

**ENVIRONMENTAL ASSESSMENT
FOR THE
MYRIANT SUCCINIC ACID
BIOREFINERY (MYSAB), LAKE
PROVIDENCE, LOUISIANA**

**U.S. Department of Energy
Office of Energy Efficiency and Renewable Energy
Golden Field Office
Golden, Colorado**



DECEMBER 2010

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ACRONYMS AND ABBREVIATIONS

AADT	Annual Average Daily Traffic
BMP	Best Management Practice
BOD	Biochemical Oxygen Demand
CEQ	Council on Environmental Quality
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act of 1980
CFATS	Chemical Facility Anti-Terrorist Standards
CFR	Code of Federal Regulations
DHS	U.S. Department of Homeland Security
DOE	U.S. Department of Energy
DOT	U.S. Department of Transportation
DSR	Delta Southern Railroad
EA	Environmental Assessment
EISA	Energy Independence and Security Act of 2007
EPA	U.S. Environmental Protection Agency
EPAct 2005	Energy Policy Act of 2005
ESA	Endangered Species Act
°F	Degrees Fahrenheit
FPPA	Farmland Policy and Protection Act
FR	Federal Register
GHG	Greenhouse Gas
REET	Greenhouse Gases, Regulated Emissions, and Energy Use in Transportation
gpd	gallons per day
HAP	Hazardous Air Pollutant
HAZID	hazard identification
HAZOP	Hazard and Operability
ICP	Integrated Contingency Plan
LACRT	Louisiana Department of Culture, Recreation, and Tourism
LDEQ	Louisiana Department of Environmental Quality
LDNR	Louisiana Department of Natural Resources
LDOTD	Louisiana Department of Transportation and Development
LDWF	Louisiana Department of Wildlife and Fisheries
LOS	level of service
LPDES	Louisiana Pollutant Discharge Elimination System
M	meter
MCC	Motor Control Center
mg	milligram
MySAB	Myriant Succinic Acid Biorefinery
NAAQS	National Ambient Air Quality Standards
NEPA	National Environmental Policy Act
NRCS	Natural Resources Conservation Service
NRHP	National Register of Historic Places
NSR	Noise Sensitive Receptor
OSHA	Occupational Safety and Health Administration
PFO	Palustrine Forested

PM	particulate matter
PM ₁₀	particulate matter with median aerodynamic diameter of 10 micrometers or less
PM _{2.5}	particulate matter with median aerodynamic diameter of 2.5 micrometers or less
POTW	Publically Owned Treatment Works
ppb	parts per billion
ppm	parts per million
Pre-HAZOP	Pre-Basic-Engineering Hazard and Operability
SSP	Site Security Plan
SNG	Southern Natural Gas
SONRIS	Strategic Natural Resources Information System
SOP	Standard Operating Procedure
SWPPP	Stormwater Pollution Prevention Plan
SSURGO	Soil Survey Geographic (database)
USACE	U.S. Army Corps of Engineers
U.S.C.	United States Code
USDA	United States Department of Agriculture
USFWS	U.S. Fish & Wildlife Service
USGS	United States Geological Survey
VOC	volatile organic compound
WWTP	Wastewater Treatment Plant
WMA	Wildlife Management Area
µg	microgram

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1. INTRODUCTION AND PURPOSE AND NEED

The U.S. Department of Energy (DOE) is proposing to authorize the expenditure of federal cost share funding to Myriant Lake Providence, LLC (Myriant) to support the final design, construction, and start-up of the proposed Myriant Succinic Acid Biorefinery to be located on a 55-acre industrial site leased from the Lake Providence Port Commission in Lake Providence, Louisiana. The Myriant Succinic Acid Biorefinery will hereafter be referred to as “MySAB” or “the biorefinery.” The biorefinery and all related infrastructure and utilities will be referred to as “the proposed project.”

DOE has authorized Myriant to use a percentage of its federal funding for preliminary activities, which include: preliminary design, National Environmental Policy Act (NEPA) document preparation, minor amounts of research and development, pilot plant operations to generate design basis data and optimize Myriant’s process for producing bio-based succinic acid, detailed engineering design, and development of a Risk Mitigation Plan. These activities are associated with the proposed project and do not significantly impact the environment or represent an irreversible or irretrievable commitment by DOE in advance of the conclusion of the environmental assessment (EA) for the proposed project.

DOE competitively selected MySAB under FOA-0000096, Recovery Act – Demonstration of Integrated Biorefinery Operations, which is funded by the *American Recovery and Reinvestment Act of 2009* (Recovery Act). The total anticipated cost of the proposed project is approximately \$139 million, with a proposed federal cost share of up to \$50 million. If DOE authorizes the expenditure of up to \$50 million of federal cost share, Myriant would be responsible for the remaining project costs. MySAB would produce 30 million pounds per year of succinic acid from sorghum grains and lignocellulosic-derived sugars.

The funding of projects under the Recovery Act requires compliance with the *National Environmental Policy Act of 1969*, as amended (NEPA; 42 U.S.C. §§ 4321, et seq.); Council on Environmental Quality (CEQ) regulations (40 CFR Parts 1500 to 1508); and DOE NEPA implementing procedures (10 CFR Parts 1021 and 1022). Thus, DOE prepared this environmental assessment (EA) to evaluate the potential environmental consequences of DOE’s authorization for Myriant’s expenditure of federal funds. In compliance with NEPA and its implementing procedures, this EA examines the potential environmental consequences of DOE’s Proposed Action (that is, authorizing Myriant to expend federal funds), the proposed project, and the No Action Alternative (under which it is assumed that, as a consequence of DOE’s denial of financial assistance, Myriant would not proceed with the project). The EA’s purpose is to inform DOE decision-making of the potential environmental consequences of the proposed project and alternatives and to allow the public to provide comments.

1.1 Purpose and Need

The *Energy Policy Act of 2005* (EPAct 2005), Section 932, directed the Secretary of Energy (the Secretary) to conduct a program of research, development, demonstration, and commercial application for bioenergy, including integrated biorefineries that could produce biopower, biofuels, and bioproducts. EPAct 2005 authorized the Secretary to carry out a program to demonstrate the commercial application of integrated biorefinery demonstration projects that demonstrate (1) the efficacy of producing biofuels from a wide variety of lignocellulosic feedstock; (2) the commercial application of biomass technologies for a variety of uses, including the development of biofuels, bio-based chemicals, substitutes for petroleum-based feedstock and products, and electricity or useful heat; and (3) the collection and treatment of a variety of biomass feedstock.

The *Energy Independence and Security Act of 2007* (EISA) amended EPAct 2005 to increase the authorized funding levels for renewable energy research and development, including a Renewable Fuel

Standard that requires the production of 36 billion gallons (136 billion liters) per year of biofuels by 2022, and including specific provisions for advanced biofuels, such as cellulosic ethanol and biomass-based diesel fuels.

With funding provided under the Recovery Act, DOE's Office of Energy Efficiency and Renewable Energy (EERE) is providing up to \$564 million to accelerate the construction and operation of pilot, demonstration, and commercial-scale integrated biorefinery facilities. The projects would be designed to validate refining technologies and help lay the foundation for full commercial-scale development of the biomass industry in the United States. The projects would produce advanced biofuels, biopower, and bioproducts using biomass feedstock.

Accordingly, DOE is implementing Section 932 of EPCA 2005 and Section 231 of EISA and is supporting biofuel production pursuant to the Renewable Fuel Standard established by EISA. In December 2009, the Secretary announced the selection of 19 integrated biorefinery projects to receive competitively awarded federal funds. The projects selected were part of an ongoing effort to reduce U.S. dependence on foreign oil, spur the creation of the domestic bio-industry, and provide new jobs in many rural areas of the country. The biofuels and bioproducts produced through these projects would displace petroleum products and accelerate the industry's ability to achieve production targets mandated by the federal Renewable Fuel Standard. The Myriant proposed project was one of the 19 competitively selected projects.

The purpose of the DOE Proposed Action is to support the objectives of EPCA 2005, EISA, and the Recovery Act. Specifically, the Myriant project would help to support the Recovery Act's goals by creating new jobs. Further, providing federal funding to the Myriant project would:

- Accelerate the construction and operation of pilot biorefinery facilities.
- Validate refining technologies and help lay the foundation for full commercial-scale development of the biomass industry in the U.S.
- Reduce U.S. dependence on foreign oil.

1.2 The National Environmental Policy Act

NEPA requires federal agencies to take into account the potential consequences of their actions on both the natural and human environments as part of their planning and decision-making processes. For this project, DOE is the federal agency charged with evaluating such potential impacts under NEPA and must determine whether to authorize the expenditure of federal funding. DOE is the only federal agency with responsibility to approve or deny the partial funding for the proposed project, and therefore, is the lead agency responsible for the preparation of this EA. DOE prepared this EA to provide the public and responsible agencies with information about the proposed project and its potential effects on the local and regional environment.

Where applicable, and concurrent with its NEPA review, DOE is also required to comply with the requirements of 10 CFR Part 1022-Compliance with Floodplain/Wetlands Environmental Review Requirements. Because the proposed project may involve a floodplain or wetland action, this EA presents an assessment of potential floodplains and wetlands impacts pursuant to 10 CFR 1022. As such, this EA fulfills DOE's obligations under NEPA and 10 CFR Part 1021 and 1022, and provides DOE with the information needed to make an informed decision about authorizing the expenditure of federal funds for the final design, construction, and start-up of the proposed project.

This EA analyzes the potential environmental and socioeconomic impacts that would result from implementation of the Proposed Action (with DOE funding) and the No Action Alternative (without DOE funding), and evaluates the potential individual and cumulative effects of the Proposed Action. While it is possible the project could be implemented without DOE financial assistance, that scenario would not provide for a meaningful No Action Alternative analysis, as it would be identical to the Proposed Action. For purposes of this assessment, the EA therefore evaluates, as the No Action Alternative, the potential impacts that would occur if the project were not built and operated. No other action alternatives are analyzed.

1.3 Public Involvement

In accordance with applicable regulations and policies, DOE sent scoping and consultation letters to potentially interested local, state, and federal agencies, and American Indian Tribes, including the U.S. Army Corps of Engineers (USACE); U.S. Fish & Wildlife Service (USFWS); Louisiana Department of Environmental Quality (LDEQ); Louisiana Department of Natural Resources (LDNR); Louisiana Department of Culture, Recreation, and Tourism (LACRT); Louisiana Department of Wildlife and Fisheries (LDWF); the Fifth Louisiana Levee District, Louisiana Department of Transportation and Development (LDOTD); the Jena Band of the Choctaw Indians; the Coushatta Indian Tribe; the Chitimacha Tribe of Louisiana; and the Tunica-Biloxi Tribe of Louisiana. DOE also sent scoping letters to potentially interested individuals and organizations to solicit public comments and published the Scoping Letter online in the DOE Golden, Colorado, Reading Room at http://www.eere.energy.gov/golden/Reading_Room.aspx. The scoping letter described the Proposed Action and requested assistance in identifying issues to be evaluated in the EA.

In response to its scoping letters, DOE received one timely public comment letter; this EA addresses the recommended avenues of inquiry in that correspondence. Appendix A contains a copy of the DOE scoping letter, the scoping letter distribution list, and the public comment letter. Appendix B contains copies of consultation correspondence with local, state, and/or federal agencies and Tribes.

DOE published the Draft EA and Notice of Wetland Involvement (NOWI) in the DOE Golden, Colorado, Reading Room for a 15-day public review period, and sent Notices of Availability (NOA) to interested agencies and individuals. DOE concurrently posted a NOWI in the Lake Providence, LA Banner-Democrat newspaper for the required 15-day public comment period. No comments were received during the draft EA and NOWI comment periods. DOE also published a Notice of Floodplain Involvement in the DOE Golden, Colorado, Reading Room and the Lake Providence, LA Banner-Democrat for the required 15-day public comment period, and sent the notice to interested agencies and individuals. The LDEQ submitted the same comments as previously sent in response to the Notice of Scoping in July 2010. LDEQ indicated it had no objections to the project and provided recommendations. Applicable recommendations have been addressed in the EA and committed to by Myriant.

1.4 Content

This EA provides information on the proposed project, including the following:

- Section 2 – DOE Proposed Action and Alternatives
- Section 3 – Affected Environment and Environmental Consequences of the Alternatives
- Section 4 – Cumulative Impacts
- Section 5 – References

This EA also includes an assessment of potential impacts to floodplains and wetlands, as required by 10 CFR Part 1022. A wetland and water body delineation and determination of the proposed project site,

including the proposed routes of the supporting pipeline infrastructure, was completed on March 31, 2010 and is presented in Appendix C.

2. DOE PROPOSED ACTION AND ALTERNATIVES

This section describes the Proposed Action (Section 2.1), the proposed project (Section 2.2), and the No Action Alternative (Section 2.3).

2.1 Proposed Action

DOE's Proposed Action is to authorize the expenditure of federal cost-shared financial assistance to Myriant for the final design, construction and startup of a demonstration-scale succinic acid biorefinery in Lake Providence, Louisiana. DOE's financial assistance would not exceed \$50 million. The total estimated cost of the project would be approximately \$139 million.

2.2 Proposed Project

The proposed MySAB project would produce 30 million pounds per year of succinic acid using renewable biomass feedstock. Succinic acid is an industrial organic chemical building block that can be used to produce food, plastics, clothing fibers, pigments, and biodegradable solvents. It also is a starting or intermediate material for a number of commercially significant specialty chemicals and chemical processes. The bio-based succinic acid produced by MySAB would displace succinic acid produced from petroleum-based feedstocks.

Based on pilot-scale data, the MySAB demonstration plant would facilitate rapid commercialization of bio-based succinic acid because production of bio-based succinic acid is more cost effective than production of petroleum-based succinic acid. Pilot-scale data further demonstrates that Myriant's process for producing bio-based succinic acid has lower energy requirements per ton of product than a comparable petroleum-based process. By consuming carbon dioxide as a reagent, the Myriant process also reduces life-cycle greenhouse gas emissions.

Myriant's process for producing bio-based succinic acid works with a wide variety of renewable feedstock-based sugars (including lignocellulosic) and produces ammonium sulfate (AMS) as a co-product. Myriant selected grain sorghum grits as the initial feedstock because of its immediate local availability for use in the biorefinery and its low handling costs. In addition, Myriant intends to use lignocellulosic derived sugars from available agricultural and forest residues, such as bagasse, rice straw and wood chips.

Myriant's primary objectives are to validate its technology at demonstration scale and to enable replication of the technology at other locations. These objectives necessarily include reducing costs of production and increasing revenues for renewable and sustainable bioproducts, in an effort to spur petroleum and energy independence, job growth, and climate change solutions. In addition, Myriant's objectives include:

- Obtaining operational data;
- Validating key process metrics (fermentation and separation yield, productivity and chemical consumption);
- Providing continuous operational data at a scale needed to lower the technical risks associated with proceeding to commercial scale plants; and
- Proceeding rapidly to commercial scale.

2.2.1 PROCESS DESCRIPTION

The major steps in Myriant's process to produce bio-based succinic acid and AMS are described in more detail in this section. Figure 2-1, Process diagram, shows the Myriant process.

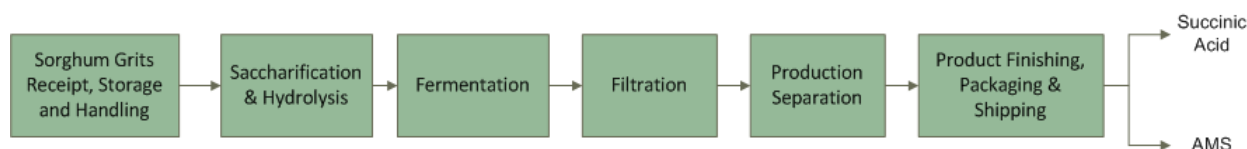


Figure 2-1. Process diagram.

Myriant would purchase feedstock (sorghum grits and lignocellulosic sugar hydrolysate) at market value. Lignocellulosic feedstock-based sugar streams to be used as feedstock would be purchased and delivered as pretreated and saccharified C5 and/or C6 sugar slurry. The sugar feedstock stream would be tested to ensure it meets Myriant's process needs and specifications. Feedstock would be delivered to the site for storage until processing.

The first step of Myriant's process, using sorghum grits as feedstock, is hydrolysis and saccharification. Hydrolysis breaks the starches found in the grits into short sugar chains. Saccharification breaks the short sugar chains into simple sugars. Grits would be mixed with hot water and sulfuric acid to form a slurry. The slurry would be heated to hydrolyze (break the chemical bonds) of the starches. After neutralizing the acid solution, the hydrolyzed starches would be saccharified (broken into simple sugars) using enzymes. The solution would be filtered and washed to recover the sugars. The resulting sorghum syrup would be collected in a syrup tank for use as a feedstock for fermentation.

Where lignocellulosic hydrolysate is used as a feedstock, it would be inserted directly into the fermentation process. In the fermentation step, the sorghum syrup or lignocellulosic sugar hydrolysate would be diluted with water, inoculated with Myriant's proprietary organism, and incubated to allow the organism to convert glucose to a succinic acid salt. Myriant developed special strains of organisms using metabolic adaptation and evolution to produce the desired product during fermentation. The fermented broth would be filtered and processed through a solids separation step to remove cell mass.

In product recovery, the stream would be separated into succinic acid and ammonium sulfate (AMS). Filtration cake from hydrolysis and saccharification would be transported for disposal at a local waste biorefinery. The waste cell mass from fermentation would be directed to the waste water treatment process for further processing and combination with the waste water treatment sludge and transported for disposal at a local waste facility.

Production separation is a proprietary process that would be used to separate succinic acid from salts and residual sugars and other components. The extract containing succinic acid and ammonium sulfate would be pumped to the evaporation/crystallization unit for product finishing.

Succinic acid would be concentrated in the evaporation/crystallization unit. The concentrated succinic acid stream from the evaporator would be cooled by the heat exchanger of the crystallizer. This would generate a succinic acid product, which would be pumped continuously with a transfer pump into a storage tank and eventually packaged in super sacks for shipment. The ammonium sulfate would be sold as a fertilizer to the local market.

Myriant has been running an in-house testing program on lignocellulosic biomass pretreatment and saccharification in order to support strain adaption and metabolic evolution studies using its proprietary

organisms. Myriant's proprietary organisms were selectively cultured such that the cells must produce the desired organic acid in order to grow. Several months of metabolic evolution ultimately resulted in the isolation of a new, novel strain which would be used in MySAB. This robust strain has already demonstrated its ability to efficiently ferment concentrated lignocellulosic biomass, resulting in high yields.

Biotechnology regulations implementing the Toxic Substances Control Act of 1976 (TSCA; 15 U.S.C. §§ 2601, et seq.) address intergeneric microorganisms. Intergeneric microorganisms contain genetic material from microorganisms in more than one taxonomic genus. Myriant's proprietary organism has not been created by a combination of genetic material from organisms of different taxonomic genera nor does it contain mobile genetic elements which were first identified in a microorganism in a genus different from the recipient. Because the new strain is not an intergeneric microorganism as defined by EPA, it would not be subject to the TSCA biotechnology regulations (40 CFR Part 725). Moreover, Myriant's proprietary organisms would not be subject to the U. S. Department of Agriculture (USDA) Animal and Plant Health Inspection Service (APHIS) biotechnology regulations because APHIS regulates organisms developed using recombinant DNA technology or genetic engineering (see 7 CFR Part 340) and Myriant's proprietary organisms do not fall within those requirements.

2.2.2 PROJECT LOCATION AND SITE PLAN

Myriant would construct MySAB on a 55-acre industrial site developed for industrial use by the Lake Providence Port Commission (Figure 2-2, Location Map). The Port of Lake Providence Commission manages the adjacent active port facilities and leases the site to Myriant. The site is on the west bank of the Mississippi River, between the mainline levee and Hagaman Chute, a barge channel that serves the Port and connects to the Mississippi River approximately 1.5 miles south of the project site (Figure 2-3, Site Plan). In 2005, Myriant invested significant capital on site development, including mass grading and pile driving (Figure 2-4, Prior Development). The existing piles would be used as part of the construction of MySAB.

Port Road is a paved road that provides access to the site, which is less than 1 mile from Port Road's intersection with U.S. Highway 65 (U.S. 65), and approximately 3 miles south of Lake Providence. Myriant would pave the 200-yard unpaved portion of Port Road that extends to the biorefinery as part of the project. The site does not have suitable direct rail access, and although it does have access to the Port's barge channel, Myriant plans to transport materials and products by truck.

2.2.3 PROPOSED PROJECT DESCRIPTION

2.2.3.1 Major Buildings/Structures

The proposed MySAB project would include the construction of new buildings and tanks. Table 2-1 lists the proposed buildings and structures. Figure 2-5, Detail of biorefinery, shows major buildings and structures. Pending final design and configuration requirements, Myriant could also install gravel storage areas, concrete pads, steel structures, and storage tanks and silos in conjunction with the listed major buildings and equipment.

Additional temporary workspace would be needed during construction. Myriant would need a construction laydown area at the southern end of the proposed biorefinery location and a contractor parking area to the north. In addition, there would be three temporary buildings to the east of the proposed biorefinery location to house construction offices, a break area, and a receiving warehouse.



Figure 2-2. Location map.

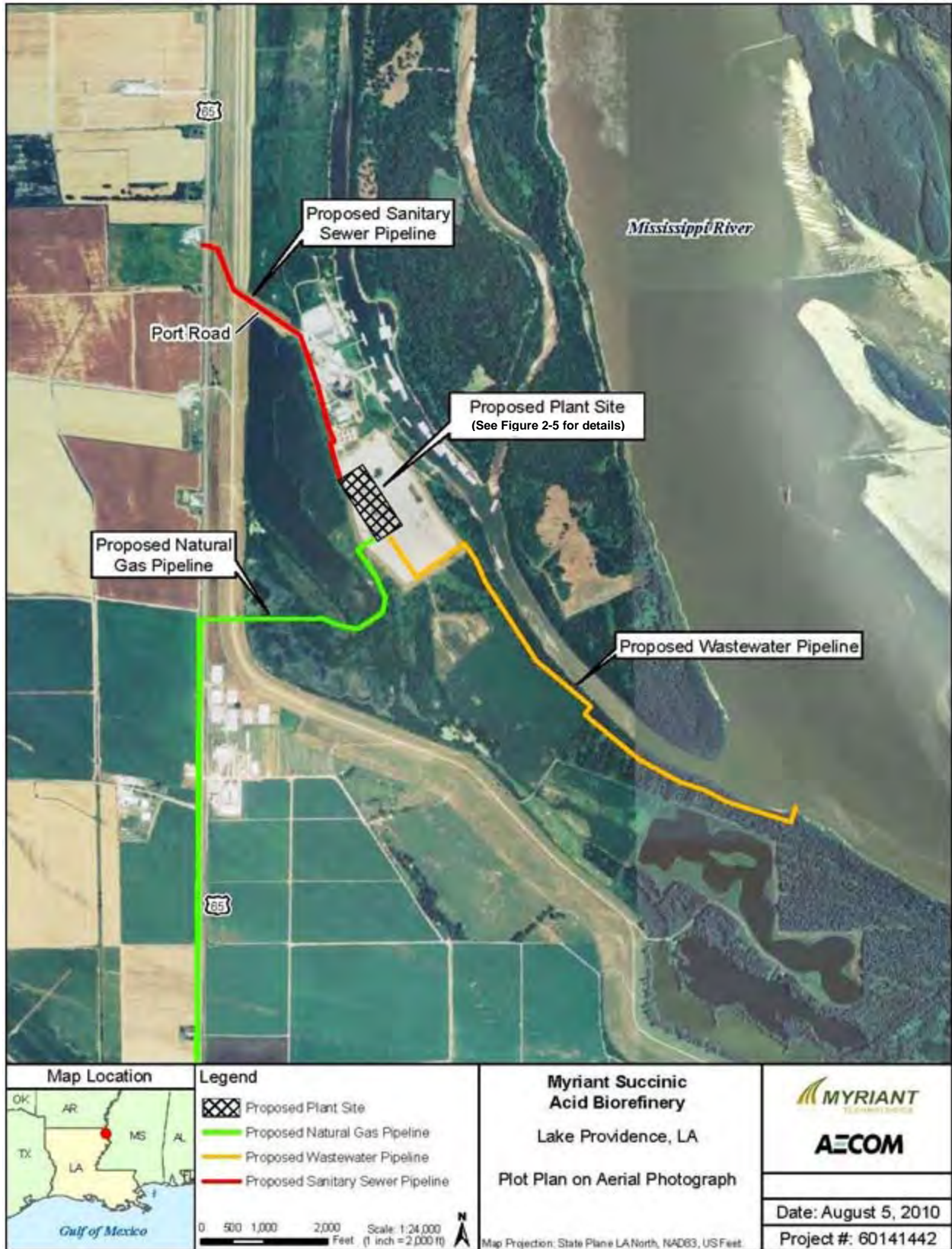


Figure 2-3. Site Plan.



Figure 2-4. Prior development.

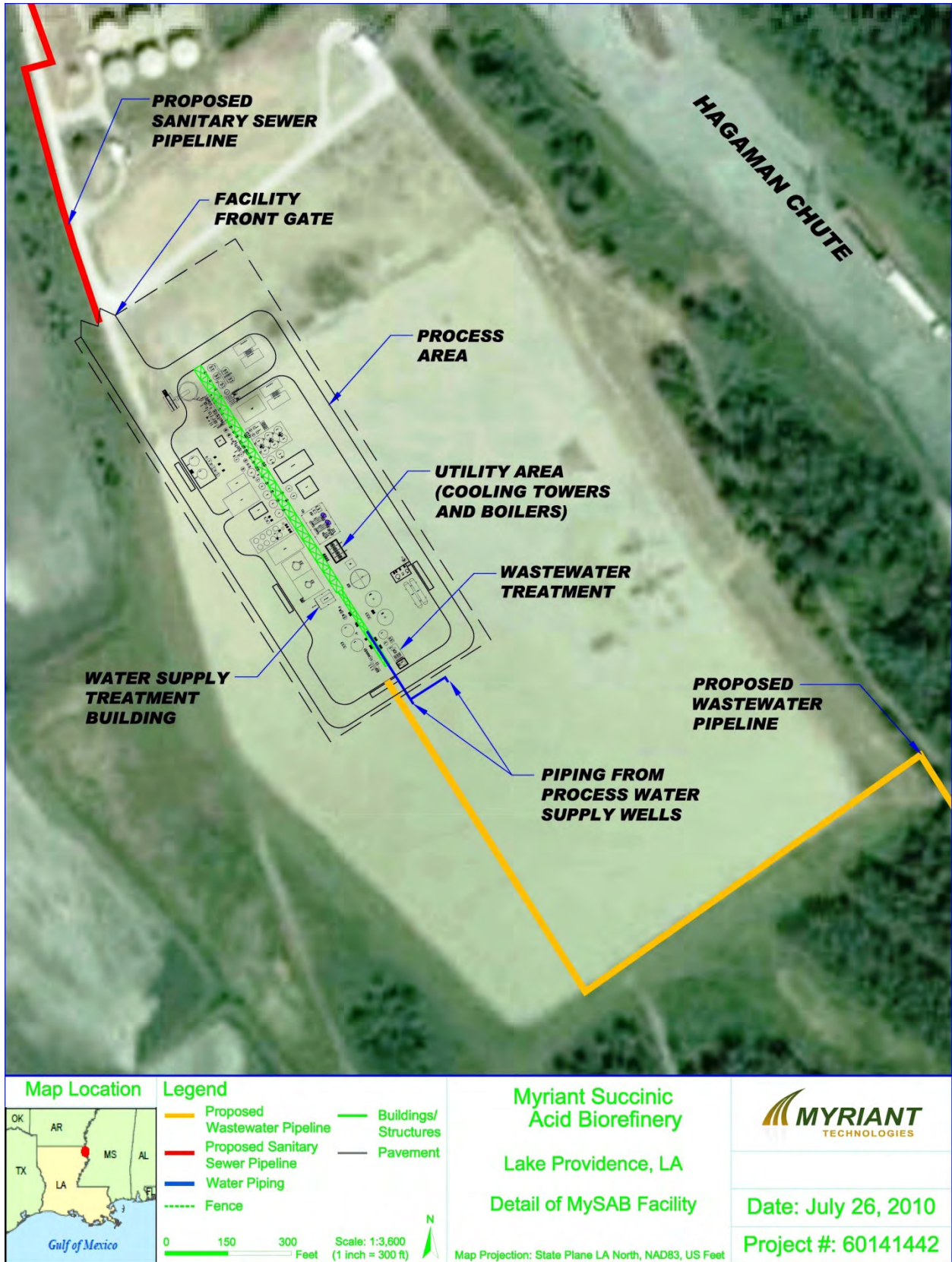


Figure 2-5. Detail of biorefinery.

Table 2-1. Major buildings and structures associated with the proposed project.

Structure	Description	Dimensions (feet) W × L × H
Fermentation Building	Main production building containing fermentation and separation equipment	100 × 250 × 70 (maximum)
Product Separation	Separation equipment	38 × 94 × 27
Product Recovery	Product recovery equipment	50 × 75 × 50
Sorghum Preparation Building	Equipment to covert milled feedstock grits to syrup	60 × 140 × 50
Dry Solids Storage	Storage	40 × 50 × 24
Control Room / Laboratory	Control room and Laboratory	50 × 50 × 30
Utility Shed	Boilers and compressors	56 × 118 × 12
Water Building	Water treatment equipment	30 × 45 × 12
Chiller Shed	Chilled water equipment	20 × 24 × 12
Administration Building	Administrative offices	40 × 120 × 12
Product Storage Building	Short-term storage for product	40 × 50 × 20
MCC/Switchgear Building	Electrical equipment	40 × 80 × 20
Waste Treatment Building	Office and small laboratory	20 × 20 × 14
Sludge Handling Shed	Sludge shed for waste treatment facility	25 × 35
Maintenance Building	Repair facility with small office space and parts storage	40 × 80 × 24
Byproduct Storage Building	Short-term storage for by-products	40 × 50 × 20
Scales House	Small office and waiting area	8 × 10 × 10

2.2.3.2 Infrastructure and Utilities

Myriant would construct new infrastructure, including pipelines and utilities, to support MySAB. Figure 2-3 shows proposed utility routes.

Myriant would construct and operate two onsite wells, installed under Louisiana Administrative Code (LAC) Title 43, Part 6, which would supply process water. Potable water would be supplied by the Lake Providence water department from water lines already available at the site. Myriant would also construct and operate an effluent wastewater pipeline and a sanitary wastewater line (described below). Other companies, discussed below, would construct or upgrade, own, and operate additional infrastructure – specifically a natural gas pipeline and an electric power line. Potential wetland impacts from utility installation would be temporary and authorized by the U.S. Army Corp of Engineers under Nationwide Permit No. 12 (NWP-12).

MySAB would produce two liquid effluent waste streams – organically contaminated wastewater and inorganic-only contaminated wastewater. Organic wastewater would be neutralized (pH adjustment) and routed through a biological treatment system. Inorganic wastewater would bypass the main biological treatment system. These waste streams would be combined, treated in an onsite wastewater treatment plant (WWTP) as required to meet discharge parameters, tested at an effluent quality monitoring station, and routed to the Mississippi River for direct discharge.

An effluent wastewater discharge pipeline approximately 1.5 miles long would run southeast from the biorefinery along the edge of Hagaman Chute and discharge into the main channel of the Mississippi River through a submerged or shoreline outfall immediately downstream of Hagaman Chute. Because Louisiana has been delegated to administer EPA's National Pollutant Discharge Elimination System (NPDES) process, Myriant would obtain a Louisiana Pollutant Discharge Elimination System (LPDES) Industrial Wastewater Discharge Permit from LDEQ for this discharge and operate in compliance with the permit. The wastewater treatment system would achieve typical discharge permit limit conditions of

30 parts per million maximum biochemical oxygen demand (BOD) and 30 parts per million maximum total suspended solids. Myriant would configure the system to comply with other effluent limits potentially assigned by LDEQ in the LPDES permit.

Myriant would route sanitary wastewater (approximately 3,000 gallons per day) to the Town of Lake Providence sewer system for treatment at the town's South Pond wastewater treatment facility, a Publically Owned Treatment Works (POTW) with a treatment capacity of 850,000 gallons per day. The sanitary line would parallel Port Road, crossing the levee (by pipe bridge) and U.S. Highway 65 (by road bore) before connecting to the force main serving the East Carroll Detention Center.

A local distribution company, Atmos Energy Marketing, LLC, would construct and operate a natural gas pipeline to support MySAB demonstration. The 3.5-mile pipeline would begin at the Southern Natural Gas (SNG) natural gas pipeline to the south of the proposed biorefinery and proceed north, paralleling U.S. Highway 65, then cross the Mississippi mainline levee (by pipe bridge) and a short section of forested wetland inside the levee before terminating at the biorefinery. Open-trench methods would be used for pipeline construction. Myriant considered a route under Stump Hole Lake (by horizontal directional drilling), but selected an alternative route around the lake based on environmental considerations and logistics.

Entergy Corporation would supply power to the biorefinery by upgrading existing power lines in existing rights-of-way on existing or upgraded poles. The Entergy Oak Grove substation would supply power during the construction and operational phases. During the operational phase, the Entergy Tallulah substation would supply power.

2.2.3.3 Support Facilities

Truck Loading/Unloading Facility. The Port of Lake Providence has an existing truck scale that Myriant would use for incoming trucks. Myriant would construct an outgoing scale as part of the MySAB project.

Existing Storage Facilities. Depending on the economic terms and conditions, Myriant may choose to lease existing storage buildings and tanks from the Port of Lake Providence Commission instead of constructing new storage facilities on-site. Proposed new storage facilities are included in the impact evaluation in this EA.

2.2.3.4 Roads and Biorefinery Access

Vehicle access to the biorefinery would be on Port Road, which runs along the levee on the west boundary of the biorefinery, providing access from the Port of Lake Providence to the north. Port Road is a 1/3-mile blacktop road. To the northwest, Port Road connects to U.S. Highway 65, a two-lane highway that is a major arterial between the Cities of Lake Providence and Transylvania.

Myriant would use Port Road for access to the MySAB project site for employee and service provider vehicles, and project-related truck traffic, as described below. Employee vehicles would enter the site directly into the employee parking lot from Port Road. As many as 150 vehicles for employees and other service providers would be likely to arrive at the site daily in multiple shifts.

Trucks bringing chemicals to the site, hauling materials off the site, and making general deliveries would also use Port Road. The proposed biorefinery would require approximately 2 to 3 trucks per day for the delivery of chemical supplies, 3 to 5 trucks per day for the delivery of feedstock, and approximately 1 truck per day for the delivery of enzymes. One or two trucks would leave the site per day hauling sorghum solids, and 5 to 10 per day hauling outgoing products.

In the event that pricing on the commercial cash market drops (resulting in a large supply of economical feedstock), haul trucks would use Port Road to bring the feedstock to the site. Myriant expects the availability of such economical feedstock to be infrequent, with the substantial majority of its feedstock coming from contracted suppliers. In the event a large supply of economical feedstock becomes available, the number and distribution of trucks necessary to bring it to the site is not known; it would be unlikely, however, to exceed 12 per day for a limited number of days per year.

Two alternative forms of transportation for the biorefinery include an existing railroad and waterway. Delta Southern Railroad (DSR) operates a local rail line that runs parallel to Highway 65, west of the proposed MySAB project site. The Lake Providence Port Commission has a total of 6,600 feet of track on four tracks, with the longest continuous track of 4,350 feet. DSR of Tallulah provides rail service. The DSR operates a former Missouri Pacific Railroad route from Tallulah north through Lake Providence to Eudora and McGhee, Arkansas.

The Lake Providence Port Commission manages waterway vessel traffic related to the Port of Lake Providence, which is a shallow-draft port with a USACE-maintained channel depth of 9 feet, containing 4 berths. The channel is 8,200 feet long, 150 feet wide, and has a 400- by 800-foot turning radius, providing access to the Mississippi River.

Although these alternative transportation methods exist at the site, delivery by truck appears to meet the project's needs most completely, and DOE has prepared this EA under the assumption that truck transport would be the only mode.

2.2.4 CONSTRUCTION

2.2.4.1 Preconstruction Surveying and Geotechnical Analysis

The subsurface and geotechnical aspects of the MySAB site were thoroughly analyzed in 2005 (Southern Earth Sciences 2005). Myriant also contracted a supplemental geotechnical engineering study which was completed recently (Tolunay-Wong Engineers 2010). Information generated by these studies regarding the geotechnical suitability of the substrate, topography, underground utilities, etc., would be used by Myriant to guide preconstruction activities and as part of the design basis.

2.2.4.2 Grading and Earthworks

Previous construction activities at the site accomplished the majority of the mass grading activities necessary for development of the MySAB project. Construction of MySAB would disturb approximately 11 of the 55 acres of open industrial space available at the site. After completion of construction, Myriant would revegetate the areas disturbed to support construction.

Before construction, Myriant would secure permit coverage for construction-phase stormwater discharges under the LPDES General Permit for Discharges of Storm Water from Construction Activities Five (5) Acres or More. This LPDES permit requires development of a Stormwater Pollution Prevention Plan (SWPPP) that would be available at the site. Myriant would use appropriate Best Management Practices (BMPs) to manage erosion and sedimentation from the site construction and paving Port Road. These BMPs would include:

- Temporary and permanent vegetative stabilization;
- Sedimentation basin(s);
- Silt fence, hay bales, check dams, and other erosion control devices; and
- Limitations on traffic outside the active construction area.

Myriant would inspect these BMPs regularly as specified in the SWPPP to ensure they performed as designed, and would implement additional BMPs if required.

2.2.4.3 Hydrostatic Testing

Hydrostatic testing of the large tanks constructed on site and the pipelines would require a one-time water withdrawal from the onsite water wells. No inhibitors, biocides, or other additives would be used during hydrostatic testing. After testing, the water would be discharged through an energy dissipating structure or routed through the onsite WWTP. The four large fermenters would be tested in one batch, which would require approximately 420,000 gallons of water. This water would be reused as practicable for the remainder of the hydrostatic testing.

2.2.4.4 Construction Logistics

Once the appropriate environmental and building permits were obtained, construction of the MySAB project would take approximately 16 months. Construction would begin with site preparation, grading, and additional geotechnical stabilization. The foundations would be poured and building construction would begin. The final stages of construction would include tank fabrication, piping, and electrical installation.

As practicable, Myriant would employ local workers from Lake Providence and the surrounding vicinity to construct MySAB. Table 2-2 lists the anticipated level of staffing.

Table 2-2. Anticipated Construction Staffing and Vehicle Trips.

Period	No. employees	No. of vehicles (per day)	No. of truck deliveries (per day)
Months 1-3	10-50	10-30	5-7
Months 4-8	50-150	50-120	7-15
Months 9-11	150-250	120-150	15
Months 12-15	250 maximum before declining to 0	150 maximum before declining to 0	5-15

2.2.5 OPERATIONS

2.2.5.1 Material Balance and Logistics

Trucks would deliver feedstock to the receiving and storage area, which would begin at the biorefinery entrance and end at the process entry point to the sorghum grits preparation area. The trucks would unload the grits to a conveyance system and storage silo. The grits storage capacity would store an estimated 575 dry tons, which would be equal to a 7-day supply. Table 2-3 lists the inputs and outputs for the biorefinery. Lignocellulosic sugars would be delivered in 1 cubic meter totes or in standard 8,000 gallon tanker trucks. Sugars would be fed directly into the fermentation process upon delivery. Lignocellulosic sugars would not be stored.

Table 2-3. Material balance.

Inputs	
Feedstock, grain sorghum grits/ lignocellulosic sugars	Up to the equivalent of 100 dry tons per day
Potable water	3,000 gallons per day
Process water from onsite wells	300,000 gallons per day
Sulfuric acid	Not more than 100,000 lbs/day
Anhydrous ammonia	Not more than 35,000 lbs/day
Natural gas	900 million standard cubic feet per year
Diesel	Less than 2,000 gallons per year
Electricity	17 million kilowatt-hours per year
Outputs	
Succinic acid	30 million lbs per year
Ammonium sulfate	Not more than 40 million lbs per year
Sanitary sewer	3,000 gallons per day
Wastewater	150,000 gallons per day

2.2.5.2 Biomass Availability

MySAB would use various feedstocks, including sorghum grain, sorghum grits, and other lignocellulosic sugars derived from biomass agricultural residues such as corn stover and sugarcane bagasse, and forest residues such as wood chips. The base feedstock would be sorghum grain that was milled into grits before processing. Figure 2-6, Biomass Availability, depicts sorghum grain availability (in bushels) within a 100-mile radius of the proposed project (USDA National Agricultural Statistics, 2009).

Myriant has been testing lignocellulosic sugar streams from various leading suppliers to evaluate the fermentability of their streams to produce succinic acid. For MySAB, Myriant plans to obtain lignocellulosic hydrolysates from a pre-qualified supplier (or strategic partner), which would be able to supply adequate quantities according to Myriant's process needs and specifications.

2.2.5.3 Operational Workforce

The MySAB workforce for site operations would be approximately 51 people. Myriant intends to hire workers from existing local and regional population if possible.

2.2.5.4 Startup, Shutdown, Maintenance, and Emergency Conditions

MySAB would normally operate 24 hours per day, 7 days per week. Minor maintenance activities would be regularly scheduled throughout the operating year with an additional plant-wide shutdown each year for major maintenance activities that required the entire plant to be off line. This would limit the number of times the biorefinery went through a complete startup and shutdown cycle. As a result, on an annual basis, the biorefinery would operate approximately 333 days per year.

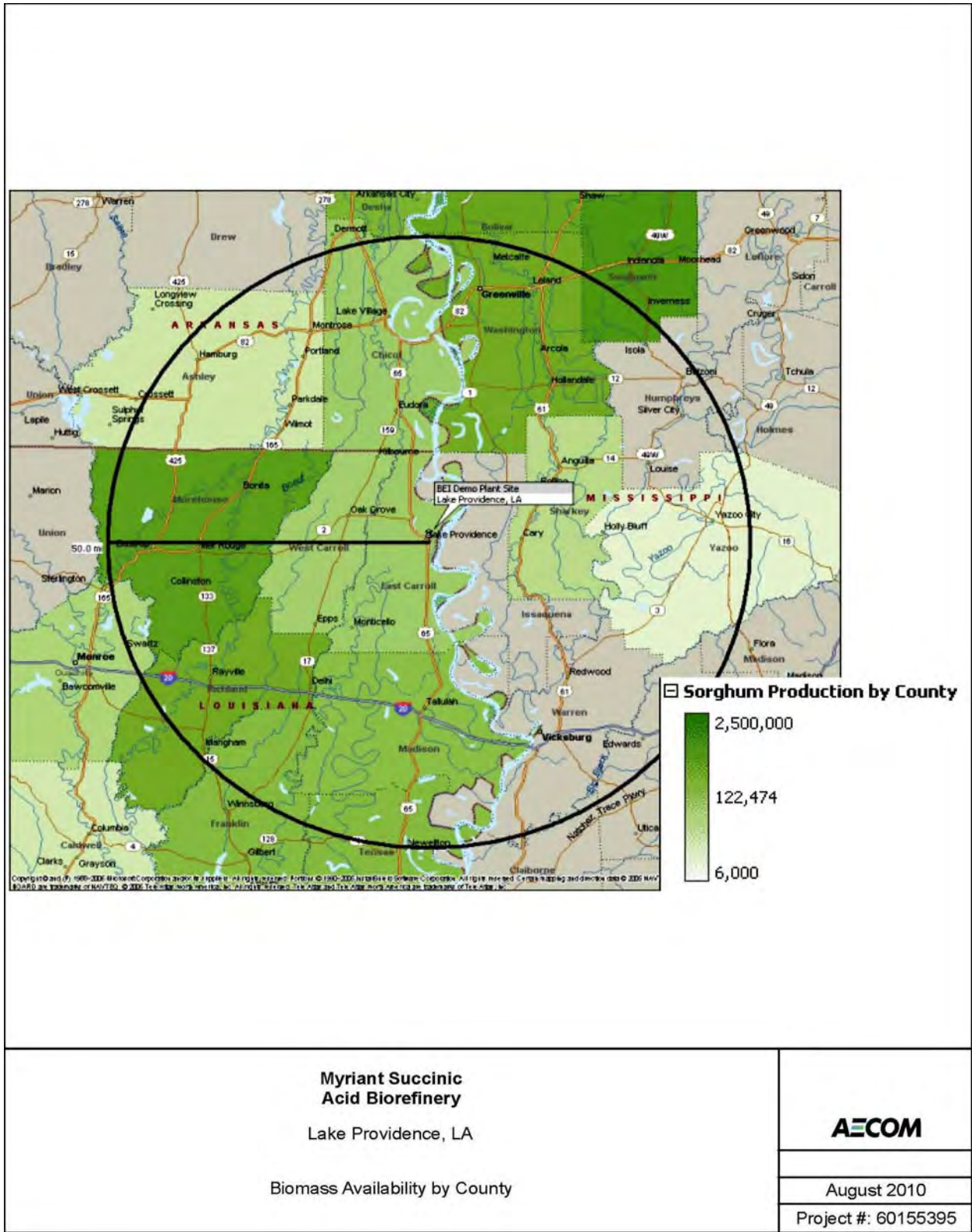


Figure 2-6. Sorghum grain availability (in bushels) by county.

Myriant would develop Standard Operating Procedures (SOPs) for each operating system and the associated pollution control systems. These would include the following:

- Sorghum receiving, storage, handling and preparation
- Hydrolysis and Saccharification
- Fermentation
- Product Separation and Filtration
- Product Recovery
- Natural Gas Boiler
- Cooling Tower
- Water Treatment
- Wastewater Treatment

MySAB would shut down under emergency conditions such as power or process water loss. In addition, the proposed project would have an emergency fire pump in the event of a fire.

The pollution control systems (baghouses) associated with sorghum grits receiving, handling, and storage would be interconnected with the motor controls on the process equipment. Shutdown of the pollution control system would automatically shut down the associated process.

2.2.5.5 Project Design Features to Minimize Threat from Intentional Destructive Activities

MySAB design would include measures to minimize potential threats or damages from intentional destructive acts (that is, acts of sabotage or terrorism). The design would include security fences, security lighting, and communication procedures with the local 911 emergency response system. In addition, Myriant would staff the biorefinery 24 hours per day and equip it with automation that would enable remote emergency shutdown and cutoff of process units and loading racks.

The U.S. Department of Homeland Security (DHS) imposes comprehensive federal security regulations for high-risk chemical facilities. MySAB would comply with the DHS Chemical Facility Anti-Terrorist Standards (CFATS)(6 CFR Part 27). The CFATS establish risk-based performance standards for the security of the nation's chemical facilities, which include the following:

- Security Vulnerability Assessment, which includes threat identification, countermeasures analysis, and computer system analysis;
- Site Security Plan (SSP), which includes measures that satisfy the identified risk-based performance standards;

Myriant would incorporate the necessary security measures at its biorefinery to comply with the SSP and would implement the necessary operational requirements (training, document management, etc.).

2.2.6 DECOMMISSIONING

Myriant would operate the demonstration plant for 24 months using stable operations to achieve the following performance objectives:

- To validate performance of the proposed technology at demonstration scale and replicate operational data achieved in its pilot plant facility;

- To obtain operational data;
- To validate key process metrics (fermentation and separation yield, productivity and chemical consumption); and
- To provide continuous operational data at a scale needed to lower the technical risks associated with proceeding to commercial scale plants.

After Myriant achieved its project objectives for developing integrated biorefinery technologies, it would use the biorefinery to scale up and commercialize its next two products – fumaric acid and malic acid. Therefore, the biorefinery would not be decommissioned. The intended design lifetime of the biorefinery is 30 years, after which standard decommissioning practices would be employed similar to that required for construction and commissioning.

2.2.7 PERMITS, REGULATIONS AND APPLICANT-COMMITTED MEASURES

The MySAB project would require a number of environmental permits, approvals, and plans for construction and operation. Table 2-4 lists these permits, plans, approvals, and applicant-committed measures.

Table 2-4. Environmental regulatory and commenting agencies with jurisdiction over the project and applicant-committed measures.

Agency	Authorization	Action (trigger) and Applicant-Committed Measure
USACE	Nationwide Permit No. 12 (NWP-12) §404 Clean Water Act	<ul style="list-style-type: none"> • Wastewater pipeline and natural gas pipeline (wetland disturbance)
	Levee-crossing engineering and construction-requirements review	<ul style="list-style-type: none"> • Natural gas pipeline (levee crossing) • Sanitary sewer pipeline
USFWS	Endangered Species Act (ESA) § 7 Consultation	<p>For fat pocketbook pearly mussels:</p> <ul style="list-style-type: none"> • Maintain a 200 ft riparian buffer between the effluent pipeline and Hagaman Chute, if feasible • Emplace sedimentation fences prior to removal of vegetation during construction of the pipeline • Provide USFWS with a copy of the Sediment Erosion Control Plan • Provide USFWS with a copy of the LPDES permit <p>For interior least terns:</p> <ul style="list-style-type: none"> • Confirm absence of interior least tern nesting prior to construction of biorefinery. Contact USFWS prior to construction unless construction occurs between September and April

Table 2-4. Environmental regulatory and commenting agencies with jurisdiction over the project and applicant committed measures (continued).

Agency	Authorization	Action (trigger) and Applicant-Committed Measure
USFWS	Endangered Species Act (ESA) § 7 Consultation	For pallid sturgeons: <ul style="list-style-type: none"> • Use no additives during hydrostatic testing. For wetlands and migratory bird populations: <ul style="list-style-type: none"> • Continue consultation with USFWS to minimize impacts to wetlands and migratory bird populations. For the bald eagles: <ul style="list-style-type: none"> • Conduct survey for bald eagle nests
LDEQ, Office of Environmental Services	State (Minor Source) Permit	<ul style="list-style-type: none"> • MySAB construction and operation (air emissions) • Pave approximately 200 yards of Port Road
	LPDES Construction Stormwater Discharge General Permit	<ul style="list-style-type: none"> • MySAB construction (stormwater discharge from construction activity with more than 5 acres of land disturbance) • Requires preparation of a SWPPP
	LPDES Hydrostatic Test and Vessel Testing Wastewater General Permit	<ul style="list-style-type: none"> • MySAB construction; wastewater pipeline and natural gas pipeline (hydrostatic test water discharges)
	LPDES Industrial Water Discharge Permit	<ul style="list-style-type: none"> • MySAB operation (wastewater discharge to surface waters during biorefinery operation)
LDNR	Water Well Notification	<ul style="list-style-type: none"> • MySAB construction (water well installation)
LACRT	National Historic Preservation Act (NHPA), §106 Consultation	<ul style="list-style-type: none"> • Wastewater pipeline and natural gas pipeline (land disturbance) • Phase I archeological survey would be conducted at the natural gas pipeline right-of-way adjacent to the Hollybrook site. • No-effect determination is required prior to construction
LDWF	State Threatened and/or Endangered Species Consultation	<ul style="list-style-type: none"> • Wastewater pipeline and natural gas pipeline (habitat disturbance)
Fifth Louisiana Levee District	Letter of No Objection	<ul style="list-style-type: none"> • Natural gas pipeline (work within 1,500 feet of levee)
LDOTD	Clearance	<ul style="list-style-type: none"> • Natural gas pipeline (activities in levee right-of-way)
Multiple Agencies	Construction and Operation	<ul style="list-style-type: none"> • Prepare an Integrated Contingency Plan containing spill response plans including structural, nonstructural, and procedural measures for the appropriate

Table 2-4. Environmental regulatory and commenting agencies with jurisdiction over the project and applicant committed measures (continued).

Agency	Authorization	Action (trigger) and Applicant-Committed Measure
		containment, management, and/or cleanup of the release; minimize potential impacts to the surficial aquifer; develop and implement construction and operational phase SWPPPs; pollution prevention, emergency response; fire prevention plan; and community evacuation plans to address medical and environmental hazards associated with MySAB
EPA	Risk Management Rule (40 CFR Part 68 under <i>Clean Air Act</i> , Section 112(r))	<ul style="list-style-type: none"> Institute a Risk Management Program and submit a Risk Management Plan to EPA. The Risk Management Program includes four key elements: management system, offsite consequence assessment, prevention program, and emergency response program, all of which the Risk Management Plan documents.

2.3 No Action Alternative

For this EA, DOE uses the No Action Alternative to evaluate the potential impacts that would occur if Myriant did not build and operate MySAB and supporting infrastructure. Under the No Action Alternative, DOE would not authorize expenditure of Federal funds by Myriant for the proposed project. As a result, Myriant would not construct MySAB or supporting infrastructure in East Carroll Parish, Louisiana. Although construction and operation of an alternative biorefinery might be possible at the site, that scenario is not analyzed because it would not provide for a meaningful No Action Alternative, as it would be identical to the Proposed Action. The No Action Alternative evaluation assumed that no project would occur.

3. AFFECTED ENVIRONMENT AND ENVIRONMENTAL CONSEQUENCES

In this chapter, DOE assesses the following resources: land use; air quality; noise; visual and aesthetic resources; geology and soils; water resources; biological resources; cultural resources; socioeconomics; environmental justice; occupational health and safety; public health and safety; utilities, energy, and materials; waste management and hazardous materials; and transportation. The following sections first discuss the affected environment (environmental baseline) for each resource area, and then assess the potential consequences of the proposed project and the No Action Alternative. The discussion of impacts encompasses the MySAB facilities and supporting infrastructure, including the wastewater and natural gas pipelines and electric power line. This analysis considers construction and operational impacts on environmental and human resources.

3.1 Land Use

3.1.1 AFFECTED ENVIRONMENT

The proposed project would be in East Carroll Parish, Louisiana (Figure 2-1). East Carroll Parish has a land area of 421 square miles (approximately 269,000 acres). Almost 261,000 acres of land within the parish is agricultural (USDA, 2007 Census of Agriculture). Agricultural land in East Carroll Parish is predominantly used for corn, soybeans, cotton, rice and wheat (USDA, 2007 Census of Agriculture). In 2007, approximately 3,700 acres of East Carroll Parish were used to raise sorghum, producing over 376,000 bushels (USDA, 2007 Census of Agriculture).

MySAB would be at the Port of Lake Providence, which is in the northeast portion of East Carroll Parish (Figure 3-1, Land Use). The Port of Lake Providence, owned and operated by the Lake Providence Port Commission, lies between Haganan Chute and Stump Hole Lake. The Mississippi River levee lies to the west of Stump Hole Lake. Port of Lake Providence traffic regularly uses Haganan Chute. The property was purchased by the Lake Providence Port Commission in the 1950s. In the early 1960s, the USACE restructured the Mississippi River levee and borrowed fill from the site. Before the early 1960s, the land was undeveloped. Because it is within the Mississippi River Main Levee, potential uses were limited until the USACE restructured the levee. The first building on the Lake Providence Port Commission property to the north was built in the 1960s and the first dock was built in the 1970s. There is no city zoning at the site (Gilfoil 2010). The following is a list of current uses of Haganan Chute and associated port activities:

- The Lake Providence Port Commission operates a ramp for mooring towboats and barges and the occasional receipt of miscellaneous bulk materials.
- Raley Transport, Inc. operates a dock for the shipment of grain and receipt of liquid fertilizer. Seven steel storage tanks in the rear have total capacity for 572,500 bushels.
- One 8-inch pipeline extends from the wharf to 6 steel fertilizer storage tanks at the rear.
- The Port Commission operates a general cargo pier for the receipt and shipment of general cargo and miscellaneous bulk materials.
- Bunge North America operates the Lake Providence Elevator Dock for the shipment of grain and soybeans. The grain elevator at the rear of the property consists of 8 concrete silos and 12 metal bins.

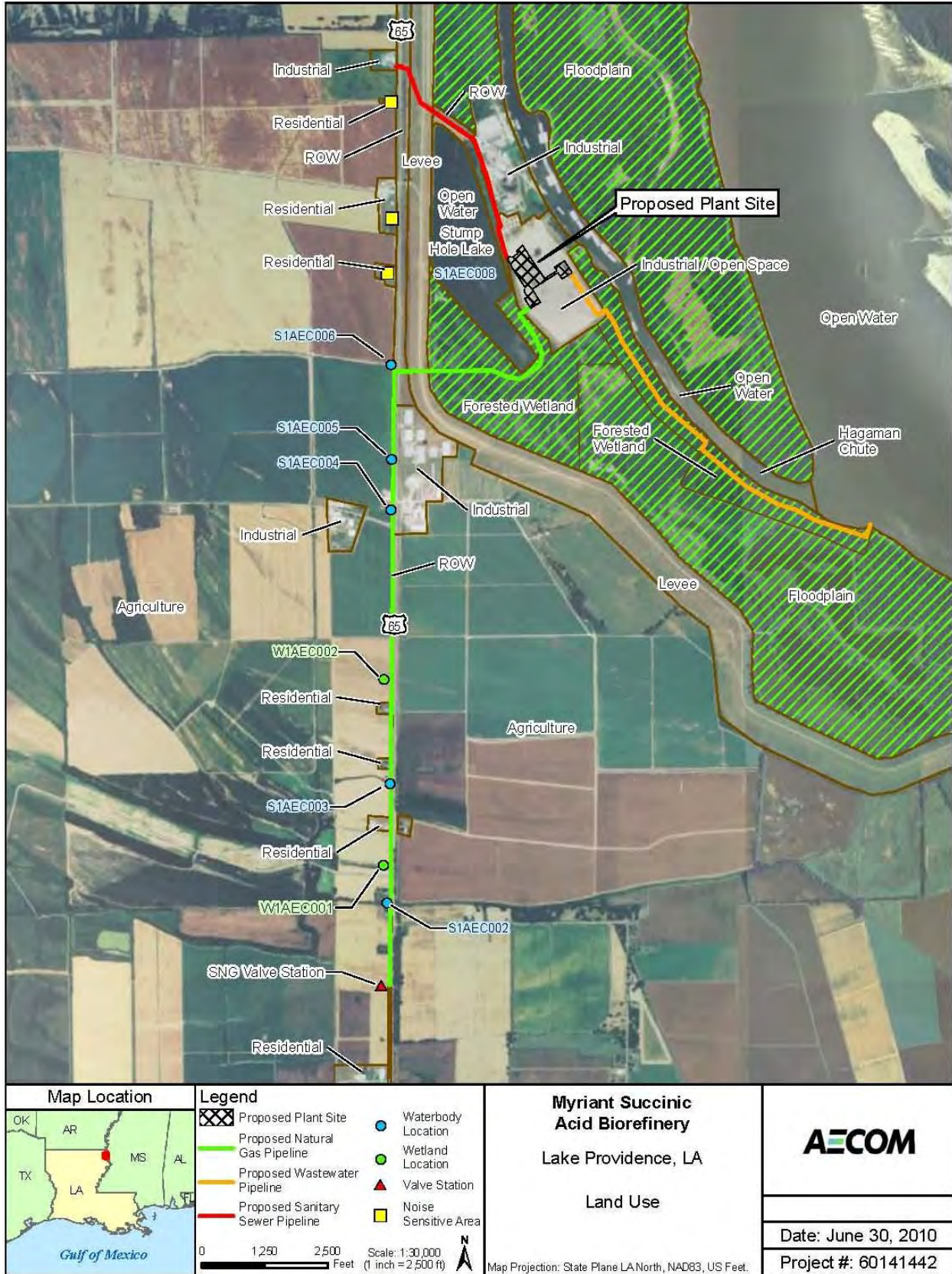


Figure 3-1. Land use.

- Terral River Service operates a dock for the receipt of fertilizer, limestone, and agricultural limestone, and for mooring barges for fleeting. A storage building at the rear has capacity for 24,000 tons of fertilizer, and there is an open storage area capacity for approximately 50,000 tons of limestone. The operator maintains a public fleeting area with capacity for 30 barges, arranged two abreast at shore moorings along the opposite bank of Hagaman Chute.

