

**APPENDIX J:
HAZARDOUS TOXIC AND
RADIOACTIVE WASTE
ASSESSMENT**

**J1: Phase I Environmental Site
Assessment Report**

PHASE I
ENVIRONMENTAL SITE ASSESSMENT

Mid-Barataria Sediment Diversion
Plaquemines and Jefferson Parish, Louisiana



January 31, 2020

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Mid-Barataria Sediment Diversion Plaquemines and Jefferson Parish, Louisiana

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PHASE I
ENVIRONMENTAL
SITE ASSESSMENT

1.0 SUMMARY

On behalf of the Coastal Protection and Restoration Authority (CPRA), G.E.C., Inc. (GEC) has completed a Phase I Environmental Site Assessment (ESA) for the Mid-Barataria Sediment Diversion (MBSD) located in Plaquemines Parish and Jefferson Parish, Louisiana. The MBSD consists of a controlled sediment and freshwater intake diversion structure in Plaquemines Parish on the right descending bank of the Mississippi River at RM 60.7 just north of the town of Ironton, with a conveyance system that would discharge sediment, fresh water, and nutrients from the Mississippi River into an outfall area within the mid-Barataria Basin in Plaquemines and Jefferson Parishes. The conveyance system would cross a portion of Louisiana Highway (Hwy) 23 and the New Orleans Gulf Coast (NOGC) Railroad, and alter a portion of the Mississippi River and Tributaries (MR&T) Project, Mississippi River Levee (MR Levee), and the future New Orleans to Venice, Louisiana Non-Federal Levee (NOV-NFL). For the purposes of this investigation, the property is bordered by the Mississippi River to the east and Barataria Basin to the west, and between Ironton to the south and Alliance Refinery to the north. The property includes a land portion for the construction and location of the diversion structure and an outfall area within the Barataria Basin for sediment deposition during diversion operations. The property area for the MBSD construction footprint is approximately 1,015 acres and includes forested land and pasture land for the diversion structure, immediate outfall area within the Barataria Basin, and construction access canals within the Barataria Basin. The property area for MBSD operations includes the sediment deposition outfall area which is approximately 35,000 acres within the basin. Note: the proposed beneficial use areas and terraces within the basin were not included because per CPRA, these locations are still undetermined. However, these features are anticipated to be located within the sediment deposition outfall area which is included in this investigation. For the purpose of this ESA, *the property* refers to the proposed MBSD project construction footprint and operations sediment deposition outfall area.

GEC conducted the Phase I ESA in accordance with applicable portions of American Society for Testing and Materials (ASTM) Standard E 1527-13 *Standard Practice for Environmental Site Assessments: Phase I Environmental Site Assessment Process* (ASTM 2013) and ASTM E 2247-16 *Standard Practice for Environmental Site Assessments: Phase I Environmental Site Assessment Process for Forestland or Rural Property* (ASTM 2016) to identify recognized environmental conditions (REC) located along the project corridor.

In order to characterize environmental conditions for the project, GEC:

- Reviewed Federal, state, and local environmental databases;
- Conducted historical research;
- Interviewed pertinent persons; and
- Performed a site investigation.

GEC performed the Phase I ESA in accordance with the scope and limitations of ASTM E 1527-13 and ASTM E 2247-16, where applicable and appropriate. ASTM E 2247-16 is closely related to ASTM E 1527-13 but provides for an alternative method to ASTM E 1527 for rural properties when some of the methodologies of ASTM E 1527 are deemed to be impractical or unnecessary due to the size or nature of the property. ASTM E 1527-13 was primarily used in the construction footprint and ASTM E 2247-16 was primarily used in the sediment deposition

outfall area due to the size and nature of the property. Any exceptions or departures from these standard are described in the report. Based on the review of Federal, state, and local environmental databases, historical research, interviews, and site investigations, the assessment has revealed no recognized environmental condition (REC) on the property. This ESA has revealed no RECs on adjacent properties. Based on the findings of this ESA, GEC does not recommend further investigation of the property at this time.

During the Phase I ESA investigation, GEC found other areas of concern but these would not be considered RECs within the property.

2.0 INTRODUCTION

2.1 Purpose

The purpose of the assessment is to identify any potential RECs located at or in the vicinity of the project that have, or may have in the past, adversely impacted environmental conditions at the property.

2.2 Definition of Recognized Environmental Conditions

In defining a standard of good commercial and customary practice for conducting an *environmental site assessment* of a parcel of property, the goal of the processes established by this practice is to identify *recognized environmental conditions*, which ASTM E 1527-13 Section 1.1.1 and ASTM E 2247-16 Section 1.1.2 defines as:

The presence or likely presence of any *hazardous substances* or *petroleum products* in, on, or at a *property*. (1) due to any *release* to the *environment*; (2) under conditions indicative of a *release* to the *environment*; or (3) under conditions that pose a *material threat* of a future *release* to the *environment*. *De minimis* conditions are not *recognized environmental conditions*.

In addition, ASTM E 1527-13 and 2247-16 define Controlled REC, Historical REC, and De Minimis Conditions as follows:

- *Controlled Recognized Environmental Condition* – A *recognized environmental condition* resulting from a past *release* of *hazardous substances* or *petroleum products* that has been addressed to the satisfaction of the applicable regulatory authority (for example, as evidenced by the issuance of a no further action letter or equivalent, or meeting risk-based criteria established by regulatory authority), with *hazardous substances* or *petroleum products* allowed to remain in place subject to the implementation of required controls (for example, *property* use restrictions, *activity and use limitations*, *institutional controls* or *engineering controls*).
- *Historical Recognized Environmental Condition* – A past *release* of any *hazardous substances* or *petroleum products* that has occurred in connection with the *property* and has been addressed to the satisfaction of the applicable regulatory authority or meets unrestricted use criteria established by a regulatory authority, without subjecting the

property to any required controls (for example, *property* use restrictions, *activity and use limitations*, *institutional controls*, or *engineering controls*).

- *De minimis Condition*— A condition that generally does not present a threat to human health or the *environment* and that generally would not be the subject of an enforcement action if brought to the attention of appropriate governmental agencies. Conditions determined to be *de minimis conditions* are not *recognized environmental conditions* or *controlled recognized environmental conditions*.

2.3 Scope of Services

GEC is responsible for investigating the property in order to identify any REC within and adjacent to the property. Investigation procedures have complied with ASTM E 1527-13 and 2247-16, and the scope of services for the ESA includes the following:

- Research of available Federal, state, and local environmental databases for potential REC at or within a specified distance of the project;
- Reviews of historical aerial photographs, Sanborn® Fire Insurance Maps, United States Geologic Survey (USGS) topographic maps, and/or published soils and geologic information;
- Interviews with state and local government agency representatives and/or persons knowledgeable of the property regarding documented inspections, violations, incidents, spill responses or past uses of therein;
- Visual observations of accessible portions of the property to identify current and historical REC sites. Visual observations of accessible portions of adjacent properties were also conducted; and
- Preparation of a written report that identifies whether the project contains REC and whether or not conditions warrant further investigation.

In accordance with ASTM E 1527-13 and 2247-16, a Phase I ESA typically does not include sampling and analysis of soil or groundwater, wetland delineations, or surveys for cultural or historic resources, threatened or endangered species, lead based paint, or asbestos containing materials.

2.4 Significant Assumptions

No significant assumptions were made in the preparation of this Phase I ESA.

2.5 Limitations and Exceptions

GEC's review of record information and environmental databases included information that was reasonably ascertainable from standard sources. *Reasonably ascertainable* denotes (1) information that is publicly available, (2) information that is obtainable within reasonable time and cost constraints, and (3) information that is practically reviewable. **GEC's review**

included information gathered directly from governmental and regulatory agencies as well as an electronic database search performed by GeoSearch. References used in the preparation of this document are included in Appendix A. Much of the information was gathered from public records and sources maintained by third parties. Although reasonable care was taken to verify the information, errors, omissions, or inaccurate information is possible since some applicable information may not be readily available.

GEC interviewed available individuals identified as having current and historical knowledge of land use, commercial and residential development, and activities and incidents associated with the property. *Available individuals* include (1) persons with whom contact can be made within reasonable time constraints, and (2) persons willing to share information with interviewers. These individuals were selected based on their employment in state and local government; association with, or proximity to, specific properties; or long-time residence in and knowledge of the area. Significant effort was made to identify and contact individuals possessing direct knowledge of sites; however, no guarantee is made or intended that all individuals with pertinent knowledge of sites were identified and interviewed or that information provided during the interviews is free of errors, omissions, or inaccurate information.

Observations made during GEC's reconnaissance of the property were limited to (1) sites or portions of sites that were accessible to investigators, and (2) evidence that was visible to the investigators. Observations were based on evidence that was visible to inspectors while accessing the property. No ground excavation, vegetation clearing, or physical relocation of obstacles was conducted during site investigations. Accordingly, no guarantee is made or intended that all site conditions were observed.

2.6 Special Terms and Conditions

No special terms or conditions were made with respect to ASTM E 1527-13 or ASTM E 2247-16.

2.7 User Reliance

In accordance with ASTM E 1527-13 and 2247-16 Section 7.5.2.1 *Reliance*, GEC is not required to verify independently the information provided by various sources but may rely on the information unless there is actual knowledge that certain information is incorrect or unless it is obvious that certain information is incorrect based on other information obtained during the course of the investigation or otherwise actually known to the investigators conducting the assessment. GEC has no indication that information provided by outside sources are incorrect.

3.0 SITE DESCRIPTION

3.1 Location and Legal Description

The property totals approximately 1,015 acres for the diversion structure and 35,000 acres for the sediment deposition outfall area. It is centered on a point located approximately 29° 39' 42.5" **N latitude and** 89° 57' 48.6" **W longitude** (29.661806 N, -89.9636 W). The project area is located in Plaquemines Parish and Jefferson Parish, Louisiana, near the community of Ironton and Myrtle Grove. A legal description of the property from the permit application as provided

by the user is: *A portion of Section No. 5, 16, 47, 48, 49 Township 16 South, Range 25 East and a portion of Section No. 3, 21, 41, 19 Township 17 South, Range 24 East.*

GEC's investigation of the property was conducted with respect to specific project boundaries and required ROW limits provided by CPRA (see Figures 1 and 2).

3.2 Site Vicinity and General Characteristics

Land use in the vicinity of the property (Figure 2) is primarily agricultural with intermittent commercial and residential parcels. An industrial site, the Phillips 66 Alliance refinery, is located adjacent to the northeast of the property. A grain elevator and Entergy service facility are also located north of the property. The property is also adjacent to the community of Ironton located southeast of the property in Plaquemines Parish, Louisiana, which is approximately 20 miles south of New Orleans on the west bank of the Mississippi River.

The elevation of the subject property is approximately at mean sea level (MSL). Historically, oil drilling, refining, and shipping industries fueled the economy in the area and continue to do so today. The sediment deposition outfall area portion of the property is mostly covered in water with intermittent marsh. There are camps, oil- and gas-related facilities, and fishing-related facilities located within the vicinity of the sediment deposition outfall area.

3.2.1 Geologic, Hydrogeologic, Topographic, and Soil Conditions

Geology. The property is located south of Belle Chasse in Plaquemines Parish on the right descending bank of the lower Mississippi River, which is situated within the Mississippi River deltaic plain. The area is located on a complex of artificial levees and adjacent drained floodplains that were constructed in the early 20th century to address flooding concerns on the lower Mississippi River. Surface geology on the property formerly consisted of natural levee and adjacent coastal marsh deposits but has been substantially disturbed as a result of human development.

