DEPARTMENT OF THE ARMY
U.S. ARMY ENGINEER DISTRICT, MOBILE DISTRICT
P.O. BOX 2288
MOBILE, ALABAMA 36628-0001

REPLY TO
ATTENTION OF:

PUBLIC NOTICE NO.SAM-2006-1926-DJS NOV -5 2006

JOINT PUBLIC NOTICE
U.S. ARMY CORPS OF ENGINEERS

MISSISSIPPI DEPARTMENT OF ENVIRONMENTAL QUALITY
OFFICE OF POLLUTION CONTROL

MISSISSIPPI DEPARTMENT OF MARINE RESOURCES

TO WHOM IT MAY CONCERN:

This District has received an application for a Department of the Army permit pursuant to Section 10 of the River and Harbor Act of 1899 (33 USC 403), Section 404 of the Clean Water Act (33 USC 1344) and Section 103 of the Marine Protection and Sanctuaries Act of 1972 (33 USC 1413. Please communicate this information to interested parties.

APPLICANT: Bayou Casotte Energy LLC
Chevron Global Gas
1500 Louisiana Street
Houston, Texas 77002

WATERWAY: Bayou Casotte, Pascagoula, Jackson County, Mississippi

WORK: The applicant is proposing the placement of fill in wetlands in conjunction with the excavation of a boatslip indented into the east bank of the waterway, construction of a bulkhead, pier, boat dock, pipelines, access road and a vaporization and storage facility. The purpose of the proposed activity is to construct and operate a new liquefied natural gas (LNG) receiving terminal, storage and gasification facility in Jackson. Approximately 4.5-millon-cubic yards of clayey, sandy sediment will be excavated in order to construct the proposed LNG facility. Approximately 1-millon-cubic yards of material will be placed in 128.3 acres of disturbed wetlands to accommodate the proposed construction.

The proposed project location was the site of an industrial facility owned and operated by Corning Glass Works. Portions of this site were subleased to Cohart Refactory, a manufacturer of high temperature brick. This plant was operated between 1955 and 1989 and used an unlined, below grade landfill to store furnace dust and discarded ore generated during the brick manufacturing process. This landfill was excavated and disposed offsite in 1984,

then the area was backfilled with soil and refractory debris, leveled and graded. Cohart's facility also included two unlined lagoons to settle fine particles in wastewater effluent prior to outfall. The lagoons were abandoned in 1989.

The applicant's proposed project will impact approximately 128.3 acres of disturbed wetlands. The applicant's wetland mitigation plan is attached for review.

The applicant's evaluation of Essential Fish Habitat impacts is contained in Chapter 4.5 of the Federal Energy Regulatory Commission (FERC) DRAFT Environmental Impact Statement available for review at this office. Essentially, construction and operation of the proposed facility is not expected to have a significant impact on EFH or EFH species.

The applicant has proposed, for the disposal of excavated material, the use of the COE-established Ocean Dredged Material Disposal Site (ODMDS) located south of Horn Island. The impacts of this alternative are being evaluated through the Section 103 Ocean Disposal Criteria Compliance Evaluation document provided by the applicant. Material will be excavated by bucket dredging and will be transported by hopper barges to the ODMDS.

All work will be in accordance with the attached plans and supplemental information provided by the applicant.

The applicant has applied for certification from the State of Mississippi in accordance with Section 401(a)(1) of the Clean Water Act, and upon completion of the required advertising, a determination relative to certification will be made.

The applicant has certified that the proposed activity complies with and will be conducted in a manner that is consistent with the State Coastal Zone Management Program. A determination relative to consistency will be made by the Mississippi Department of Marine Resources.

This public notice is being distributed to all known interested persons in order to assist in developing facts on which a decision by the U.S. Army Corps of Engineers (Corps) can be based. For accuracy and completeness of the record, all data in support of or in opposition to the proposed work should be submitted in writing setting forth sufficient detail to furnish a clear understanding of the reasons for support or opposition. The decision whether to issue a permit will be based on an evaluation of the probable

impact, including cumulative impacts, of the proposed activity on the public interest. That decision will reflect the national concern for both protection and utilization of important resources.

The benefit which reasonably may be expected to accrue from the proposal must be balanced against its reasonably foreseeable detriments. All factors which may be relevant to the proposal will be considered, including the cumulative effects thereof; among those are conservation, economics, aesthetics, general environmental concerns, wetlands, cultural values, fish and wildlife values, flood hazards, flood plain values, land use, navigation, shoreline erosion and accretion, recreation, water supply and conservation, water quality, energy needs, safety, food production, and in general, the needs and welfare of the people.

The Federal Energy Regulatory Commission (FERC) Draft Environmental Impact Statement was issued in May 2006. Presently, FERC is completing their environmental evaluation and will issue a Final Environmental Impact Statement which will become a part of this permit file.

The Corps is soliciting comments from the public; Federal, State, and local agencies and officials; Indian Tribes; and other interested parties in order to consider and evaluate the impacts of this proposed activity. Any comments received will be considered by the Corps to determine whether to issue, modify, condition or deny a permit for this proposal. To make this decision, comments are used to assess impacts on endangered species, historic properties, water quality, general environmental effects, and the other public interest factors listed above. Comments are used in the preparation of an Environmental Assessment and/or an Environmental Impact Statement pursuant to the National Environmental Policy Act. Comments are also used to determine the need for a public hearing and to determine the overall public interest of the proposed activity.

Any person may request, in writing, within the comment period specified in this notice, that a public hearing be held to consider this application. Requests for public hearings shall state with particularity, the reasons for holding a public hearing.

Evaluation of the probable impacts involving deposits of dredged or fill material into waters of the United States will include the application of guidelines established by the Administrator of the U.S. Environmental Protection Agency.

PUBLIC NOTICE NO.SAM-2006-1926-DJS

The National Register of Historic Places has been consulted and no properties listed in or eligible for the National Register are known to exist which would be affected by the proposed work. This review constitutes the full extent of cultural resources investigations unless comment to this notice is received documenting that significant sites or properties exist which may be affected by this work, or that adequately documents that a potential exists for the location of significant sites or properties within the permit area. Copies of this notice are being sent to the State Historic Preservation Officer and the U.S. Department of the Interior, National Park Service, Division of Archeological Services.

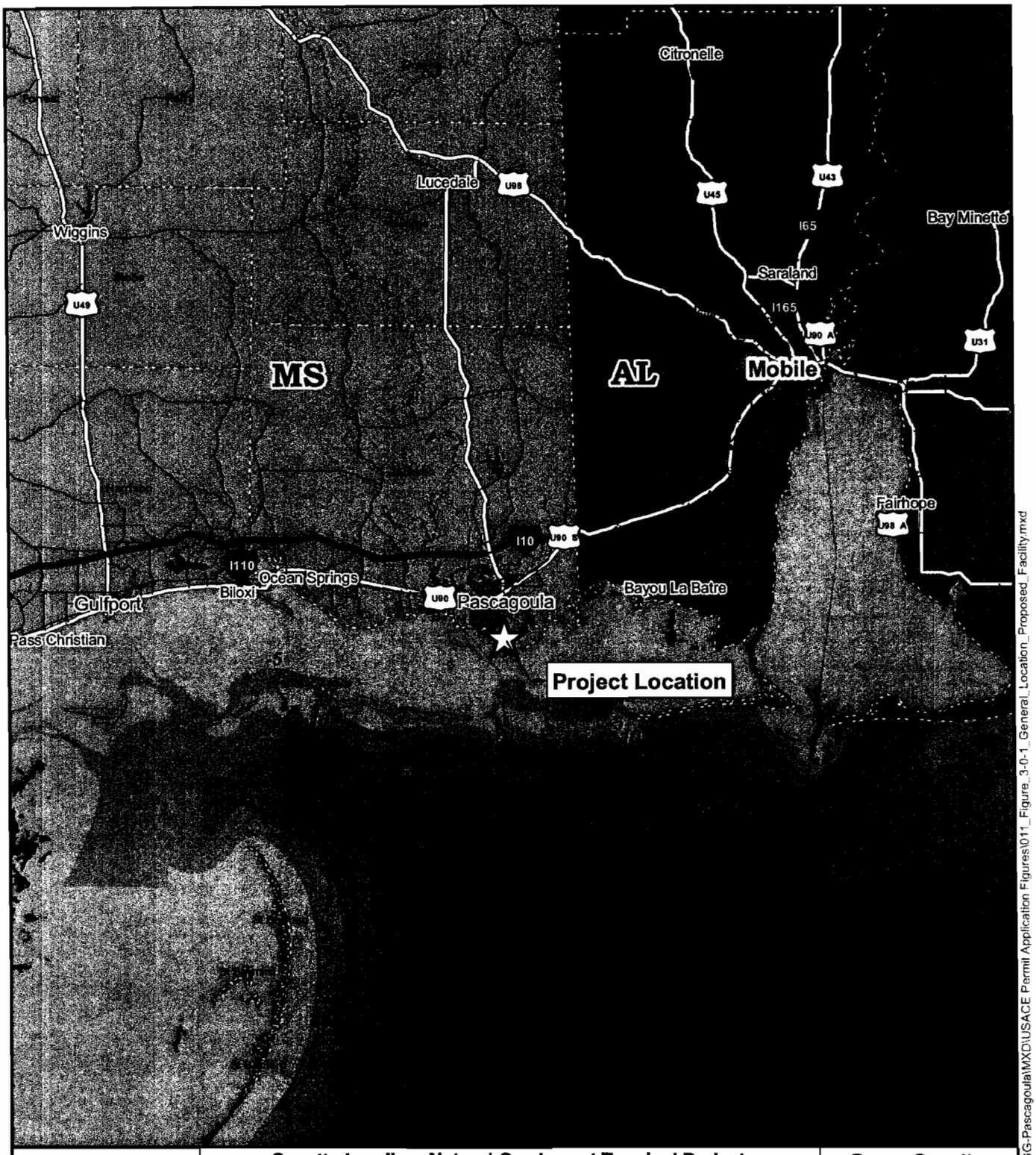
Correspondence concerning this Public Notice should refer to Public Notice Number **SAM-2006-1926-DJS** and should be directed to the District Engineer, U.S. Army Engineer District, Mobile, Post Office Box 2288, Mobile, Alabama 36628-0001, Attention: Permit Evaluation Branch, with a copy to the Mississippi Department of Environmental Quality, Office of Pollution Control, Post Office Box 10385, Jackson, Mississippi 39289, and the Mississippi Department of Marine Resources, 1141 Bayview Avenue, Suite 101, Biloxi, Mississippi 39530, in time to be received not later than 30 days from the date of this public notice.

If you have any questions concerning this publication, you may contact this office, **Mr. David Schwartz**, telephone number (251) 690-3246. Please refer to the above Public Notice number.

For additional information about our Regulatory Program, please visit our web site at www.sam.usace.army.mil/rd/reg, and please take a moment to complete our customer satisfaction survey while you're there. Your responses are appreciated and will allow us to improve our services.

MOBILE DISTRICT
U.S. Army Corps of Engineers

Enclosures



Map Location

Casotte Landing Natural Gas Import Terminal Project

General Location of Proposed Facility

Legend

- Urban Areas
- County Boundaries
- Major Water Bodies

Road Classification

- Limited Access
- Highways
- Secondary Roads
- Other
- Highway Ramp

0 5 10 20 Miles

Scale: 1:750,000

July 2006

Bayou Casotte Energy, LLC

ENSR | AECOM

Figure 3.0-1

Project #: 01231-021-0012

Y:\Projects\ChevronTexaco\CTGG-Pascagoula\MXD\USACE Permit Application Figures\011_Figure_3-0-1_General_Location_Proposed_Facility.mxd