Lake Providence Port Commission has developed a 55-acre site for industrial use directly south of the Port Commission's operations. Development included filling the site with approximately 25 feet of clean sand from an initial elevation of approximately 100 feet to its current elevation of approximately 125 feet. At present, there are no industrial facilities at this site. Based on the 2005 Phase I Environmental Site Assessment conducted by C-K Associates, no other historic known land use has been associated with this property (C-K Associates, LLC 2005). East of the site is Hagaman Chute. Stump Hole Lake and U.S. Highway 65 are to the west of the property. The nearest residences are more than half a mile west of the proposed project site, west of the Mississippi River levee, Stump Hole Lake and Port Road.

3.1.2 ENVIRONMENTAL CONSEQUENCES OF THE PROPOSED ACTION

The proposed project would result in both temporary and permanent changes in land use. Table 3-1 lists land use impacts. Construction of the biorefinery would be consistent with intended land use and would not interfere with existing activities on adjacent land. Therefore, no adverse impacts to land use during construction of the biorefinery would occur. Construction of the infrastructure supporting the biorefinery would require installation of pipelines for natural gas, sanitary wastewater and an effluent wastewater discharge pipeline (Figure 2-2).

MySAB – The biorefinery would permanently occupy approximately 11 acres of the 55-acre industrial site. Following construction, the approximately 44 acres of remaining space at the 55-acre industrial site would remain open industrial land, available for future development.

Construction activities would require approximately 5 acres for additional temporary workspace for equipment laydown, contractor offices, temporary warehouses, and construction worker parking. Effects of construction on open land that is not in the permanent footprint of an aboveground biorefinery or access point would be minor and short term. After final construction cleanup, open land would be reseeded in accordance with applicable recommendations of the USDA Natural Resource Conservation Service (NRCS) and then allowed to revegetate naturally or, as an alternative, stabilized with gravel until the Port Commission leases the land for other industrial uses.

Effluent Wastewater Pipeline – Approximately 1.5 miles of the 30-foot-wide construction corridor from MySAB to the outfall at the Mississippi River would be necessary. This corridor would traverse forested wetland, which Myriant would clear during construction. During construction, appropriate maintenance measures (sediment fencing) would be in place to minimize erosion and sedimentation impacts. Following construction, the pipeline right-of-way would revegetate naturally, with the exception of a 15-foot permanent right-of-way directly over the pipeline, which Myriant would periodically clear (convert to emergent wetland) for monitoring and maintenance.

Sanitary Wastewater Pipeline – Myriant would use approximately 1 mile of the 30-foot-wide construction corridor from MySAB, along the Port Road right-of-way, under U.S. Highway 65, and to a tie-in with the existing force main for construction. This entire length is industrial open space or roadside right-of-way. No change in land use is proposed.

Table 3-1. Acres of land impacted by construction and operation of the proposed project.

Land use classification	Type of impact	Land use (acres)				
		MySAB	Sanitary wastewater pipeline	Effluent wastewater pipeline	Natural gas pipeline	Project Total
Industrial land	Construction	15.6	1.6	0.8	0.1	18.1
	Operation	10.6	-	-	-	10.6
Right-of-way	Construction	-	1.7	-	8.4	10.1
	Operation	-	-	-	-	-
Levee	Construction	-	-	-	0.3	0.3
	Operation	-	-	-	-	-
Forested wetland	Construction	-	-	5.2 ^a	2.4 ^a	7.6^a
	Operation	-	-	2.6 ^a	1.2 ^a	3.8^a
Agricultural land	Construction	-	-	-	-	-
	Operation	-	-	-	-	-
Total	Construction	15.6	3.3	6.0	11.2	20.5
	Operation	10.6	-	2.6	1.2	14.4

^a Forested wetlands would be cleared but not filled (that is, no loss of wetland area) however there is a conversion of forested wetlands to palustrine emergent wetlands).

Natural Gas Pipeline – Approximately 3.5 miles of the 30-foot-wide construction corridor would run from MySAB, around Stump Hole Lake through forested wetland, and south along the roadside right-of-way of U.S. Highway 65 to a tie-in with the existing SNG transmission line. Myriant anticipates that the construction corridor would to be constrained within the roadside right-of-way. Myriant would restore the drainage ditches crossed by the route (see Section 3.6 for details) to original contours following construction. The pipeline right-of-way would revegetate naturally, with the exception of a 15-foot permanent right-of-way directly over the pipeline, which would have to remain free of woody vegetation for ongoing monitoring and maintenance [as required by the U.S. Department of Transportation (DOT)]. Maintenance of this cleared corridor would be compatible with roadside right-of-way, so land use along the natural gas pipeline route would not change.

Power line – Approximately 16 miles of aboveground power line would be upgraded to supply power during the construction phase, with an additional 25 miles upgraded for the operations phase. Because the upgrades would be limited to replacing lines, insulators, and other hardware, which would occur without land disturbance or conversion of land use, this utility upgrade would cause no land-use impact.

3.1.3 ENVIRONMENTAL CONSEQUENCES OF THE NO ACTION ALTERNATIVE

Under the No Action Alternative, Myriant would not build or operate MySAB, and there would be no construction of supporting infrastructure. There are currently no operations at this location. Under the No Action Alternative, no impacts to land use would occur at the site.

3.2 Air Quality and Odor

3.2.1 AFFECTED ENVIRONMENT

This section discusses the affected environment for air quality in terms of meteorology, air emissions, and odor. It discusses ambient air quality conditions, air quality conformity, and greenhouse gas emissions.

3.2.1.1 Meteorology

Meteorology for the Lake Providence area features typical southern-continent weather patterns. Prevailing winds tend to be mild (Figure 3-2, Wind Rose). Severe weather events, such as thunderstorms, are common in the summer. Lake Providence-area historical tornado activity is above the Louisiana state average and 200 percent greater than the overall U.S. average (City-data.com 2010).

Climate data for the City of Lake Providence shows that average monthly mean temperature ranges from 53 degrees Fahrenheit (°F) to 74 °F. Winter months (December through February) are the coldest with average monthly low temperatures ranging from 34 °F to 37 °F and high temperatures ranging from 52 °F to 57 °F. The warmest months occur in the summer from June through August. During those months, the average monthly low temperature ranges from 69 °F to 71 °F and average monthly high temperatures range from 89 °F to 92 °F. Average annual precipitation is approximately 60 inches. July, August, and September have the lowest precipitation rates, with an average of 3.73, 2.84, and 2.96 inches, respectively, most of which is in the form of rainfall (Climate-charts.com 2008).

3.2.1.2 Air Emissions

The federal *Clean Air Act* (CCA; 42 U.S.C. §§ 7401-7671q) required the U.S. Environmental Protection Agency (EPA) to set National Ambient Air Quality Standards (NAAQS) for pollutants considered harmful to public health and the environment. NAAQS include two types of air quality standards: Primary standards protect the public, including the health of sensitive populations such as asthmatics, children, and the elderly; secondary standards protect public welfare, including protection against decreased visibility, damage to animals, crops, vegetation, and buildings (EPA 2010). EPA has established NAAQS for six principal pollutants, which are called *criteria pollutants*. They include nitrogen oxides [NO_x, including nitrogen dioxide (NO₂)], carbon monoxide (CO), particulate matter (PM), sulfur dioxide (SO₂), ozone (O₃), and lead (Table 3-2).

Areas that meet the air quality standards for the criteria pollutants are designated as being *in attainment*. Areas that do not meet the air quality standard for one or more of the criteria pollutants could be subject to the formal rule-making process and designated as being *in nonattainment* for that standard. The proposed project area is in attainment for all criteria air pollutants.

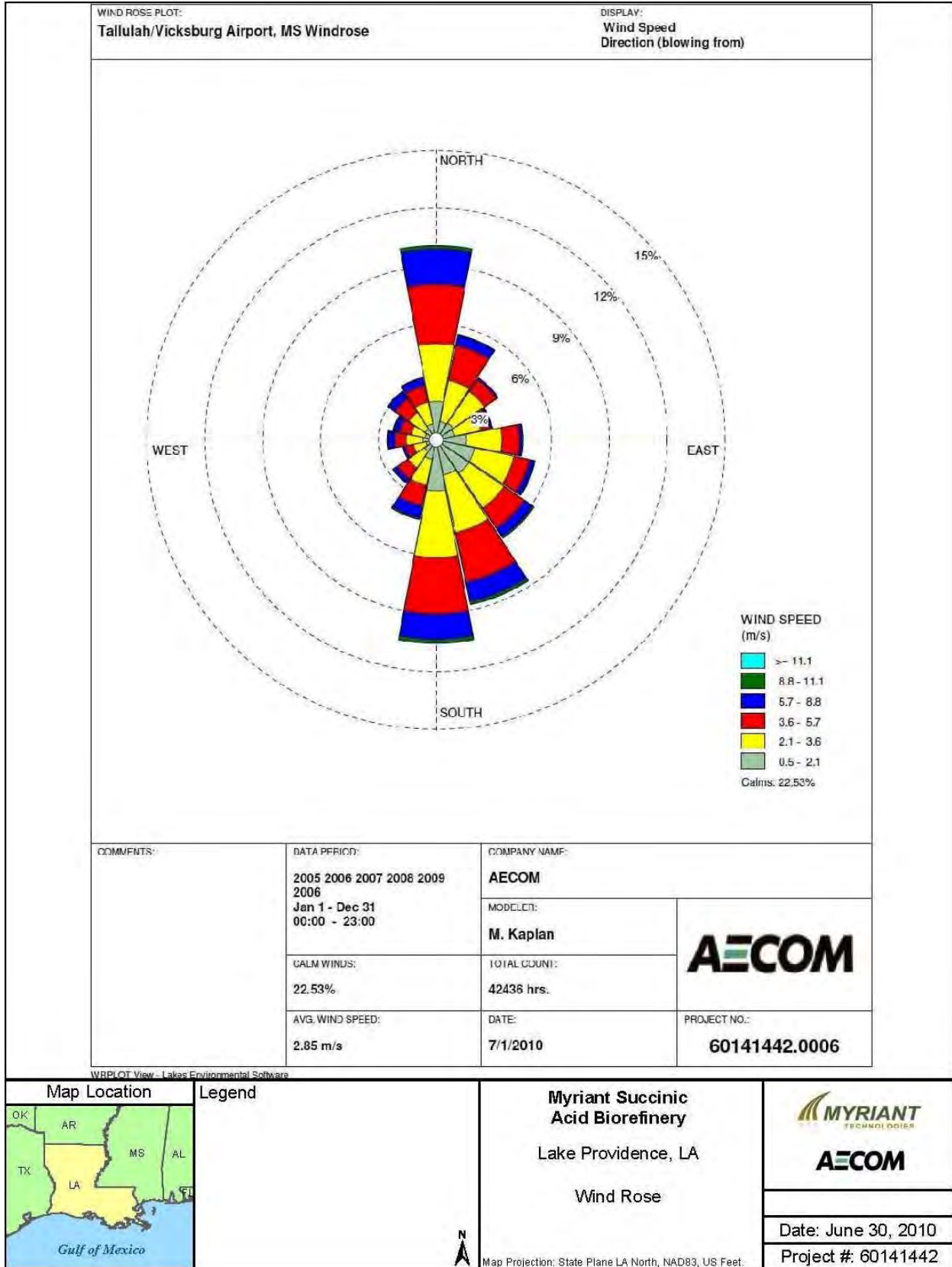


Figure 3-2. Wind rose.

Table 3-2. National Ambient Air Quality Standards.

Pollutant	Primary standards		Secondary standards	
	Level	Averaging time	Level	Averaging time
Carbon monoxide	9 ppm (10 mg/m ³)	8-hour ^a	None	
	35 ppm (40 mg/m ³)	1-hour ^a		
Lead	0.15 µg/m ^{3b}	Rolling 3-month average	Same as Primary	
	1.5 µg/m ³	Quarterly average	Same as Primary	
Nitrogen dioxide	53 ppb ^c	Annual (arithmetic average)	Same as Primary	
	100 ppb	1-hour ^d	None	
Particulate matter (PM ₁₀)	150 µg/m ³	24-hour ^e	Same as Primary	
Particulate matter (PM _{2.5})	15.0 µg/m ³	Annual ^f (arithmetic average)	Same as Primary	
	35 µg/m ³	24-hour ^g	Same as Primary	
Ozone	0.075 ppm (2008 standard)	8-hour ^h	Same as Primary	
	0.08 ppm (1997 standard)	8-hour ⁱ	Same as Primary	
	0.12 ppm	1-hour ^j	Same as Primary	
Sulfur dioxide	0.03 ppm	Annual (arithmetic average)	0.5 ppm	3-hour ^a
	0.14 ppm	24-hour ^a		
	75 ppb ^k	1-hour	None	

- a. Not to be exceeded more than once per year.
- b. Final rule signed October 15, 2008.
- c. The official level of the annual NO₂ standard is 0.053 parts per million, equal to 53 parts per billion, which is listed here for the purpose of clearer comparison to the 1-hour standard
- d. To attain this standard, the 3-year average of the 98th percentile of the daily maximum 1-hour average at each monitor in an area must not exceed 100 parts per billion (effective January 22, 2010).
- e. Not to be exceeded more than once per year on average over 3 years.
- f. To attain this standard, the 3-year average of the weighted annual mean PM_{2.5} concentrations from single or multiple community-oriented monitors must not exceed 15.0 micrograms per cubic meter.
- g. To attain this standard, the 3-year average of the 98th percentile of 24-hour concentrations at each population-oriented monitor in an area must not exceed 35 micrograms per cubic meter (effective December 17, 2006).
- h. To attain this standard, the 3-year average of the fourth-highest daily maximum 8-hour average ozone concentrations measured at each monitor in an area over each year must not exceed 0.075 parts per million. (effective May 27, 2008)
- i. (a) To attain this standard, the 3-year average of the fourth-highest daily maximum 8-hour average ozone concentrations measured at each monitor in an area over each year must not exceed 0.08 parts per million.
 (b) The 1997 standard—and the implementation rules for that standard—would remain in place for implementation purposes as EPA undertakes rulemaking to address the transition from the 1997 ozone standard to the 2008 ozone standard.
 (c) EPA is in the process of reconsidering these standards (set in March 2008).
- j. (a) EPA revoked the 1-hour ozone standard in all areas, although some areas have continuing obligations under that standard ("anti-backsliding").
 (b) The standard is attained when the expected number of days per calendar year with maximum hourly average concentrations above 0.12 parts per million is less than 1.
- k. (a) Final rule signed June 2, 2010. To attain this standard, the 3-year average of the 99th percentile of the daily maximum 1-hour average at each monitor in an area must not exceed 75 parts per billion.

Section 176(c) of the CAA (42 U.S.C. §7506(c)) requires any entity of the federal government that engages in, supports, or in any way provides financial support for, licenses or permits, or approves any activity to demonstrate that the action conforms to the applicable State Implementation Plan required under Section 110(a) of the CAA (42 U.S.C. §7410(a)) before the action is otherwise approved. In this context, conformity means that such federal actions must be consistent with a State Implementation Plan's (SIP) purpose of eliminating or reducing the severity and number of violations of the NAAQS and

achieving expeditious attainment of those standards. Each federal agency must determine that any action that is proposed by the agency and that is subject to the regulations implementing the conformity requirements will, in fact, conform to the applicable SIP before the action is taken. The proposed project is sponsored and supported by DOE and must therefore be reviewed for general conformity.

3.2.1.3 Greenhouse Gas Emissions

Greenhouse gases include carbon dioxide (CO₂), methane, nitrous oxide, hydrofluorocarbons, perfluorocarbons, and sulfur hexafluoride. Global warming is the name given to the increase in the average temperature of the earth's near-surface air and oceans since the mid-20th century and its projected continuation. The Intergovernmental Panel on Climate Change, in its *Climate Change 2007: Synthesis Report*, has stated that warming of the climate system is now considered to be unequivocal (IPCC 2007), with global surface temperature increasing approximately 1.33 °F over the last 100 years.

Greenhouse gases are well mixed throughout the lower atmosphere, such that any emissions would add cumulatively to regional and global concentrations of carbon dioxide and other greenhouse gases.

3.2.1.4 Odor

Louisiana has an odor regulation that includes an ambient air standard for odors (State of Louisiana Environmental Regulatory Code – Title 33, Part III, Chapter 29, Section 2901). The rule prohibits the discharge of an odorous substance that causes a perceived odor intensity of 6 or greater on the specified eight point butanol scale when determined by LDEQ's test method (Method 41).

3.2.2 ENVIRONMENTAL CONSEQUENCES OF THE PROPOSED ACTION

The following sections discuss the environmental consequences of the Proposed Action on air quality in terms of meteorology, air emissions, and odor.

3.2.2.1 Meteorology

Severe weather, such as thunderstorms or hurricanes, could temporarily affect MySAB operations by limiting delivery of supplies, impeding shipments of feedstocks or products, or causing disruption of electrical or water service. These types of impacts would be likely to last for less than 24 hours but could extend for several days. Although these impacts can occur in any year, operational planning would enable normal operations to resume with minimal impacts. Myriant would prepare its plans to protect its employees and the public in the event of severe weather.

MySAB would be designed in accordance with the 2006 International Building Code and American Society of Civil Engineers 7-05 guidance (ASCE 2005). This guidance includes wind-speed maps for hurricane-prone regions, where higher wind speeds are common. Wind speeds for the coast of Louisiana are shown as 130 miles per hour, but decrease in velocity to 90 miles per hour about midstate. The wind speed maps for Lake Providence are shown as 90-mile-per-hour wind velocity. In accordance with the guidance, MySAB would be designed for 90-mile-per-hour winds.

The Mean Recurrence Interval for tornadoes approaches 100,000 years (or an annual probability of 1 in 100,000). Because the plant is not a facility that would fall under a "community safe facility" during a natural disaster (such as a hospital or national defense facility), it has not been designed to withstand this highly unlikely weather event.

3.2.2.2 Air Emissions

Construction and operation of MySAB would result in an increase in air pollutant emissions. Construction of the project would result in intermittent and short-term emissions including fugitive dust from soil disruption and emissions from combustion-type construction equipment. The primary risks from blowing dust particles relate to human health and human nuisance values. Fugitive dust can contribute to respiratory health problems and create an inhospitable working environment. Deposition on surfaces can be a nuisance to those living or working downwind. Emissions from construction would be unlikely to cause or significantly contribute to a violation of an applicable ambient air quality standard because construction equipment would be operated using BMPs, such as limiting activities in areas not being used for construction; limiting the number of locations to access construction areas; and staging construction activities to avoid simultaneous dust-generating activities. Myriant would also implement dust control measures, like road water spraying during certain construction activities such as transporting soil or rock, trenching, and use of access roads. Therefore, impacts to air quality during the construction phase of the project would be minor and temporary.

Potential emissions during operations would come from several sources. Vehicle traffic hauling raw materials and finished products to and from the site would generate fugitive dust. Myriant would minimize these emissions by paving the access road, enforcing a facility speed limit, and maintaining the roads as needed. The receiving, storage, reclamation, and handling operations would also generate fugitive dust, which Myriant would reduce by implementing BMPs as appropriate, including but not limited to maintaining clean interior and exterior handling areas, enclosing grain handling equipment and use of baghouses. Baghouses typically offer at least 99-percent reduction of particulate emissions.

The conversion of feedstock would include the key processes of drying, succinic acid evaporation and crystallization, ammonium sulfate evaporation and crystallization, and wastewater treatment, which would generate small quantity emissions of volatile organic compounds (VOCs) and Hazardous Air Pollutants (HAPs). In addition, the biorefinery would use and emit ammonia, which the State of Louisiana considers to be a toxic air pollutant. Myriant would control VOCs, HAPs, and ammonia pollutants by implementing BMPs as appropriate, including but not limited to scrubbers and oxidizers. Additional emissions would be generated by natural gas-fired boilers, a diesel-powered emergency generator, a diesel-powered emergency firewater pump, a product (solids) dryer, and a cooling tower. Table 3-3 summarizes anticipated annual air emissions from the MySAB project sources (AECOM 2010).

Table 3-3. Anticipated annual air emissions for the MySAB project (tons).

Pollutant	Annual Air Emissions
PM/PM ₁₀	28/23 tons per year
NO _x	18 tons per year
CO	52 tons per year
VOCs	6 tons per year
SO ₂	0.3 ton per year
Ammonia	0.6 ton per year
Hazardous Air Pollutants (HAPs)	
Highest Single HAP	Less than 10 tons per year
Total HAPs	Less than 25 tons per year
Greenhouse Gases (GHGs)	
CO ₂ equivalent	Less than 75,000 tons per year

Myriant has submitted a minor source air permit application to LDEQ demonstrating that MySAB would comply with LDEQ air quality control regulations. Construction of the biorefinery would not start until

LDEQ approved the application and issued the permit. Myriant would have to obtain a minor source air permit from LDEQ and build MYSAB in accordance with the permit. Air emissions modeling (AECOM 2010) demonstrates that MySAB would have HAPs and GHG emissions below state regulatory thresholds. Preliminary modeling using the DOE GREET computer model (ANL 2007) demonstrates that the biorefinery would have a 62.1- to 100-percent lifecycle reduction in greenhouse gas emissions, compared with a petroleum-based refinery. Carbon dioxide emitted from construction, transportation and maintenance vehicles would be the predominant greenhouse gas generated during the proposed project. The proposed project would slightly reduce regional greenhouse gas emissions because of chemical production from feedstock other than fossil fuels (LCA 2009).

Because the proposed project would be in an area that is in attainment for all criteria pollutants, it would meet the conformity requirements of the *Clean Air Act*.

3.2.2.3 Odor

Myriant has carried out pilot-scale fermentation operations to simulate the full-scale facility. Myriant's operating pilot plant emits a slight odor of ammonia. However, the odor threshold or the level at which 50 percent of humans smell ammonia is very low (approximately 5 parts ammonia per 1 million parts air). Ammonia is lighter than air and will rise. Because the nearest residential area is more than 0.5 mile to the west, beyond the levee, and at an elevation that is lower than the biorefinery, it is expected that odors would likely disperse before reaching receptors.

To evaluate the potential adverse impact of an ammonia release on the nearest resident, DOE analyzed the dispersion of ammonia to estimate the concentration of ammonia in the atmosphere at a residence 3000 feet to the west of the biorefinery (Walker, 2010). The results demonstrate an estimated ammonia concentration of between 0.0000015 ppm for a steady daily release and 0.009 ppm for a sudden daily release, even when low-hanging clouds blanket the sky. As such, the estimated ammonia concentration would be less than the 5 ppm odor threshold for ammonia, even with a sudden release on a dreary day.

3.2.3 ENVIRONMENTAL CONSEQUENCES OF THE NO ACTION ALTERNATIVE

Under the No Action Alternative, Myriant would not build and operate MySAB in Lake Providence, and there would be no construction of supporting infrastructure. There are currently no operations at this location. Under the No Action Alternative, no new air emissions or odor sources would occur at this location.

3.3 Noise

3.3.1 AFFECTED ENVIRONMENT

MySAB site is near Hagaman Chute, which is an active barge channel leading to the Port of Lake Providence. The remaining land use in the area is agricultural lands. Ambient noise levels for the Port are not available; however ambient noise measurements in and around the Port of Gulfport, Mississippi indicate that background port noise ranges from 40 to just over 70 decibels depending on the amount and type of ship traffic present at any one time (NRL 2008). The traffic level into the Port of Lake Providence is much less than that of Gulfport; the Port of Lake Providence has an overall annual volume of 889,000 tons of cargo (in 2007; Lake Providence Port Commission 2010) compared with Gulfport, which averages more than 2,000,000 tons a year (Mississippi State Port Authority at Gulfport 2010).

Away from the active barge traffic, ambient sound levels should be lower. Estimated current ambient noise levels in the MySAB project site are within the 50- to 70-decibel range.

The nearest noise sensitive receptor (NSR) to the MySAB project site is a residence approximately 3,000 feet to the west. A second residence is approximately 3,300 feet to the west, with a third residence 4,700 feet to the northwest. According to the EPA Levels Document (EPA 1978), rural populations enjoy average outdoor sound levels generally lower than the day-night average sound level (Ldn) of 50 dB (EPA 1974).

3.3.2 ENVIRONMENTAL CONSEQUENCES OF THE PROPOSED ACTION

Myriant anticipates that the highest noise levels would occur during construction of the plant and associated facilities (pipelines). The maximum noise levels during construction would be in the range of 82 to 105 decibels at the source from pile driving equipment (Eaton 2000). Other noise sources would include routine construction equipment including bulldozers, front-end loaders, cranes, dump trucks, tractor-trailers, track hoes, backhoes, and pickup trucks. Construction noise would occur only during daylight working hours and would be intermittent and short term.

The following equation can be used for evaluating the noise loss before reaching the NSR (Beranek and Ver 1992):

$$\text{SPL } 2 = \text{SPL } 1 + 20 \text{ Log } 10 (d1/d2) \quad (\text{Eq } 3-1)$$

Where:

- SPL 2 is the sound pressure level at the NSR,
- SPL 1 is the sound pressure level contribution from the noise source,
- d1 is the distance from the noise source where the reading was taken, and
- d2 is the distance to the NSR.

The closest NSR to MySAB is approximately 3,000 feet away. Assuming the high end of pile driving noise range (105 decibels), the noise level at the closest NSR would be approximately 51 decibels, which is similar to the normal background level for rural agricultural areas. Pile driving, if required, would be a short-term activity. All other construction noises would be well under that of pile driving and would have lesser noise impacts at the NSRs. Therefore, construction of the proposed biorefinery would not generate noise levels at the closest NSR significantly above the decibel range routinely encountered in the area.

Project operational noise would be limited and associated with aboveground facilities because the proposed pipelines would be buried. The power line would be within existing power line rights-of-way on existing (or replacement) poles and there would be no major increase in noise to NSRs as a result of its operation. Operation of MySAB would generate minor levels of noise in the vicinity, i.e., the biological and chemical processes of the biorefinery would not generate elevated noise levels, but mechanical pumps and equipment would generate elevated noise levels. Based on plants of a similar nature, MySAB would be likely to have noise sources related to:

- Truck and traffic;
- Grain sorghum grits (feedstock) handling and processing equipment, such as conveyors and storage equipment;
- Cooling towers; and

- Front-end loaders.

The anticipated noise profile from this type of equipment would range from 70 to 86 dBA and the noise level at the closest NSR would be 37 decibels, which is within the normal background level for rural agricultural areas. Therefore, operation of the biorefinery would have negligible noise effects.

3.3.3 ENVIRONMENTAL CONSEQUENCES OF THE NO ACTION ALTERNATIVE

Under the No Action Alternative, Myriant would not build and operate MySAB, and there would be no construction of supporting infrastructure. The site of the biorefinery would continue to be open industrial land; there would be no increase in noise levels.

3.4 Visual and Aesthetic Resources

3.4.1 AFFECTED ENVIRONMENT

The site of the proposed MySAB is immediately south of the Port of Lake Providence, in an industrial site. Adjacent to the north, existing Port of Lake Providence structures consist of storage silos, warehouses, loading and unloading facilities, and administrative and support buildings. The tallest structures at the Port are well over 100 feet tall. Photograph S1AEC008_015NE in the Wetland and Waterbody Delineation Report (Appendix C) shows the Port structures from the top of the levee, across Stump Hole Lake. The levee is more than 20 feet higher than U.S. Highway 65, and it blocks the view of all but the highest portion of the tallest structure from the highway and residences along the highway. From the site, the levee makes it impossible to see the highway or any residences within at least 1.5 miles.

The nearest special use or designated recreational area is the Shipland Wildlife Management Area (WMA). The 3,500-acre WMA is approximately 2 miles east of the proposed MySAB plant site and 1 mile east of the wastewater outfall, in Issaquena County, Mississippi, between the Mississippi River and the mainline river levee.

3.4.2 ENVIRONMENTAL CONSEQUENCES OF THE PROPOSED ACTION

The tallest building associated with MySAB would be 70 feet high, which is less than two-thirds the height of the tallest existing Port of Lake Providence structure. It would be farther back from the levee, so MySAB would not be visible from U.S. Highway 65 or the residences along the highway. The biorefinery would be visible from the top of the levee and from Port Road, but the public typically does not access these areas. Recreational fishermen would be able to view the biorefinery from the surface of Stump Hole Lake. It would be consistent with the existing industrial structures already present and visible at the Port of Lake Providence.

The associated wastewater pipelines and natural gas pipeline would be underground; construction impacts would be temporary and minimal, and would be unlikely to alter the viewshed. The proposed upgrades to the power line would involve modifications of existing power lines in existing rights-of-way and would have little impact on aesthetics.

3.4.3 ENVIRONMENTAL CONSEQUENCES OF THE NO ACTION ALTERNATIVE

Under the No Action Alternative, Myriant would not build and operate MySAB, and there would be no construction of supporting infrastructure. The viewshed would remain unaltered.

3.5 Geology and Soils

3.5.1 AFFECTED ENVIRONMENT

This section discusses the geology, geologic hazards, and soil types at MySABsite and along the supporting utility pipeline routes.

3.5.1.1 Geology

East Carroll Parish, Louisiana, is in the Mississippi Alluvial Plain of the Atlantic Coastal Plain Physiographic Province (USGS 2003). The Atlantic Coastal Plain is the flattest of the United States physiographic provinces. It is an extensive linear depression of alluvial and marine sediments that stretches more than 2,200 miles from Cape Cod, Massachusetts, to the Mexican border and southward another 1,000 miles to the Yucatan Peninsula. Much of the sediment, particularly at the surface, is siliceous alluvium. The alluvium consists of sandy and gravelly channel deposits mantled by sandy to muddy natural levee deposits, with organic-rich muddy backswamp deposits in between. The Mississippi Alluvial Plain encompasses parts of seven states, from southern Louisiana to southern Illinois. This region contains mostly unconsolidated sediments such as sand, clay, silt, and gravel. In Louisiana, the surface area is underlain by geologically young sedimentary deposits in or near rivers and deltas, including Holocene sediment deposited by the Red and Mississippi Rivers. Most surface exposures in Louisiana consist of Quaternary sediment (LGS 2010).

Geologic units encountered within the site include Natural Levees (Qnl) and Alluvium (Qal) of the Holocene age. Natural Levees are characterized by gray and brown silt, silty clay, some very fine sand, and occur only on past and present courses of major streams. Alluvium is characterized by brownish gray clay and silty clay, and some sand and gravel locally. It includes all alluvial valley deposits except natural levees of major streams (USGS 2010a).

According to the LDNR Strategic Natural Resources Information System (SONRIS) database, which contains Geographic Information System information on oil and gas deposits, the proposed project area is not in the immediate vicinity (less than 1 mile) of any oil and gas wells. In addition, there are no active mineral leases in the project vicinity (LDNR 2010).

3.5.1.2 Geologic Hazards

To assess the seismic risk in the project area, DOE reviewed U.S. Geological Survey (USGS) seismic hazard maps. The USGS-National Earthquake Hazard Reduction Program has developed a series of maps that depict the estimated probability that certain levels of ground shaking from an earthquake will occur in a given area over a period of time. To make such estimations, the USGS takes into account the past seismic history of an area and the expected decrease in intensity with distance from the epicenter. Values on these seismic hazard maps are called *peak acceleration values* and are expressed as a percentage of gravitational acceleration, where the higher the value, the greater the potential hazard. Seismic Hazard Maps of the project area indicate that there is an 8-percent probability that horizontal ground accelerations of greater than or equal to 2 percent of gravity would be exceeded in 50 years (USGS 2008). Based on this information, the project area is not in a region with a high probability of a serious earthquake.

Soil liquefaction is the tendency of saturated soils to move freely with respect to one another when water pressure rises, causing the soil to act as if it were a fluid. Earthquakes can cause water pressure to rise. If an earthquake occurred in the vicinity of the project, unconsolidated, saturated, Holocene sediments would be most prone to soil liquefaction. Although the proposed area is susceptible, the probability for

serious earth shaking is low. Therefore, soil liquefaction is unlikely to be an issue for the proposed project area.

The proposed project area is at low risk from soil subsidence caused from karst topography and landslides, given the depth to bedrock and relatively flat terrain. The project would be in an area with a high susceptibility but low incidence of landslides (USGS 2010b). Deep-seated landslides or rock avalanche hazards along the proposed pipeline routes would be unlikely. Due to low incidence of landslides and minimal threat of seismic activity, DOE does not anticipate landslides in the vicinity of the project area.

3.5.1.3 Soils

Lake Providence Port Commission developed the 55-acre industrial site using clean sand from nearby USACE dredging operations of the navigational channel in the Mississippi River. The USDA NRCS Soil Survey Geographic (SSURGO) database has not been updated to reflect the deposition of this dredged fill material. The site has been built to an elevation of 125 feet above mean sea level. This elevation is approximately the same elevation as the Mississippi River Levee located to the west of the site. In 2005, a geotechnical review was performed of the proposed site. This survey conducted nine cone penetration test soundings and developed recommendations for pile depths, diameters, installation methods, and test methods (Southern Earth Sciences 2005). Supplemental geotechnical analysis, including four 100 foot borings, has been completed to support civil and structural design. All applicable design and construction codes would be followed as a result of the determinations found in this report (Tolunay-Wong 2010). The site is clear and level. Initial site development, including mass grading and pile driving, occurred in 2005.

DOE used the SSURGO database to determine the soils encountered along the routes of the proposed sanitary wastewater pipeline, effluent wastewater pipeline, and natural gas pipeline (Figure 3-3, SSURGO Soils, and Table 3-4). The power line right-of-way traverses similar soils but would not involve land disturbance, so this section does not discuss it further. The *Web Soil Survey* provides NCRS soil data and information (NRCS 2009). The proposed pipelines would traverse soils from the Bruin, Commerce, Goldman, Newellton, Tunica, and Sharkey soil series. The following NRCS *Official Soil Series Descriptions* provide a general description of each of these soil series (NRCS 2008):

- Bruin Series – The Bruin series consists of deep, moderately well-drained, moderately permeable soils that formed in silty alluvium. These soils are on nearly level to very gently sloping convex natural levee positions on the alluvial plain of the Mississippi River. Slopes range from 0 to 3 percent.
- Commerce Series – The Commerce series consists of deep, somewhat poorly drained, moderately slowly permeable soils that formed in loamy alluvial sediments. These soils are on level to undulating alluvial plains of the Mississippi River and its tributaries. Slope is dominantly less than 1 percent but ranges up to 5 percent.
- Goldman Series – The Goldman series consists of very deep, moderately well drained, moderately permeable soils that formed in silty alluvium. These soils are on gently sloping, low stream terraces and old natural levees. Slopes range from 1 to 5 percent.
- Newellton Series – The Newellton series consists of very deep, somewhat poorly drained, slowly permeable soils that formed in clayey over loamy alluvium. These soils are on nearly level to gently sloping natural levee positions on the alluvial plain of the Mississippi River and its tributaries. Slopes range from 0 to 5 percent.

- Tunica Series – The Tunica series consists of deep, poorly drained, very slowly permeable soils that formed in clayey alluvium and the underlying loamy alluvium. Slope is dominantly 0 to 3 percent but ranges to 5 percent on narrow ridges in the floodplain.
- Sharkey Series – The Sharkey series consists of very deep, poorly and very poorly drained, very slowly permeable soils that formed in clayey alluvium. These soils are on floodplains and low terraces of the Mississippi River. Slope is dominantly less than 1 percent, but ranges to 5 percent.

Table 3-4. Soil associations and major soil limitations of soils along the pipeline routes.

Map unit	Map unit name	Surface texture	Prime farmland ^a	Hydric soils ^a	Erosion potential ^b	Compaction potential ^c	Slope ^a percent	Drainage class
Br	Bruin silt loam	Silt loam	No	No	No (1)	No	0 to 1	Moderately well drained
Cm	Commerce silt loam	Silt loam	Yes	No	No (2w)	No	0 to 1	Somewhat poorly drained
Co	Commerce silty clay loam	Silty clay loam	Yes	No	No (2w)	No	0 to 1	Somewhat poorly drained
CR	Commerce and Bruin soils, frequently flooded	Silt loam	No	Yes	No (5w)	No	0 to 3	Somewhat poorly drained to Moderately well drained
Go	Goldman silt loam	Silt loam	Yes	No	No (2e)	No	1 to 5	Moderately well drained
Ne	Newellton silty clay	Silty clay	No	No	No (2w)	No	0 to 1	Somewhat poorly drained
Ng	Newellton-Goldman complex	Silty clay	Yes	No	No (2e)	No	1 to 5	Somewhat poorly drained
Nm	Newellton-Tunica complex	Silty clay	Yes	No	No (2e, 3w)	Yes	0 to 3	Somewhat poorly drained to Poorly drained
Sa	Sharkey silty clay loam	Silty clay loam	Yes	Yes	No (3w)	Yes	0 to 1	Poorly drained
Se	Sharkey clay	Clay	Yes	Yes	No (3w)	Yes	0 to 1	Poorly drained
Tn	Tunica clay	Clay	Yes	No	No (3w)	Yes	0 to 1	Poorly drained

a. As designated by USDA-NRCS

b. Soil components that have a Land Capability Class of 3 through 8 and a Subclass of “E”.

c. Soil that has a surface texture of sandy clay loam or finer and a poorly drained or very poorly drained drainage class.

d. Shallow Depth to Bedrock or Coarse Fragments: refers to the potential for shallow depths to bedrock, less than 60 inches, or coarse fragments

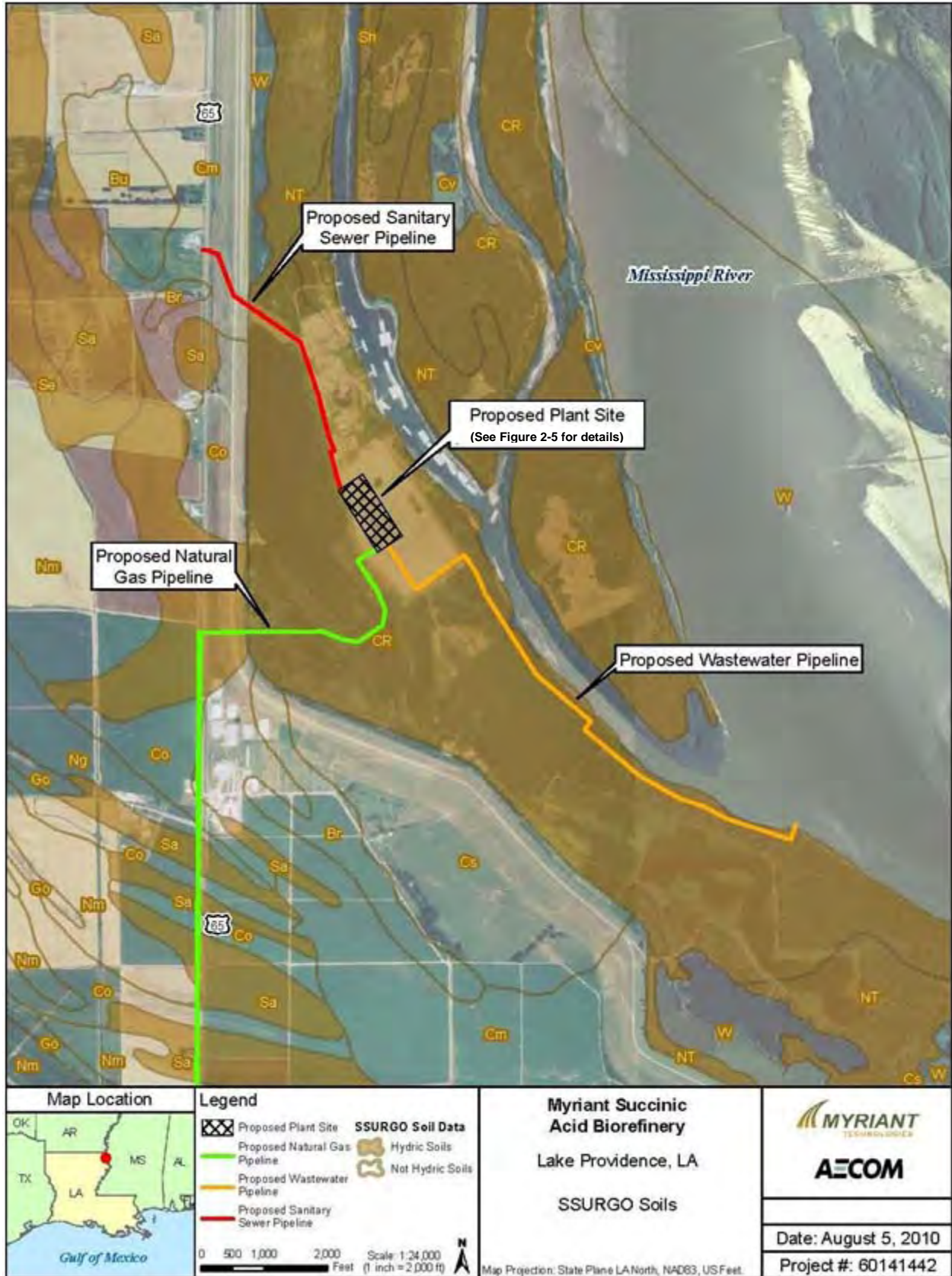


Figure 3-3. SSURGO soils.

The proposed project utilities would cross hydric soils and soils with a high potential for compaction. Hydric soil components were identified in the Commerce and Bruin soils, Sharkey silty clay loam, and Sharkey clay soils. Compaction can be associated with the Tunica and Sharkey soils. These soils have surface textures of sandy clay loam or finer with a poor or very poorly drained drainage class, which are likely to be susceptible to compaction.

3.5.2 ENVIRONMENTAL CONSEQUENCES OF THE PROPOSED ACTION

The soil disturbance constructing MySAB would be minor adjustments to contour and grade of the 55-acre industrial site and installation of the stormwater system required as part of the LPDES stormwater discharge permit. All activity will be confined to the developed industrial site so there would be no further impact to native soils. The SWPPP and erosion control plans would be followed to prevent any further soil disturbance during operations.

Construction of the natural gas and the sanitary wastewater pipelines would require approximately 30 feet of construction right-of-way for the length of the pipeline. Although the land adjacent to the U.S. Highway 65 right-of-way is considered prime farmland, as defined by the *Farmland Policy and Protection Act of 1981* (FPPA; 7 §§ 4201, et seq.), the construction corridor is anticipated to be constrained within the roadside right-of-way with no impact to agricultural lands. Should Myriant find, during the pipeline design, layout and engineering, that prime farmland would be affected, the appropriate regulatory notification and action would be taken according to the FPPA. The wastewater and natural gas pipelines would be installed by open trench methods; that is, excavating a trench approximately 3 feet wide, lowering in the pipeline, and backfilling the trench to preconstruction grade. After pipeline installation, the construction right-of-way would revegetate naturally, with the exception of a 15-foot permanent right-of-way directly over the pipeline, which would have to remain free of woody vegetation for ongoing monitoring and maintenance (as required by DOT). There would be no further soil impacts during operations.

Construction of the portions of the natural gas pipeline and the effluent wastewater discharge pipeline in the forested wetland could result in soil compaction. BMPs including use of construction mats would be implemented to reduce the impacts of pipeline installation through the wetlands. Maintenance of the pipelines would not result in further impacts to the wetland soils. There would be no further soil impacts during operations.

3.5.3 ENVIRONMENTAL CONSEQUENCES OF THE NO ACTION ALTERNATIVE

Under the No Action Alternative, Myriant would not build and operate MySAB, and there would be no construction of supporting infrastructure. The industrial site would continue to be industrial open space, and there would be no soil disturbance as a result of MySAB construction, operations, or pipeline burial.

3.6 Water Resources

3.6.1 AFFECTED ENVIRONMENT

This section discusses the water resources for MySAB and supporting infrastructure. It presents information on groundwater, surface water, floodplains and wetlands.

3.6.1.1 Groundwater

The aquifers that supply fresh groundwater to most of Louisiana are in Quaternary or Tertiary sediments deposited in the Gulf Coast geosyncline and the Mississippi embayment. Deposition in alluvial, deltaic,

and near-shore marine environments produced sedimentary wedges of varying lithology, thickness, and extent. Louisiana has an abundance of fresh groundwater in the sand and gravel deposits, but these aquifers and confining layers are not uniformly distributed and the quality of the groundwater varies from one area to another. The alluvial aquifers of Holocene and Pleistocene age underlie the floodplains of the Mississippi, Atchafalaya, Red, and Ouachita River valleys (Oakley, 2006).

The USGS defines an alluvial aquifer as a water-bearing deposit of unconsolidated material (sand and gravel) left behind by a river or other flowing water (Oakley, 2006). The alluvium consists of fining upward sequences of gravel, sand, silt, and clay, meaning that the sand is fine- to medium-grained near the top, grading to coarse sand and gravel in the lower portions. The aquifers are confined by layers of silt and clay of varying thicknesses and extent. Recharge of the alluvial aquifer is accomplished by direct infiltration of rainfall over river valleys, lateral and upward movement from adjacent and underlying aquifers, and overbank stream flooding. Water levels fluctuate seasonally with changes in river stage and precipitation. Natural flow is downgradient toward rivers and streams. In the site vicinity, this generally means surface-water flow is to the east or south, toward the Mississippi River (Oakley, 2006).

The Port of Lake Providence is underlain by three principal water-bearing units (Oakley, 2006). They are, in descending order, the Mississippi River Valley Alluvial aquifer, the Cockfield Formation, and the Sparta Sand aquifer (Oakley, 2006). The Cockfield Formation is the uppermost unit of the Claiborne Group and is recharged by downward movement of water from the overlying alluvial aquifer and by subsurface recharge from the northeast. It contains fresh water throughout the area, and generally is color free. Based on these properties and other constituents, water from the Cockfield Formation is the most suitable for domestic, municipal, and many industrial uses. Quality of water from this formation is good, although it has moderately high hardness (150-180 milligrams per liter). Other characteristics from recent samples (Tolunay-Wong 2010) indicated pH of 7.8, dissolved solids of 488 milligrams per liter, and color <5 units. Iron and manganese were reported, <0.200 and 0.0208 milligrams per liter, respectively.

LDOTD estimated that in 2005 approximately 1.42 million gallons per day of groundwater were withdrawn from the Cockfield Formation in East Carroll Parish (LDOTD 2007). Approximately 1.15 million gallons per day of this total amount were withdrawn by the Lake Providence municipal supply. Based on a review of LDOTD groundwater files for East Carroll Parish, 22 registered water wells completed in the Cockfield Formation at depths between approximately 359 and 460 feet were indicated within a 5-mile radius of the project site. Most of the wells are plugged; however, one domestic, one industrial, and six public-supply wells are in use (Oakley 2006).

3.6.1.2 Surface Water

The 55-acre industrial site developed by the Lake Providence Port Commission is between the Mississippi River levee system and Hagaman Chute. The elevation of the site has been raised to approximately 125 feet, as part of industrial site preparation. This is the same elevation that USACE used to construct the Mississippi River Levee west of the site. The Base Flood Elevation at this site is approximately 119.5 feet above mean sea level based on the National Geodetic Vertical Datum (USACE correspondence in Appendix B). There is no surface water on the 55-acre industrial site.

Mississippi River

The Mississippi River is east of the industrial site. The Mississippi flows more than 2,350 miles from its headwaters in Lake Itasca, Minnesota, to the Gulf of Mexico. Its 1.2-million-square-mile watershed includes about 41 percent of the continental United States and a small area of Canada. The Lower Mississippi Alluvial Valley, consisting of portions of Illinois, Missouri, Kentucky, Tennessee, Arkansas, Mississippi, and Louisiana, stretches for 954 river miles south from the confluence of the Ohio and

Mississippi Rivers near Cairo, Illinois, to the Gulf of Mexico. At its mouth, the Mississippi River nourishes 4.5 million acres of coastal prairies and marshes, which are an ecological extension of the forested alluvial valley (Wetland and Waterbody Delineation Report (Appendix C)).

Hagaman Chute

Hagaman Chute is a navigable slack-water channel in the Mississippi River floodplain that runs southeast from the Port of Lake Providence approximately 1.5 miles to connect to the Mississippi River. Hagaman Chute enters the right bank of the Mississippi River at river mile 483.4 above Head of Passes. The tenants of the Port of Lake Providence use Hagaman Chute for barge transit, berthing, and loading and unloading. Section 3.1.1 discusses use of Hagaman Chute.

Stump Hole Lake

Stump Hole Lake is in the Mississippi River floodplain, west of the filled industrial area. It is a high-quality lake. The elevation of Stump Hole Lake ranges from 92 to 97 feet above mean sea level. This water body receives input from the Mississippi River during high-water events as well as surface runoff. Substrate consists of silt/clay, sand, and organic material. Several aquatic organisms including snakes, fish, and turtles were observed during an inspection conducted as part of the Wetland and Waterbody Delineation Report (Appendix C). During the inspection several boats were observed fishing along the shoreline of the lake.

Nearby Agricultural Drainage Ditches

The wetland and water body field survey identified five agricultural drainage ditches south of the proposed project site within the survey corridor (Figure 3-1). The survey corridor was a 50-foot corridor along the western edge of Highway 65. From nearest to farthest, they are:

- **Waterbody S1AEC006** – This stream is a low-quality intermittent water body (agricultural ditch), which receives all its flow from the surrounding agricultural fields. The stream enters the survey corridor from a stormwater culvert under U.S. Highway 65. No flow was observed at the time of the survey; however, several small pools of water were observed. Fish were observed in the pools during the survey. Substrate consists of silt/clay, gravel, sand, and organic debris.
- **Waterbody S1AEC005** – This stream is a low-quality intermittent water body (agricultural ditch), which receives all its flow from the surrounding agricultural fields. The stream enters the survey corridor from a stormwater culvert under U.S. Highway 65. No flow was observed at the time of the survey; however, several small pools of water were observed. Fish and several frogs were observed in the pools. Substrate consists of silt/clay, gravel, sand, and organic debris.
- **Waterbody S1AEC004** – This stream is a low-quality perennial water body (agricultural ditch), which receives all its flow from the surrounding agricultural fields. The stream enters the survey corridor from a stormwater culvert under U.S. 65. No flow was observed at the time of the survey; however, several small pools of water were observed. Aquatic habitat consisted primarily of in-stream emergent plants. Several frogs were observed in the stream. Substrate consists of silt/clay, gravel, sand, and organic debris.
- **Waterbody S1AEC003** – This stream is a moderate-quality perennial water body (agricultural ditch), which receives most its flow from the surrounding agricultural fields. The stream enters the survey corridor from a stormwater culvert under U.S. Highway 65. Limited flow was observed at the time of the survey. Aquatic habitats consisted primarily of overhanging shrubs and in-stream emergent plants.

Fish and several frogs were observed in the stream. Stream substrate consists of a mixture of silt/clay, sand, and gravel.

- **Waterbody S1AEC002** – This stream is a moderate-quality perennial water body (agricultural ditch), which receives most of its flow from the surrounding agricultural fields. Limited flow was observed at the time of the survey. Aquatic habitats consisted mainly of in-stream emergent plants. Fish, frogs, and several snakes were observed in the stream and on the stream bank. Stream substrate consists of a mixture of silt/clay, sand, and organic debris.

3.6.1.3 Floodplains and Wetlands

This EA includes a floodplain and wetland assessment, as required by 10 CFR Part 1022, Compliance with Floodplain and Wetland Environmental Review Requirements. Undisturbed lands west of the Mississippi River levee fall within the 100 year floodplain. A wetland and water body delineation and determination of the proposed project site, including the proposed routes of the supporting pipeline infrastructure, was completed on March 31, 2010 and is presented in Appendix C. Figure 3-1 shows the locations of identified floodplain/wetland and water body features.

Mississippi River Floodplain (Wetland W1AEC003)

The floodplain of the Mississippi River is bounded by mainline levees on either side. The land within the levees is termed batture lands and is almost entirely wetland in its natural state. The bottomland hardwood forest between Hagaman Chute and the Mississippi River Levee is classed as Low Gradient Riverine Backwater wetlands (LWF 2010). The wetland is classified as a high-quality, palustrine forested (PFO) wetland within the mainline levee. The area is characteristically dominated by mixtures of broadleaf deciduous, needleleaf deciduous and evergreen trees and shrubs (LWF 2010). At the time of the survey, this area was inundated and no soil samples were possible. Vegetation was dominated by black willow (*Salix nigra*), sycamore (*Platanus occidentalis*), red maple (*Acer rubrum*), and green ash (*Fraxinus pennsylvanica*) (Appendix C).

Wetlands (W1AEC001 and W1AEC002) – These are prior-converted agricultural wetlands adjacent to the U.S. Highway 65 right-of-way. No hydrophytic vegetation was present. Soils were disturbed. These potential wetlands are outside the proposed project corridor (Appendix C).

3.6.2 ENVIRONMENTAL CONSEQUENCES OF THE PROPOSED ACTION

This section discusses the environmental consequences of the Proposed Action on water resources in terms of groundwater, surface water (including wastewater), floodplains and wetlands. It also discusses measures Myriant would take to reduce the impact of the project on water resources.

3.6.2.1 Groundwater

Average process-water demand for MySAB would be approximately 300,000 gallons per day. Myriant would install two onsite wells, each with a maximum pumping rate of 500 gallons per minute, on site to a depth between 359 and 460 feet. Water-level records for Cockfield Formation wells at Lake Providence show a rise in water levels of 26 feet since 1956, and Myriant anticipates the Cockfield Formation at the project site would be capable of yielding the quantity of water needed to supply plant requirements (Oakley 2006). Myriant would file a Water Well Notification with LDNR at least 60 days before drilling any water supply wells. This form provides general information about the owner, the proposed well driller, the well location, well construction, and anticipated pumping rates. Myriant would submit a

Water Well Registration form to LDOTD within 30 days following well completion providing as-built details of the well.

Potential impacts to the Mississippi River Valley Alluvial aquifer (surficial aquifer) would include accidental releases of hazardous materials from biorefinery construction or operations. MySAB would have operational policies and procedures to manage and store such materials including but not limited to an Integrated Contingency Plan (ICP). The ICP's associated spill plans would include structural, nonstructural, and procedural measures for the appropriate containment, management, and/or cleanup of an accidental release. These procedures would minimize, to the extent possible, potential impacts to the surficial aquifer. Additional measures for preventing soil and groundwater contamination would include the development and implementation of construction and operational phase SWPPPs to reduce the risk of stormwater contamination during the proposed project.

3.6.2.2 Surface Water

At the industrial site and along the sanitary wastewater pipeline route, construction activities would result in soil disturbance, increasing the possibility of erosion and sedimentation. The LPDES General Permit for Discharges of Storm Water from Construction Activities Five (5) Acres or More would cover construction phase stormwater impacts. Myriant would prepare a SWPPP for construction activities and would submit a Notice of Intent form to LDEQ seeking general permit coverage.

Following construction, MySAB would result in the conversion of open industrial land to impervious surfaces, such as pavement or buildings. The reduction in infiltration would be likely to cause greater stormwater runoff from the site. The resulting erosion and sedimentation could affect surface-water runoff. Myriant would install a stormwater system required as part of the LPDES stormwater discharge permit and institute construction and post-construction BMPs detailed in the SWPPPs. As a result, impacts to surface-water hydrology from construction and operation of the biorefinery would be minor. Implementation of the pollution prevention related BMPs dictated by the SWPPPs and the ICP would further reduce the potential for stormwater runoff from the site to affect local surface waters.

In addition, Myriant would secure LPDES permit coverage for operational discharges of stormwater associated with industrial activities either as part of the biorefinery's individual LPDES industrial wastewater discharge permit or under the state's LPDES Multi-Sector General Permit for Storm Water Discharges Associated with Industrial Activities. Myriant would develop and implement an operational phase SWPPP. Stormwater discharges from the biorefinery, performed in compliance with an applicable LPDES permit, should not affect local surface-water quality or the aquatic environment.

MySAB would generate, treat, and discharge to the Mississippi River an average of 54,750,000 gallons per year (150,000 gallons per day) of treated wastewater. Myriant would apply to LDEQ for a Clean Water Act §402 LPDES industrial wastewater discharge permit. DOE anticipates the treated wastewater would rapidly mix with the ambient water. The mean annual stream flow data for 2008 at a USGS stream gage approximately 20 miles downstream in Vicksburg, Mississippi (USGS 07289000) indicated that the average daily flow rate of the Mississippi River during 2008 was 800,300 cubic feet per second (517 billion gallons per day). DOE anticipates that the minor quantity of flow from the effluent wastewater pipeline, treated and discharged in compliance with a LPDES Industrial Water Discharge Permit, would minimally impact river water quality or the aquatic environment.

MySAB would also generate approximately 3,000 gallons per day of sanitary wastewater, which would be routed to the 850,000-gallon-per-day-capacity Town of Lake Providence South Pond wastewater treatment facility. This POTW has sufficient capacity to treat and discharge this relatively small quantity of sanitary wastewater effectively.

3.6.2.3 Floodplains and Wetlands

By comparing the biorefinery site elevation to the Base Flood Elevation, DOE has determined that MySAB would not be within the 100 year floodplain. The pipelines to be constructed east of the levee to support MySAB would be within the 100 year floodplain and the PFO wetland.

Assessment of the proposed wastewater pipeline and natural gas pipeline routes overlain on the floodplain/wetland locations show impacts to the floodplain/PFO wetland W1AEC003 as shown in Figure 3-1 and summarized in Table 3-6. The biorefinery and sanitary wastewater pipeline route would not contain or cross any wetlands; therefore, their construction would not require disturbance to wetlands. A floodplain/wetland assessment is required by 10 CFR Part 1022, Compliance with Floodplain and Wetland Environmental Review Requirements, when a DOE action could result in impacts to floodplains or wetlands. This EA includes DOE’s floodplain/wetland assessments for the proposed project.

Along the routes of the wastewater effluent pipeline and the natural gas pipeline, the infrastructure would be installed underground and the area would be restored to original contour and grade. BMPs, designed in accordance with NWP 12 and LPDES requirements, would prevent significant erosion and sedimentation impacts to the surrounding surface-water bodies.

Construction and operation of the proposed wastewater and natural gas pipelines would result in short- and long-term impacts on the PFO wetlands of W1AEC003 as listed in Table 3-5. Construction would require an approximately 30-foot-wide construction right-of-way for the length of the pipelines, which would be installed by open-trench methods (that is, excavating a trench approximately 3 feet wide, lowering the pipelines and backfilling the trench to preconstruction grade). Heavy equipment would cross wetland areas on equipment mats where necessary to minimize soil compaction and rutting.

Table 3-5. Wetland impacts associated with the proposed project.

Feature ID	Wetland type	Wetland quality	Temporary impact (acres)	Permanent impact (acres)
W1AEC001	Prior-converted agricultural	Low	0.0	0.0
W1AEC002	Prior-converted agricultural	Low	0.0	0.0
W1AEC003	PFO	High	7.6 ^a	3.8 ^a

a. Forested wetlands would be cleared but not filled (that is, no loss of wetland area, however there is a conversion of forested wetlands to palustrine emergent wetlands).

Following construction, the construction corridor would revegetate naturally, with the exception of an approximately 15-foot-wide right-of-way that would be periodically cleared to prevent root damage to the pipe and enable maintenance and monitoring. Within this cleared right-of-way, PFO wetland would be converted to palustrine emergent wetland. This conversion of wetland type would not cause loss of wetland area. Because construction would use open-trench methods, there would be no effect on flood storage capacity of the floodplain.

Impacts to wetlands are regulated under Section 404 of the Clean Water Act (CWA). Construction of the proposed wastewater pipeline would require a federal dredge-and-fill permit from the USACE. The proposed pipeline construction qualifies for Nationwide Permit No. 12 (NWP-12). Myriant would obtain authorization under NWP-12 prior to initiating construction and would conduct construction in compliance with the permit conditions. The state Water Quality Certifications (WQC) is automatically granted by the USACE’s issuance of NWP-12.