The lower Mississippi River is a region with an extremely low gradient. Consequently, the river and its associated distributaries exhibit meandering regimes rather than the entrenched or braided regimes observed in areas with higher gradients. The dominant geomorphology in this environment is that of the deltaic plain. Common landforms in this regime include crevasse splays, point bars, floodplains, abandoned channels, abandoned courses, distributaries, interdistributary bays, and coastal marsh.

Hydrogeology. Fresh water is virtually absent from the subsurface of Plaquemines Parish. Prior to the Pleistocene Epoch [2-0.1 million years (Ma)], much of southern Louisiana was essentially a marine environment. The northern locales of earlier aquifer systems reflect the continental-marine interfaces at their time of deposition. The property is within the Coastal Lowlands Aquifer System, which underlies most of the Gulf Coastal Plain, extending from the Rio Grande River in west Texas to the panhandle of Florida. This aquifer system is a complex sequence of mostly unconsolidated beds of sand, silt, and clay deposited under fluvial, deltaic, and marine conditions. The sequence, which ranges in age from the Oligocene to Holocene epochs (approximately 34 million years ago to present), is generally wedge-shaped and thickens progressively seaward towards the Gulf of Mexico, where it is more than 2.7 miles thick.

Figure 1. Site Location Map

Figure 2. Site Vicinity Map

In the northwestern portion of the Project area, the Coastal Lowlands Aquifer System contains two freshwater aquifers, including the Mississippi River Alluvial Aquifer and the Chicot Equivalent Aquifer System, which comprise 10 percent and 11 percent, respectively, of the Project area. Recharge occurs from rainfall over the aquifer surface, leakage from underlying aquifers, and locally from the Mississippi River. The majority of the Project area does not have a major source of fresh groundwater.

Topography. The elevation of the property is approximately MSL. The property is situated on drained floodplain.

Soils. Soils in the vicinity of the property formed in alluvial sediments from distributary streams of former Mississippi River Deltas. Generally, these soils are divided into frequently flooded and poorly drained soils found in marshes and swamps, soils on sandy ridges that are occasionally flooded, soils in former marshes and swamps that have been drained and are protected from flooding, and soils present on the natural levees that are protected from flooding. With the exception of three soil series found on natural levees of the Mississippi River and sandy ridges of barrier islands (the Commerce, Convent, and Felicity series), all soil series in the Project area are classified as hydric. Hydric soils are formed under conditions of saturation, flooding, or ponding long enough during the growing season to develop anaerobic conditions in the upperpart and support hydrophytic vegetation.

Soils in the marshes and swamps of the property are frequently flooded and ponded, very deep and very poorly drained, with slopes less than one percent. These include Fausse, Barbary, Allemands, Clovelly, Lafitte, Scatlake, Gentilly, and Timbalier series. Soils in former marshes and swamps that have been drained and protected from flooding include Kenner, Harahan, Westwego, and Rita series. These soils are deep to very deep and poorly to very poorly drained with slopes ranging from zero to one percent. Soils in the property that will include the diversion structure belong to the Harahan-Westwego-Rita unit. Soils on sandy ridges that are occasionally flooded include the Felicity series. These soils formed in sandy coastal environments on level and nearly level areas adjacent to Gulf coastal beaches. They are found mainly at elevations of 5 feet or less that are subject to flooding during storm tides. Slopes range from zero to three percent.

3.3 Current Use of Property

According to the joint permit application provided by CPRA, the land is currently owned by Phillips 66 and RAM Terminals, LLC. A portion of the property west of Hwy. 23 is currently being used as pasture land for cattle. A smaller portion of the property east of Hwy. 23 is undeveloped forested land.

3.4 Description of Structures, Roads, and Other Improvements on Site

Hwy 23 runs through the property, south of its intersection with West Ravenna Road, between Alliance Refinery and Ironton in Plaquemines Parish, Louisiana. West Ravenna Road is adjacent to the north of the property. There are a few gravel roadways or paved areas located on or adjacent to the property. The property has no physical address. There are no usable structures currently on site within the construction footprint.

3.5 Current Uses of Adjoining Properties

The property and the adjoining properties are primarily undeveloped land and cattle pastures. A few residences are located nearby. A citrus plantation and an area used for borrow pits adjoins the property along LA 23. Some industrial-type facilities including Phillips 66 Alliance Refinery, CHS Myrtle Grove Grain Elevator, and Entergy Service Facility are also adjacent to the property. Plaquemines Parish Government also owns adjacent property.

4.0 USER PROVIDED INFORMATION

As defined by ASTM E 1527-13 Section 3.2.98 and ASTM E 2247-16 Section 3.2.106 *User*, CPRA is the User of this Phase I ESA. GEC conducted the assessment under contract to CPRA. CPRA provided a site map, legal description of the property, and rights-of-entry to the property.

4.1 Title Records

As described in ASTM E 1527-13 and 2247-16 Section 6.2 *Review Title and Judicial Records for Environmental Liens or Activity and Use Limitations (AULs)*, land title records should be reviewed to determine if environmental liens or activity and use limitations have been recorded against the property. CPRA did not provide any research title records for the property.

4.2 Environmental Liens or Activity and Use Limitations

GeoSearch searched Federal, state, and local databases for sites with CERCLIS (Superfund) liens, Federal land use controls, state sites with controls, and Louisiana Department of Environmental Quality liens; none were located within ASTM-recommended search distances of the property. The GeoSearch Report is presented in Appendix B.

4.3 Specialized Knowledge

GEC was provided with a previous Phase 1 ESA prepared for portions of the property.

4.4 Commonly Known or Reasonably Ascertainable Information

No commonly known or reasonably ascertainable information regarding the environmental history of the project was conveyed to GEC.

4.5 Valuation Reduction for Environmental Issues

There is no indication that the property's value has been reduced due to perceived environmental concerns.

4.6 Owner, Property Manager, and Occupant Information

According to the joint permit application provided by CPRA, Phillips 66 (Alliance Refinery) and RAM Terminals owns a portion of the property. Conoco Phillips leases a portion of the property to Mr. Minos Scarabin. GEC interviewed Mr. Minos Scarabin, who holds the grazing and pasture

lease on a portion of the pasture land located within the project area owned by Alliance Refinery.

Mr. Khai Nguyen also owns a portion of the pasture land. According to Mr. Nguyen, he owns Midway cattle ranch and dirt pit and has owned several hundred acres of land within project area for over 20 years. GEC interviewed Mr. Nguyen regarding the historical uses of the subject site and adjacent areas.

These interviews are summarized in Section 7.0.

5.0 RECORDS REVIEW

In accordance with ASTM E 1527-13 and 2247-16 Section 8.0 *Records Review*, GEC reviewed Federal, state, and local government environmental databases for records and/or documents that would aid in the identification of known or potential REC on or near the project. ASTM E 1527-13 and 2247-16 defines a list of databases to review and minimum search distances.

5.1 Standard Environmental Record Sources

ASTM E 1527-13 and 2247-16 Section 8.2.1, *Standard Federal, State, and Tribal Environmental Record Sources* requires review of the following databases and describes approximate minimum search distances:

Federal NPL ¹ Site List	1.0 mi
Federal <i>Delisted</i> NPL Site List	0.5 mi
Federal CERCLIS ² List	0.5 mi
Federal CERCLIS-NFRAP ³ Site List	0.5 mi
Federal RCRA ⁴ CORRACTS ⁵ List	1.0 mi
Federal RCRA Non-CORRACTS TSD ⁶ Site List	0.5 mi
Federal RCRA LQG/SQG ⁷	property/adjoining property
Federal IC/EC ⁸ Registries	property only
Federal ERNS ⁹ List	property only
State- and Tribal-Equivalent NPL List	1.0 mi
State- and Tribal-Equivalent CERCLIS List	0.5 mi
State and Tribal Landfill and/or Solid Waste Disposal Site Lists	0.5 mi
State and Tribal Leaking UST ¹⁰ Lists	0.5 mi
State and Tribal Registered UST Lists	property/adjoining property
State and Tribal IC/EC Registries	property only
State and Tribal VCP ¹¹	0.5 mi
State and Tribal Brownfield Sites	0.5 mi

¹National Priority List

²Comprehensive Environmental Response, Compensation, and Liability Information System

³CERCLIS-No Further Remedial Action Planned

⁴Resource Conservation and Recovery Act

⁵Corrective Action Report

⁶Treatment, Storage, and Disposal Facility

⁷Large or Small Quantity Generator

⁸Institutional Control/Engineering Control

⁹Emergency Response Notification System

¹⁰Underground Storage Tank

¹¹Voluntary Cleanup Program

Table 1 summarizes potential sites listed in Federal, state, and tribal environmental databases identified by GeoSearch. A one-mile search radius was used for all databases. The GeoSearch radius report is provided in Appendix B.

Table 1. Potential Sites Identified in Federal, State, and Tribal Databases

Database	Acronym	Locatable
FEDERAL		
Aerometric Information Retrieval System/Air Facility Subsystem	AIRSAFS	3
Biennial Reporting System	BRS	0
Clandestine Drug Laboratory Locations	CDL	0
EPA Docket Data	DOCKETS	0
Federal Engineering Institutional Control Sites	EC	0
Emergency Response Notification System	ERNSLA	192
Enforcement and Compliance History Information	ECHORO6	11
Facility Registry System	FRSLA	16
Hazardous Materials Incident Reporting System	HMIRSR06	1
Integrated Compliance Information System (Formerly Dockets)	ICIS	3
Integrated Compliance Information System National Pollutant Discharge Elimination System	ICISNPDES	8
Land Use Control Information System	LUCIS	0
Material Licensing Tracking System	MLTS	0
National Pollutant Discharge Elimination System	NPDESRO6	0
PCB Activity Database System	PADS	0
Permit Compliance System	PCSR06	0
RCRA Sites with Controls	RCRASC	0
CERCLIS Liens	SFLIENS	0
Section Seven Tracking System	SSTS	0
Toxics Release Inventory	TRI	0
Toxic Substance Control Act Inventory	TSCA	0
No Longer Regulated RCRA Generator Facilities	NLRRCRAG	0
Resource Conservation & Recovery Act – Generator Facilities	RCRAGRO6	4
Resource Conservation & Recovery Act – Non Generator Facilities	RCRANGRO6	0
Historical Gas Stations	HISTPST	0
Mine Safety and Health Administration Master Index File	MSHA	0
Mineral Resource Data System	MRDS	0
Brownfields Management System	BF	0
Comprehensive Environmental Response, Compensation & Liability Information System	CERCLIS	0
Delisted National Priorities List	DNPL	0
No Further Remedial Action Planned Sites	NFRAP	0
No Longer Regulated RCRA Non-CORRACTS TSD Facilities	NLRRCRAT	0
Open Dump Inventory	ODI	0
Resource Conservation & Recovery Act – Non-CorRACTS Treatment, Storage & Disposal Facilities	RCRAT	1
Superfund Enterprise Management System	SEMS	1
Superfund Enterprise Management System Archived Site Inventory	SEMSARCH	1
Department of Defense Sites	DOD	0
Formerly Used Defense Sites	FUDS	0
No Longer Regulated RCRA Corrective Action Facilities	NLRRCRAC	0
National Priorities List	NPL	0
Proposed National Priorities List	PNPL	0
Resource Conservation Recovery Act – Corrective Action Facilities	RCRAC	1