SAM-2006-1926-DJS

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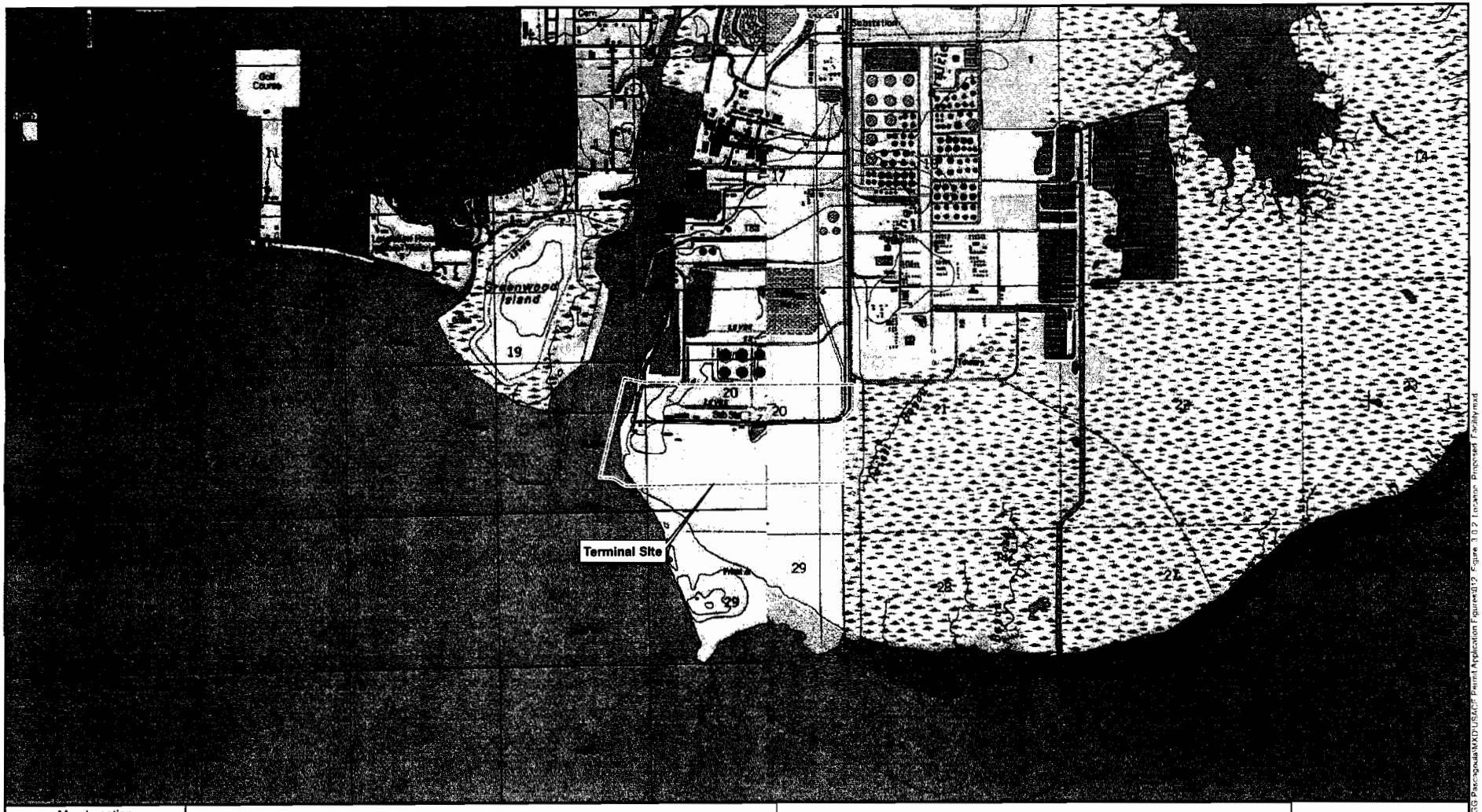


Map Location

Legend

Terminal Site

N
W E
S

0 1,000 2,000 4,000 Feet

0 250 500 1,000 Meters

Scale: 1:24,000 (1 inch=2,000 ft)

Map Projection: NAD 83 State Plane Mississippi East, Feet.
Image Source: USGS Topographic Quadrangles Pascagoula South, Grand Bay, AL.

Casotte Landing Natural Gas Import Terminal Project

Location of Proposed Facility

Date: July 2006

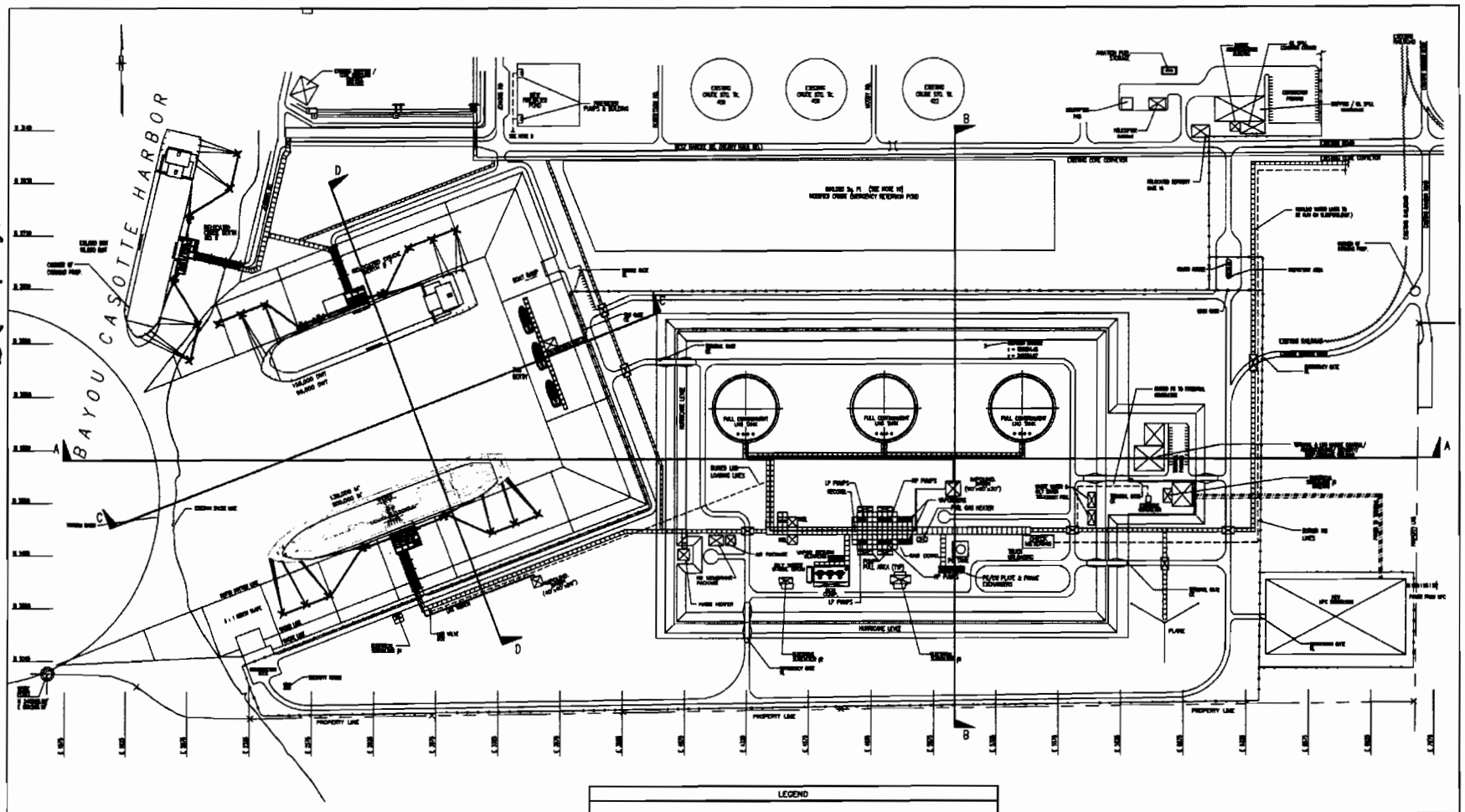
Project #: 01231-021

Bayou Casotte Energy, LLC

ENSR | AECOM

I:\Projects\Chevron Research\GIS\Pascagoula\MXD\USACE Permit Application Figure\4312_Figure_3.0-2_Location_Proposed_Facility.mxd

SAM-2006-1926-DJS



Terminal Plot Plan

Figure 3.2-1

ISSUED FOR CONCEPTUAL STUDY ONLY – NOT FOR CONSTRUCTION

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AKER KVAERNER
HOUSTON, TEXAS CONTRACT No. H0412300

REFERENCE DRAWINGS

REVISIONS

ISSUE FOR REVIEW A

TECH. APPROVALS | OPER. APPROVALS

Chevron Global Gas
Casotte Landing

OVERALL PLOT PLAN
LNG TERMINAL SITE
PLOT PLAN SECTIONS
CASOTTE LANDING

APPROP. NUMBER | ENGR. JOB NUMBER H0412300 | DRAWN BY: TM DATE: 3-8-06 SCALE: 1"=100' | CHECKED BY: RP APPROVED BY: ENGR:

A PPR

48-KF-74518-805

REV A

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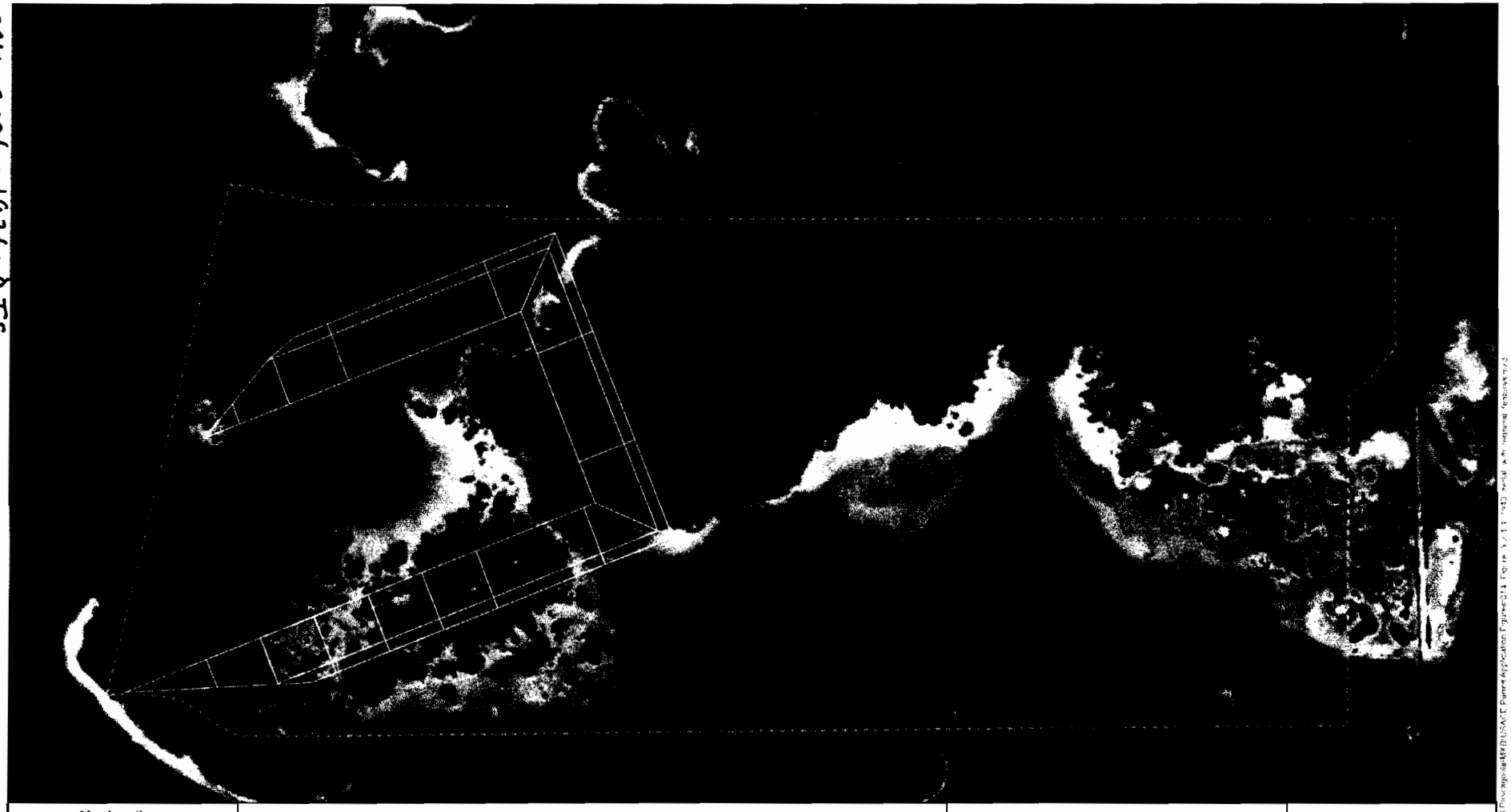
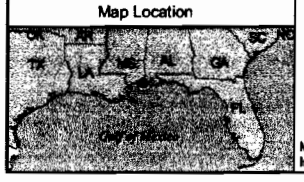
SAM-2006-1926-OFS





Map Location

Legend

Terminal Site

Terminal Slip

Map Projection: NAD 83, State Plane Mississippi East, Feet.
Image Source: 1940 aerial image, Tobin International.