Construction of the natural gas pipeline through the Mississippi River floodplain would qualify for NWP-12. Atmos Energy (the natural gas distribution company) would obtain authorization under NWP-12 and

conduct construction in compliance with permit conditions. At the mainline levee, the crossing would be over the levee by pipe bridge. The USACE would review the engineering and construction plans for the levee crossing as part of its permit-review process for NWP-12. In addition, the USACE would consult with the Fifth Louisiana Levee District to receive a Letter of No Objection. Outside the levee, the pipeline would be installed in the road right-of-way with potential temporary impacts to small areas of agricultural lands where construction area beyond the roadside right-of-way was required. The pipeline would cross the drainage ditches as listed in Table 3-6 by open-cut methods. The drainage ditches crossed by the route would be restored to original contours following construction. The pipeline right-of-way would be allowed to revegetate naturally, with the exception of a 15-foot permanent right-of-way directly over the pipeline, which would have to remain free of woody vegetation for ongoing monitoring and maintenance (as required by DOT).

Table 3-6. Waterbody impacts associated with the proposed project.

Feature ID	Waterbody description	Quality	Temporary impact (linear feet)	Permanent impact (linear feet)
S1AEC002	Agricultural ditch	Low	Less than30	0.0
S1AEC003	Agricultural ditch	Low	Less than30	0.0
S1AEC004	Agricultural ditch	Low	Less than30	0.0
S1AEC005	Agricultural ditch	Low	Less than30	0.0
S1AEC006	Agricultural ditch	Low	Less than30	0.0
S1AEC008	Stump Hole Lake	High	0.0	0.0

3.6.3 ENVIRONMENTAL CONSEQUENCES OF THE NO ACTION ALTERNATIVE

Under the No Action Alternative, Myriant would not build and operate MySAB, and there would be no construction of supporting infrastructure. The site of MySAB would continue to be open industrial land and there would be no temporary or permanent impacts to water resources.

3.7 Biological Resources

3.7.1 AFFECTED ENVIRONMENT

This section discusses the biological resources in the vicinity of Hagaman Chute. It presents information on vegetation, wildlife, fishery resources, and protected species.

3.7.1.1 Vegetation and Wildlife

The 55-acre industrial site is a previously developed industrial tract that has been cleared and leveled; it does not contain significant vegetation. The right-of-way for Port Road and U.S. 65 contains turf grass seeded during construction and maintenance of the roadways.

The bottomland hardwood forest between Hagaman Chute and the Mississippi River Levee, known as batture land, is a habitat seasonally flooded in backswamps, with frequent flooding, generally by still water that might be impounded behind natural levees; these are classed as Low Gradient Riverine Backwater wetlands. Bottomland hardwood areas in Louisiana are characteristically dominated by mixtures of broadleaf deciduous, needleleaf deciduous and evergreen trees and shrubs (LWF 2010). Overall tree height in the area suggest that the bottomland hardwood forest has not been recently disturbed (Appendix C). Batture land provides large areas of undeveloped habitat both for local wildlife and for the massive migrations of geese, ducks and other birds that use the Mississippi flyway. The Mississippi River, its tributaries, and associated waterbodies (such as Hagaman Chute and Stump Hole

Lake) support a broad array of wildlife, including approximately 50 species of mammals and 45 species of reptiles and amphibians. In addition, the river corridor functions as a migratory flyway for as much as 40 percent of all North American waterfowl and 60 percent of all U.S. bird species (NPS 2009).

The Louisiana Department of Wildlife and Fisheries has identified 20 species of conservation concern that are dependent on Batture habitat. The species of conservation concern include the yellow-crowned Night-Heron, wood stork, swallow-tailed kite, bald eagle, American woodcock, yellow-billed cuckoo, wood thrush, yellow-throated vireo, northern parula, prothonotary warbler, Swainson's warbler, Kentucky warbler, hooded warbler, orchard oriole, long-tailed weasel, ringed map turtle, Ouachita map turtle, sabbine map turtle, Pascagoula map turtle and timber rattlesnake.

3.7.1.2 Fishery Resources

The Mississippi River, its tributaries, and associated waterbodies (such as Haganan Chute and Stump Hole Lake) support a broad array of fish and aquatic wildlife, including 241 fish species and 37 species of mussels (NPS 2009).

Many fish in the Lower Mississippi River system are specially adapted to conditions in the large, fast-flowing water and floods of this river, including five lamprey species, the paddlefish, four gar species, bowfin, and four sturgeon species. The pallid sturgeon and pallid sturgeon chub occur primarily only in the main channel of the Mississippi River and its large tributaries. More than 60 species of mussels and nearly 60 species of crayfish also occur in the Mississippi River system. The lowest part of the Mississippi feeds into the Gulf of Mexico, from which many marine species enter the river. Tributaries contain minnows, catfish, killifish, and darters. The American alligator can be seen along the Mississippi River.

The agricultural drainage ditches that the natural gas pipeline would traverse as it travelled south along U.S. Highway 65 would be unlikely to support significant fishery resources.

3.7.1.3 Protected Species

Endangered and threatened species are protected by the federal *Endangered Species Act* of 1973 (ESA; 16 U.S.C. §§ 1531-1543). Section 7 of the ESA requires each federal agency to ensure that any action the agency authorizes, funds, or performs does not jeopardize the continued existence of federally listed endangered or threatened species, or result in the destruction or adverse modification of designated critical habitat for any federally listed species.

On July 1, 2010, Myriant initiated informal consultation on behalf of DOE with the USFWS, National Oceanic and Atmospheric Administration, and the LDWF Natural Heritage Program on the potential presence of federal- or state-listed threatened or endangered species or designated critical habitat for listed species in the proposed project vicinity. Appendix B contains a copy of the agency consultation correspondence.

Table 3-7 lists protected species potentially present in East Carroll Parish. Four species are of potential concern for the project – the Fat Pocketbook Pearly Mussel (*Potamilus capax*), Interior Least Tern (*Sterna antillarum anthalassos*), Louisiana Black Bear (*Ursus americanus uteolus*), and Pallid Sturgeon (*Scaphirhynchus albus*). Table 3-8 describes each species suitable/critical habitat.

Table 3-7. State and federally protected species potentially present in East Carroll Parish, Louisiana.

Common name (scientific name)	Louisiana status	Federal status	Suitable habitat
Fat Pocketbook Pearly Mussel (<i>Potamilus capax</i>)	N/A	E	Sand, mud, and fine gravel bottoms of large rivers
Interior Least Tern (<i>Sterna antillarum anthalassos</i>)	E	E	Preferred riverine nesting areas are sparsely vegetated sand and gravel bars in a wide unobstructed river channel. Nesting starts when river flows are high and small amounts of the sand/gravel bars are exposed. Where preferred habitat is unavailable, Least Terns might nest in dike fields, sand and gravel pits, and other artificial sites.
Louisiana Black Bear (<i>Ursus americanus uteolus</i>)	T	T	Bottomland hardwood forests with minimal human disturbance
Pallid Sturgeon (<i>Scaphirhynchus albus</i>)	E	E	Large rivers in the southeastern United States

Source: LDWF (2005).

3.7.2 ENVIRONMENTAL CONSEQUENCES OF THE PROPOSED ACTION

This section discusses the environmental consequences of the proposed project on the biological resources in terms of vegetation, wildlife, fishery resources, and protected species. Where relevant, it also discusses measures to reduce the impact of the proposed project to biological resources.

3.7.2.1 Vegetation and Wildlife

Because of the poor quality of the habitat, construction and operation of the biorefinery in the previously cleared and graded industrial tract and sanitary wastewater pipeline within the right-of-way of Port Road and U.S. 65 would have little effect on vegetation or wildlife. Construction of the sanitary wastewater pipeline in the road right-of-way would temporarily disturb turf grasses, which Myriant would reseed following construction.

Construction of the effluent wastewater pipeline in the Mississippi River floodplain would require temporary clearing of the 30-foot construction corridor, 15 feet of which would be permanently maintained as cleared right-of-way. Construction of the natural gas pipeline across the Mississippi River floodplain would have impacts similar to those of the effluent wastewater pipeline. The cleared right-of-way would be permanently converted to palustrine emergent wetlands. For the portion of the natural gas pipeline in the low-quality previously disturbed habitat of the U.S. Highway 65 right-of-way, the impacts would be similar to those of the sanitary wastewater pipeline (Appendix C).

The disturbance of wildlife in the proposed pipeline rights-of-way would be associated with clearing and pipeline construction as well as some permanent loss of forested wetland habitat. Heavy equipment and construction traffic on the rights-of-way could displace animals by creating noise and physical barriers. Pipeline construction could result in direct mortality of less mobile species, such as small mammals and reptiles, or result in an animal becoming trapped in the trench. Construction activities would be of short duration through each of the identified habitats and would result in only temporary impacts. Following right-of-way restoration and during operation of the pipelines, noise and disturbance would be minimal, and species would likely use the rights-of-way as they did before pipeline construction. However,

permanent creation of emergent wetlands within forested wetlands could impact biological resources by fragmenting the forested wetlands. As part of the NWP-12, the USACE may require mitigation of the lost forested wetlands.

Myriant would treat wastewater from the biorefinery in accordance with a LPDES wastewater treatment permit before discharge into the Mississippi River; therefore, there should be no impacts to vegetation and wildlife resources as a result of treated wastewater input.

3.7.2.2 Fishery Resources

The installation of erosion control devices around MySAB and along the pipeline construction rights-of-way, as required by the LPDES Construction Stormwater Discharge General Permit, would protect Haganan Chute and Stump Hole Lake from erosion-related impacts. As a result of the erosion control devices, construction activities for the proposed project would not affect fishery resources permanently.

Hydrostatic testing would result in a one-time withdrawal of approximately 475,000 gallons of water from the onsite water well. No inhibitors, biocides, or other additives would be added to the water during testing. After testing, the test water would be discharged through an energy-dissipating structure or routed through the onsite WWTP. No impacts are therefore anticipated as a result of the hydrostatic testing.

Myriant would treat wastewater from the biorefinery in accordance with a LPDES wastewater treatment permit before discharge into the Mississippi River; therefore, there should be no impacts to fishery resources as a result of treated wastewater input.

3.7.2.3 Threatened and Endangered Species

Table 3-8 identifies threatened and endangered species that could be present in the vicinity of the proposed project. The habitat at the proposed project was compared with the habitat needs of the listed species potentially present to determine if the project could affect protected species or their habitat.

Consultation with USFWS resulted in recommendations for protection of threatened and endangered species from potential impacts (Appendix B). Recommendations included screening the intake during the hydrostatic testing of the pipelines to prevent the entrainment of fish species during water withdrawal from Haganan Chute and that the velocity of the water withdrawal be no greater than 0.5 feet per second. To the maximum extent practicable, Myriant commits to following the USFWS recommendations (summarized in Table 2-4) and would continue to consult with USFWS throughout the construction of the project.

3.7.3 ENVIRONMENTAL CONSEQUENCES OF THE NO ACTION ALTERNATIVE

Under the No Action Alternative, Myriant would not build and operate MySAB, and there would be no construction of supporting infrastructure. The site of MySAB would continue to be open industrial land and there would be no temporary or permanent impacts to biological resources.

3.8 Cultural Resources

This section discusses the cultural resources in the vicinity of the proposed biorefinery and associated pipelines. Cultural resources are historic properties as defined by the *National Historic Preservation Act* (16 U.S.C. §§ 470, et seq), cultural items as defined by the *Native American Graves and Repatriation Act* (25 U.S.C. §§ 3001-3013), archeological resources as defined by the *Archaeological Resources*

Protection Act (16 U.S.C. §§ 470aa-470mm), sacred sites as defined in Executive Order 13007 to which access is afforded under the *American Indian Religious Freedom Act* (42 U.S.C § 1996), and collections and associated records as defined in 36 CFR 79.

3.8.1 AFFECTED ENVIRONMENT

Cultural resources of concern include sites, buildings, structures, or areas that are of historic, cultural, archeological, or architectural significance. DOE reviewed the *National Register of Historic Places* (NRHP) for East Carroll Parish, Louisiana. There are eight such resources currently listed in the Register, as listed in Table 3-8. The closest resource on the NRHP is more than 3.5 miles away from MySAB, in the town of Lake Providence.

Table 3-8. Cultural resources listed on the NRHP in East Carroll Parish, Louisiana.

Name	Type of resource	Location	Proximity to project area (miles)
Arlington Plantation	Architectural	214 Arlington, Lake Providence, LA	4.48
Buckmeadow Plantation House	Architectural	Northwest of Lake Providence off LA Route 2	8.20
Byerley House	Architectural	Junction of Lake and Ingram Streets, Lake Providence, LA	3.92
Fischer House	Architectural	15 Lake St., Lake Providence, LA	4.11
Lake Providence Historic District	Architectural District	Lake, Levee, and Scarborough Streets, Lake Providence, LA	3.71
Lake Providence Residential Street Historic District	Architectural District	Lake and Davis Streets, Lake Providence, LA	3.87
Nelson House	Architectural	407 Davis St., Lake Providence, LA	3.61
Old Courthouse Square	Architectural	1st and Hoads St., Lake Providence, LA	3.72

NRHP, National Register Information System <<http://www.nr.nps.gov/>>

3.8.1.1 Status of Cultural Resource Inventories and Section 106 Consultations

Because DOE is providing funding for a portion of the proposed project, the project is subject to the provisions of Section 106 of the National Historic Preservation Act. The purpose of the Section 106 Process is to ensure that no unnecessary harm comes to historic properties as a result of federal actions. Under Section 106, federal agencies must take into account the effect of their proposed undertakings on properties listed in or eligible for inclusion in the NRHP. Myriant initiated informal consultation on behalf of DOE with the Deputy State Historic Preservation Officer of the Louisiana Office of Cultural Development on June 30, 2010. Appendix B contains a copy of this correspondence.

The Historic Preservation Officer requested initiation of a Phase 1 archeological survey before the construction on the pipeline because of the proximity to the Hollybrook site (16EC85) which has been nominated for the NRHP. Hollybrook is identified as a Baytown period through Mississippian period village site (approx. AD 700 – 1200) lying between the highway and the levee to the east. Limited

investigations to define the site limits were undertaken at the site in 2000, with more extensive excavations along the east edge of the site conducted in response to levee improvements in 2001. From these projects, the site is known to extend up to the highway with intact archaeological deposits present below the modern plow zone. The current information indicates these deposits are present within the area proposed for construction of the natural gas pipeline (McGimsey 2010).

3.8.2 ENVIRONMENTAL CONSEQUENCES OF THE PROPOSED ACTION

Myriant would build MySAB on an existing industrial site filled with clean sand from a USACE dredging project of the nearby navigational channel. There is no potential for intact cultural resources in the filled site.

The proposed project's associated infrastructure would cross a floodplain in the mainline levees of the Mississippi River. This area was, and is, subject to ongoing river meanders (evidenced by numerous oxbow features) that disturb the substrate. Cultural resources existing before the construction of the levee (constructed in the late 1800s) might have survived, and cultural resources created later are likely to be intact; however, these historical ground-disturbing activities are likely to have disrupted any cultural resources that might exist along the route. DOE initiated consultation with the Deputy State Historic Preservation Officer of the Louisiana Office of Cultural Development on June 30, 2010. Appendix B contains a copy of this correspondence. The Historic Preservation Officer requested initiation of a Phase 1 archeological survey before the construction of the pipeline because of the proximity to the Hollybrook site (16EC85). Myriant would undertake the archeological survey before construction of the pipeline and provide the report to the Historic Preservation Officer. A no-effect determination from the Historic Preservation Officer would be required prior to construction. An *Unexpected Discoveries and Emergency Procedures Plan* would address the possibility of accidental discoveries during construction. Appendix D contains a copy of this plan.

3.8.3 ENVIRONMENTAL CONSEQUENCES OF THE NO ACTION ALTERNATIVE

Under the No Action Alternative, Myriant would not build and operate MySAB, and there would be no construction of supporting infrastructure. There are currently no operations at this location. Under this alternative, no impacts to cultural resources would occur at the proposed site.

3.9 Socioeconomics

3.9.1 AFFECTED ENVIRONMENT

MySAB would be in East Carroll Parish, a rural county that does not have any defined metropolitan statistical area. The 2008 parish population was 8,102, which is a decrease of 13.3 percent since the 2000 census. By comparison, the State of Louisiana has experienced a population decrease of 1.3 percent since 2000 (Bureau of the Census 2010). Approximately 52 percent of the East Carroll Parish population lives in Lake Providence, the parish seat.

Property values in Lake Providence are below the state average, with the 2008 median value of owner-occupied homes at \$35,900, in comparison with the state average of \$85,000 (Bureau of the Census 2010). In 2008, the local median household income is much less than the state median. The state median income was \$43,635, while the median household income in East Carroll Parish was \$25,100.

In 2008, approximately 43.7 percent of persons in East Carroll Parish were below the poverty level, in comparison with 17.6 percent for the State of Louisiana. The labor force of East Carroll Parish consists of approximately 3,145 persons as of the 2000 census, which is approximately 45.8 percent of the

population over the age of 16 years. This statistic is below the state average of 59.4 percent. In addition, in 2008, approximately 14.5 percent of individuals over the age of 16 are unemployed in East Carroll Parish, compared to the state average of 7.3 percent.

3.9.2 ENVIRONMENTAL CONSEQUENCES OF THE PROPOSED ACTION

DOE anticipates that MySAB would employ approximately 51 persons (50 plant staff, 1 manager) as permanent employees during operation. In addition, the construction of the proposed project would employ 250 workers (engineering, procurement, and construction workers). The construction personnel and permanent employees for the project would come from existing skilled workers in the area as well as workers brought in for specific task requirements. The use of the local work force and workers brought into the area would have a positive impact on the local economy by the creation of jobs and increased spending in the area. When the plant is operating, purchase of available local feedstock for production and the local export of ammonium sulfate as fertilizer would have a positive effect on the local economy.

Local resources such as schools, hospitals, parks, and public safety agencies would be likely to have a slight but insignificant increase in activity due to the population increase related to the construction and operation of MySAB. However, these impacts would likely be offset by an accompanying increase in the local taxes as a result of increased employment.

DOE funding as well as funding from the Lake Providence Port Commission and the Louisiana Department of Transportation would help revitalize the U.S. manufacturing base, bringing much-needed job growth to northeast Louisiana.

3.9.3 ENVIRONMENTAL CONSEQUENCES OF THE NO ACTION ALTERNATIVE

Under the No Action Alternative, Myriant would not build and operate MySAB, and there would be no construction of supporting infrastructure. The site of MySAB would continue to be an open industrial site. This alternative would fail to realize the benefit to the Parish of the construction- and operation-based jobs.

3.10 Environmental Justice

Environmental justice is the fair treatment and meaningful involvement of all people regardless of race, color, national origin, or income with respect to the development, implementation, and enforcement of environmental laws, regulations, and policies. *Fair treatment* means that no group, including racial, ethnic, or socioeconomic groups, should bear a disproportionate share of the adverse environmental consequences resulting from industrial, municipal, or commercial operations or the execution of federal, state, local, and tribal programs and policies.

Executive Order 12898, *Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations* [59 FR 7629 (1994)] directs federal agencies to incorporate environmental justice as part of their missions. Federal agencies are specifically directed to identify and, as appropriate, address disproportionately high and adverse human health or environmental effects of their programs, policies, and activities on minority and low-income populations.

The CEQ has issued guidance to federal agencies to assist them with their NEPA procedures so that environmental justice concerns are effectively identified and addressed (CEQ 1997). In this guidance, the Council encouraged federal agencies to supplement the guidance with their own specific procedures tailored to particular programs or activities of an agency. DOE has prepared a document titled *Draft Guidance on Incorporating Environmental Justice Considerations into the DOE's NEPA* (DOE 2000).

The draft guidance is based on Executive Order 12898 and the CEQ environmental justice guidance. Among other things, the DOE draft guidance states that even for actions that are at the low end of the sliding scale with respect to the significance of environmental impacts, some consideration (which could be qualitative) is needed to show that DOE considered environmental justice concerns. DOE needs to demonstrate that it considered apparent pathways or uses of resources that are unique to a minority or low-income community before determining that, even in light of these special pathways or practices, there are no disproportionately high and adverse impacts on the minority or low-income populations.

3.10.1 AFFECTED ENVIRONMENT

The racial make-up of East Carroll Parish is 30.8 percent white. The remainder of the population would be considered minority populations (Bureau of the Census 2010). In 2008, approximately 43.7 percent of persons in East Carroll Parish were below the poverty level, in comparison with 17.6 percent for the State of Louisiana.

3.10.2 ENVIRONMENTAL CONSEQUENCES OF THE PROPOSED ACTION

Potential environmental justice impacts are significant if the project would cause disproportionate impacts on low-income or minority populations. The East Carroll Parish and Lake Providence areas are predominantly populated by minorities. In addition, many of the citizens live in poverty or near poverty. These demographics occur in many of the adjacent parishes in Louisiana and in Mississippi counties. The selection of East Carroll Parish for MySAB was due in part to the actions taken by its citizens and elected leaders to bring business growth, new technological opportunities, and economic prosperity to the area.

There would only be minor environmental impacts associated with the biorefinery and these would not have a disproportionately higher impact on minority or low-income populations. The construction and operation of the proposed project would have no adverse impacts on public schools, parks, municipal services, or businesses.

3.10.3 ENVIRONMENTAL CONSEQUENCES OF THE NO ACTION ALTERNATIVE

Under the No Action Alternative, MySAB and its associated job creation and economic growth would not occur and there would be no effect to the local population.

3.11 Waste Management and Hazardous Materials

3.11.1 AFFECTED ENVIRONMENT

Because the 55-acre industrial site is vacant, no solid nonhazardous or hazardous waste is currently generated and no hazardous materials are stored at the site.

The Lake Providence Fire and Police Departments provide emergency services to the Port of Lake Providence. The Lake Providence Fire Department has 17 firefighters, including 12 volunteer firefighters. The fire station is at 311 Sparrow Street, about 3 miles from the port. East Carroll Parish Hospital provides occupational health services and emergency medical services. East Carroll Parish Hospital is a District Authority-owned hospital in Lake Providence, approximately 3.5 miles from the Port of Lake Providence.

The town of Lake Providence disposes of sanitary waste at the West Carroll Parish Sanitary Landfill. The landfill is in Oak Grove and is owned and operated by the West Carroll Parish Police Jury. According to

the LDEQ 2009 Solid Waste Capacity Report, has 103,000 cubic yards of capacity left with an estimated remaining timeframe of 8 years.

Republic Services, Inc. owns and operates a network of landfills including the Big River and Little Dixie landfills in Leland and Ridgeland MS, respectively. These landfills currently receive between 1500 and 2000 tons per day from their existing customers and they have capacity to continue operating at that level for 100 years.

3.11.2 ENVIRONMENTAL CONSEQUENCES OF THE PROPOSED ACTION

This section discusses the environmental consequences of the Proposed Action in terms of hazardous and nonhazardous waste generation and hazardous materials storage and handling.

3.11.2.1 Hazardous and Nonhazardous Waste

MySAB would be approximately 2.5 miles south of the town of Lake Providence. The nearest residence is approximately 3,000 feet west and the next nearest residence is approximately 4,700 feet to the northwest. MySAB would generate very small amounts of laboratory chemical waste. The estimated monthly volume would be 3 liters of methanol, 1 liter of Karl Fisher reagent, and 6 liters of high performance liquid chromatography waste (15 percent acetonitrile, 85 percent 0.01N sulfuric acid). Myriant would handle these chemical wastes and temporarily collect them in accordance with *Resource Conservation and Recovery Act* regulations (40 CFR Part 63). Wastes would then be transported off site by a licensed hazardous waste transportation company to a licensed hazardous waste treatment, storage, and disposal facility.

Myriant would neutralize spent acids and acidic waste it could not reuse on site. It would dispose of such neutralized solid waste off-site with other nonhazardous waste at the West Carroll Parish Sanitary Landfill.

During operations, Myriant would transport approximately 20 tons per day of waste to either the Little Dixie or the Big River landfill which would be a small impact given their capacities

3.11.2.2 Hazardous Materials Storage and Handling

While MySAB would store and use hazardous materials, impacts from these activities would be minor through the use of secondary containment and implementation of various plans as described below. Table 3-9 summarizes the hazardous chemicals that would be present on site in quantities reportable under the Emergency Planning and Community Right to Know guidelines.

Table 3-9. Summary of hazardous materials stored onsite.

Material	Designation	Storage	Capacity Onsite
Ammonia (anhydrous)	CERCLA Priority List of Chemicals DOT Hazardous Materials List OSHA Toxic and Reactive Highly Hazardous Chemicals	Above Ground, Onsite Pressurized Tanks	Two 50 ton tanks
Sulfuric acid	DOT Hazardous Materials List	Above Ground, Onsite Tanks	One 50 ton tank
Sodium hydroxide	DOT Hazardous Materials List	Above Ground, Onsite Tank	~37,000 gal tank
Carbon	DOT Hazardous Materials List	Above Ground,	One 50 ton tank

dioxide		Onsite Pressurized Tanks	
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The storage of hazardous materials on the project site presents the risk of accidental release. To minimize this risk, any outside storage tanks would have secondary containment structures sufficient to hold the contents of the largest tanks plus sufficient additional volume for rainfall. Myriant would use materials compatible with the chemical being stored to build each storage tank.

Myriant would develop appropriate spill response, pollution prevention, and emergency response plans to address medical and environmental hazards associated with MySAB. The plans would include, at a minimum, a SWPPP and an ICP. The ICP would contain elements such as a site security plan, an emergency response plan, a community evacuation plan, and spill response plans. Myriant would prepare the plans in accordance with federal and Louisiana Occupational Safety and Health Administration (OSHA) and EPA and LDEQ regulations and guidance. It would maintain spill equipment kits, and provide spill response training to employees working with hazardous materials. These measures would minimize impacts from spills of hazardous materials.

The only chemical compound that Myriant would store at MySAB in a quantity large enough to be regulated under the Risk Management Rule (40 CFR Part 68) would be anhydrous ammonia. The Risk Management Rule requires nonexempt facilities with more than 10,000 pounds of anhydrous ammonia to institute a Risk Management Program and submit a Risk Management Plan to EPA. The Risk Management Program includes four key elements: management system, offsite consequence assessment, prevention program, and emergency response program, all of which the Risk Management Plan must document. The purpose of the Risk Management Program is to understand the hazards of regulated substances, have systems in place to prevent and mitigate accidental releases, and prepare to respond if a release should occur, including communication with offsite emergency response agencies. Based on the anticipated design capacity, this EA assumes that the largest single vessel to contain anhydrous ammonia would consist of a cylindrical pressure vessel with a capacity greater than 10,000 pounds of liquefied anhydrous ammonia stored at ambient temperature under its own vapor pressure.

Myriant performed a preliminary evaluation of a worst-case release of anhydrous ammonia and followed the EPA Risk Management Program Guidance using the EPA *RMP*Comp*TM program to evaluate the maximum distance to the toxic endpoint. EPA defines a *toxic endpoint* as the distance beyond which serious injury is unlikely to occur. This simulation assumes that the entire contents of a single vessel are released and flash-evaporated within a 10-minute time span and that a steady 3-mile-per-hour wind moves the release in a straight-line path during stable nighttime dispersion conditions. Although EPA recognizes that such a worst-case scenario is extremely unlikely, the Risk Management Program requires the evaluation of a more realistic “alternative” release during typical dispersion conditions, to assist in planning emergency response. Therefore, using the *RMP*Comp*TM program, an alternative release scenario was simulated, based on a 1-inch-diameter hole with a release rate of 2,100 pounds per minute for 10 minutes.

Worst-case and alternative releases evaluated with the *RMP*Comp*TM program indicate that toxic endpoint concentrations could extend off site. To safely manage a catastrophic release of anhydrous ammonia, Myriant exhaustively studied the anhydrous ammonia storage and handling systems/procedures and developed mitigation plans to reduce the probability of an incident to levels that are probabilistically remote.

As described in Section 2.2.6.5, Myriant would follow the Department of Homeland Securities (DHS) CFATS (6 CFR Part 27). The only substance Myriant would be regulated by these standards is anhydrous ammonia.

3.11.2.3 Hazard Identification

As part of the design process for MySAB, Myriant conducted a hazard identification (HAZID) study to indicate hazards during the early stages of the engineering. The HAZID procedure consists of four main analysis steps:

- Identification of deviations;
- Identification of causes for the deviations;
- Discussion of consequences and hazard; and
- Listing of safeguards.

For MySAB, Myriant initiated the HAZID study to identify the following primary hazards of concern:

- General;
- Pressure;
- Temperature;
- Composition;
- Level; and
- Flow.

Myriant completed the HAZID study as a Pre-Basic-Engineering Hazard and Operability (Pre-HAZOP) study that it would expand into a Hazard and Operability (HAZOP) study at the end of detailed engineering.

Myriant would use the information developed during the HAZID study for the final design of the proposed demonstration plant, as appropriate. Where the existing safeguards were identified as insufficient, Myriant would make recommendations for improved safeguards. In addition, Myriant would complete the HAZOP study before initiating construction to demonstrate that it had taken sufficient steps to reduce the risk of identified hazards to a level where no further practicable reduction measures would be possible.

As described above, Myriant would develop appropriate contingency plans (Spill prevention, SWPPP, and ICP) that would:

- Analyze the potential for spills or releases of petroleum products or other hazardous materials;
- Outline steps to prevent releases or spills from occurring;
- Evaluate potential impacts of releases should they occur; and
- Describe response actions it should take in the event of a release.

Myriant would provide training to its personnel on the site-specific spill prevention and response measures in the contingency plans. In addition, it would meet with local fire and emergency response providers to discuss potential emergencies, determine capabilities, and establish communication protocols and responsibilities. Myriant would contract with a local hazardous materials spill response group to be part of the response team. This hazard identification process reduces potential adverse impacts that might result from design hazards.

3.11.3 ENVIRONMENTAL CONSEQUENCES OF NO ACTION ALTERNATIVE

Under the No Action Alternative, the proposed project would generate no waste or hazardous materials. No hazardous materials storage would occur.

3.12 Occupational Health and Safety

3.12.1 AFFECTED ENVIRONMENT

The 55-acre industrial site is unoccupied. Because there are no current operations at the proposed site, there are no occupational health and safety protocols in place.

3.12.2 ENVIRONMENTAL CONSEQUENCES OF THE PROPOSED ACTION ALTERNATIVE

To address potential occupational health and safety risks, MySAB would have a Health and Safety Coordinator during construction and operation. In addition, Myriant would have a Health and Safety Program Manager to provide technical support. Myriant would follow all Occupational Health and Safety Act (OSHA) requirements. Standard operating procedures (SOPs) would be developed to ensure compliance with all OSHA guidelines. Health and Safety SOPs would be developed for construction activities, excavation and trenching, electrical, hazardous chemicals, hot work permits, fall prevention, proper equipment usage, confined space entry, fire protection and prevention, and hearing and respiratory protection for employees, contractors, and visitors. Myriant would complete these items before bringing hazardous materials on site. The existing emergency response capabilities of the City of Lake Providence and East Carroll Parish are likely to remain in place and available to MySAB, if needed.

The fire protection systems for the MySAB project would limit personal injury, loss of life, property loss, and plant downtime from fire or explosion. The biorefinery would have the following fire protection systems:

- Fire Hydrant/Hose Stations – There would be adequate numbers of fire hydrants and hose stations throughout the biorefinery to ensure sufficient coverage of the process areas;
- Design and construction of storage tanks that contained flammable materials in accordance with the National Fire Code;
- Plant Fire Brigade – Myriant would train operating and maintenance personnel to deal effectively with plant emergencies involving fire, explosion, or accidental spills. Ongoing training would maintain the effectiveness of the onsite fire brigade; and
- Local Fire Protection Service – The MySAB project would rely on the local fire department or emergency response teams in the event of a serious fire. Myriant would familiarize local authorities with the layout of the MySAB facilities, the hazards of materials handled on the premises, places where personnel would normally work, and possible evacuation routes. Myriant would create a Fire Protection Plan for the plant and update it to detail MySAB project information necessary to ensure the use of safe and effective firefighting measures at the plant.

In addition to fire hydrants and foam systems, the plant would have hand-held fire extinguishers, temperature detectors, smoke detectors, and other fire detection devices as required by fire codes and the East Carroll Parish or the Office of the State Fire Marshal.

The chemicals and chemical processes used to produce succinic acid could create health and safety hazards. Section 3.11 discusses hazards related to hazardous material storage and handling.

Myriant would provide employees with effective information and training on hazardous chemicals in their work areas at the time of their initial assignment, and annually thereafter as a refresher. It would provide additional training if a new physical or health hazard was introduced in the work area. It would also provide training to all employees, including ancillary employees, on the hazards associated with nonroutine tasks on a case-by-case basis. Myriant would make standard safety equipment available including full personal protection equipment (hard hats, hearing protection, safety shoes based on a reimbursable program); standard laboratory protective equipment including fume hoods, gloves, jackets; and special breathing protection apparatus specific for succinic acid.

In addition, the company would develop an ICP that included an Emergency Response Plan for the biorefinery. This plan would describe planning and procedures to be followed in the event of an emergency including:

- Spills or releases of hazardous materials,
- Fire or explosion,
- Tornadoes, hurricanes and other severe weather,
- Medical emergency, and
- Bomb threat.

The ICP would identify the Emergency Response Coordinator and alternates, responsibilities, and appropriate emergency service contact information.

3.12.3 ENVIRONMENTAL CONSEQUENCES OF THE NO ACTION ALTERNATIVE

Under the No Action Alternative, Myriant would not build MySAB and associated infrastructure. Occupational health and safety at the biorefinery would not be required.

3.13 Utilities and Energy

MySAB would require water, natural gas, and power infrastructure.

3.13.1 AFFECTED ENVIRONMENT

The Port of Lake Providence is approximately 2.5 miles south of Lake Providence, Louisiana. The site is an open industrial site immediately south of the port facilities. Entergy Corporation supplies electrical transmission to the Port and Atmos Energy supplies natural gas in the area.

Sanitary wastewater in the Port area is routed to the Town of Lake Providence sewer system for treatment at a POTW. The Town of Lake Providence municipal water supply system provides potable water.

3.13.2 ENVIRONMENTAL CONSEQUENCES OF PROPOSED ACTION

The proposed project would consist of the construction and operation of a biorefinery that would produce succinic acid and coproducts from sorghum grits and lignocellulosic hydrolysate as well as two wastewater pipelines. The components of the infrastructure supporting this operation are as follows:

- The Town of Lake Providence municipal water supply system would supply potable water. An estimated 3,000 gallons per day would be required. MySAB requirements represent less than 1 percent of the current volume supplied by this system.
- Process and utility water for MySAB would be drawn from onsite wells as discussed in Section 3.6.2. An estimated 300,000 gallons per day would be required. Please see Section 3.6.2 for a discussion of groundwater availability.
- An effluent wastewater discharge pipeline, approximately 1.5 miles long, would discharge to the Mississippi River (Figure 2-2). It would discharge an estimated 150,000 gallons per day under the requirements set forth in the LPDES permit.
- A second wastewater line for sanitary waste would connect the MySAB sanitary system to the existing Town of Lake Providence sanitary system (Figure 2-2). It would discharge an estimated 3,000 gallons per day. The MySAB requirements represent less than 1 percent of the current capacity of this system.
- Atmos Energy would provide a natural gas pipeline that would begin at the existing SNG natural gas pipeline to the south of the biorefinery and proceed north, paralleling U.S. Highway 65 in the LDOTD right-of-way, before ending at the proposed biorefinery (Figure 2-2). An estimated 90 million standard cubic feet per year would be required. Atmos Energy is proposing to construct an 8-inch-diameter, approximately 3.5-mile pipeline to support MySAB. The pipeline would cross eight agricultural ditches or heavily modified streams.
- Entergy Corporation would supply electricity by upgrading existing power lines in existing rights-of-way on existing or upgraded poles. An estimated 17 million kilowatt-hours per year would be required. Myriant would require 1.5 megawatts of power during the construction phase of the project. Entergy Corporation's existing Oak Grove Substation would supply this power. Supply for construction power would require installation of a minimal amount of infrastructure. Myriant would require approximately 5.5 megawatts of electric power for process operation. Startup, shutdown, and maintenance conditions would have lower power use requirements than normal operations. During operations, Entergy's existing Tallulah Substation would supply electricity. Section 3.1.2 discusses impacts to land use. Section 3.6.2 discusses impacts to wetlands.

Impacts to existing infrastructure would be minimal.

3.13.3 ENVIRONMENTAL CONSEQUENCES OF NO ACTION ALTERNATIVE

Under the No Action Alternative, Myriant would not build MySAB and there would be no construction of associated infrastructure. The No Action Alternative would have no effect on the infrastructure of the City of Lake Providence or East Carroll Parish.

3.14 Transportation

3.14.1 AFFECTED ENVIRONMENT

This section describes existing transportation routes, including roads, rail lines, and waterways, in the vicinity of MySAB. Trimodal access to the site, described below, would provide flexibility in reducing potential traffic impacts that could be associated with the construction and operations of MySAB. It would also provide potential advantages in reducing transportation costs for delivery of materials and shipment of products.

3.14.1.1 Roads

Vehicle access to MySAB would be via Port Road, which runs along the levee on the west boundary of the site, providing access from the Port of Lake Providence to the north (Figure 2-2). Port Road is a one-third-mile blacktop road. To the northwest, Port Road connects to U.S. Highway 65, a two-lane highway that is a major arterial highway between the Cities of Lake Providence and Transylvania. This rural two-lane road with minimal grade and few no-passing zones has a capacity of approximately 2,800 passenger cars per hour (HPMS 2005). According to LDOTD Traffic Counts daily traffic was well below U.S. Highway 65 capacity. The Annual Average Daily Traffic (AADT) on U.S. Highway 65 north of Port Road (mile point 84.1) averaged 5,590 vehicles per day in 2009. The AADT on Highway 65 south of Port Road (mile point 76.76) was 3,096 vehicles per day (LDOTD 2010) suggesting that Port Road and other local roads carried approximately 2,500 vehicles per day.

3.14.1.2 Rail Lines

DSR operates a local rail line that runs parallel to U.S. Highway 65 west of the proposed MySAB project site. The Lake Providence Port Commission has 6,600 feet of track on four tracks, with a longest continuous track of 4,350 feet. DSR of Tallulah provides rail service (LDOTD 2010).

3.14.1.3 Waterway

Port of Lake Providence is a shallow-draft port with a USACE-maintained channel depth of 9 feet, containing four berths. The channel is 8,200 feet long, 150 feet wide, and has a 400- by 800-foot turning radius, providing access to the Mississippi River.

3.14.2 ENVIRONMENTAL CONSEQUENCES OF THE PROPOSED ACTION

The maximum transportation impact of the proposed project would occur during the peak of construction, when the labor force for construction would be approximately 250 employees. A maximum of approximately 150 cars per day would be associated with the construction staff. During that time, truck deliveries would not exceed 15 per day.

Transportation impacts during operations would include trucks and personal vehicles. Truck traffic for deliveries during operations would be approximately 6 to 9 trucks making deliveries per day with an average of 6 to 12 trucks shipping materials out per day. If Myriant replaces anhydrous ammonia with ammonium hydroxide as a process chemical, the number of trucks making deliveries per day would increase to 7 to 10 trucks per day. In addition, the plant would have approximately 51 employees working in three shifts, which would reduce the number of vehicles during typical peak times. The traffic would use U.S. Highway 65 to Port Road.

Traffic on Port Road, the immediate access point to the biorefinery, would be mostly commercial. Myriant would work with contractors to control the routes and timing of delivery of materials to the biorefinery to mitigate traffic concerns if they arose.

At its peak, the maximum increase in daily traffic on U.S. Highway 65 would be less than 180 vehicles (or 360 trips), which is approximately 6 percent of the current volume. The current traffic volume on U.S. 65 is well below base capacity (2,800 passenger cars per hour). This modest increase in volume during construction would not have an appreciable effect on traffic flow, nor would it be likely to affect the rate of accidents, injuries, or fatalities. During plant operation, the anticipated increase in daily traffic

(51 employees, 30 trucks) would be less than half that anticipated during construction, and impacts on traffic would be negligible. Considering the minimal amount of additional traffic volume generated by this project, the roadway facilities would remain at their current level of service. While other modes of transportation are available to the proposed project, they are beyond the scope of this EA.

3.14.3 ENVIRONMENTAL CONSEQUENCES OF THE NO ACTION ALTERNATIVE

Under the No Action Alternative, Myriant would not build and operate MySAB and there would be no construction of associated infrastructure. Existing traffic levels would be unaltered.

3.15 Short-Term Uses and Commitment of Resources

NEPA requires federal agencies to describe the relationship between local short-term uses of the environment and the maintenance and enhancement of long-term productivity. In addition, the NEPA evaluation should characterize any irreversible and irretrievable commitments of resources as a result of the implementation of the Proposed Action.

3.15.1 ENVIRONMENTAL CONSEQUENCES OF THE PROPOSED ACTION ALTERNATIVE

Development of the proposed project would commit approximately one-fifth of the Lake Providence Industrial Site (11 acres of the available 55 acres), approximately 4 acres of Mississippi River floodplain, approximately 4 acres of road right-of-way, and the various construction materials and equipment to permanent use. During the projected lifespan of the project, equipment would require periodic replacement, and replaced items would be recycled for other uses if possible. The land in the pipeline rights-of-way (in the floodplain and the road right-of-way) would not contain aboveground structures and would remain available for limited uses, for example, recreation and roadside maintenance, respectively.

The project would use approximately 4.7 million bushels of sorghum grain annually, 350,000 gallons of groundwater per day, 900 million standard cubic feet of natural gas annually, 17 million kilowatt-hours of electricity annually, and the fuel, oil, and maintenance costs for the operation of the biorefinery. Sorghum is a renewable agricultural resource, and its use would help develop the market of this product, increasing demand and price of this regional resource. Although the groundwater committed to plant operations would be irretrievable, the aquifer is continuously recharged and permanent drawdown of the aquifer is unlikely. The natural gas, electricity, fuel, oil, and maintenance costs committed to operation of the plant would be irreversible commitments.

These commitments would result in the production of 30 million pounds per year of succinic acid and various production byproducts, such as ammonium sulfate to be sold locally for use as fertilizer. By providing an alternative nonpetroleum source of succinic acid, the MySAB project would reduce the commitment of petroleum, a nonrenewable resource, and would further the development of bio-based chemicals. There would be a generally consistent relationship between local short-term uses of the environment and the maintenance and enhancement of long-term productivity.

3.15.2 ENVIRONMENTAL CONSEQUENCES OF THE NO ACTION ALTERNATIVE

Under the No Action Alternative, Myriant would not build and operate MySAB and there would be no construction of associated infrastructure. The site would continue to be open industrial land and there would be no positive or negative impacts.

4. CUMULATIVE IMPACTS

CEQ regulations require that the cumulative effects analysis in an EA consider potential environmental impacts resulting from the “incremental impacts of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency or person undertakes such actions.” (40 CFR 1508.7) Past actions that have been accounted for in the affected environment are not considered separately in this section because the combined effects are already addressed in Section 3 of this EA.

Myriant would build MySAB on an industrial site developed by the Port of Lake Providence for industrial activities. The State of Louisiana, parish, and local governments, including the Port of Lake Providence, strongly support the further development of the site. The site is in a designated USDA Rural Development and state-listed economic priority zone to bring much-needed job growth to northeast Louisiana. As described below, USACE has been implementing improvements to the Mississippi River Mainline Levee in the area of proposed biorefinery. According to the official web site for economic development in Lake Providence and East Carroll Parish, Louisiana (Lake Providence Progress 2009), and a representative of the Lake Providence Port Commission (Gilfoil 2010), no new projects or future actions are known or likely to be completed in the vicinity of the proposed biorefinery.

4.1 Present Actions

As approved by Congress in 1996, the USACE has been improving the Mississippi River Levee under the Mississippi River Mainline Levees Enlargement and Seepage Control Project. As relates to the proposed biorefinery, the USACE is improving approximately 100 linear feet of the Mississippi River Mainline Levee at Port Road by elevating the road and railroad beds. Environmental impacts from both the levee improvements and borrow pits that provide soil for the improvements were evaluated by the USACE in its Wilson-Point Lookout, Item 485-R, Mississippi River Levees and Seepage Control, East Carroll Parish, Louisiana Environmental Assessment (Wilson-Point EA) and associated Finding of No Significant Impact (Wilson-Point EA, 2001). The Wilson-Point EA analyzed air quality, aquatic resources, waterfowl, recreation and esthetics, wetlands, and threatened and endangered species. With the exception of the 100 linear foot improvement referenced above, all actions described in the Wilson-Point EA have been completed and are accounted for in the affected environment sections presented in Chapter 3. DOE is evaluating cumulative impacts based on the information provided in the Wilson-Point EA.

The improvement of the 100 linear feet is expected to begin before the end of 2010 and be completed by June of 2011. During levee improvements, USACE may construct a conduit to facilitate installation of the MySAB sanitary sewer line.

MySAB is located between the Mississippi River Mainline Levee (managed and maintained by the USACE) and Haganan Chute. Port Road is the only access road to the Port of Lake Providence and the proposed biorefinery site. The proposed sanitary line for MySAB would parallel Port Road, crossing the levee (by pipe bridge) and U.S. Highway 65 (by road bore) before connecting to the force main serving the East Carroll Detention Center. The conduit installed by USACE would be large enough to contain the new sanitary sewer lines.

4.2 Cumulative Impacts Summary

Concurrent construction of the levee improvements and the biorefinery would result in no increase in incremental impacts described in Chapter 3 to water resources, biological resources, cultural resources or

aesthetics because USACE determined that the levee improvements would result in only minimal adverse impacts to these resources (Wilson-Point, 2001). Potential increases in impacts to air quality and wetlands are described in this section.

4.2.1 AIR QUALITY

Concurrent construction of 100 linear feet of the Mainline Levee road, the railroad beds, and MySAB is unlikely to occur. However, if such an overlap in construction were to happen, the activities would result in intermittent and short-term air emissions, including fugitive dust from soil disruption and emissions from combustion-type construction equipment. Emissions from concurrent construction would be unlikely to cause or significantly contribute to a violation of an applicable ambient air quality standard because Myriant's construction equipment would be operated using BMPs, such as limiting activities in areas not being used for construction; limiting the number of locations to access construction areas; and staging construction activities with the USACE to avoid simultaneous dust-generating activities. Myriant would also implement dust control measures, including road water spraying during certain construction activities, such as transporting soil or rock, trenching, and use of access roads. As a result, impacts to air quality during concurrent construction would be minor and temporary.

4.2.2 WETLANDS

The necessity to obtain borrow pit material for USACE levee improvements described in the Wilson-Point EA resulted in the destruction of approximately 108 acres of forested wetland. As a compensatory mitigation measure, USACE reforested frequently flooded agricultural land resulting in the mitigation of 100 percent of the wetland losses in the area (Wilson-Point EA, 2001). As a result of USACE's mitigation measures for loss of wetlands, there would be no incremental increase in impacts to wetlands in addition to those impacts described in Chapter 3.

5. REFERENCES

- AECOM. 2010. Myriant Succinic Acid Biorefinery Minor Source Air Permit Application.
- ANL (Argonne National Laboratory). 2007. *The Greenhouse Gases, Regulated Emissions, and Energy Use in Transportation (GREET) Model*. Available at http://www.transportation.anl.gov/modeling_simulation/GREET/.
- ASCE (American Society of Civil Engineers). 2005. *Minimum Design Loads for Buildings and Other Structures*. SEI/ASCE 7-05.
- Beranek, L. L., and I. L. Ver. 1992. *Noise and Vibration Control Engineering*. Hoboken, NJ: John Wiley & Sons Inc.
- Bureau of the Census. 2010. State & County QuickFacts, East Carroll Parish, Louisiana. Accessed June 2010 at <http://quickfacts.census.gov/qfd/states/22/22035.html>.
- Council on Environmental Quality (CEQ). 1997. Environmental Justice Guidance Under the National Environmental Policy Act, December 10, 1997.
- C-K Associates, LLC. 2005. *54-Acre Port Expansion, Phase I Environmental Site Assessment*.
- Climate-charts.com. 2008 Lake Providence, LA. Accessed July 2010 at <http://climate-charts.com/USA-Stations/LA/LA165090.php>.
- DOE (U.S. Department of Energy). 2000. *Draft Guidance on Incorporating Environmental Justice Considerations into the DOE's NEPA*.
- Eaton, S. 2000. *Construction Noise* - ARCS Reference No: 0135-20. Worker's Compensation Board of BC.
- EPA (U.S. Environmental Protection Agency). 1974. *Information on Levels of Environmental Noise Requisite to Protect Public Health and Welfare with an Adequate Margin of Safety*. EPA/ONAC 550/9-74-004, March.
- EPA (U.S. Environmental Protection Agency). 1978. *Protective Noise Levels, Condensed Version of EPA Levels Document*. EPA 550/9-79-100, November.
- Gilfoil, W. 2010. Personal communication. Member of Lake Providence Port Commission.
- HPMS (Highway Performance Monitoring System). 2005. *HPMS Field Manual*. Appendix N, "Procedures for Estimating Highway Capacity."
- IPCC (Intergovernmental Panel on Climate Change). 2007. *Climate Change 2007: Synthesis Report*.
- Lake Providence Port Commission. 2010. *Lake Providence, Louisiana*. Accessed at: portsoflouisiana.org/documents/port_profiles/Lake_Providence.p.

- Lake Providence Progress. 2009. Accessed on June 15, 2010 at <http://www.lakeprovidenceprogress.com/>.
- LDNR (Louisiana Department of Natural Resources). 2010. *Strategic Online Natural Resources Information System (SONRIS)*. Accessed April 2010 at http://sonris-www.dnr.state.la.us/www_root/sonris_portal_1.htm.
- LDOTD (Louisiana Department of Transportation and Development , 2007. *Water Use in Louisiana, 2005*, Water Resources Special Report No. 16. Accessed at <http://la.water.usgs.gov/publications/pdfs/WaterUse2005.pdf>.
- LDOTD (Louisiana Department of Transportation and Development. 2010. LADOTD Estimated Annual Average Daily Traffic Count Sites. Accessed June 2010 at <http://www.dotd.la.gov/highways/tatv/default.asp>.
- LDWF (Louisiana Department of Wildlife and Fisheries). 2005. *Natural Communities of Louisiana - Bottomland Hardwood Forest*. LDWF Fact Sheet.
- LGS (Louisiana Geological Society). 2010. *Generalized Geology of Louisiana*. Accessed April 2010 at <http://www.lgs.lsu.edu/deploy/uploads/gengeomapla.pdf>.
- McGimsey, C. 2010. Email communication. Division of Archaeology, Louisiana Department of Culture, Recreation and Tourism.
- Mississippi State Port Authority at Gulfport. 2010. *About the Mississippi State Port Authority at Gulfport*. Accessed at: <http://www.shipmspa.com/aboutus.htm>.
- National Park Service (NPS). 2009. Mississippi River Facts. Accessed July 2010 at <http://www.nps.gov/miss/riverfacts.htm>.
- NRCS (Natural Resources Conservation Service). 2008. *Official Soil Series Descriptions*. U.S. Department of Agriculture. Accessed April 2010 at <http://soils.usda.gov/technical/classification/osd/index.html>.
- NRCS. (Natural Resources Conservation Service). 2009. *Web Soil Survey*. U.S. Department of Agriculture. Accessed April 2010 at <http://websoilsurvey.nrcs.usda.gov/app/>.
- NRL (Naval Research Laboratory). 2008. *Ambient Noise Measurements in the Mississippi Sound*. NRL/MR/7185--08-9117.
- Oakley, B. 2006. *Availability of Ground Water from the Cockfield Formation*. Port of Lake Providence, Louisiana.
- Southern Earth Sciences. 2005. *Supplemental Subsurface Investigation and Geotechnical Evaluation. Bionol Fuels Project*.

- Segura, J.C., and Feddes, J.J.R. 2005. *Relationship between Odour Intensity and Concentration of n-Butanol*. Written for presentation at the CSAE/SCGR 2005 Meeting, Winnipeg, Manitoba, June 26 - 29, 2005.
- Tolunay-Wong Engineers. 2010. *Geotechnical Engineering Study. Myriant MYSAB 30 MMPPY*.
- USACE (United States Army Corps of Engineers). 2001. *Wilson-Point Lookout, Item 485-R Mississippi River Levees and Seepage Control. East Carroll Parish, Louisiana Environmental Assessment and Finding of No Significant Impact*.
- USDA National Agricultural Statistics Service (NASS). Accessed March 2009 at <http://www.agcensus.usda.gov>.
- USGS (United States Geological Survey). 2003. *A Tapestry of Time and Terrain: The Union of Two Maps - Geology and Topography*. Accessed April 2010 at <http://tapestry.usgs.gov/physiogr/physio.html>.
- USGS (United States Geological Survey). 2008. *National Seismic Hazards Map*. Accessed April 2010 at <http://gldims.cr.usgs.gov/website/nshmp2008/viewer.htm>.
- USGS (United States Geological Survey). 2010a. *Geologic Units in East Carroll Parish, Louisiana*. Accessed April 2010 at <http://tin.er.usgs.gov/geology/state/fips-unit.php?code=f22035>.
- USGS (United States Geological Survey). 2010b. *Landslide Overview Map of The Conterminous United States*. Accessed April 2010 at <http://landslides.usgs.gov/learning/nationalmap/index.php>
- Walker, Susan. October 26, 2010. Email to Ms. Lisa Jorgensen regarding Ammonia Concentration.

Appendix A
Notices and Responses



Department of Energy

Golden Field Office
1617 Cole Boulevard
Golden, Colorado 80401-3393

June 2, 2010

SUBJECT: Notice of Scoping – Proposed Myriant Succinic Acid Biorefinery (MySAB) Demonstration Facility, Lake Providence, East Carroll Parish, Louisiana
DOE/EA 1787

The U.S. Department of Energy (DOE) is proposing to provide federal funding to construct the Myriant Succinic Acid Biorefinery (MySAB) Demonstration Facility. The bio-process would produce succinic acid, an industrial organic chemical building block that can be used to produce plastics, clothing fibers, pigments, biodegradable solvents and other biobased chemicals. The process has been demonstrated on a pilot scale and this project would develop the scaling factors needed for developing commercial-sized operations. The proposed facility would be located in Lake Providence, Louisiana, in East Carroll Parish, adjacent to the Mississippi River. Additional details about the proposed project and its location are contained in the attachment to this letter.

Pursuant to the requirements of the National Environmental Policy Act (NEPA), the Council on Environmental Quality regulations for implementing the procedural provision of NEPA (40 CFR Parts 1500-1508), and DOE's implementing procedures for compliance with NEPA (10 CFR 1021), DOE is preparing a draft Environmental Assessment (EA) to:

- Identify any adverse environmental effects that cannot be avoided should this proposed project be implemented.
- Evaluate viable alternatives to the proposed project.
- Describe the relationship between local short-term uses of the environment and the maintenance and enhancement of long-term productivity.
- Characterize any irreversible and irretrievable commitments of resources that would be involved should this proposed project be implemented.

Issues Scoped for the Environmental Assessment

The EA will describe and analyze any potential impacts on the environment that would be caused by the project and will identify possible mitigation measures to reduce or eliminate those impacts that may result to:

- Land Use
- Air Quality
- Biological Resources
- Cultural Resources
- Noise and Odor
- Safety and Occupational Health
- Socioeconomics and Environmental Justice
- Utilities
- Traffic and Transportation
- Aesthetics



- Waste Management and Hazardous Materials
- Water Resources

Development of a Reasonable Range of Alternatives

DOE is required to consider a reasonable range of alternatives to the proposed action during an environmental review. The definition of alternatives is governed by the “rule of reason.” An EA must consider a reasonable range of options that could accomplish the agency’s purpose and need and reduce environmental effects. Reasonable alternatives are those that may be feasibly carried out based on environmental, technical, and economic factors.

The No Action Alternative will be addressed. The need for project redesign, or a project alternative, will be determined during the course of environmental review.

Public Scoping

The DOE will make this letter available to all interested federal, state, and local agencies to provide input on issues to be addressed in the EA. Agencies are invited to identify the issues, within their statutory responsibilities that should be considered in the EA. The general public is also invited to submit comments on the scope of the EA.

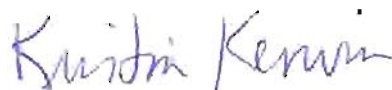
No formal public scoping meeting is currently planned for this project. This letter as well as the draft EA, when it is available, will be posted in the DOE Golden Field Office online reading room: http://www.eere.energy.gov/golden/Reading_Room.aspx.

The DOE Golden Field Office welcomes your input throughout our NEPA process. Please provide any comments on this scoping letter on or before July 2, 2010 to:

Lisa Jorgensen
NEPA Document Manager
Department of Energy
1617 Cole Boulevard
Golden, Colorado 80401
lisa.jorgensen@go.doe.gov

We look forward to hearing from you.

Sincerely,



Kristin Kerwin
NEPA Compliance Officer

Enclosure

Attachment

Myriant Succinic Acid Biorefinery (MySAB) Demonstration Facility Proposed Project and Location

The U.S. Department of Energy (DOE) is proposing to provide a grant of up to \$50 million for final design, construction, startup, and operation of the Myriant Succinic Acid Biorefinery (MySAB) Demonstration Facility (Project). The project would use a proprietary process to produce a high-valued bioproduct from renewable organic sources. The integrated, biocatalytic process has been demonstrated on a pilot scale, and this project would develop the scaling factors needed for developing commercial-sized operations. The proposed facility would be located in Lake Providence, Louisiana, in East Carroll Parish, adjacent to the Mississippi River (Figure 1).

The proposed MySAB demonstration facility would be constructed on an industrial site that was developed by the Port of Lake Providence for industrial activities (Figure 2). The site is on the west bank of the Mississippi River, within the batture lands between the mainline levee and Haganan Chute, a barge channel that serves the Port and connects to the Mississippi River approximately 1½ miles south of the Project Site. The site was created by installing a ring dike and filling it with approximately 25 feet of clean sand sourced from nearby USACE dredging operations of the navigational channel in the Mississippi River. It is accessed by Port Road (which also serves the Port of Lake Providence, approximately one mile from its intersection with US Highway 65 (US-65), approximately three miles south of Lake Providence, LA. Port Road would be paved as part of the Project.

Site development, including mass grading and pile driving, was conducted during the first phase of construction of Myriant's Bionol ethanol plant, beginning in 2005. However, construction of the Bionol ethanol plant was subsequently stopped and the effort was discontinued. In its current condition, the site is primarily open, relatively level sand with ruderal plants in low, wet areas, especially near the existing pile arrays. The site does not have direct rail access. It does have access to the Port's barge channel, but current plans call for truck transport of all materials and products.

Process water would be supplied by two onsite wells; potable water would be from the Lake Providence local water supply already available at the site. Wastewater would be treated in an onsite wastewater treatment plant (WWTP) as required to meet discharge parameters, then discharged into the main channel of the Mississippi River at an outfall located immediately downstream of Haganan Chute. Sanitary waste would be sent to the Lake Providence WWTP by a short pipeline running along Port Road, under US-65, and connecting to the force main serving the East Carroll Detention Center (ECDC). Natural gas would be supplied from a Southern Natural Gas (SNG) transmission line by an Atmos Energy distribution line running north along US-65 approximately 3 miles, crossing the mainline levee, and entering the site south of Stump Hole Lake. Electricity would be supplied by Entergy Corporation through upgrades to existing powerlines. Potential wetland impacts from utility installation would be temporary and authorized under Nationwide Permit No. 12; no mitigation would be required.

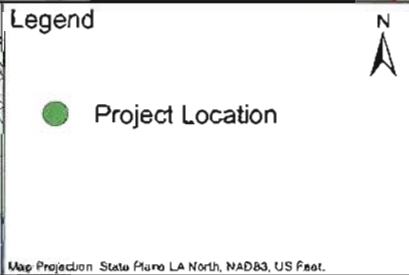
The demonstration-scale facility (Figure 3) would produce succinic acid with a capacity of 30 million pounds a year using grits from grain sorghum, a renewable feedstock. The process works on a wide variety of renewable feedstock-based sugars (including cellulosic sugars). Grain sorghum was selected as the biosource material because of its immediate local availability for use in the facility, and its low biomass handling costs. Myriant also intends to use lignocellulosic derived sugars providing additional markets for agricultural and forestry waste products.