Database	Acronym	Locatable
Resource Conservation & Recovery Act – Subject to Corrective Action Facilities	RCRASUBC	0
Record of Decision System	RODS	0
FEDERAL SUB-TOTAL		242
STATE (LA)		
Asbestos Demolition and Renovation Notification Projects	ASBESTOS	0
Clandestine Drug Laboratory Locations	CDL	0
Sites With Controls	IC	0
Listing of Louisiana DEQ Liens	LIENS	0
Spills Listing	SPILLS	25
Waste Tire Generator List	WASTETIRE	0
Dry Cleaning Facilities	DCR	0
No Longer Reported Underground Storage Tanks	NLRUST	0
Underground Storage Tanks	UST	1
Approved Hurricane Debris Dump Sites	ADS	0
Historical Leaking Underground Storage Tanks	HLUST	0
Leaking Underground Storage Tanks	LUST	0
Recycling Facilities	RCY	2
Solid Waste Landfills	SWLF	1
Voluntary Remediation Program Sites	VRP	0
Waste Pits	WP	265
Confirmed and Potential Sites Inventory	CPI	0
STATE SUB-TOTAL		294
TRIBAL		
Underground Storage Tanks on Tribal Lands	USTRO6	0
Leaking Underground Storage Tanks on Tribal Lands	LUSTRO6	0
Open Dump Inventory on Tribal Lands	ODINDIAN	0
Indian Reservations	INDIANRES	0
TRIBAL SUB-TOTAL		0
ALL DATABASES TOTAL		536

Source: GeoSearch 2019

Initial GeoSearch research of Federal, state, local, and supplemental databases indicated 536 mappable potential REC sites located within the ASTM-recommended search radii. The sites identified through this search may be listed in more than one database. For a listing of each database and its definition, and a complete description of each site including facility name, location, and applicable database listings, refer to the GeoSearch report in Appendix B. As described below, none of these facilities constitutes a REC that is likely to have affected the property.

Releases of Hazardous Substances

The Emergency Response Notification System (ERNS) database reported 192 releases of petroleum and hazardous substances within 1.0 mile of the proposed Project construction footprint from 1991 to 2012. The releases were generally a result of equipment malfunctions, overfilling of tanks, or responses to weather events. Of the reported releases, most were releases to the atmosphere related to flaring events and the remaining were either releases to the Mississippi River, releases to soils, or releases to unknown media. A majority of these releases were reported at the Alliance Refinery, located 0.7-mile north of the proposed diversion structure. Limited information is available for each release. However, these releases occurred outside of the areas of active Project construction or were routinely contained and addressed.

Resource Conservation and Recovery Act

The Resource Conservation and Recovery Act (RCRA) database includes federally regulated facilities that generate, store, dispose of, or handle hazardous wastes, and facilities that may be subject to corrective action. A total of four RCRA Generators were identified within the search radius, none of which are located in the areas of active proposed Project construction. These include federally regulated facilities that generate an amount of hazardous waste each month that exceeds the federal reporting threshold, requiring a registration as a generator of RCRA waste. Of these listed RCRA generator facilities, only one (the Alliance Refinery) had any listed violations.

The Alliance Refinery was listed in the database search as a RCRA generator and a RCRA Corrective Action facility and had multiple cited violations from 1986 to 2016. This facility **received a "no further action" letter associated with violations and was then placed on the Non-Corrective Action Treatment, Storage, and Disposal (TSD) list for facilities that have completed RCRA corrective actions.** There are no reported outstanding violations at this facility.

Superfund Sites

The Superfund Enterprise Management System (SEMS) database includes facilities with known clean-up and enforcement activities taking place at USEPA Superfund sites. Superfund sites are designated under the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA), which gives the USEPA funds and authority to remediate contaminated sites when there is not a viable responsible party. An emergency response cleanup known as the Conoco Phillips Belle Chasse Explosion, approximately 0.7-mile north of the proposed Project diversion structure was listed in the SEMS database; however, affected media were removed from the facility property and it was not assigned status as a Superfund site. Additionally, one facility (the Alliance Refinery) was listed as a site formerly considered for Superfund status in the SEMS Archived Site Inventory database. The Alliance Refinery was owned by the Gulf Oil Company at the time that Superfund listing was considered. It was assessed for listing on the Superfund site in 1984; however, in 1985, following a USEPA preliminary assessment, the facility was not listed. Both of these properties are outside of areas planned for active proposed Project construction and therefore are not considered RECs that have likely affected the Project site.

Underground Storage Tanks

One petroleum storage tank facility was identified within the search radius and included one facility that previously contained two underground storage tanks (USTs). These USTs were located at the Plaquemines Processing and Recovery LLC facility, approximately 0.7-mile north of the proposed Project diversion structure. The 1,000-gallon USTs, which were installed in 1974, reportedly contained gasoline and have been permanently removed from the ground.

Landfills

One solid waste landfill was reported at the Alliance Refinery, approximately 0.7-mile north of the proposed Project diversion structure. The active industrial landfill site is operating under LDEQ Permit P-0247R1-M2 and is not considered a REC.

Waste Pits

A prior desk-top assessment was conducted in 2017 during the preparation of the third-party Environmental Impact Statement (EIS) for the MBSD. It identified potential RECs located in or

adjacent to the project area that have, or may have in the past adversely impacted environmental conditions. The assessment considered four waste pits as RECs. Reported waste pits are associated with inactive/abandoned oil and/or gas wells and are included in a **listing from a 1999 Louisiana Oil Spill Coordinator's Office (LOSCO) study, which identified** statewide abandoned non-hazardous waste pit and facilities that have the potential to initiate an oil spill. These four sites are within 0.25-mile of the proposed project construction footprint, including one owned by the Woods Petroleum Corporation that is located within the footprint of one of the initially proposed beneficial use areas within the sediment deposition outfall area.

GEC's review of the GeoSearch database in the vicinity of the outfall structure within the sediment deposition outfall area found 16 waste pit listings, including the four listed above. All 16 were inspected on the same day August 14, 1996. Thirteen sites are oil/gas wells whose status is listed as abandoned/inactive. Eight of these wells condition of containment is listed as adequate. The remaining five wells list inadequate containment, but the wellheads have been plugged and abandoned. A tank battery and process heater were also identified in this area. Both were inactive/abandoned and had adequate containment in 1996. Separators, adjacent to the process heater was reported active with inadequate containment in 1996. For each of these 16 waste pit listings, investigators observed no evidence of the feature during the field reconnaissance and do not further classify these as RECs.

5.2 Additional Environmental Record Sources

ASTM E 1527-13 and 2247-16 Section 8.2.3 *Additional Federal, State, Tribal, and Local Environmental Record Sources* states that one or more additional state or local sources may be checked to enhance and supplement the Federal and state sources listed in Section 8.2.1. GEC reviewed other sources including the Louisiana Department of Environmental Quality (LDEQ) Electronic Database Management System (EDMS) and Louisiana Department of Natural Resources (LDNR) Strategic Online Natural Resources Information System (SONRIS) database files for additional information regarding potential REC sites.

GEC performed additional research on the Phillips 66 **Alliance Refinery using the LDEQ's EDMS database. The Alliance Refinery is identified in LDEQ's system by Agency Interest Number 2418.** Records indicate that the Alliance facility produces a wide range of petroleum products from crude oil including gasoline, jet fuel, diesel fuel, liquid petroleum gas, carbon black feedstock, propane, and coke. It also produces by-product elemental sulfur and petrochemicals such as benzene, toluene, and xylene. The facility holds numerous current and historical LDEQ permits to release emissions to the air, wastewater to the Mississippi River, and to operate a monitored solid waste unit. GEC reviewed files dating back through 2000; no incidents were noted that may have impacted the footprint of the construction area.

GEC performed additional research on the Plaquemines Processing and Recovery, LLC site using **the LDEQ's EDMS database. Plaquemines Processing and Recovery is identified in LDEQ's** system by Agency Interest Number 85292. Records indicate the facility is a recycling facility that is a specialized processing plant that treats commercial and industrial wastewater, grease, oily water, portable toilet waste and grease rap waste. It is located next to the Phillips 66 Alliance Refinery. The facility held an individual minor industrial wastewater discharge permit until 2018. It now holds an individual minor sanitary discharge permit. **The facility's website** states it discharges treated wastewater to the Mississippi River. It also states that the facility

has zero discharge of effluent. GEC reviewed files dating back to 1985; no incidents were noted that may have impacted the footprint of the construction area.

The Entergy LA, LLC Service Center is located at 16197 Hwy 23 and is adjacent to the footprint of the diversion construction area. The industry classification is electric bulk power transmission and control. The service center was established after the hurricanes of 2005 and is registered with EPA as a conditionally exempt small quantity generator of hazardous waste. The site has an office and a storage yard for service trucks, power poles, transformers, and associated equipment. Compliance, monitoring, and enforcement information provided by GeoSearch shows no evaluations reports, no violations reported, and no enforcements reported.

Woodland Borrow Pits, LLC address is Hwy 23 Woodland North Borrow site, Ironton, Louisiana. The facility had a minor discharge permit for non-potable water for one month in 2014. The permit was terminated on October 21, 2014. There were no compliance issues, permit violations, **or enforcement actions. The facility is not in LDEQ's EDMS database.** The permittee is a minor discharger not subject to mandatory reporting.

Water well records obtained from Federal and state databases were also reviewed. Approximately 66 water wells were identified within 0.25-mile of the construction footprint and sediment deposition outfall area. Within the construction footprint approximately 10 water wells were identified. Most of these were piezometers which have been plugged and abandoned.

Oil and gas well records maintained by LDNR indicate 883 wells within 0.25-mile of the construction footprint and sediment deposition outfall area but none are within the construction footprint. Fifty-five wells are adjacent to the outfall structure. These wells extend approximately two miles downstream of the outfall structure. All of these wells were dry and plugged or plugged and abandoned. Four of these wells also have expired permits in the LDNR SONRIS database.

GEC reviewed the National Pipeline Mapping System's Public Viewer website for pipeline information. An active hazardous liquid pipeline (crude oil) owned by Shell Pipeline is located within the construction footprint running northwest to southeast through the immediate outfall area in the Barataria Basin. No other pipelines but the Shell Pipeline appear to be located within the immediate outfall area or access channels of the construction footprint. An active gas transmission pipeline (natural gas) owned by Phillips 66 Alliance and a hazardous liquid pipeline (crude oil) owned by Shell Pipeline are located adjacent to the property running west from the Alliance Refinery to Barataria Basin. Another active gas transmission pipeline (natural gas) owned by Phillips 66 Alliance is located farther north adjacent to the property running west from the Alliance Refinery to Barataria Basin. Multiple other active natural gas and crude oil pipelines traverse the sediment deposition outfall area or are adjacent to it.

5.3 Physical Setting Sources

GEC researched historical quadrangles for structures, mines, quarries, clearings, wells, and land use in order to (1) ascertain development of the project area since the 1890s and (2) identify indications of possible REC sites.

In accordance with ASTM E 1527-13 and 2247-16, current USGS 7.5-Minute Topographic Maps were utilized as the primary physical setting source. Additional sources were utilized to ascertain the geologic hydrogeologic, hydrologic, and topographic conditions of the project. The sources include the following:

- USGS 15-Minute and 7.5-Minute Historic Topographic Quadrangle Maps
- USGS Historical Aerial Photographs
- U.S. Navy Historical Aerial Photographs
- USDA Historical Aerial Photographs
- NASA Historical Aerial Photographs
- USACE Historical Aerial Photographs

5.4 Historical Use Information on Property and Adjoining Properties

A historical tenant search of Haines Directories and R. L. Polk & Co. dating back to 1970 was conducted for Hwy 23, Belle Chasse, Louisiana, in the vicinity of Ironton. Documentation of the Historical Tenant Search is included in Appendix C.

