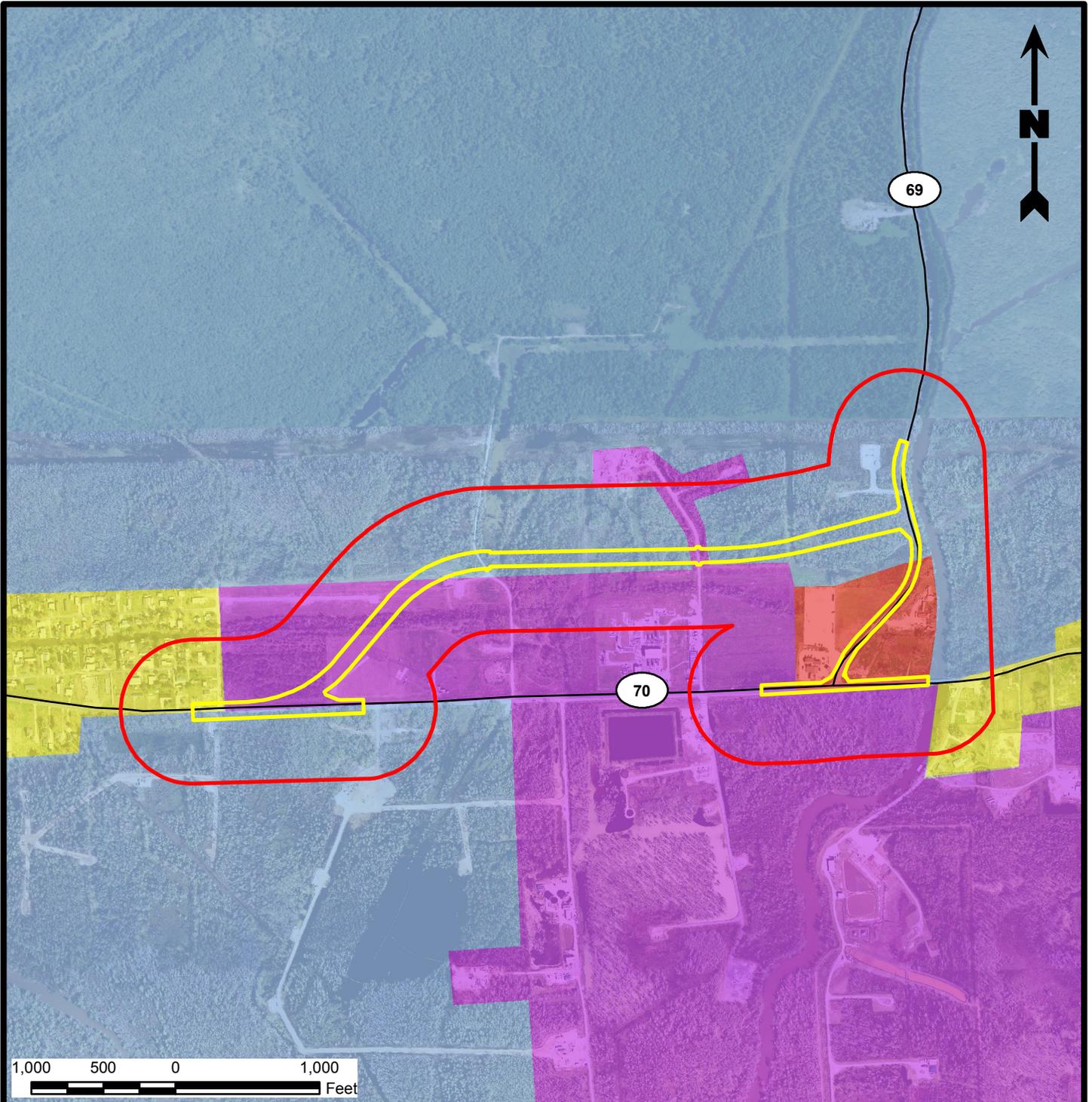
3.24 Mineral Resources

Mineral resources information for the project study area was obtained by researching the LDNR’s SONRIS database and the USGS’s publicly available data. The USGS *2009 Minerals Yearbook* for Louisiana included the figure below illustrating principal mineral producing areas. Salt was listed as a mineral resource for Assumption Parish.



Based on data obtained from the LDNR’s SONRIS database, Assumption Parish supports one of 28 mapped salt domes within Louisiana’s Coastal Zone Boundary. The Napoleonville Salt Dome is located within the project study area. This dome supports both brine production and storage caverns for natural gas and liquid petroleum gas. Within the dome, there are 20 storage caverns and 33 brine mining caverns. The Napoleonville Salt Dome also supports 23 storage wells and 35 brining mining wells. Activities associated with the salt dome are managed by private entities in compliance with state regulations.

Active mineral leases in the project study area were researched through the State Mineral and Energy Board of the State of Louisiana, the entity that issues leases for the purpose of exploring, prospecting, and/or drilling for and producing oil, gas, and any other liquid or gaseous minerals in solution and produced with oil and gas. Lease terms exclude free sulphur, potash, lignite, sale, and other solid minerals. There is one active mineral lease (oil and gas) in the eastern half of the project study area and one Seismic 3D permit that covers the entirety of the project study area (see **Figure 15**).



Legend

- | | | |
|---|--------------------|--|
|  | Project Study Area | Land Use |
|  | Detour Route 2 |  Commercial |
| | |  Industrial |
| | |  Residential |
| | |  Forested Wetland |

Reference

Base map provided by CB&I on 4/15/14. Land Use Land Cover Data obtained from the USGS data set and modified based on aerial investigations.