Myriant's process for producing biobased succinic acid uses both carbon dioxide and local sorghum to displace petroleum-based feedstocks. Key processes include fermentation, separation, and recovery. Myriant's proprietary fermentation technology produces a broth with a high concentration of succinic salt. This broth is then processed through a solids separation step to remove cell mass. In product recovery the stream is separated into succinic acid and ammonium sulfate product streams and converted to marketable streams. The ammonium sulfate is sold as a fertilizer to the local market. The succinic acid is treated to produce a variety of product grades which are packaged and shipped to the customer.

The process consumes carbon dioxide as a reagent and pilot-scale data demonstrates lower energy requirements per ton of product than with a comparable petroleum-based process. By consuming carbon dioxide, the Myriant process reduces lifecycle green house gas emissions.

Succinic acid is an industrial organic chemical building block that can be used to produce plastics, clothing fibers, pigments, biodegradable solvents and other biobased chemicals. Succinic acid also is a starting or intermediate material for a number of commercially significant specialty chemicals and chemical processes and can be substituted directly into commercially existing processes. The biobased substitutes would displace imported oil that is currently used to make commercial fibers. The demonstration plant would facilitate rapid commercialization because the bio-based succinic acid is more cost effective when compared to the production of succinic acid from petroleum-based feedstocks.

- Figure 1 – Project Location Map
- Figure 2 – Plot Plan on Aerial Photograph
- Figure 3 – Detail of MySAB Facility



Myriant Succinic Acid Biorefinery

Lake Providence, LA

Project Location

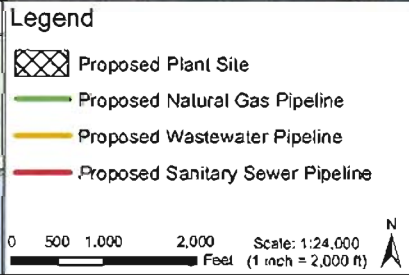
MYRIANT
TECHNOLOGIES

AECOM

Figure 1

May 18, 2010

Project #: 60141442



Myriant Succinic Acid Biorefinery
 Lake Providence, LA

Plot Plan on Aerial Photograph

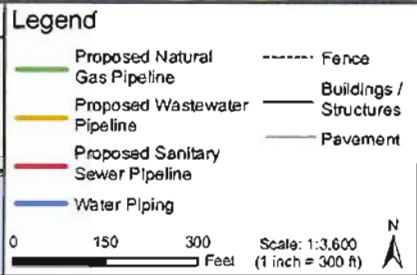
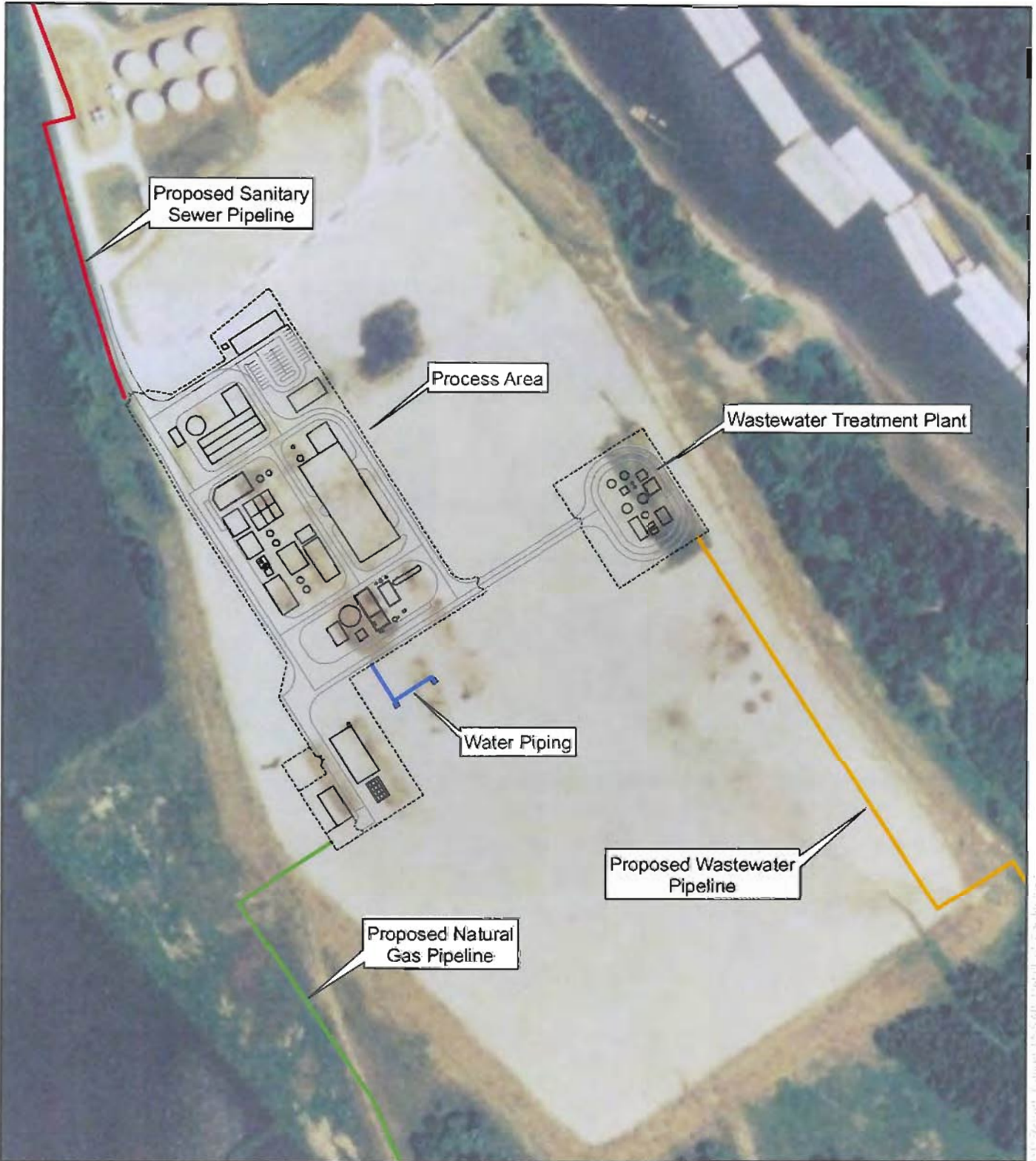
Map Projection: State Plane LA North, NAD83, US Feet.




Figure 2

Date: May 19, 2010

Project #: 60141442



Myriant Succinic Acid Biorefinery

Lake Providence, LA

Detail of MySAB Facility

Map Projection: State Plane LA North, NAD83, US Feet.

Figure 3

Date: May 19, 2010

Project #: 60141442

Organization	Street Address	City	State	Zip Code	Phone Number	Notes
Agencies						
U. S. Army Corps of Engineers (USACE) Vicksburg District	4155 E. Clay Street	Vicksburg	MS	39183-3435	601-631-5053	Branch Chief - Michael McNair
U.S. Fish & Wildlife Service (USFWS) Lafayette Ecological Services Field Office	646 Cajundome Blvd Suite 400	Lafayette	LA	70506-4290	(337) 291-3100	
Louisiana Department of Environmental Quality (LDEQ) Office of Environmental Services Permit Support Services Division	P.O. Box 4313	Baton Rouge	LA	70821-4313	(225) 219-3181	Nathan Levy, Administrator - nathan.levy@la.gov
Louisiana Department of Environmental Quality (LDEQ) Office of Environmental Services Water Permits Division	PO Box 4313	Baton Rouge	LA	70821-4313	(225) 219-3181	Melvin C. Mitchell, Administrator
Louisiana Department of Natural Resources (LDNR)	P.O. Box 94396	Baton Rouge	LA	70804-9396	(225) 342-4500	
Louisiana Department of Culture, Recreation, and Tourism (LACRT) Office of Historic Preservation	P.O. Box 44247	Baton Rouge	LA	70804	(225) 342-8160	hp@crt.state.la.us
Louisiana Department of Wildlife and Fisheries (LDWF)	2000 Quail Drive	Baton Rouge	LA	70808	(225) 765-2800	
Fifth Louisiana Levee District - Phillip B. Brown	1966 Island Point Drive	Lake Providence	LA	71254	(318) 559-2090	
Fifth Louisiana Levee District - Reynold S Minsky	506 Island Point Drive	Lake Providence	LA	71254	(318) 282-9905	
Louisiana Department of Transportation and Development (DOTD)	1201 Capitol Access Road PO Box 94245	Baton Rouge	LA	70804-9245	(225) 379-1232	
Media Outlets						
Lake Providence Newspaper Banner-Democrat	313 Lake Street	Lake Providence	LA	71254	(318) 559-2750	
Lake Providence Parks and Recreation Department	612 Jackson Street	Lake Providence	LA	71254		Director: Robert Russell
KLPL 1050 AM Owner: Willis Broadcasting Corporation	645 Church Street, #400	Norfolk	VA	23510	(757) 622-4600	

Organization	Street Address	City	State	Zip Code	Phone Number	Notes
KLPL 92.7 FM Owner: Willis Broadcasting Corporation	645 Church Street, #400	Norfolk	VA	23510	(757) 622-4600	Local Phone Number: (318) 559-2340
NGOs						
Alliance to Save Energy	1850 M Street NW, Suite 600	Washington	DC	20036	202-857-0666	Contact: Kateri Callahan
American Association of Blacks in Energy	1625 K Street NW, Suite 405	Washington	DC	20006	202-371-9530	Contact: Frank M. Stewart
Audubon Society	285 Plains Road	Holly Springs	MS	38635	662-252-1155	
National Wildlife Federation	901 E Street NW, Suite 400	Washington	DC	20004	202-797-6800	Contact: Jim Lyon
Nature Conservancy	4245 N Fairfax Drive	Arlington	VA	22203	703-841-4527	Contact: Thomas Cassidy
Union of Concerned Scientists	1707 H Street NW, Suite 600	Washington	DC	20006	202-223-6133	Contact: Alden Meyer
Mississippi Association of Conservation Districts	PO Box 23005	Jackson	MS	39225	601-354-7645	
Mississippi Band of Choctaw Indians	101 Industrial Road	Choctaw	MS	39350	601-656-5251	
Citizens for Clean Energy, Inc.	3417 4th Avenue S	Great Falls	MT	59405	406-453-0725	Contact: Richard Liebert
Institute for Energy and Environmental Research	6935 Laurel Avenue, Suite 201	Takoma Park	MD	20912	301-270-5500	
United States Energy Association	1300 Pennsylvania Avenue NW, Suite 500, MB 142	Washington	DC	20004	202-312-1230	
Project Stakeholders						
Lake Providence Port Commission	409 Port Road	Lake Providence	LA	71254-9801	318-559-2365	Contact: Wyly Gilfoil Port Director
Banknorth	101 Post Road East, 1st Floor	Westport	CT	06880		Contact: Jerome P. Peters Senior Vice President
CH2MHill	215 S. State Street, Suite 1000	Salt Lake City	UT	84111	801-350-5200	Contact: Charles M. McCleskey Vice President
ADM Milling Company	8000 110th Street	Overland Park	KS	66210	913-491-9400	Contact: Brian L. Forster Group Commercial Manager

Organization	Street Address	City	State	Zip Code	Phone Number	Notes
Airgas, Inc.	2530 Sever Road, Suite 300	Lawrenceville	GA	30043	770-717-2210	Contact: Bruce Woerner
Davy Process Technology Ltd	10 Eastbourne Terrace	London		W2 6LG	+44 (0)207 957 4120	Contact: A.G. Hiles Senior Vice President
The Dow Chemical Company		Midland	MI			Contact: Steve Tuttle
Key Chemical, Inc.	9503 Dovewood Place	Waxhaw	NC	28173	704-843-9873	Contact: Steve V. Norris President
Adjacent Landowners						
Raley Transport, Inc.	487 Port Road	Lake Providence	LA	71254	318-552-8801	
Bunge North America., Inc.	337 Port Road	Lake Providence	LA	71254	318-559-2175	
Terral River Service, Inc.	378 Port Road	Lake Providence	LA	71254	318-559-1500	
Local Government						
Lake Providence Chamber of Commerce	600 Lake Street	Lake Providence	LA	71254-2524	(318) 559-5125	
Mayor Isaac Fields, Jr.	201 Sparrow Street	Lake Providence	LA	71254	(318) 559-2288	
East Carroll Parish Library	109 Sparrow Street	Lake Providence	LA	71254-2645	318-559-2615	Contact: Renée Whatley Director
Tribal Leaders						
Avogel Tribe of Louisiana, Inc	P. O. Box 1007	Duson	LA	70529		Contact: John Mayeaux Tribal Chief
Biloxi-Chitimacha Confederation of Muskogee Indians	1112 Daisy Street	Houma	LA	70363-6738		Contact: Randy Verdun Tribal Chair
Caddo Adais Indians, Inc.	4500 Highway 485	Robeline	LA	71469		Contact: Rufus Davis, Jr. Chief
Chitimacha Indian Tribe	P.O. Box 661	Charenton	LA	70523		Contact: Alton LeBlanc Chairman
Choctaw-Apache Community of Ebarb, Inc.	P.O. Box 858 15260 Highway 171	Zwolle	LA	71486		Chairman: Tommy Bolton Chairman
Clifton Choctaw Reservation, Inc.	1146 Clifton Road	Clifton	LA	71447-4015		Contact: Roy Tyler Tribal Chairman
Coushatta Indian Tribe	P.O. Box 818	Elton	LA	70532		Contact: Lovelin Poncho Chairman
Four Winds Tribe Louisiana Cherokee Confederacy	190 Lakeshore Drive	Leesville	LA	71446		Contact: R. Blackwell Principal Chief

Organization	Street Address	City	State	Zip Code	Phone Number	Notes
Jena Band of Choctaw Indians	P.O. Box 14	Jena	LA	71342-		Contact: Beverly S. Smith Chief
Point Au Chien Indian Tribe	P.O. Box 141	Gretna	LA	70054-0141		Contact: Steve Cheramie Tribal Chairman
Talimali Band of the Apalachee Indians of Louisiana	P.O. Box 84	Libuse	LA	71348-		Contact: Gilmer Bennet Chief
Tunica-Biloxi Tribe	P.O. Box 331	Marksville	LA	71351-		Contact: Earl Barbry Chairman
United Houma Nation, Inc.	20986 Highway 1	Golden Meadow	LA	70357-		Contact: Brenda Dardar Tribal Chairwoman

WILLIAMS RESEARCH

John Williams, Principal Researcher

19815 NW Nestucca Dr

Portland OR 97229

503-439-9028

Fax-503-533-4082

John.williams3@comcast.net

RE: Public Scoping for Myriant Succinic Acid Biorefinery, Lake Providence, Louisiana
(DOE/EA 1787)

Dear Ms. Jorgensen:

I am a consultant to the Concerned Citizens for Clean Air, a group of persons whose members and supporters live with their families, and work in and near the vicinity of the proposed Myriant Succinic Acid plant.

The Citizens submit the following concerns for scoping of the NEPA analysis for this project.

An EIS should be required and public meetings should be held in the affected community. This project has the potential to cause and contribute to significant odors, elevated levels of air pollution, dangers of fire and explosion, toxic material releases, and unstated, large amounts of water usage.

This project will consume \$50 million in taxpayer funds which is a significant amount. Its proximity to riparian areas means it is probably built on filled wetlands and any spills will rapidly infiltrate into groundwater. It will discharge waste water directly to the Mississippi River.

The production process consumes natural gas so it will produce air emissions. There will be considerable truck traffic hauling in feedstock and removing finished products. It will likely cause increased demand for sorghum which will consume farmland, fertilizer, and water and will increase air and water pollution caused by agricultural activities.

The initial EA should comprehensively describe these impacts, including the amounts and types of air pollution, the quality and quantity of water, the acreages of sorghum needed to supply the facility, the amounts of water and fertilizer and heavy equipment operation needed to grow and harvest sorghum, the types of chemicals used at the facility and their amounts, the likely impacts of any spill and releases, the numbers of likely truck trips to and from this plant, the condition of the roads to the facility and the likely traffic impacts, including but not limited to road damage and public safety

AIR EMISSIONS

Please describe all sources of air pollution from this facility, including crushers, conveyors, storage piles, silos, fermentation tanks, gasifier units, heaters, boilers, flares,

loading facilities and other direct and indirect sources, the likely resulting emissions in ton/year and parts per million, and the cumulative impacts.

FIRE AND EXPLOSION

Any flammable materials used at the site, and the method to transport, store, and dispose of those materials, should be closely described.

Please describe how the facility and local emergency responders will be equipped to deal with fires and explosions, including training in use of foam fire retardants, and special equipment to apply foam to ethanol and other fires. Please include discussion of the likely impacts of transport-related fires and explosions during transport of feedstock chemicals into, and finished products out of this facility.

TOXICS

Please describe the toxicity of all raw materials used at the plant, and the finished products. Please describe the cradle to grave life handling of these materials while coming to, residing at, and leaving the plant, including measures taken to prevent toxic releases.

WATER

Please describe the water source and quantity used, any water treatment prior to usage, the water quality after usage, the destiny of the water discharges, and subsequent treatment.

Please notify me when the EA is published, and let me know of future public review opportunities including meetings.

Yours, John Williams



NOTICE OF AVAILABILITY

The U.S. Department of Energy (DOE) has prepared a draft Environmental Assessment (EA) and Notice of Wetlands Involvement to analyze and describe the potential environmental impacts associated with the:

Myriant Lake Providence, LLC
Myriant Succinic Acid Biorefinery (MySAB)
Port of Lake Providence, Louisiana
DOE/EA 1787

DOE's Golden Field Office has prepared an EA in accordance with the National Environmental Policy Act (NEPA). Myriant Lake Providence, LLC, is proposing to construct and operate a demonstration-scale facility to convert grain sorghum grits and lingo cellulosic feedstock to succinic acid in Lake Providence, Louisiana, in East Carroll Parish, adjacent to the Mississippi River. The project would use a proprietary process to produce a high-valued bioproduct from renewable organic sources. The proposed project would receive Federal funding from DOE under the American Recovery and Reinvestment Act of 2009. The draft EA is available for review on the DOE Golden Field Office website:

http://www.eere.energy.gov/golden/Reading_Room.aspx

Public comments on the results of the environmental impacts of implementing the proposed action will be accepted until **September 16, 2010**. Please mail comments to the **DOE Golden Field Office**, c/o: Lisa Jorgensen, 1617 Cole Boulevard, Golden, CO 80401, or by email to lisa.jorgensen@go.doe.gov.



NOTICE OF PROPOSED FLOODPLAIN ACTION

The U.S. Department of Energy (DOE) has prepared a floodplain assessment to analyze the potential floodplain impacts associated with the:

Myriant Succinic Acid Biorefinery Project Lake Providence, East Carroll Parish, Louisiana

The floodplain assessment was prepared in accordance with 10 CFR Part 1022- Compliance with Floodplain/Wetlands Environmental Review Requirements. Myriant Lake Providence, LLC, is proposing to use Federal funding to construct and operate a demonstration-scale facility to convert grain sorghum grits and lingo-cellulosic feedstock to succinic acid on an industrial site in Lake Providence, Louisiana. The proposed project would receive Federal funding from DOE under the American Recovery and Reinvestment Act of 2009. While the biorefinery would not be located in the 100-year floodplain, the utility lines to support the facility would be constructed in the Mississippi River Floodplain. Construction of the pipelines would comply with the requirements of the U.S. Army Corp of Engineers Nationwide Permit (12) *Utility Line Activities*, if applicable. The floodplain assessment is contained in Environmental Assessment (DOE/EA 1787) which can be found on the DOE Golden Field Office website at: http://www.eere.energy.gov/golden/Reading_Room.aspx

Public comments on the proposed floodplain action will be accepted until November 18, 2010. Please mail comments to the **DOE Golden Field Office**, c/o: Lisa Jorgensen, 1617 Cole Boulevard, Golden, CO 80401, or by email to lisa.jorgensen@go.doe.gov.

Notice of Availability and Notice of Proposed Floodplain Action Mailing List

Organization	Street Address	City	State	Zip Code	Phone Number	Notes	Reason for Inclusion
Agencies							
U. S. Army Corps of Engineers (USACE) Vicksburg District	4155 E. Clay Street	Vicksburg	MS	39183-3435	601-631-5053	Brian LaBarre	
U.S. Fish & Wildlife Service (USFWS) Lafayette Field Office	646 Cajundome Blvd Suite 400	Lafayette	LA	70506	(337) 291-3100	Brad Rieck, Deputy Supervisor	Received Response
U.S. Fish & Wildlife Service (USFWS) Lafayette Field Office	646 Cajundome Blvd Suite 400	Lafayette	LA	70506	(337) 291-3100	Mr. Jim Boggs, Field Supervisor	Sent Consultation Letter
Louisiana Department of Environmental Quality (LDEQ) Performance Management	P.O. Box 4303	Baton Rouge	LA	70821-4303	(225) 219-4079	Diane Hewitt	Received Response
Office of the Secretary Louisiana Department of Environmental Quality (LDEQ)	P.O. Box 4301	Baton Rouge	LA	70821-4301	(225) 219-3953	Ms. Peggy Hatch, Secretary	
DHS/FEMA Region VI	800 North Loop 288	Denton	TX	76201-3698	940-383-7524	Ms. Terry Lukes, Deputy Regional Environmental Officer	
Louisiana Department of Natural Resources (LDNR)	P.O. Box 94396	Baton Rouge	LA	70804-9396	(225) 342-4500		
State of Louisiana Louisiana Department of Culture, Recreation, and Tourism Office of Historic Preservation	P.O. Box 44247	Baton Rouge	LA	70804-4247	(225) 342-8160	Phil Boggan, Deputy Historic Preservation Officer	Sent Consultation Letter, Received Response
Louisiana Department of Wildlife and Fisheries (LDWF)	2000 Quail Drive	Baton Rouge	LA	70808	(225) 765-2800	Mr. Kyle F. Balkum, Biologist Program Manager, Habitat Section	Sent Consultation Letter
Fifth Louisiana Levee District - Phillip B. Brown	1966 Island Point Drive	Lake Providence	LA	71254	(318) 559-2090		
Fifth Louisiana Levee District - Reynold S Minsky	506 Island Point Drive	Lake Providence	LA	71254	(318) 282-9905		
Office of the Governor Attention: Constituent Services	PO Box 94004	Baton Rouge	LA	70804-9004	225-342-7015	Bobby Jindal, Governor of Louisiana	
Louisiana Department of Transportation and Development (DOTD)	1201 Capitol Access Road PO Box 94245	Baton Rouge	LA	70804-9245	(225) 379-1232		
Media Outlets							
Lake Providence Newspaper Banner-Democrat	313 Lake Street	Lake Providence	LA	71254	(318) 559-2750		
Lake Providence Parks and Recreation Department	612 Jackson Street	Lake Providence	LA	71254		Robert Russell, Director	
KLPL 1050 AM Owner: Willis Broadcasting Corporation	645 Church Street, #400	Norfolk	VA	23510	(757) 622-4600		
KLPL 92.7 FM Owner: Willis Broadcasting Corporation	645 Church Street, #400	Norfolk	VA	23510	(757) 622-4600	Local Phone Number: (318) 559-2340	
NGOs							
Alliance to Save Energy	1850 M Street NW, Suite 600	Washington	DC	20036	202-857-0666	Kateri Callahan	The Alliance requests only information regarding energy conservation, utility regulations and energy efficiency.
American Association of Blacks in Energy	1625 K Street NW, Suite 405	Washington	DC	20006	202-371-9530	Frank M. Stewart	The Association is interested in all forms of energy, including fossil, nuclear, and water, as well as environmental justice issues.
Audubon Society	285 Plains Road	Holly Springs	MS	38635	662-252-1155		The organization is interested in documents pertaining to wildlife and habitat conservation and environmental management and restoration.
National Wildlife Federation	901 E Street NW, Suite 400	Washington	DC	20004	202-797-6800	Jim Lyon	
Nature Conservancy	4245 N Fairfax Drive	Arlington	VA	22203	703-841-4527	Thomas Cassidy	

Notice of Availability and Notice of Proposed Floodplain Action Mailing List

Organization	Street Address	City	State	Zip Code	Phone Number	Notes	Reason for Inclusion
Union of Concerned Scientists	1707 H Street NW, Suite 600	Washington	DC	20006	202-223-6133	Alden Meyer	The Union of Concerned Scientists is interested in climate change, renewable energy, and energy efficiency programs, and nuclear nonproliferation, stockpile stewardship, fissile materials, and other DOW programs relating to nuclear arms control.
Mississippi Association of Conservation Districts	PO Box 23005	Jackson	MS	39225	601-354-7645		
Citizens for Clean Energy, Inc.	3417 4th Avenue S	Great Falls	MT	59405	406-453-0725	Richard Liebert	
Institute for Energy and Environmental Research	6935 Laurel Avenue, Suite 201	Takoma Park	MD	20912	301-270-5500		The Institute is interested in issues concerning defense programs, radioactive waste, environmental management, renewable energy, nuclear weapons complex sites, environmental health and safety issues, and worker health and safety. The Institute is not interested in receiving Naval Petroleum Reserve-related NEPA documents.
United States Energy Association	1300 Pennsylvania Avenue NW, Suite 500, MB 142	Washington	DC	20004	202-312-1230		
Williams Research	19815 NW Nestucca Dr.	Portland	OR	97229	503-533-4082	John Williams	
Project Stakeholders							
Lake Providence Port Commission	409 Port Road	Lake Providence	LA	71254-9801	318-559-2365	Wyly Gilfoil Port Director	Financial Support
Banknorth	101 Post Road East, 1st Floor	Westport	CT	06880		Jerome P. Peters Senior Vice President	Financial Support
CH2MHill	215 S. State Street, Suite 1000	Salt Lake City	UT	84111	801-350-5200	Charles M. McCleskey Vice President	Engineering Partner
ADM Milling Company	8000 110th Street	Overland Park	KS	66210	913-491-9400	Brian L. Forster Group Commercial Manager	Suppliers
Airgas, Inc.	2530 Sever Road, Suite 300	Lawrenceville	GA	30043	770-717-2210	Bruce Woerner	Suppliers
Davy Process Technology Ltd	10 Eastbourne Terrace	London		W2 6LG	+44 (0)207 957 4120	A.G. Hiles Senior Vice President	Purchasers
The Dow Chemical Company		Midland	MI			Steve Tuttle	Purchasers
Key Chemical, Inc.	9503 Dovewood Place	Waxhaw	NC	28173	704-843-9873	Steve V. Norris President	Purchasers
Adjacent Landowners							
Raley Transport, Inc.	487 Port Road	Lake Providence	LA	71254	318-552-8801		Adjacent landowner
Bunge North America., Inc.	337 Port Road	Lake Providence	LA	71254	318-559-2175		Adjacent landowner
Terral River Service, Inc.	378 Port Road	Lake Providence	LA	71254	318-559-1500		Adjacent landowner
Local Government							
Lake Providence Chamber of Commerce	600 Lake Street	Lake Providence	LA	71254-2524	(318) 559-5125		
Mayor Isaac Fields, Jr.	201 Sparrow Street	Lake Providence	LA	71254	(318) 559-2288		
East Carroll Parish Library	109 Sparrow Street	Lake Providence	LA	71254-2645	318-559-2615	Renée Whatley Director	
Tribal Leaders							
Avogel Tribe of Louisiana, Inc	P. O. Box 1007	Duson	LA	70529		John Mayeaux, Tribal Chief	
Biloxi-Chitimacha Confederation of Muskogee Indians	1112 Daisy Street	Houma	LA	70363-6738		Randy Verdun, Tribal Chair	
Mississippi Band of Choctaw Indians	101 Industrial Road	Choctaw	MS	39350	601-656-5251		
Chitimacha Indian Tribe	P.O. Box 661	Charenton	LA	70523-0661		Mr. John Paul Darden, Chairman	Sent Consultation Letter
Choctaw-Apache Community of Ebarb, Inc.	P.O. Box 858 15260 Highway 171	Zwolle	LA	71486		Tommy Bolton, Chairman	

Notice of Availability and Notice of Proposed Floodplain Action Mailing List

Organization	Street Address	City	State	Zip Code	Phone Number	Notes	Reason for Inclusion
Clifton Choctaw Reservation, Inc.	1146 Clifton Road	Clifton	LA	71447-4015		Roy Tyler, Tribal Chairman	
Coushatta Indian Tribe	P.O. Box 818	Elton	LA	70532		Mr. Kevin Sickey, Chairman	Sent Consultation Letter
Four Winds Tribe Louisiana Cherokee Confederacy	190 Lakeshore Drive	Leesville	LA	71446		R. Blackwell, Principal Chief	
Jena Band of Choctaw Indians	P.O. Box 14	Jena	LA	71342-0014		Ms. Christine Norris, Principal Chief	Sent Consultation Letter
Point Au Chien Indian Tribe	P.O. Box 141	Gretna	LA	70054-0141		Steve Cheramie, Tribal Chairman	
Talimali Band of the Apalachee Indians of Louisiana	P.O. Box 84	Libuse	LA	71348-		Gilmer Bennet, Chief	
Tunica-Biloxi Tribe of Louisiana	P.O. Box 1589	Marksville	LA	71351-2589		Earl Barbry, Senior Chairman Chairman	Sent Consultation Letter
United Houma Nation, Inc.	20986 Highway 1	Golden Meadow	LA	70357-		Brenda Dardar, Tribal Chairwoman	

Subject:

FW: DEQ SOV 101109/2325 USDOE-Proposed Floodplain Action

From: Beth Altazan-Dixon [<mailto:Beth.Dixon@LA.GOV>]
Sent: Thursday, November 18, 2010 2:56 PM
To: Jorgensen, Lisa
Subject: DEQ SOV 101109/2325 USDOE-Proposed Floodplain Action

November 18, 2010

Lisa Jorgensen, NEPA Doc. Mgr.

DOE Golden Field Office

1617 Cole Boulevard

Golden, CO 80401

lisa.jorgensen@go.doe.gov <<mailto:lisa.jorgensen@go.doe.gov>>

RE: 101109/2325

USDOE-Proposed Floodplain Action

Myriant Succinic Acid Biorefinery Project

East Carroll Parish

Dear Ms. Jorgensen:

The Department of Environmental Quality (LDEQ), Business and Community Outreach Division has received your request for comments on the above referenced project.

After reviewing your request, the department has no objections based on the information provided in your submittal. However, for your information, the following general comments have been included. Please be advised that if you should encounter a problem during the implementation of this project, you should immediately notify LDEQ's Single-Point-of-contact (SPOC) at (225) 219-3640.

• Please take any necessary steps to obtain and/or update all necessary approvals and environmental permits regarding this proposed project.

* If your project results in a discharge to waters of the state, submittal of a Louisiana Pollutant Discharge Elimination System (LPDES) application may be necessary.

* If the project results in a discharge of wastewater to an existing wastewater treatment system, that wastewater treatment system may need to modify its LPDES permit before accepting the additional wastewater.

* All precautions should be observed to control nonpoint source pollution from construction activities. LDEQ has stormwater general permits for construction areas equal to or greater than one acre. It is recommended that you contact the LDEQ Water Permits Division at (225) 219-3181 to determine if your proposed project requires a permit.

. If your project will include a sanitary wastewater treatment facility, a Sewage Sludge and Biosolids Use or Disposal Permit application or Notice of Intent must be submitted no later than June 1, 2011. Additional information may be obtained on the LDEQ website at <http://www.deq.louisiana.gov/portal/tabid/2296/Default.aspx> <<http://www.deq.louisiana.gov/portal/tabid/2296/Default.aspx>> or by contacting the LDEQ Water Permits Division at (225) 219- 3181.

* If any of the proposed work is located in wetlands or other areas subject to the jurisdiction of the U.S. Army Corps of Engineers, you should contact the Corps directly regarding permitting issues. If a Corps permit is required, part of the application process may involve a water quality certification from LDEQ.

* All precautions should be observed to protect the groundwater of the region.

* Please be advised that water softeners generate wastewaters that may require special limitations depending on local water quality considerations. Therefore if your water system improvements include water softeners, you are advised to contact the LDEQ Water Permits to determine if special water quality-based limitations will be necessary.

* Any renovation or remodeling must comply with LAC 33:III.Chapter 28, Lead-Based Paint Activities; LAC 33:III.Chapter 27, Asbestos-Containing Materials in Schools and State Buildings (includes all training and accreditation); and LAC 33:III.5151, Emission Standard for Asbestos for any renovations or demolitions.

* If any solid or hazardous wastes, or soils and/or groundwater contaminated with hazardous constituents are encountered during the project, notification to LDEQ's Single-Point-of-Contact (SPOC) at (225) 219-3640 is required. Additionally, precautions should be taken to protect workers from these hazardous constituents.

Currently, East Carroll Pa <<image001.png>> rish is classified as attainment with the National Ambient Air Quality Standards and has no general conformity determination obligations.

Please send all future requests to my attention. If you have any questions, please feel free to contact me at (225) 219-3958 or by email at beth.dixon@la.gov <<mailto:beth.dixon@la.gov>> .

Sincerely,

Beth Altazan-Dixon

Performance Management

LDEQ/Business and Community Outreach Division Office of the Secretary

P.O. Box 4301 (602 N. 5th Street)

Baton Rouge, LA 70821-4301

Phone: 225-219-3958

Fx: 225-325-8148

Email: beth.dixon@la.gov

Appendix B
Agency Correspondence



Department of Energy

Golden Field Office
1617 Cole Boulevard
Golden, Colorado 80401-3393

June 24, 2010

Mr. Earl J. Barbry, Sr., Chairman
Tunica-Biloxi Tribe of Louisiana
P.O. Box 1589
Marksville, LA 71351-2589

Dear Mr. Barbry,

The U. S. Department of Energy is proposing to provide Federal funding to the Myriant Succinic Acid Biorefinery (MySAB) at the Port of Lake Providence, Louisiana in East Carroll Parish (Figure 1). The funds would provide for final design, construction, startup and operation of a demonstration project and develop scaling factors for developing commercial-sized operations.

The proposed MySAB demonstration facility would be constructed on an industrial site that was developed by the Port of Lake Providence for industrial activities (Figures 2 and 3). The prospective site is approximately 2.5 miles south of the town of Lake Providence. It lies on the west bank of the Mississippi River, and within the batture lands between the mainland levee and Haganan Chute, a barge channel that serves the Port and connects to the Mississippi River approximately 1.5 miles south of the proposed site. The proposed site is accessed by Port Road, about three miles south of Lake Providence. Port Road would be paved as part of the project.

Myriant's proprietary process would produce up to 30 million pounds a year of succinic acid using grits from grain sorghum. Succinic acid is a chemical building block that has numerous uses including as a flavoring agent for food and beverages and in the production of commercial fibers, plastics, fuel additives, certain medicines, and a variety of biobased specialty chemicals.

Development at the prospective site was begun for another project in 2005 but subsequently halted. The proposed site has been filled with 25 feet of clean sand from a U.S. Army Corps of Engineering dredging project and, therefore, there is minimal potential for intact cultural resources. A planned natural gas pipeline would cross wetlands, resulting in some temporary disturbance to less than one-half acre of wetlands, which would be restored to pre-construction grades. The pipeline will occupy an existing transportation right-of-way through agricultural lands. These historical ground-disturbing events are unlikely to have disrupted any cultural resources.

An environmental assessment (EA) is currently being prepared for the proposed biorefinery by the Department's Golden Field Office to meet the requirements of the *National Environmental Policy Act*.

DOE is initiating consultation and requesting information your tribe may have on properties of traditional religious and cultural significance within the vicinity of the proposed facility and any comments or concerns you have on the potential for this proposed project to affect those properties. This information is being requested to aid in the preparation of that EA and to meet



our obligations under Section 106 of the National Historic Preservation Act and the Native American Graves Protection and Repatriation Act of 1990. If you have any such information, require additional information, or have any questions or comments about that project, please contact Ms. Lisa Jorgensen of the Golden Field Office as soon as possible at the following:

Ms. Lisa Jorgensen
NEPA Document Manager
U.S. Department of Energy
Golden Field Office
1617 Cole Boulevard
Golden, Colorado 80401-3305
Email: lisa.jorgenson@go.doe.gov

DOE will include correspondence with your tribe in an appendix to the EA. DOE will send a Notice of Availability for the draft EA, when available, to your office and respond to any specific comments you may have. At this time we anticipate a 15-day public comment period for this proposed project.

Please provide your comments within 30-days of receipt of this letter. Thank you in advance for your consideration.

Sincerely,

A handwritten signature in black ink that reads "Lisa Jorgensen". The signature is fluid and cursive, with the first name "Lisa" written in a larger, more prominent script than the last name "Jorgensen".

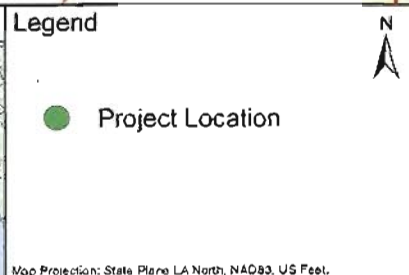
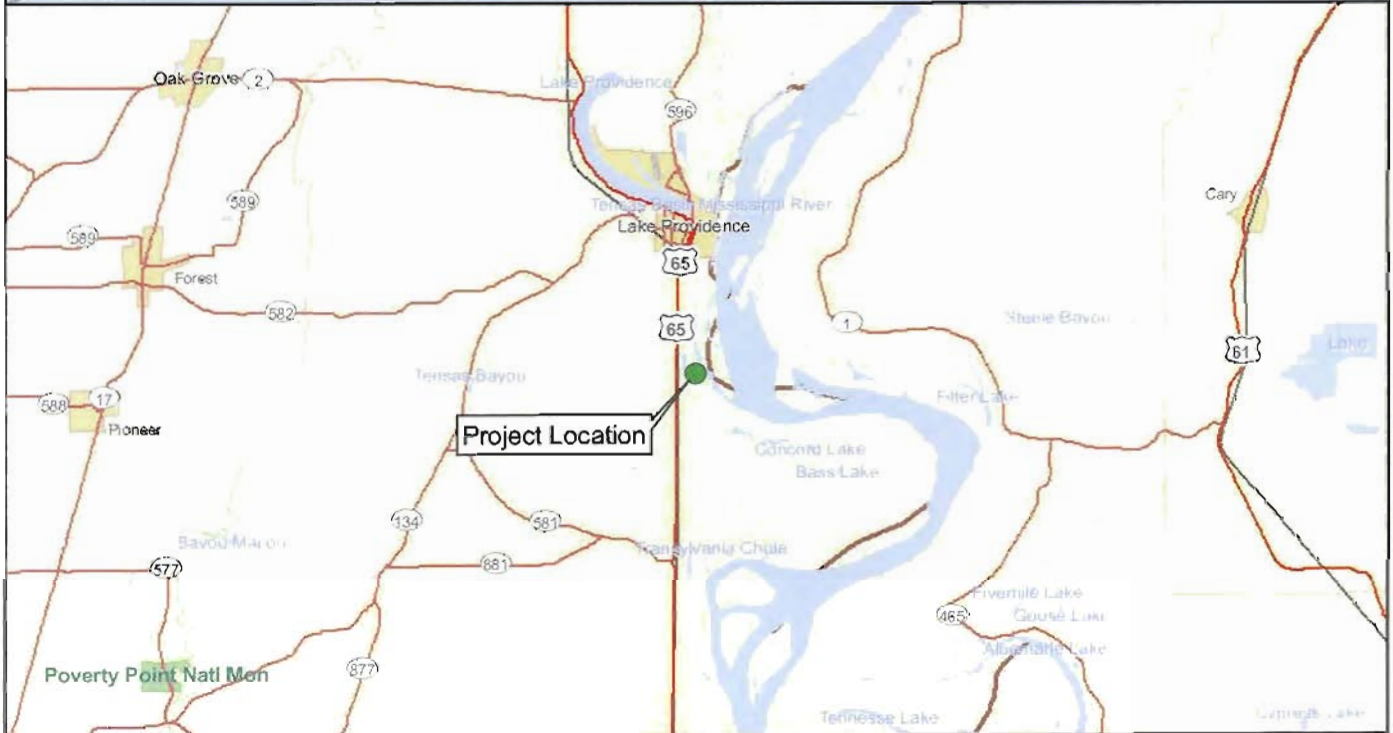
Lisa Jorgensen

NEPA Document Manager

Attachments

- Figure 1. Project Location
- Figure 2. Plot Plan on Aerial Photograph
- Figure 3. Detail of MySAB Facility

CC: Mr. Earl J. Barbry, Jr.
Tribal Historic Preservation Officer
Tunica-Biloxi Tribe of Louisiana
P.O. Box 1589
Marksville, LA 71351-2589



Myriant Succinic Acid Biorefinery

Lake Providence, LA

Project Location

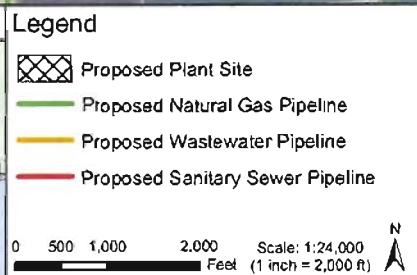
MYRIANT
TECHNOLOGIES

AECOM

Figure 1

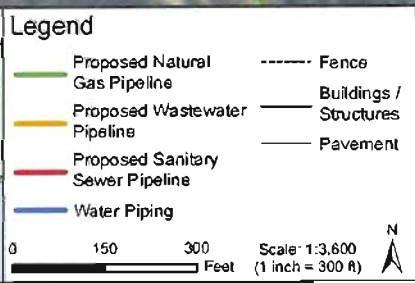
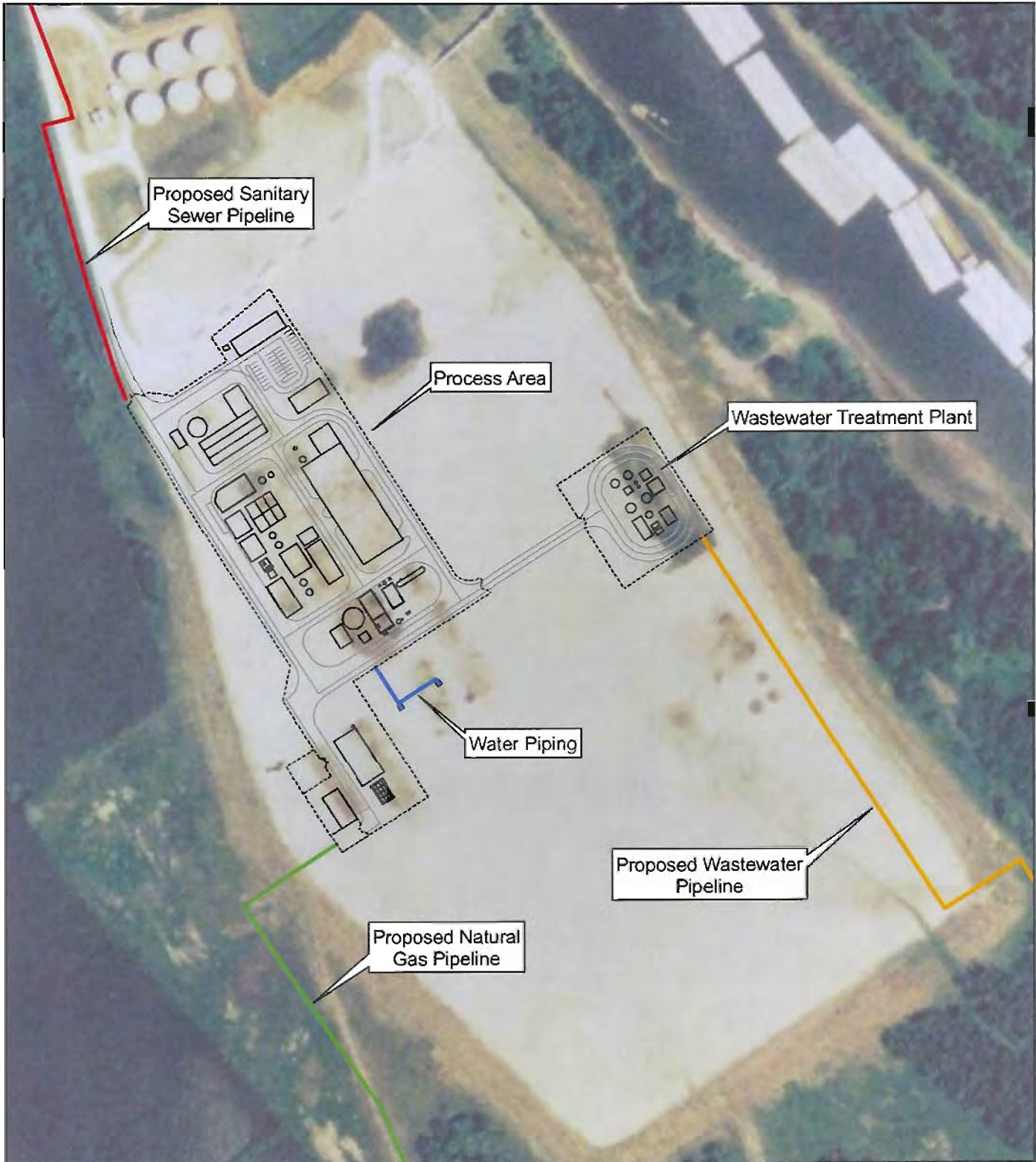
May 18, 2010

Project #: 60141442



Myriant Succinic Acid Biorefinery
 Lake Providence, LA
 Plot Plan on Aerial Photograph
 Map Projection: State Plane LA North, NAD83, US Feet.

Figure 2
 Date: May 19, 2010
 Project #: 60141442



Myriant Succinic Acid Biorefinery

Lake Providence, LA

Detail of MySAB Facility

MYRIANT
TECHNOLOGIES

AECOM

Figure 3

Date: May 19, 2010

Project #: 60141442



Department of Energy

Golden Field Office
1617 Cole Boulevard
Golden, Colorado 80401-3393

June 24, 2010

Mr. John Paul Darden, Chairman
Chimtimacha Tribe of Louisiana
P.O. Box 661
Charenton, LA 70523-0661

Dear Mr. Darden,

The U. S. Department of Energy is proposing to provide Federal funding to the Myriant Succinic Acid Biorefinery (MySAB) at the Port of Lake Providence, Louisiana in East Carroll Parish (Figure 1). The funds would provide for final design, construction, startup and operation of a demonstration project and develop scaling factors for developing commercial-sized operations.

The proposed MySAB demonstration facility would be constructed on an industrial site that was developed by the Port of Lake Providence for industrial activities (Figures 2 and 3). The prospective site is approximately 2.5 miles south of the town of Lake Providence. It lies on the west bank of the Mississippi River, and within the batture lands between the mainland levee and Hagaman Chute, a barge channel that serves the Port and connects to the Mississippi River approximately 1.5 miles south of the proposed site. The proposed site is accessed by Port Road, about three miles south of Lake Providence. Port Road would be paved as part of the project.

Myriant's proprietary process would produce up to 30 million pounds a year of succinic acid using grits from grain sorghum. Succinic acid is a chemical building block that has numerous uses including as a flavoring agent for food and beverages and in the production of commercial fibers, plastics, fuel additives, certain medicines, and a variety of biobased specialty chemicals.

Development at the prospective site was begun for another project in 2005 but subsequently halted. The proposed site has been filled with 25 feet of clean sand from a U.S. Army Corps of Engineering dredging project and, therefore, there is minimal potential for intact cultural resources. A planned natural gas pipeline would cross wetlands, resulting in some temporary disturbance to less than one-half acre of wetlands, which would be restored to pre-construction grades. The pipeline will occupy an existing transportation right-of-way through agricultural lands. These historical ground-disturbing events are unlikely to have disrupted any cultural resources.

An environmental assessment (EA) is currently being prepared for the proposed biorefinery by the Department's Golden Field Office to meet the requirements of the *National Environmental Policy Act*.

DOE is initiating consultation and requesting information your tribe may have on properties of traditional religious and cultural significance within the vicinity of the proposed facility and any comments or concerns you have on the potential for this proposed project to affect those properties. This information is being requested to aid in the preparation of that EA and to meet



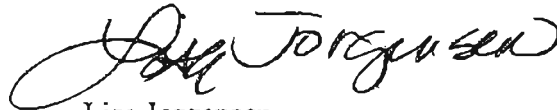
our obligations under Section 106 of the National Historic Preservation Act and the Native American Graves Protection and Repatriation Act of 1990. If you have any such information, require additional information, or have any questions or comments about that project, please contact Ms. Lisa Jorgensen of the Golden Field Office as soon as possible at the following:

Ms. Lisa Jorgensen
NEPA Document Manager
U.S. Department of Energy
Golden Field Office
1617 Cole Boulevard
Golden, Colorado 80401-3305
Email: lisa.jorgenson@go.doe.gov

DOE will include correspondence with your tribe in an appendix to the EA. DOE will send a Notice of Availability for the draft EA, when available, to your office and respond to any specific comments you may have. At this time we anticipate a 15-day public comment period for this proposed project.

Please provide your comments within 30-days of receipt of this letter. Thank you in advance for your consideration.

Sincerely,

A handwritten signature in black ink, appearing to read "Lisa Jorgensen", written in a cursive style.

Lisa Jorgensen

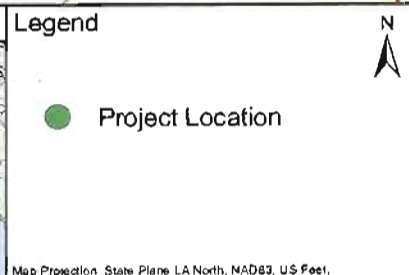
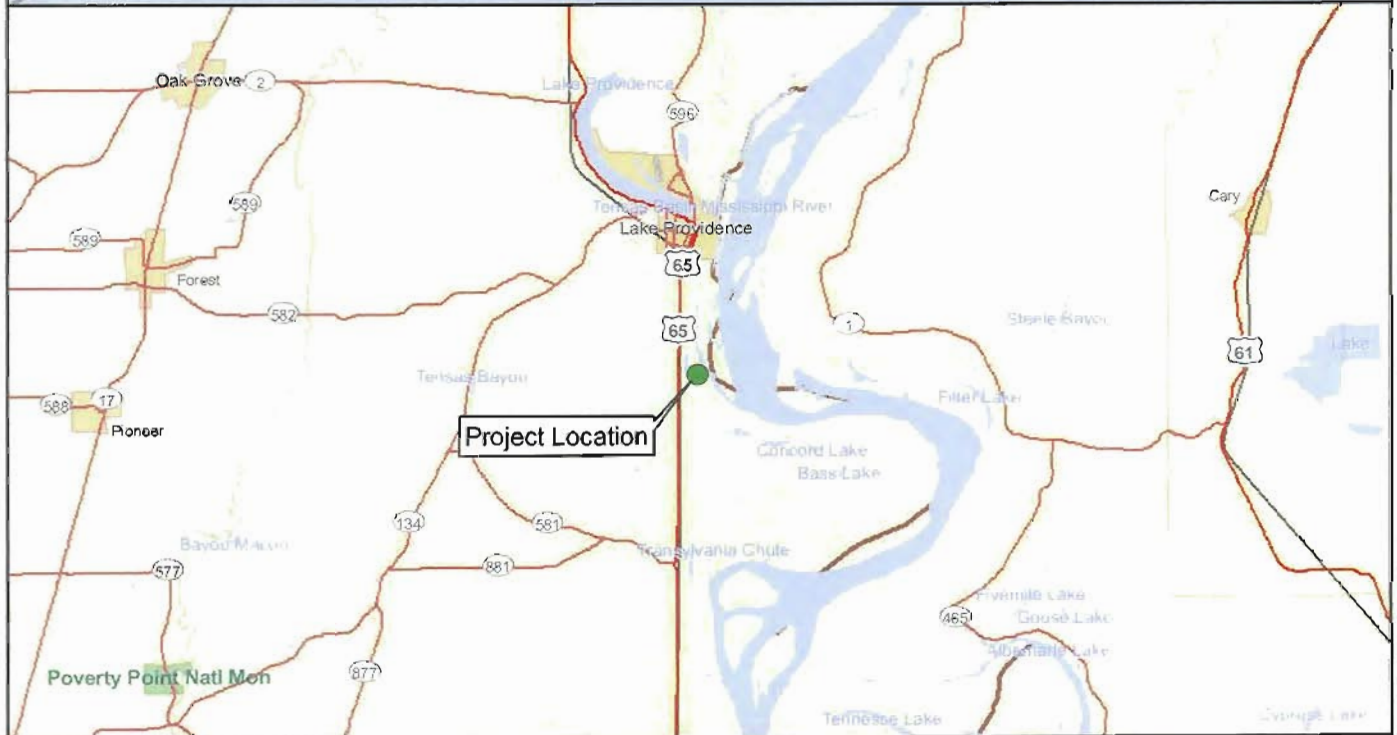
NEPA Document Manager

Attachments

Figure 1. Project Location

Figure 2. Plot Plan on Aerial Photograph

Figure 3. Detail of MySAB Facility



Myriant Succinic Acid Biorefinery

Lake Providence, LA

Project Location

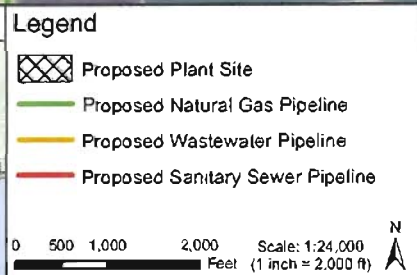
MYRIANT
TECHNOLOGIES

AECOM

Figure 1

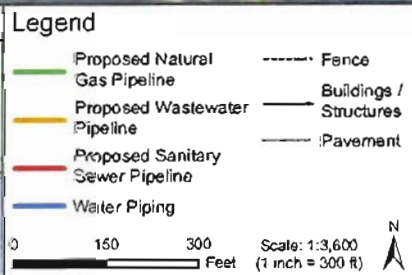
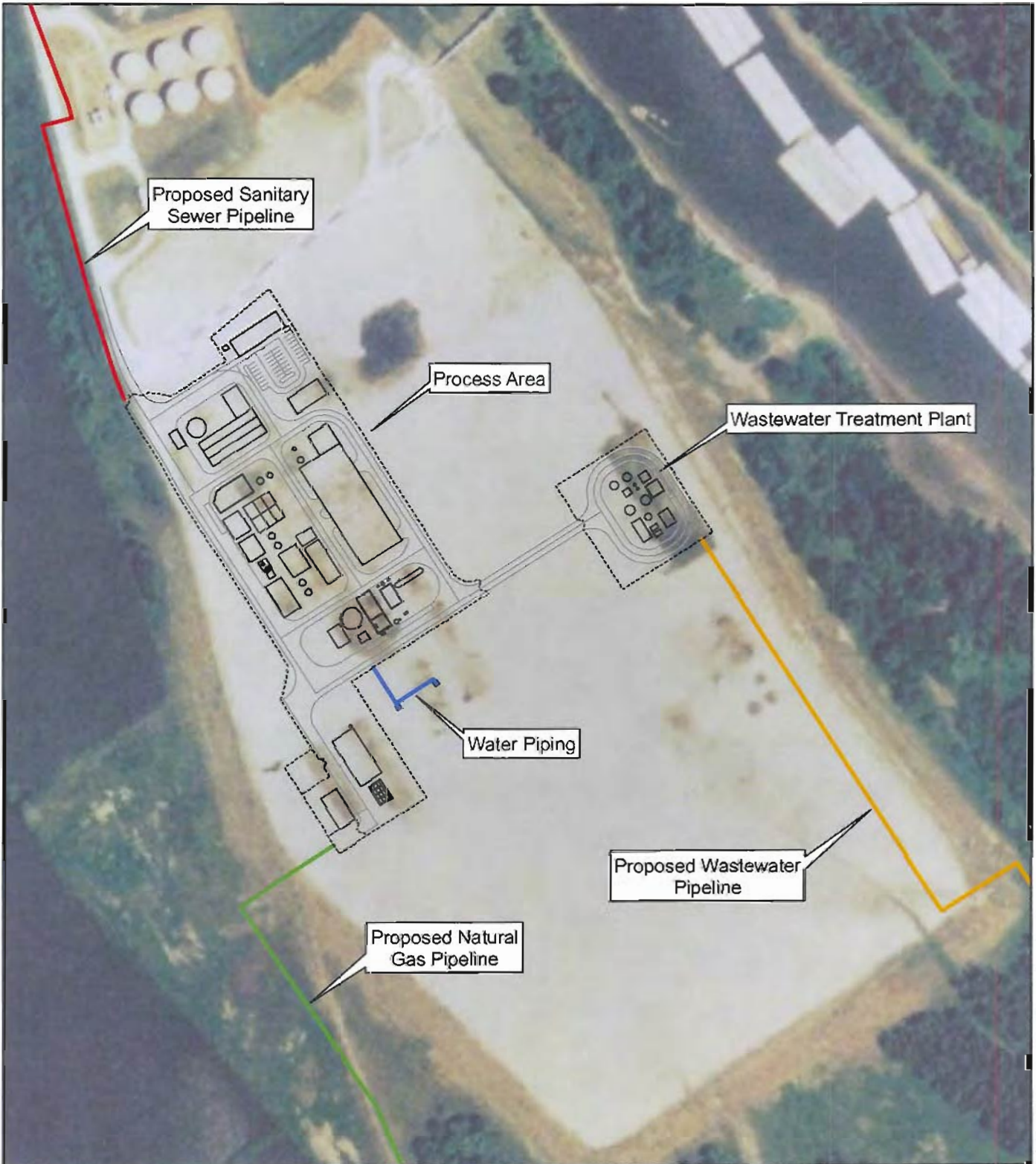
May 18, 2010

Project #: 60141442



Myriant Succinic Acid Biorefinery
 Lake Providence, LA
 Plot Plan on Aerial Photograph

Figure 2
 Date: May 19, 2010
 Project #: 60141442



Myriant Succinic Acid Biorefinery

Lake Providence, LA

Detail of MySAB Facility

AECOM

Figure 3

Date: May 19, 2010

Project #: 60141442



Department of Energy

Golden Field Office
1617 Cole Boulevard
Golden, Colorado 80401-3393

June 24, 2010

Mr. Kevin Sickey, Chairman
Coushatta Indian Tribe
P.O. Box 818
Elton, LA 70532

Dear Mr. Sickey,

The U. S. Department of Energy is proposing to provide Federal funding to the Myriant Succinic Acid Biorefinery (MySAB) at the Port of Lake Providence, Louisiana in East Carroll Parish (Figure 1). The funds would provide for final design, construction, startup and operation of a demonstration project and develop scaling factors for developing commercial-sized operations.

The proposed MySAB demonstration facility would be constructed on an industrial site that was developed by the Port of Lake Providence for industrial activities (Figures 2 and 3). The prospective site is approximately 2.5 miles south of the town of Lake Providence. It lies on the west bank of the Mississippi River, and within the batture lands between the mainland levee and Hagaman Chute, a barge channel that serves the Port and connects to the Mississippi River approximately 1.5 miles south of the proposed site. The proposed site is accessed by Port Road, about three miles south of Lake Providence. Port Road would be paved as part of the project.

Myriant's proprietary process would produce up to 30 million pounds a year of succinic acid using grits from grain sorghum. Succinic acid is a chemical building block that has numerous uses including as a flavoring agent for food and beverages and in the production of commercial fibers, plastics, fuel additives, certain medicines, and a variety of biobased specialty chemicals.

Development at the prospective site was begun for another project in 2005 but subsequently halted. The proposed site has been filled with 25 feet of clean sand from a U.S. Army Corps of Engineering dredging project and, therefore, there is minimal potential for intact cultural resources. A planned natural gas pipeline would cross wetlands, resulting in some temporary disturbance to less than one-half acre of wetlands, which would be restored to pre-construction grades. The pipeline will occupy an existing transportation right-of-way through agricultural lands. These historical ground-disturbing events are unlikely to have disrupted any cultural resources.