Addresses in the current numbering scheme do not appear until 1995, rendering it difficult to locate older entries. Addresses in the general area are primarily held by individuals, with the exception of Phillips 66 Alliance Refinery at 15551 Hwy 23; 23 Auto Body & Paint at 16180 Hwy 23; no current listing (Entergy LA, LLC – Service Center) at 16198 Hwy 23; Benjamin & Gwen Becnel (Ben Becnel South LA Farm) at 16198 Hwy 23; Citrus Lands of LA at 16208 Hwy 23; **Wilson’s Truck & Tractor/Pates Wilson at 17315 Hwy 23**, and Myrtle Grove Bar at 17509 Hwy 23. These businesses are located adjacent to Hwy 23 from Alliance to Myrtle Grove. Twenty-three Auto Body & Paint no longer appears in the directories after 2007/2008. Citrus Lands no longer appear after 1995. Wilsons Truck and Tractor no longer appears after 1995 but is listed as an individual, Peter Wilson in 2001. The directories have no current listing for the Entergy Service Center (2014-2019) and Myrtle Grove Bar (2007/2008-2019), but field observations found these businesses still exist. No records of these businesses were found in EDMS database with the exception of the Alliance Refinery.

5.4.1 Sanborn® Fire Insurance Maps

Founded in 1867, the Sanborn Fire Insurance Company produced Sanborn® Fire Insurance Maps that document the historical property use of over 12,000 American towns and cities. Known for their tremendous details regarding size, material composition and minute construction elements of buildings as well as property boundaries and street widths, Sanborn® maps provide a valuable tool for completing an ESA in that land use of a property can be monitored in-depth over a long period of time. During the time that the Sanborn Fire Insurance Company produced its maps, the area in which the property is located was likely considered to be insufficiently developed to meet the criteria used by the company to warrant a mapping effort.

5.4.2 Historical Topographic Maps

GEC researched USGS historical topographic maps dating to 1892 (Appendix D). The construction footprint area is located on the Point a la Hache 15-minute and the Phoenix 7.5-minute maps. The operations outfall area is located on the Barataria and Point a la Hache 15-

minute maps and on the Lafitte, Phoenix, Three Bayou Bay and Lake Laurier 7.5-minute maps. GEC reviewed the following maps:

1892, 1941, 1944, 1962	Barataria, LA	15-minute
1892, 1939, 1944, 1948, 1962	Pointe a la Hache, LA	15-minute
1973, 1995, 2012	Lafitte, LA	7.5-minute
1973, 1994, 1995, 2012	Phoenix, LA	7.5-minute
1973, 1998, 2012	Three Bayou Bay, LA	7.5-minute
1973, 1992, 1998, 2012	Lake Laurier	7.5-minute

1892 Barataria, LA. **1' = 5208' 15' Topographic Quadrangle**

1892 Pointe a la Hache. **1' = 5208' 15' Topographic Quadrangle**

The Mississippi River flows in a southeasterly direction with levees of various heights apparent. Railroads parallel the Mississippi River on both sides. Small areas appear cleared adjacent to the river with few connecting roads and drainage canals away from the river into a continuous delta of swamp, freshwater marsh, and saltwater marsh. This area of the Barataria Basin has open water areas with only Bayou Dupont, Round Bay, Goelette Bay, Spoonbill Bay, Lake Five, and Bayou St. Denis shown. Myrtle Grove is the only named community on the west bank of the river. A few structures are shown adjacent to the levee. Upstream, approximately 12 structures are shown in the area that is now Ironton. The sugar mill and associated outbuildings (eight) are shown at St. Rosalie Plantation. Approximately 15 structures are shown in the area of the Alliance Plantation.

1939 Pointe a la Hache, LA. **1' = 5208' 15' Topographic Quadrangle**

1941 Barataria, LA. **1' = 5208' 15' Topographic Quadrangle**

The Mississippi River has improved (higher) levees. Hwy 31 (now Hwy 23) is constructed in its present-day alignment. The railroad that parallels the west bank of the river is now operated by the Missouri-Pacific Railroad. The communities of Myrtle Grove and Ironton are present with an increase in structures from the prior map. St. Rosalie has approximately the same number of structures present. East and west of Hwy 31 are wooded areas extending to the edge of the marsh and along Cheniere Traverse Bayou narrowing to marsh in Jefferson Parish. Other natural water features include Bayou Dupont, Bayou McCutchen, Lake Laurier, Oaks Bayou, Round Lake, Goelette Bay, Spoonbill Bay, and Cutler Bayou. Man-made water features are: Timber Canal west of and parallel to Hwy 31; Wilkinson Canal from Myrtle Grove south to Barataria Bay; The Pen, near Lafitte; Dupre Cutoff (canal) from The Pen to Cutler Bayou and approximately a dozen oil field canals originating at the Dupre Cutoff and extending towards the east. Two structures are noted at the northwest end of the Dupre Cutoff at The Pen. Several structures are noted in the oil field canals west of Dupre Cutoff. Two open water areas exist east and west of the Wilkinson Canal and between the Timber Canal and Hwy 31 at Myrtle Grove. The remainder of the area is wetlands including fresh and saltwater marsh.

A few structures are observed off Wilkinson Canal, Bayou Dupont (in Plaquemines Parish), north of Bayou McCutchen, and structures on both sides of the Wilkinson Canal south of Oak Bayou **labelled "Club House."**

1944 Barataria, LA. **1" = 5,208' 15' Topographical Quadrangle**

1944 Pointe a la Hache, LA. 1" = 5,208' 15' Topographical Quadrangle

The topographic maps are similar to the 1939/1941 maps previously reviewed with the same developed features near the Mississippi River. Also similar natural waterway features and man-made waterway features east of the river with unimproved marsh being the majority of the area.

1944 Barataria, LA. 1" = 5,208' 15' Topographical Quadrangle

1948 Point a la Hache, LA. 1" = 5,208' 15' Topographical Quadrangle

The topographic maps are similar to the 1939/1941 and 1944/1944 maps previously reviewed with the same developed features near the Mississippi River; similar natural waterway features and man-made waterway features east of the river with unimproved marsh being the majority of the area.

The Pointe a la Hache quadrangle map does show more robust levees on the Mississippi River. Spur levees are shown on the back (west) side of the developed area from La Reussite to south of Alliance and from St. Rosalie to just north of Ironton. A pump station is shown at the back levee west of St. Rosalie. Also, a 13.2 kv power line **labeled "Louisiana Power and Light"** runs parallel and west of Hwy 31 (present day Hwy 23). A navigation channel is indicated on the map from Oak Bayou at Lake Laurier east to Wilkinson Bayou.

1962 Barataria, LA. 1" = 5,208' 15' Topographical Quadrangle

1962 Pointe a la Hache, LA. 1" = 5,208' 15' Topographical Quadrangle

A 14-year gap exists between these topographic quadrangle maps and the ones previously reviewed. Much has changed between maps. More structures are shown in Ironton. St. Paul Baptist church is identified and the Ironton cemetery. St. Joseph church is shown in Myrtle Grove. The railroad still follows the west bank Mississippi River levee. North of Ironton the **tracks are labeled "Missouri Pacific."** South of Ironton they are labeled **"New Orleans and Lower Coast" railroads.** A tower (radio?) is shown west of St. Rosalie near Hwy 23 (renumbered from **Hwy 31 during Louisiana's 1955 highway renumbering**). A square shaped impoundment is west of Hwy 23, approximately half-way between St. Rosalie and Ironton. Former areas of marsh have been drained and converted to open land north of the Timber Canal and south of Myrtle Grove. The Timber Canal has been dredged and has identified spoil banks on both sides. Timber Canal has been extended through the marsh to connect with Cheniere Traverse Bayou. The Alliance Oil and Gas field is identified on the map with numerous canals dredged through **the marsh. There is a note on the map, "Line of demarcation between salt marsh and fresh marsh not determined."** A pipeline is shown south of the Timber Canal, running through the marsh northwest to southeast. Structures previously noted along Wilkinson Canal remain.

The Barataria topographic quadrangle shows major development of the Lafitte Oil field south of The Pen. Canals have been dredged from Bayou Dupont to the northeast near the Alliance Oil and Gas field. Canals now connect Cheniere Traverse Bayou and Bayou Dupont. Access canals have been dredged along both bayous.

Dupre Cutoff has been enlarged and labeled Barataria Bay Waterway. The few man-made canals previously noted in this area has now grown to hundreds of oil field canals with drill

holes indicated at the end of each canal. Drill holes are also seen in open water. What was previously continuous marsh, is now a patch work of marsh and open water. Spoil banks are labeled adjacent to most canals. Submerged pipelines and cables are labeled at waterway crossings. A previously wooded wetland swamp, south of The Pen is, now open water. A collection of structures (camps?) align both banks of Bayou Cutler south of Spoonbill Bay and the Laffite Oil field.

<u>1973 Lafitte, LA.</u>	1" = 2,000' 7.5' minute Orthophoto Quadrangle
<u>1973 Three Bayou Bay, LA.</u>	1" = 2,000' 7.5' minute Orthophoto Quadrangle
<u>1973 Phoenix, LA.</u>	1" = 2,000' 7.5' minute Orthophoto Quadrangle
<u>1973 Lake Laurier, LA.</u>	1" = 2,000' 7.5' minute Orthophoto Quadrangle

The Mississippi River remains aligned by the MR&T levees. Navigation lights are shown on the river as well as the levee top road. The Ironton community contains approximately 30 structures. The cemetery is shown near the south west portion the community. The New Orleans and Lower Coast railroad is shown. It follows the toe of the levee until just north of Ironton where it bisects the community and begins to parallel Hwy 23. Highway 23 has been 4-laned north of St. Rosalie. St. Rosalie has only four to five structures. Most are shown as unoccupied. An unimproved road runs from Hwy 23 to the levee (west to east). North of Ironton is a wooded tract between the railroad and levee. On the batture is a sandpit and a wooded tract. The remaining land around Ironton from the Mississippi River levee to the back levee has been cleared and appears to be pastureland containing many drainage canals. Approximately 20 structures are shown in the Myrtle Grove community. Most are located between Hwy 23 and the Mississippi River levee. An unimproved road extends from Hwy 23 along the west side of the Wilkinson Canal to a pump station adjacent to the back levee. The area between the back levee and the Timber Canal is shown as impounded marsh. The development of the Laffite Oil field continues to expand with additional canals and drill holes indicated along Bayou Dupont, Cheniere Traverse Bayou, Dupree Cutoff/Barataria Bay Waterway, and numerous pipeline canals. Spoil banks adjacent to the canals comprise the highest land in the marsh. In many areas the canals and bayous have eroded bank lines and have expanded in width.

The remaining marsh south of the back levee continues to subside and convert to open water. Drill holes are shown in most access canals. The Texaco heliport is shown adjacent to the Barataria Waterway. Structures are located in the same areas as the 1962 topographic review; along Wilkinson Canal, north of Bayou McCutchen, Oaks Bayou (Club House, 1962 topo) and Bayou Dupont.