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

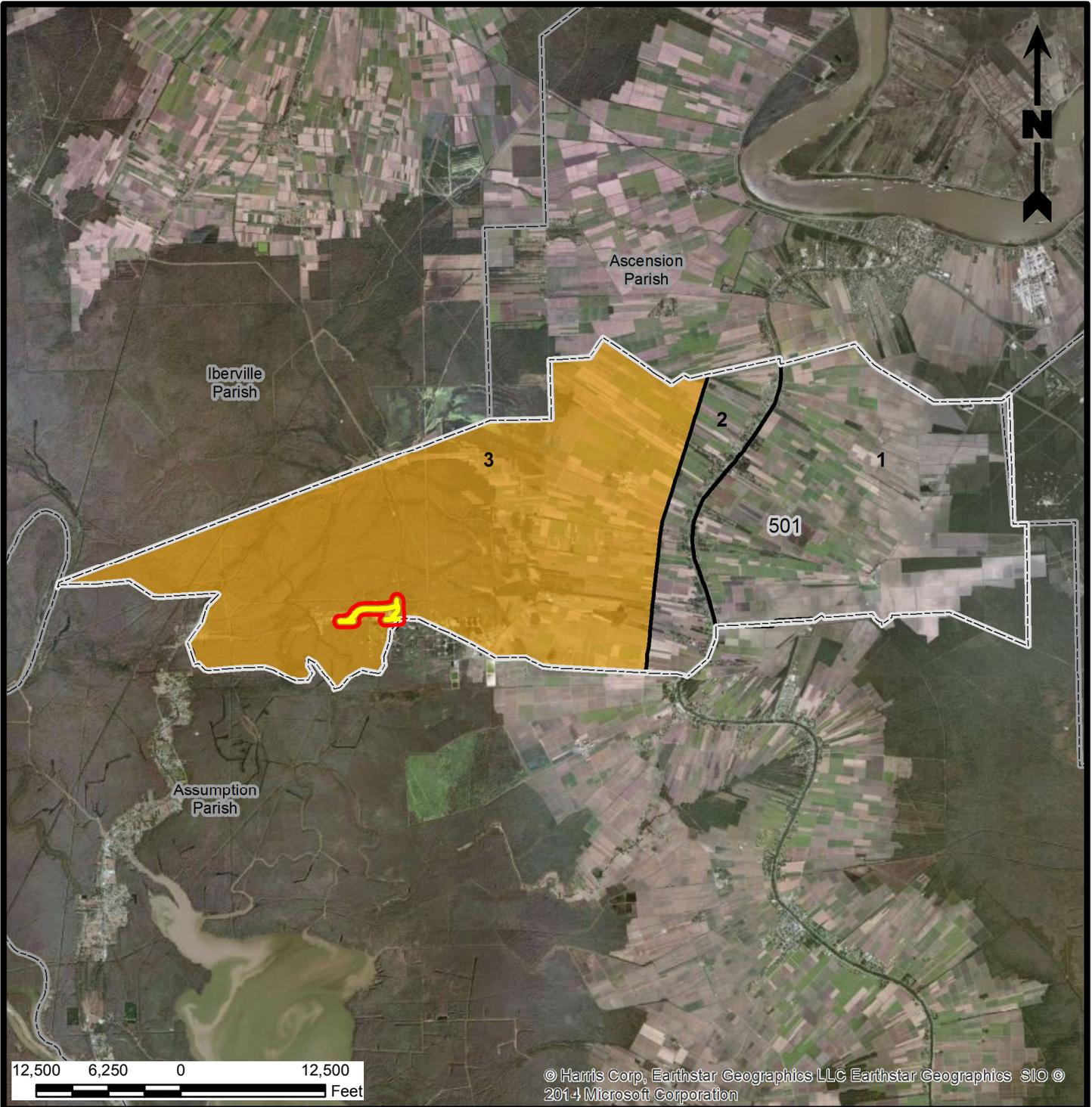
**Louisiana Department
 of Transportation and Development**



PROVIDENCE

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

Project Number 040-014-000	5 Figure
Drawing Number 040-014-000-A022	



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Legend

	Project Study Area	Percent Minority	
	Parish Boundary		0 - 25%
	Census Tract		25 - 50%
	Block Group		50 - 75%
	Detour Route 2		75 - 100%

Reference

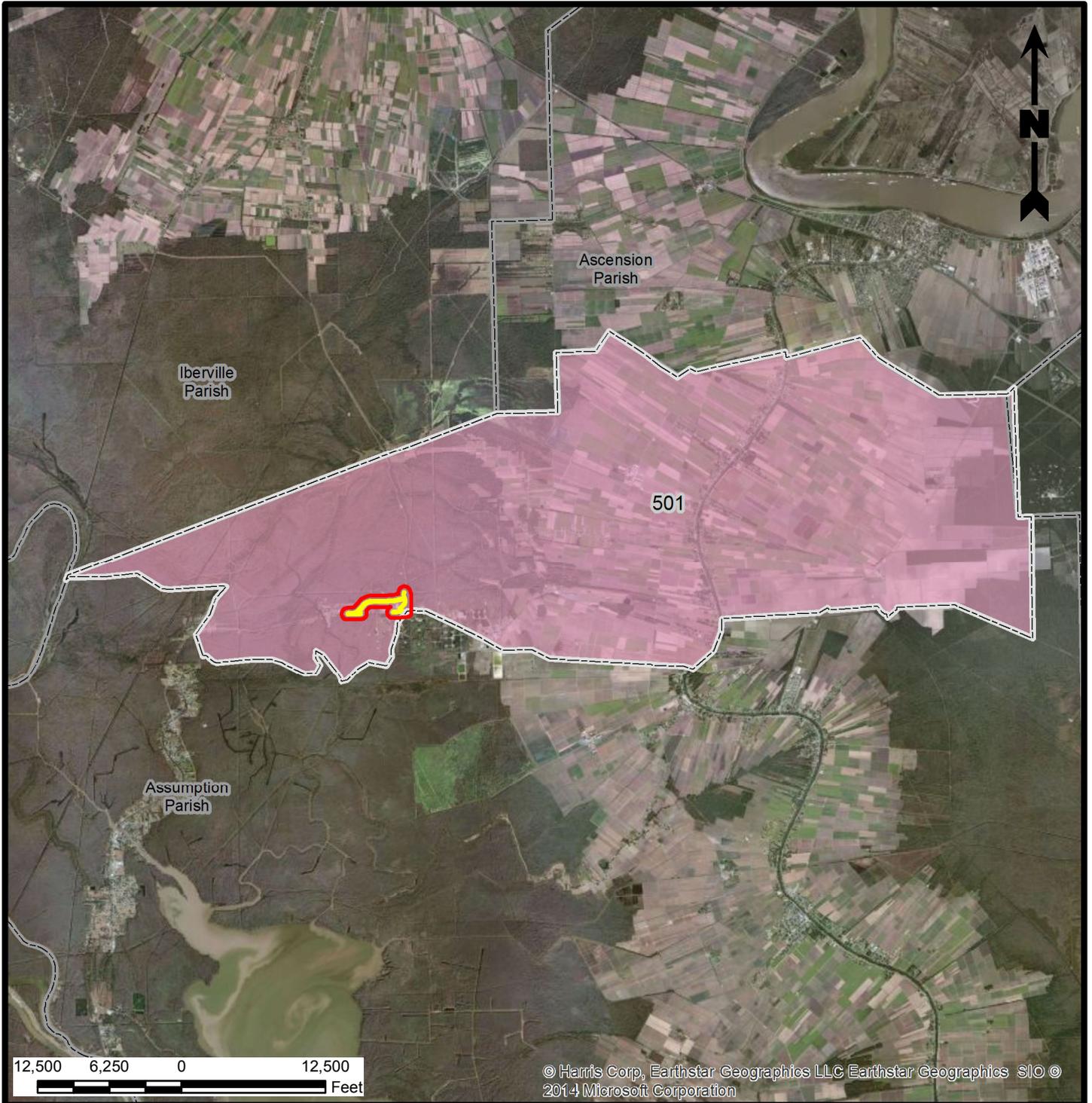
Base map comprised of Bing Maps aerial imagery from (c) 2013 Microsoft Corporation and its data suppliers. Minority data obtained from USCB, 2010 Census Summary File 1 (SF1) 100-Percent Data, Table P9 Hispanic or Latino, and not Hispanic or Latino by Race.