Scale: 1:4,800

1 inch equals 400 feet

0 200 400 800 1,200 Feet

Casotte Landing Natural Gas Import Terminal Project

Terminal Boundary Superimposed on
1940 Aerial Photograph

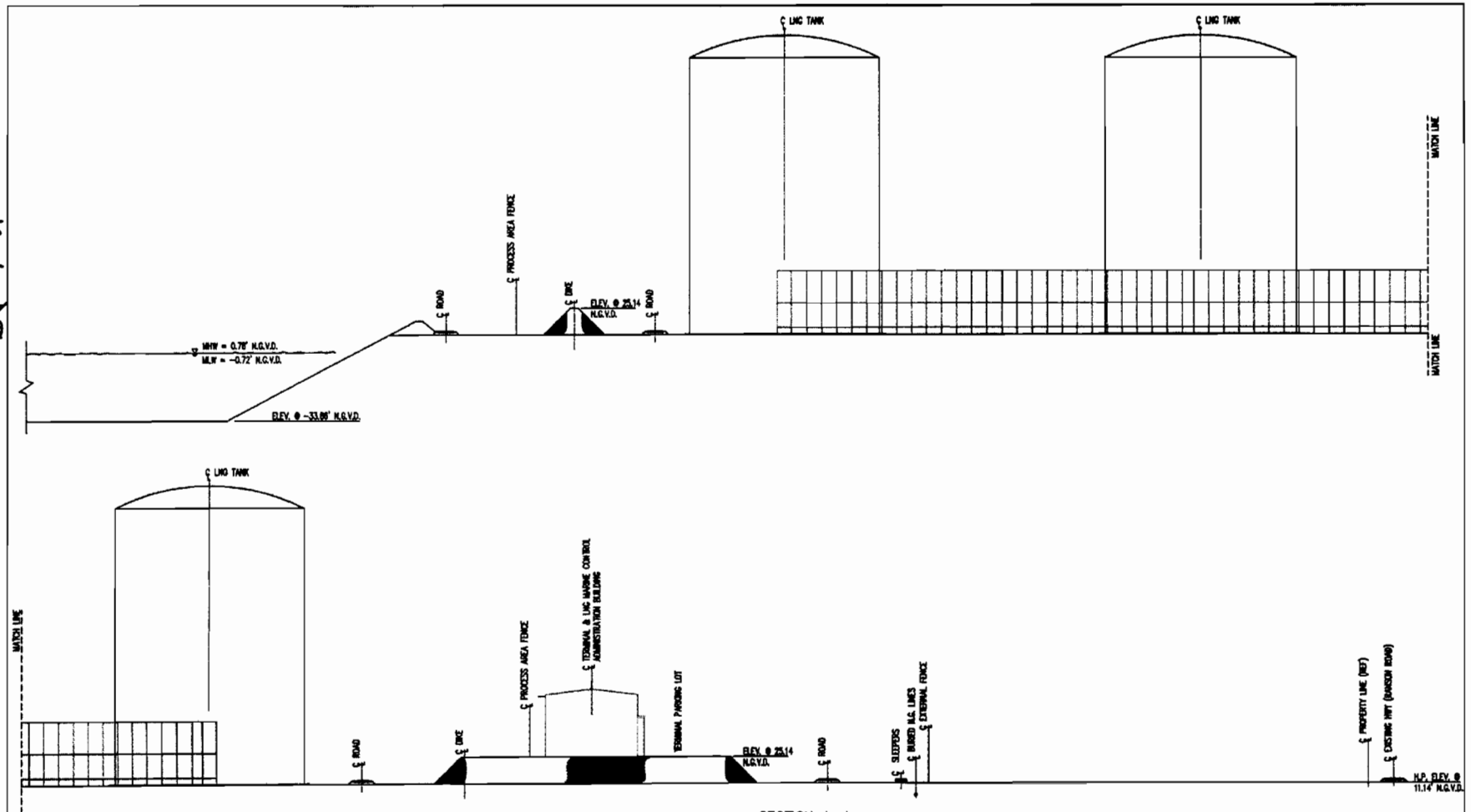
Figure 3.2.1-1

Project #: 01231-021 Date: July 2006

Bayou Casotte Energy, LLC

ENSR | AECOM

SAM-2006-1926-DJS



SECTION A-A

LEGEND

- POWER LINES
- 1/2 LFL VAPOR EXCLUSION
- LFL VAPOR EXCLUSION
- USCG SAFETY & SECURITY ZONE
- PROP. LINE
- UNDERGROUND PIPING
- PROCESS AREA FENCE
- EXTERNAL FENCE
- LNG CONTAINMENT TRENCH
- NORMALLY LOCKED
- CARD KEY ACCESS
- EXISTING RAILROAD

X 1.0 SCALE (HORIZONTAL)
X 5.0 SCALE (VERTICAL)
0 100' 200' 300' 400' 500'
FEET

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Proposed Cross Sections of Site - 1 of 3

Figure 3.2.1-3

REFERENCE DRAWINGS

REVISIONS

ISSUE FOR REVIEW	A		

TECH. APPROVALS | OPER. APPROVALS

Chevron Global Gas
Donella Lansing

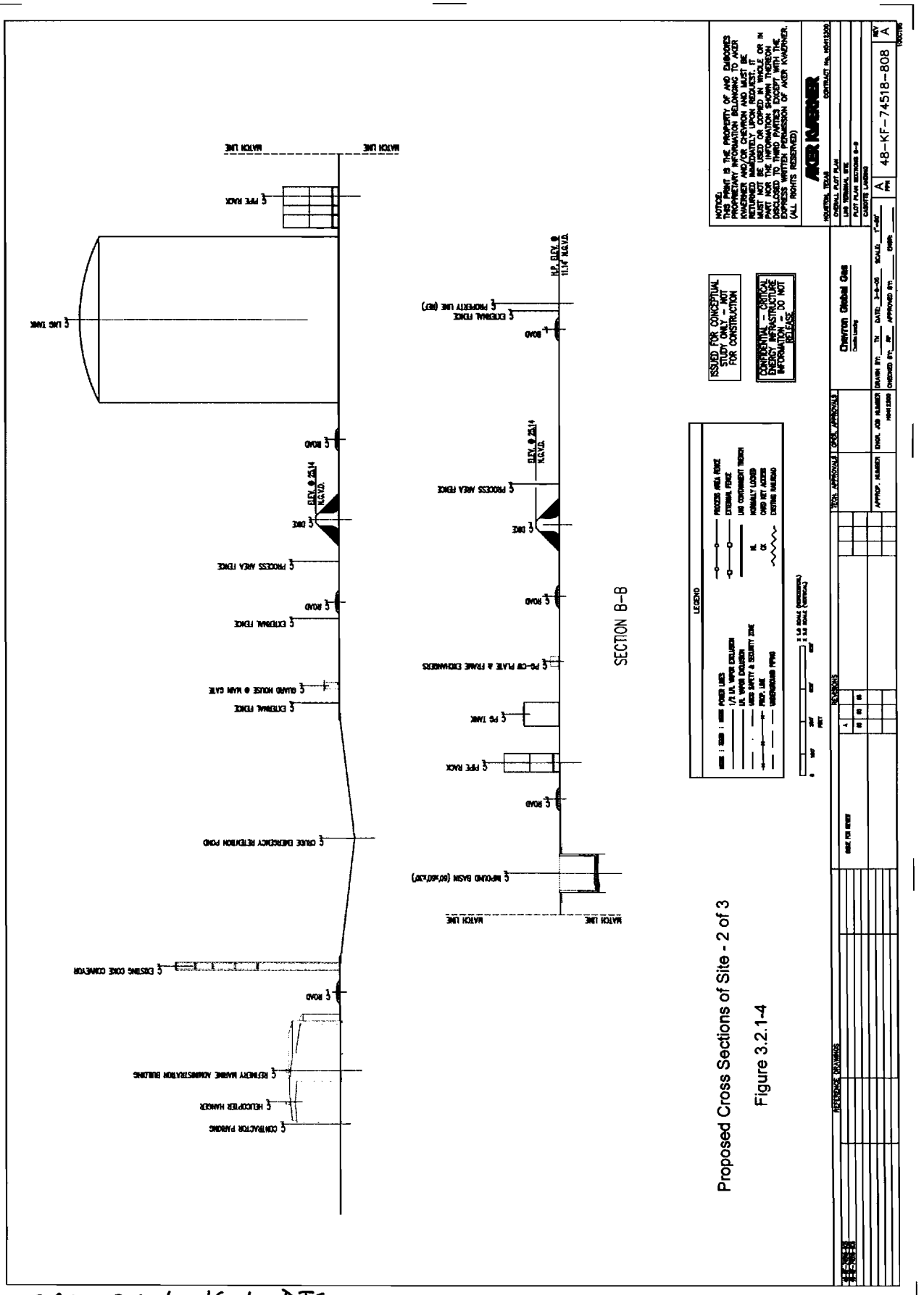
AKER KVAERNER
HOUSTON, TEXAS
CONTRACT No. H0412300

OVERALL PLOT PLAN
LNG TERMINAL SITE
PLOT PLAN SECTIONS A-A
CASOTTE LANDING

APPROP. NUMBER | ENGR. JOB NUMBER H0412300 | DRAWN BY: TH | DATE: 3-8-06 | SCALE: 1"=80' | CHECKED BY: RP | APPROVED BY: | ENGR:

A PPM | 48-KF-74518-807 | REV A

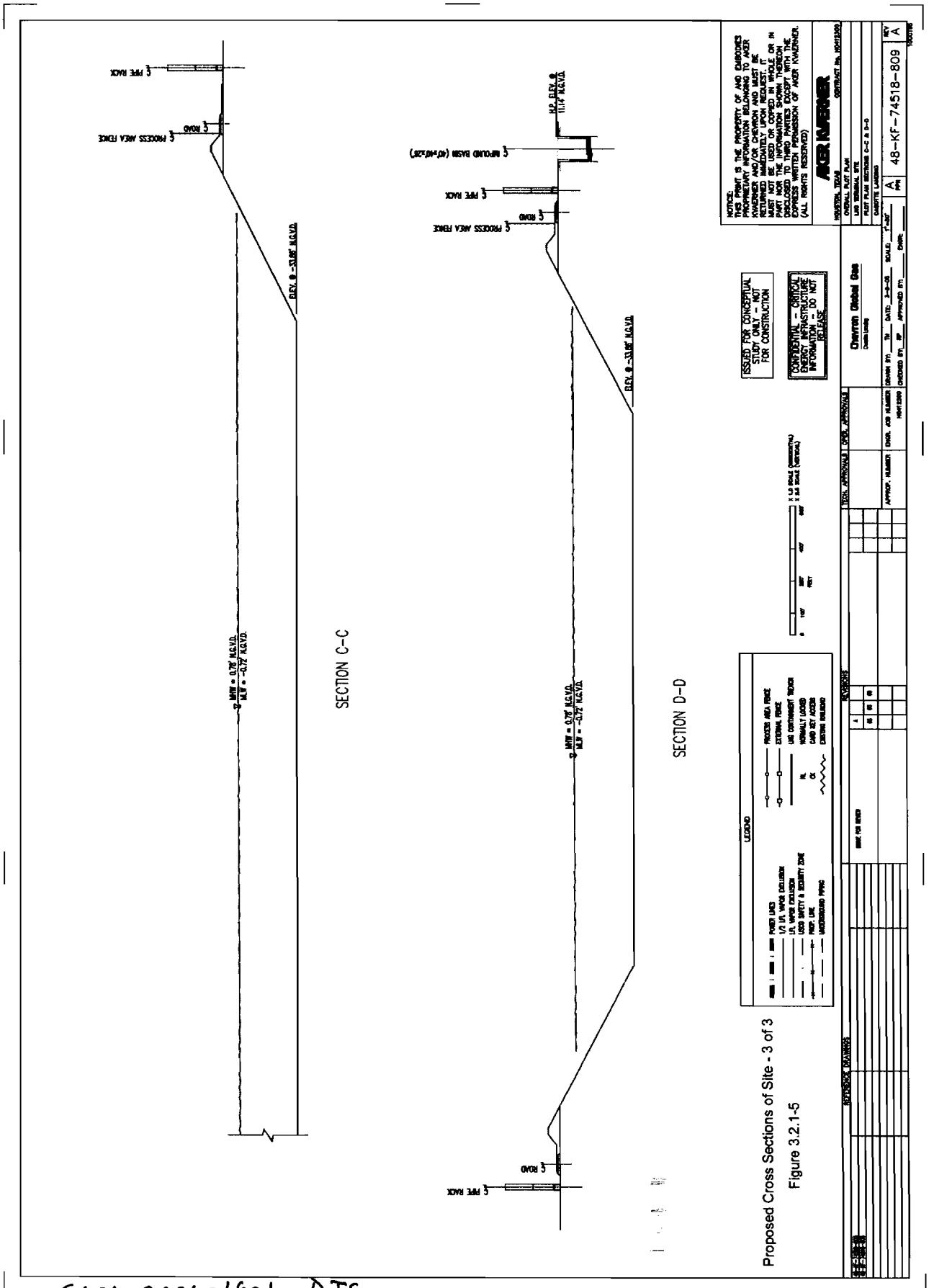
100C195



Proposed Cross Sections of Site - 2 of 3

Figure 3.2.1-4

SAM-2006-1926-DJS



Proposed Cross Sections of Site - 3 of 3

Figure 3.2.1-5

SAM-2006-1926-DJS

SAM-2006-1926-DJS

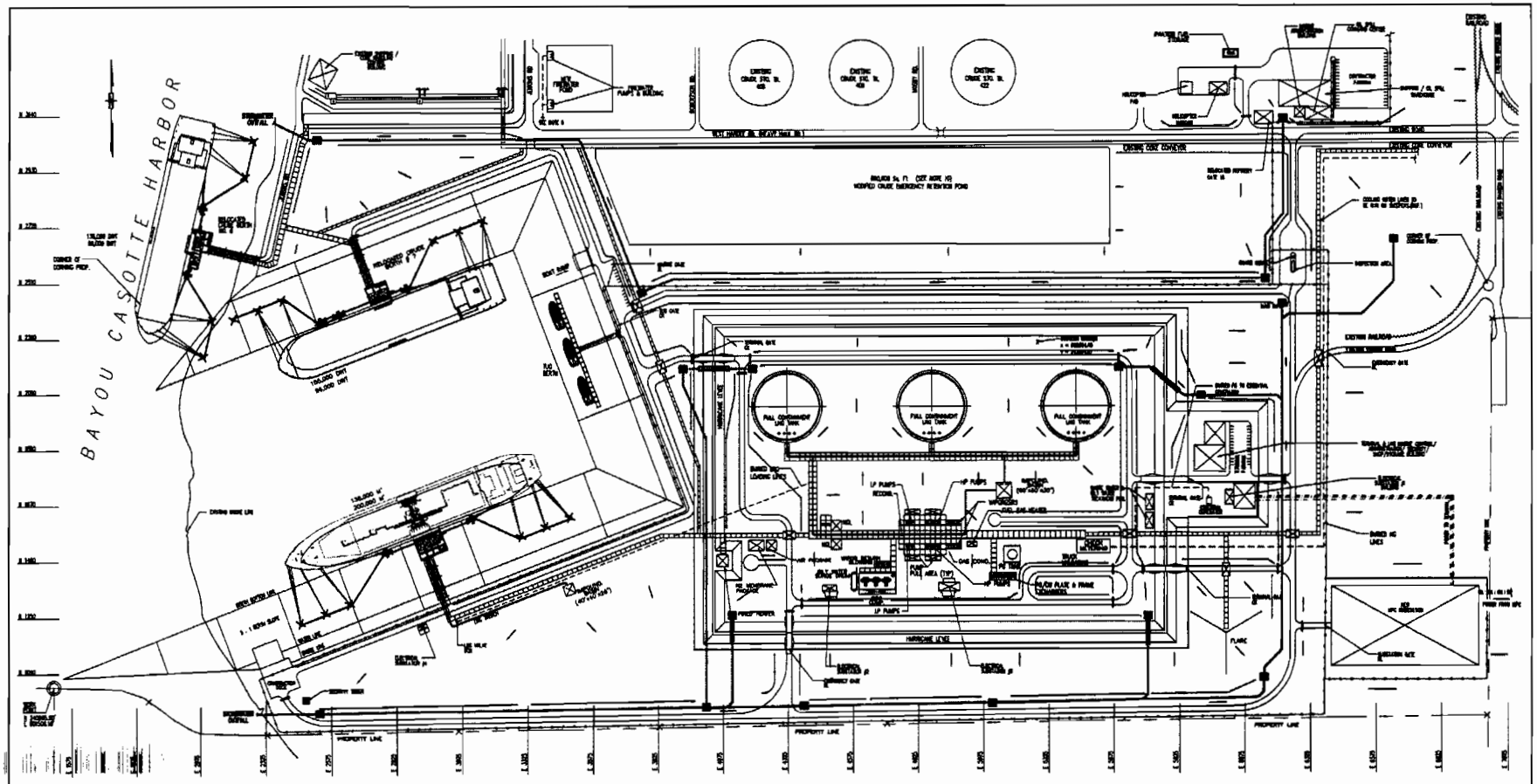


FIGURE 1.5.2.1-3

Stormwater System for Casotte Landing

Figure 3.2.1-6

LEGEND

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AKER KVAERNER

HOUSTON, TEXAS

CONTRACT No. H0113200

REFERENCE DRAWINGS

SITE PLAN OVERVIEW PLAN	48-KF-74518-800	
DRAWING AND DETAILS	48-KF-74518-801	

REVISIONS

ISSUE FOR APPROVAL	B	07	20	05	RE-ISSUE FOR FEED	D	09	13	05
ISSUE FOR FEED	C	09	07	05	RE-ISSUE FOR FEED	E	09	20	05

TECH. APPROVALS | OPER. APPROVALS

APPROP. NUMBER | ENGR. JOB NUMBER H0113200

Chevron Global Gas
Casotte Landing

SITE STORM DRAINAGE PLAN
LNG TERMINAL SITE
PLOT PLAN
CASOTTE LANDING

DRAWN BY: TM DATED: 9-2-05 SCALED: 1"=100'
CHECKED BY: LL APPROVED BY: ENGR:

SIZE: S | 48-KF-74518-801 | REV: E

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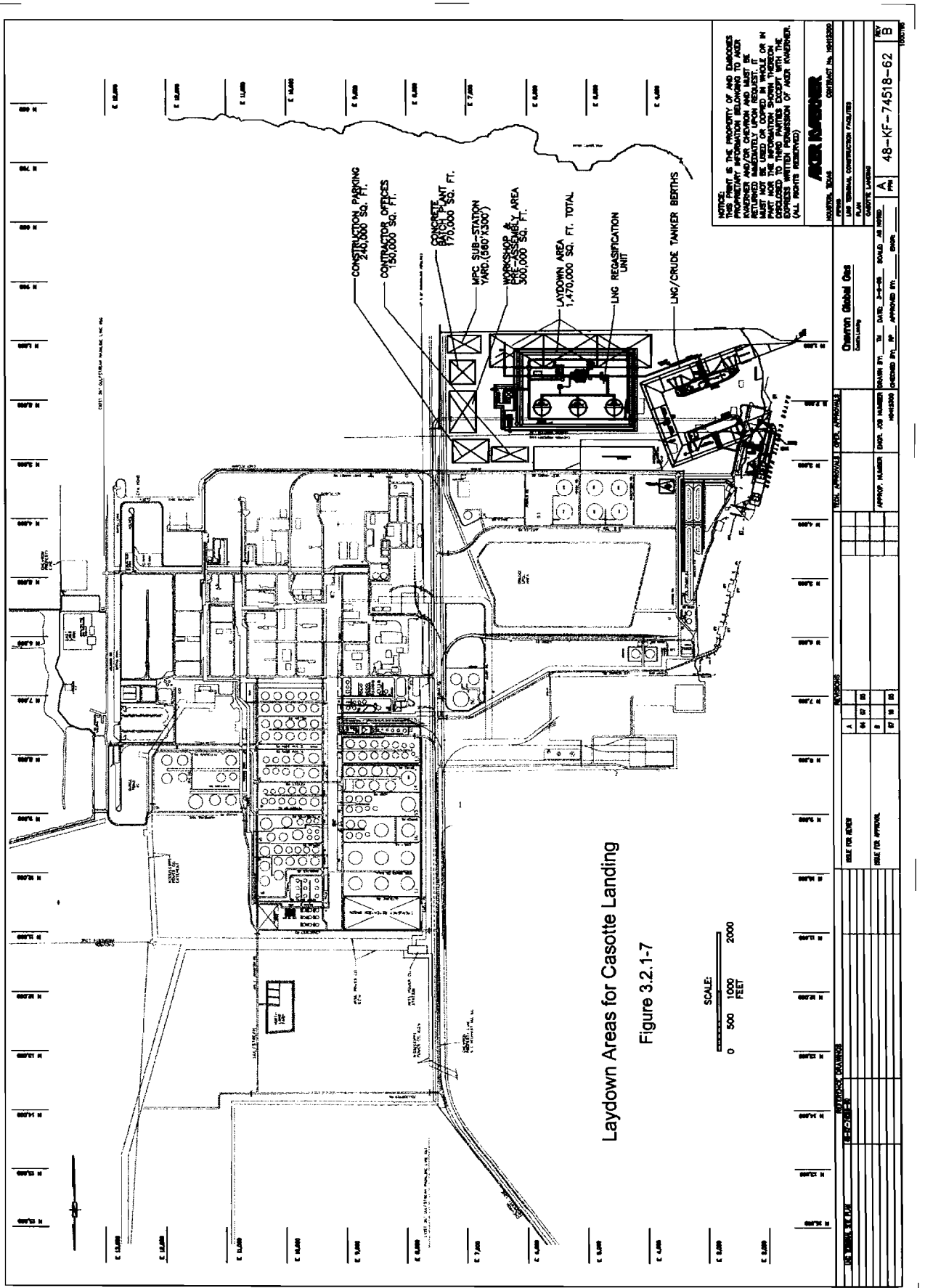

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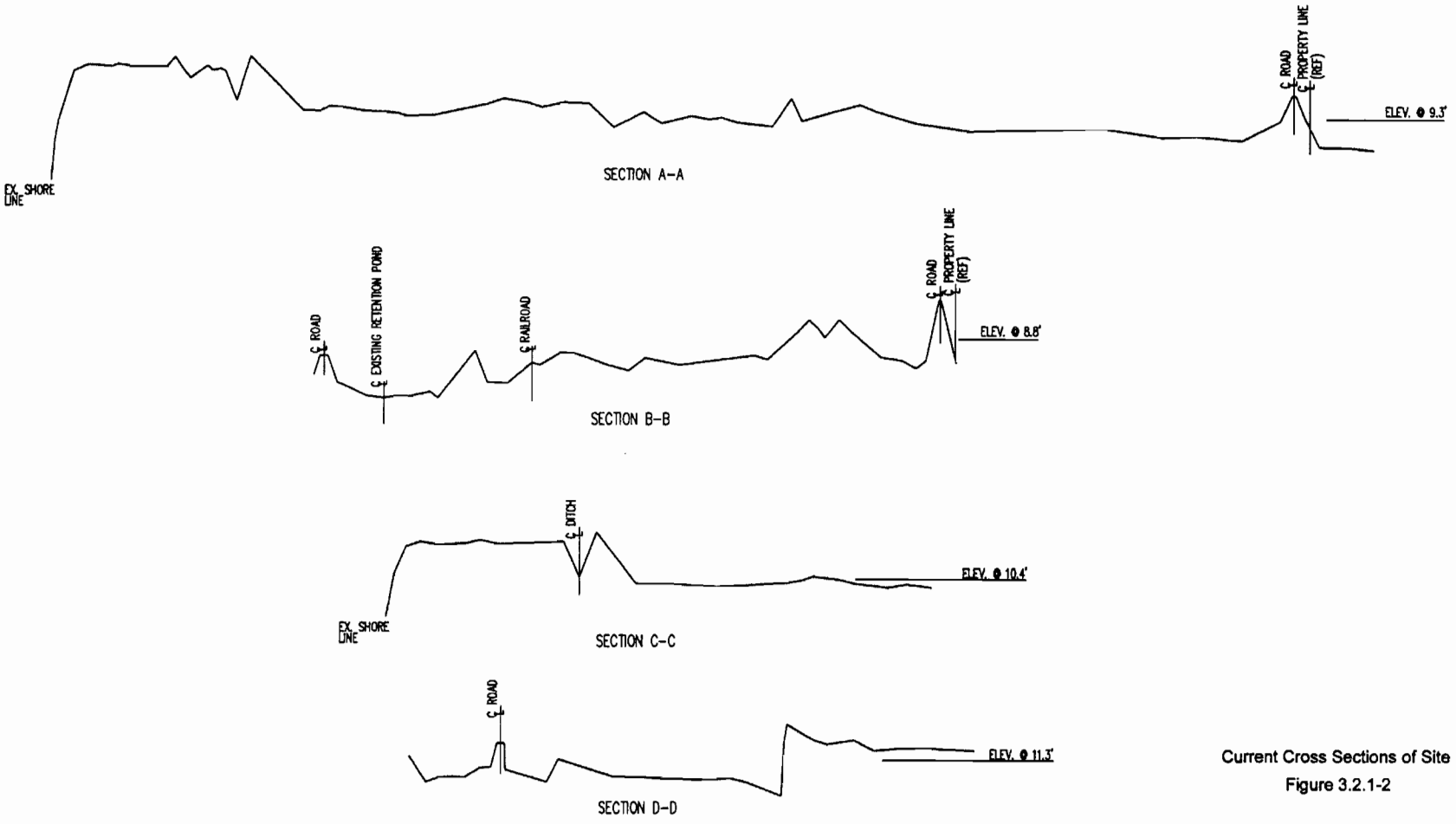

Current Cross Sections of Site

Figure 3.2.1-2

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AKER KVAERNER

HOUSTON, TEXAS — CONTRACT No. H0413300

REFERENCE DRAWINGS

REVISIONS

ISSUE FOR REVIEW	A			
		BS	BS	BS

TECH. APPROVALS | OPER. APPROVALS

APPROP. NUMBER | ENGR. JOB NUMBER H0413300

Chevron Global Gas

Cheniere Landing

OVERALL PLOT PLAN
LNG TERMINAL SITE
PLOT PLAN SECTIONS - BEFORE CONDITIONS
CAMERON LANDING

DRAWN BY: TM DATE: 3-8-05 SCALE: 1"=80'

CHECKED BY: RP APPROVED BY: ENGR:

A PPM 48-KF-74518-806 REV A

1000788

3.0 Project Overview

Bayou Casotte Energy LLC (Bayou Casotte Energy or the Company), a subsidiary of Chevron U.S.A., Inc. (CUSA), proposes to build and operate an onshore liquefied natural gas (LNG) import terminal and associated facilities south of the existing CUSA Pascagoula Refinery (Pascagoula Refinery) on Bayou Casotte, just east of Pascagoula, Mississippi (Figures 3.0-1, 3.0-2) in Jackson County. The proposed Casotte Landing Natural Gas Import Terminal Project (Casotte Landing, Project, or Terminal) will include a double-berth slip for accommodation of an LNG Berth, as well as facilities to receive and store LNG offloaded from LNG carriers (LNGCs), to regasify the LNG in a "closed-loop" system, and to transport natural gas through up to five connections on and/or near the site to the existing United States (U.S.) natural gas transmission system grid. The Project will also include a natural gas liquids (NGL) extraction plant and send out pipeline. The Project is designed to process a nominal rate of 1.3 billion standard cubic feet per day (BSCFD).

The major facility components at Casotte Landing include:

- One (1) 1,500-kW natural gas fired or diesel-driven emergency critical generator;
- One (1) 1,750-hp boil-off gas (BOG) pipeline compressor engine;
- Three (3) 550-hp diesel-driven emergency firewater pump engines;
- One (1) high-pressure (HP) emergency flare stack with pilots and purge;
- One (1) 7,450-gallon diesel day tank for the emergency critical generator;
- Three (3) 600-gallon diesel day tanks for the emergency firewater pump engines;
- One (1) 2,300-gallon oily water surge drum;
- Two (2) 280 MMBtu/hr natural gas-fired process heaters;
- Three (3) 160,000-m^3 (net) full-containment LNG storage tanks; and
- One Natural Gas Liquids (NGL) extraction plant.

The Project will be constructed on land controlled by CUSA and adjacent to CUSA's existing Pascagoula Refinery. The site was selected in an effort to minimize environmental impacts and to utilize existing advantages such as available waste heat from the Pascagoula Refinery's existing cooling water system for LNG vaporization. In addition, the Project will be located in an existing industrial area, minimizing effects on the local population and on the environment.