<u>1995 Lafitte, LA.</u>	1" = 2,000' 7.5' minute Topographic Quadrangle
<u>1994 Phoenix, LA.</u>	1" = 2,000' 7.5' minute Topographic Quadrangle
<u>1998 Three Bayou Bay, LA.</u>	1" = 2,000' 7.5' minute Topographic Quadrangle
<u>1992 Lake Laurier, LA.</u>	1" = 2,000' 7.5' minute Orthophoto Quadrangle

The review of these topographic maps finds the community of Ironton added approximately 12 structures since 1973. The railroad now ends north of St. Rosalie at the grain elevator. The **map has the former railroad labeled "Old RR Grade."** A radio tower is west of Ironton near Hwy 23. A sewage disposal pond is located west of Hwy 23 adjacent to the property. Sewage disposal ponds are also located further southwest of Hwy 23, adjacent to the Timber Canal.

The remaining land west of Hwy 23 and north of the back levee is cleared with no infrastructure improvements. This extends from St. Rosalie to Myrtle Grove. North of Ironton, the land is shown as vegetated from Hwy 23 to the levee as well as the adjacent batture. The area that is labeled St. Rosalie is same as in 1973 with an unimproved access road and access road and two unoccupied structures. Further north an area near the grain elevator, numerous industrial improvements including the Phillips 66 Alliance Refinery (built in 1971) are shown. Included are storage tanks, interior access roads, industrial waste ponds, a water tower, and numerous structures.

In the Myrtle Grove community, an unimproved access road traverses south along the west bank of the Wilkinson Canal to a pump station on the drainage canal adjacent to the back levee. A large area of fill has been placed along both sides of the northern end of the Wilkinson Canal. A small structure is located near the north end of the canal. A larger structure is near the northern limits of the filled area adjacent to the unimproved access road.

South of the back levee and south of Lafitte, the remaining wetlands and marshes of the mid-Barataria Basin are increasingly fragmented due to increased saltwater intrusion, subsidence, and erosion. Much of the remaining marsh continues to convert to open water. Additional structures are noted near the Texaco heliport in the Lafitte Oil Field, adjacent to the Barataria Bay Waterway.

<u>2012 Lafitte, LA.</u>	1' = 2,000' 7.5' minute Topographic Quadrangle
<u>2012 Phoenix, LA.</u>	1' = 2,000' 7.5' minute Topographic Quadrangle
<u>2012 Three Bayou Bay, LA.</u>	1' = 2,000' 7.5' minute Topographic Quadrangle
<u>2012 Lake Laurier, LA.</u>	1' = 2,000' 7.5' minute Topographic Quadrangle

These topographic maps are of very poor quality. Features shown are natural and man-made waterways. Major oil and gas fields are labeled. Infrastructure shown in developed areas adjacent to the river includes drainage canals, access roads, Hwy 23, Mississippi River levee, and the streets in Ironton and Myrtle Grove. Access to the Wilkinson Canal includes Marina Road and Myrtle Grove Road.

Marshes outside of leveed protection are increasingly fragmented due to increased saltwater intrusion, subsidence, and erosion. No man-made features are shown on these topographic quadrangles. However, the major oil and gas fields are labeled.

5.4.3 Historical Aerial Photographs

GEC researched historical aerial photographs (Appendix E) from 1945, 1952, 1969, 1971, 1978, 1983, 1989, 1998, 2005, and 2015.

1945 USACE. In 1945, the diversion construction footprint area contains agricultural fields and several structures. The areas adjacent to the Mississippi River levee and Hwy 23 appear wooded. The community of Ironton can be seen as well as the railroad extending south towards Myrtle Grove. Southwest of Hwy 23 the diversion outfall area is wetlands. Wooded swamp transitions to marsh. Woods are featured along both banks of Cheniere Traverse Bayou. Bayou Dupont, Wilkinson Canal, Barataria Waterway, The Pen, and other natural and man-made water features are shown. The marsh is largely intact with the beginning development of the Lafitte Oil Field seen.

1952 U.S. Navy. In 1952, similar features are seen as in 1945. The diversion construction area remains a mix of agricultural fields and woods. The marsh area of the diversion sedimentation deposition outfall area has numerous marsh buggy/airboat tracks, especially east of The Pen. Additional oil field access canals are seen in the Laffite Oil Field. The Texaco heliport adjacent to the Barataria Waterway is also present. Oil field canals have been dredged into the Alliance Oil/Gas Field. Several canals are also observed off of Bayou Dupont.

1969 NASA. These are infrared aerial photographs. The diversion construction footprint area land use remains unchanged from prior aeriels. The marsh areas of the outfall area show extensive development of the Lafitte Oil Field with more access canals, expanded heliport area and structures in and adjacent to the canals. Spoil areas can be seen adjacent to the dredged canals. Areas of open water are also observed. The Alliance Refinery is under construction north of the property.

1971 USGS. Most of the diversion construction footprint is agricultural land with a remaining wooded area near Hwy 23. The marsh within the sediment deposition outfall area continues to support expanding oil/gas activities. Additional oil access canals and pipeline canals are seen throughout the sediment deposition outfall area. Structures are observed in many canals and are either supportive of the oil/gas operations or recreational camps. The heliport area continues to expand. Areas of open water are common in the marsh. The Alliance Refinery can be seen north of the property.

1978 NASA. These aerial photographs are out of focus and of poor quality. Much of the area in the vicinity of the diversion construction area remains the same. The marsh within the sediment deposition outfall area continues to convert into open water especially in areas impacted by oil and gas activity.

1983 USGS. The diversion construction area remains predominately pasture west of Hwy 23. A small pond is adjacent to Hwy 23. East of Hwy 23 the area is wooded except for the northeast corner which is pasture with a structure adjacent to a road connecting Hwy 23 with the Mississippi River levee. Iron-ton is south of the diversion. A large cleared area is seen south of Iron-ton.

The marsh in the sediment deposition outfall area is increasingly fragmented. Much of the remaining marsh is converting into open water. Remaining marsh is space along oil field canal spoil banks which are the last high ground.

1989 USGS, 1998 USGS, and 2005 USGS. Activities within the diversion construction footprint remain pasture land west of Hwy 23 to the NOV back levee. Several impoundments (ponds) can be seen in the pastures. The one east of Hwy 23 to the Mississippi River levee has converted from agriculture pastures to scrub and trees. No structures are seen in the latest aeriels.

Outside the NOV back levee to the south and west, marsh has converted to open water at an increasing rate. Much of the area adjacent to the natural waterways and in the man-made complex of oil access and pipeline canals has converted to open water. Fragments of intact

marsh remain east of the Lafitte Oil Field. The land at the upper end of Wilkinson Canal has been filled and the Myrtle Grove Marina and camps are being developed.

2015 USDA. This aerial photo shows the diversion construction footprint area much as it exists today. The footprint east of Hwy 23 to the Mississippi River levee is wooded with no improvements seen. The construction footprint west of Hwy 23 remains pastures from Hwy 23 to the NOV back levee. In nearby pastures north and south of the diversion alignment are numerous dirt borrow pits. The Entergy Service Center is located north of the diversion construction footprint. The community of Ironton is separated from the diversion, to the north, by a large wooded area.

Several marsh creation projects are seen adjacent to Cheniere Traverse Bayou and Bayou Dupont. Open water has now reestablished as marsh. Other areas of marsh in the Lafitte Oil Field, Alliance Oil/Gas Field, south of The Pen, and along Bayou Dupont continue to degrade and fragment and turn into open water. The Myrtle Grove Marina and camp development continues with more camps and land side features observed.

6.0 SITE RECONNAISSANCE

In accordance with ASTM E 1527-13 and 2247-16 Section 9.0 *Site Reconnaissance*, field investigations were conducted in order to inspect the property and surrounding areas for structures, oil and gas exploration and production, land use, runoff patterns, and indications of environmental impacts. The investigation consisted of windshield surveys, pedestrian surveys, and airboat surveys. GEC conducted the surveys on December 8, 9, 12, 13, 14, and 18, 2020. Photographs from the investigation are presented in Appendix F along with a location map of the sites observed during the field survey in Appendix G. The details of these sites are described below.

6.1 Methodology and Limiting Conditions

The property was investigated in order to identify potential RECs, current and historical, that have, or may have in the past, adversely impacted environmental conditions at the property. ASTM E 1527-13 and 2247-16 Section 9.0, *Site Reconnaissance*, addresses aspects of site field investigations. GEC, as described in this report, has investigated the property for potential RECs based on information gathered during historical research, the environmental database review, interviews with pertinent personnel, and field reconnaissance in accordance with ASTM E 1527-13 and 2247-16 standards, as applicable and appropriate.

Observations made during GEC's reconnaissance of the property were limited to: (1) portions of the site that were accessible to investigators, and (2) evidence that was visible to the investigators. Observations were based on evidence that was visible to inspectors while walking the property or accessing the property via airboat. No ground excavation, vegetation clearing, or physical relocation of obstacles was conducted during site investigations. Accordingly, no guarantee is made or intended that all property conditions were observed.

6.2 General Site Setting

ASTM E 1527-13 Section 9.4.1 and ASTM E 2247-16 Section 9.5.1 *General Site Setting* addresses current and past use of the property, adjoining properties, and surrounding area. The property (construction footprint and sediment deposition outfall area) is located in Plaquemines Parish and Jefferson Parish, Louisiana, near the communities of Ironton and Myrtle Grove. The elevation of the property is MSL, and the land use in the project vicinity is generally agricultural, residential, and light commercial, with the exception of some industrial properties including Conoco Phillips 66 Alliance Refinery, CHS Myrtle Grove Grain Elevator, and Entergy service facility to the northeast. The site is generally bounded by the Mississippi River to the east, Barataria Basin to the west, agricultural land and Ironton to the south, and Alliance Refinery and agricultural land to the north. The property and the adjoining properties are primarily undeveloped land and cattle pastures.

6.3 Exterior Observations

The majority of the property within the construction footprint is land with a small submerged portion located within the construction outfall area and access canals in the Barataria Basin. There are a few roadways or paved areas located on the property. The property within the construction footprint is primarily pasture land and undeveloped forested land. Debris including storage containers; buckets and drums; plastic bottles; small appliances; old tools; tires; scrap metal; farm equipment; old vehicles; and woody debris were also observed on the property.

The following were noted within or within the vicinity of the forested portion of the property on the eastern side of Hwy 23:

- Abandoned Shed (29°39'49.56"N, 89°57'55.61"W): A wood frame, metal roof, and siding shed in disrepair is located along the gravel access road, near the boundary of the construction impact area. Interior contents included small tools, scrap wood and metal, empty coolers, clothing, and a small number of empty small quantity plastic and metal containers and buckets. A large pile of recently cleared woody vegetation and dirt was piled in front of and against the structure. Immediately adjacent to the building are three stacked piles of what appear to be hollow fiberglass pipes or tubing. Investigators observed no stained soil, foul odors, or unexplained areas of stressed or denuded vegetation within the shed or around the piles.
- Abandoned Barn (29°39'49.62"N, 89°57'59.57"W): A collapsed wooden barn-type structure with remnants of animal pens and enclosures attached and adjacent is present outside the construction footprint, adjacent to the gravel access road. The building is substantially collapsed with no accessible interior areas. Investigators observed evidence that the building may have previously been used as a hunting camp type structure based on modifications that included a sink, work tops areas with discarded food prep items, discarded furnishings, and a water catchment system made from 55-gallon drums. Several empty plastic and metal containers that had been cut to make tubs and troughs were present in and around the animal enclosures. A small number of vehicle and tractor tires are present among other scrap wood and metal debris. An ATV frame and tires with no motor or fuel tank is present within one enclosure. There were

no observations of stained soil, stressed vegetation, or other adverse environmental concerns noted.