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

**Louisiana Department
 of Transportation and Development**



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Checked By	MEH	5/27/14
Approved By	MEH	11/4/14
Project Number		6 Figure
040-014-000		
Drawing Number		
040-014-000-A023		



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Legend

	Project Study Area	Percent Poverty	
	Parish Boundary		0 - 25%
	Census Tract		25 - 50%
	Detour Route 2		50 - 75%
			75 - 100%

Reference

Base map comprised of Bing Maps aerial imagery from (c) 2013 Microsoft Corporation and its data suppliers. Poverty data obtained from the USCB, 2006-2010 ACS 5-Year Estimates, Table S1701: Poverty Status in the Past 12 Months.

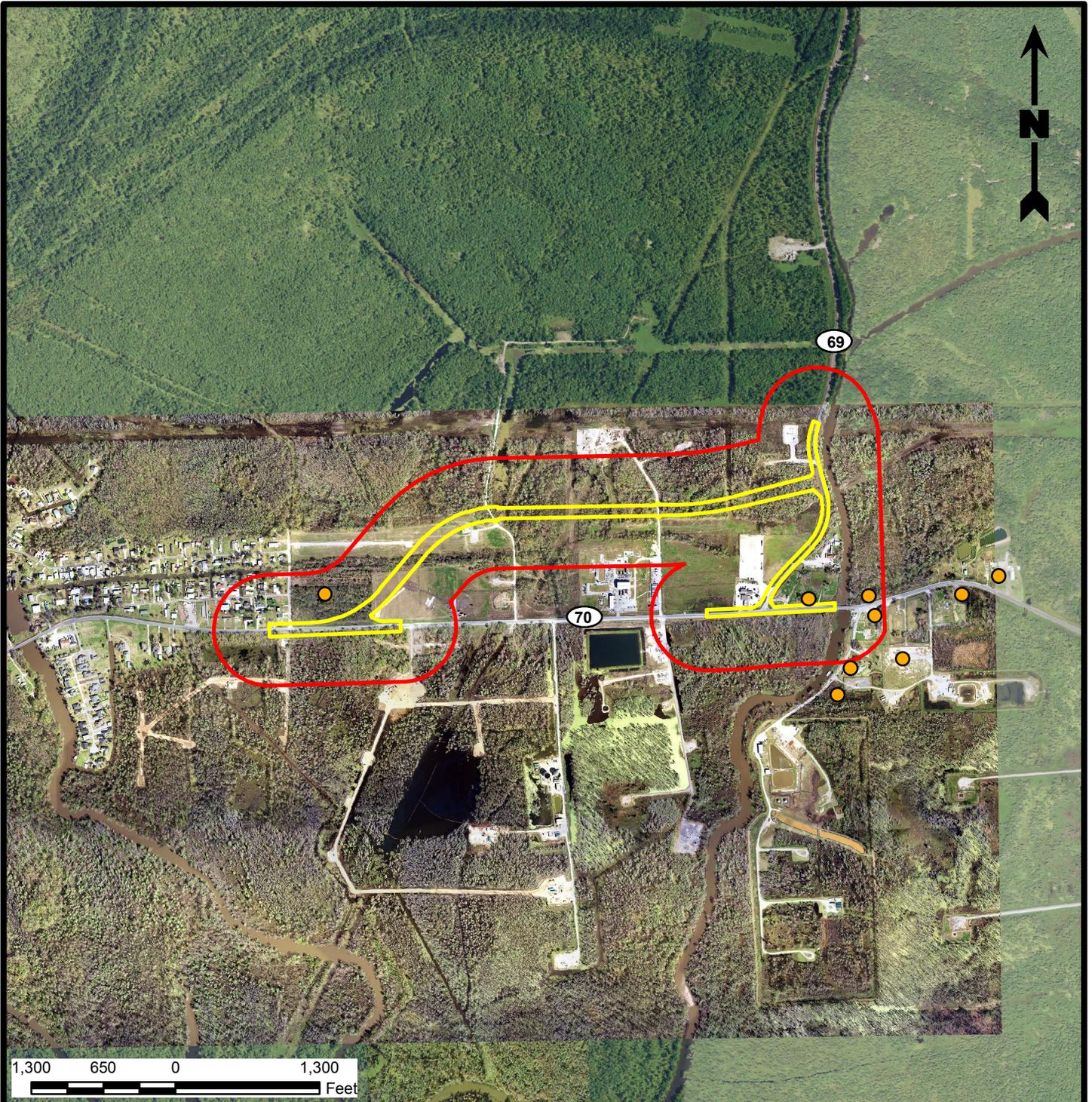
Poverty Data
 LA 70 Detour Route
 State Project No. H.010571.2 EA
 Assumption Parish, Louisiana

**Louisiana Department
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Checked By	MEH	5/27/14
Approved By	MEH	11/4/14
Project Number		7 Figure
040-014-000		
Drawing Number		
040-014-000-A024		

Providence Engineering and Environmental Group LLC



Legend

- Project Study Area
- Detour Route 2
- Previously Recorded Historic Structures

Note

Archeological sites were found in the immediate area, however are not displayed due to confidentiality reasons.