An environmental assessment (EA) is currently being prepared for the proposed biorefinery by the Department's Golden Field Office to meet the requirements of the *National Environmental Policy Act*.

DOE is initiating consultation and requesting information your tribe may have on properties of traditional religious and cultural significance within the vicinity of the proposed facility and any comments or concerns you have on the potential for this proposed project to affect those properties. This information is being requested to aid in the preparation of that EA and to meet



our obligations under Section 106 of the National Historic Preservation Act and the Native American Graves Protection and Repatriation Act of 1990. If you have any such information, require additional information, or have any questions or comments about that project, please contact Ms. Lisa Jorgensen of the Golden Field Office as soon as possible at the following:

Ms. Lisa Jorgensen
NEPA Document Manager
U.S. Department of Energy
Golden Field Office
1617 Cole Boulevard
Golden, Colorado 80401-3305
Email: lisa.jorgenson@go.doe.gov

DOE will include correspondence with your tribe in an appendix to the EA. DOE will send a Notice of Availability for the draft EA, when available, to your office and respond to any specific comments you may have. At this time we anticipate a 15-day public comment period for this proposed project.

Please provide your comments within 30-days of receipt of this letter. Thank you in advance for your consideration.

Sincerely,

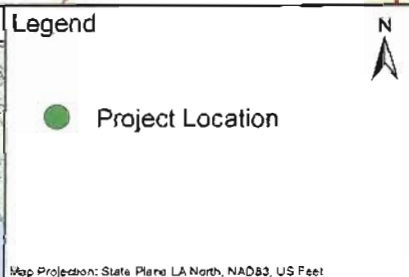
A handwritten signature in black ink, appearing to read 'Lisa Jorgensen', written in a cursive style.

Lisa Jorgensen

NEPA Document Manager

Attachments

- Figure 1. Project Location
- Figure 2. Plot Plan on Aerial Photograph
- Figure 3. Detail of MySAB Facility



Myriant Succinic Acid Biorefinery

Lake Providence, LA

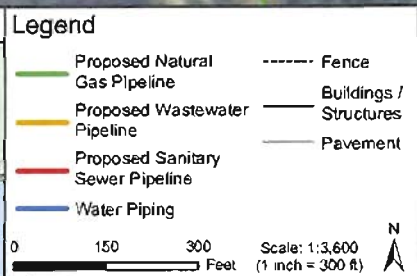
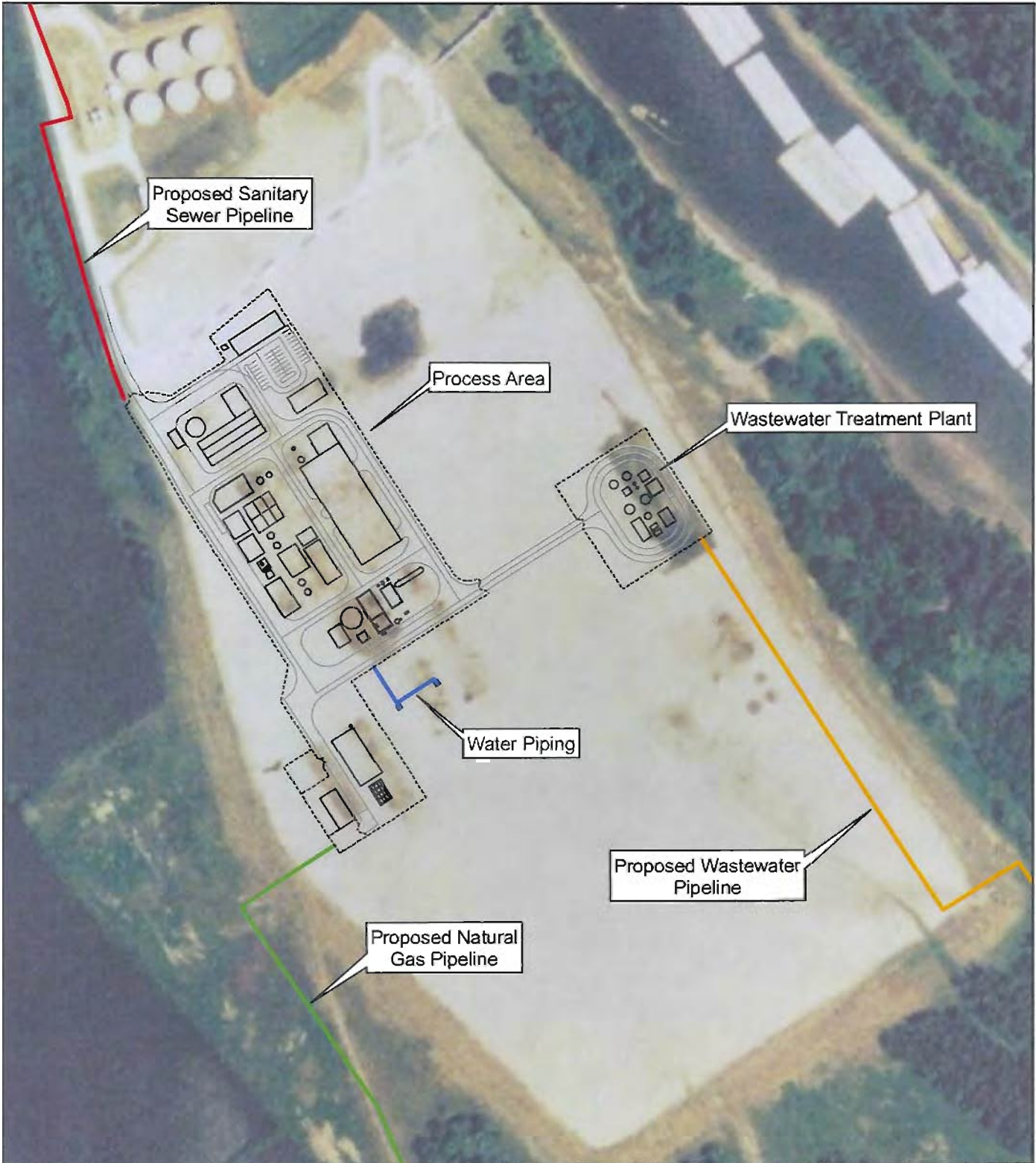
Project Location

AZCOM

Figure 1

May 18, 2010

Project #: 60141442



Myriant Succinic Acid Biorefinery

Lake Providence, LA

Detail of MySAB Facility






Figure 3

Date: May 19, 2010

Project #: 60141442



Department of Energy

Golden Field Office
1617 Cole Boulevard
Golden, Colorado 80401-3393

June 24, 2010

Ms. Christine Norris, Principal Chief
Jena Band of Choctaw Indians
P.O. Box 14
Jena, LA 71342-0014

Dear Ms. Norris,

The U. S. Department of Energy is proposing to provide Federal funding to the Myriant Succinic Acid Biorefinery (MySAB) at the Port of Lake Providence, Louisiana in East Carroll Parish (Figure 1). The funds would provide for final design, construction, startup and operation of a demonstration project and develop scaling factors for developing commercial-sized operations.

The proposed MySAB demonstration facility would be constructed on an industrial site that was developed by the Port of Lake Providence for industrial activities (Figures 2 and 3). The prospective site is approximately 2.5 miles south of the town of Lake Providence. It lies on the west bank of the Mississippi River, and within the batture lands between the mainland levee and Hagaman Chute, a barge channel that serves the Port and connects to the Mississippi River approximately 1.5 miles south of the proposed site. The proposed site is accessed by Port Road, about three miles south of Lake Providence. Port Road would be paved as part of the project.

Myriant's proprietary process would produce up to 30 million pounds a year of succinic acid using grits from grain sorghum. Succinic acid is a chemical building block that has numerous uses including as a flavoring agent for food and beverages and in the production of commercial fibers, plastics, fuel additives, certain medicines, and a variety of biobased specialty chemicals.

Development at the prospective site was begun for another project in 2005 but subsequently halted. The proposed site has been filled with 25 feet of clean sand from a U.S. Army Corps of Engineering dredging project and, therefore, there is minimal potential for intact cultural resources. A planned natural gas pipeline would cross wetlands, resulting in some temporary disturbance to less than one-half acre of wetlands, which would be restored to pre-construction grades. The pipeline will occupy an existing transportation right-of-way through agricultural lands. These historical ground-disturbing events are unlikely to have disrupted any cultural resources.

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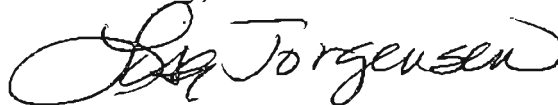
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NEPA Document Manager
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Please provide your comments within 30-days of receipt of this letter. Thank you in advance for your consideration.

Sincerely,

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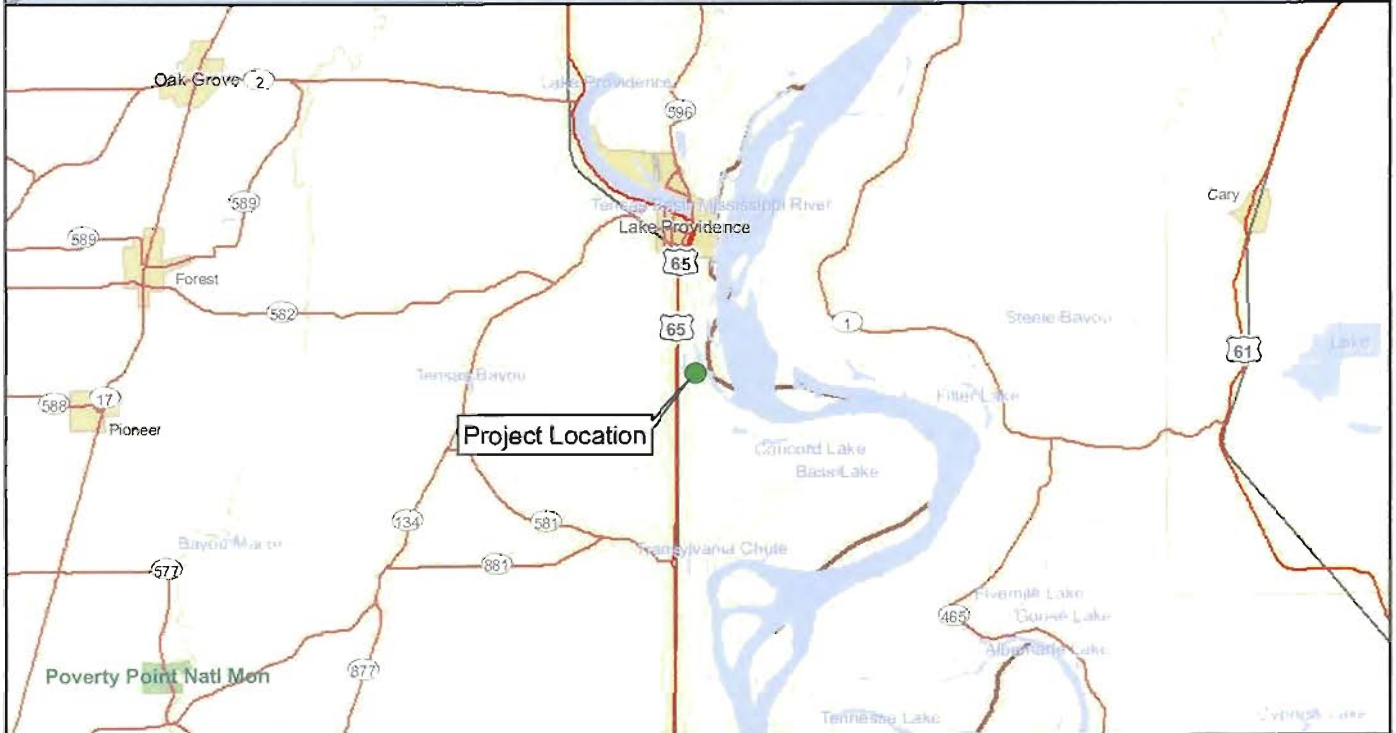
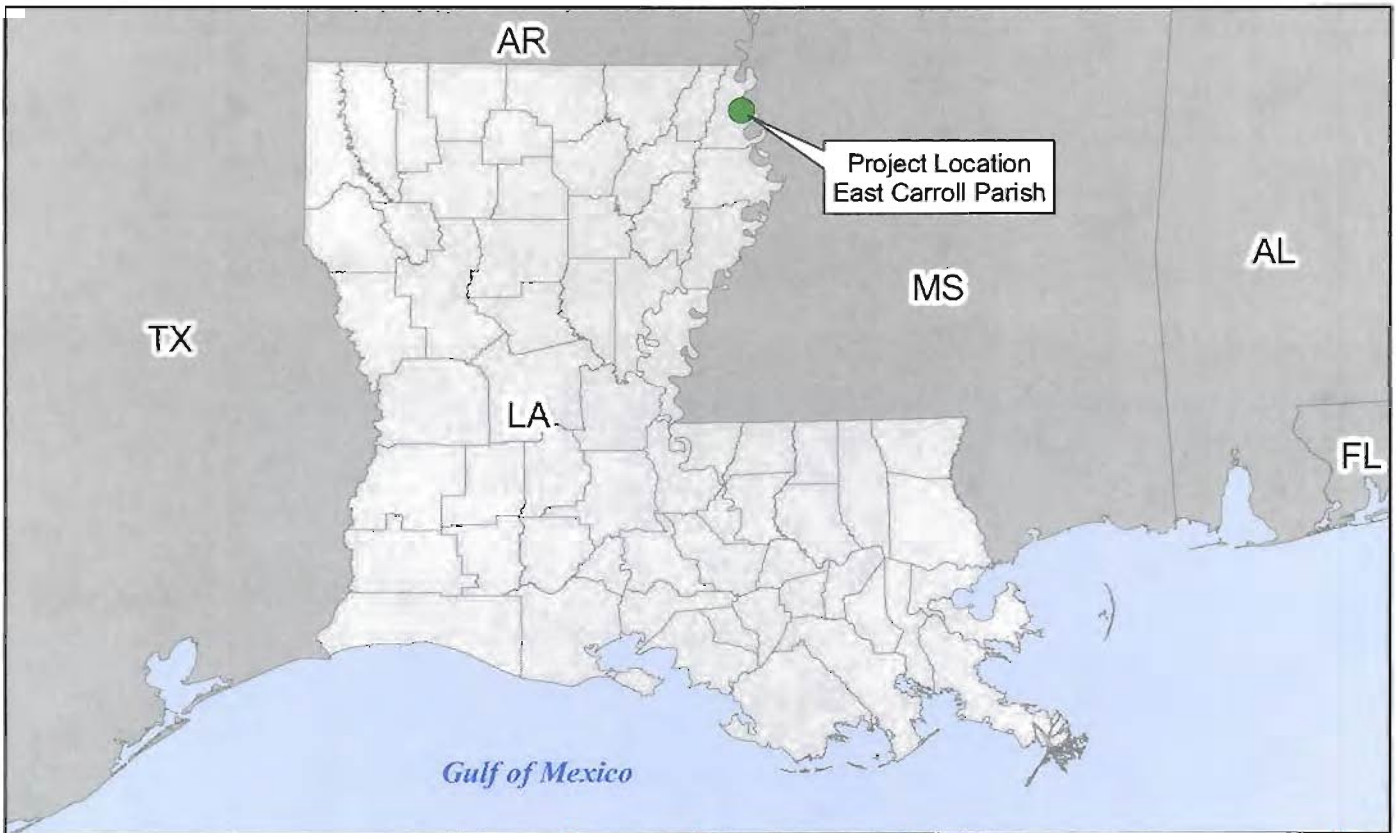
Lisa Jorgensen

NEPA Document Manager

Attachments

- Figure 1. Project Location
- Figure 2. Plot Plan on Aerial Photograph
- Figure 3. Detail of MySAB Facility

CC: Mr. Michael Tarpley
Tribal Historic Preservation Officer
Jena Band of Choctaw Indians
P.O. Box 14
Jena, LA 71342-0014



Legend

● Project Location

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Map Projection: State Plane LA North, NAD83, US Feet

Myriant Succinic Acid Biorefinery

Lake Providence, LA

Project Location

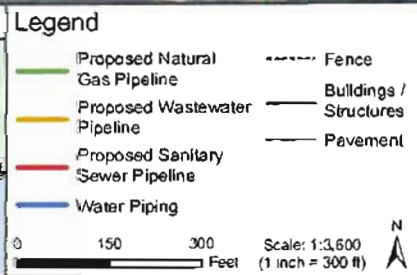
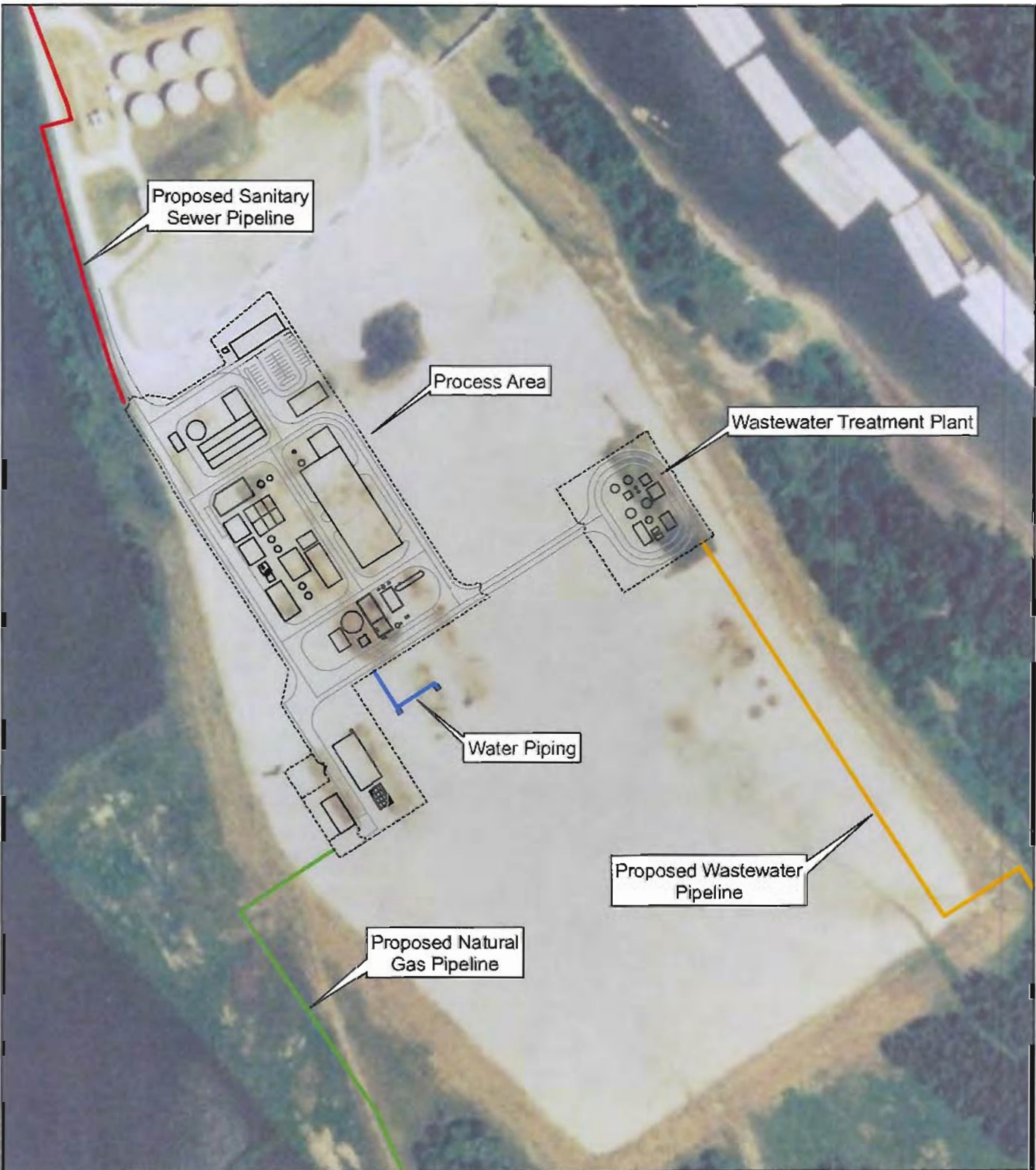
MYRIANT TECHNOLOGIES

AECOM

Figure 1

May 18, 2010

Project #: 60141442



Myriant Succinic Acid Biorefinery

Lake Providence, LA

Detail of MySAB Facility

MYRIANT
TECHNOLOGIES

AECOM

Figure 3

Date: May 19, 2010

Project #: 60141442



AECOM
161 Cheshire Lane North, Suite 500
Minneapolis, MN 55441

763.852.4200 tel
763.473.0400 fax

July 1, 2010

Mr. David Bernhart
Southeast Regional Office
NOAA Fisheries
263 13th Avenue South
St. Petersburg, Florida 33701
(727) 824-5301

Ms. Angela Trahan
US Fish and Wildlife Service
646 Cajundome Blvd. Ste. 400
Lafayette, Louisiana 70506
(337) 291-3100

**Subject: Myriant Succinic Acid Biorefinery, Port of Lake Providence
East Carroll Parish, Louisiana**

Dear Mr. Bernhart and Ms. Trahan,

AECOM is retained by Myriant Lake Providence, LLC (Myriant) to complete an Environmental Assessment (EA) for Myriant's planned Myriant Succinic Acid Biorefinery (MySAB Project) in East Carroll Parish, Louisiana. The proposed MySAB facility will be constructed on an industrial site that was created in 2005 by the Port of Lake Providence for industrial activities. The site is on the west bank of the Mississippi River, within the batture lands between the mainline levee and Hagaman Chute, a barge channel that serves the Port and connects to the Mississippi River approximately 1½ miles south of the Project Site (Sections 2 and 3, Township 20, Range 13E). The location of the site is shown in **Figure 1**, an overview of the proposed site and utility routes is provided in **Figure 2**, and the layout of the proposed biorefinery within the site is provided in **Figure 3**.

We respectfully request your review of project details for compliance with Section 7 of the Endangered Species Act of 1973, as amended (ESA). Because federal funding is anticipated from the U.S. Department of Energy (DOE), additional involvement of NOAA Fisheries and the U.S. Fish and Wildlife Service will be requested through simultaneous compliance with the National Environmental Policy Act (NEPA).

Project Description

The proposed demonstration-scale facility would produce succinic acid with a nameplate capacity of 30 million pounds per year using grits from grain sorghum, a renewable feedstock. Myriant's process for

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producing biobased succinic acid uses both carbon dioxide and local sorghum to displace petroleum-based feedstocks. Key processes include fermentation, separation, and recovery.

The proposed MySAB facility site is a currently open 55-acre industrial site that was developed by the Lake Providence Port Commission for industrial use. In 2005, the site was filled with approximately 25 feet of clean sand from an initial elevation of approximately 100 feet to its current elevation of approximately 125 feet, as part of industrial site preparation. There are currently no operations at this site, but the Port of Lake Providence lies immediately adjacent to the north of the site. Based on a 2005 Phase I Environmental Site Assessment conducted by C-K Associates, no other historic known land use has been associated with the subject property. Historically, the property was purchased by the Lake Providence Port Commission in the 1950s, and in the early 1960s, the U.S. Army Corps of Engineers restructured the Mississippi River Levee and borrowed fill from the proposed project site. Site development, including mass grading and pile driving, was conducted during the first phase of construction of Myriant's Bionol ethanol plant, beginning in 2005. However, construction of the Bionol ethanol plant was subsequently stopped and the effort was discontinued. Currently the site is clear and level. Approximately 10.6 acres of the site would be occupied by the proposed facility during operations. An additional 20 acres of laydown, construction offices, etc., would be required during construction (**Figure 2**).

New infrastructure will also need to be built to support the facility including:

- Effluent Wastewater Pipeline – Approximately 1.5 miles of buried pipeline will be needed from the MySAB facility to an outfall at the Mississippi River. The pipeline corridor would traverse forested wetland, which would be cleared during construction.
- Sanitary Wastewater Pipeline – Approximately 1 mile of buried pipeline will be needed from the MySAB facility, along the Port Road right-of-way, under US-65, to a tie-in with the existing force main. This entire length of the pipeline would be in industrial open space or roadside right-of-way.
- Natural Gas Pipeline – Approximately 3.5 miles of buried pipeline will be needed from the MySAB facility, around Stump Hole Lake through forested wetland, and south along the roadside right-of-way of US-65 to a tie-in with Southern Natural Gas's existing transmission line.
- Powerline – Existing powerline will need to be upgraded to supply power during both construction and operations. There is no clearing or land disturbance anticipated with the upgrade.

Field Survey

A summary of the threatened and endangered species with the potential to be present within the vicinity of the proposed project is provided in Table 1. Qualified AECOM ecologists conducted an environmental survey of the proposed project location and surrounding area to compare the habitat to be affected by the proposed project against the habitat needs of the listed species which are potentially present. The Mississippi River floodplain is primarily forested wetland that appears to be suitable habitat for the Louisiana black bear. No other threatened and endangered species or habitat is expected to be affected by the project.

Potential Impact and Mitigation

Construction of the effluent wastewater pipeline and natural gas pipeline will affect approximately 7 acres of potential black bear habitat. Activities in this area will be temporary (less than four months), during which time the black bear is expected to avoid the area. Following construction, the pipeline right-of-way will be allowed to revegetate and be usable as black-bear habitat.

During construction, Hagaman Chute and Stump Hole would be protected from sediment runoff from with the installation of erosion control devices around the MySAB facility site and along the pipeline construction rights-of-way. Following construction, the pipeline rights-of-way would be restored and allowed to return to pre-construction conditions.

Hydrostatic testing of the large tanks constructed onsite and the pipelines would result in a one-time water withdrawal from Hagaman Chute (or from the onsite water well, as logistics allow). The four large fermenters would be tested in one batch, which would require approximately 1.8 million liters (475,000 gallons) of water. This water would be reused as practicable for the remainder of the hydrostatic testing. The intake would be screened (e.g., wedgewire screen – 50 microns [No. 270 Sieve], opening of 1/500-inch) to minimize the entrainment of fish eggs and larvae). No inhibitors, biocides, or other additives would be included. After testing, the test water would be discharged at the same location as that used for withdrawal through an energy dissipating structure (or routed through the onsite Waste Water Treatment Plant (WWTP). The required volume of water is relatively small compared to the source (Hagaman Chute) and the number of fish eggs and larvae is not expected to be significant.


Wastewater from the facility would be treated on-site at the WWTP and in accordance with Louisiana Pollutant Discharge Elimination System wastewater treatment permit requirements prior to discharge into the Mississippi River; thus, no impacts to fishery resources are anticipated as a result of treated wastewater input.

Closing

Construction and operation of the proposed project is not anticipated to adversely affect federal or state listed wildlife species. Proposed avoidance and mitigation measures to further reduce the potential for impacts is provided in Table 1.

We respectfully request your comments on this project's potential to affect threatened or endangered species. Please contact Dr. Suderman with any questions or concerns.

Yours sincerely,



Allen Brooks, Ph.D.
Project Specialist
Allen.Brooks@aecom.com
727-577-5430

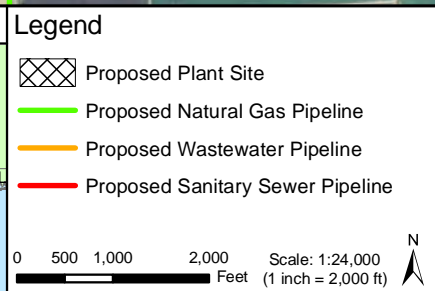
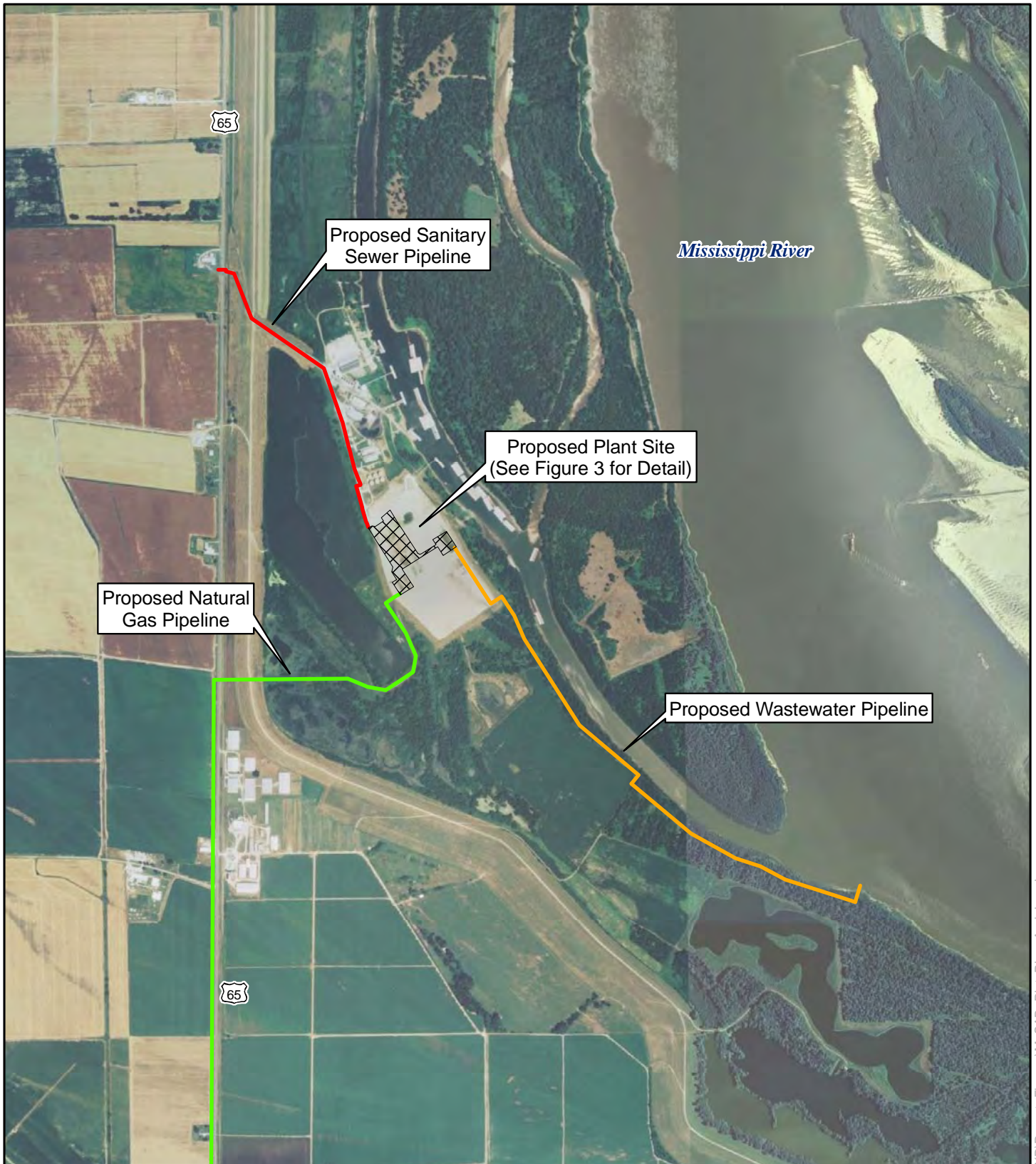


Keith Suderman, Ph.D.
Program Manager
Keith.Suderman@aecom.com
404-946-9486

Table 1 State and Federally Protected Species Present in East Carroll Parish, Louisiana				
Common Name (Scientific Name)	Louisiana Status	Federal Status	Suitable Habitat	Likelihood to Affect
Fat Pocketbook Pearly Mussel (<i>Potamilus capax</i>)	N/A	E	Sand, mud, and fine gravel bottoms of large rivers	<p>Not Likely.</p> <p>The effluent wastewater pipeline would parallel Hagaman Chute; however, sediment and erosion control measures would be in place to prevent sediments from entering the water body during construction.</p> <p>The pipelines were sited to avoid crossing Stump Hole.</p> <p>Wastewater would be treated to state standards prior to discharge into the Mississippi River.</p>
Interior Least Tern (<i>Sterna antillarum anthalassos</i>)	E	E	Preferred riverine nesting areas are sparsely vegetated sand and gravel bars within a wide unobstructed river channel. Nesting starts when river flows are high and small amounts of the sand/gravel bars are exposed. Where preferred habitat is unavailable, Least Terns may nest in dike fields, sand and gravel pits, and other artificial sites.	<p>Not Likely.</p> <p>Preferred riverine nesting areas are abundant along the east side of the Mississippi River near this location, and the possibility of Least Terns selecting the marginal-quality, artificial nesting habitat afforded by the MySAB facility is remote.</p> <p>Non-breeding individuals encountered at the site are highly mobile and could easily avoid the site once construction activity begins.</p>
Louisiana Black Bear (<i>Ursus americanus uteolus</i>)	T	T	Bottomland hardwood forests with minimal human disturbance	<p>Not Likely.</p> <p>The pipelines would cross bottomland hardwood forests, which are suitable habitat for this species, but the habitat (except for the narrow right-of-way directly over the pipeline) would be allowed to return to pre-construction conditions.</p> <p>Individuals of this highly mobile species could easily avoid the site during construction activity.</p>

To enhance and sustain the world's built, natural and social environments

Table 1 State and Federally Protected Species Present in East Carroll Parish, Louisiana				
Common Name (Scientific Name)	Louisiana Status	Federal Status	Suitable Habitat	Likelihood to Affect
Pallid Sturgeon (<i>Scaphirhynchus albus</i>)	E	E	Large rivers in the southeastern United States	<p>Not Likely.</p> <p>The effluent wastewater pipeline would parallel Hagaman Chute. However, sediment and erosion control measures would be in place to prevent sediments from entering the water body. Because the pipeline would be buried, the habitat along the Chute would recover following construction.</p> <p>Hydrostatic testing of the pipelines would result in a one-time water withdrawal from Hagaman Chute. The intake would be screened to prevent the entrainment of fish species. Following testing, the water would be allowed to return to the Chute.</p> <p>Wastewater would be treated to state standards prior to discharge into the Mississippi River.</p>
<p>Key: E=Endangered; T=Threatened</p> <p>Sources: Louisiana Department of Wildlife and Fisheries (LDWF); NatureServe, 2010</p>				



Myriant Succinic Acid Biorefinery

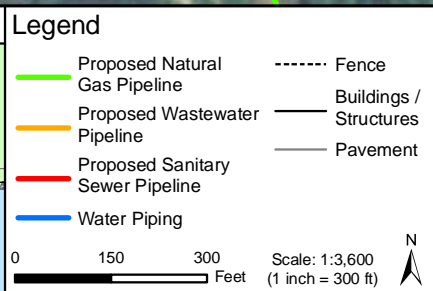
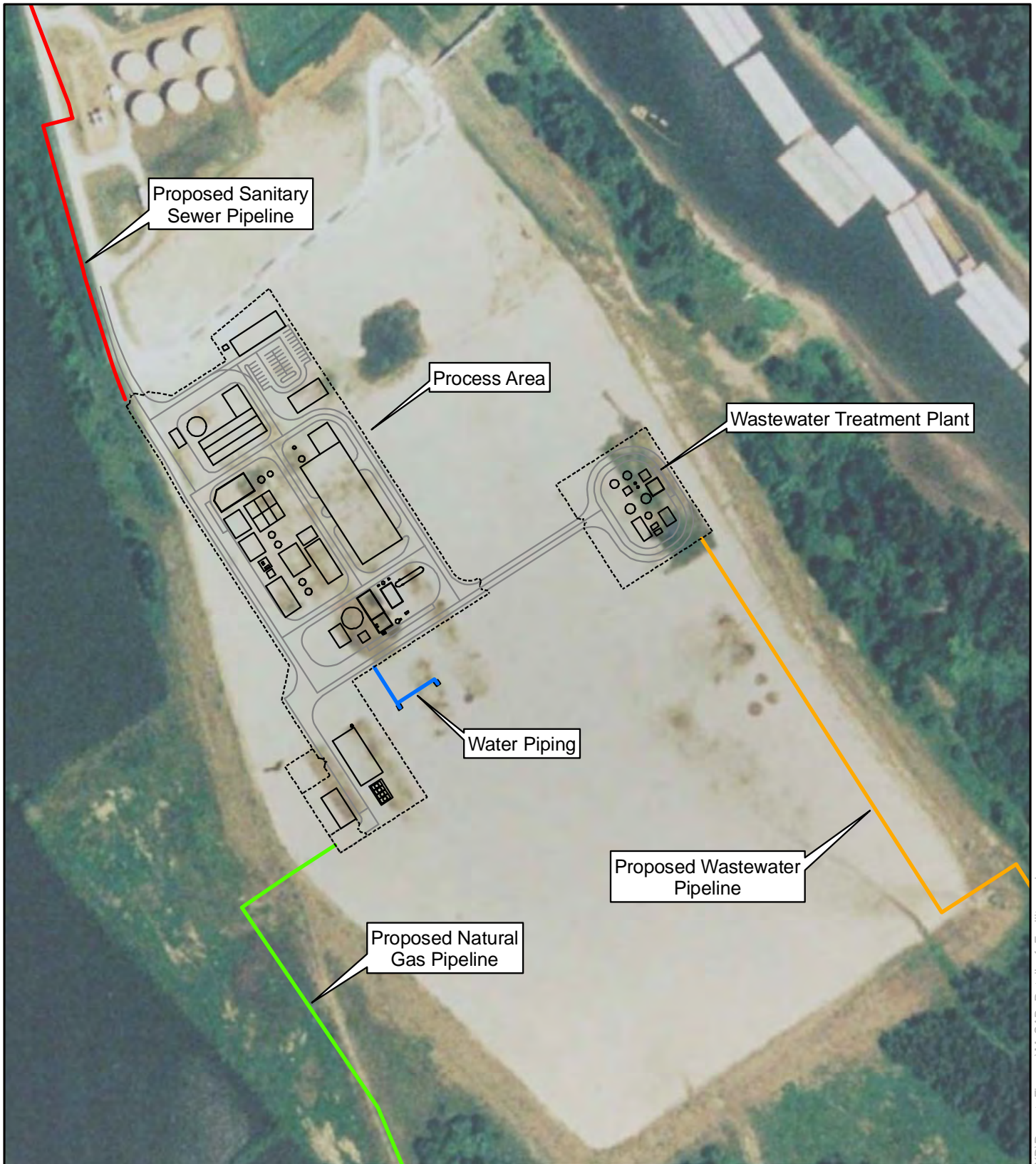
Lake Providence, LA

Plot Plan on Aerial Photograph

Figure 2


Date: May 19, 2010

Project #: 60141442



Myriant Succinic Acid Biorefinery
 Lake Providence, LA
 Detail of MysAB Facility

Map Projection: State Plane LA North, NAD83, US Feet.






Figure 3

Date: May 19, 2010

Project #: 60141442



Department of Energy

Golden Field Office
1617 Cole Boulevard
Golden, Colorado 80401-3393
June 24, 2010

Mr. Jim Boggs
Field Supervisor
U.S. Fish and Wildlife Service
646 Cajundome Blvd., Suite 400
Lafayette, LA 70506-4280

Dear Mr. Boggs,

The U. S. Department of Energy is proposing to provide Federal funding to the Myriant Succinic Acid Biorefinery (MySAB) at the Port of Lake Providence, Louisiana in East Carroll Parish (Figure 1). The funds would provide for final design, construction, startup and operation of a demonstration project and develop scaling factors for developing commercial-sized operations.

The proposed MySAB demonstration facility would be constructed on an existing industrial site that was developed by the Port of Lake Providence for industrial activities (Figures 2 and 3). The prospective site is approximately 2.5 miles south of the town of Lake Providence. It lies on the west bank of the Mississippi River, and within the batture lands between the mainland levee and Hagaman Chute, a barge channel that serves the Port and connects to the Mississippi River approximately 1.5 miles south of the proposed site. The proposed site is accessed by Port Road, about three miles south of Lake Providence. Port Road would be paved as part of the project.

Myriant's proprietary process would produce up to 30 million pounds a year of succinic acid using grits from grain sorghum. Succinic acid is a chemical building block that has numerous uses including as a flavoring agent for food and beverages and in the production of commercial fibers, plastics, fuel additives, certain medicines, and a variety of biobased specialty chemicals.

Four protected species are potentially present in East Carroll Parish and may be of potential concern for the project: Fat Pocketbook Pearly Mussel (*Potamilus capax*), Interior Least Tern (*Sterna antillarum anthalassos*), Louisiana Black Bear (*Ursus americanus uteolus*), and Pallid Sturgeon (*Scaphirhynchus albus*).

Development at the prospective industrial site and associated land disturbance was begun for another project in 2005 but subsequently halted. The proposed site has been filled with 25 feet of clean sand from a U.S. Army Corps of Engineering dredging project. The potential site currently is open, relatively level sand with ruderal plants in low, wet areas.

A natural gas pipeline would cross wetlands, resulting in some temporary disturbance to less than one-half acre of wetlands, which would be restored to pre-construction grades. The pipeline will occupy an existing transportation right-of-way through existing agricultural lands.



Construction and modification of the MySAB demonstration facility would have temporary and minor impacts on wildlife. The site has already been cleared and graded where the aboveground facilities would be placed; however any additional clearing could result in a permanent loss of vegetative cover and result in mortality to less mobile forms of wildlife, such as small rodents and reptiles. The general disturbance associated with construction activities would cause the temporary displacement of most wildlife from the immediate vicinity of the construction zone and adjacent areas.

The disturbance of wildlife within the proposed pipeline right-of-ways (ROWs) would be associated with clearing and pipeline construction. Heavy equipment and construction traffic on the ROWs could displace animals by creating noise and physical barriers. Pipeline construction could result in direct mortality of less-mobile species, such as small mammals and reptiles; or result in an animal becoming trapped in the trench. Construction activities would be of short duration through each of the identified habitats and would result in only temporary impacts.

The habitat along the proposed project was compared against the habitat needs of the listed species which are potentially present to determine whether protected species or their habitat might be affected by the project. If the effluent wastewater pipeline must cross sandbars, Myriant would use a combination of horizontal directional drilling techniques and/or seasonal construction windows to avoid disturbance of breeding populations of Interior Least Terns (*Sterna antillarum anthalassos*).

Based upon the surveys that were conducted and the lack of suitable habitat within the proposed project footprint, construction and operation of the proposed project, DOE does not anticipate adverse effects on federal or state listed wildlife species based on the proposed construction procedures, avoidance, and mitigation measures.

An environmental assessment (EA) is currently being prepared for the proposed biorefinery by the Department's Golden Field Office to meet the requirements of the *National Environmental Policy Act*.

DOE would like to open consultation and technical assistance on the Myriant project. If you have any such related information, require additional information, or have any questions or comments about that project, please contact Ms. Lisa Jorgensen of the Golden Field Office as soon as possible at the following:

Ms. Lisa Jorgensen
NEPA Document Manager
U.S. Department of Energy
Golden Field Office
1617 Cole Boulevard
Golden, Colorado 80401-3305
Email: lisa.jorgenson@go.doe.gov

DOE will include correspondence with the U.S. Fish and Wildlife Service in an appendix to the EA. DOE will send a Notice of Availability for the draft EA, when available, to your office and respond to any specific comments you may have. At this time we anticipate a 15-day public comment period for this proposed project.

Please provide your comments within 30-days of receipt of this letter. Thank you in advance for your consideration.

Sincerely,

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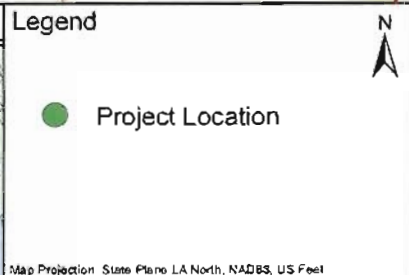
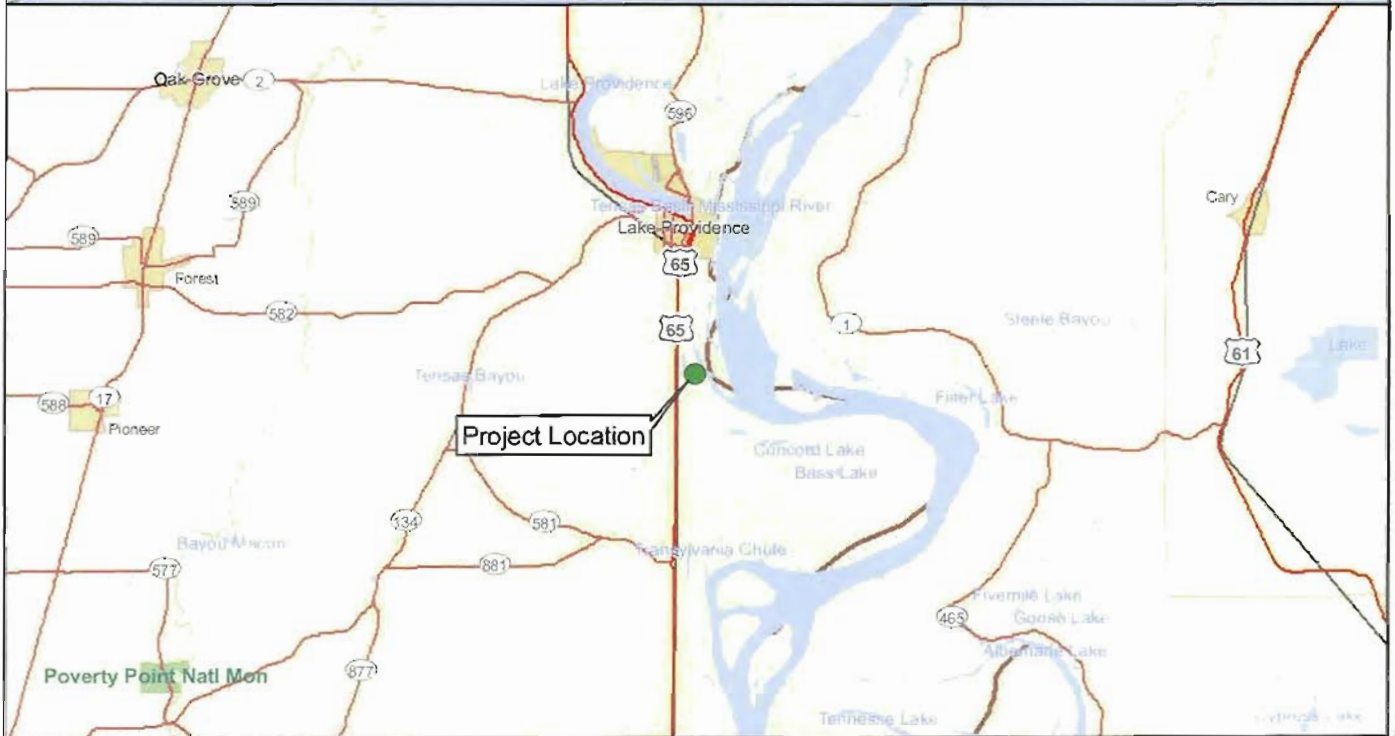
Lisa Jorgensen
NEPA Document Manager

Attachments

Figure 1. Project Location

Figure 2. Plot Plan on Aerial Photograph

Figure 3. Detail of MySAB Facility



Myriant Succinic Acid Biorefinery

Lake Providence, LA

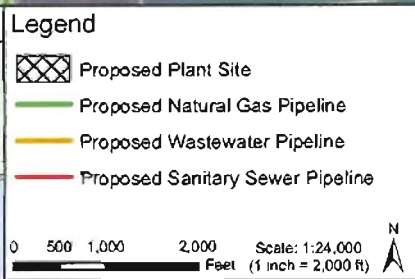
Project Location

AECOM

Figure 1

May 18, 2010

Project #: 60141442



Myriant Succinic Acid Biorefinery
 Lake Providence, LA
 Plot Plan on Aerial Photograph

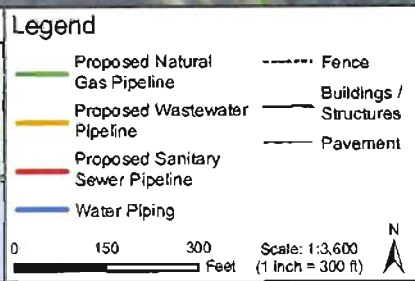
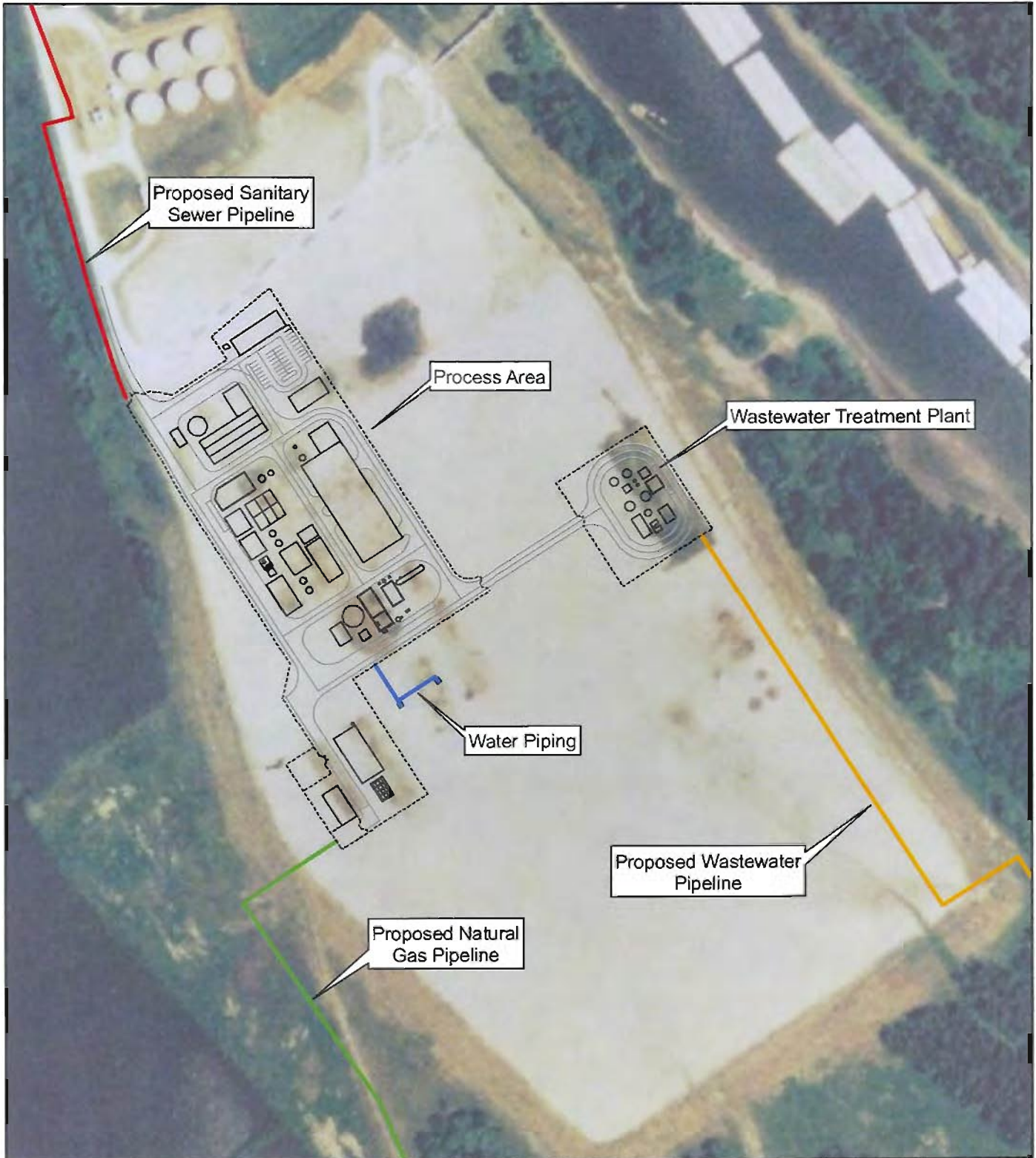
MYRIANT
 TECHNOLOGIES

AECOM

Figure 2

Date: May 19, 2010

Project #: 60141442



Myriant Succinic Acid Biorefinery

Lake Providence, LA

Detail of MySAB Facility

Figure 3

Date: May 19, 2010

Project #: 60141442



Department of Energy

Golden Field Office
1617 Cole Boulevard
Golden, Colorado 80401-3393
June 24, 2010

Mr. Kyle F. Balkum
Biologist Program Manager, Habitat Section
Louisiana Department of Wildlife and Fisheries
2000 Quail Drive
Baton Rouge, LA 70808-9038

Dear Mr. Balkum,

The U. S. Department of Energy is proposing to provide Federal funding to the Myriant Succinic Acid Biorefinery (MySAB) at the Port of Lake Providence, Louisiana in East Carroll Parish (Figure 1). The funds would provide for final design, construction, startup and operation of a demonstration project and develop scaling factors for developing commercial-sized operations.

The proposed MySAB demonstration facility would be constructed on an existing industrial site that was developed by the Port of Lake Providence for industrial activities (Figures 2 and 3). The prospective site is approximately 2.5 miles south of the town of Lake Providence. It lies on the west bank of the Mississippi River, and within the batture lands between the mainland levee and Hagaman Chute, a barge channel that serves the Port and connects to the Mississippi River approximately 1.5 miles south of the proposed site. The proposed site is accessed by Port Road, about three miles south of Lake Providence. Port Road would be paved as part of the project.

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facilities would be placed; however any additional clearing could result in a permanent loss of vegetative cover and result in mortality to less mobile forms of wildlife, such as small rodents and reptiles. The general disturbance associated with construction activities would cause the temporary displacement of most wildlife from the immediate vicinity of the construction zone and adjacent areas.

The disturbance of wildlife within the proposed pipeline right-of-ways (ROWs) would be associated with clearing and pipeline construction. Heavy equipment and construction traffic on the ROWs could displace animals by creating noise and physical barriers. Pipeline construction could result in direct mortality of less-mobile species, such as small mammals and reptiles; or result in an animal becoming trapped in the trench. Construction activities would be of short duration through each of the identified habitats and would result in only temporary impacts.

The habitat along the proposed project was compared against the habitat needs of the listed species which are potentially present to determine whether protected species or their habitat might be affected by the project. If the effluent wastewater pipeline must cross sandbars, Myriant would use a combination of horizontal directional drilling techniques and/or seasonal construction windows to avoid disturbance of breeding populations of Interior Least Terns (*Sterna antillarum anthalassos*).

Based upon the surveys that were conducted and the lack of suitable habitat within the proposed project footprint, construction and operation of the proposed project, DOE does not anticipate adverse affects on federal or state listed wildlife species based on the proposed construction procedures, avoidance, and mitigation measures.

An environmental assessment (EA) is currently being prepared for the proposed biorefinery by the Department's Golden Field Office to meet the requirements of the *National Environmental Policy Act*.

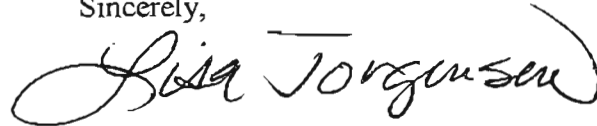
DOE would like to open consultation and technical assistance on the Myriant project. If you have any such related information, require additional information, or have any questions or comments about that project, please contact Ms. Lisa Jorgensen of the Golden Field Office as soon as possible at the following:

Ms. Lisa Jorgensen
NEPA Document Manager
U.S. Department of Energy
Golden Field Office
1617 Cole Boulevard
Golden, Colorado 80401-3305
Email: lisa.jorgenson@ga.doe.gov

DOE will include correspondence with the Louisiana Department of Wildlife and in an appendix to the EA. DOE will send a Notice of Availability for the draft EA, when available, to your office and respond to any specific comments you may have. At this time we anticipate a 15-day public comment period for this proposed project.

Please provide your comments within 30-days of receipt of this letter. Thank you in advance for your consideration.

Sincerely,

A handwritten signature in black ink that reads "Lisa Jorgensen". The signature is written in a cursive style with a large, sweeping initial "L" and a long, horizontal flourish extending to the right.

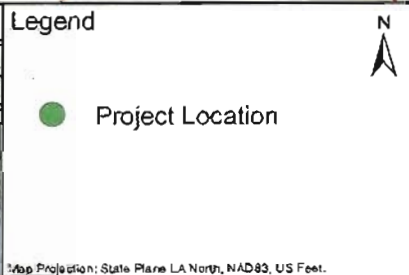
Lisa Jorgensen
NEPA Document Manager

Attachments

Figure 1. Project Location

Figure 2. Plot Plan on Aerial Photograph

Figure 3. Detail of MySAB Facility



Myriant Succinic Acid Biorefinery

Lake Providence, LA

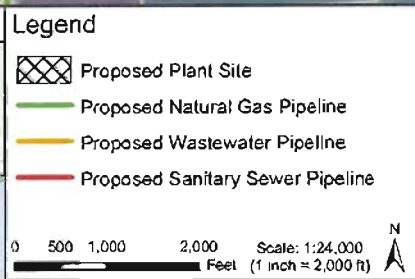
Project Location

AZCOM

Figure 1

May 18, 2010

Project #: 60141442



Myriant Succinic Acid Biorefinery
 Lake Providence, LA

Plot Plan on Aerial Photograph

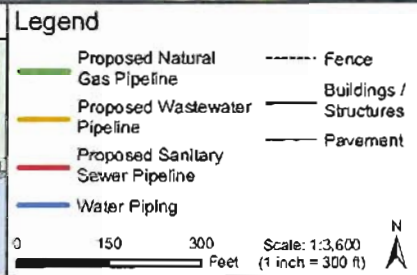
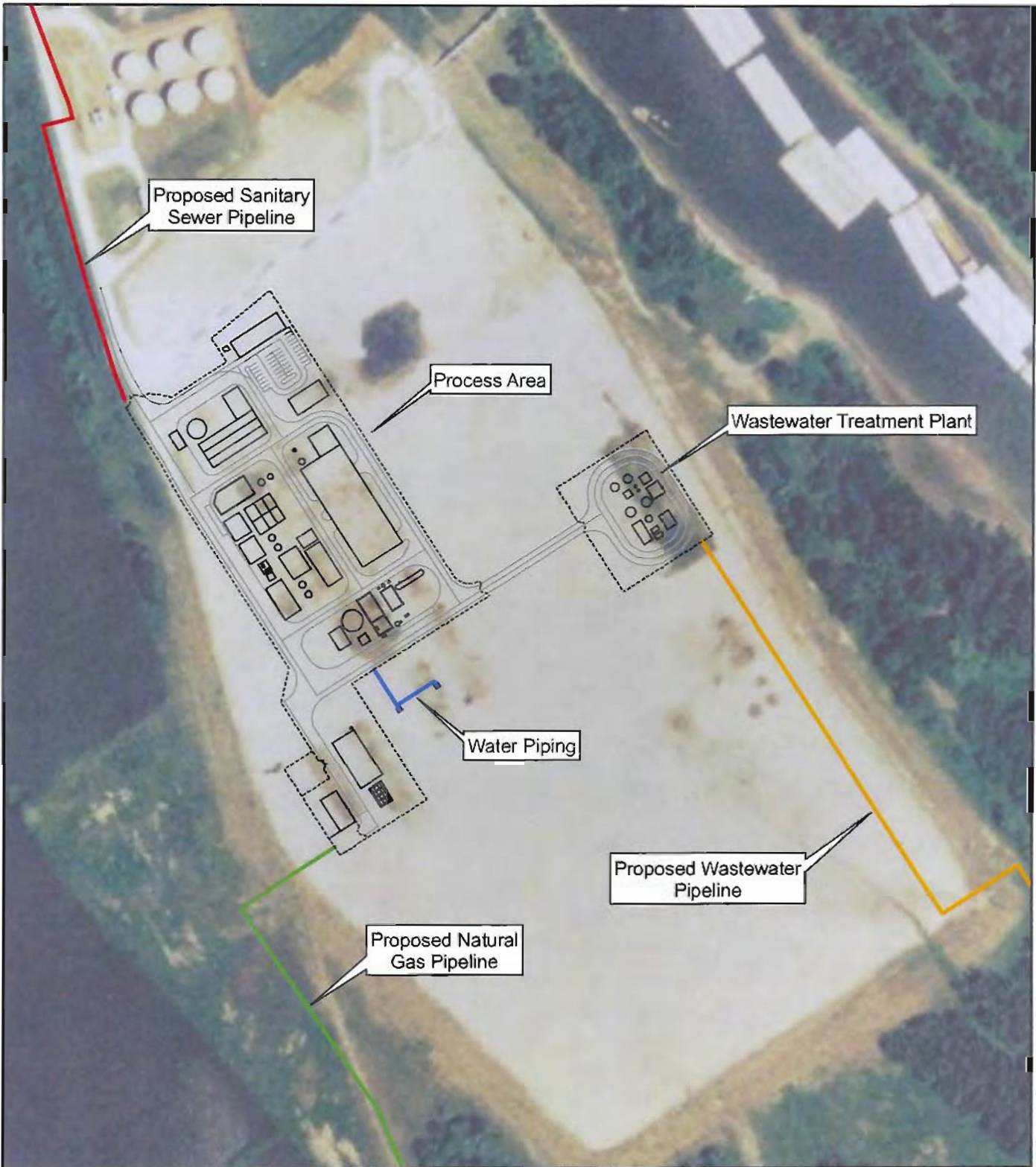
Map Projection: State Plane LA North, NAD83, US Feet.