- Grain Silo, Pipes, and Pad (29°39'48.24"N, 89°58'1.08"W): A round concrete pad is present in the woods just outside the construction footprint. A small metal plate in the center and circular markings are indicative that the pad was likely the floor of a circular grain or animal feed silo. The exposed portions of the pad did not exhibit any staining or odors. A separate, partially crushed galvanized metal grain silo with legs is present in the woods near the pad. The silo was clean and empty. A five-foot diameter galvanized metal pipe was also present in that area.
- Metal Waste Pile (29°39'48.18"N, 89°58'19.20"W): Investigators discovered a pile of scrap metal located adjacent to the gravel access road but well outside the construction impact area. There were multiple old pickup truck beds and body panels, farm equipment, tractor tires, and galvanized metal within the pile which is partially buried and located within thick vegetation. No indications of fluids, stained soil, foul odors, or stressed vegetation were noted.
- Possible Former Home Site (29°39'27.86"N, 89°58'20.98"W): Within the construction footprint, fronting Hwy 23, investigators located a relatively flat area with debris indicative of a former residential structure. The vegetation in the area was significantly younger than the surrounding trees indicating that the area had been cleared at one time. Landscape shrubs were observed in the area mixed in with natural vegetation. A propane tank, the remnants of what appears to be a stove, and some scattered foundation blocks were observed. The propane tank structure had been compromised by damage and rust and is empty. No adverse environmental conditions were noted.
- Entergy Office and Yard (29°39'49.52"N, 89°58'30.50"W): An Entergy Service Facility is located at 16197 Hwy 23, on the east side of the highway, adjacent to the portion of the construction footprint that follows Hwy 23. The facility is comprised of an elevated office building, storage sheds, and a storage yard. The perimeter is fenced and the yard is covered with limestone gravel. Multiple new and used pole mounted transformers, telephone poles, spools of wire, and stacks of metal materials are present within the yard. Investigators noted evidence of herbicide application to the vegetation along and adjacent to the fence line. The site and yard appear organized and well maintained. No evidence of spills, leaking containers, damaged transformers or other adverse conditions were noted. This site is listed in the GeoSearch Report as a Federal registered RCRA Generator. A search of available database information on this site revealed no compliance issues or incidents that in the opinion of the investigators would negatively affect the property.
- Cellular Tower (29°39'5.16"N, 89°58'32.10"W): An AT&T cellular tower is present on the east side of Hwy 23, at the south end of the construction impact area that follows the highway. The tower site is located well off the highway and is fenced. The surface of the site and access road are gravel. A concrete building and an emergency generator are present at the site, as well as a propane tank located at the rear of the site. An inspection of the site from outside the perimeter fence revealed that the generator did not appear to contain a fuel tank or vent line and was likely powered from the propane

tank. Investigators noted no evidence of any staining, leaks, odors or unexplained stressed vegetation within or adjacent to the site.

Within the pasture land portion of the property on the western side of Hwy 23, several drainage canals and fence lines transect the pasture land site in multiple directions. Vegetation is primarily low grass, with some small shrubs and trees along canal banks and in fence rows. Smaller drainage ditches transect the property from east to west and convey water from the pasture areas into the canals. Most of the property appears well drained, but several lower areas exhibited signs of prolonged inundation. Cattle were present throughout the pasture land on the property. The following were noted within or within the vicinity of the pastured portion of the property on the western side of Hwy 23:

- Abandoned Wooden House (29°39'47.77"N, 89°58'34.01"W): An abandoned wood frame residential structure is present on the western side of Hwy 23, within a wooded area at the northern edge of the construction footprint that follows Hwy 23. The structure is partially off its foundation and laying at an angle. The interior was not accessible to investigators. An inspection of the exterior areas around the structure did not reveal any evidence of adverse environmental concerns.
- Collapsed Windmill and Artesian Well (29°39'5.16"N, 89°58'32.10"W): Investigators observed a collapsed windmill and a broken, free flowing well pipe on the southern portion of the pasture area within the construction footprint. The windmill appeared to have once served as a water source for cattle. A broken pipe is present from which water is free flowing into a small, shallow pool area then outward into the pasture via a vegetated ditch. The area surrounding the site was free from any other debris or materials with the exception of the windmill. The adjacent vegetation appeared to be healthy. A faint odor of cow manure was noted in the area. This well does not appear on the Louisiana Water Well Registry Report provided by GeoSearch.
- Broken Pipe and Artesian Well (29°39'5.16"N, 89°58'32.10"W): A second flowing well was observed in the western-most pasture area, along the south side of the construction footprint. A broken pipe is present in the center of a large pool of water which flows into a wide canal with standing water. No other debris or materials are present in the area. Vegetation appears lush and healthy within the pool and along the edges of the canal. This well does not appear on the Louisiana Water Well Registry Report provided by GeoSearch.

The following were noted within the portion of the property located within the outfall area of the construction footprint:

- Partial Camp Structure (29°38'35.02"N, 90°0'6.35"W): A small, square platform on pilings is present in open water and broken marsh within the construction footprint located in the outfall area. The platform is floored with plywood and four studded walls have been constructed along the perimeter of the platform. It appears that the structure is an unfinished camp type building currently, or recently under construction. No other debris or materials were observed in or around the structure.

- Submerged Oil Well Pipe (29°39'51.07"N, 90°0'11.40"W): Investigators observed a corroded steel oil well pipe protruding from the water near the center of the West Access Canal within the construction footprint access area. It is the opinion of the investigators that the pipe is similar in diameter and nature of other previously cut off and abandoned oil well pipes observed. There were no other structures, poles, or pilings observed. The pipe was observed on a day when the water levels in the marsh were approximately two to three feet lower due to wind activity. It is likely that the pipe would not be visible under normal water level conditions. There was no evidence of any leaks, sheen, staining, or other adverse environmental impacts from the pipe. The location and nature of the pipe may pose a construction or navigation hazard to the proposed project if dredging or travel occurs in the area. It was not clear whether the pipe had been capped or plugged from the surface.

The majority of the property within the operation sediment deposition outfall area within the Barataria Basin is open water or marsh. GEC conducted a boat survey of the property in these areas that were accessible during the site reconnaissance. ASTM E 2247-16 was followed for site reconnaissance on this portion of the property due to the size and nature of the property. Sites were identified via aerial photographs and site reconnaissance. Unknown sites were located on the aerial photographs and then field verified to determine what was present. This is not intended to be a full assessment of every site within the sediment deposition outfall area, but rather a reconnaissance of the **"typical" type and nature of sites that are present** in the area. There are camps, platforms, valve sites, and fixed facilities that were not visited, but an attempt was made to visit and observe as many different types within the area to document the nature of what is present. Debris was observed at the various facilities. Oil and gas facility debris associated with old and abandoned facilities was observed including old platforms, pilings, lines, vessels, and tanks. Debris associated with camps included building materials, PVC pipes, appliances, containers, drums, furniture, broken pipes, old boats and fishing vessels were observed. During the reconnaissance of the outfall sediment deposition area, investigators observed no evidence of leaks, spills, stains, stressed vegetation, hydrocarbon sheen, or odors. However, multiple underwater obstructions were encountered while observing the sites.

The following were noted within or within the sediment deposition outfall area of the property located within the Barataria Basin:

- Site 1: Capsized Boat (29°37'46.83"N, 89°58'59.19"W). A small fiberglass boat with rigging and shrimp nets is present upside down and partially buried in the marsh. No evidence of any hydrocarbon sheen or odors was observed.
- Site 2: Damaged Oil Field Facility (29°37'7.93"N, 89°59'32.28"W). Multiple tank batteries, platforms, pilings, exposed flow lines, and collapsed pressure vessels are present in locations centered around this site. Two separate tank batteries are present, neither of which appear to be in use. Several tanks are collapsed, non-structural, and partially in the water. Rusted and broken flow lines were observed on eroded marsh and broken pilings leading from the tanks to various other destroyed platforms and containers at the location. Investigators did not observe any indications of sheening, odors, stained vegetation or hydrocarbon product on or around any of the structures. Multiple underwater obstructions were encountered while observing the site.

- Site 3: Damaged Camp (29°36'26.76"N, 89°58'46.52"W). Two portable buildings with a generator shed and destroyed boat dock are present at the edge of the marsh. Two large plastic totes converted to a water cistern are present, with various broken PVC pipes and displaced building materials scattered around the structures. No adverse environmental conditions were noted.
- Site 4: Capsized Boat (29°35'20.83"N, 89°58'28.13"W). A large overturned vessel is present adjacent to the marsh in a small canal. A broken pier and multiple pilings are present nearby as well as a walkway to the marsh indicating the boat may have been used as a camp. No evidence of fuel, oil, or other contamination was observed.
- Site 5: Myrtle Grove Pump Station (29°37'22.64"N, 89°57'20.24"W). A Plaquemines Parish pump station is located adjacent to the Parish levee with outfall to the Wilkinson Canal. Four diesel powered pumps and two diesel above-ground storage tanks are present at the site. Observations were made from land and water. Fuel tanks appear to be well maintained, with no evidence of leaks or spills noted.
- Site 6: Multiple Camp Structures (29°36'1.46"N, 89°57'14.04"W). Group of camps located along the Wilkinson Canal. Structures are on pilings in various conditions. Multiple piers, pilings, retaining walls and outbuildings are present. Miscellaneous plastic totes and drums have been repurposed for water catchment systems and cisterns.
- Site 7: Camp Structures (29°35'31.93"N, 89°56'38.79"W). Three camps located along Little Bayou McCuthen bayou with boat sheds, piers, multiple platforms, and outbuildings.
- Site 8: Lake Hermitage Residences and Camps (29°35'36.24"N, 89°54'28.14"W). Large residential development present at the eastern boundary of the outfall sediment deposition area. Approximately 25 camps and homes are located at the intersection of Lake Hermitage Road and Deer Range Canal. Most appear to have access to public utilities and are well maintained.
- Site 9: Oil Field Facility (29°33'17.01"N, 89°54'14.32"W). A large oil facility constructed on multiple barges is present in a canal adjacent to Bayou Tambour. Tank batteries, compressors, pressure vessels, buildings, and other equipment are located on barges which appear to be semi-permanently moored adjacent to the marsh. Barges are in various conditions from new to very poor, but the equipment on-board appears well maintained, and in serviceable condition. Investigators did not observe any indications of leaks, spills, odors, stains, or stressed vegetation in the adjacent marsh.
- Site 10: Well Platform (29°33'2.33"N, 89°54'36.00"W). A well head with wooden platform, collection lines, valves, and logging equipment is present in a small cove off Hermitage Bayou. There are multiple operable platforms of this size, type, and condition type located in the vicinity. Investigators noted no adverse environmental conditions.
- Site 11: Multiple Well Platforms and Structures (29°32'33.60"N, 89°53'32.08"W). Several well platforms and valve sites are located in a cluster near the eastern boundary of the operational outfall sediment deposition area. All were similar in type and condition. One well site was being serviced by a work barge at the time of reconnaissance. No concerns were observed.