Reference

Base map provided by CB&I on 4/15/14. Historical Structures information was obtained from TRC on 6/3/14.

Cultural Resources

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

**Louisiana Department
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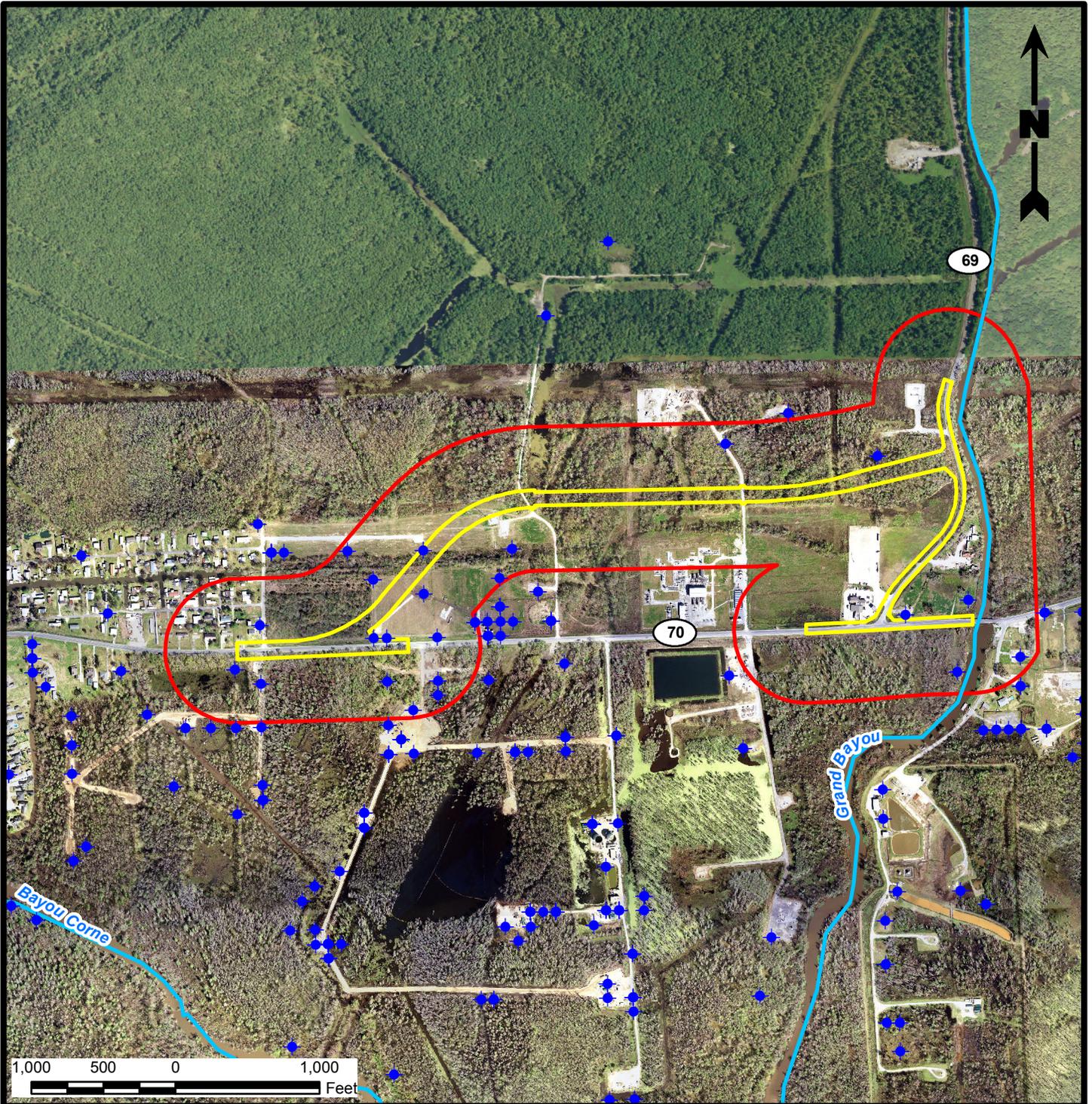
PROVIDENCE

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

Project Number 040-014-000
Drawing Number 040-014-000-A025

8

Figure



Legend

- Project Study Area
- Detour Route 2
- Waterways
- ◆ Registered Water Well

Reference

Base map provided by CB&I on 4/15/14. Registered water wells obtained from the LDNR SONRIS water well server as of 5/1/14.