AECOM

Figure 2

Date: May 19, 2010

Project #: 60141442



Myriant Succinic Acid Biorefinery

Lake Providence, LA

Detail of MySAB Facility

AECOM

Figure 3

Date: May 19, 2010

Project #: 60141442



AECOM
161 Cheshire Lane North, Suite 500
Minneapolis, MN 55441

763.852.4200 tel
763.473.0400 fax

July 1, 2010

Louisiana Department of Wildlife & Fisheries
Natural Heritage Program
PO Box 98000
Baton Rouge, LA 70898

**Subject: Myriant Succinic Acid Biorefinery, Port of Lake Providence
East Carroll Parish, Louisiana**

Dear Natural Heritage Program,

AECOM is retained by Myriant Lake Providence, LLC (Myriant) to complete an Environmental Assessment (EA) for Myriant's planned Myriant Succinic Acid Biorefinery (MySAB Project) in East Carroll Parish, Louisiana. The proposed MySAB facility will be constructed on an industrial site that was created in 2005 by the Port of Lake Providence for industrial activities. The site is on the west bank of the Mississippi River, within the batture lands between the mainline levee and Hagaman Chute, a barge channel that serves the Port and connects to the Mississippi River approximately 1½ miles south of the Project Site (Sections 2 and 3, Township 20, Range 13E). The location of the site is shown in **Figure 1**, an overview of the proposed site and utility routes is provided in **Figure 2**, and the layout of the proposed biorefinery within the site is provided in **Figure 3**.

We respectfully request your review of project details for compliance with Section 7 of the Endangered Species Act of 1973, as amended (ESA). Because federal funding is anticipated from the U.S. Department of Energy (DOE), additional involvement of the Louisiana Department of Wildlife and Fisheries (LDWF) will be requested through simultaneous compliance with the National Environmental Policy Act (NEPA).

Project Description

The proposed demonstration-scale facility would produce succinic acid with a nameplate capacity of 30 million pounds per year using grits from grain sorghum, a renewable feedstock. Myriant's process for producing biobased succinic acid uses both carbon dioxide and local sorghum to displace petroleum-based feedstocks. Key processes include fermentation, separation, and recovery.

The proposed MySAB facility site is a currently open 55-acre industrial site that was developed by the Lake Providence Port Commission for industrial use. In 2005, the site was filled with approximately 25 feet of clean sand from an initial elevation of approximately 100 feet to its current elevation of approximately 125 feet, as part of industrial site preparation. There are currently no operations at this site, but the Port of Lake Providence lies immediately adjacent to the north of the site. Based on a 2005 Phase I Environmental Site Assessment conducted by C-K Associates, no other historic known land use has been associated with the subject property. Historically, the property was purchased by the Lake Providence Port Commission in the 1950s, and in the early 1960s, the U.S. Army Corps of Engineers

To enhance and sustain the world's built, natural and social environments

restructured the Mississippi River Levee and borrowed fill from the proposed project site. Site development, including mass grading and pile driving, was conducted during the first phase of construction of Myriant's Bionol ethanol plant, beginning in 2005. However, construction of the Bionol ethanol plant was subsequently stopped and the effort was discontinued. Currently the site is clear and level. Approximately 10.6 acres of the site would be occupied by the proposed facility during operations. An additional 4.4 acres of laydown, construction offices, etc., would be required during construction (**Figure 2**).

New infrastructure will also need to be built to support the facility including:

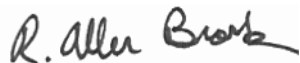
- Effluent Wastewater Pipeline – Approximately 1.5 miles of buried pipeline will be needed from the MySAB facility to an outfall at the Mississippi River. The pipeline corridor would traverse forested wetland, which would be cleared during construction.
- Sanitary Wastewater Pipeline – Approximately 1 mile of buried pipeline will be needed from the MySAB facility, along the Port Road right-of-way, under US-65, to a tie-in with the existing force main. This entire length of the pipeline would be in industrial open space or roadside right-of-way.
- Natural Gas Pipeline – Approximately 3.5 miles of buried pipeline will be needed from the MySAB facility, around Stump Hole Lake through forested wetland, and south along the roadside right-of-way of US-65 to a tie-in with Southern Natural Gas's existing transmission line. Small areas of agricultural lands may be affected where construction area beyond the roadside right-of-way is required, but the area is expected to be limited.
- Powerline – Existing powerline will need to be upgraded to supply power during both construction and operations. There is no clearing or land disturbance anticipated with the upgrade.

Field Survey

A summary of the threatened and endangered species with the potential to be present within the vicinity of the proposed project is provided in Table 1. Qualified AECOM ecologists conducted an environmental survey of the proposed project location and surrounding area to compare the habitat to be affected by the proposed project against the habitat needs of the listed species which are potentially present. The effluent wastewater pipeline and natural gas pipeline will cross forested wetland that is suitable habitat for the Louisiana black bear. Construction activities in this area will be temporary (less than two months), during which time the black bear is expected to avoid the area. Following construction, the pipeline right-of-way will be allowed to revegetate and be usable as black-bear habitat. No other threatened and endangered species or habitat is expected to be affected by the project. Construction and operation of the proposed project is not anticipated to adversely affect federal or state listed wildlife species. A list of the proposed avoidance and mitigation measures to further reduce the potential for impacts is provided in Table 1.

We respectfully request your comments on this project's potential to affect threatened or endangered species. Please contact Dr. Suderman with any questions or concerns.

Yours sincerely,



Allen Brooks, Ph.D.
Project Specialist
Allen.Brooks@aecom.com
727-577-5430

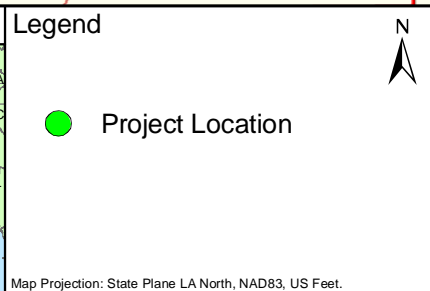


Keith Suderman, Ph.D.
Program Manager
Keith.Suderman@aecom.com
404-946-9486

Table 1 State and Federally Protected Species Present in East Carroll Parish, Louisiana				
Common Name (Scientific Name)	Louisiana Status	Federal Status	Suitable Habitat	Likelihood to Affect
Fat Pocketbook Pearly Mussel (<i>Potamilus capax</i>)	N/A	E	Sand, mud, and fine gravel bottoms of large rivers	<p>Not Likely.</p> <p>The effluent wastewater pipeline would parallel Hagaman Chute; however, sediment and erosion control measures would be in place to prevent sediments from entering the water body during construction.</p> <p>The pipelines were sited to avoid crossing Stump Hole.</p> <p>Wastewater would be treated to state standards prior to discharge into the Mississippi River.</p>
Interior Least Tern (<i>Sterna antillarum anthalassos</i>)	E	E	Preferred riverine nesting areas are sparsely vegetated sand and gravel bars within a wide unobstructed river channel. Nesting starts when river flows are high and small amounts of the sand/gravel bars are exposed. Where preferred habitat is unavailable, Least Terns may nest in dike fields, sand and gravel pits, and other artificial sites.	<p>Not Likely.</p> <p>Preferred riverine nesting areas are abundant along the east side of the Mississippi River near this location, and the possibility of Least Terns selecting the marginal-quality, artificial nesting habitat afforded by the MySAB facility is remote.</p> <p>Non-breeding individuals encountered at the site are highly mobile and could easily avoid the site once construction activity begins.</p>
Louisiana Black Bear (<i>Ursus americanus uteolus</i>)	T	T	Bottomland hardwood forests with minimal human disturbance	<p>Not Likely.</p> <p>The pipelines would cross bottomland hardwood forests, which are suitable habitat for this species, but the habitat (except for the narrow right-of-way directly over the pipeline) would be allowed to return to pre-construction conditions.</p> <p>Individuals of this highly mobile species could easily avoid the site during construction activity.</p>

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Table 1 State and Federally Protected Species Present in East Carroll Parish, Louisiana				
Common Name (Scientific Name)	Louisiana Status	Federal Status	Suitable Habitat	Likelihood to Affect
Pallid Sturgeon (<i>Scaphirhynchus albus</i>)	E	E	Large rivers in the southeastern United States	<p>Not Likely.</p> <p>The effluent wastewater pipeline would parallel Hagaman Chute. However, sediment and erosion control measures would be in place to prevent sediments from entering the water body. Because the pipeline would be buried, the habitat along the Chute would recover following construction.</p> <p>Hydrostatic testing of the pipelines would result in a one-time water withdrawal from Hagaman Chute. The intake would be screened to prevent the entrainment of fish species. Following testing, the water would be allowed to return to the Chute.</p> <p>Wastewater would be treated to state standards prior to discharge into the Mississippi River.</p>
<p>Key: E=Endangered; T=Threatened</p> <p>Sources: Louisiana Department of Wildlife and Fisheries (LDWF); NatureServe, 2010</p>				



Myriant Succinic Acid Biorefinery

Lake Providence, LA

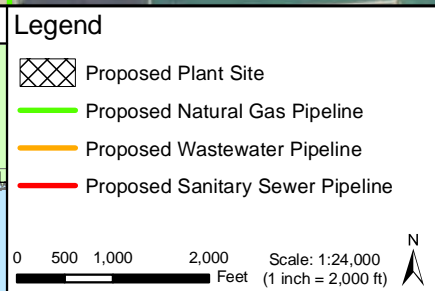
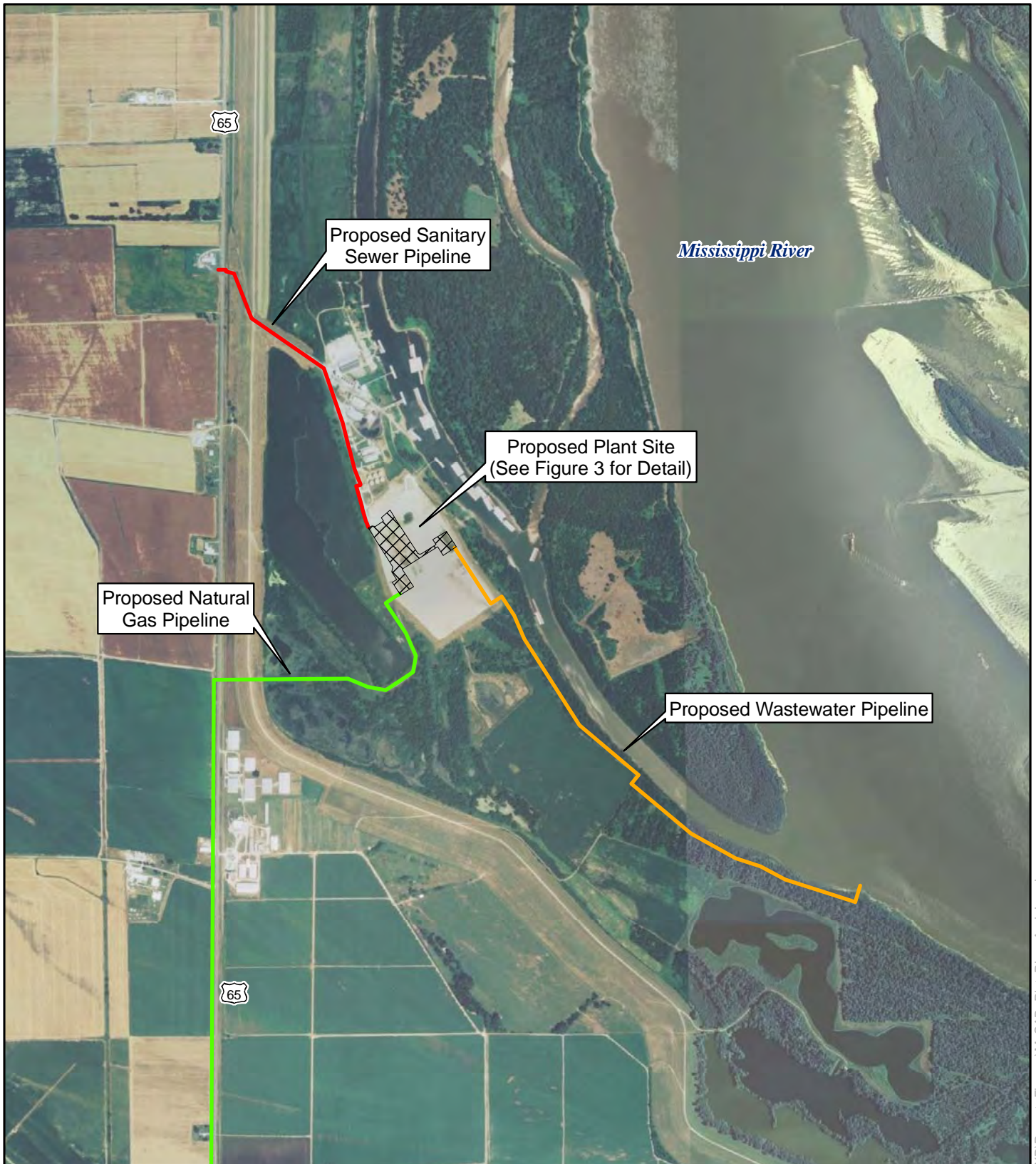
Project Location

Figure 1

May 19, 2010

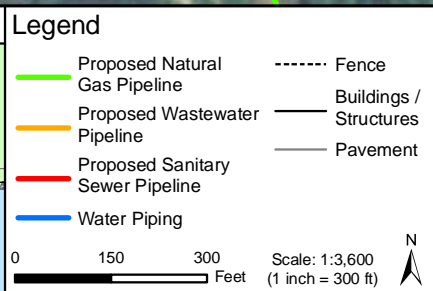
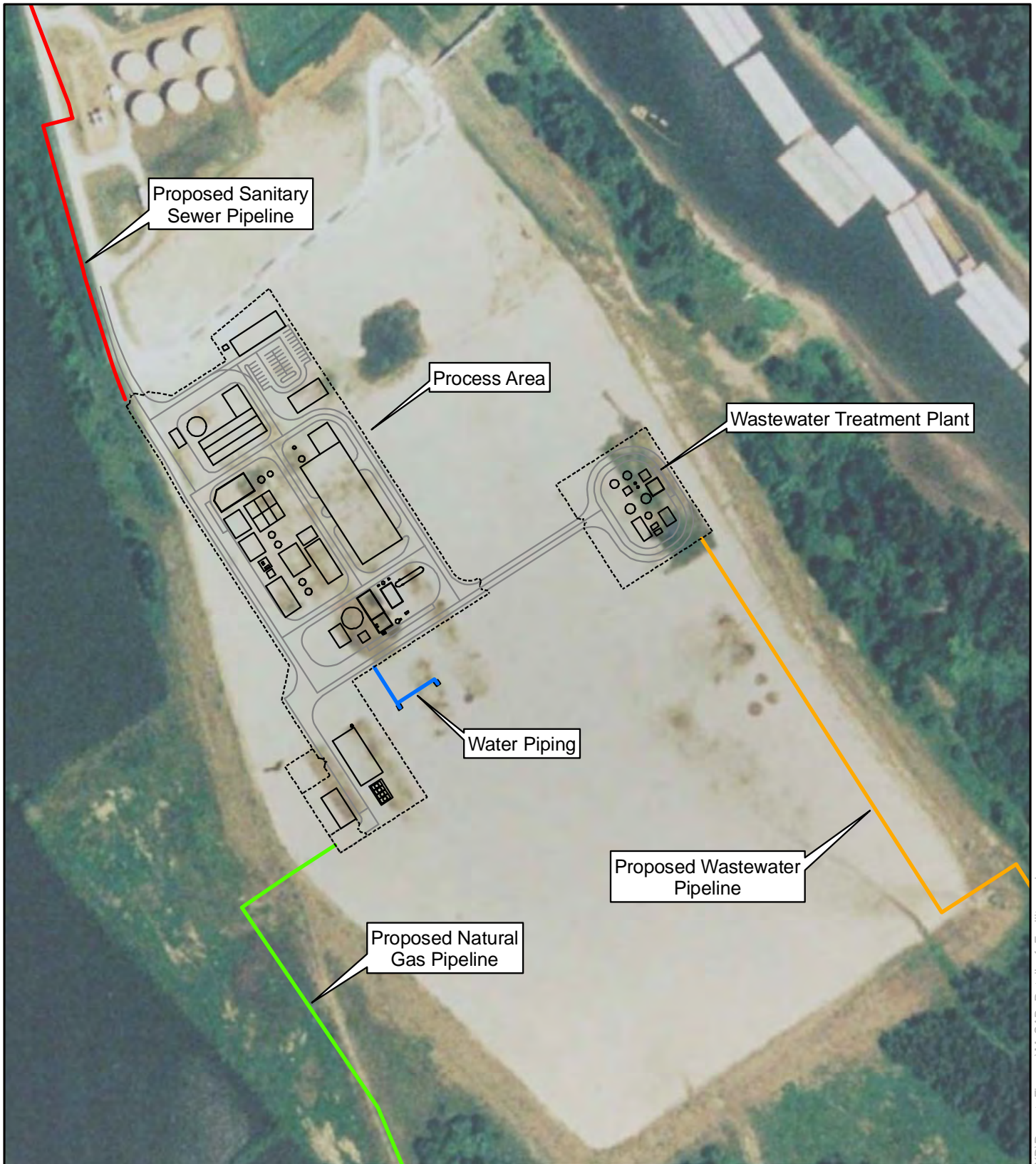
Project #: 60141442

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Myriant Succinic Acid Biorefinery
 Lake Providence, LA
 Plot Plan on Aerial Photograph

Figure 2
 Date: May 19, 2010
 Project #: 60141442



Myriant Succinic Acid Biorefinery

Lake Providence, LA

Detail of MysAB Facility

Map Projection: State Plane LA North, NAD83, US Feet.

Figure 3

Date: May 19, 2010

Project #: 60141442



Department of Energy

Golden Field Office
1617 Cole Boulevard
Golden, Colorado 80401-3393
June 24, 2010

Mr. Phil Boggan
Deputy State Historic Preservation Officer
Louisiana Office of Cultural Development
P.O. Box 44247
Baton Rouge, LA 70804-44247

Dear Mr. Boggan,

The U. S. Department of Energy is proposing to provide Federal funding to the Myriant Succinic Acid Biorefinery (MySAB) at the Port of Lake Providence, Louisiana in East Carroll Parish (Figure 1). The funds would provide for final design, construction, startup and operation of a demonstration project and develop scaling factors for developing commercial-sized operations.

The proposed MySAB demonstration facility would be constructed on an industrial site that was developed by the Port of Lake Providence for industrial activities (Figures 2 and 3). The prospective site is approximately 2.5 miles south of the town of Lake Providence. It lies on the west bank of the Mississippi River, and within the batture lands between the mainland levee and Haganan Chute, a barge channel that serves the Port and connects to the Mississippi River approximately 1.5 miles south of the proposed site. The proposed site is accessed by Port Road, about three miles south of Lake Providence. Port Road would be paved as part of the project.

Myriant's proprietary process would produce up to 30 million pounds a year of succinic acid using grits from grain sorghum. Succinic acid is a chemical building block that has numerous uses including as a flavoring agent for food and beverages and in the production of commercial fibers, plastics, fuel additives, certain medicines, and a variety of biobased specialty chemicals.

Development at the prospective site was begun for another project in 2005 but subsequently halted. The proposed site has been filled with 25 feet of clean sand from a U.S. Army Corps of Engineering dredging project and, therefore, there is minimal potential for intact historic or cultural resources. Planned natural gas and wastewater pipelines will occupy an existing transportation right-of-way through agricultural lands. These historical ground-disturbing events are unlikely to have disrupted any extant cultural resources.

The National Register of Historic Places (NRHP) identifies eight resources within East Carroll Parish: Arlington Plantation; Buckmeadow Plantation House; Byerley House; Fischer House; Lake Providence Historic District; Lake Providence Residential Street Historic District; Nelson House; and Old Courthouse Square.

The distance to the nearest property on the NRHP to the proposed site is more than 3.5 miles. These properties are not expected to be affected by the MySAB project, and the pipeline routes do not approach any of the NRHP resources. Based on the existing industrial development of the proposed site and the NRHP database review, DOE has determined that no historic properties



within the proposed site and pipeline routes, the area of potential effects, would be affected by this proposed project. In compliance with 36 CFR Part 800.4(d) (1), the Department of Energy asks the Louisiana Office of Cultural Development for its concurrence of this finding.

An environmental assessment (EA) is currently being prepared for the proposed biorefinery by the Department's Golden Field Office to meet the requirements of the *National Environmental Policy Act*.

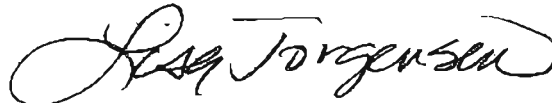
If you require additional information, or have any questions or comments about that project, please contact Ms. Lisa Jorgensen of the Golden Field Office as soon as possible at the following:

Ms. Lisa Jorgensen
NEPA Document Manager
U.S. Department of Energy
Golden Field Office
1617 Cole Boulevard
Golden, Colorado 80401-3305
Email: lisa.jorgenson@go.doe.gov

DOE will include correspondence with your agency in an appendix to the EA. DOE will send a Notice of Availability for the draft EA, when available, and respond to any specific comments you may have. At this time we anticipate a 15-day public comment period for this proposed project.

Please provide your comments within 30-days of receipt of this letter. Thank you in advance for your consideration.

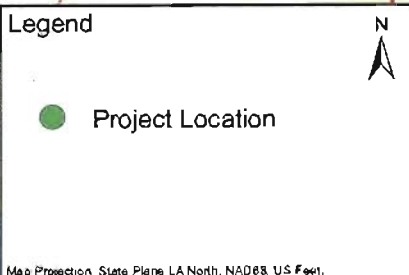
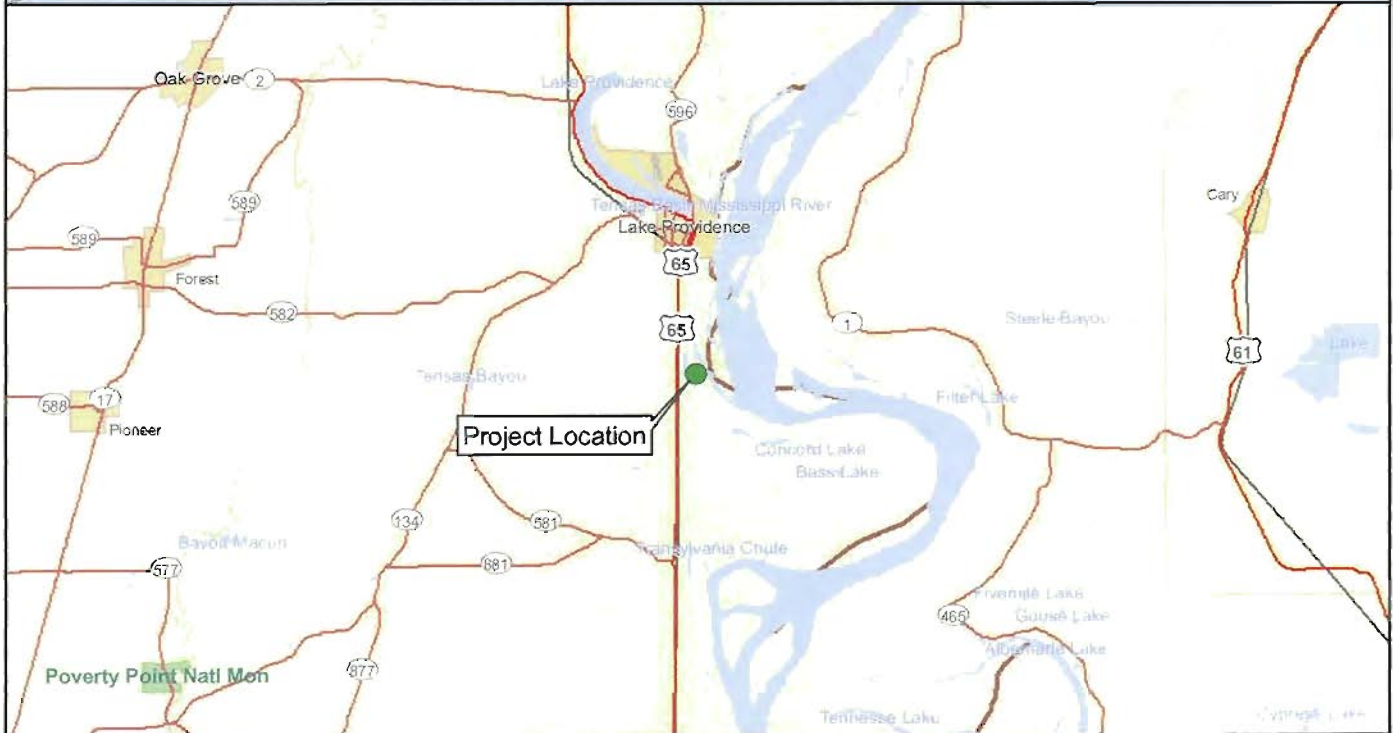
Sincerely,

A handwritten signature in black ink that reads "Lisa Jorgensen". The signature is written in a cursive style with a large, sweeping initial "L".

Lisa Jorgensen
NEPA Document Manager

Attachments

- Figure 1. Project Location
- Figure 2. Plot Plan on Aerial Photograph
- Figure 3. Detail of MySAB Facility



Myriant Succinic Acid Biorefinery

Lake Providence, LA

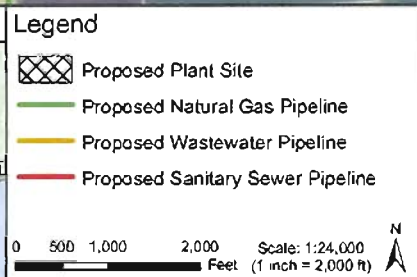
Project Location

AECOM

Figure 1

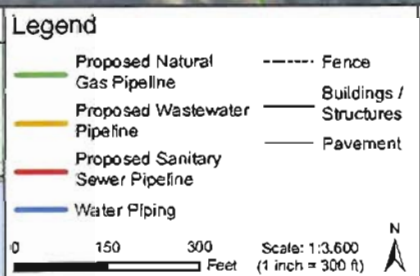
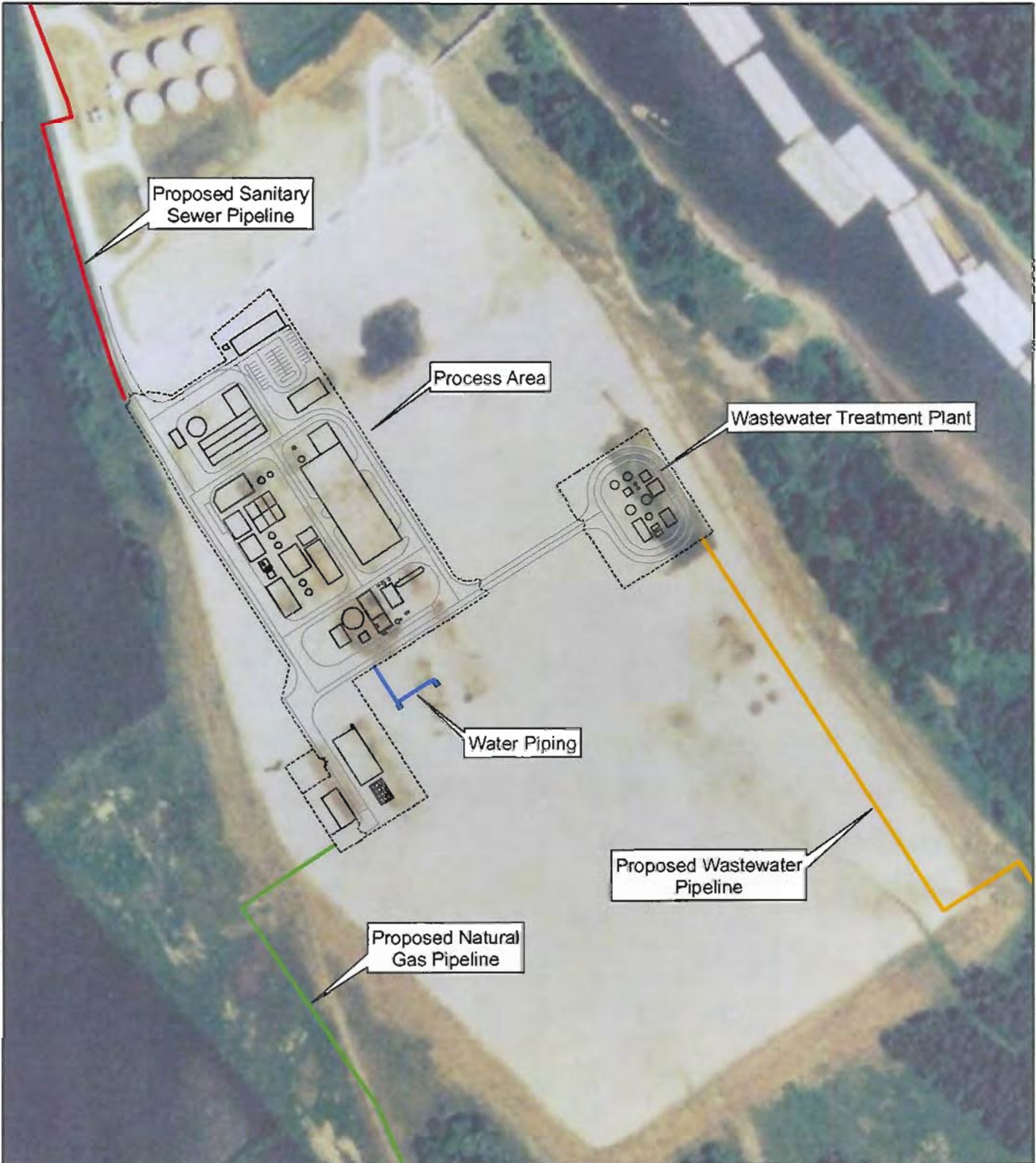
May 18, 2010

Project #: 60141442



Myriant Succinic Acid Biorefinery
 Lake Providence, LA
 Plot Plan on Aerial Photograph
 Map Projection: State Plane LA North, NAD83, US Feet.

Figure 2
 Date: May 19, 2010
 Project #: 60141442



Myriant Succinic Acid Biorefinery

Lake Providence, LA

Detail of MySAB Facility

Map Projection: State Plane LA North, NAD83, US Feet.

AECOM

Figure 3

Date: May 19, 2010

Project #: 60141442



AECOM
161 Cheshire Lane North, Suite 500
Minneapolis, MN 55441

763.852.4200 tel
763.473.0400 fax

July 1, 2010

Mr. Phil Boggan
Deputy State Historic Preservation Officer
Louisiana Office of Cultural Development
P.O. Box 44247
Baton Rouge, LA 70804-44247

**Subject: Myriant Succinic Acid Biorefinery, Port of Lake Providence
East Carroll Parish, Louisiana**

Dear Mr. Boggan,

AECOM is retained by Myriant Lake Providence, LLC (Myriant) to complete an Environmental Assessment (EA) for Myriant's planned Myriant Succinic Acid Biorefinery (MySAB Project) in East Carroll Parish, Louisiana. The proposed MySAB facility will be constructed on an industrial site that was developed by the Port of Lake Providence for industrial activities. The site is on the west bank of the Mississippi River, within the batture lands between the mainline levee and Hagaman Chute, a barge channel that serves the Port and connects to the Mississippi River approximately 1½ miles south of the Project Site (Sections 2 and 3, Township 20, Range 13E). The location of the site is shown in **Figure 1**, an overview of the proposed site and utility routes is provided in **Figure 2**, and the layout of the proposed biorefinery within the site is provided in **Figure 3**.

We respectfully request your review of project details for compliance with Section 106 of the National Historic Preservation Act (NHPA) of 1966, as amended. Because federal funding is anticipated from the U.S. Department of Energy (DOE), additional involvement of the Louisiana Office of Cultural Development will be requested through simultaneous compliance with the National Environmental Policy Act (NEPA).

Project Description

The proposed demonstration-scale facility would produce succinic acid with a nameplate capacity of 30 million pounds per year using grits from grain sorghum, a renewable feedstock. Myriant's process for producing biobased succinic acid uses both carbon dioxide and local sorghum to displace petroleum-based feedstocks. Key processes include fermentation, separation, and recovery.

The proposed MySAB facility site is a currently open 55-acre industrial site that was developed by the Lake Providence Port Commission for industrial use. In 2005 the site was filled with approximately 25 feet of clean sand from an initial elevation of approximately 100 feet to its current elevation of approximately 125 feet, as part of industrial site preparation. There are currently no operations at this site, but the Port of Lake Providence lies immediately adjacent to the north of the site. Based on a 2005 Phase I Environmental Site Assessment conducted by C-K Associates, no other historic known land use has been associated with the subject property. Historically, the property was purchased by the Lake

To enhance and sustain the world's built, natural and social environments

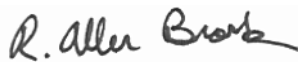
Providence Port Commission in the 1950s, and in the early 1960s, the U.S. Army Corps of Engineers restructured the Mississippi River Levee and borrowed fill from the proposed project site. Site development, including mass grading and pile driving, was conducted during the first phase of construction of Myriant's Bionol ethanol plant, beginning in 2005. However, construction of the Bionol ethanol plant was subsequently stopped and the effort was discontinued. Currently the site is clear and level. Approximately 10.6 acres of the site would be occupied by the proposed facility during operations. An additional 4.4 acres of laydown, construction offices, etc., would be required during construction (**Figure 2**).

New infrastructure will also need to be built to support the facility including:

- Effluent Wastewater Pipeline – Approximately 1.5 miles of buried pipeline will be needed from the MySAB facility to an outfall at the Mississippi River. The pipeline corridor would traverse forested wetland, which would be cleared during construction.
- Sanitary Wastewater Pipeline – Approximately 1 mile of buried pipeline will be needed from the MySAB facility, along the Port Road right-of-way, under US-65, to a tie-in with the existing force main. This entire length of the pipeline would be in industrial open space or roadside right-of-way.
- Natural Gas Pipeline – Approximately 3.5 miles of buried pipeline will be needed from the MySAB facility, around Stump Hole Lake through forested wetland, and south along the roadside right-of-way of US-65 to a tie-in with Southern Natural Gas's existing transmission line. Small areas of agricultural lands may be affected where construction area beyond the roadside right-of-way is required, but the area is expected to be limited.
- Powerline – Existing powerline will need to be upgraded to supply power during both construction and operations. There is no clearing or land disturbance anticipated with the upgrade.

We look forward to the results of your forthcoming review of the proposed Project. Please contact Dr. Suderman with any questions or concerns.

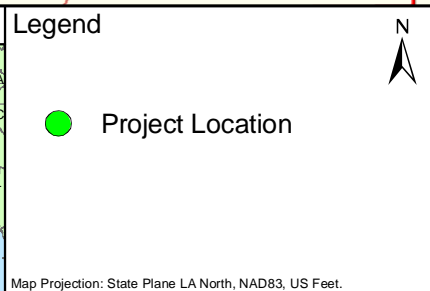
Yours sincerely,



Allen Brooks, Ph.D.
Project Specialist
Allen.Brooks@aecom.com
727-577-5430



Program Manager
Keith.Suderman@aecom.com
404-946-9486



Myriant Succinic Acid Biorefinery

Lake Providence, LA

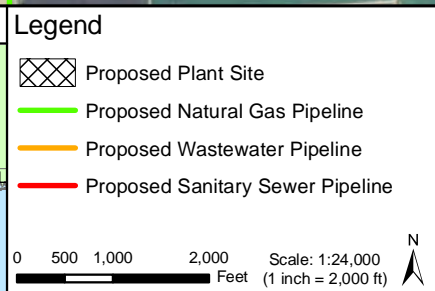
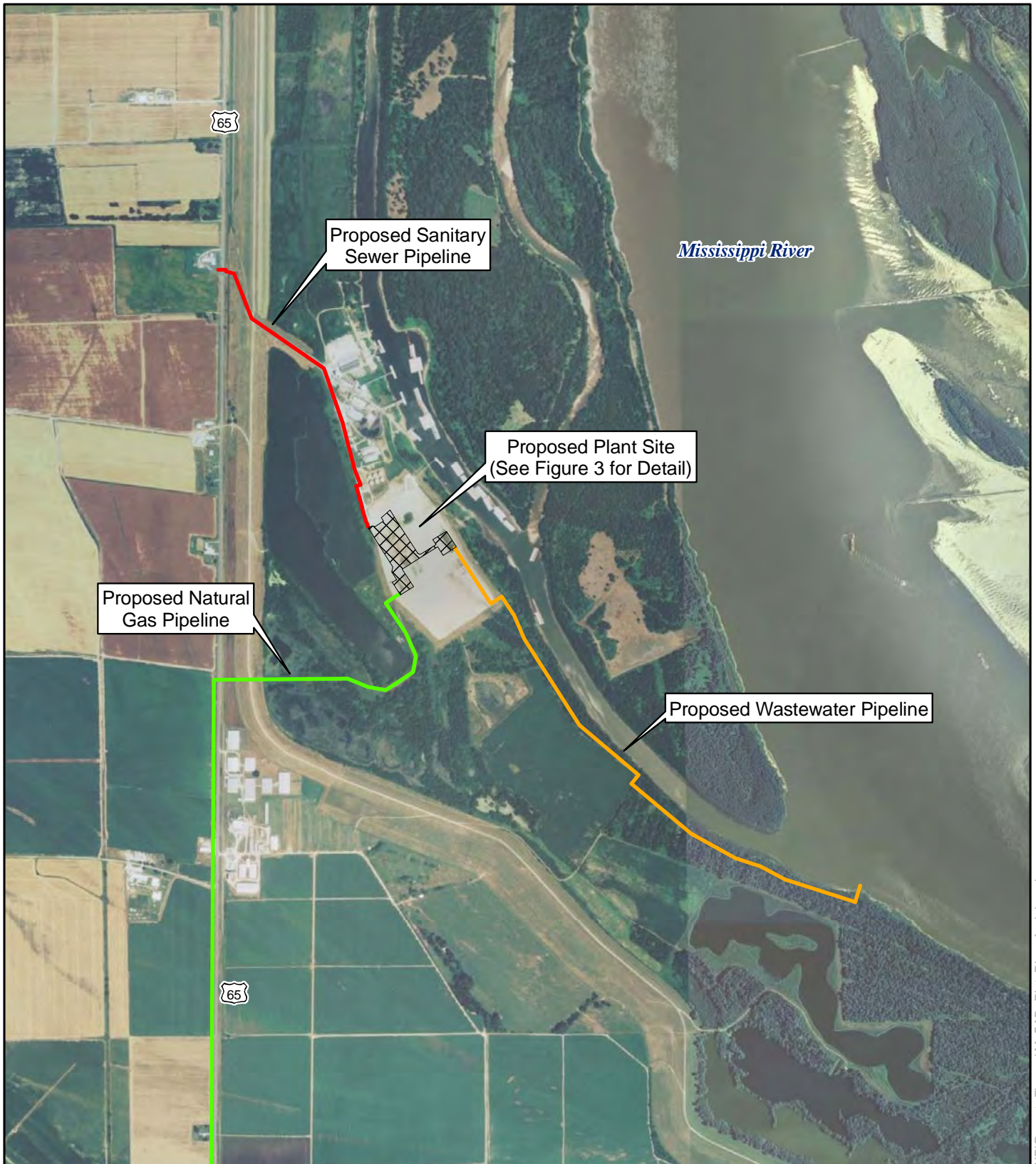
Project Location

Figure 1

May 19, 2010

Project #: 60141442

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Myriant Succinic Acid Biorefinery

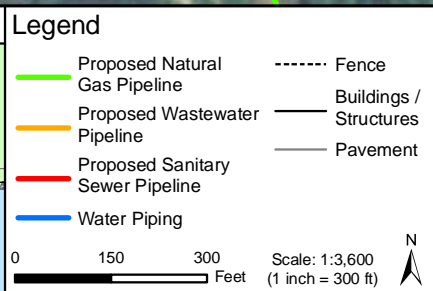
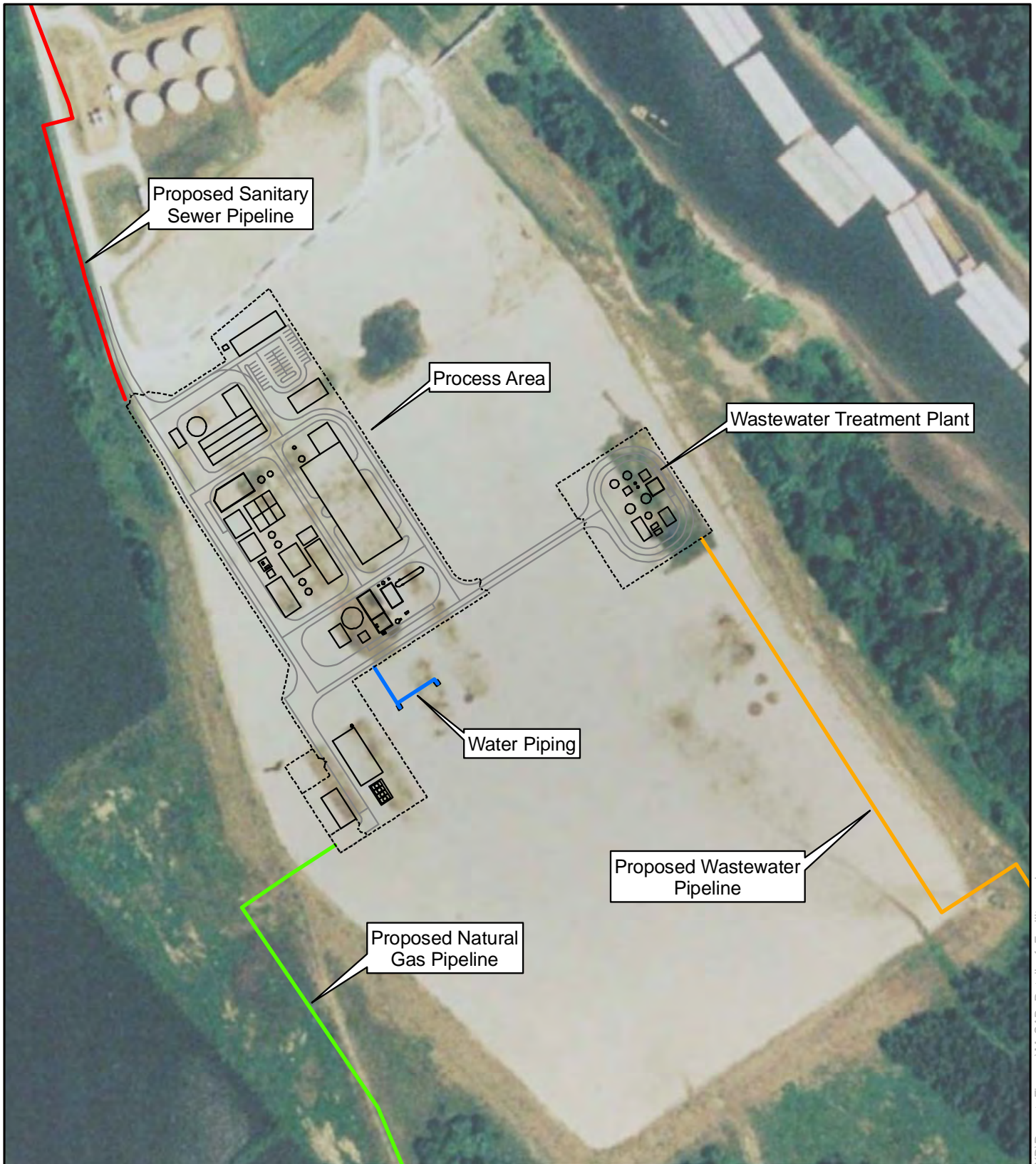
Lake Providence, LA

Plot Plan on Aerial Photograph

Figure 2

Date: May 19, 2010

Project #: 60141442



Myriant Succinic Acid Biorefinery

Lake Providence, LA

Detail of MysAB Facility

Map Projection: State Plane LA North, NAD83, US Feet.

Figure 3

Date: May 19, 2010

Project #: 60141442



United States Department of the Interior

FISH AND WILDLIFE SERVICE
646 Cajundome Blvd.
Suite 400
Lafayette, Louisiana 70506



July 30, 2010

Ms. Lisa Jorgensen
NEPA Document Manager
U.S. Department of Energy
Golden Field Office
1617 Cole Boulevard
Golden, Colorado 80401-3305

Dear Ms. Jorgensen:

Please reference the Department of Energy's June 24, 2010, letter to this office concerning a proposal to provide federal funding to Myriant Lake Providence, LLC (Myriant) for the Myriant Succinic Acid Biorefinery (MySAB) at the Port of Lake Providence, Louisiana in East Carroll Parish. Additionally, please reference a letter and report from AECOM to our office, dated July 1, 2010, associated with this project, which indicated that their company had been retained by Myriant to prepare an Environmental Assessment (EA) of the proposed project, in accordance with the National Environmental Policy Act (NEPA) of 1969 (83 Stat. 852; 42 U.S.C. 4321 et seq.) and Section 7 of the Endangered Species Act (ESA) of 1973 (87 Stat. 884, as amended; 16 U.S.C. 1531 et seq.). The U.S. Fish and Wildlife Service (Service) has reviewed all information provided and offers the following comments in accordance with provisions of the ESA; the Fish and Wildlife Coordination Act (48 Stat. 401, as amended; 16 U.S.C. 661 et seq.); the Migratory Bird Treaty Act (MBTA) (40 Stat. 755, as amended; 16 U.S.C. 703 et seq.); and the Bald and Golden Eagle Protection Act (BGEPA) (54 Stat. 250, as amended, 16 U.S.C. 668a-d).

According to information provided in the above-mentioned letters and report, federal funds would provide for final design, construction, startup, and operation of a demonstration facility and develop scaling factors for developing commercial-sized operations. Once constructed, this facility would operate to produce 30 million pounds of succinic acid annually using grits from grain sorghum. Succinic acid is used as a biobased alternative to petroleum based feedstocks in the manufacture and production of numerous products. Proposed construction would occur on an existing 55-acre industrial site that is currently clear and level. In 2005, site preparation was initiated in association with a different project, which has since been discontinued; including mass grading, pile driving, and filling with 25 feet of clean sand to the current elevation of 125 feet. Within the existing industrial site, proposed facility construction and operation would require a 30.6 acre footprint. New infrastructure would include the following: (1) Approximately 1.5 miles of effluent wastewater pipeline, from the MySAB to an outfall in the Mississippi River. It would require clearing of forested wetland for construction. (2)



Approximately 1 mile of sanitary wastewater pipeline, from the MySAB to an existing force main. It would follow existing industrial site or road right-of-way (ROW) and would not require clearing. (3) Approximately 3.5 miles of a natural gas pipeline from the MySAB, around Stump Hole Lake to tie in with an existing line. Portions would require clearing of forested wetland and portions would be along the roadside right-of-way. (4) Upgrade of an existing powerline and paving of an existing access road.

Table 1 of AECOM's report (Table 1) provides a determination of potential project-related effects on federally listed threatened and endangered species that may occur within or near the proposed project area. The fat pocketbook pearly mussel (*Potamilus capax*) is an endangered species that could potentially be impacted by the proposed project. Within Louisiana, the fat pocketbook pearly mussel is known to occur within the Mississippi River in Concordia, East Carroll, Madison, and Tensas Parishes. According to AECOM's report, the effluent pipeline will traverse from the MySAB approximately 7,920 feet in a southeasterly direction along Hagaman Chute of the Mississippi River, with an outfall in the Mississippi River. Based on this information, there is the potential for construction related impacts as well as operational related impacts. To minimize the potential for construction related impacts to the fat pocketbook pearly mussel, the Service recommends leaving an undisturbed riparian buffer of at least 200 feet to separate the proposed pipeline and the Hagaman Chute, if feasible. AECOM's report indicated that the installation of erosion control devices would protect Hagaman Chute from sediment runoff during construction and that the pipeline right-of-way would be revegetated after construction. As part of the erosion control plan, the Service recommends that sediment fences be placed along the entire construction length between the effluent pipeline and the water body prior to removing vegetation for site preparation. The following maintenance measures are recommended for the duration of construction until the disturbed area has been properly mulched or vegetation has successfully reestablished to the point where there is no exposed soil: (1) The sediment fences should be properly installed and maintained to ensure they are functioning to keep sediment from entering the Mississippi River via the Hagaman Chute or via the outfall; (2) Sediment fences should be inspected on a regular basis (i.e., biweekly) and after every heavy rainfall or high wind event; and (3) Maintenance of sediment fences should include removing excess sediment and repairing any areas that are not functioning properly. Operational impacts have the potential to degrade habitat due to reduced water quality from the effluent wastewater discharge directly into the Mississippi River. AECOM's report indicates that the wastewater would be treated on-site at a Waste Water Treatment Plant (WWTP) in accordance with Louisiana Pollutant Discharge Elimination System (LPDES) wastewater treatment permit requirements. At this time due to a lack of information, the Service cannot concur with the determination given in Table 1 that the proposal is not likely to adversely affect the fat pocketbook pearly mussel. Thus, the Service requests a written description of erosion control measures that would be implemented during construction and a copy of the LPDES permit. If you have any questions concerning information in this letter regarding the fat pocketbook pearly mussel, please contact Monica Sikes at 337/291-3118.

The interior least tern (*Sterna antillarum*) is an endangered migratory shorebird that breeds, nests, and rears its young on non-vegetated portions of sandbars and islands in the Mississippi, Missouri, Arkansas, Ohio, Red and Rio Grande river systems and rivers of central Texas. As

described in your correspondence, the proposed site would provide suitable nesting habitat for the interior least tern and is located within the nesting range; therefore, the absence of nesting should be confirmed before initiating construction during the nesting season; i.e., from May 15 through August 31. If construction is proposed during this timeframe, then the Service recommends that a nesting survey be conducted within suitable/marginally suitable nesting habitat located within 650 feet from the proposed project area. The Service recommends that no activity be conducted within 650 feet of an interior least tern nesting colony. If nesting interior least terns are located within the proposed project area or within 650 feet of any proposed activity, please contact our office for further consultation prior to initiating construction. Also, if interior least terns should be observed in proximity to the project area during the breeding season after work has commenced, all work should cease and the Service should be contacted immediately for further consultation. If all construction would take place well outside of the interior least tern nesting season, then no further consultation on potential impacts to this species would be necessary. Due to the lack of survey information and an inadequate description of proposed project timing (i.e., will it take place in the breeding season), the Service cannot, at this time, concur with the determination given in Table 1 that the proposed project is not likely to adversely affect the interior least tern. If you have any questions concerning information in this letter regarding this species, please contact Mike Sealy at 337/291-3118.

The threatened Louisiana black bear (*Ursus americanus luteolus*) is primarily associated with forested wetlands; however, it utilizes a variety of habitat types, including marsh, spoil banks, and upland forests. Within forested wetlands, black bear habitat requirements include soft and hard mast for food, thick vegetation for denning escape cover, vegetated corridors for dispersal, large trees for den sites, and isolated areas for refuge from human disturbance. Based on previous bear data collected in relation to the proposed project location, it is unlikely that Louisiana black bears or their dens would be encountered during clearing operations for the infrastructure. The Service concurs with determination given in Table 1 that implementation of the proposed project is not likely to adversely affect the Louisiana black bear due to the location of proposed construction and the relatively small amount of forested habitat proposed for removal.

The pallid sturgeon (*Scaphirhynchus albus*) is an endangered fish found in Louisiana within the Mississippi, Atchafalaya, and Red Rivers. The pallid sturgeon is adapted to large, free-flowing, turbid rivers with a diverse assemblage of physical characteristics that are in a constant state of change. Detailed habitat requirements of this fish are not known, but it is believed to spawn in Louisiana. This project proposes to conduct hydrostatic testing of large tanks constructed on site, which would result in a one-time water withdrawal from Hagaman Chute of approximately 475,000 gallons of water. Because of the potential for water withdrawal to displace pallid sturgeon adults, larvae, and eggs from the river into the tanks, AECOM's report proposes measures to minimize impacts to the species, including the use of a 50 micron wedgewire screen (no. 270 Sieve). No additives would be used during the hydrostatic testing. The water would be placed back into Hagaman Chute once testing was complete. Either an energy dissipating structure would be used to minimize the rate at which the water was returned into Hagaman Chute or the water would be run through the WWTP system for release through the effluent pipeline. The Service agrees that all measures proposed will serve to minimize potential impacts

to this species; however, we recommend that the intake velocity during water withdrawal for the hydrostatic testing not exceed 0.5 feet per second. At this time, due to lack of information on intake velocity during proposed water withdrawal, the Service cannot concur with the determination given in Table 1 that the proposed project is not likely to adversely affect the pallid sturgeon. Please provide our office with the maximum intake velocity rate that would be expected during water withdrawal for Hagaman Chute. Alternately, if water is taken from an on-site well rather than Hagaman Chute, as suggested as an alternative in AECOM's report, then no consultation would be needed for water withdrawal. If you have any questions concerning information in this letter regarding the Louisiana black bear or the pallid sturgeon, please contact Robert Smith at 337/291-3134.

According to the information provided, several pipelines are being proposed (natural gas, sanitary sewer, and wastewater). It appears that the proposed sanitary sewer pipeline would utilize existing ROWs in order to reduce wetland impacts. The natural gas pipeline would also use existing ROWs along the road, but would require clearing of approximately 3,000 linear feet of forested wetlands from the proposed MySAB facility to the road ROW. The entire wastewater pipeline would be constructed from the proposed MySAB facility to the Mississippi River through forested wetlands.

The Service has concerns regarding project related impacts to wetlands. Therefore, the Service recommends the EA include a detailed description of the different types of wetlands present within the proposed routes and how those wetlands would be traversed with the proposed pipelines. If the EA reveals high quality wetlands within the proposed natural gas pipeline route and within the proposed wastewater pipeline route, the Service recommends the following avoidance and minimization features:

- The horizontal directional drilling (HDD) method should be used, to the maximum extent practicable, in order to minimize impacts to the forested wetlands within the proposed natural gas route and;
- Construction of the wastewater pipeline should begin at the proposed MySAB facility and end within the existing waterway adjacent to the proposed project area (outfall in Hagaman Chute), thereby reducing the length of the wastewater pipeline and wetland impacts. If not feasible, then the Service recommends the EA explain why the proposed wastewater pipeline would need to empty directly into the Mississippi River and not into adjacent Hagaman Chute.
- If it is determined necessary for the proposed wastewater pipeline to empty into the Mississippi River, the HDD method should then be evaluated for that pipeline construction.

Because the proposed project would impact wetlands, we recommend that a complete jurisdictional wetland delineation of the proposed project area be conducted. Please contact Mr.

Charles Allred (601/631-5546) at the Vicksburg District, U.S. Army Corps of Engineers (Corps) for assistance in that effort. Official Service comments, pertaining to wetland impacts, will be provided in response to the corresponding Public Notice issued by the Corps. If you have any questions concerning information in this letter regarding wetlands, please contact Josh Marceaux at 337/291-3110.

The proposed clearing of forested wetland has the potential to impact migratory bird habitat, although some impacts would be temporary because the project description includes allowing most of the disturbed areas to revegetate to natural conditions post-construction. The Service recommends that the EA disclose the linear feet and the acreage of all habitat types within forest areas affected by the proposed action and assess for potential impacts to migratory birds and their habitat. Any mitigation measures that would minimize or avoid impacts to wetlands would also be applicable for migratory bird habitat.

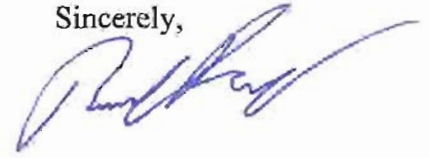
The project-area forested wetlands may provide nesting habitat for the bald eagle (*Haliaeetus leucocephalus*), which was officially removed from the List of Endangered and Threatened Species on August 8, 2007 but is still protected under the MBTA and the BGEPA. We recommend that surveys be conducted for the presence of active (current) or alternate (former) bald eagle nests in potential bald eagle nesting habitat within the proposed project area. In Louisiana, bald eagles typically nest in mature trees (e.g., bald cypress, sycamore, willow, etc.) near fresh to intermediate marshes or open water from October through mid-May. If a bald eagle nest is discovered within or adjacent to the proposed project area, please visit <http://www.fws.gov/southeast/es/baldeagle> to conduct an on-line evaluation to determine whether the project is likely to disturb nesting bald eagles and obtain recommendations necessary to avoid such disturbance. Please print a copy of the evaluation/recommendations for your records. If those recommendations cannot be adopted, we advise you to notify our office and contact the Service's Division of Migratory Birds for the Southeast Region at 404/679-7072 for further guidance. If you have any questions concerning information in this letter regarding the migratory birds or the bald eagle, please contact Mike Sealy at 337/291-3118.

In summary, the Service concurs with your determination that the proposal is not likely to adversely affect Louisiana black bear; provides recommendations and requests additional project related information pertaining to the fat pocketbook pearly mussel, the interior least sturgeon, and the pallid sturgeon; provides precursory suggestions for minimizing or avoiding impacts to wetlands and migratory bird habitat; recommends that the project area be surveyed for bald eagle nests; and provides information on actions to take if bald eagle nests are discovered.

The Service looks forward to continued ESA consultation on this project as well as continued coordination to help minimize impacts to wetlands and migratory birds. We appreciate the

opportunity to comment on this proposal at the early planning stages and anticipate reviewing and commenting on the EA.

Sincerely,

A handwritten signature in blue ink, appearing to read 'Brad Rieck', written in a cursive style.

Brad Rieck
Deputy Supervisor
Lafayette Field Office

Cc:

U.S. Army Corps of Engineers (USACE): Vicksburg, MS
Louisiana Department of Wildlife and Fisheries; Natural Heritage Program, Baton Rouge, LA

Louisiana Department of Environmental Quality, Baton Rouge LA

AECOM, Minneapolis, MN

NOAA Fisheries, St. Petersburg, FL



SCOTT ANGELLE
LIEUTENANT GOVERNOR

State of Louisiana
OFFICE OF THE LIEUTENANT GOVERNOR
DEPARTMENT OF CULTURE, RECREATION & TOURISM
OFFICE OF CULTURAL DEVELOPMENT
DIVISION OF ARCHAEOLOGY

PAM BREAU
SECRETARY

July 9, 2010

Lisa Jorgensen
NEPA Document Manager
Department of Energy
1617 Cole Boulevard
Golden, CO 80401

Re: Myriant Succinic Acid Biorefinery Demonstration Facility
Lake Providence, East Carroll Parish, Louisiana

Dear Ms. Jorgensen:

This is in response to your letter dated June 2, 2010, regarding the above-referenced project. The natural gas line proposed as part of this undertaking runs immediately adjacent to site 16EC85 (Hollybrook Site), which has been nominated to the National Register of Historic Places. Due the location of the pipeline in relation to this site, our office is requesting that a Phase I archaeological survey be conducted in the pipeline right-of-way prior to construction. I have attached a list of contracting archaeologists for your use.