- Site 12: Well Platform (29°31'52.16"N, 89°54'12.25"W). Multiple well platforms and valve sites are present in a small group near Bayou Raquette. Some platforms exhibited structural damage, but the wells, piping, and valves appeared to be maintained and operational. No concerns were noted.
- Site 13: Moored Shrimp Boat (29°31'46.20"N, 89°54'5.84"W). A semi-permanently moored fiberglass shrimp boat is anchored in a channel. The boat appears to be in use as a shrimping platform consistent with the location of other similar structures in the area. No evidence of oil or fuel spills or leaks were observed.
- Site 14: Shrimp Platform (29°31'38.24"N, 89°54'12.39"W). A small platform with rigging, shrimp nets, pier, and a small structure is present at the edge of the bayou. No concerns were noted.
- Site 15: Displaced Camp (29°31'44.24"N, 89°54'15.17"W). A heavily damaged wood frame camp with metal siding is present in the marsh. Structure appears to have been dislocated from pilings and washed into the marsh. Investigators did not attempt to cross the marsh to inspect the structure or its contents.
- Site 16: Shrimp Platform and Pilings (29°32'12.28"N, 89°54'9.78"W). A floating wooden platform built over multiple 55-gallon plastic drums is tied to multiple pilings at the edge of the bayou. The platform has outriggers and lines for shrimping. No concerns were noted.
- Site 17: Well Platform (29°32'19.86"N, 89°54'22.60"W). A small well platform is present in the bayou. This platform was equipped with a navigation light, solar panel and battery box, all of which appeared to be in serviceable condition. No concerns were noted.
- Site 18: Damaged Oil Field Facility (29°32'22.89"N, 89°54'16.42"W). Remnants of a large land based facility were observed on the bank of Wilkinson Bayou. A wooden retaining wall and multiple pilings and damaged mooring piers are located along the edge of the water. Multiple rusted and broken flow lines are present along the shoreline. Concrete slabs, ramps, pilings, and metal building frames are located on land adjacent the retaining wall. A much newer wooden platform is located within the site which appears to be a serviceable condensate collector with multiple field lines attached. There is a displaced floating shrimp barge partially sunken and perched on the retaining wall. This vessel was initially noted on the aerial photographs as being moored approximately one-half mile south in the bayou in the vicinity of the other shrimp platforms and appears to have been blown to this site by storms. Investigators did not note any oil residue, product, odors, sheening, or staining in or around any of the structures located at this site.
- Site 19: Multiple Camp Structures (29°33'17.97"N, 89°57'16.83"W). Large group of camps located along Wilkinson Canal near Oaks Bayou. Approximately 35 structures are present with various retaining walls, piers, boat sheds, and generator buildings present. Some structures are in very poor conditions with debris, appliances, containers, drums, furniture, and other debris scattered along the water edge and marsh around the buildings.

- Site 20: Group of Camps (**29°32'38.78"N, 90°1'56.68"W**). An area of approximately 25 camps and residences is located along Bayou Maurice near the Barataria Waterway. Structures were similar in nature and condition to other areas surveyed.
- Site 21: Group of Camps (**29°33'8.49"N, 90°1'25.49"W**). A smaller group of eight camps along Bayou Maurice west of Spoonbill Bay. These structures appeared to be heavily damaged and in greater disrepair than other groups in the area. Piles of debris, broken piers, and partially collapsed buildings were noted.
- Site 22: Damaged Oil Field Facility (**29°30'39.01"N, 89°59'9.13"W**). A large tank battery with platforms, buildings, piers, and bulkheads is present on a small bay south of Round Lake near Bayou Dupont. With the exception of what appears to be a newly repaired or constructed building on piers, the facility is heavily damaged and out of service. Multiple steel tanks are collapsed and flattened, overturned and hanging from platforms. At least one large tank was observed sunken in the water. A storm damaged work boat was also observed beached on the marsh adjacent to the site. Investigators did not observe any indications of sheening, odors, stained vegetation or hydrocarbon product on or around any of the structures.
- Site 23: Group of Camps (**29°30'31.43"N, 90°1'11.79"W**). Approximately 30 camps and residences are located along a canal off Bayou Cutler. The majority of these structures are in much better condition than other camps observed in the area. Most have piers, boat sheds, retaining walls, and separate generators sheds. Various drums, containers and tanks were observed being utilized as water catchment systems.
- Site 24: Camp and Pier (**29°30'51.50"N, 90°3'31.52"W**). A small camp with floating pier is located in a small channel near Bayou St Denis. Two 55-gallon drums, one plastic and one metal, were observed on the pier. The drums were placarded with flammable labeling and appeared to be in good condition. No leaks, spills, or staining were observed.
- Site 25: Oil Field Tank Battery (**29°32'21.78"N, 90°3'5.60"W**). A large oil tank battery with flare unit is present on a small island on the eastern side of Three Bayou Bay. The facility appears to be in good, operable condition. Multiple flow lines were observed, and there is a large flare unit located at the end of a pier away from the tanks. Investigators did not observe any indications of sheening, odors, stained vegetation, or hydrocarbon product on or around any of the structures.
- Site 26: Camp Structures (**29°32'7.74"N, 90°3'58.79"W**). Two camps with piers, bulkheads, generators, sheds, and a shrimping platform are located on the western side of Three Bayou Bay. The camps were in good condition, and the surrounding marsh was free of debris.
- Site 27: Metering Platform (**29°32'40.15"N, 90°3'36.20"W**). A small platform containing an enclosed metal building with what appears to be telemetry and metering equipment is located on the north shore of Three Bayou Bay. Flow lines and valves are present outside the building. No adverse conditions were observed at the site.
- Site 28: Well Platforms (**29°32'33.33"N, 90°3'5.48"W**). Multiple well platforms are present on the eastern side of Three Bayou Bay. Platforms appeared to be in good,

working condition. One platform was being serviced by a barge during the time of inspection. No concerns were noted at any of the platforms.

- Site 29: Oil Field Platforms (29°32'34.68"N, 90°3'43.28"W). A group of small platforms is present in a canal system located off the Barataria Waterway. This site contains three platforms consisting of a well head, an older platform with multiple flow lines, and a smaller platform that appears to have been converted to a boat dock with a walkway leading into the marsh. Investigators did not observe any indications of sheening, odors, product, or stressed vegetation on or around any of the structures.
- Site 30: Camp Structure (29°33'49.25"N, 90°3'51.96"W). A camp with a detached generator shed and pier are located along a canal. The buildings and the surrounding area appear well maintained and free of debris.
- Site 31: Camp Structure (29°33'24.44"N, 90°4'25.75"W). A large camp with pier, deck, generator, shed, and multiple boat docks is located on a bayou near the western edge of the operational impact area. Two large tanks are installed on a rack as part of a water catchment system. The structures and the surrounding marsh appear to be clean and well maintained.
- Site 32: Oil Field Facilities (29°34'55.88"N, 90°3'40.42"W). Multiple oil field facilities and structures are present in a concentrated area along the Barataria Waterway. Several small well platforms, tank batteries, boat docks with cranes, and buildings are present in relatively close proximity. The majority of these are in good condition and operating. Investigators observed boats and personnel at many of these locations. These sites appeared well maintained and operational. No concerns were noted by investigators.
- Site 33: Pipeline Valve Platform (29°36'11.77"N, 90°4'28.50"W). A pipeline valve site located on a small platform is present along the western bank of the Barataria Waterway. Several similar sites are present along the waterway outside the project area. No concerns were noted at this or any of the other sites.
- Site 34: Camp and Boatshed Complex (29°36'13.14"N, 90°3'37.24"W). A large mobile home and multiple out buildings, boat docks, piers, and walkways are present at a site near the Barataria Waterway. Personnel encountered at the site indicated it belonged to the DuPont-Cutoff Group. The area was very clean and well maintained and investigators noted no concerns.
- Site 35: Well Platform with Flare Unit (29°36'40.16"N, 90°3'13.17"W). A well head and associated flare unit are present in a canal. The structure and the piping appeared well maintained and no concerns were noted.
- Site 36: Abandoned Camp Complex (29°36'47.12"N, 90°2'59.27"W). A large camp with multiple outbuildings, piers, and boatsheds is present on a small peninsula. The buildings are heavily damaged and the site appears abandoned. Investigators observed debris and building materials across the site. What appears to be a small fuel tank on a stand is present near one of the collapsed buildings.
- Site 37: Pipeline Valve Structure (29°38'3.95"N, 90°3'52.48"W). A concrete structure containing a pipeline valve is present in a canal along the western boundary of the operation impact area. No concerns were noted by investigators.

- Site 38: Floating Camp (29°34'35.29"N, 89°59'12.66"W). A small floating camp is present in a canal off Bayou Dupont. A small pier is present behind the camp leading to the marsh. A propane bottle and a plastic 55-gallon drum are present next to the structure. No evidence of leaks, spills, or other adverse concerns were noted.
- Site 39: Well Platform and Flare Unit (29°34'7.73"N, 90°1'21.76"W). Two structures are present at the end of a canal in near Goelette Bay. A well platform is present near the middle of the canal and a flare unit is located on a smaller platform near the edge of the water. Both structures appear serviceable, with the well head being in better condition than the flare unit. Investigators observed no evidence of leaks, spills, or stressed vegetation in the area.
- Site 40: Well Platform (29°35'40.39"N, 90°1'37.96"W). A well platform and elevated flow line are present in a small cut which is part of a network of oil field canals. The well was placarded and appears operational. No concerns were noted.
- Site 41: Oil Field Valve Site (29°35'44.26"N, 90°1'49.46"W). A small platform where multiple flow lines converge was observed in an oilfield canal. The site appeared to be operational with no concerns noted.
- Site 42: Well Platform (29°35'49.93"N, 90°1'43.70"W). A platform with a well head and multiple flow lines is present adjacent to an oilfield canal. The platform was typical in design and condition as other platform observed in the project area. No concerns were noted.

6.3.1 Pits, Ponds, or Lagoons

Large drainage canals are located within the property, with smaller drainage canals transecting portions of the site from north to south. Smaller drainage ditches convey water from the pastures into the canals. A pond is located within the pasture land. Timber Canal also runs north/south through the property. Two large, rectangular, water-filled borrow pits are present adjacent to the property. Photographs are included in Appendix F.

The majority of the outfall area portion of the property is open water with smaller canals, bayous, lakes, and bays traversing it.

6.3.2 Stained Soil or Pavement

No stained soil or pavement was observed.

6.3.3 Stressed Vegetation

No stressed vegetation was observed.

6.3.4 Solid Waste

Scattered solid waste debris observed in the construction footprint included storage containers; buckets and drums; plastic bottles; small appliances; old tools; tires; scrap metal; farm equipment; old vehicles; and woody debris.

Solid waste debris was also observed at the various facilities in the outfall sediment deposition area. Oil and gas facility debris associated with old and abandoned facilities was observed including old platforms, pilings, lines, vessels, and tanks. Debris associated with camps included building materials, PVC pipes, appliances, containers, drums, furniture, broken pipes, old boats and fishing vessels were observed. Photographs are included in Appendix F.

6.3.5 Wells

A water well was observed near the center of the pasture land portion of the property. The well is located in the center of an old metal windmill. A broken pipe is present from which water is free flowing into a small, shallow pool area then outward into the pasture via a vegetated ditch. A photograph is included in Appendix F and location map in Appendix G.

A second flowing well was observed in the western-most pasture area, along the south side of the construction footprint. A broken pipe is present in the center of a large pool of water which flows into a wide canal with standing water. These wells do not appear on the Louisiana Water Well Registry Report provided by GeoSearch or during a search for registered water wells on the LDNR SONRIS site.

A corroded steel oil well pipe was observed protruding from the water near the center of the West Access Canal which is part of the construction footprint. It is the opinion of the investigators that the pipe is similar in diameter and nature of other previously cut off and abandoned oil well pipes observed. There were no other structures, poles, or pilings observed. It is likely that the pipe would not be visible under normal water level conditions. There was no evidence of any leaks, sheen, staining, or other adverse environmental impacts from the pipe. The location and nature of the pipe may pose a construction or navigation hazard to the proposed project if dredging or travel occurs in the area. It was not clear whether the pipe had been capped or plugged from the surface. No other oil and gas wells were observed within the construction footprint areas.