Water Resources

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

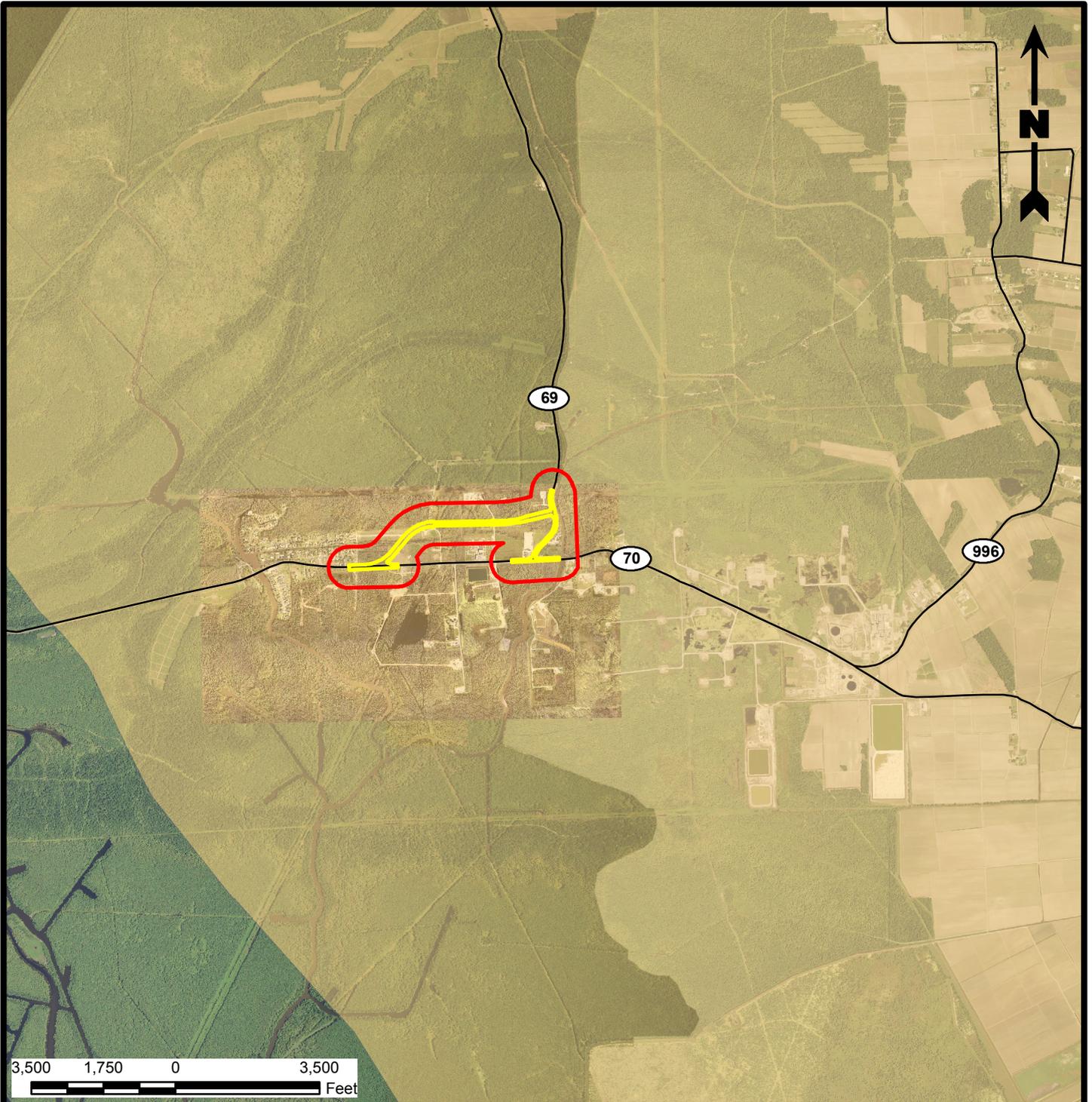
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Checked By	MEH	5/27/14
Approved By	MEH	11/4/14

Project Number 040-014-000	9 Figure
Drawing Number 040-014-000-A026	



Legend

- Project Study Area
- Detour Route 2
- Alluvial
- Louisiana Aquifers

Notes

A search for Sole Source Aquifers (SSA) was performed and no SSA's were found in the project study area. Recharge Potential data is not available for this area.

Reference

Base map provided by CB&I on 4/15/14. Aquifer data comprised of Recharge Potential of Louisiana Aquifers, LDEQ (1999).

Aquifers and Recharge Potential

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

Louisiana Department
 of Transportation and Development

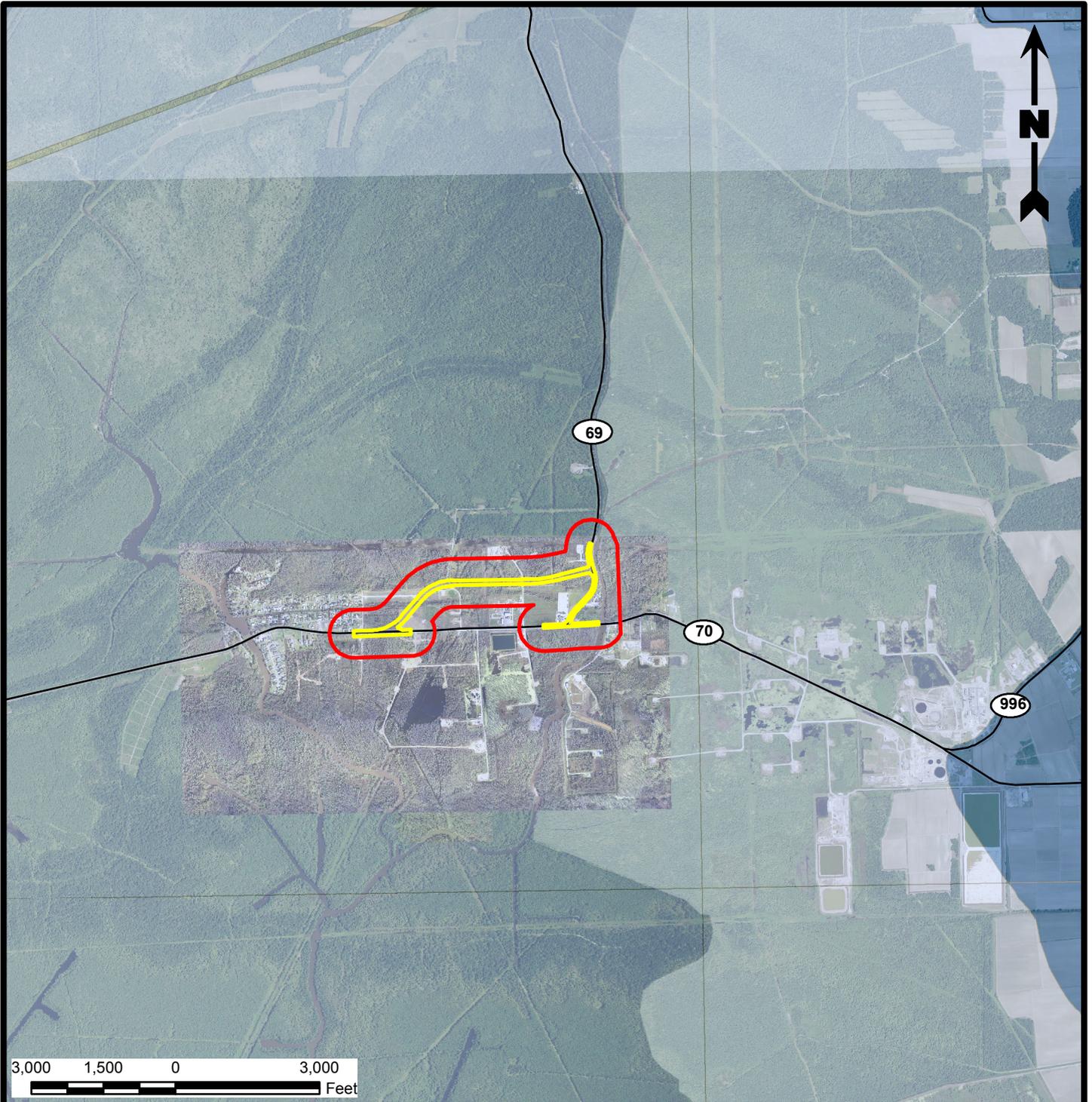


PROVIDENCE

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

Project Number	040-014-000
Drawing Number	040-014-000-A027

10
Figure



Legend

- Project Study Area
- Detour Route 2
- Zone A = 100-Year Floodplain
- Zone X = 500-Year Floodplain