Bayou Casotte Energy has performed environmental assessment of the proposed Project in conjunction with the Federal Energy Regulatory Commission's (FERC's) prefiling process, in accordance with 18 CFR 380, Regulations Implementing the National Environmental Policy Act (NEPA), as amended by Order No. 603, FERC Stats. and Regs. Preambles ¶31,073 (April 29, 1999), Order No. 603-A, revision of existing regulations under Part 157 and related sections of the FERC's regulations under the Natural Gas Act (September 29, 1999), Order No. 609, Landowner Notification, Expanded Categorical Exclusions, and other Environmental Filing Requirements (March 16, 2000). The data for the assessment was compiled based on the review of U.S. Geologic Survey (USGS) topographic maps, National Wetlands Inventory (NWI) maps, SSURGO soil survey maps, recent aerial photographs, comprehensive field surveys, consultation with appropriate federal and state agencies, and other stakeholder outreach activities. Bayou Casotte Energy filed its application with FERC on September 30, 2005. The application was noticed on October 31, 2005

SAM-2006-1926-DJS

and the FERC issued a Draft Environmental Impact Statement (DEIS) for public and agency comment on May 19, 2006.

3.1 Project Purpose and Need

The primary purpose of the Project is to import clean-burning natural gas to meet the energy need in the United States, more specifically the southeast region's growing demand for natural gas and energy. The demand for natural gas is increasing and outpacing the available domestic supply. Increased natural gas supply from the proposed facility will enable the construction of cleaner gas-fired power plants and otherwise help consumer demand on distribution systems. Importing natural gas from worldwide sources will not only address demand, but also will allow diversification of supply sources. A detailed discussion of the Purpose and Need for the project can be found in the FERC DEIS, Section 1.1.

3.2 Alternatives Analysis

In assessing new U.S. LNG terminal opportunities, Bayou Casotte Energy's overall objective has been to identify, pursue, and participate in LNG regasification projects presenting the best prognosis for regulatory approval, the highest overall commercial value, and the fewest adverse environmental impacts that would allow Bayou Casotte Energy to bring to market its gas resources to areas of the country with anticipated significant growth in demand. Bayou Casotte Energy evaluated criteria to present the environmental benefits and costs weighed against the economic benefits and costs, and technological and procedural constraints. For a detailed discussion of the alternatives analysis, please see Bayou Casotte Energy's Casotte Landing Natural Gas Import Terminal Project Environmental Report (ER Resource Report 10) and the FERC's Casotte Landing Natural Gas Import Terminal Project Draft Environmental Impact Statement (DEIS, Section 3.0).

3.3 Proposed Facilities

The Casotte Landing Project consists of a double-berth slip containing the new LNG berth and the relocated Refinery Berth #7, LNG offloading facilities, three 160,000 m^3 (net) full-containment LNG storage tanks, regasification facilities that will use the Refinery's waste heat as their primary heat source, a Natural Gas Liquids (NGL) cold-extraction system, and natural gas interconnections to up to five existing natural gas pipelines on or near the Project Site. Use of the Refinery's waste heat will require construction of four Circulation Water lines to transport hot water to the regasification facilities and cold water back to the Refinery. The NGL extraction system will produce NGLs, which will require a 12-inch interconnection pipeline to transport the NGLs to the Tri-States NGL Pipeline. The natural gas interconnection system will consist of a 36-inch interconnection spur running north along Ranson Road, then east to the existing 36-inch Gulfstream Pipeline, where it will tie in via a metering station. This spur will pass adjacent to the existing 12-inch Gulf South Pipeline, the 36-inch Destin Pipeline, the 16-inch Chandeleur Pipeline, and the 12-inch Chandeleur Pipeline where additional interconnections could be made via short laterals and metering stations.

Relocation of existing Refinery Berths #6 and #7 provide the opportunity to relocate existing Refinery Berth #6 to the south of its present position (Figure 3.2-1 in Appendix B). This new location will ease maneuvering and alleviate interference with use of the petroleum-coke dock. As with the relocation of Refinery Berth #7, all impacts related to the relocation of Refinery Berth #6 are incorporated into the impacts assessed in this permit application. These facilities are each discussed in greater detail below and are depicted on Figure 3.2-1 in Appendix B.

SAM-2006-1926-DJS

3.3.1 Terminal and Slip

The Terminal Site is an approximately 259.4-acre property located in Jackson County, Mississippi, south of CUSA's Pascagoula Refinery. The western boundary of the site is Bayou Casotte, a highly industrialized harbor and shipping channel. Currently, approximately 96 acres of the site are filled and occupied by old building foundations, corrugated-steel/aluminum warehouses and workshops, portable offices, and the Pascagoula Refinery's scrap-iron storage. North of the filled area is the Pascagoula Refinery's existing stormwater and emergency Retention Pond #005, a permitted, artificial waterbody. South and east of the filled area is wetland, much of it disturbed by dolomite and dredge spoil runoff.

Aerial photographs from circa 1940 (Figure 3.2.1-1) show that the northwest corner of the site was occupied by another bayou that intersected Bayou Casotte in the area where the proposed slip will be created. The wetland and bayou were filled in the 1950s to make land for industrial/economic development, very likely using material dredged from deepening and widening Bayou Casotte. A discussion of the site's history and figures depicting the current and historical shore lines are included in the Amendment to the Wetland Delineation Report in Appendix C.

The Terminal Site was formerly occupied by an industrial facility owned and operated by Corning Glass Works. Corning subleased portions of the property to Cohart Refractory, a manufacturer of high-temperature brick created using a magnesite refractory process (URS, 2005). Cohart operated between 1955 and 1989, and used an unlined, below-grade landfill to store furnace dust and discarded ore generated during manufacturing. This landfill was excavated and disposed offsite in 1984, and the site was backfilled with soil and refractory brick debris, leveled, and graded. Cohart's facility also included two unlined lagoons (upper and lower) to settle fine particles in wastewater effluent prior to outfall. The lagoons were removed from service in 1989. After investigation of soil and water contamination issues, the site was issued a "No Further Action" status by the USEPA circa 1989, with only remnant foundations remaining.

Figure 3.2.1-2 (Appendix B) depicts current cross-sections of the site. Figures 3.2.1-3, 3.2.1-4, and 3.2.1-5 (Appendix B) depict the proposed cross-sections of the site following construction.

Site Preparation and Fill

Prior to beginning construction of the Terminal, Bayou Casotte Energy will prepare the Terminal site by removing the existing buildings and foundations, excavating and disposing a small amount of soil with potentially elevated chemical concentrations, and adjusting the contour and elevation of the site by filling in low areas with material from the excavation of the surface portion of the marine slip. This site preparation is necessary to provide a safe working environment and laydown areas for the construction of the Terminal.

Marine Slip Site Preparation and Dredging

The Project will include the creation of a marine slip set at an approximate 60° angle to the existing shipping channel to allow for ease of maneuvering within the existing maneuvering basin. The slip will be sized to allow docking of an LNG Carrier (LNGC) and a crude tanker simultaneously, each in its dedicated berth. The depth of the unloading berth is planned to be –42 feet Mean Lower Low Water (MLLW). Initially the slip will be dredged to –46 feet MLLW (42 feet nominal depth, 2 feet overdredging, and 2 feet advanced maintenance, which corresponds with the USACE standards for dredged channels within this waterway system). The slip will be constructed using a nominal 5:1 slope and will use stone riprap for scour protection.

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LNG Carrier Berth

The LNG berth will be designed to receive and unload a range of LNGCs from approximately 125,000-m^3 to 200,000-m^3 capacity. The shipping channel and navigational aids are currently only sufficient for LNGCs up to approximately 160,000 m^3, but Casotte Landing has been designed with the flexibility to accommodate larger LNGCs should the channel be modified in the future that would allow their passage. Bayou Casotte Energy has no plans to make such modifications to the channel.

For the nominal output rate of 1.3 BSCFD, approximately 170 LNGCs are planned to call on the facility on an annual basis. The LNG unloading platform will have three unloading arms and one vapor-return arm. There will be six mooring dolphins and two to three breasting dolphins for each berth. A trestle will connect each unloading platform to the shore. The layout of the marine facilities is shown in Figure 3.2-1.

Marine Safety Zones will be required for berthing operations at the facility. The configurations of the Marine Safety Zones are being developed with the U.S. Coast Guard (USCG).

The waterside facilities related to the LNGC Berth comprise the components described as:

Trestle from Shore

A Trestle will extend from the top-of-grade elevation to the edge of each primary unloading platform. The Trestle will be approximately 16 feet wide and will have an approximate 12-foot-wide roadway designed to accommodate a light truck or cherry picker. It will consist of the following components:

- Vertical and battered-concrete or tubular-steel piles supporting a concrete cap beam;
- Concrete deck and concrete beams spanning between pile caps;
- Pipe racks, utility piping, and electrical cable trays supported off the deck; and
- Light poles installed on the end of the pile caps to provide area and hazard lighting.

Unloading Platform

An unloading platform will be located at each berth. The LNG berth platform will be approximately 110 feet long by 80 feet wide. The Refinery berth platform will be approximately 85 feet long by 65 feet wide. Each berth will be designed for bow-out mooring. LNGCs and crude tankers may unload singly or simultaneously. Each berth will support unloading arms, valves, and piping; a gangway tower; firewater monitors; and an anemometer. Utilities include electrical power for equipment and lighting systems, potable water, linked emergency shutdown and communications, instrument cabling, and nitrogen for purging the unloading arms. The unloading platform will be designed to accommodate a light truck or cherry-picker. The unloading platform structural system will be comprised of the following:

- Vertical and battered-concrete or tubular-steel piles supporting concrete caps beams;
- Reinforced concrete deck and beams supported by pile caps; and
- Steel trusses and girders supporting piping and equipment.

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Breasting Dolphins

Each berth will have two to three breasting dolphins, which serve to accommodate lateral loads from vessels in the berth and protect the unloading platform. The dimensions of each breasting dolphin will be approximately 30 feet long by 18 feet wide. The structural systems for the breasting dolphins will be comprised of the following:

- Battered-concrete or tubular-steel piles supporting concrete caps; and
- A locally operated triple quick-release mooring hook and an energy-absorbing fender system (fitted on each breasting dolphin).

Mooring Dolphins

Each berth will have six mooring dolphins. The dimensions of each mooring dolphin will be approximately 18 feet by 15 feet. The structural systems for the mooring dolphins will be comprised of the following:

- Battered-concrete or tubular-steel piles supporting concrete caps; and
- A locally operated triple quick-release mooring hook and an energy-absorbing fender system (fitted on each mooring dolphin).

The mooring and breasting dolphins will be connected to the unloading platform by steel truss-supported personnel walkways.

Tug Berths

Tug berths sufficient for the anticipated three tug boats that will be required to move an LNGC in and out of the slip will be available on the east side of the slip (see Figure 3.2-1).

Construction Dock

To provide for flexibility in terms of construction logistics, a construction dock will be built in the southwest corner of the new slip. This dock will allow material and equipment to be brought in via barge.

LNG Transfer System

LNG will be unloaded from the LNGC to the LNG Storage Tanks, via three 16-inch LNG unloading arms and one 16-inch vapor-return arm, using the Carrier Transfer Pumps. The LNG will flow from the unloading arms to the storage tanks via two 32-inch unloading lines. The unloading arms will be supported from the main deck of the unloading platform.

LNG Spill Containment and Collection System

All equipment handling LNG will be provided with special drainage leading to an impoundment sump. The containment and drainage system will limit the spread of LNG in the unlikely event of a release from the process and direct it by the shortest feasible route to the nearest impoundment sump. The National Fire Prevention Association (NFPA) Standard for the Production, Storage, and Handling of Liquefied Natural Gas (NFPA 59A) will be used to define the required capacity of the impoundment sumps. No facility will be

provided for the recovery of LNG collected in the sumps. Spilled LNG will be covered by high expansion foam and allowed to evaporate slowly.

LNG Storage Tanks

The LNG will be stored in three 160,000-m^3 (net) full-containment LNG storage tanks. Full-containment tanks consist of a primary inner container and a secondary outer container. More specifically, the proposed tanks will consist of a post-tensioned concrete outer container wall, a reinforced-concrete outer container bottom, and a reinforced-concrete domed roof. The primary inner container will be nine-percent nickel steel with an open top and insulated aluminum support deck suspended from the secondary outer container roof. The tanks will be designed and constructed so that both the primary and secondary containers will be capable of independently holding the entire volume of LNG in each tank.

Each LNG storage tank will be designed to store a usable (net) volume of 160,000 m^3 of LNG at an operating temperature of approximately –260 °F and a design pressure slightly above ambient (4.12 psig maximum). The outside diameter of each tank will be approximately 269 feet. The height to the top of the tank dome will be approximately 170 feet above grade.

During normal operation, the LNG will be contained within the inner container. The vapor pressure from the LNG will be equalized through ports in the suspended insulation deck, and vapors will be contained by the outer container. The operating pressure within the tanks will be maintained at or near ambient pressure by the Vapor Handling System (see description below). The space between the inner container and the outer container will be insulated to allow the LNG to be stored at a temperature of approximately –260 °F, while maintaining the outer container exterior at near-ambient temperature. The insulation beneath the inner container will be a cellular glass, load-bearing insulation that will support the weight of the inner container and LNG. The space between the sidewalls of the inner and outer containers will be filled with expanded perlite insulation that will be compacted to reduce long-term settling of the insulation. The outer container will be lined on the inside with carbon-steel plates. This carbon-steel liner will protect the insulation between the inner and outer containers by serving as a barrier to moisture migrating through the concrete outer container from the atmosphere. This liner also will act as a barrier to prevent vapor from escaping from inside the tank during normal operation. The tank will be supported on a piled foundation system. The bottom slab of the tank will be elevated above local grade to prevent freezing of the topsoil. To increase the safety of the tank, there will be no penetrations through the inner container or outer container sidewall or bottom. All piping into and out of the tank will enter from the top of the tank to ensure integrity of the tank wall.

