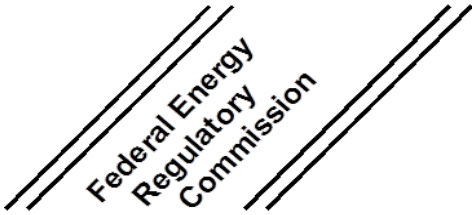

Office of Energy Projects

October 2017

Florida Gas Transmission, LLC **Docket No. CP17-8-000**

East-West Project

Environmental Assessment

Washington, DC 20426

FEDERAL ENERGY REGULATORY COMMISSION

WASHINGTON, D.C. 20426

OFFICE OF ENERGY PROJECTS

In Reply, Refer To:
OEP/DG2E/Gas 3
Florida Gas Transmission, LLC
Docket No. CP17-8-000

TO THE PARTY ADDRESSED:

The staff of the Federal Energy Regulatory Commission (FERC or Commission) has prepared an environmental assessment (EA) for the proposed East-West Project (Project), proposed by Florida Gas Transmission, LLC (FGT) in the above referenced docket. The Project would provide new capacity of 275 million cubic feet per day on FGT's pipeline system in the western division to meet the demand for additional transportation and delivery of natural gas to the proposed Port Arthur - Motiva Meter and Regulator (M&R) Station and the Wilson - Coastal Bend M&R Station in Jefferson and Wharton Counties, Texas respectively. FGT would install two new receipt points and M&R stations, (Eunice-ANR and Gillis-Trunkline) on FGT's mainline to provide the new capacity.

The EA assesses the potential environmental effects of the construction and operation of the Projects in accordance with the requirements of the National Environmental Policy Act (NEPA). The FERC staff concludes that approval of the proposed Project, with appropriate mitigating measures, would not constitute a major federal action significantly affecting the quality of the human environment.

FGT proposes to construct and operate about 13.3 miles of 12-inch-diameter lateral pipeline, about 12 miles 16-inch-diameter lateral and connection pipeline, and four new M&R stations and auxiliary and appurtenant facilities in Wharton, Matagorda, Jefferson, and Orange Counties, Texas, and Calcasieu and Acadia Parishes, Louisiana. FGT would also install station piping and valves at existing Compressor Station 6 in Orange County, Texas on FGT's 24-inch-diameter mainline at MP 382.2 so that Compressor Station 6 would be able to flow gas bi-directionally on the mainline.

The FERC staff mailed copies of the EA to federal, state, and local government representatives and agencies; elected officials; environmental and public interest groups; Native American tribes; potentially affected landowners and other interested

individuals and groups; and newspapers and libraries in the Project area. In addition, the EA is available for public viewing on the FERC's website (www.ferc.gov) using the eLibrary link. A limited number of copies of the EA are available for distribution and public inspection at:

Federal Energy Regulatory Commission
Public Reference Room
888 First Street NE, Room 2A
Washington, DC 20426
(202) 502-8371

Any person wishing to comment on the EA may do so. Your comments should focus on the potential environmental effects, reasonable alternatives, and measures to avoid or lessen environmental impacts. The more specific your comments, the more useful they will be. To ensure that the Commission has the opportunity to consider your comments prior to making its decision on the Project, it is important that we receive your comments in Washington, DC on or before **November 20, 2017**.

For your convenience, there are three methods you can use to file your comments to the Commission. In all instances, please reference the Project docket number (CP17-8-000) with your submission. The Commission encourages electronic filing of comments and has expert staff available to assist you at (202) 502-8258 or FercOnlineSupport@ferc.gov.

(1) You can file your comments electronically using the eComment feature on the Commission's website (www.ferc.gov) under the link to Documents and Filings. This is an easy method for submitting brief, text-only comments on a project;

(2) You can also file your comments electronically using the eFiling feature on the Commission's website (www.ferc.gov) under the link to Documents and Filings. With eFiling, you can provide comments in a variety of formats by attaching them as a file with your submission. New eFiling users must first create an account by clicking on "eRegister." You must select the type of filing you are making. If you are filing a comment on a particular project, please select "Comment on a Filing"; or

(3) You can file a paper copy of your comments by mailing them to the following address:

Kimberly D. Bose, Secretary
Federal Energy Regulatory Commission

888 First Street NE, Room 1A
Washington, DC 20426

Any person seeking to become a party to the proceeding must file a motion to intervene pursuant to Rule 214 of the Commission's Rules of Practice and Procedures (18 CFR 385.214).[1] Only intervenors have the right to seek rehearing of the Commission's decision. The Commission grants affected landowners and others with environmental concerns intervenor status upon showing good cause by stating that they have a clear and direct interest in this proceeding which no other party can adequately represent. Simply filing environmental comments will not give you intervenor status, but **you do not need intervenor status to have your comments considered.**

Additional information about the Project is available from the Commission's Office of External Affairs, at **(866) 208-FERC**, or on the FERC website (www.ferc.gov) using the eLibrary link. Click on the eLibrary link, click on "General Search," and enter the docket number excluding the last three digits in the Docket Number field (i.e., CP17-8). Be sure you have selected an appropriate date range. For assistance, please contact FERC Online Support at FercOnlineSupport@ferc.gov or toll free at (866) 208-3676, or for TTY, contact (202) 502-8659. The eLibrary link also provides access to the texts of formal documents issued by the Commission, such as orders, notices, and rulemakings.