Several oil and gas wells were observed farther out within the sediment deposition outfall area of the property.

6.3.6 Septic Systems

No septic systems were observed on the property; however, there are some camps near the project footprint that presumably have some kind of waste disposal system.

No interior observations of the camps near the project foot print were conducted nor were interviews with the residents. It would be correct to assume they have some sort of waste disposal system, however, none were observed.

6.3.7 Oil and Gas Drilling Activities

No oil and gas drilling activities were observed on the property. Numerous oil and gas drilling activities were observed to be occurring within the sediment deposition outfall area and adjacent areas.

6.3.8 Storage Tanks

Two diesel above-ground storage tanks are present at the Plaquemines Parish pump station site. The fuel tanks appear to be well maintained, with no evidence of leaks or spills noted. There were numerous storage tanks associated with the oil and gas facilities and camps. However, there was no evidence of leaks, staining, or stressed vegetation.

6.3.9 Odors

No odors were noticed during the site reconnaissance.

6.3.10 Pools of Liquid

No pools of liquid other than water were observed on the property.

6.3.11 Drums and Containers

Drums and containers including five-gallon buckets, 55-gallon drums were observed during the site reconnaissance, generally within the forested area and within the camps and oil and gas facilities. However, there was no evidence of leaks, staining, or stressed vegetation.

6.3.12 Unidentified Substance Containers

There were unidentified containers observed on the property but none observed with any hazardous substances.

6.3.13 Polychlorinated Biphenyls (PCBs)

Investigators noted pole mounted transformers within the power lines along Hwy 23. Electrical transformers on electrical poles may contain oil with PCBs as an additive. The transformers all appeared to be relatively new and in good condition with no signs of corrosion or leakage. No unexplained staining or stressed vegetation was observed on the ground beneath the transformers. There are also out of used transformers being stored at the Entergy site at 16197 Hwy 23. No adverse conditions were noted in and around the area of these transformers.

6.4 Interior Observations

No interior observations occurred.

7.0 INTERVIEWS

Phillips 66 leases a portion of the property to Mr. Minos Scarabin. GEC interviewed Mr. Minos Scarabin, who holds the grazing and pasture lease on a portion of the pasture land located within the project area owned by Alliance Refinery. Mr. Scarabin has continually leased over 1,000 acres of the property since 1994, having originally leased from Citrus Lands, prior to the property being acquired by Alliance. He indicated that he had no knowledge of any environmental concerns, soil staining, solid waste, or other hazardous materials being stored or

disposed of onsite or adjacent to the property. He indicated the presence of one out of use diesel above ground storage tank located outside the project area along Ravenna Road. Mr. Scarabin also employs a small portable diesel tank on a trailer to fuel his farm equipment while working at the site. He indicated there have never been any spills or leaks associated with either tank. He confirmed the presence of a flowing artesian well located in the pasture area beneath a broken windmill that was used to water cattle at one time. He also indicated that a similar well was present in the pasture land to the south. Mr. Scarabin was also not aware on any significant emergency response incidents resulting occurring along Hwy 23 or the railroad in the vicinity of the project area.

Mr. Khai Nguyen also owns a portion of the pasture land on the property. Mr. Nguyen provided GEC with information regarding the historical uses of the subject site and adjacent areas. Mr. Nguyen owns the Midway cattle ranch and dirt pit and has owned several hundred acres of land within project area for over 20 years. He indicated that he was not aware of any conditions that would negatively affect the soil and groundwater at the site. His operations do not utilize any fuel storage tanks within the project. He was not aware of any locations where regulated materials had been stored, buried, or released. He informed GEC of the location of a small artesian well on his property which feeds into a cattle pond. He had no knowledge of any other water wells within the project area. To his knowledge there have never been any structures present on the lands that he owns within the footprint of the project. Mr. Nguyen also did not recall any highway related incidents which may have caused adverse issues at the property.

GEC attempted to contact representatives from Phillips 66 for information related to the adjacent Alliance Refinery, but was unable to obtain an interview.

GEC also attempted to contact representatives from Entergy Louisiana for information related to the adjacent Entergy Site at 16197 Hwy 23. All requests for an interview at the physical **location were referred to corporate offices. The site is collectively referred to as "Entergy St Rosalie" and was described as a transmission and distribution service center. At the time of submittal, no one from Entergy had replied to GEC's multiple requests for information.**

8.0 FINDINGS

As defined in ASTM E 1527-13 Section 1.1.1 and ASTM E 2247-16 Section 1.1.2, REC means:

The presence or likely presence of any hazardous substances or petroleum products in, on, or at a property: (1) due to any release to the environment; (2) under conditions indicative of a release to the property or (3) under conditions that pose a material threat of a future release to the environment.

8.1 Potential REC Sites Outside Property Limits

GEC identified no potential REC sites outside of the property boundaries in the course of its review of Federal, state, and local environmental databases; historical research; interviews; and site investigations.

The Phillips 66 Alliance Refinery at 15551 Hwy 23 is located approximately 0.7 miles northeast of the property. The Alliance facility produces a wide range of petroleum products from crude

oil, including gasoline, jet fuel, diesel fuel, liquid petroleum gas, carbon black feedstock, propane, and coke. It also produces by-product elemental sulfur and petrochemicals such as benzene, toluene, and xylene. The facility holds numerous current and historical LDEQ permits to release emissions to the air, wastewater to the Mississippi River, and to operate a monitored solid waste unit. GEC reviewed files dating back through 2000; no incidents were noted that may have impacted the property. **Therefore, it is GEC's professional opinion that the Alliance Refinery is unlikely to have impacted the property and would not be considered a REC.**

8.2 RECs at Target Property

GEC identified no potential REC sites within the property boundaries in the course of its review of Federal, state, and local environmental databases; historical research; interviews; and site investigations. Debris located at the property would be considered de minimis.

9.0 OPINION

Through the review of Federal, state, and local environmental databases, historical research, interviews, and site investigations, no REC sites were noted on the property. Debris was observed on the property. None of the debris appeared to have spilled or caused contamination on the property. Due to the nature of the property GEC considers these to be de minimis conditions and not an indication of an adverse environmental condition at the site.

The two unregistered free flowing water wells that were discovered in the pasture land during the site investigation and the corroded steel oil well pipe that was observed protruding from the water near the center of the West Access Canal which would not be visible under normal water level conditions are areas of construction concern to note but would not be considered a REC. These will likely need to be capped or plugged and abandoned prior to construction. Based upon the findings of this ESA, GEC does not recommend further investigation of the property at this time.

9.1 Data Gaps

Data gaps are defined in ASTM E 1527-13 Section 3.2.20 and ASTM E 2247-16 Section 3.2.22 as a lack of or inability to obtain information required by this practice despite *good faith* efforts by the *environmental professional* to gather such information. No data gaps were encountered during this assessment with the exception of the lack of title records.

10.0 CONCLUSIONS

GEC has performed this Phase I Environmental Site Assessment in conformance with the scope and limitations of ASTM E 1527-13 and ASTM E 2247-16 for the Mid-Barataria Sediment Diversion in Plaquemines and Jefferson Parish, Louisiana, as applicable and appropriate. Any exceptions to, or deletions from, this practice are described in the report. Based on site reconnaissance, records review, agency interviews, and best engineering judgment, this assessment has revealed no evidence of on or off site RECs that are likely to have impacted environmental conditions at the property. No further investigation is recommended.

11.0 DEVIATIONS

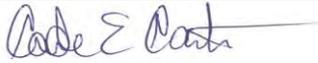
GEC complied with the standards specified in ASTM E 1527-13 and ASMT E 2247-16 and, based on the scope of the project, used an appropriate level of inquiry for the property assessment. As provided for in ASTM E 1527-13 and ASTM E 2247-16 Section 4.5.2 *Not Exhaustive*, GEC did not perform an exhaustive assessment of observably clean properties. Additionally, and as described in sections 4.0 and 6.0 of the report, certain observation limitations were encountered as noted.

12.0 ADDITIONAL SERVICES

GEC provided no additional services in the preparation of this ESA.

13.0 SIGNATURE OF ENVIRONMENTAL PROFESSIONAL

I declare that, to the best of my professional knowledge and belief, I meet the definition of Environmental Professional as defined in §312.10 of 40 CFR 312. I have the specific qualifications based on education, training, and experience to assess a property of the nature, history, and setting of the subject property. I have developed and performed all appropriate inquiries in conformance with the standards and practices set forth in 40 CFR Part 312.

Signature	
Name	Eddy Carter
Organization	GEC, Inc.
Date	1-31-20

Signature	
Name	Nicole Forsyth
Organization	GEC, Inc.
Date	1-31-20

Signature	
Name	William Grant
Organization	GEC, Inc.
Date	1-31-20

14.0 QUALIFICATIONS OF ENVIRONMENTAL PROFESSIONAL

14.1 Cade E. Carter, Jr., P.E.

Mr. Carter is an environmental engineer with over 25 years of experience in planning, coordination, and consulting services on federal and state regulatory compliance issues for numerous governmental and private clients. Environmental projects completed include:

Environmental Site Assessments – Numerous assessments for commercial, industrial and governmental clients nationwide to evaluate the presence of hazardous substances and petroleum products in accordance with ASTM Standard E 1527-00, 1527-05, and 1527-13 Standard Practice for Environmental Site Assessments: Phase I Environmental Site Assessment Process, and ASTM Standard E 1903-97, Standard Guide for Environmental Site Assessments: Phase II Environmental Site Assessment Process.

Mr. Carter is a licensed professional engineer in Louisiana (license number 22801). Mr. Carter is also trained in HAZWOPER in accordance with 29 CFR 1910.120. He completed both the 40-hour training and the 8-hour supervisor training in 1990 and maintains training through the yearly eight-hour refresher course.

14.2 Nicole Forsyth, E.I.

Ms. Forsyth is an engineer intern with more than 14 years of experience in planning, coordination, and consulting services for federal and state regulatory compliance issues for numerous governmental and private clients.

Environmental Site Assessments – She has completed and assisted with assessments for commercial and governmental clients nationwide to evaluate the presence of hazardous substances and petroleum products in accordance with ASTM Standards E 1527-00, 1527-05, and 1527-13 *Standard Practice for Environmental Site Assessments: Phase I Environmental Site Assessment Process*. She is registered as an engineer intern in Louisiana (license number EI 19841).

14.3 William Grant

Mr. Grant is an environmental scientist with 20 years of experience in planning, coordination, and consulting services on Federal and state regulatory compliance issues for numerous governmental and private clients. Environmental projects completed include:

Environmental Site Assessments – Numerous assessments for commercial, industrial, and governmental clients to evaluate the presence of hazardous substances and petroleum products in accordance with ASTM Standard E 1527-13 *Standard Practice for Environmental Site Assessments: Phase I Environmental Site Assessment Process*. Experience includes completion of ESAs for over 300 miles of highway right-of-way corridor in Louisiana.

Certified Industrial Hygienist Investigations – Investigation of industrial sites involving soil, sediment, surface and groundwater sampling and analysis, recommendations regarding project feasibility, and development of site safety and health plans for the USACE.

Louisiana Risk Evaluation/Corrective Action Program – Performed evaluations and ongoing monitoring for multiple industrial and governmental clients.

Mr. Grant is a certified Asbestos Inspector in Louisiana (Accreditation No. 8100958). Mr. Grant is also a certified in OSHA General Industry Safety and Health (OSHA 700335581) and trained in Hazardous Waste Operations and Response (HAZWOPER) in accordance with 29 CFR 1910.120.