Vapor Handling System

During normal operation, ambient heat input into the LNG will cause a small amount of LNG to vaporize. Some vaporization of LNG also will be caused by other factors, such as barometric pressure changes and heat input due to pumping. Vapor from the LNG storage tanks gathering system and some vapor from the LNGC will be compressed by the boil-off gas compressors and then passed to the condensing system, where it will be condensed into the outgoing LNG prior to being pumped up to pipeline pressure in the send-out pumps.

A portion of this vapor will be returned to the LNGC during unloading to maintain system equilibrium (i.e., to compensate for the volume of liquid pumped out of the LNGC into the LNG storage tanks). This vapor will be returned to the LNGC using vapor-return blowers. The vapor-return system will include a de-superheating system to ensure that the vapor is returned to the LNGCs at an acceptable temperature.

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In the event of an upset condition of the boil off gas compressor, vapor from the tanks will be directed to the flare to prevent over-pressuring the LNG storage tanks.

Intermediate Fluid Vaporization (IFV) System

The vaporization system is designed to convert the LNG to natural gas. Casotte Landing's vaporization system will consist of a circulating intermediate fluid (25-percent propylene glycol/water), which transfers heat from the proposed Circulation Water System (see description below) to the LNG in two sets of Heat Exchangers (the Propylene Glycol/Cooling Water Exchangers and the Shell-and-Tube LNG Vaporizer). The system will be a flow-through system with no other heating of the glycol intermediate fluid. The system also will include circulation pumps, ambient condition storage for the intermediate fluid, and transfer pumps.

LNG from the storage tanks must be pressurized and vaporized so that the resultant natural gas can be sent to the existing natural gas transmission system. Multiple pumps in each LNG tank will deliver the LNG from the storage tanks to the send-out pumps. The send-out pumps will be hydraulically matched to the in-tank pumps and will increase the system pressure to pipeline pressure. The send-out pumps will pump the LNG through the vaporizers. Six vertical shell-and-tube heat exchangers (five operating, one standby) will be used to vaporize the LNG. Each vaporizer will be capable of vaporizing approximately 260 MMSCFD of natural gas. Heat for the LNG vaporization will be supplied from the Circulation Water System via the propylene glycol intermediate fluid. After leaving the vaporizers, the high-pressure gas will pass through the metering station and then into the proposed natural gas interconnections and into the natural gas transmission grid. The LNG pumps and vaporizers will be installed within curbed spill collection areas. In the unlikely event of a spill, drainage from these curbed collection areas will be conveyed via LNG spill collecting troughs to the centrally located spill impoundment basin where it will be vaporized to the atmosphere.

Back-Up/Supplemental Vaporization System

As part of its commitment to ensure the Project provides a reliable source of natural gas to the energy markets, the Project will include an alternate heat source to back up and/or supplement the primary IFV system in the event the primary Refinery cooling water supply was unavailable or insufficient. The back-up system will consist of two 280 MMBTU/hr natural gas fired process (or glycol) heaters. The heaters will also provide heat to the NGL Extraction Plant. In this configuration, if the Circulation Water System is unavailable, heat can be delivered to the IFV glycol loop directly from the Process Heater. This back-up system can provide enough heat to maintain a sendout rate of up to 0.9 BCFD of natural gas.

Hurricane Levee

Bayou Casotte Energy has collected and reviewed available historic oceanographic data for tropical storms and hurricanes impacting the project area. Storms, including Camille (1969), Frederic (1979), Elena (1985), Georges (1998), and Ivan (2004) have been considered in developing the design criteria for the project. The Storm Surge Study and associated design criteria will be updated to consider recent U.S. Gulf Coast hurricane activity (Dennis, Katrina, and Rita) and will be used as an integral part of the Project Design Basis. To protect the Terminal against the storm surge and flooding associated with these weather events, the Terminal will be surrounded by an earthen hurricane levee to be constructed to a height of 24 feet NGVD (see Figure 3.2-1).

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Stormwater Handling and Pollution Prevention System

Stormwater will be carried by surface ditches and swales that run alongside the roads and hurricane levee (Figure 3.2.1-6, Appendix B). The stormwater will then be collected in catch basins located throughout the site. Stormwater collected inside of the hurricane levee will be pumped over the levee to the storm sewer systems outside of the levee (Figure 3.2-1). Underground sewer pipes will be used to connect catch basins outside of the levee. Two header sewer pipes at the north and the south side of the process area will carry the storm water to two new outfalls that discharge into Bayou Casotte. Bayou Casotte Energy will apply for all applicable permits under NPDES rules.

Access Roads

Access to the Terminal will be via an industrial road off of West Hardee Road (Figure 3.2-1). This industrial road will pass through a security gate with a guardhouse and inspection area. Additional roads within the Terminal site will allow access to the Terminal, the LNG berth, and the Mississippi Power Company (MPC) electrical substation (see description below). Access to Refinery Berth #7 will require passing through the Refinery's Gate #15, which includes a manned guardhouse.

Essential Services Electric Generation Equipment

Power for the Project will be provided by the substation and the essential services generator (emergency use) discussed below. This generator will be located outside of the process area near the control building and will be within a fenced area (Figure 3.2-1). The sources of fuel for the essential services generator will be either natural gas or diesel fuel. Diesel fuel would be delivered to the site and will be stored in tanks.

Fire Protection System

The Terminal's fire protection system will include aqueous film forming foam (AFFF) monitors and/or foam hose reel stations, dry chemical extinguishing systems, and 100-percent redundant fire protection water and foam supply systems. The firewater system will be powered by a combination of electric motors and emergency diesel-driven engines. The fire protection system will comply with NFPA 59A and 49 CFR 193.

LNG Instrumentation and Hazard Detection System

The Terminal's instrumentation will be developed to provide a minimal number of operators with effective control and indication of mechanical, electrical, and process equipment to affect LNG offloading from carriers, LNG storage, vaporization, and custody transfer sendoff to an existing pipeline.

In accord with 49 CFR 193 and 33 CFR 127, the Project will have a detection system for fire, low temperature, and hazardous gas and monitoring equipment for hazards and fire, as well as fire protection systems.

Nitrogen Generation Plant

Nitrogen will be necessary for system testing and purging. A receiver will be provided for onsite storage capacity to reduce the peak requirements. The Terminal flare system requires 1,700 standard cubic feet per hour (SCFH) of nitrogen for purging on a continual basis.

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Diesel Fuel System

Diesel will be required for the firewater pumps and the essential services generator. The diesel will be delivered by trucks and stored in day tanks (three 600-gallon tanks for the firewater pumps and one 7,450-gallon tank for the essential services generator).

Service Water System

Service water will be taken from the Jackson County water system, which is supplied by surface waters and piped at a pressure that is suitable for distribution. County water is treated for pH control and run through clarifiers to reduce turbidity at the Kreole Pumping station operated by Jackson County. County water is not considered to be potable.

Potable Water System

Potable water will be supplied from the Refinery potable water supply at a pressure that is suitable for distribution. Two wells (north and south tank field) are used to provide potable water to the Refinery. At the boiler plant, this water is chlorinated and treated with a food-grade phosphate to coat the lines. It is to be used for all kitchens, wash areas, rest rooms, and safety and eyewash stations. Potable water will not be connected to any process system. It will be transported by a water line wholly on CUSA-controlled property.

Wastewater Treatment System

Wastewater will be captured and treated accordingly throughout operations of the terminal. There are four major wastewater streams:

- Non-contact storm water;
- Contact storm water (oily water);
- Gray water (domestic uses); and
- Black water (sanitary water).

These waste streams will be treated and released in accordance with the NPDES permit as administered by the MDEQ.

Buildings and Infrastructure

The Project will include the following buildings (see Figure 3.2-1):

- **Terminal control center, administration, warehouse, shop, and security building** – This two-story building will measure 110 feet by 120 feet. It will be used to house the control centers for the marine facilities and the Terminal, the administrative personnel, security personnel, the warehouse, and the shop.
- **LNG Jetty Control Building** – This building will be 14 feet by 30 feet. It will contain control systems.

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- **BOG Compressor Enclosure** – This building will be a pre-engineered galvanized steel frame building, approximately 60 feet by 120 feet, which will house the boil off gas (BOG) compressor, a 10-ton electric bridge crane and hoist, and a trolley.

- **Firewater Pump Houses** – Two 20-foot by 30-foot pre-engineered galvanized steel frame buildings will contain the firewater pumps.

- **Instrument Air/Plant Air Shelter** – This pre-engineered galvanized steel frame building will be 55 feet by 55 feet and house the air plants.

- **Nitrogen Membrane Package Shelter** – This 27-foot by 55-foot pre-engineered galvanized steel frame building will protect the nitrogen generation equipment.

- **Essential Services Generator Shelter** – The essential services generator will be housed in a 27-foot by 55-foot pre-engineered galvanized steel frame building.

- **Terminal Main Gate Guard House** – The building in which the security guard will be stationed will be a 10-foot by 15-foot one-story building.

- **Terminal Foam Houses** – These five 9-foot by 14-foot buildings will contain the fire fighting system.

Extra Work Spaces and Laydown Areas

A number of extra workspaces and laydown areas will be necessary for construction of the Project. These include spaces for onsite concrete batch plants, construction assembly areas, contractor offices, construction parking, and material and equipment storage areas. Please see Figure 3.2.1-7 for a map of these areas.

Relocation of Existing Refinery Berth #7

In order to take advantage of the proximity to the Pascagoula Refinery and maintain existing shipping capacity to the Pascagoula Refinery, Bayou Casotte Energy will relocate Refinery Berth #7 from its present location in Bayou Casotte to the northern side of the proposed marine slip (Figure 3.2-1). This berth currently is used by the Pascagoula Refinery for deliveries of crude oil and export of refined products and can accommodate tankers ranging from 96,000 to 155,000-deadweight tonnage (DWT). The construction of the LNG facility and slip will require the relocation of the berth off-channel. Because this berth is being relocated in conjunction with the construction of the Casotte Landing Project, all impacts related to the construction of the double slip and relocation of Refinery Berth #7 are incorporated into the impacts assessed in this permit application.

Relocation of Existing Refinery Berth #6

Relocation of existing Refinery Berth #7 provides the opportunity to relocate existing Refinery Berth #6 to the south of its present position (Figure 3.2-1). This new location will ease maneuvering and alleviate interference with use of the petroleum-coke dock. As with the relocation of Refinery Berth #7, all impacts related to the relocation of Refinery Berth #6 are incorporated into the impacts assessed in this permit application.

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Main Electrical Power Substations

In order to provide power to Casotte Landing, a main electrical substation and four smaller substations will be constructed on site. The main electrical substation will be connected to the existing electric transmission grid by approximately two circuit miles of new three-phase, 115-kV transmission line in 65- to 100-foot-wide rights-of-way. The probable routing of the lines will follow Highway 611 from a point southwest of MPC's Chevron Cogen 115-kV substation south approximately one-half mile, then west approximately one-half mile to a new 560-foot by 300-foot 115-kV substation at the Terminal site.

Circulation Water System

The primary heat for the Project's glycol-water intermediate fluid will be provided by waste heat that is currently produced by the existing Pascagoula Refinery's cooling towers. This synergy will generate multiple benefits, including fuel and water conservation and reduction of air emissions. Warm water from Cooling Towers 1 and 2 will be pumped to the Terminal, cooled by thermal exchange with the glycol-water intermediate fluid, and then pumped back to the Refinery's cooling water towers through a closed-loop piping system.

The primary supply of waste heat will be from Cooling Tower 1, via a 48-inch pipe, with a secondary supply of waste heat from Cooling Tower 2, via a 42-inch pipe. In normal operations, the largest cooling tower (Cooling Tower 1) can provide all of the heat needed for the LNG facility. However, to incorporate redundancy into the system, an additional tie in will be made at Cooling Tower 2 to supply a portion of the heat necessary for vaporization of LNG in the event water from Cooling Tower 1 is unavailable or inadequate to provide the required heating (e.g., during cold weather). The four parallel pipe runs (i.e., the two supply lines plus their similar sized return lines) will be racked aboveground on concrete sleepers within the Terminal site and underground where they cross East Hardee Road and within the Pascagoula Refinery. The water pipes will be constructed in parallel with the Refinery's existing hurricane levee and East Hardee Road within the Terminal; no additional clearing will be necessary outside the Terminal site for construction. The area used for construction and operation of these water pipes will be wholly located within CUSA-controlled property.

NGL Extraction System

The BTU content, or heat content, of imported LNG ranges in value, depending on the supply source. The BTU content of regasified imported LNG can be higher than specified for domestic natural gas in the interstate gas pipeline grid. Bayou Casotte Energy will use an NGL extraction system to ensure the natural gas from the Terminal is compatible with the interstate system. NGL extraction reduces the BTU content by removing a portion of the hotter-burning NGLs (e.g., propane, ethane) from the original LNG.