Reference

Base map provided by CB&I on 4/15/14. The Q3 Flood Data was obtained from the Flood Insurance Rate Maps (FIRMS) published by FEMA.

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

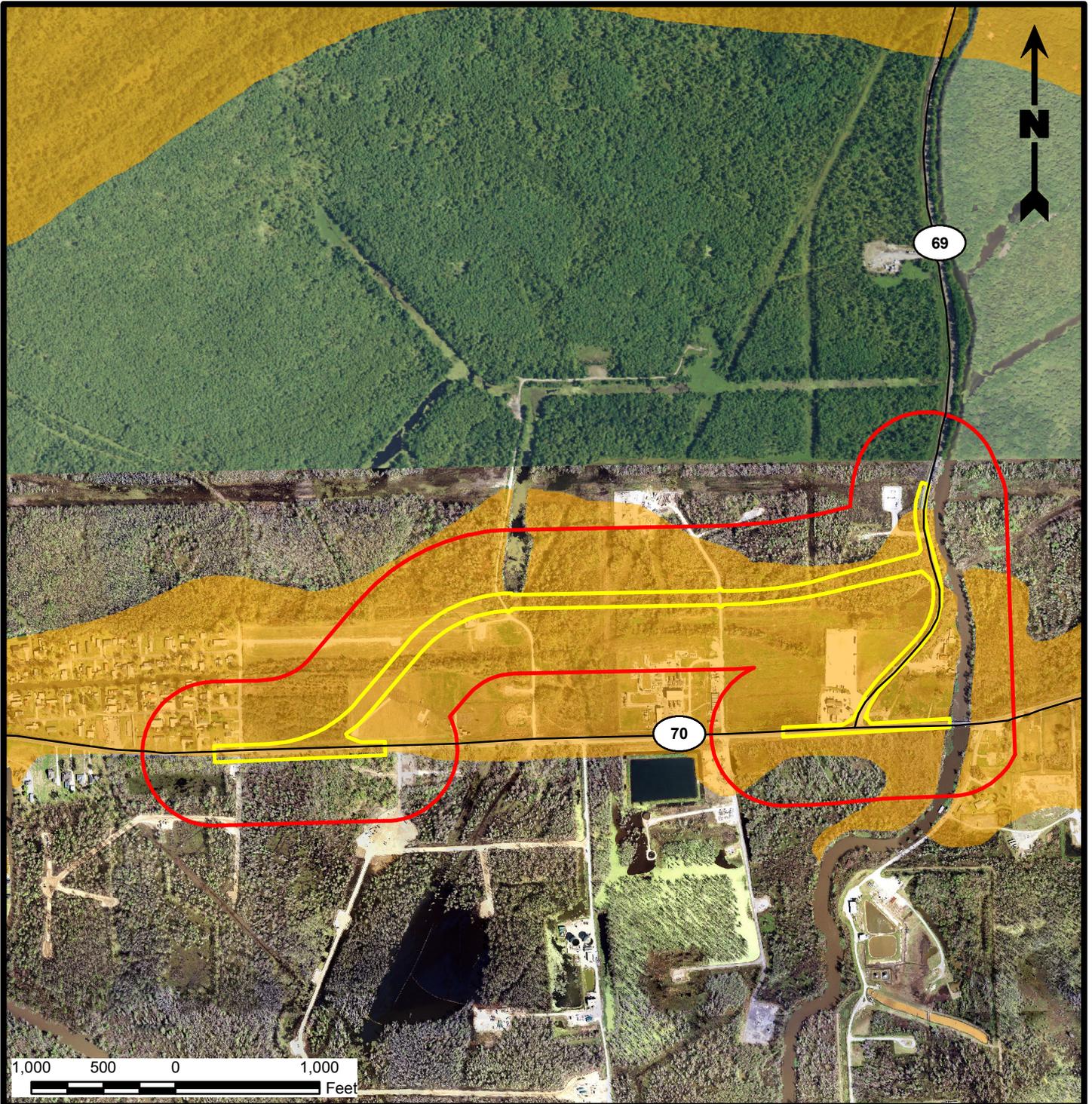
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PROVIDENCE

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

Project Number 040-014-000	11 Figure
Drawing Number 040-014-000-A028	



Legend

- Project Study Area
- Detour Route 2
- Prime Farmland

Reference

Base map provided by CB&I on 4/15/14. Soils data obtained from the NRCS data-server as of 6/11/09.