In addition, the Commission offers a free service called eSubscription which allows you to keep track of all formal issuances and submittals in specific dockets. This can reduce the amount of time you spend researching proceedings by automatically providing you with notification of these filings, document summaries, and direct links to the documents. Go to www.ferc.gov/docs-filing/esubscription.asp.

[1] See the previous discussion on the methods for filing comments.

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TECHNICAL ACRONYMS AND ABBREVIATIONS

ACHP	Advisory Council on Historic Preservation
APE	area of potential effect
BCC	Birds of Conservation Concern
BCR	Bird Conservation Region
BGEPA	Bald and Golden Eagle Protection Act
BMP	Best Management Practice
CBHP	Coastal Bend Header Project
ATWS	additional temporary workspace
Certificate	Certificate of Public Convenience and Necessity
CEQ	Council on Environmental Quality
CFR	Code of Federal Regulations
CH_4	methane
CO	carbon monoxide
CO_2	carbon dioxide
CO_2e	carbon dioxide equivalent
COE	U.S. Army Corps of Engineers
Commission	Federal Energy Regulatory Commission
CS6	Compressor Station 6 (Vidor)
CWA	Clean Water Act
dB	decibels
dBA	decibels on the A-weighted frequency scale
DD7	Jefferson County Drainage District 7
DOT	U.S. Department of Transportation
EA	environmental assessment
EI	environmental inspector
EO	Executive Order
EPA	U.S. Environmental Protection Agency
ESA	Endangered Species Act of 1973
FBE	fusion bonded epoxy
FERC	Federal Energy Regulatory Commission
FERC Plan	FERC's *Upland Erosion Control, Revegetation, and Maintenance Plan*
FGT Procedures	FGT's *Wetland and Waterbody Construction and Mitigation Procedures*
FGT	Florida Gas Transmission Company, LLC
FWS	U.S. Fish and Wildlife Service
GHG	greenhouse gas
Gulf South	Gulf South Pipeline Company, LP
HAP	hazardous air pollutant
HCA	high consequence area
HDD	horizontal directional drill
HDD Plan	Horizontal Directional Drill Contingency Plan
HUC	hydrologic unit code
L_{dn}	day-night averaged sound level
L_{eq}	24-hour equivalent sound level
LDEQ	Louisiana Department of Environmental Quality

TECHNICAL ACRONYMS AND ABBREVIATIONS *CONTINUED*

LDWF	Louisiana Department of Wildlife and Fisheries
MAOP	Maximum Allowable Operating Pressure
M&R	meter and regulating
MBTA	Migratory Bird Treaty Act
MLV	mainline valve
MMBtu	million British thermal units
MMBtu/hr	million British thermal units per hour
MOU	Memorandum of Understanding
MP	milepost
N_2O	nitrous oxide
NAAQS	National Ambient Air Quality Standards
NEPA	National Environmental Policy Act of 1969
NGA	Natural Gas Act
NHPA	National Historic Preservation Act
NO_2	nitrogen dioxide
NO_X	oxides of nitrogen
NPS	National Park Service
NRCS	Natural Resources Conservation Service
NRHP	National Register of Historic Places
NSA	noise-sensitive area
NWP	Nationwide Permit
OEP	Office of Energy Projects
PEM	Palustrine Emergent Wetland
PSS	Palustrine Scrub Shrub Wetland
PFO	Palustrine Forested Wetland
PHMSA	Pipeline and Hazardous Materials Safety Administration
$PM_{2.5}$	particulate matter 2.5 microns or less in aerodynamic diameter
PM_{10}	particulate matter 10 microns or less in aerodynamic diameter
psig	pounds per square inch
Project	East-West Project
RCW	red cockaded woodpecker
SBWPP	San Bernard Watershed Protection Program
SHPO	State Historic Preservation Office
SO_2	sulfur dioxide
SPAR Plan	Spill Prevention and Response Plan
TGPC	Texas Groundwater Protection Committee
TCEQ	Texas Commission on Environmental Quality
TGLO	Texas General Land Office

TECHNICAL ACRONYMS AND ABBREVIATIONS *CONTINUED*

tpy	tons per year
TPWD	Texas Parks and Wildlife Department
UDP	Unanticipated Discoveries Plan
USDA	U.S. Department of Agriculture
USGS	U.S. Geological Survey
VOC	volatile organic compound

A. PROPOSED ACTION

A.1. Introduction

The Federal Energy Regulatory Commission (Commission or FERC) staff has prepared this Environmental Assessment (EA) to assess the environmental impacts of the natural gas pipeline facilities proposed by Florida Gas Pipeline Company, LLC (FGT) in Docket No. CP17-8-000. We[1] prepared this EA in compliance with the National Environmental Policy Act (NEPA) according to the regulations issued by the Council on Environmental Quality (CEQ) at Title 40 Code of Federal Regulations (CFR), Parts 1500–1508 (40 CFR 1500–1508), and the Commission's regulations at 18 CFR 380.