The NGL extraction system will produce NGL, which will require a takeaway interconnection pipeline to transport the NGL to the Tri-States NGL Pipeline. The NGL extraction system will be located on the Terminal site (see Figure 3.2-1).

3.3.2 Natural Gas Interconnections

Casotte Landing will be connected to the existing natural-gas pipeline system grid via a 36-inch interconnection spur and up to four interconnection laterals between the Terminal and the interconnection points, which will not traverse beyond Chevron-controlled property. Figures 3.2.2-1 through 3.2.2-5 depict the linear facilities on aerial photographs and Figures 3.2.2-6 through 3.2.2-16 depict cross sections of the construction rights-of-way for linear facilities (Appendix B).

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Bayou Casotte Energy proposes to connect to the existing natural gas pipeline system grid with up to five short interconnections, on CUSA-controlled property, to the:

- 36-inch Gulfstream Pipeline;
- 12-inch Gulf South Pipeline;
- 36-inch Destin Pipeline;
- 16-inch Chandeleur Pipeline; and
- 12-inch Chandeleur Pipeline.

The 36-inch interconnection spur will run east, parallel to the Refinery's southern hurricane levy, to the 36-inch Gulfstream Pipeline where a pipeline interconnection can be made via a metering station (Figure 3.2.2-17). The interconnection spur will pass adjacent to the 12-inch Gulf South Pipeline, the 36-inch Destin Pipeline, the 16-inch Chandeleur Pipeline, and the 12-inch Chandeleur Pipeline where additional interconnections could be made. This configuration will allow a short lateral to be installed to tie into the receiving pipeline via a metering station (Figure 3.2.2-18).

The segments of these natural gas interconnections within the Terminal site will be within the footprint of construction and operation impacts for the Terminal and will not require additional clearing or the formal construction or operation rights-of-way or easements typically associated with pipeline construction and operation.

Portions of the interconnection spur and laterals will be outside the Terminal site but within CUSA-controlled property. The interconnection segments outside the Terminal site will require a construction right-of-way width of no more than 150 feet. No clearing of forested land will be required for construction of the interconnections. A 10 to 70-foot easement will be permanently maintained as non-woody vegetation to allow for future inspection and maintenance, but because no forests are traversed, this maintenance will not significantly alter the natural vegetation. To minimize environmental impacts, the interconnections will be concentrated immediately adjacent to the northern Terminal site boundary (i.e., the southern boundary of the Pascagoula Refinery). The existing Pascagoula Refinery elements (e.g., East Hardee Road, the coke belt, and the hurricane levee) are located adjacent to this boundary, which allows the interconnections to be co-located to the maximum extent possible.

3.3.3 NGL Interconnection Pipeline

In addition, the Project will include a 12-inch NGL interconnection pipeline, which will parallel the natural gas interconnection spur, then turn north to parallel the existing Gulfstream Pipeline immediately adjacent to the existing Gulfstream pipeline right-of-way. North of Longstreet Road, the NGL interconnection pipeline will continue west along the MPC right-of-way (the Gulfstream right-of-way turns north) to the proposed tie in with the Tri-States NGL Pipeline via a metering station (see Figure 3.2.3-1, Appendix B).

The onsite segments of this interconnection will be within the footprint of construction and operation impacts for the Terminal and, therefore, will not require the formal construction or operation rights-of-way or easements that typically are associated with pipeline construction. To minimize environmental impacts, the NGL interconnection will be 100-percent co-located with the proposed interconnection spur, the existing Gulfstream Pipeline, and the existing MPC right-of-way. Where this line parallels the existing Gulfstream Pipeline, the entire existing right-of-way will be used as part of the construction right-of-way. Construction of this interconnection pipeline will be according to typical pipeline construction methods. Following construction, a permanent non-woody vegetation right-of-way will be maintained above the pipeline to allow for future inspection and maintenance.

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4.0 Dredging and Dredged Material Placement

This section is an overview of the Dredging that will be completed as part of the Project. For a detailed description of the dredging placement plan, please see the Dredged Material Management Plan in Appendix D.

4.1 Slip Creation

Approximately 4.5 mcy of material will be removed to create the double-berth slip. Bayou Casotte Energy evaluated alternatives for the creation of the slip and placement of the materials removed to create the slip and determined that using a combination of excavation above the water table and dredging below the water table affords the optimal method for slip creation.

4.1.1 Excavation

A significant volume of materials will be needed in the construction of the Terminal, and a large volume of material will need to be removed in the creation of the slip. The upper portion of the materials to be removed is above the water table and is suitable for construction purposes. Construction of the slip will begin by excavating the approximately top 14 feet of material down to or near the water table with traditional earthmoving equipment. This material can be loaded directly into trucks and transported for use in the construction of the adjacent (to the slip) Terminal.

4.1.2 Dredging

Following excavation of the dry material above the water table, removal of the material below the water table will be accomplished by mechanical dredging and transported by bottom-dump scows for offsite placement. The key advantages of this method are that available material for terminal construction can be used, minimizing the volume of material that must be transported and reducing the volume of material for offsite placement. This method also minimizes associated safety and environmental impacts and optimizes construction costs and schedule.

4.2 Maintenance Dredging

Shoaling occurs naturally as suspended sediments within the channel and slip settle into the berthing area; therefore, maintenance dredging of the slip will be required. The Project will not result in an increased shoaling rate in the Federal Navigation Channel or an increase in the frequency of maintenance dredging there. Maintenance dredging of the slip will be conducted according to federal, state, and local regulations and permits. The rate at which the suspended sediment settles is based on a large number of factors including current velocity, particle size, basin depth and arrangement, upland rainfall, tropical storms, usage of the basin, and salinity. Preliminary modeling suggests that maintenance dredging will be required every 12 to 36 months. The volume of maintenance dredging has been conservatively calculated to be up to 250,000 cubic yards per year. This material will be placed in a manner acceptable to federal, state, and local agencies. Handling and placement of maintenance volumes are being evaluated jointly with slip creation.

4.3 Placement of Excavated/Dredged Material

Casotte Landing has been working with various agencies and private concerns to identify viable options for placement of the material that will be removed from the slip area during creation and ongoing maintenance. A number of possible locations where the material could be placed have been identified and evaluated.

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Please see Appendix D, the Dredged Material Management Plan, for a detailed assessment of these alternatives.

A total of approximately 4.5 mcy will be removed by the combination of excavation and dredging to create the slip. Approximately 1.0 mcy will be excavated above the water table and stockpiled onsite. This material will be used for the Terminal construction for fill, site leveling, and construction of the hurricane levee, which will alleviate the need to bring in large quantities of soil for construction. The remaining volume of approximately 3.5 mcy will be mechanically dredged and placed onto bottom-dump scows for transport to placement locations. Material will be released from the scows at the placement site. The preferred placement option is a combination of:

- Placement at the USEPA's Ocean Dredged Material Disposal Site (ODMDS) located offshore in the Gulf of Mexico south of Horn Island; and
- Providing material to approved and available Federal and State coastal or offshore Beneficial Use (BU) project sites.

4.3.1 Ocean Dredged Material Disposal Site (ODMDS) Placement

During consultations with USACE, USEPA, and MDMR representatives, the USEPA's Pascagoula ODMDS was identified as the preferred alternative for placement of dredged material. This currently in-use site has been subjected to extensive environmental assessments, continues to be monitored, and has been demonstrated to be suitable for dredged material placement. It provides the least damaging environmental impact by avoiding impact to valuable wetlands, potential environmental benefit by providing open ocean habitat, has acceptance of the agencies, and its availability aligns with project objectives. It will require mechanical dredging and use of scows to transport material, which also provides an opportunity for the project to contribute materials to various beneficial use projects (see below). The material will be released from the scows at the ODMDS in a manner consistent with requirements of the USACE.

In order for Bayou Casotte to use the ODMDS, consultation was initiated under Section 103 of the Clean Water Act (CWA). This consultation is described in detail in Section 7.3 of this document.

4.3.2 Beneficial Use (BU) Sites Placement

Bayou Casotte Energy, in consultation with the regulatory agencies, is also exploring contribution of the material to one or more of several BU sites near Pascagoula. Uncontaminated dredged material is widely accepted as a valuable resource that can be used to restore eroded coastal areas and create new salt marsh habitat or upland areas. The USACE, the country's leading dredging and dredged material management agency, has great interest in BU to offset the cost of navigation projects, enhance environmental resources, and to conserve valuable capacity at existing placement sites. The USACE South Atlantic Mobile District (CE SAM) considers BU such an important priority that they have a dedicated BU Coordinator. State and local government agencies also have a major interest in restoration project priorities and the MDMR Office of Coastal Ecology will spearhead any BU project related to Casotte Landing. The existing Round Island and Greenwood Island Restoration projects and proposed South Wetlands Restoration project have been identified as optimal sites for use pending completion and approval of suitability testing. These, and other projects, are currently on hold as National Oceanic and Atmospheric Administration (NOAA) has recently classified the entire Mississippi Sound as critical habitat for the Gulf Sturgeon. However, a regional taskforce, co-chaired by MDMR, USACE, and NOAA has been formed to better define specific Gulf Sturgeon critical habitat in Mississippi Sound. These BU sites may or may not be available at the time that Casotte Landing is constructed. However, they may then be available for future maintenance dredged material and should continue to be considered for placement. Bayou Casotte Energy will keep the regulatory agencies apprised of its continuing progress and agency consultations regarding the

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use of the ODMDS and potential BU sites (currently identified or identified in the future) for dredged material placement.

4.4 Section 103 CWA/MPRSA Consultation for use of the Pascagoula ODMDS

Suitability testing of the Casotte Landing dredged material for placement in the Pascagoula ODMDS began with field sampling in late November 2005. The sampling was conducted according to the Dredged Material Suitability Testing Sampling and Analysis Plan (SAP), which was reviewed and approved by the USACE, MDMR, and USEPA prior to the sampling effort (Appendix E). The purpose of this investigation was to evaluate the suitability of the soil and sediment material to be removed for placement at the Pascagoula ODMDS located to the south of Horn Island. This evaluation follows guidelines provided by the United States Army Corps of Engineers (USACE) and the United States Environmental Protection Agency (EPA) (EPA/USACE, 1991; EPA/USACE, 1993) to ensure that coastal waters are protected from any potential adverse effects as specified under Section 103 of the Marine Protection Research and Sanctuaries Act (MPRSA).

4.4.1 Consultations

To ascertain whether the material to be dredged and placed in the Pascagoula ODMDS and/or any BU sites met the stringent standards for offshore placement, Bayou Casotte Energy consulted closely with the USACE, USEPA, and MDMR. Through these consultations, a suitability testing strategy was developed and executed. This strategy is based on frequent and ongoing consultation with the agencies to inform their decisions and accept their guidance as the analysis continues.

Selected milestones of the process are listed below:

- July 26, 2005 ..... Agreed to prepare Sampling Analysis Plan (SAP) during interagency meeting.
- October 21, 2005 ..... Bayou Casotte Energy submitted SAP for agency review.
- November 8, 2005..... MDMR issued approval of SAP.
- November 18, 2005..... USACE and USEPA issued joint approval of SAP.
- Nov. 29–Dec. 9, 2005 .... Bayou Casotte Energy conducted field-sampling effort. This sampling effort included both terrestrial and offshore components.
- January 11, 2006 ..... Bayou Casotte Energy submitted Rapid Chemistry Results (see below) from field effort and revisions to Phase II Suitability Testing and Pooling Scheme to USACE and USEPA.
- January 13, 2006 ..... USACE reviewed and provided concurrence with USEPA recommendations on methods to use for Phase II testing. Bayou Casotte accepted the recommendations from the USEPA and will comply. Based on this acceptance, the USACE and USEPA issued approval of Potential Pooling Scheme.
- January 16, 2006 ..... Bayou Casotte Energy initiated Suitability Testing Phase II per discussion and communications with the USACE and USEPA.
- February 6, 2006..... Bayou Casotte Energy provided initial results of ten-day toxicity bioassay to the USACE and USEPA.

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- March 1, 2006 ..... Bayou Casotte Energy provided results of phase II sediment chemistry, sediment toxicity, and SPP toxicity tests to USACE and USEPA.
- March 16, 2006 ..... Bayou Casotte Energy provided findings to date, including preliminary amphipod test.
- March 21, 2006 ..... Agencies provided bioassay test requirements based on sediment chemistry data.
- March 27–29, 2006 ..... Bayou Casotte Energy proposed modified amphipod testing framework and received approval from USACE and USEPA.
- June 27, 2006..... Bayou Casotte Energy presented final suitability assessment results to USEPA.

4.4.2 Sampling Plan and Execution

Please see Appendix E, Field Sampling Plan for Casotte Landing Dredged Material CWA/MPRSA Suitability Testing and Evaluation.

4.4.3 Results to Date

ODMDS suitability testing for the slip/dredged material is complete and Incorporates all chemical, physical, and biological testing required by CE SAM and EPA to make a suitability determination under the MPRSA Section 103. Results are presented in the corresponding report entitled *Casotte Landing Slip Sediment Evaluation Report – ODMDS suitability* (Appendix F) and provide a basis for agency decision-making. While suitability of the material for offshore placement will ultimately be decided by CE SAM and EPA, the following general conclusions are apparent:

- Bulk sediment evaluations performed in this study provide a large weight-of-evidence that the material to be dredged is clean from a chemical perspective. Further, bioassay test organisms appear to be healthy after exposure tests, although given the unique low biogenic carbon sediment content, the material may not provide a sufficient food source to deposit feeders until biogenic particles, raining down from the overlying water column, accumulate on the sediment surface.
- Water column suspended particulate phase (SPP) bioassay tests, often the most sensitive indicators of biological effects, measured very good survival and development results by the time SPP mixtures were diluted in half. Water column (STFATE) simulations predict that limiting permissible concentrations would be reached well within the allowable 4-hour threshold and that related water column plumes would remain with USACE acceptable limits.
- Lastly, based on the relatively clean nature of the site overall, only a few stations required further evaluation of potential bioaccumulative concerns. Of the many parameters measured, only six were at concentrations statistically greater than those of reference-exposed and pre-exposed tissue levels, but were nonetheless measured at very low concentrations and well within available No Observed Effect Concentration (NOEC) levels for aquatic organisms.