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

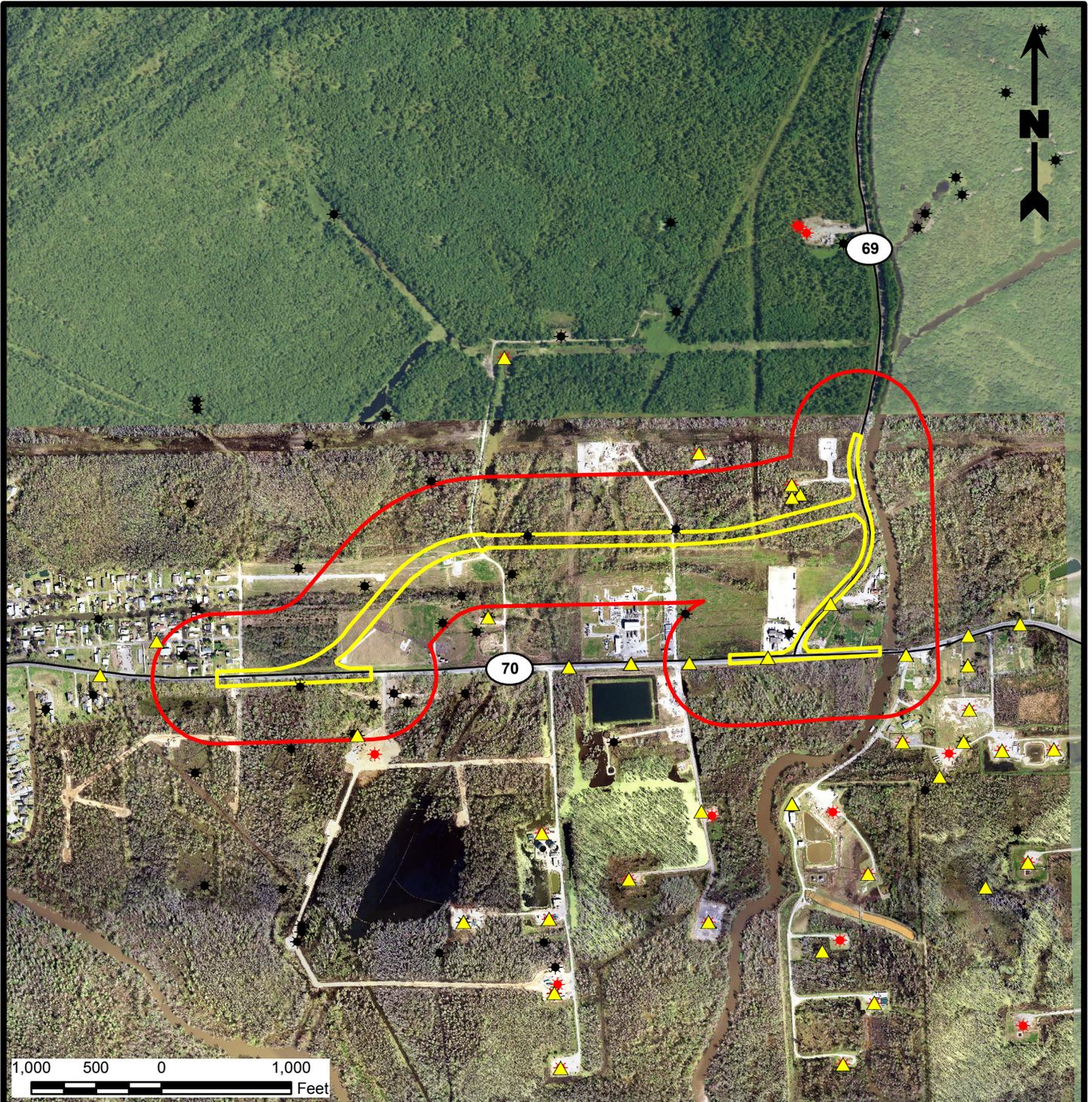
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Checked By	MEH	5/27/14
Approved By	MEH	11/4/14

Project Number 040-014-000	12 Figure
Drawing Number 040-014-000-A029	



Legend

- Project Study Area
- Detour Route 2
- ★ Active Oil/Gas Well
- ★ Inactive Oil/Gas Well
- ▲ EDR Site

Reference

Base map provided by CB&I on 4/15/14. Environmental liability sites obtained from EDR shapefile as of 12/19/13. Oil and gas well data obtained from the LDNR SONRIS oil and gas well server as of 5/1/14.

Potential Environmental Liability Sites

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

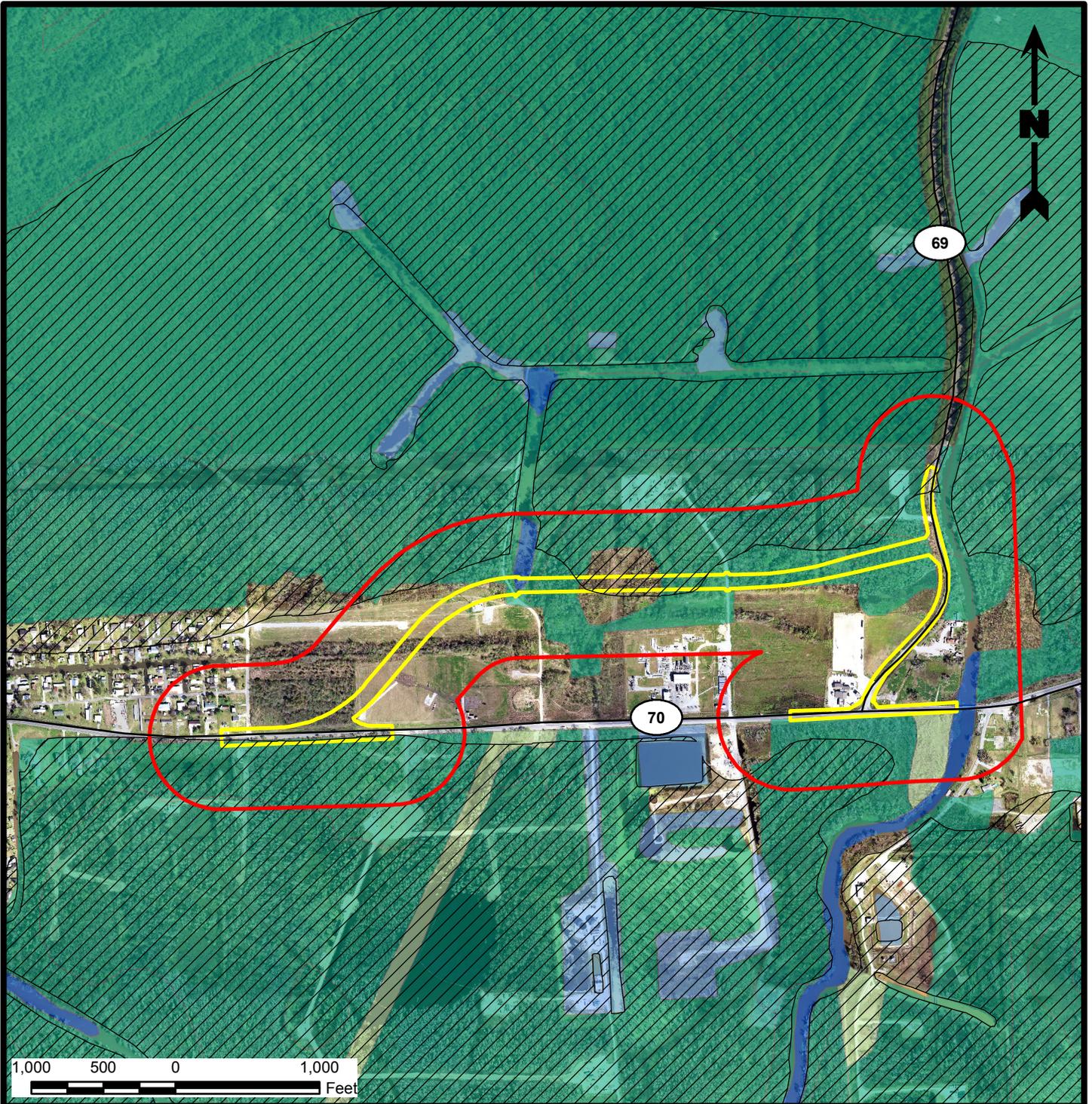
Louisiana Department of Transportation and Development