If you have any questions concerning these comments, please contact Chip McGimsey in the Division of Archaeology at (225) 342-8165.

Sincerely,

Phil Boggan
Deputy Historic Preservation Officer

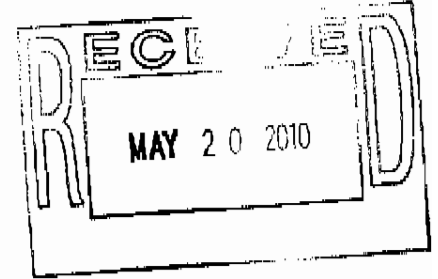
PB:CM:kf

**DEPARTMENT OF THE ARMY**

VICKSBURG DISTRICT, CORPS OF ENGINEERS
4155 CLAY STREET
VICKSBURG, MISSISSIPPI 391833435

REPLY TO
ATTENTION OF:

May 13, 2010



Regional Planning and
Environment Division South
Vicksburg Planning Branch

Ms. Elisa Lucas
East Carroll Parish Police Jury
400 First Street
Lake Providence, Louisiana 71254


Dear Ms. Lucas:

I refer to your facsimile of May 10, 2010, requesting flood information for the property located in Sections 1, 2, 3, and 4, Township 20 North, Range 13 East in East Carroll Parish, Louisiana.

The 100-year frequency flood elevation for the above-mentioned property is approximately 119.5 feet, National Geodetic Vertical Datum.

I trust this information meets your needs. If we can be of further assistance, please contact Mr. Brian LaBarre of this office (telephone (601) 631-5437).

Sincerely,


Patricia R. Hemphill, P.E.
Assistant Chief, Planning,
Programs, and Project
Management Division

Appendix C
Wetland and Waterbody Delineation Report

Prepared for:
Myriant Technologies



**Wetland and Waterbody Delineation Report
Myriant Succinic Acid Plant (MySAB)
East Carroll Parish, LA**

Prepared for:
Myriant Technologies

Wetland and Waterbody Delineation Report Myriant Succinic Acid Plant (MySAB) East Carroll Parish, LA

Prepared By:



Patrick Winnubst
AECOM Environment

Reviewed By:



Keith Suderman, PhD
AECOM Environment

Contents

1.0 Introduction	1
2.0 Scope of work	1
3.0 Survey results	1
3.1 Habitat Features.....	2
4.0 Threatened and endangered species	4

Attachment No. 1 – Mapping

Attachment No. 2 – Field Data Forms

Attachment No. 3 - Photographs

1.0 Introduction

At the request of Myriant Lake Providence, LLC (Myriant), AECOM performed an environmental survey for the Proposed Myriant Succinic Acid Biorefinery (MSAB) Demonstration Facility site and all supporting infrastructure (project). The project is located along US Route 65 and Port Road in East Carroll Parish, Louisiana, approximately three miles south of the City of Lake Providence. The area surrounding the project is comprised of mixed commercial/industrial business and intensive agriculture.

2.0 Scope of work

AECOM conducted a survey of areas that were previously identified as proposed locations for the Project on March 31, 2010. More specifically, survey efforts were divided amongst four different Project areas including:

- Facility site, an approximately 55-acre site located at the terminus of Port Road;
- Sanitary wastewater pipeline route, an existing utility right-of-way (ROW) located along the north side of Port Road. The south shoulder of the road was surveyed as an alternative route;
- Natural gas pipeline route, located in an existing utility ROW located along the west side of U.S. Route 65; and
- Wastewater pipeline route, located in low-lying forested wetland associated with the Mississippi River floodplain.

Please see project drawings in Attachment 1 for a more detailed depiction of the proposed Project layout. Surveys and field data collection were conducted to delineate the extent of any areas identified as wetlands or waterbodies. Wetland and waterbody delineations were based on the 1987 USACE Wetland Delineation Manual.

During the field survey, AECOM also conducted a concurrent listed-species habitat assessment of the site. A preliminary desktop review of potential rare, threatened, and endangered species in the Parish was performed prior to the survey, and the site was assessed for suitable habitat for the species identified.

3.0 Survey results

Field surveys identified one palustrine forested (PFO) wetland, five perennial, and three intermittent streams within the boundary of the facility site and survey corridors. In addition, two areas of prior-converted croplands were observed in the agricultural lands outside the proposed natural gas pipeline survey corridor (which runs within the road right-of-way). As defined by the USACE under Section 404 of the Clean Water Act (CWA) prior-converted croplands are wetlands that were drained, dredged, filled, leveled, or otherwise manipulated, including the removal of woody vegetation, before December 23, 1985, to make production of an agricultural commodity possible, and that (1) do not meet specific hydrologic criteria, (2) have had an agricultural commodity planted or produced at least once prior to December 23, 1985, and (3) have not since been

abandoned. Based on National High Altitude Photographs (NHAP) from the U.S. Geological Service (USGS) of the Project area prior to December 23, 1985, it was determined that these areas were previously cleared and therefore are exempt from Section 404 permitting requirements. Boundaries for the prior-converted wetlands were difficult to ascertain in the field because of disturbance to soils and replacement of vegetation associated with agricultural activities, so the approximate location of these non-jurisdictional potential-wetland areas is shown as a single point. These potential prior-converted wetland areas did not extend into the road right-of-way (where the natural gas pipeline will be located).

Data collected for all waterbodies identified during the survey is summarized in Table 3-1. The locations and extent of the features identified are depicted in Attachment No. 1 – Mapping.

3.1 Habitat Features

Field data sheets and representative photographs of the habitat observed within the survey area are included in Attachments No. 2 and 3, respectively. The following features were identified and described within the survey area:

Facility Site

The majority of the site is graded and leveled with the exception of several small low-lying areas where water has collected. Within some of these areas several water tolerant species of plants (e.g., cattail, black willow, Chinese tallow) have begun to establish themselves. Soils are relatively recent construction fill. No wetlands were identified.

Sanitary Pipeline Route

This route traverses the industrial site, follows Port Road to US-65, crosses under US-65, and ties in to the force main in the road right-of-way. A 30-foot corridor was surveyed along each shoulder of Port Road leading towards the facility site. This area primarily consisted of moderately sloped road edge/shoulder. Several utilities, including water and electric, were located within the north shoulder.

The proposed route is constrained by Stump Hole Lake (S1AEC008) to the south and west and the forested floodplain of the Mississippi River to north and east. Ample right-of-way appears to exist on either shoulder of Port Road to allow for the installation of the proposed utilities. No wetlands were identified along this route.

Wastewater Pipeline Route

The wastewater effluent pipeline would parallel Hagaman Chute for approximately 1.5 miles before its outfall to the Mississippi River. Hagaman Chute would not be directly impacted by the construction of the wastewater line, but much of the route is within the Mississippi River floodplain, which is wetland (**W1AEC003**).

Due to a higher than normal river stage, this survey corridor and the surrounding area were deeply inundated, and a pedestrian survey of the area could not be completed. Observations from the mainline levee and the raised facility site indicated that this area contained many of the same tree species commonly found in the batture lands in the area. Overall tree height indicated that this area has not been recently disturbed, further suggesting the wetland nature of the area.

- **Wetland W1AEC003** – The Mississippi River floodplain is a high-quality PFO wetland surrounding the facility site and Hagaman Chute. At the time of the survey the wetland and surrounding area were inundated, and a detailed examination of the area was therefore not possible. Dominant plant species within the wetland included black willow (*Salix nigra*), sycamore (*Platanus occidentalis*), red maple (*Acer rubrum*), and green ash (*Fraxinus pennsylvanica*). (Photos 17-20).

Natural Gas Pipeline Route:

The natural gas pipeline route will traverse the Mississippi River floodplain (Wetland W1AEC003) around the southern end of Stump Hole Lake (S1AEC008), cross the mainline levee, pass under US-65, and follow the US-65 right-of-way south approximately three miles to the tie-in with SNG's transmission line. A 50-foot survey corridor along the western edge of US Route 65 was surveyed. Several utilities, including water and electric, were located within the surveyed area. Land use along this portion of the project consisted mostly of road/utility right-of-way with intensive agriculture practices beginning approximately 30 feet from the edge of the road. The proposed route is constrained by agricultural fields to the west and US Route 65 to the east. Field surveys identified the following waterbodies and wetlands along this route:

- **Wetlands W1AEC001 and W1AEC002** – Prior-converted agricultural wetlands adjacent to the US-65 right-of-way. No hydrophytic vegetation was present. Soils were disturbed.
- **Waterbody S1AEC001** – This stream is a low-quality perennial waterbody which receives a majority of its flow from the surrounding agricultural fields (agricultural ditch). The stream enters the survey corridor from a storm water culvert under US-65. Limited flow was observed at the time of the inspection. Aquatic habitats included instream submerged plants and deep pools. Juvenile fish and adult frogs were observed within the stream. Stream substrate was comprised of a mixture of silt/clay and organic material. (Photos 1 and 2).
- **Waterbody S1AEC002** – This stream is a moderate-quality perennial waterbody, which receives a majority of its flow from the surrounding agricultural fields (agricultural ditch). Limited flow was observed at the time of the inspection. Aquatic habitats consisted mainly of in-stream emergent plants. Fish, frogs, and several snakes were observed within the stream and on the stream bank. Stream substrate was comprised of a mixture of silt/clay, sand, and organic debris. (Photos 3 and 4).
- **Waterbody S1AEC003** – This stream is a moderate-quality perennial waterbody which receives a majority of its flow from the surrounding agricultural fields (agricultural ditch). The stream enters the survey corridor from a storm water culvert under US-65. Limited flow was observed at the time of the inspection. Aquatic habitats consisted primarily of overhanging shrubs and in-stream emergent plants. Fish and several frogs were observed within the stream. Stream substrate was comprised of a mixture of silt/clay, sand, and gravel. (Photos 5 and 6).
- **Waterbody S1AEC004** – This stream is a low-quality perennial waterbody, which receives all of flow from the surrounding agricultural fields (agricultural ditch). The stream enters the survey corridor from a storm water culvert under US-65. No flow was observed at the time of the inspection; however, several small pools of water were observed. Aquatic habitat consisted primarily of in-stream emergent plants. Several frogs were observed within the stream. Substrate was comprised of silt/clay, gravel, sand, and organic debris. (Photos 7 and 8).
- **Waterbody S1AEC005** – This stream is a low-quality intermittent waterbody (agricultural ditch), which receives all of its flow from the surrounding agricultural fields. The stream enters the survey corridor from a storm water culvert under US-65. No flow was observed at the time of the inspection; however, several small pools of water were observed. Fish and several frogs were observed within the pools. Substrate was comprised of silt/clay, gravel, sand, and organic debris. (Photos 9 and 10).
- **Waterbody S1AEC006** – This stream is a low-quality intermittent waterbody (agricultural ditch), which receives all of its flow from the surrounding agricultural fields. The stream enters the survey corridor from a storm water culvert under US-65. No flow was observed at the time of the inspection; however, several small pools of water were observed. Fish were observed within the pools during the

inspection. Substrate was comprised of silt/clay, gravel, sand, and organic debris. (Photos 11 and 12).

- **Waterbody S1AEC007** – This stream is a low-quality intermittent waterbody (agricultural ditch), which receives all of its flow from the surrounding agricultural fields. The stream enters the survey corridor from a storm water culvert under US-65. No flow was observed at the time of the inspection; however, several small pools of water were observed. No aquatic habitat was present or aquatic organisms were observed at the time of the inspection. Stream substrate was comprised of silt/clay, gravel, sand, and organic debris. (Photos 13 and 14).
- **Waterbody S1AEC008, Stump Hole Lake** - Is a high-quality lake that is associated with the Mississippi River floodplain. This waterbody receives input from the Mississippi River during high-water events as well as surface runoff. Several aquatic organisms including snakes, fish, and turtles were observed during the inspection. Substrate was comprised of silt/clay, sand, and organic material. During the inspection several boats were observed fishing along the shoreline of the lake. (Photos 15 and 16)

**Table 3-1
Waterbodies Located in Project Area**

Feature ID	Description	Water Width (ft)	Water Depth (inches)	Substrate ^a
S1AEC001	Perennial	3.0	0-3	Si/C, O, S
S1AEC002	Perennial	35.0	18-24	Si/C, S, O
S1AEC003	Perennial	2.5	0-3	Si/C, S, G
S1AEC004	Perennial	3	0-3	Si/C, S, G, O
S1AEC005	Intermittent	2.5	0-3	Si/C, G, S, O
S1AEC006	Intermittent	2.5	0-3	Si/C, G, S, O
S1AEC007	Intermittent	2.5	0-3	Si/C, G, S, O
S1AEC008	Perennial	990	60+	Si/C, S, O

^aSubstrate: C = Clay, Si = Silt, O = Organic Matter, S = Sand, G = Gravel

4.0 Threatened and endangered species

A desktop analysis was performed using the Louisiana Department of Wildlife and Fisheries and U.S. Department of Agriculture (USDA) Natural Resources Conservation Service threatened and endangered species inventory listed by Parish. In East Carroll Parish, one species of fish, one species of bird, one species of invertebrate, and one species of mammal are listed as threatened or endangered; please see Table 4-1 for a detailed list of these species.

No species listed as federal or state Threatened or Endangered were observed during the field survey.

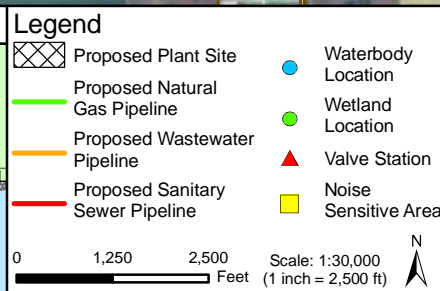
**Table 4-1
State and Federally Protected Species Present in East Carroll Parish, Louisiana**

Common Name (Scientific Name)	State Status	Federal Status	Habitat	Potential Habitat Observed During Field Surveys
Fat Pocketbook Pearly Mussel (<i>Potamilus capax</i>)	N/A	E	Sand, mud, and fine gravel bottoms of large rivers	No. Mississippi River located in close proximity to Project, but no in-water construction planned for the Project.
Interior Least Tern (<i>Sterna antillarum anthalassos</i>)	E	E	Preferred riverine nesting areas are sparsely vegetated sand and gravel bars within a wide unobstructed river channel. Nesting starts when river flows are high and small amounts of the sand/gravel bars are exposed. Where preferred habitat is unavailable, Least Terns may nest in dike fields, sand and gravel pits, and other artificial sites.	No. No sparsely vegetated sand and gravel bars within a wide unobstructed river channel are located in the Project area. Preferred habitat is present on the other side of the Mississippi River, more than 1½ miles from the project site.
Louisiana Black Bear (<i>Ursus americanus uteolus</i>)	T	T	Bottomland hardwood forests with minimal human disturbance	Yes. Bottomland hardwood forest is located along the proposed effluent wastewater pipeline route.
Pallid Sturgeon (<i>Scaphirhynchus albus</i>)	E	E	Large rivers in the southeastern United States	No. Mississippi River located in close proximity to Project, but no in-water construction planned for the Project.

Key: E=Endangered; T=Threatened

Source: Louisiana Department of Wildlife and Fisheries (LDWF);

U.S. Department of Agriculture (USDA) Natural Resources Conservation Service



Myriant Succinic Acid Biorefinery
Lake Providence, LA

Land Use

AECOM

Figure 3.1-1

Date: June 30, 2010

Project #: 60141442

Waterbody ID No.: SIAEC001

Date: 03/31/10 Client/Project Name & No.: Myriant M4 SAB Milepost:

QUALITATIVE ATTRIBUTES

Water Appearance	Clear	Slightly Turbid	<u>Turbid</u>	Very Turbid	Color:
	Floating algal mats	Obvious surface scum	Sheen on surface	Greenish color	Other:
Stream Substrate %	Bedrock _____	Gravel _____	Sand <u>10</u>	Silt/Clay <u>70</u>	Organic <u>20</u>
Aquatic Habitats	Sand Bar	Gravel Bar	Mud Bar	Gravel Riffles	<u>Deep Pools</u>
Undercut Banks	Overhanging trees/shrubs	In-stream emergent plants Percent Cover _____	In-stream submerged plants Percent Cover <u>6-20%</u>	Bank root systems	Fringing Wetlands
Aquatic Organisms Observed	Waterfowl	Fish (adult)	<u>Fish (juvenile)</u>	<u>Frogs</u>	Turtles
	Snakes	Other:			
	Invertebrates:	Intolerant	Facultative	Tolerant	None
Riparian Zone	Width of natural vegetation zone from edge of active channel out onto flood plain: <u>0</u> (ft) Circle vegetative layers: trees shrubs herbs <input type="checkbox"/> Significant bare areas within riparian zone <input type="checkbox"/> Evidence of non-buffered concentrated flows				
Tributary Is	Natural	<u>Artificial (Man-Made)</u>	Manipulated (Explain below)		Stable / Unstable
Channel Condition	Channelization/Braiding	<u>Unnatural straightening</u>	Downcutting	Dikes/Berms	Excessive bank erosion
Disturbances	<input type="checkbox"/> Livestock access to riparian zone		<input type="checkbox"/> Manure in stream or on banks		
	<input type="checkbox"/> Waste discharge pipes present		<input type="checkbox"/> Other: _____		

T/E SPECIES / SUITABLE HABITAT Habitat ID No.:
None observed

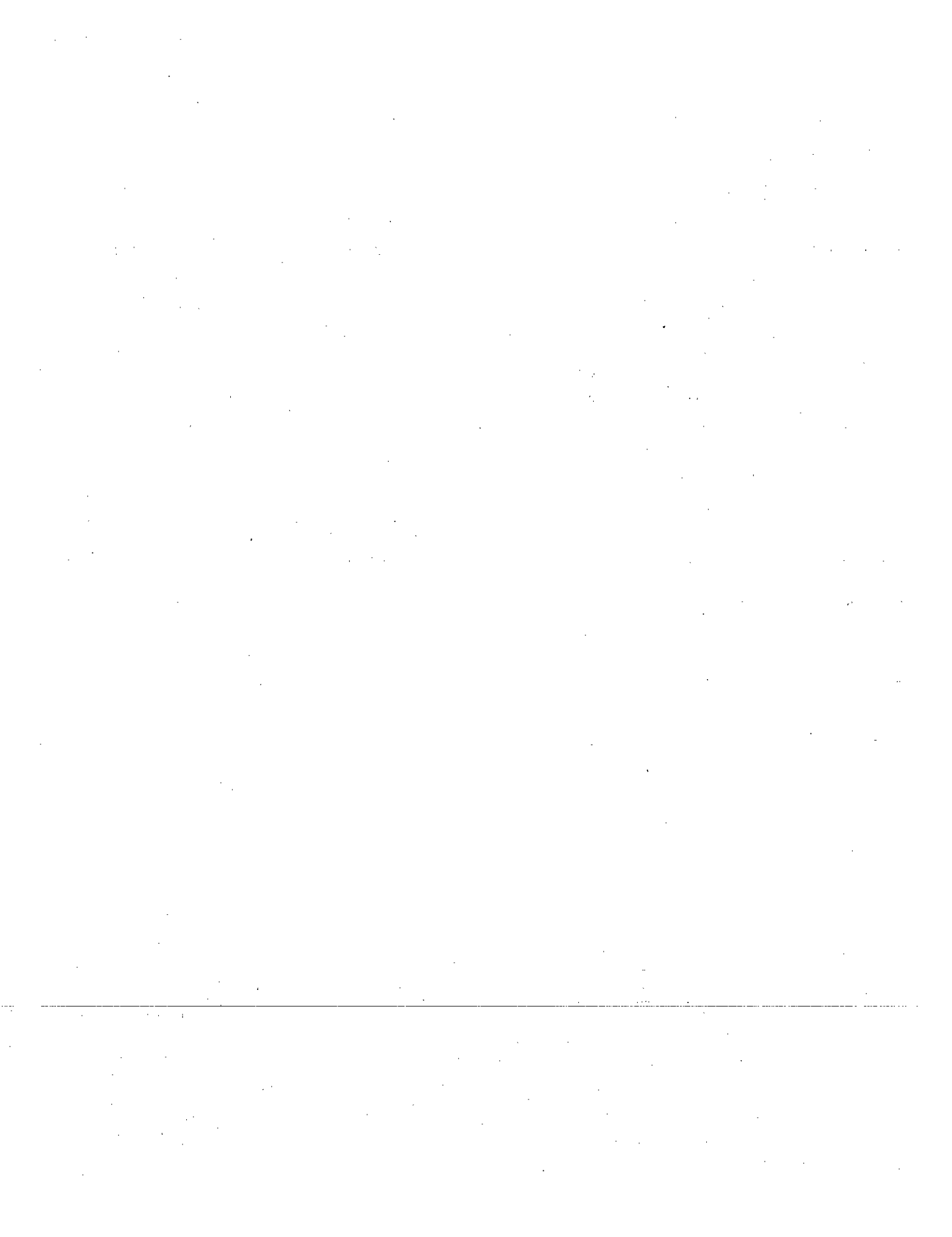
Comments (e.g., pipeline crossing angle, construction constraints, erosion potential, existing disturbances, and meanders)
Small perennial/intermittent stream of low quality. Banks maintained and mowed. Juvenile fish and frog species observed. Receives most input from neighboring agr. fields.

STREAM QUALITY (indicate) High Moderate Low

High Quality: Natural channel (no structures or dikes; no evidence of downcutting or excessive lateral cutting); evidence of past channel alteration with significant recovery; any dikes/levees are set back to provide access to adequate flood plain; natural vegetation extends at least one or two active channel widths on each side; banks stable and protected by roots that extend to the base-flow elevation; water clear to tea-colored; no barriers to fish movement (seasonal water withdrawals prevent movement); many fish cover types available; diverse and stable aquatic habitat; no disturbance by livestock or man; intolerant macroinvertebrates present.

Moderate Quality: Altered channel evidenced by rip rap and/or channelization; dikes/levees restrict flood plain width; natural vegetation extends 1/3-1/2 of the active channel width on each side; filtering function of riparian vegetation only moderately compromised; banks moderately unstable (outside bends actively eroding with few fallen trees); considerable water cloudiness, submerged objects covered with green film; moderate odor; minor barriers to fish movement; 4-3 fish cover types available; fair aquatic habitat; minimum disturbance by livestock or man; Facultative macroinvertebrates present.

Low Quality: Channel is actively downcutting or widening; rip rap and channelization excessive; flood plain restricted by dikes/levees; natural vegetation less than 1/3 of the active channel width on each side; lack of regeneration; filtering function severely compromised; Banks unstable (inside and outside bends actively eroding with numerous fallen trees); water very turbid to muddy; obvious pollutants (algal mats, surface scum, surface sheen); heavy odor; green color to water; severe barriers to fish movement; 2-0 fish cover types available; little to no aquatic habitat; severe disturbance by livestock or man; tolerant or no macroinvertebrates present.



WATERBODY

ENSR | AECOM

Waterbody Name: Unknown Trub

Waterbody ID No.: SIAEC002

Centerline Re-Route Access Road Warehouse Site Other:

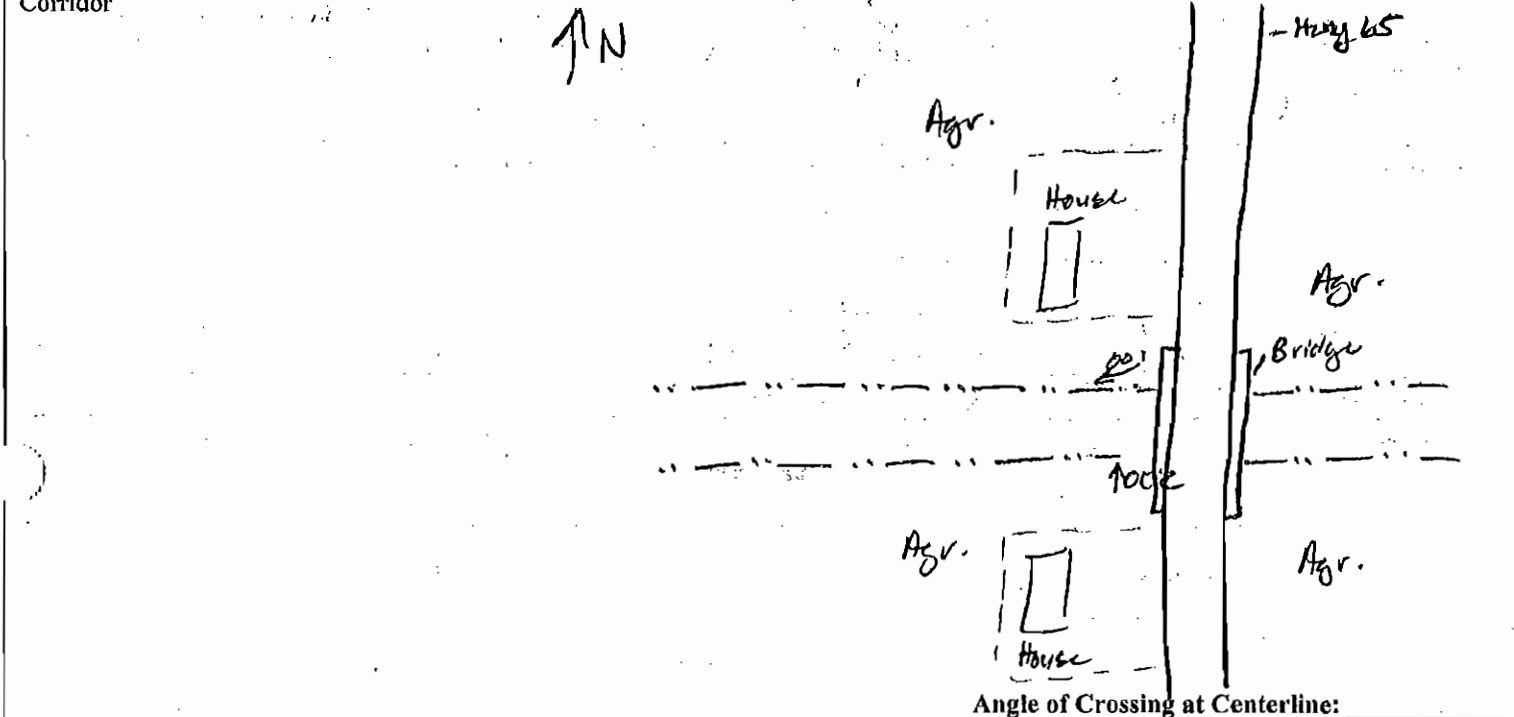
Associated Wetland No.: _____

Date: <u>03/31/10</u>	Client/Project Name & No.: <u>Myricent</u>	Milepost:
Investigators: <u>P. Winnibist M. Sammons</u>	State/County/Municipality: <u>LA/E. Carroll Parish</u>	Quad Name:
Logbook No.: <u>101</u>	Logbook Page No.:	Block/Lot/Tract No.: <u>007W, 008S</u>
		Picture No.: <u>007W, 008S</u>

PHYSICAL ATTRIBUTES

Waterbody Sketch Plan

Please include: Directional & North Arrow, Centerline, Length of Feature, Distances from Centerline, Photo Locations, and Survey Corridor



Waterbody Type	Lake	Pond	Borrow Pit	River	<u>Stream</u>	Ag. Ditch	Other:
Stream Flow	Fast		Moderate		Slow	<u>Very Slow</u>	
Flow Type	<u>Perennial (Flows > 3 months annually)</u>		Intermittent/Seasonal (Flows < 3 months annually)		Ephemeral (Flows only in response to rainfall)		Direction: _____
OHWM Indicator <u>0.5</u>	<u>Clear natural line on bank</u>		Shelving	Wrested vegetation	Scour	Water Staining	
<u>Bent, matted, or missing vegetation</u>	Soil character changes		Abrupt plant community change		Wrack line	Litter and debris	
Sinuosity	<u>Straight</u>		Meandering		Subsurface Flow?		Yes No Unknown
Stream Depth (ft.)	0-3	3-6	6-12	12-18	<u>18-24</u>	24-36	36-48 48-60 60+
Stream Width (ft.)	Top of Bank (at crossing location): <u>40'</u>			Water Surface (at crossing location): <u>35'</u>			
Bank Height (ft.) (looking downstream else give direction you are facing here:)	Left	0-2	2-4		<u>4-6</u>	6-8	8+
	Right	0-2	2-4		<u>4-6</u>	6-8	8+
Bank Slope (°) (looking downstream else give direction you are facing here:)	Left	0-20	20-40		40-60	<u>60-80</u>	80+
	Right	0-20	20-40		40-60	<u>60-80</u>	80+

Date: <u>02/21/10</u>	Client/Project Name & No.: <u>Myriad</u>	Milepost:
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QUALITATIVE ATTRIBUTES

Water Appearance	<input type="checkbox"/> Clear	<input type="checkbox"/> Slightly Turbid	<input checked="" type="checkbox"/> Turbid	<input type="checkbox"/> Very Turbid	Color:
	<input type="checkbox"/> Floating algal mats	<input type="checkbox"/> Obvious surface scum	<input type="checkbox"/> Sheen on surface	<input type="checkbox"/> Greenish color	Other:
Stream Substrate %	Bedrock _____	Gravel _____	Sand <u>70</u>	Silt/Clay <u>30</u>	Organic <u>10</u>
Aquatic Habitats	Sand Bar	Gravel Bar	Mud Bar	Gravel Riffles	Deep Pools
Undercut Banks	Overhanging trees/shrubs	In-stream emergent plants Percent Cover <u>60%</u>	In-stream submerged plants Percent Cover _____	Bank root systems	Pringing Wetlands
Aquatic Organisms Observed	<input checked="" type="checkbox"/> Waterfowl	<input checked="" type="checkbox"/> Fish (adult)	<input checked="" type="checkbox"/> Fish (juvenile)	<input checked="" type="checkbox"/> Frogs	Turtles
	<input checked="" type="checkbox"/> Snakes	Other: _____			
Invertebrates:	<input type="checkbox"/> Intolerant	<input type="checkbox"/> Facultative	<input type="checkbox"/> Tolerant	<input type="checkbox"/> None	
Riparian Zone	Width of natural vegetation zone from edge of active channel out onto flood plain: <u>610</u> (ft)				
	Circle vegetative layers: trees shrubs herbs				
	<input type="checkbox"/> Significant bare areas within riparian zone				
	<input checked="" type="checkbox"/> Evidence of non-buffered concentrated flows				
Tributary Is	<input type="checkbox"/> Natural	<input checked="" type="checkbox"/> Artificial (Man-Made)	<input type="checkbox"/> Manipulated (Explain below)		Stable / Unstable
Channel Condition	<input type="checkbox"/> Channelization/Braiding	<input checked="" type="checkbox"/> Unnatural straightening	<input type="checkbox"/> Downcutting	<input type="checkbox"/> Dikes/Berms	<input type="checkbox"/> Excessive bank erosion
Disturbances	<input type="checkbox"/> Livestock access to riparian zone		<input type="checkbox"/> Manure in stream or on banks		
	<input type="checkbox"/> Waste discharge pipes present		<input type="checkbox"/> Other: _____		

T/E SPECIES / SUITABLE HABITAT	Habitat ID No.:
<i>None observed.</i>	

Comments (e.g., pipeline crossing angle, construction constraints, erosion potential, existing disturbances, and meanders)

Moderate quality med. sized stream w/ large amount of instream cover. Algal growths and emergent plants present. Majority of input from surrounding agr. drainage

STREAM QUALITY (indicate)	<input type="checkbox"/> High	<input checked="" type="checkbox"/> Moderate	<input type="checkbox"/> Low
<p>High Quality: Natural channel (no structures or dikes; no evidence of downcutting or excessive lateral cutting); evidence of past channel alteration with significant recovery; any dikes/levies are set back to provide access to adequate flood plain; natural vegetation extends at least one or two active channel widths on each side; banks stable and protected by roots that extend to the base-flow elevation; water clear to tea-colored; no barriers to fish movement (seasonal water withdrawals prevent movement); many fish cover types available; diverse and stable aquatic habitat; no disturbance by livestock or man; intolerant macroinvertebrates present.</p> <p>Moderate Quality: Altered channel evidenced by rip rap and/or channelization; dikes/levees restrict flood plain width; natural vegetation extends 1/3-1/2 of the active channel width on each side; filtering function of riparian vegetation only moderately compromised; banks moderately unstable (outside bends actively eroding with few fallen trees); considerable water cloudiness, submerged objects covered with green film; moderate odor; minor barriers to fish movement; 4-3 fish cover types available; fair aquatic habitat; minimum disturbance by livestock or man; Facultative macroinvertebrates present.</p> <p>Low Quality: Channel is actively downcutting or widening; rip rap and channelization excessive; flood plain restricted by dikes/levees; natural vegetation less than 1/3 active channel width on each side; lack of regeneration; filtering function severely compromised; Banks unstable (inside and outside bends actively eroding with numerous fallen trees); water very turbid to muddy; obvious pollutants (algal mats, surface scum, surface sheen); heavy odor; green color to water; severe barriers to fish movement; 2-0 fish cover types available; little to no aquatic habitat; severe disturbance by livestock or man; tolerant or no macroinvertebrates present.</p>			

WATERBODY

AECOM

Waterbody Name: Unknown Trib

Waterbody ID No.: SIAEL003

Centerline Re-Route Access Road Warehouse Site Other:

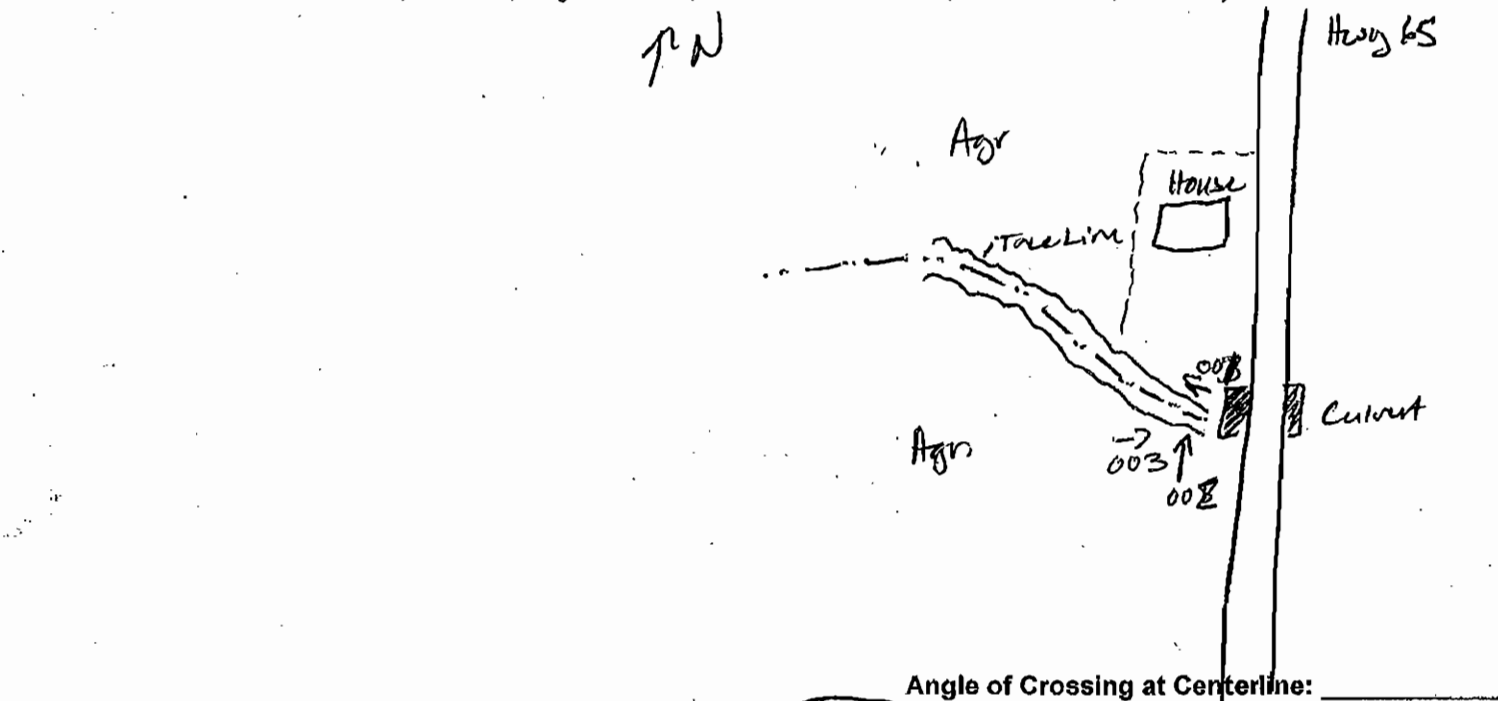
Associated Wetland No. _____

Date: <u>03/31/10</u>	Client/Project Name & No.: <u>Migrant MYSAB</u>	Milepost:
Investigators: <u>R. Winnubst M. Summers</u>	State/County/Municipality: <u>LA/E. Carroll Parish</u>	Quad Name:
Logbook No.: <u>1011</u>	Logbook Page No.: <u>14, 15</u>	Block/Lot/Tract No.:
		Picture No.: <u>001L 002N 003E</u>

PHYSICAL ATTRIBUTES

Waterbody Sketch Plan

Please include: Directional & North Arrow, Centerline, Length of Feature, Distances from Centerline, Photo Locations, and Survey Corridor



Angle of Crossing at Centerline: _____

Waterbody Type	Lake	Pond	Borrow Pit	River	<u>Stream</u>	Ag. Ditch	Other:	
Stream Flow	<u>Fast</u>		Moderate	<u>Slow</u>		Very Slow	None	
Flow Type	<u>Perennial</u> (Flows > 3 months annually)		Intermittent/Seasonal (Flows < 3 months annually)	<u>Ephemeral</u> (Flows only during rainfall)		Direction: _____ Number of Annual Flow Events _____		
OHWL	<u>.5 ft</u>	<u>Clear natural line on bank</u>		Shelving	Wrested vegetation	Scour	Water Staining	
<u>Bent, matted, or missing vegetation</u>		Soil character changes		Abrupt plant community change		Wrack line	Litter and debris	
Sinuosity	<u>Straight</u>		Meandering		Subsurface Flow?		Yes No Unknown	
Stream Depth (in.)	<u>0-3</u>	3-6	6-12	12-18	18-24	24-36	36-48 48-60 60+	
Stream Width (ft.)	Top of Bank (at crossing location): <u>6</u>				Water Surface (at crossing location): <u>2.5</u>			
Bank Height (ft.) (looking downstream else give direction you are facing here:)	Left	<u>0-2</u>	2-4		4-6		6-8	8+
	Right	<u>0-2</u>	2-4		4-6		6-8	8+
Bank Slope (°) (looking downstream else give direction you are facing here:)	Left	<u>0-20</u>	20-40		40-60		60-80	80+
	Right	<u>0-20</u>	20-40		40-60		60-80	80+

Date: <u>03/31/10</u>	Client/Project Name & No.: <u>Mysiant MysAB</u>	Milepost:
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QUALITATIVE ATTRIBUTES

Water Appearance	Clear	<u>Slightly Turbid</u>	Turbid	Very Turbid	Color:
	Floating algal mats	Obvious surface scum	Sheen on surface	Greenish color	Other:
Stream Substrate %	Bedrock _____	Gravel <u>10</u>	Sand <u>10</u>	Silt/Clay <u>80</u>	Organic _____
Aquatic Habitats	Sand Bar	Gravel Bar	Mud Bar	Gravel Riffles	Deep Pools
Undercut Banks	<u>Overhanging trees/shrubs</u>	In-stream emergent plants Percent Cover <u>10</u>	In-stream submerged plants Percent Cover _____	Bank root systems	Fringing Wetlands
Aquatic Organisms Observed	Waterfowl	Fish (adult)	<u>Fish (juvenile)</u>	<u>Frogs</u>	Turtles
	Snakes	Other:			
	Invertebrates:	Intolerant	Facultative	Tolerant	None
Riparian Zone	Width of natural vegetation zone from edge of active channel out onto flood plain: <u>410'</u> (ft)				
	Circle vegetative layers: trees shrubs herbs				
	<input type="checkbox"/> Significant bare areas within riparian zone				
	<input type="checkbox"/> Evidence of non-buffered concentrated flows				
Tributary Is	Natural	<u>Artificial (Man-Made)</u>	Manipulated (Explain below)		Stable / Unstable
Channel Condition	Channelization/Braiding	<u>Unnatural straightening</u>	Downcutting	Dikes/Berms	Excessive bank erosion
Disturbances	<input type="checkbox"/> Livestock access to riparian zone		<input type="checkbox"/> Manure in stream or on banks		
	<input type="checkbox"/> Waste discharge pipes present		<input type="checkbox"/> Other: _____		

T/E SPECIES / SUITABLE HABITAT	Habitat ID No.:
<i>None observed.</i>	

Comments (e.g., pipeline crossing angle, construction constraints, erosion potential, existing disturbances, and meanders)
<i>Moderate quality small perennial stream w/ small and narrow riparian zone along stream (410').</i>

STREAM QUALITY (Indicate)	<input type="checkbox"/> High	<input checked="" type="checkbox"/> Moderate	<input type="checkbox"/> Low
<p>High Quality: Natural channel (no structures or dikes; no evidence of downcutting or excessive lateral cutting); evidence of past channel alteration with significant recovery; any dikes/levees are set back to provide access to adequate flood plain; natural vegetation extends at least one or two active channel widths on each side; banks stable and protected by roots that extend to the base-flow elevation; water clear to tea-colored; no barriers to fish movement (seasonal water withdrawals prevent movement); many fish cover types available; diverse and stable aquatic habitat; no disturbance by livestock or man; intolerant macroinvertebrates present.</p> <p>Moderate Quality: Altered channel evidenced by rip rap and/or channelization; dikes/levees restrict flood plain width; natural vegetation extends 1/3-1/2 of the active channel width on each side; filtering function of riparian vegetation only moderately compromised; banks moderately unstable (outside bends actively eroding with few fallen trees); considerable water cloudiness, submerged objects covered with green film; moderate odor; minor barriers to fish movement; 4-3 fish cover types available; fair aquatic habitat; minimum disturbance by livestock or man; Facultative macroinvertebrates present.</p> <p>Low Quality: Channel is actively downcutting or widening; rip rap and channelization excessive; flood plain restricted by dikes/levees; natural vegetation less than 1/3 of the active channel width on each side; lack of regeneration; filtering function severely compromised; Banks unstable (inside and outside bends actively eroding with numerous fallen trees); water very turbid to muddy; obvious pollutants (algal mats, surface scum, surface sheen); heavy odor; green color to water; severe barriers to fish movement; 2-0 fish cover types available; little to no aquatic habitat; severe disturbance by livestock or man; tolerant or no macroinvertebrates present.</p>			

WATERBODY

AECOM

Waterbody Name: Unknown Trib.

Waterbody ID No.: SIAE004

Centerline Re-Route Access Road Warehouse Site Other:

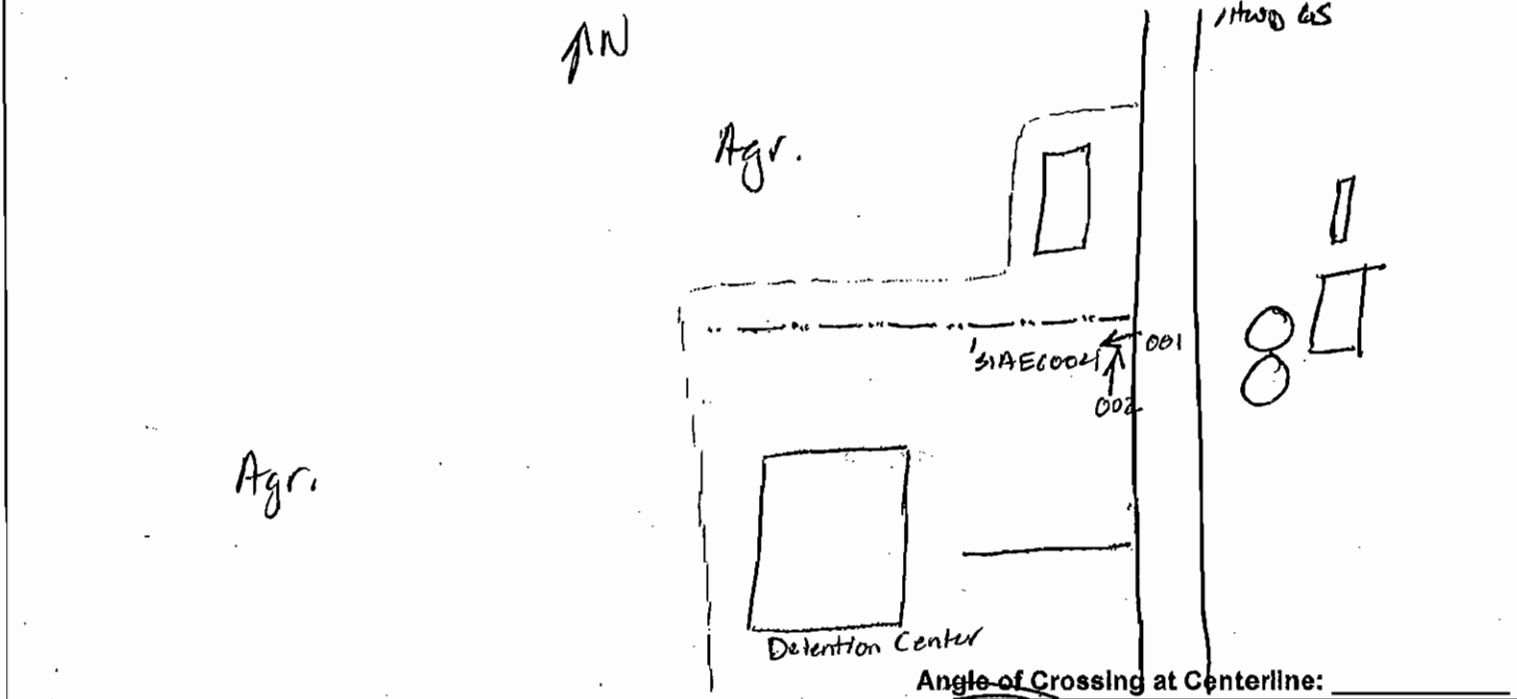
Associated Wetland No.

Date: <u>03/31/10</u>	Client/Project Name & No.: <u>Myriant</u>	Milepost:
Investigators: <u>P. Sinnubst M. Gammons</u>	State/County/Municipality: <u>LA/E. Carroll Parish</u>	Quad Name:
Logbook No.: <u>1041</u>	Logbook Page No.: <u>16, 17 001, 002, 003N</u>	Block/Lot/Tract No.:
		Picture No.: <u>001W, 002N</u>

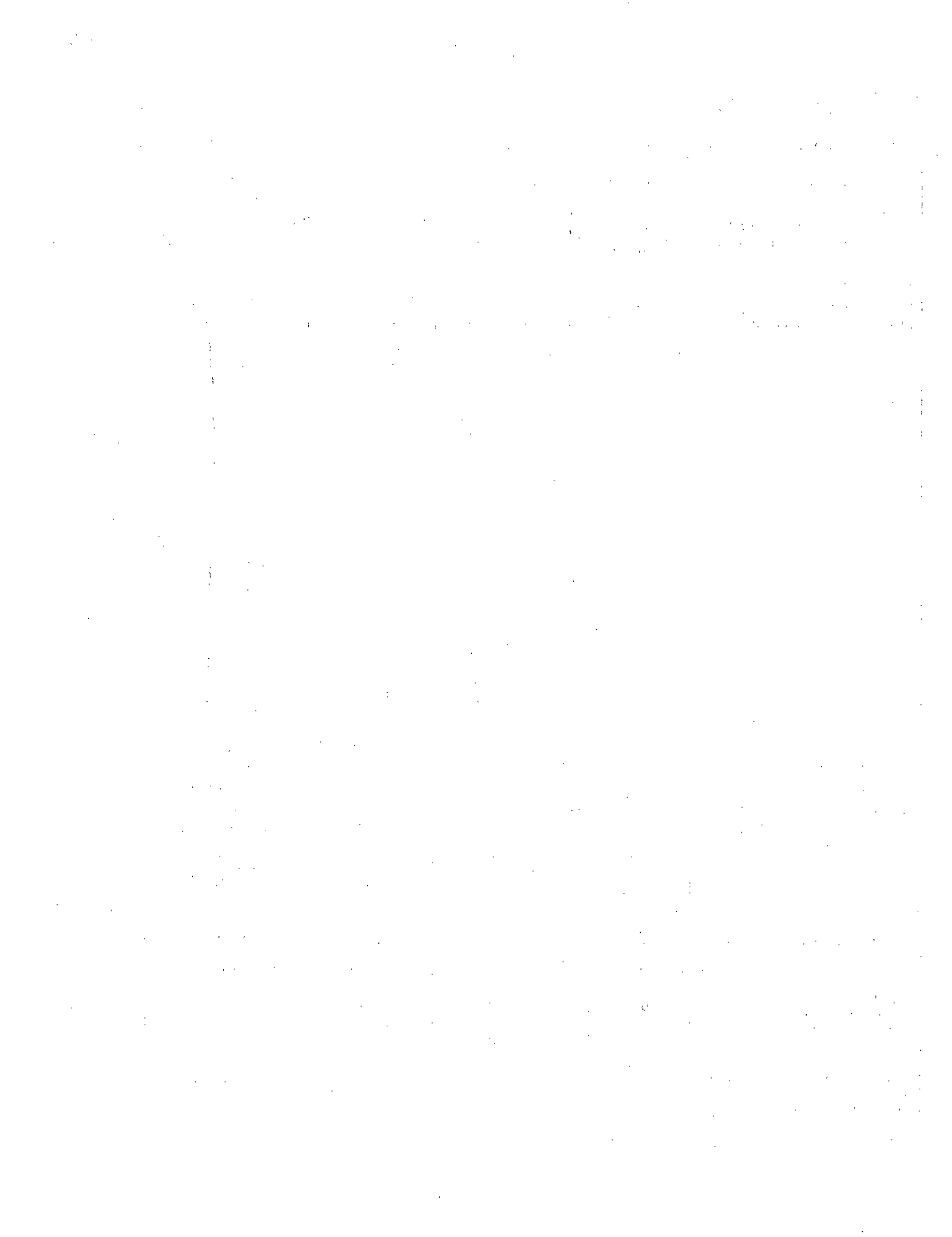
PHYSICAL ATTRIBUTES

Waterbody Sketch Plan

Please include: Directional & North Arrow, Centerline, Length of Feature, Distances from Centerline, Photo Locations, and Survey Corridor



Waterbody Type	Lake	Pond	Borrow Pit	River	Stream	<u>Ag. Ditch</u>	Other:		
Stream Flow	Fast	Moderate	Slow	Very Slow	<u>None</u>				
Flow Type	<u>Perennial</u> (Flows > 3 months annually)	Intermittent/Seasonal (Flows < 3 months annually)	Ephemeral (Flows only during rainfall)	Direction: _____		Number of Annual Flow Events _____			
OHWM	<u>.5</u> ft	Clear natural line on bank	Shelving	Wrested vegetation	Scour	<u>Water Staining</u>			
Bent, matted, or missing vegetation	Soil character changes	Abrupt plant community change		Wrack line	Litter and debris				
Sinuosity	<u>Straight</u>	Meandering	Subsurface Flow?		Yes	No	Unknown		
Stream Depth (in.)	<u>0-3</u>	3-6	6-12	12-18	18-24	24-36	36-48	48-80	60+
Stream Width (ft.)	Top of Bank (at crossing location): <u>15.0</u>				Water Surface (at crossing location): <u>3</u>				
Bank Height (ft.) (looking downstream else give direction you are facing here: _____)	Left	0-2	<u>2-4</u>	4-6	6-8	8+			
	Right	0-2	<u>2-4</u>	4-6	6-8	8+			
Bank Slope (°) (looking downstream else give direction you are facing here: _____)	Left	0-20	<u>20-40</u>	40-60	60-80	80+			
	Right	0-20	<u>20-40</u>	40-60	60-80	80+			



Date: <u>03/31/10</u>	Client/Project Name & No.: <u>Myriant MysAB</u>	Milepost:
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QUALITATIVE ATTRIBUTES

Water Appearance	Clear	Slightly Turbid	<u>Turbid</u>	Very Turbid	Color:
	Floating algal mats	Obvious surface scum	Sheen on surface	Greenish color	Other:
Stream Substrate %	Bedrock <u> </u>	Gravel <u>10</u>	Sand <u>10</u>	Silt/Clay <u>70</u>	Organic <u>10</u>
Aquatic Habitats	Sand Bar	Gravel Bar	Mud Bar	Gravel Riffles	Deep Pools
Undercut Banks	Overhanging trees/shrubs	In-stream emergent plants Percent Cover <u>100</u>	In-stream submerged plants Percent Cover <u> </u>	Bank root systems	Fringing Wetlands
Aquatic Organisms Observed	Waterfowl	Fish (adult)	Fish (juvenile)	<u>Frogs</u>	Turtles
	Snakes	Other:	<u>(P)</u>		
	Invertebrates:	Intolerant	Facultative	Tolerant	None
Riparian Zone	Width of natural vegetation zone from edge of active channel out onto flood plain: <u>NONE</u> (ft)				
	Circle vegetative layers: trees shrubs herbs				
	<input type="checkbox"/> Significant bare areas within riparian zone				
	<input type="checkbox"/> Evidence of non-buffered concentrated flows				
Tributary is	Natural	<u>Artificial (Man-Made)</u>	Manipulated (Explain below)	Stable / Unstable	
Channel Condition	Channellization/Braiding	<u>Unnatural straightening</u>	Downcutting	Dikes/Berms	Excessive bank erosion
Disturbances	<input type="checkbox"/> Livestock access to riparian zone		<input checked="" type="checkbox"/> Manure in stream or on banks <u>Evidence due to odor.</u>		
	<input type="checkbox"/> Waste discharge pipes present		<input type="checkbox"/> Other: <u> </u>		

T/E SPECIES / SUITABLE HABITAT	Habitat ID No.:
<u>None Observed</u>	

Comments (e.g., pipeline crossing angle, construction constraints, erosion potential, existing disturbances, and meanders)

Low quality agr. ditch. High amount of instream algal and surface growth. No flow. Strong odor of manure.

STREAM QUALITY (indicate)	<input type="checkbox"/> High	<input type="checkbox"/> Moderate	<input checked="" type="checkbox"/> Low
<p>High Quality: Natural channel (no structures or dikes; no evidence of downcutting or excessive lateral cutting); evidence of past channel alteration with significant recovery; any dikes/levees are set back to provide access to adequate flood plain; natural vegetation extends at least one or two active channel widths on each side; banks stable and protected by roots that extend to the base-flow elevation; water clear to tea-colored; no barriers to fish movement (seasonal water withdrawals prevent movement); many fish cover types available; diverse and stable aquatic habitat; no disturbance by livestock or man; intolerant macroinvertebrates present.</p> <p>Moderate Quality: Altered channel evidenced by rip rap and/or channellization; dikes/levees restrict flood plain width; natural vegetation extends 1/3-1/2 of the active channel width on each side; filtering function of riparian vegetation only moderately compromised; banks moderately unstable (outside bends actively eroding with few fallen trees); considerable water cloudiness, submerged objects covered with green film; moderate odor; minor barriers to fish movement; 4-3 fish cover types available; fair aquatic habitat; minimum disturbance by livestock or man; Facultative macroinvertebrates present.</p> <p>Low Quality: Channel is actively downcutting or widening; rip rap and channellization excessive; flood plain restricted by dikes/levees; natural vegetation less than 1/3 of the active channel width on each side; lack of regeneration; filtering function severely compromised; Banks unstable (inside and outside bends actively eroding with numerous fallen trees); water very turbid to muddy; obvious pollutants (algal mats, surface scum, surface sheen); heavy odor; green color to water; severe barriers to fish movement; 2-0 fish cover types available; little to no aquatic habitat; severe disturbance by livestock or man; tolerant or no macroinvertebrates present.</p>			

WATERBODY

AECOM

Waterbody Name: Unknown Trib

Waterbody ID No.: SIAE005

Centerline Re-Route Access Road Warehouse Site Other:

Associated Wetland No. _____

Date: <u>03/31/10</u>	Client/Project Name & No.: <u>Migrant Mig SAB</u>	Milepost:
Investigators: <u>P. Winnubst M. Sammons</u>	State/County/Municipality: <u>LA/E. Carroll Parish</u>	Quad Name:
Logbook No.: <u>101</u>	Logbook Page No.: <u>18, 19</u>	Block/Lot/Tract No.:
		Picture No.: <u>001 W, 002 E</u>

PHYSICAL ATTRIBUTES

Waterbody Sketch Plan
Please include: Directional & North Arrow, Centerline, Length of Feature, Distances from Centerline, Photo Locations, and Survey Corridor

Angle of Crossing at Centerline: _____

Waterbody Type	Lake	Pond	Borrow Pit	River	Stream	<u>Ag. Ditch</u>	Other:		
Stream Flow	Fast	Moderate	Slow	Very Slow	<u>None</u>				
Flow Type	Perennial (Flows > 3 months annually)	<u>Intermittent/Seasonal</u> (Flows 3-8 months annually)	Ephemeral (Flows only during rainfall)	Direction: _____		Number of Annual Flow Events _____			
OHWM	<u>1.5</u> ft	Clear natural line on bank	Shelving	<u>Washed vegetation</u>	Scour	Water Staining			
Bent, matted, or missing vegetation		Soil character changes	<u>Abrupt plant community change</u>		Wrack line	Litter and debris			
Sinuosity	<u>Straight</u>	Meandering	Subsurface Flow?		Yes	No	Unknown		
Stream Depth (in.)	<u>0-3</u>	3-6	6-12	12-18	18-24	24-36	36-48	48-60	60+
Stream Width (ft.)	Top of Bank (at crossing location): <u>8'</u>				Water Surface (at crossing location): <u>2.5</u>				
Bank Height (ft.) (looking downstream else give direction you are facing here:)	Left	0-2	<u>2-4</u>	4-6	6-8	8+			
	Right	0-2	<u>2-4</u>	4-6	6-8	8+			
Bank Slope (°) (looking downstream else give direction you are facing here:)	Left	0-20	20-40	<u>40-60</u>	60-80	80+			
	Right	0-20	20-40	<u>40-60</u>	60-80	80+			

Date: <u>03/31/10</u>	Client/Project Name & No.: <u>Myriant MSAB</u>	Milepost:
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QUALITATIVE ATTRIBUTES

Water Appearance	Clear	Slightly Turbid	<u>Turbid</u>	Very Turbid	Color:
	Floating algal mats	Obvious surface scum	Sheen on surface	Greenish color	Other:
Stream Substrate %	Bedrock _____	Gravel <u>5</u>	Sand <u>5</u>	Silt/Clay <u>80</u>	Organic <u>10</u>
Aquatic Habitats	Sand Bar	Gravel Bar	Mud Bar	Gravel Riffles	Deep Pools
Undercut Banks	Overhanging trees/shrubs	In-stream emergent plants Percent Cover _____	In-stream submerged plants Percent Cover _____	Bank root systems	Fringing Wetlands
Aquatic Organisms Observed	Waterfowl	Fish (adult)	<u>Fish (juvenile)</u>	<u>Frogs</u>	Turtles
	Snakes	Other:			
	Invertebrates:	Intolerant	Facultative	Tolerant	None
Riparian Zone	Width of natural vegetation zone from edge of active channel out onto flood plain: <u>NONE</u> (ft)				
	Circle vegetative layers: trees shrubs herbs				
	<input type="checkbox"/> Significant bare areas within riparian zone				
	<input type="checkbox"/> Evidence of non-buffered concentrated flows				
Tributary Is	Natural	<u>Artificial (man-made)</u>	Manipulated (Explain below)		Stable / Unstable
Channel Condition	Channelization/Braiding	<u>Unnatural straightening</u>	Downcutting	Dikes/Berns	Excessive bank erosion
Disturbances	<input type="checkbox"/> Livestock access to riparian zone		<input type="checkbox"/> Manure in stream or on banks		
	<input type="checkbox"/> Waste discharge pipes present		<input type="checkbox"/> Other: _____		

T/E SPECIES / SUITABLE HABITAT	Habitat ID No.:
<u>None observed</u>	

Comments (e.g., pipeline crossing angle, construction constraints, erosion potential, existing disturbances, and meanders)

Low quality ephemeral agr. ditch. Surrounded by agr. fields.