In conclusion, the many evaluations conducted in this study provide a large weight-of-evidence that exposure to the Casotte Landing sediment dredged from the slip area will have little or no adverse biological effect on the marine environment at the ODMDS and provide a firm basis for agency approval.

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6.0 Compensatory Mitigation

Bayou Casotte Energy has reviewed several mitigation options to provide compensatory mitigation for the unavoidable impacts to wetlands and Essential Fish Habitat (EFH). Through selection of an appropriate option(s), Bayou Casotte Energy will ensure ample mitigation for impacts in accordance with Section 404 provisions of the Clean Water Act and further fulfill its responsibility to the protect and enhance the ecosystem of Jackson County on which its Project will have an effect. As discussed above, the impacts currently proposed in this document are a worst case scenario and will most likely be reduced prior to construction of the Project. The footprint of the facility has been developed to encompass the required safety and siting regulations and provide additional buffer as practical. Where feasible, Bayou Casotte Energy will return all temporarily impacted areas to preconstruction contours and restore wetland areas to better-than-preconstruction conditions with the control of invasive species within the right-of-way and planting of genetically native species.

For areas where permanent impacts are anticipated and compensatory mitigation will be necessary, Bayou Casotte Energy has developed the preferred mitigation plan and two alternatives in consultation with the resource agencies for mitigation that will benefit the wetland ecosystems of Jackson County. The mitigation alternative selected will be of more value to the ecosystem than the disturbed wetlands that will be impacted by construction and operation of the proposed Project as a highly functional ecosystem will be developed to mitigate for the loss of the poor quality ecosystem at the project site.

Bayou Casotte Energy is proposing the following mitigation ratios for projects that they may undertake outside of purchasing credits at a local mitigation bank (Table 6.0-1). These mitigation ratios have been discussed and developed through consultation with the resource agencies. Credit purchases at mitigation banks, should that become the chosen alternative, will be subject to the ratios determined in each bank's Mitigation Banking Instrument.

In addition to the mitigation proposed for wetland impacts, Bayou Casotte Energy is proposing the following mitigation ratios for impacts to the EFH to be disturbed by the Project (Table 6.0-2).

6.1 Alternatives Considered for Mitigation

Bayou Casotte Energy has considered three options for wetland and Essential Fish Habitat mitigation, the preferred mitigation plan and two alternatives. Each of these three options would provide the proposed amount of mitigation as detailed in Table 6.0-1, below.

6.1.1 Preferred Mitigation Plan - Restoration and Enhancement of a Local Site

The preferred alternative for mitigation proposed for impacts to these low-quality wetlands and Essential Fish Habitat is the restoration and enhancement of a local site. A restoration plan has been approved for the local site, and Bayou Casotte Energy proposes to purchase the site and carry out the restoration and enhancement in accordance with the approved management plan. Bayou Casotte Energy will retain any excess mitigation credits for potential future Chevron projects in the region. Appendix C, Additional Details of the Preferred Wetland Mitigation Alternative details the location and identity of the local site, which are currently confidential for commercial/contractual reasons. The proposed mitigation ratios will be:

- 1:1 for temporary construction-related impacts;
- 2:1 for permanent impacts; and
- 4:1 for high-saltmarsh impacts.

Table 6.1.1-1 details the total amount of mitigation proposed for the preferred alternative.

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Table 6.0-1

Compensatory Mitigation Ratios Offered for Unavoidable Wetland Impacts as a Result of the Casotte Landing Natural Gas Import Terminal Project

Facility	Feature ID	Area Affected (acres)		NWI Classification [c]	Wetland Quality (WRAP Score)	Proposed Ratios		
		Construction [a]	Operation [b]			Construction	Operation	Acres [d]
Terminal [d]	W1AJA001	7.8	7.8	PSS	Low (0.34)	1:1	2:1	15.6
	W1AJA002	10.0	10.0	PSS/PEM	Moderate (0.41)	1:1	2:1	20.0
	W1AJA003	18.7	18.7	PSS	Low (0.35)	1:1	2:1	37.4
	W1AJA004	2.5	2.5	PSS/PEM	Moderate (0.45)	1:1	2:1	5.0
	W1AJA005	0.2	0.2	PSS	Low (0.38)	1:1	2:1	0.4
	W1AJA006	0.1	0.1	PEM	Low (0.29)	1:1	2:1	0.2
	W1AJA007A	20.4	20.4	PSS	Low (0.33)	1:1	2:1	40.8
	W1AJA007B	6.5	6.5	PSS	Low (0.38)	1:1	2:1	13.0
	W1AJA007C (non-tidal)	46.3	46.3	ESS (non-tidal)	Low (0.38)	1:1	2:1	92.6
	W1AJA007C (tidal)	4.2	4.2	ESS (tidal)	Low (0.38)	1:1	4:1	16.8 [f]
	W1AJA007D	2.4	2.4	EEM (non-tidal)	Low (0.38 - within W1AJA007C)	1:1	2:1	4.8
	W1AJA007E	0.2	0.2	EEM (non-tidal)	Low (0.38 - within W1AJA007C)	1:1	2:1	0.4
Natural Gas Interconnection Spur and Laterals [e]	W1AJA009	0.5	0.0	PEM/EEM (tidal)	Moderate (0.47)	1:1	4:1	0.5 [f]
	W1AJA010	12.0	0.0	EEM (tidal)	Moderate (0.63)	1:1	4:1	12.0 [f]
Meter Station (Interconnection Laterals)	W1AJA010	1.5	0.9	EEM (tidal)	Moderate (0.63)	1:1	4:1	4.2 [f]
Meter Station (Interconnection Spur)	W1AJA010	1.3	0.9	EEM (tidal)	Moderate (0.63)	1:1	4:1	4.0 [f]
12-inch NGL Interconnection Pipeline [e]	WA1AJA015	2.1	0.2	PFO/PEM/PSS	Moderate (0.62)	1:1	2:1	2.3
	W1AJA014	3.7	0.0	EEM (tidal)	High (0.82)	1:1	4:1	3.7 [f]
	W1AJA013	0.6	0.0	PEM/PSS	Moderate (0.48)	1:1	2:1	0.6
	W1AJA011	2.3	0.0	PEM/PSS	Moderate (0.53)	1:1	2:1	2.3
	W1AJA012	2.4	0.0	PEM/PSS	Moderate (0.67)	1:1	2:1	2.4
Meter Station (NGL Interconnection	W1AJA012	1.2	0.7	PEM/PSS	Moderate (0.67)	1:1	2:1	1.9

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Table 6.0-1

Compensatory Mitigation Ratios Offered for Unavoidable Wetland Impacts as a Result of the Casotte Landing Natural Gas Import Terminal Project

Facility	Feature ID	Area Affected (acres)		NWI Classification [c]	Wetland Quality (WRAP Score)	Proposed Ratios		Acres [d]
		Construction [a]	Operation [b]			Construction	Operation	
Pipeline)								
Circulation Water Lines [e]	None					N/A	N/A	0.0
Totals		**146.9**	**122.0**					**280.9**

Notes:

[a] Construction: Permanent impact, plus temporary impact & extra workspace.

[b] Permanent: Permanently maintained area.

[c] NWI Classification: PFO-Palustrine Forested Wetland; PSS-Palustrine Scrub-Shrub Wetland; PEM-Palustrine Emergent Wetland; EEM-Estuarine Emergent Wetland; ESS-Estuarine Scrub-Shrub Wetland

[d] Impacts for the FERC-jurisdictional LNG carrier berth, tug berths, construction dock, LNG transfer system, LNG spill containment and collection system, LNG storage tanks, vapor handling system, intermediate-fluid LNG-vaporization system, back-up/supplemental vaporization system, hurricane levee, stormwater handling and pollution prevention system, access roads, essential services electric generation equipment, fire protection system, LNG instrumentation and hazard detection system, nitrogen generation plant, diesel fuel system, service water system, potable water system, wastewater treatment system, and buildings and infrastructure are included in the impacts for Terminal, as are the impacts for the non-jurisdictional relocation of existing Refinery Berths 6 & 7, main power station and four electric substations, and the NGL Extraction System.

[e] Linear features are extensively co-located. Each entry represents impacts unique to that linear feature.

[f] Mitigated as tidal wetlands at 1:1 (temporary) 4:1 (permanent) ratio (per USFWS).

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Table 6.0-2

Compensatory Mitigation Ratios Offered for Unavoidable EFH Impacts as a Result of the Casotte Landing Natural Gas Import Terminal Project

Facility	Feature ID	Area Affected (acres)		NWI Classification [c]	Wetland Quality (WRAP Score)	Proposed Ratios		Acres [d]
		Construction [a]	Operation [b]			Construction	Operation	
Terminal [d]	Unvegetated benthic habitat	6.3	6.3	n/a	n/a	1:1	1:1	6.3
	W1AJA007C (tidal)	4.2	4.2	ESS	Low (0.38)	1:1	2:1	0.0 [f]
Natural Gas Interconnection Spur and Laterals [e]	W1AJA009	0.5	0.0	PEM/EEM	Moderate (0.47)	1:1	2:1	0.0 [f]
	W1AJA010	12.0	0.0	EEM	Moderate (0.63)	1:1	2:1	0.0 [f]
Meter Station (Interconnection Laterals)	W1AJA010	1.5	0.9	EEM	Moderate (0.63)	1:1	2:1	0.0 [f]
Meter Station (Interconnection Spur)	W1AJA010	1.3	0.9	EEM	Moderate (0.63)	1:1	2:1	0.0 [f]
12-inch NGL Interconnection Pipeline [e]	W1AJA014	3.7	0.0	EEM	High (0.82)	1:1	2:1	0.0 [f]
Totals		**29.5**	**12.3**					**6.3**

Notes:

[a] Construction: Permanent impact, plus temporary impact & extra workspace.

[b] Permanent: Permanently maintained area.

[c] NWI Classification: PFO-Palustrine Forested Wetland; PSS-Palustrine Scrub-Shrub Wetland; PEM-Palustrine Emergent Wetland; EEM-Estuarine Emergent Wetland; ESS-Estuarine Scrub-Shrub Wetland

[d] Impacts for the FERC-jurisdictional LNG carrier berth, tug berths, construction dock, LNG transfer system, LNG spill containment and collection system, LNG storage tanks, vapor handling system, intermediate-fluid LNG-vaporization system, back-up/supplemental vaporization system, hurricane levee, stormwater handling and pollution prevention system, access roads, essential services electric generation equipment, fire protection system, LNG instrumentation and hazard detection system, nitrogen generation plant, diesel fuel system, service water system, potable water system, wastewater treatment system, and buildings and infrastructure are included in the impacts for Terminal, as are the impacts for the non-jurisdictional relocation of existing Refinery Berths 6 & 7, main power station and four electric substations, and the NGL Extraction System.

[e] Linear features are extensively co-located. Each entry represents impacts unique to that linear feature.

[f] Mitigated as tidal wetlands at 1:1 (temporary) 4:1 (permanent) ratio (per USFWS). Please see Table 6.0-1.

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Table 6.1.1-1
Summary of Proposed Mitigation for the Preferred Alternative

Impact type	Mitigation Acres	Mitigation Type
Non-tidal (PEM, PSS, and PFO)	239.7	Restoration of open/irregular canopy forest
Tidal (EEM and ESS)	41.2	Preservation of tidal Juncus marsh
EFH	6.3	Preservation of tidal Juncus marsh
Total	**287.2**	

* The preferred-alternative management plan calls for restoration to high-quality forested wetland. Although the mitigation will not be "like-for-like," the area to be disturbed is low-quality exotic vegetation on dredge spoil, and "similar" wetlands are not considered an appropriate restoration target.

6.1.2 Mitigation Alternatives

6.1.2.1 Grand Bay Reserve - National Estuarine Research Reserve – Land Purchase

As an alternative to the preferred mitigation option, Bayou Casotte Energy would undertake the purchase of land within the limits of the Grand Bay Reserve for donation to the Reserve. Currently, of the 18,000 acres within the Reserve, 6,000 are privately held and not under the direct control of the Reserve managers. Following a meeting with the Reserve, they expressed interest in gaining control over some of these lands, and would welcome a land donation to accomplish this goal. For this alternative, Bayou Casotte Energy would arrange for, purchase, and donate at least 1497 acres (10:1 mitigation ratio) to the Reserve. Because this is strictly preservation, it is not the preferred alternative for mitigating impacts.

6.1.2.2 Old Fort Bayou Mitigation Bank – Credit Purchase

The last alternative for mitigation for the Casotte Landing Project would be the purchase of credits from the Old Fort Bayou Mitigation Bank. This option is considered less desirable alternative for Bayou Casotte due to its proximity to the Project and the area of impact. In the event that this alternative is necessary, the mitigation will be conducted in accordance with the guidelines of the MBI for the Bank.

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