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

Project Number 040-014-000	13 Figure
Drawing Number 040-014-000-A030	



Legend

- | | |
|-----------------------|-----------------------------------|
| Project Study Area | NWI Data |
| Detour Route 2 | Freshwater Emergent Wetland |
| Potential Hydric Soil | Freshwater Forested/Shrub Wetland |
| | Freshwater Pond |
| | Riverine |

Reference

Base map provided by CB&I on 4/15/14. Potential hydric soils data obtained from Soil Survey Geographic Database (SSURGO), dated 2009. NWI Data from USFWS, Division of Habitat and Resource Conservation as of 5/1/14.

Potential Wetlands and Hydric Soils

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

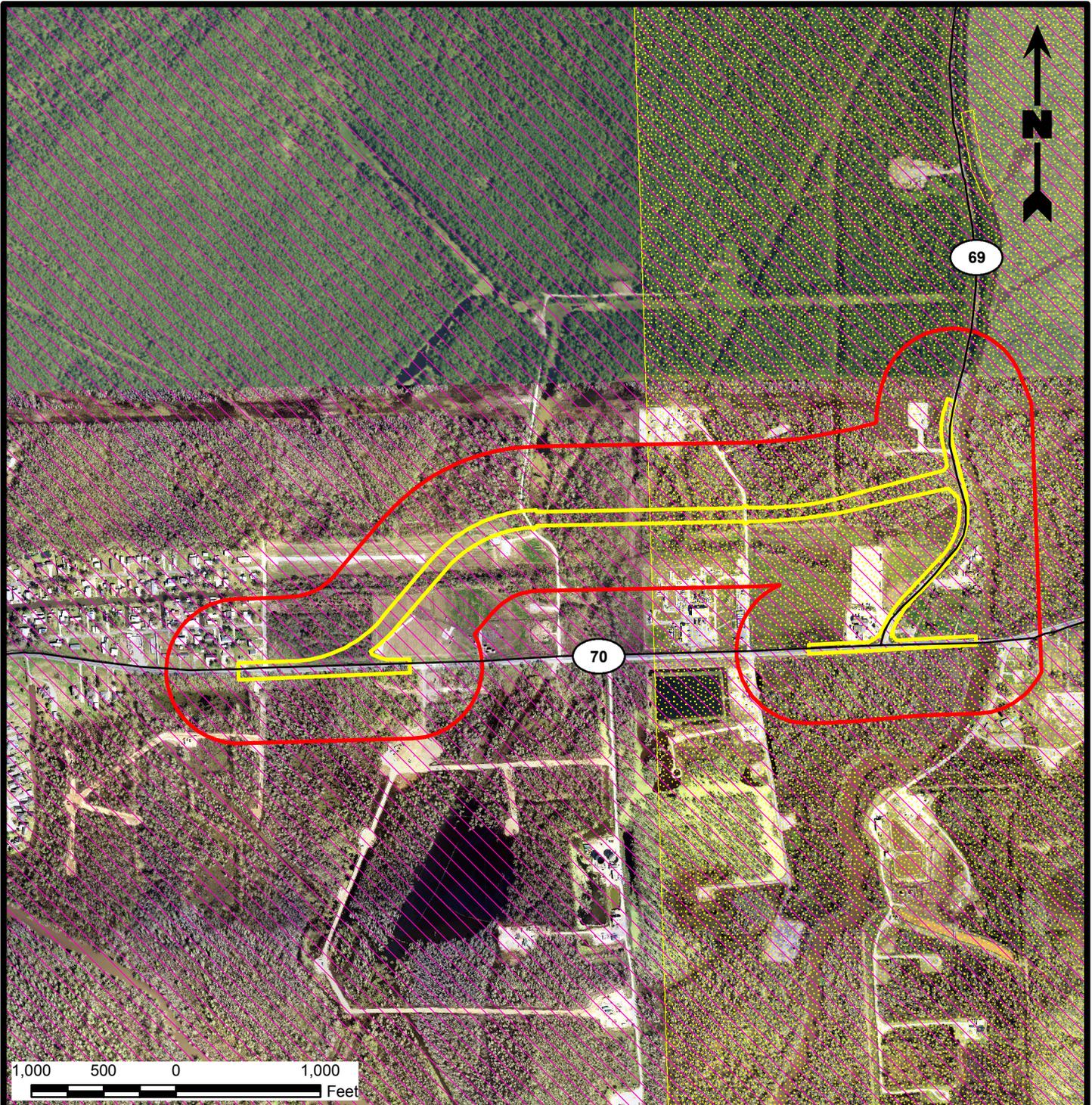
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Checked By	MEH	5/27/14
Approved By	MEH	11/4/14

Project Number	040-014-000
Drawing Number	040-014-000-A031

14
Figure



Legend

-  Project Study Area
-  Detour Route 2
-  Seismic 3D Permits
-  Active Mineral Leases

Reference

Base map provided by CB&I on 4/15/14. Active Mineral Leases, Seismic 3D Permits, and Oil/Gas Fields obtained from the LDNR SONRIS data set as of 12/2/13.

Mineral Resources

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

**Louisiana Department
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PROVIDENCE

Drawn By	ECL	12/12/13
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Approved By	MEH	11/4/14

Project Number 040-014-000
Drawing Number 040-014-000-A032

15
Figure