STREAM QUALITY (indicate)	<input type="checkbox"/> High	<input type="checkbox"/> Moderate	<input checked="" type="checkbox"/> Low
<p>High Quality: Natural channel (no structures or dikes; no evidence of downcutting or excessive lateral cutting); evidence of past channel alteration with significant recovery; any dikes/levees are set back to provide access to adequate flood plain; natural vegetation extends at least one or two active channel widths on each side; filtering function of riparian vegetation only moderately compromised; banks moderately unstable (outside bends actively eroding with few fallen trees); considerable water cloudiness, submerged objects covered with green film; moderate odor; minor barriers to fish movement; 4-3 fish cover types available; fair aquatic habitat; minimum disturbance by livestock or man; Facultative macroinvertebrates present.</p> <p>Moderate Quality: Altered channel evidenced by rip rap and/or channelization; dikes/levees restrict flood plain width; natural vegetation extends 1/3-1/2 of the active channel width on each side; filtering function of riparian vegetation only moderately compromised; banks moderately unstable (outside bends actively eroding with few fallen trees); considerable water cloudiness, submerged objects covered with green film; moderate odor; minor barriers to fish movement; 4-3 fish cover types available; fair aquatic habitat; minimum disturbance by livestock or man; Facultative macroinvertebrates present.</p> <p>Low Quality: Channel is actively downcutting or widening; rip rap and channelization excessive; flood plain restricted by dikes/levees; natural vegetation less than 1/3 of the active channel width on each side; lack of regeneration; filtering function severely compromised; Banks unstable (inside and outside bends actively eroding with numerous fallen trees); water very turbid to muddy; obvious pollutants (algal mats, surface scum, surface sheen); heavy odor; green color to water; severe barriers to fish movement; 2-0 fish cover types available; little to no aquatic habitat; severe disturbance by livestock or man; tolerant or no macroinvertebrates present.</p>			

WATERBODY

AECOM

Waterbody Name: Unknown Trib

Waterbody ID No.: 51AEC004

Centerline Re-Route Access Road Warehouse Site Other:

Associated Wetland No. /

Date: <u>03/21/10</u>	Client/Project Name & No.: <u>Myniant MYSAB</u>	Milepost:
Investigators: <u>P. Innubst</u> <u>M. Sammons</u>	State/County/Municipality: <u>LA/E. Carroll Parish</u>	Quad Name:
Logbook No.: <u>1041</u>	Logbook Page No.: <u>20, 21</u>	Block/Lot/Tract No.:
		Picture No.: <u>001W, 002E</u>

PHYSICAL ATTRIBUTES

Waterbody Sketch Plan

Please include: Directional & North Arrow, Centerline, Length of Feature, Distances from Centerline, Photo Locations, and Survey Corridor

Angle of Crossing at Centerline: _____

Waterbody Type	Lake	Pond	Borrow Pit	River	Stream	<u>Ag. Ditch</u>	Other:		
Stream Flow	Fast	Moderate	Slow	Very Slow	None				
Flow Type	Perennial (Flows > 3 months annually)	<u>Intermittent/Seasonal</u> (Flows < 3 months annually)	Ephemeral (Flows only during rainfall)	Direction: _____	Number of Annual Flow Events _____				
OHWM	<u>.5</u> ft	<u>Clear natural line on bank</u>	Shelving	Wrested vegetation	Scour	Water Staining			
Bent, matted, or missing vegetation	Soil character changes	Abrupt plant community change		Wrack line	Litter and debris				
Sinuosity	<u>Straight</u>	Meandering	Subsurface Flow?		Yes	No	Unknown		
Stream Depth (In.)	<u>0-3</u>	3-6	6-12	12-18	18-24	24-36	36-48	48-60	60+
Stream Width (ft.)	Top of Bank (at crossing location): <u>8</u>			Water Surface (at crossing location): <u>2.5</u>					
Bank Height (ft.) (looking downstream else give direction you are facing here:)	Left	0-2	<u>2-4</u>	4-6	6-8	8+			
	Right	0-2	<u>2-4</u>	4-6	6-8	8+			
Bank Slope (°) (looking downstream else give direction you are facing here:)	Left	0-20	<u>20-40</u>	40-60	60-80	80+			
	Right	0-20	<u>20-40</u>	40-60	60-80	80+			

Date: <u>02/21/10</u>	Client/Project Name & No.: <u>Myriant MysAB</u>	Milepost:
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QUALITATIVE ATTRIBUTES

Water Appearance	Clear	Slightly Turbid	<u>Turbid</u>	Very Turbid	Color:
	Floating algal mats	Obvious surface scum	Sheen on surface	Greenish color	Other:
Stream Substrate %	Bedrock <u> </u>	Gravel <u>5</u>	Sand <u>5</u>	Silt/Clay <u>80</u>	Organic <u>10</u>
Aquatic Habitats	Sand Bar	Gravel Bar	Mud Bar	Gravel Riffles	Deep Pools
Undercut Banks	Overhanging trees/shrubs	In-stream emergent plants Percent Cover <u> </u>	In-stream submerged plants Percent Cover <u> </u>	Bank root systems	Fringing Wetlands
Aquatic Organisms Observed	Waterfowl	Fish (adult)	<u>Fish (juvenile)</u>	Frogs	Turtles
	Snakes	Other:			
	Invertebrates:	Intolerant	Facultative	Tolerant	None
Riparian Zone	Width of natural vegetation zone from edge of active channel out onto flood plain: <u>NONE</u> (ft)				
	Circle vegetative layers: trees shrubs herbs				
	<input type="checkbox"/> Significant bare areas within riparian zone				
	<input type="checkbox"/> Evidence of non-buffered concentrated flows				
Tributary Is	Natural	<u>Artificial (Man-Made)</u>	Manipulated (Explain below)		Stable / Unstable
Channel Condition	Channelization/Braiding	<u>Unnatural straightening</u>	Downcutting	Dikes/Berms	Excessive bank erosion
Disturbances	<input type="checkbox"/> Livestock access to riparian zone		<input type="checkbox"/> Manure in stream or on banks		
	<input type="checkbox"/> Waste discharge pipes present		<input type="checkbox"/> Other: <u> </u>		

T/E SPECIES / SUITABLE HABITAT	Habitat ID No.:
<u>None observed</u>	

Comments (e.g., pipeline crossing angle, construction constraints, erosion potential, existing disturbances, and meanders)
<u>Low quality agr. intermittent ditch.</u>

STREAM QUALITY (Indicate)	<input type="checkbox"/> High	<input type="checkbox"/> Moderate	<input checked="" type="checkbox"/> Low
<p>High Quality: Natural channel (no structures or dikes; no evidence of downcutting or excessive lateral cutting); evidence of past channel alteration with significant recovery; any dikes/levees are set back to provide access to adequate flood plain; natural vegetation extends at least one or two active channel widths on each side; banks stable and protected by roots that extend to the base-flow elevation; water clear to tea-colored; no barriers to fish movement (seasonal water withdrawals prevent movement); many fish cover types available; diverse and stable aquatic habitat; no disturbance by livestock or man; intolerant macroinvertebrates present.</p> <p>Moderate Quality: Altered channel evidenced by rip rap and/or channelization; dikes/levees restrict flood plain width; natural vegetation extends 1/3-1/2 of the active channel width on each side; filtering function of riparian vegetation only moderately compromised; banks moderately unstable (outside bends actively eroding with few fallen trees); considerable water cloudiness, submerged objects covered with green film; moderate odor; minor barriers to fish movement; 4-3 fish cover types available; fair aquatic habitat; minimum disturbance by livestock or man; Facultative macroinvertebrates present.</p> <p>Low Quality: Channel is actively downcutting or widening; rip rap and channelization excessive; flood plain restricted by dikes/levees; natural vegetation less than 1/3 of the active channel width on each side; lack of regeneration; filtering function severely compromised; Banks unstable (inside and outside bends actively eroding with numerous fallen trees); water very turbid to muddy; obvious pollutants (algal mats, surface scum, surface sheen); heavy odor; green color to water; severe barriers to fish movement; 2-0 fish cover types available; little to no aquatic habitat; severe disturbance by livestock or man; tolerant or no macroinvertebrates present.</p>			

WATERBODY

AECOM

Waterbody Name: Unknown Trib to Boggy Bayou

Waterbody ID No.: 31AEC007

Centerline Re-Route Access Road Warehouse Site Other:

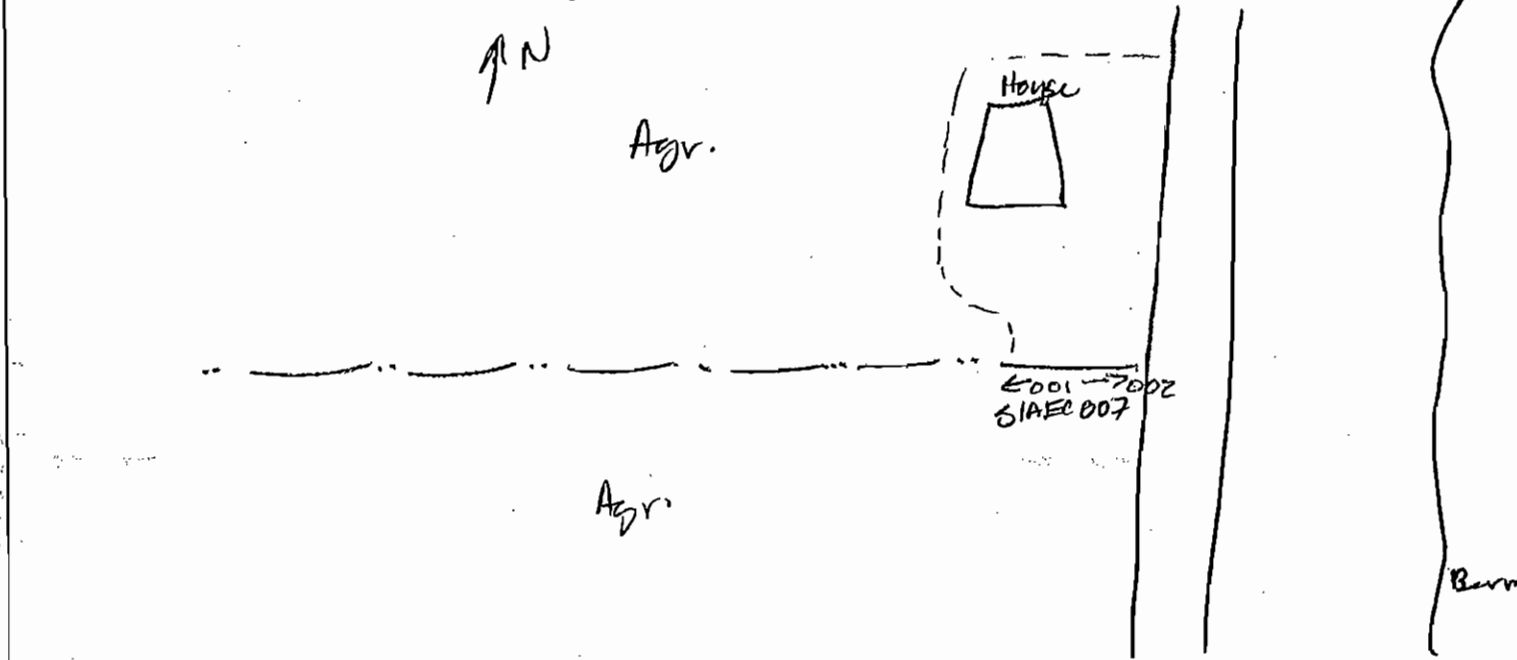
Associated Wetland No. _____

Date: <u>03/31/10</u>	Client/Project Name & No.: <u>Myriant MysAB</u>	Milepost:
Investigators: <u>P. Wionubst M. Summers</u>	State/County/Municipality: <u>LA/E. Carroll Parish</u>	Quad Name:
Logbook No.: <u>1071</u>	Logbook Page No.: <u>22, 23</u>	Block/Lot/Tract No.: _____
		Picture No.: <u>001 W, 002 E</u>

PHYSICAL ATTRIBUTES

Waterbody Sketch Plan

Please include: Directional & North Arrow, Centerline, Length of Feature, Distances from Centerline, Photo Locations, and Survey Corridor



Angle of Crossing at Centerline: _____

Waterbody Type	Lake	Pond	Borrow Pit	River	Stream	<u>Ag. Ditch</u>	Other:
Stream Flow	Fast	<u>Moderate</u>		Slow	Very Slow	<u>None</u>	
Flow Type	Perennial (Flows > 3 months annually)	<u>Intermittent/Seasonal</u> (Flows < 3 months annually)		Ephemeral (Flows only during rainfall)	Direction: _____ Number of Annual Flow Events _____		
OHWM	<u>5</u> ft	<u>Clear natural line on bank</u>		Shelving	Wrested vegetation	Scour	<u>Water Staining</u>
Bent, matted, or missing vegetation		Soil character changes		Abrupt plant community change		Wrack line	Litter and debris
Sinuosity	<u>Straight</u>		Meandering		Subsurface Flow?		Yes No Unknown
Stream Depth (in.)	<u>0-3</u>	3-6	6-12	12-18	18-24	24-36	36-48 48-60 60+
Stream Width (ft.)	Top of Bank (at crossing location): <u>8</u>			Water Surface (at crossing location): <u>2, 5</u>			
Bank Height (ft.) (looking downstream else give direction you are facing here:)	Left	0-2	<u>2-4</u>		4-6	6-8	8+
	Right	0-2	<u>2-4</u>		4-6	6-8	8+
Bank Slope (°) (looking downstream else give direction you are facing here:)	Left	0-20	20-40		40-60	<u>60-80</u>	80+
	Right	0-20	20-40		40-60	<u>60-80</u>	80+

Date: <u>03/31/10</u>	Client/Project Name & No.: <u>Myviant MySAB</u>	Milepost:
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QUALITATIVE ATTRIBUTES

Water Appearance	Clear	Slightly Turbid	<u>Turbid</u>	Very Turbid	Color:
	Floating algal mats	Obvious surface scum	Sheen on surface	Greenish color	Other:
Stream Substrate %	Bedrock <u> </u>	Gravel <u>5</u>	Sand <u>5</u>	Silt/Clay <u>80</u>	Organic <u>10</u>
Aquatic Habitats	Sand Bar	Gravel Bar	Mud Bar	Gravel Riffles	Deep Pools
Undercut Banks	Overhanging trees/shrubs	In-stream emergent plants Percent Cover <u> </u>	In-stream submerged plants Percent Cover <u> </u>	Bank root systems	Fringing Wetlands
Aquatic Organisms Observed	Waterfowl	Fish (adult)	Fish (juvenile)	Frogs	Turtles
	Snakes	Other: <u> </u>			
	Invertebrates:	Intolerant	Facultative	Tolerant	None
Riparian Zone	Width of natural vegetation zone from edge of active channel out onto flood plain: <u>NONE</u> (ft)				
	Circle vegetative layers: trees shrubs herbs				
	<input type="checkbox"/> Significant bare areas within riparian zone				
	<input type="checkbox"/> Evidence of non-buffered concentrated flows				
Tributary Is	Natural	<u>Artificial (Man Made)</u>	Manipulated (Explain below)		Stable / Unstable
Channel Condition	Channelization/Braiding	<u>Unnatural straightening</u>	Downcutting	Dikes/Berms	Excessive bank erosion
Disturbances	<input type="checkbox"/> Livestock access to riparian zone		<input type="checkbox"/> Manure in stream or on banks		
	<input type="checkbox"/> Waste discharge pipes present		<input type="checkbox"/> Other: <u> </u>		

T/I/E SPECIES / SUITABLE HABITAT	Habitat ID No.:
<u>None observed.</u>	

Comments (e.g., pipeline crossing angle, construction constraints, erosion potential, existing disturbances, and meanders)
<u>Low quality intermittent agr. ditch.</u>

STREAM QUALITY (Indicate)	<input type="checkbox"/> High	<input type="checkbox"/> Moderate	<input checked="" type="checkbox"/> Low
<p>High Quality: Natural channel (no structures or dikes; no evidence of downcutting or excessive lateral cutting); evidence of past channel alteration with significant recovery; any dikes/levees are set back to provide access to adequate flood plain; natural vegetation extends at least one or two active channel widths on each side; banks stable and protected by roots that extend to the base-flow elevation; water clear to tea-colored; no barriers to fish movement (seasonal water withdrawals prevent movement); many fish cover types available; diverse and stable aquatic habitat; no disturbance by livestock or man; intolerant macroinvertebrates present.</p> <p>Moderate Quality: Altered channel evidenced by rip rap and/or channelization; dikes/levees restrict flood plain width; natural vegetation extends 1/3-1/2 of the active channel width on each side; filtering function of riparian vegetation only moderately compromised; banks moderately unstable (outside bends actively eroding with few fallen trees); considerable water cloudiness, submerged objects covered with green film; moderate odor; minor barriers to fish movement; 4-3 fish cover types available; fair aquatic habitat; minimum disturbance by livestock or man; Facultative macroinvertebrates present.</p> <p>Low Quality: Channel is actively downcutting or widening; rip rap and channelization excessive; flood plain restricted by dikes/levees; natural vegetation less than 1/3 of the active channel width on each side; lack of regeneration; filtering function severely compromised; Banks unstable (inside and outside bends actively eroding with numerous fallen trees); water very turbid to muddy; obvious pollutants (algal mats, surface scum, surface sheen); heavy odor; green color to water; severe barriers to fish movement; 2-0 fish cover types available; little to no aquatic habitat; severe disturbance by livestock or man; tolerant or no macroinvertebrates present.</p>			

WATERBODY

AECOM

Waterbody Name: Stump Lake/Pond

Waterbody ID No.: SIAE008

Centerline Re-Route Access Road Warehouse Site Other:

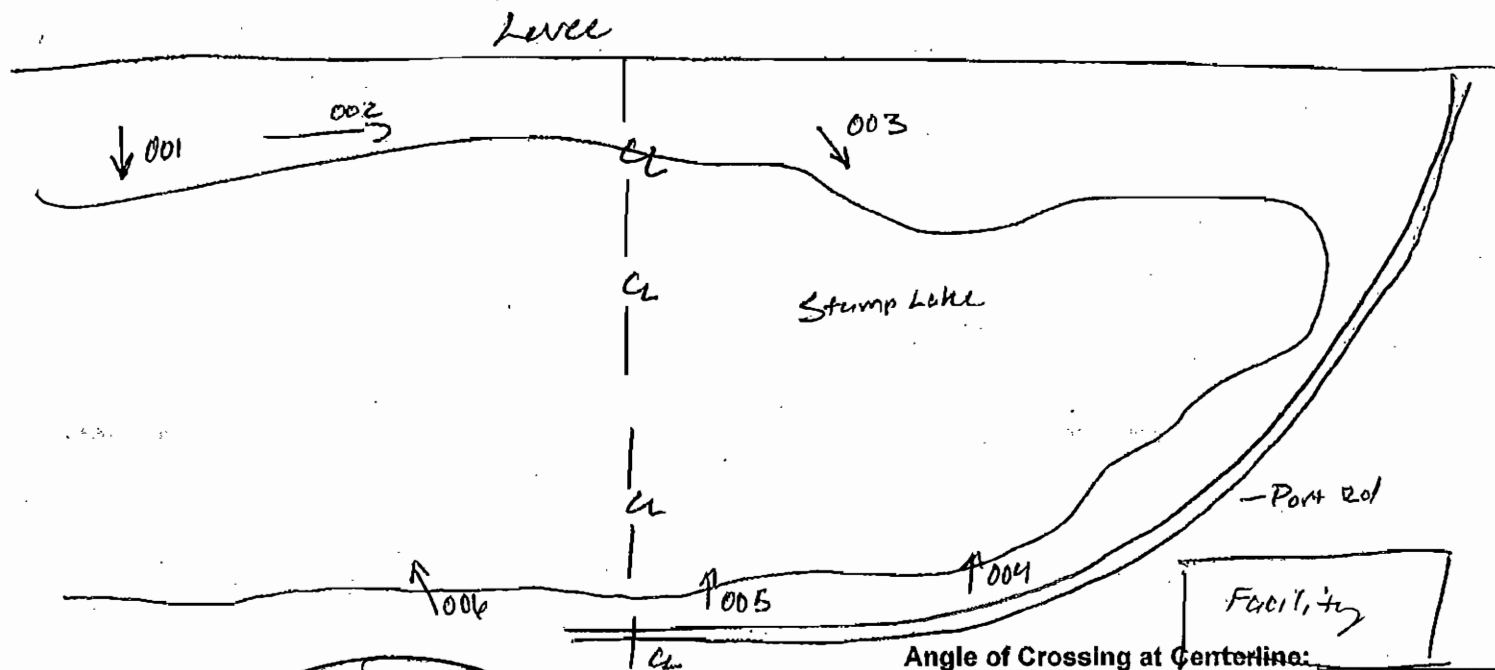
Associated Wetland No. _____

Date: <u>05/21/10</u>	Client/Project Name & No.: <u>Myriant MySAB</u>	Milepost:
Investigators: <u>P. Hammond M. Simmons</u>	State/County/Municipality: <u>LA/E. Calverton Parish</u>	Quad Name:
Logbook No.: <u>1 of 1</u>	Logbook Page No.: <u>24, 25</u>	Block/Lot/Tract No.:
		Picture No.: <u>001E, 002N, 003NE 004W, 005W, 006SW</u>

PHYSICAL ATTRIBUTES

Waterbody Sketch Plan

Please include: Directional & North Arrow, Centerline, Length of Feature, Distances from Centerline, Photo Locations, and Survey Corridor



Waterbody Type	<input checked="" type="radio"/> Lake	<input type="radio"/> Pond	<input type="radio"/> Borrow Pit	<input type="radio"/> River	<input type="radio"/> Stream	<input type="radio"/> Ag. Ditch	<input type="radio"/> Other:
Stream Flow	<input checked="" type="radio"/> Fast	<input type="radio"/> Moderate	<input type="radio"/> Slow	<input type="radio"/> Very Slow	<input type="radio"/> None		
Flow Type	<input checked="" type="radio"/> Perennial (Flows > 3 months annually)	<input type="radio"/> Intermittent/Seasonal (Flows < 3 months annually)	<input type="radio"/> Ephemeral (Flows only during rainfall)	Direction: _____		Number of Annual Flow Events: _____	
OHWM	_____ ft	<input type="checkbox"/> Clear natural line on bank	<input type="checkbox"/> Shelving	<input type="checkbox"/> Wrested vegetation	<input type="checkbox"/> Scour	<input checked="" type="checkbox"/> Water Staining	
<input type="checkbox"/> Bent, matted, or missing vegetation	<input type="checkbox"/> Soil character changes	<input type="checkbox"/> Abrupt plant community change			<input type="checkbox"/> Wrack line	<input type="checkbox"/> Litter and debris	
Sinuosity	<input type="checkbox"/> Straight	<input type="checkbox"/> Meandering		Subsurface Flow?		<input type="checkbox"/> Yes	<input type="checkbox"/> No
Stream Depth (in.)	<input type="checkbox"/> 0-3	<input type="checkbox"/> 3-6	<input type="checkbox"/> 6-12	<input type="checkbox"/> 12-18	<input type="checkbox"/> 18-24	<input type="checkbox"/> 24-36	<input type="checkbox"/> 36-48
Stream Width (ft.)	Top of Bank (at crossing location): <u>+1000'</u>				Water Surface (at crossing location): <u>990'+</u>		
Bank Height (ft.) (looking downstream else give direction you are facing here: _____)	Left	<input type="checkbox"/> 0-2	<input checked="" type="checkbox"/> 2-4	<input type="checkbox"/> 4-6	<input type="checkbox"/> 6-8	<input type="checkbox"/> 8+	
	Right	<input type="checkbox"/> 0-2	<input checked="" type="checkbox"/> 2-4	<input type="checkbox"/> 4-6	<input type="checkbox"/> 6-8	<input type="checkbox"/> 8+	
Bank Slope (°) (looking downstream else give direction you are facing here: _____)	Left	<input type="checkbox"/> 0-20	<input type="checkbox"/> 20-40	<input checked="" type="checkbox"/> 40-60	<input type="checkbox"/> 60-80	<input type="checkbox"/> 80+	
	Right	<input type="checkbox"/> 0-20	<input type="checkbox"/> 20-40	<input checked="" type="checkbox"/> 40-60	<input type="checkbox"/> 60-80	<input type="checkbox"/> 80+	

Date: <u>03/31/10</u>	Client/Project Name & No.: <u>Myriant MySAB</u>	Milepost:
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QUALITATIVE ATTRIBUTES

Water Appearance	<input checked="" type="radio"/> Clear	<input type="radio"/> Slightly Turbid	<input type="radio"/> Turbid	<input type="radio"/> Very Turbid	Color:
	<input type="radio"/> Floating algal mats	<input type="radio"/> Obvious surface scum	<input type="radio"/> Sheen on surface	<input type="radio"/> Greenish color	Other:
Stream Substrate %	Bedrock _____	Gravel _____	Sand <u>20</u>	Silt/Clay <u>60</u>	Organic <u>20</u>
Aquatic Habitats	<input checked="" type="radio"/> Sand Bar	<input type="radio"/> Gravel Bar	<input type="radio"/> Mud Bar	<input type="radio"/> Gravel Riffles	<input type="radio"/> Deep Pools
Undercut Banks	<input checked="" type="radio"/> Overhanging trees/shrubs	<input type="radio"/> In-stream emergent plants Percent Cover <u>20</u>	<input type="radio"/> In-stream submerged plants Percent Cover <u>20</u>	<input type="radio"/> Bank root systems	<input type="radio"/> Fringing Wetlands
Aquatic Organisms Observed	<input type="radio"/> Waterfowl	<input checked="" type="radio"/> Fish (adult)	<input checked="" type="radio"/> Fish (juvenile)	<input checked="" type="radio"/> Frogs	<input type="radio"/> Turtles
	<input type="radio"/> Snakes	Other:			
	Invertebrates:	<input type="radio"/> Intolerant	<input type="radio"/> Facultative	<input type="radio"/> Tolerant	<input type="radio"/> None
Riparian Zone	Width of natural vegetation zone from edge of active channel out onto flood plain: _____ (ft)				
	Circle vegetative layers: trees shrubs herbs				
	<input type="checkbox"/> Significant bare areas within riparian zone				
	<input type="checkbox"/> Evidence of non-buffered concentrated flows				
Tributary Is	<input type="radio"/> Natural	<input checked="" type="radio"/> Artificial (Man-Made)	<input type="radio"/> Manipulated (Explain below)		<input type="radio"/> Stable / <input type="radio"/> Unstable
Channel Condition	<input type="radio"/> Channelization/Braiding	<input checked="" type="radio"/> Unnatural straightening	<input type="radio"/> Downcutting	<input type="radio"/> Dikes/Berms	<input type="radio"/> Excessive bank erosion
Disturbances	<input type="checkbox"/> Livestock access to riparian zone		<input type="checkbox"/> Manure in stream or on banks		
	<input type="checkbox"/> Waste discharge pipes present		<input type="checkbox"/> Other: _____		

T/E SPECIES / SUITABLE HABITAT	Habitat ID No.:
<u>None observed</u>	

Comments (e.g., pipeline crossing angle, construction constraints, erosion potential, existing disturbances, and meanders)

Large pond that has flooded into surrounding area due to the recent rising of the Mississippi River.

STREAM QUALITY (indicate) High Moderate Low

High Quality: Natural channel (no structures or dikes; no evidence of downcutting or excessive lateral cutting); evidence of past channel alteration with significant recovery; any dikes/levees are set back to provide access to adequate flood plain; natural vegetation extends at least one or two active channel widths on each side; banks stable and protected by roots that extend to the base-flow elevation; water clear to tea-colored; no barriers to fish movement (seasonal water withdrawals prevent movement); many fish cover types available; diverse and stable aquatic habitat; no disturbance by livestock or man; intolerant macroinvertebrates present.

Moderate Quality: Altered channel evidenced by rip rap and/or channelization; dikes/levees restrict flood plain width; natural vegetation extends 1/3-1/2 of the active channel width on each side; filtering function of riparian vegetation only moderately compromised; banks moderately unstable (outside bends actively eroding with few fallen trees); considerable water cloudiness, submerged objects covered with green film; moderate odor; minor barriers to fish movement; 4-3 fish cover types available; fair aquatic habitat; minimum disturbance by livestock or man; Facultative macroinvertebrates present.

Low Quality: Channel is actively downcutting or widening; rip rap and channelization excessive; flood plain restricted by dikes/levees; natural vegetation less than 1/3 of the active channel width on each side; lack of regeneration; filtering function severely compromised; Banks unstable (inside and outside bands actively eroding with numerous fallen trees); water very turbid to muddy; obvious pollutants (algal mats, surface scum, surface sheen); heavy odor; green color to water; severe barriers to fish movement; 2-0 fish cover types available; little to no aquatic habitat; severe disturbance by livestock or man; tolerant or no macroinvertebrates present.

Handwritten scribble or mark, possibly a signature or initials, located in the upper right quadrant of the page.

WETLAND DELINEATION DATA FORM (1987 COE METHODOLOGY)

Centerline Re-Route Access Road Warehouse Site Other: Proposed Site Wetland ID No.: LAEL0071 (PW)
 Associated Waterbody ID No.:

Date: <u>03/31/10</u>	Client/Project Name & No.: <u>Myriant MySAB</u>	Milepost:
Investigators: <u>P. Winnubst M. Sammons</u>	State/County/Municipality: <u>LA / E. Carroll Parish</u>	Quad Name:
Logbook No.: <u>1011</u>	Logbook Page No.: <u>26, 27</u>	Block/Lot/Tract No.:
		Picture No.: <u>001 SE, 002 S, 003 S 001 SW</u>

Normal Circumstances? NO Significantly Disturbed: Potential Problem Area?

Wetland Quality: High Moderate Low Wetland Type (circle one): PFO PEM PSS Other:

DOMINANT PLANT SPECIES				NON-DOMINANT PLANT SPECIES			
Stratum	Indicator	%		Stratum	Indicator	%	
1. Black willow <u>salix nigra</u>	T	OBL	50	1.			
2. <u>Sycamore</u>	T	FACW	15	2.			
3. <u>Red maple</u>	T	FAC	15	3.			
4. <u>Green Ash</u>	T	OBL	10	4.			
5. <u>Rubus sp.</u>	S	FAC	5	5.			
6. <u>Cotton wood</u>	T	FACW	5	6.			
7.				7.			
8.				8.			
9.				9.			

Percent of Dominant Species that are OBL, FACW, or FAC (excluding FAC-): Hydric Vegetation Criteria Met? (circle one) Yes No

Remarks:

HYDROLOGY

Recorded Data?	Describe:	No Recorded Data?
Depth of Surface Water: (in.)		Depth to Saturated Soil: (in.)
Color of Surface Water (if applicable):		Depth to Free Water in Pit: (in.)
Surface Water Appearance (circle those that apply):	Obvious surface scum	Seen on surface
		Greenish color
		Other:
Primary Wetland Indicators (circle those that apply):	Secondary Wetland Indicators (2 or more required) (circle those that apply):	
Inundated	Sediment Deposits	Oxidized Root Channels in Upper 12 Inches
Saturated in Upper 12 Inches	Water Marks	FAC-Neutral Test
Drift Lines	Drainage Patterns in Wetlands	Water-Stained Leaves
		Other (Explain in Remarks)
		Local Soil Survey Data

Remarks:

SOILS

Map Unit Name (Series and Phase):	Drainage Class:			
Taxonomy (Subgroup):	Field-Observations Confirm Mapped Type?			
Profile Description:				
Depth (Inches)	Horizon	Matrix Color (Munsell Moist)	Mottle (Abundance/Contrast)	Texture, Concretions, Structure, etc.

Circle those that Apply:

Histosol	Sulfidic Odor	Organic Streaking in Sandy Soils	Oxidized Rhizospheres	Concretions
Histic Epipedon	Aquic Moisture Regime	Organic Pans in Sandy Soils	Listed on Local Hydric Soils List	Gleyed Soil
High Organic Content	Other:			

Remarks:

WETLAND DETERMINATION

Hydrophytic Vegetation Present?	<u>Yes</u>	No	Is This Sampling Point Within a Wetland?	Yes	No
Wetland Hydrology Present?	Yes	No	Is This An Isolated Wetland?	Yes	No
Hydric Soils Present?	Yes	No	Is This Wetland Adjacent to or Abutting an Associated Stream?	Yes	No

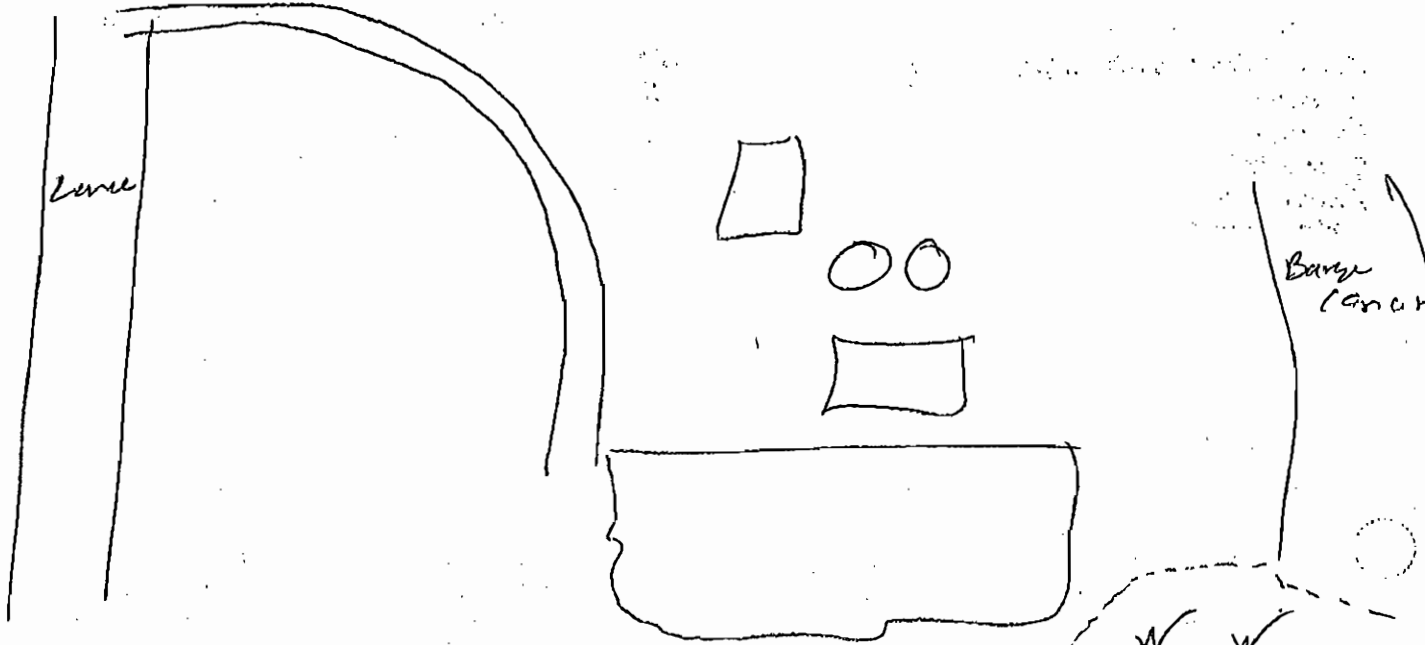
WETLAND DELINEATION DATA FORM (1987 COE METHODOLOGY)

Wetland ID No.: WIAE001

Date: 03/31/10	Client/Project Name & No.: Myriant M65A3	Milepost:					
If not abutting a stream, is there a surface connection between this wetland and a stream? Yes No Waterbody ID No.:							
Flow between Wetland and Stream is:	No Flow	Perennial	Intermittent	Ephemeral	Subsurface Flow?	Yes	No
Surface flow between Wetland and Stream is:	Not Present	Discrete	Confined	Discrete & Confined	Overland Sheetflow		
Surface flow between Wetland and Stream is:	No Flow	From Wetland to Waterbody	From Waterbody to Wetland	To/From Wetland to Waterbody			
Other connection with Stream?	None	Ecological	Separated by berm/barrier?	Yes	No		

DRAWING

Please include: Directional & North Arrow, Centerline, Length of feature, Distances from Centerline, Photo Locations, and Survey corridor



T/E Species/Suitable Habitat

Description of Wetland and General Comments (Use notes re pipeline crossing, construction constraints, erosion potential, existing disturbances, and encroaches)

High quality forested wetland associated w/ Barge canal spur off of the Mississippi. Area completely inundated due to higher than normal river stage.





Description of Wetland Crossing Types and Wetland Quality Criteria

Wetland Method 1: Can be used in wetlands where soils are dry enough at the time of construction to support equipment. This crossing method requires topsoil segregation, and requires no special stabilization techniques.
 Wetland Method 2: Conventional Wetland Construction will be used for crossing wetlands with saturated soils otherwise unable to support mainline construction equipment. Because the soils are saturated, there is a need to stabilize the ROW during construction.
 Wetland Method 3: Push/Pull Wetland Construction will be used in large wetland areas where sufficient hydrology is present for floating the pipeline in the trench, and grade elevation over the length of the push/pull area will not require damping to maintain adequate water levels for floatation of the pipe.

HIGH QUALITY WETLAND: no indication of stress or disturbance in wetland or adjacent area - diverse and mature vegetation types - hydrologic and soil indicators are characteristic of the specific community type - provides suitable habitat for wildlife - high quality perennial streams are often observed
MODERATE QUALITY WETLAND: mild to moderate disturbances have caused alterations in immediately adjacent areas - slightly altered natural vegetation, hydrology, soil characteristics - provides suitable habitat for wildlife and vegetation - associated perennial or intermittent streams are of relatively good quality and aren't significantly disturbed
LOW QUALITY WETLAND: severe disturbances have caused significant changes to vegetation, soils, or hydrology - hydroperiod alterations, if present, have directly affected plant species - community composition has changed - noticeable stress or death of plant species - soil subsidence may have occurred in areas with decreased hydroperiod - mechanical alteration of plant species or soils - grazing from livestock - channelization of stream courses or ditching - little suitable habitat for wildlife and vegetation - associated perennial or intermittent streams significantly disturbed





Myriant Lake Providence, LLC – MySAB Project
Environmental Survey
March 30-31, 2010



Photograph ID Location Discription	Photograph ID Location Discription
 <p>S1AEC001_001W Hwy 65 – Stream S1AEC001 Agricultural Land and Stream</p>	 <p>S1AEC001_002E Hwy 65 – Stream S1AEC001 Agricultural Land and Stream</p>
 <p>S1AEC002_003W Hwy 65 – Stream S1AEC002 Agricultural Land and Stream</p>	 <p>S1AEC002_004N Hwy 65 – Stream S1AEC002 Agricultural Land and Stream</p>





Myriant Lake Providence, LLC – MySAB Project
Environmental Survey
March 30-31, 2010



Photograph ID Location Discription	Photograph ID Location Discription
 <p>S1AEC003_005W Hwy 65 – Stream S1AEC003 Agricultural Land and Stream</p>	 <p>S1AEC003_006N Hwy 65 – Stream S1AEC003 Agricultural Land and Stream</p>
 <p>S1AEC004_007W Hwy 65 – Stream S1AEC004 Agricultural Land and Ditch</p>	 <p>S1AEC004_008N Hwy 65 – Stream S1AEC004 Agricultural Land and Ditch</p>





Myriant Lake Providence, LLC – MySAB Project
Environmental Survey
March 30-31, 2010



Photograph ID Location Discription	Photograph ID Location Discription
 <p>S1AEC005_009W Hwy 65 – Stream S1AEC005 Agricultural Land and Ditch</p>	 <p>S1AEC005_010E Hwy 65 – Stream S1AEC005 Agricultural Land and Ditch</p>
 <p>S1AEC006_011E Hwy 65 – Stream S1AEC006 Agricultural Land and Ditch</p>	 <p>S1AEC006_0012W Hwy 65 – Stream S1AEC006 Agricultural Land and Ditch</p>





**Myriant Lake Providence, LLC – MySAB Project
Environmental Survey
March 30-31, 2010**



<p align="center">Photograph ID Location Discription</p>	<p align="center">Photograph ID Location Discription</p>
 <p align="center">S1AEC007_013W Hwy 65 – Stream S1AEC007 Agricultural Land and Ditch</p>	 <p align="center">S1AEC005_014E Hwy 65 – Stream S1AEC007 Agricultural Land and Ditch</p>
 <p align="center">S1AEC008_015NE Hwy 65 & Port Road – Stream S1AEC008 Stump Hole Pond</p>	 <p align="center">S1AEC008_0016W Hwy 65 & Port Road – Stream S1AEC008 Stump Hole Pond</p>

**Myriant Lake Providence, LLC – MySAB Project
Environmental Survey
March 30-31, 2010**



Photograph ID Location Discription	Photograph ID Location Discription
 <p align="center">W1AEC001_017SE Effluent Discharge Pipeline - Wetland W1AEC001 Inundated Wetland</p>	 <p align="center">W1AEC001_018S Effluent Discharge Pipeline - Wetland W1AEC001 Inundated Wetland</p>
 <p align="center">W1AEC001_019SE Effluent Discharge Pipeline - Wetland W1AEC001 Inundated Wetland</p>	 <p align="center">W1AEC001_017SW Effluent Discharge Pipeline - Wetland W1AEC001 Inundated Wetland</p>

Appendix D
Unexpected Discoveries and Emergency Procedures Plan

Unexpected Discoveries and Emergency Procedures Plan

Myriant Technologies' Myriant Succinic Acid Biorefinery (MySAB) Project

Lake Providence, East Carroll Parish, Louisiana

Archaeological or historical sites are occasionally discovered during construction projects regardless of whether the area was previously subject to a cultural survey and archaeological inventory. This Unexpected Discoveries and Emergency Procedures Plan is designed to address all such instances in which cultural resources that may be adversely impacted as a result of a project are inadvertently discovered during construction.

In accordance with the National Historic Preservation Act of 1966, the Louisiana Office of Cultural Development (LaOCD) delegates the implementation of the state's archaeological program, administration of the Louisiana Unmarked Human Burial Sites and Preservation Act (La. R.S. 8:671-681), and compliance with requirements set forth in the Native American Graves Protection and Repatriation Act of 1990 (16 U.S.C. Sections 470aa-470mm) to its Division of Archaeology (DOA). If cultural resources are discovered within the project area during construction, Myriant Technologies (Myriant) will take several steps to avoid or minimize damage to that resource. The Department of Energy and DOA will immediately be notified and given as much information about the resource as is possible (e.g., resource type, location, and size). If necessary, a mitigation plan will be drafted and submitted to the DOA for their review and comment. Myriant will wait until the mitigation plan has been approved before resuming construction of the project.

American Indians Religious Freedom Act of 1978 (AIRFA)

AIRFA promotes coordination with Native American religious practitioners regarding the effects of federal undertakings upon their religious practices. In the event of an unexpected discovery, Myriant's consultation will follow National Historic Preservation Act (NHPA) guidelines, as amended. Impacts of importance to Native Americans may include flora and fauna, viewsheds, artifacts, and sites. Guidelines for AIRFA are still not determined; therefore all questions will be directed to the DOA.

Disposition of Human Remains

The discovery of human remains from an unmarked grave or cemetery could be caused by construction. In Louisiana, all unmarked burials and abandoned cemeteries are the responsibility of the DOA under R.S. 8:671-681. This includes all Native American grave sites as well as many historic Euro-American, African-American and other cemeteries. All investigations on non-Federal and non-Tribal lands involving human remains must proceed under the aegis of an Unmarked Burials Permit issued by the DOA. Due to the sensitive nature of such a situation, it will be addressed immediately by halting all construction in the area. Myriant will then contact the parish coroner and sheriff. In addition, Myriant will make reasonable efforts to identify and locate parties who can demonstrate direct kinship of the interred individual to determine the most appropriate treatment of the remains. Treatment of the remains will comply with applicable portions of the Louisiana Unmarked Human Burial Sites Preservation Act (R.S. 8:671) and the Inadvertent Discovery Clause. If necessary, the procedures will also comply with the *Native American Graves Protection and Repatriation Act* and the United States

Department of Agriculture's *Accidental Disturbance of Human Remains* and a qualified archaeologist will investigate the discovery within two days.

If the unexpected discovery consists of Native American human remains or associated funerary remains, Myriant will immediately contact the DOA to determine the appropriate measures to handle such a discovery. If it can be determined that the discovered remains have an affinity to any federally-recognized Native American group or any other ethnic group, reasonable measures will be taken to identify, locate, and notify leaders or representatives of these groups. If no association to an ethnic group can be made, Myriant will make a reasonable effort to locate and notify groups that may have a legitimate interest in the disposition of the remains based on a determination of general cultural affinity by a recognized professional. Qualified groups will be given the opportunity to consult in determining the appropriate treatment of the interment. It will be the claimant's responsibility, however, to document and validate their claim.

Myriant or its agents will treat all human remains with dignity and respect until they are reinterred. Myriant will not, under any circumstances, remove the remains from the project area without following the procedures listed in this plan. Any costs that accrue as a result of consultation, treatment, curation, etc., will be Myriant's responsibility. Written authorization of excavation and re-interment of any historic graves will also be obtained. Based on previous correspondence and the requirements submitted with respect to this project, the following agencies and/or Native American groups may need to be contacted, as appropriate, in the event of discovery and/or disturbance of unanticipated human remains:

Dr. Charles McGimsey
Louisiana Division of Archaeology
State Archaeologist and Director
P.O. Box 44247
Baton Rouge, LA 70804
(225) 342-8170

W. Don Bailey
East Carroll Parish Coroner
P.O. Box 632
Lake Providence, LA 71254
(318) 559-2814

Mark W. Shumate
East Carroll Parish Sheriff
400 First Street
P.O. Box 246
Lake Providence, LA 71254
(318)559-2800

Chitimacha Tribe of Louisiana
John Paul Darden, Chairman
P.O. Box 661
Charenton, LA 70523
Phone (337) 923-7215

Coushatta Tribe of Louisiana
Kevin Sickey, Chairman
P.O. Box 818
Elton, LA 70532
Phone (337) 584-1545

Jena Band of Choctaw Indians
Christine Norris, Tribal Chief
P.O. Box 14
Jena, LA 71342
Phone (318) 992-2717

Tunica-Biloxi Tribe of Louisiana
Earl J. Barbry, Sr., Chairman
P.O. Box 1589
Marksville, LA 71351
Phone (318) 253-9767



Department of Energy

Golden Field Office
1617 Cole Boulevard
Golden, Colorado 80401-3393

DOE/EA 1787

**FINDING OF NO SIGNIFICANT IMPACT
AND
FLOODPLAIN STATEMENT OF FINDINGS
Myriant Succinic Acid Biorefinery Demonstration Facility
Lake Providence, East Carroll Parish, Louisiana**

AGENCY: U.S. Department of Energy, Golden Field Office

ACTION: Finding of No Significant Impact

SUMMARY: The U.S. Department of Energy (DOE) is proposing to authorize the expenditure of up to \$50 million in federal funding to Myriant Lake Providence, LLC (Myriant) to support the final design, construction, and start-up of the proposed Myriant Succinic Acid Biorefinery to be located on a 55-acre industrial site leased from the Lake Providence Port Commission in Lake Providence, Louisiana. The biorefinery will hereafter be referred to as “MySAB” or “the biorefinery.” The biorefinery and all related on- and off-site infrastructure and utilities will be referred to as the “proposed project.”

MySAB would produce 30 million pounds per year of succinic acid from sorghum grains and lignocellulosic-derived sugars. Succinic acid is an industrial organic chemical building block that can be used to produce food, plastics, clothing fibers, pigments, and biodegradable solvents. It also is a starting or intermediate material for a number of commercially significant specialty chemicals and chemical processes. The bio-based succinic acid would displace succinic acid produced from petroleum-based feedstocks. The process also produces ammonium sulfate as a co-product.

All discussion, analysis and findings related to the potential impacts of constructing and operating the proposed biorefinery, including the Myriant-committed mitigation measures, are documented in the final Environmental Assessment (EA). The final EA is hereby incorporated by reference.

This Finding of No Significant Impact (FONSI) was prepared in accordance with the *National Environmental Policy Act of 1969* (NEPA), 42 U.S.C. §§ 4321, *et seq.*, the Council on Environmental Quality regulations for implementing NEPA, as amended, 40 CFR 1500 to 1508, and DOE NEPA regulations, 10 CFR Part 1021. Concurrent with its NEPA review, DOE is also required to comply with 10 CFR Part 1022 Compliance with Floodplain/Wetlands Environmental Review Requirements, because the proposed project involves a floodplain and wetland action. The EA therefore presents an assessment of potential floodplains and wetlands impacts, pursuant to 10 CFR Part 1022.

ENVIRONMENTAL IMPACTS: In compliance with NEPA and the DOE NEPA implementing regulations, the EA examined the potential impacts of DOE’s decision to authorize Myriant to expend federal funds for the proposed project and also examined a No Action alternative. Under the No Action alternative, DOE would not authorize expenditure of federal funds by Myriant and Myriant would not design, construct or operate the proposed biorefinery.



DOE analyzed land use, air quality and odor, noise, visual and aesthetic resources, geology and soils, water resources (including floodplains and wetlands), biological resources, cultural resources, socioeconomics, environmental justice, waste management and hazardous materials, occupational health and safety, utilities and energy, and transportation, as well as cumulative impacts of the proposed project. DOE has determined that for all resource areas there would be no impacts or that the potential impacts would be negligible, temporary, or both. Air quality, water quality, and hazardous material handling were expressed as concerns in the one public comment letter received in response to the Notice of Scoping for this project. These resource areas, as well as others requiring permit conditions or applicant-committed measures to ensure minimal environmental impacts, are discussed below. A complete analysis of all potential environmental impacts and Myriant's committed environmental protection measures is contained in the EA.

Construction and operations of the infrastructure supporting the biorefinery would require installation of effluent wastewater, sanitary wastewater and natural gas pipelines which may result in temporary and/or permanent impacts on land use, water resources (including floodplain and wetlands), biological resources and cultural resources. The pipelines would be installed primarily outside the biorefinery site in 15-foot permanent rights-of-way within 30-foot construction corridors. It would be necessary to clear the areas of palustrine forested wetlands that the pipelines would traverse. The forested wetland would be converted to palustrine emergent wetlands, which would not cause loss of wetland area but may result in impacts to wildlife and habitat.

Installation of the proposed effluent wastewater pipeline and a portion of the proposed natural gas pipeline would require a federal dredge-and-fill permit from the U.S. Army Corps of Engineers (USACE) because of the potential impacts to floodplains and wetlands. Myriant is committed to comply with all mitigation measures required by the USACE. Installation of the pipelines would result in soil disturbance, increasing the possibility of erosion and sedimentation. Myriant would use Best Management Practices (BMPs) (e.g., sediment fencing) to minimize erosion and sedimentation impacts to the surrounding surface-water bodies. If required by the U. S. Department of Transportation (DOT), Myriant would restore the drainage ditches crossed by the pipeline routes to original contours following construction. Myriant has also committed to other mitigation measures such as, during construction, requiring that heavy equipment cross wetland areas on equipment mats, where necessary to minimize soil compaction and rutting. After construction, the pipeline rights-of-way would revegetate naturally, with the exception of the permanent right-of-way directly over the pipelines, which Myriant would periodically clear for monitoring and maintenance.

The U.S. Fish and Wildlife Service (USFWS) provided recommendations to minimize or avoid potential impacts to wildlife and habitat. Appendix B of the EA contains a copy of the USFWS letter. Myriant is committed to follow the USFWS recommendations to the maximum extent practicable and to continue consultation with the USFWS throughout the construction process.

The Louisiana State Historic Preservation Officer (SHPO) requested initiation of a Phase I archeological survey before the construction of the pipeline in the floodplain because of the proximity to the "Hollybrook site," which has been nominated for the National Register of Historic Places. Myriant is committed to performing the survey and will require a no-effect determination by the SHPO prior to construction of the pipeline. Myriant has also developed an *Unexpected Discoveries and Emergency Procedures Plan* to address the possibility of accidental discoveries during construction and will continue consultation with the SHPO during construction.

Construction of MySAB would result in an increase in air pollutant emissions such as fugitive dust; however, impacts would be minor and temporary because Myriant would use BMPs and dust control measures, such as road water spraying, to minimize the impacts.

Potential air emissions during operations would come from several sources including fugitive dust and small quantity emissions of volatile organic compounds (VOCs) and Hazardous Air Pollutants (HAPs). Myriant would minimize fugitive dust by implementing BMPs as appropriate including maintaining clean interior and exterior handling areas, enclosing grain handling equipment, use of pollution control systems, and by paving the biorefinery access road. Myriant would control VOCs, HAPs, and ammonia pollutants by implementing BMPs as appropriate, including scrubbers and oxidizers.

The biorefinery is expected to emit a slight odor of ammonia (based on DOE's dispersion analysis of the fermentation operations). The odor threshold (the level at which 50 percent of humans smell ammonia) is very low (approximately 5 parts ammonia per 1 million parts air). DOE analyzed the dispersion of ammonia to better understand the potential impacts to nearby residences. The results show that the concentration of ammonia was estimated to be between 0.0000015 ppm for a steady daily release and 0.009 ppm for a sudden daily release. The odor threshold for ammonia is 5 ppm, so the concentration of ammonia would be significantly less than the odor threshold.

The only chemical compound that Myriant would store at MySAB in a quantity large enough to be regulated under the Clean Air Act's Risk Management Rule (40 CFR part 68) would be anhydrous ammonia. Using the Environmental Protection Agency's (EPA) Risk Management Program Guidance and model, Myriant performed simulated worst-case and alternative release scenarios for the release of anhydrous ammonia, both of which indicated that toxic endpoint concentrations of the chemical could extend off site. To safely manage a catastrophic release of anhydrous ammonia, Myriant exhaustively studied the anhydrous ammonia storage and handling systems/procedures and developed mitigation plans to reduce the probability of an incident to levels that are probabilistically remote. As well, Myriant would develop appropriate spill response and emergency response plans in accordance with Federal and Louisiana Occupational Safety and Health Administration (OSHA), EPA, and the Louisiana Department of Environmental Quality (LDEQ) regulations and guidance, to address medical and environmental hazards associated with the MySAB biorefinery.

FLOODPLAIN STATEMENT OF FINDINGS: By comparing the biorefinery site elevation to the Base Flood Elevation, DOE has determined that the 55-acre biorefinery site would not be within the 100 year floodplain. However, the effluent wastewater pipeline and natural gas pipeline that would be constructed outside the proposed biorefinery site in 15-foot rights-of-way would be within the 100 year floodplain as is shown in Figures 3-1 and 3-3 of the EA. Along the routes of the pipelines, the infrastructure would be installed underground, via the open-trench method, and the area would be restored to original contour and grade. Therefore, there would be no effect on flood storage capacity of the floodplain and minimal impacts to the floodplain. Atmos Energy (the natural gas distribution company) and Myriant would obtain authorization under USACE Nationwide Permit No. 12 (NWP-12) Utility Line Activities, and conduct construction in compliance with permit conditions. BMPs, designed in accordance with NWP-12 requirements, would prevent significant erosion and sedimentation impacts to the surrounding surface-water bodies. The land in the pipeline rights-of-way (in the floodplain) would not contain aboveground structures and would remain available for limited uses, for example, recreation and roadside maintenance, respectively. DOE concludes that this project would have minimal impacts on the natural and beneficial floodplain values, would not affect lives or property in the area, and would comply with floodplain protection regulations.

PUBLIC PARTICIPATION IN THE EA PROCESS: In accordance with applicable regulations and policies, DOE sent a Notice of Scoping on June 2, 2010, to federal, state, and local agencies; tribal governments; elected officials; businesses; organizations and special interest groups; and members of the general public providing 30 days to submit comments regarding the EA's scope. DOE published the Notice of Scoping online at the DOE Golden Field Office Public Reading Room. DOE received one public comment letter on the Notice of Scoping. These documents are included in Appendix A.

In addition, DOE initiated consultation with the USACE; USFWS; LDEQ; Louisiana Department of Natural Resources (LDNR); Louisiana Department of Culture, Recreation, and Tourism (LACRT); Louisiana Department of Wildlife and Fisheries (LDWF); the Fifth Louisiana Levee District; Louisiana Department of Transportation and Development (LDOTD), the Jena Band of the Choctaw Indians, the Coushatta Indian Tribe, the Chitimacha Tribe of Louisiana, and the Tunica-Biloxi Tribe of Louisiana. Appendix B of the EA contains copies of the consultation letters and responses.

DOE published the Draft EA and Notice of Wetland Involvement (NOWI) in the DOE Golden Field Office Public Reading Room for a 15-day review period which ended September 13, 2010, and sent Notices of Availability (NOA) to interested agencies and individuals. DOE concurrently posted the NOWI in the Lake Providence, LA Banner-Democrat newspaper for the required 15-day public comment period. No timely comments were received during the draft EA and NOWI comment periods. On November 4, 2010, DOE published a Notice of Floodplain Action in the DOE Golden Field Office Public Reading Room and the Lake Providence, LA Banner-Democrat newspaper for the required 15-day public comment period which ended on November 18, 2010. DOE also sent the Notice to interested agencies and individuals. The LDEQ submitted the same comments as previously sent in response to the Notice of Scoping in July 2010. LDEQ indicated it had no objections to the project and provided recommendations. Applicable recommendations have been addressed in the EA and committed to by Myriant. Appendix A of the EA contains the NOA for the draft EA and the NOWI, the Notice of Floodplain Action, and the Distribution List and the LDEQ correspondence.

DETERMINATION: DOE determines that authorizing the expenditures of federal funds to Myriant to facilitate final design, construction, and start-up of the proposed Myriant Succinic Acid Biorefinery would not constitute a major federal action significantly affecting the human or natural environment, as defined by NEPA.

Myriant's commitments to (a) obtain and comply with all appropriate federal, state, and local permits, and (b) to minimize potential impacts through the implementation of federal agency recommendations, BMPs and various applicant-committed measures detailed in the EA, shall be incorporated and enforceable through DOE's financial assistance agreement. DOE and Myriant are committed to complete required consultation with the USFWS and the SHPO, and DOE will use an independent engineer to monitor implementation of Myriant's commitments.

Pursuant to 10 CFR 1022.12, DOE is allowing a 15-day public review period from the date the Floodplain Statement of Findings is posted before Myriant is authorized to expend funds on any activities in the floodplain. This condition will be incorporated and enforceable through DOE's financial assistance agreement.

Therefore, the preparation of an Environmental Impact Statement is not required, and DOE is issuing this Finding of No Significant Impact (FONSI). Subject to conditions in this FONSI and any other conditional provisions, this FONSI informs DOE's decision to authorize release of its cost-shared funding for the design, construction, and start-up of the biorefinery in Lake Providence, Louisiana.

Copies of the Final EA are available in the website at:
http://www.eere.energy.gov/golden/Reading_Room.aspx.

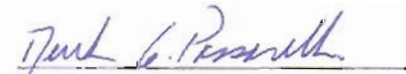
For questions about this FONSI, please contact:

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Issued in Golden, Colorado this 3rd day of December 2010



Derek G. Passarelli
Acting Golden Field Office Manager