On October 31, 2016, Florida Gas Transmission Company, LLC (FGT) filed an application with FERC in Docket No. CP17-8-000 for a Certificate of Public Convenience and Necessity (Certificate) under section 7(c) of the Natural Gas Act (NGA) to construct, install, own, and operate new lateral and connection pipeline facilities, four new meter stations, appurtenant facilities, and modify station piping at Compressor Station (CS) 6 in Wharton, Matagorda, Jefferson, and Orange Counties, Texas, and Calcasieu and Acadia Parishes, LA. The proposed facilities would provide new capacity of 275 million cubic feet per day on FGT's pipeline system in the western division to meet the demand for additional transportation and delivery of natural gas. These proposed facilities are referred to as the East-West Project (Project).

Based on its authority under the NGA and Energy Policy Act of 2005 (EPAct 2005), FERC is the lead federal agency for the Project and for the preparation of this EA, as described in 40 CFR 1501.5. The EA will be used by the Commission in its decision-making process to determine whether to authorize FGT's proposal.

A.2. Purpose and Need

FGT states that the Project is being developed primarily to provide capacity on its pipeline system to meet the demand for transportation capacity to deliver natural gas on behalf of certain shippers [JERA Energy America, LLC (JERA) and Shell Energy North America (Shell)] to FGT's historical supply area in the Texas Gulf Coast region. JERA has elected to receive gas from FGT's existing connection with Columbia Gulf Lafayette, for delivery to the proposed Wilson - Coastal Bend M&R Station. Shell has elected to receive gas from the proposed Gillis - Trunkline and Eunice - ANR receipt points, with delivery to the Port Arthur - Motiva M&R Station.

[1] "We," "us," and "our" refer to the environmental staff of the Commission's Office of Energy Projects.

Under section 7(c) of the NGA, the Commission determines whether interstate natural gas transportation facilities are in the public convenience and necessity and, if so, grants a Certificate to construct and operate them. The Commission bases its decisions on technical competence, financing, rates, market demand, gas supply, environmental impact, long-term feasibility, and other issues concerning a proposed project.

A.3. Scope of the Environmental Assessment

This EA is an important part of the Commission's decision whether to issue FGT a Certificate to construct the proposed Project. The purposes for preparing this EA are to:

- identify and assess potential impacts on the natural and human environment which could result from the proposed action;
- identify and recommend alternatives and specific mitigation measures, as necessary, to avoid and minimize project related environmental impacts; and
- facilitate public involvement in the environmental review process.

As the lead federal agency for the Project, FERC is required to comply with Section 7 of the Endangered Species Act (ESA) and Section 106 of the National Historic Preservation Act (NHPA) on behalf of itself and all cooperating federal agencies. These statutes have been considered in the preparation of this EA. FERC will use this document to consider the environmental impacts that could result if it authorizes the Project.

In addition to FERC, other federal, state, and local agencies may use this EA in approving or issuing permits for all or part of the proposed Project. Permits, approvals, and consultations for the Project are discussed in section A.8.

The topics addressed in this EA include geology, soils, groundwater, surface waters, wetlands, fisheries, wildlife, vegetation, species of special concern, cultural resources, air quality, noise, land use, recreation, aesthetics, reliability and safety, and cumulative impacts. This EA describes the affected environment as it currently exists and the environmental consequences of the Project, and compares the Project's potential impact with that of various alternatives. This EA also presents our recommended mitigation measures.

A.4. Public Comment

On December 19, 2016, the Commission issued *a Notice of Intent to Prepare an Environmental Assessment for the East-West Project and Request for Comments on Environmental Issues*. The notice was published in the Federal Register. Written comments were requested from the public on specific concerns about the Project that should be considered during preparation of the EA.

We received comments from Mr. Thomas Hunt stating concerns about the pipeline crossing his property. His concerns include potential impacts of constructing through pledger clay soils, including the potential draining of wetlands and corrosion of the pipeline in this soil type. His concerns also include impacts on wildlife in the area, the proximity of the Project to the San Bernard National Wildlife Refuge and Brazoria National Wildlife Refuge, and the unique and historical value of the area due to the past inhabitation of the Karankawa Indians. Mr. Hunt is also concerned about future cleanup of ruptured rusted pipes and remediation of the rusted pipelines when the pipes are abandoned.

Impacts on soils are discussed in section B.1 of the EA, and impacts on wetlands and wildlife are discussed in sections B.2 and B.3, respectively. Cultural Resources are discussed in Section B.5 of this EA. Safety is discussed in Section B.8. of this EA.

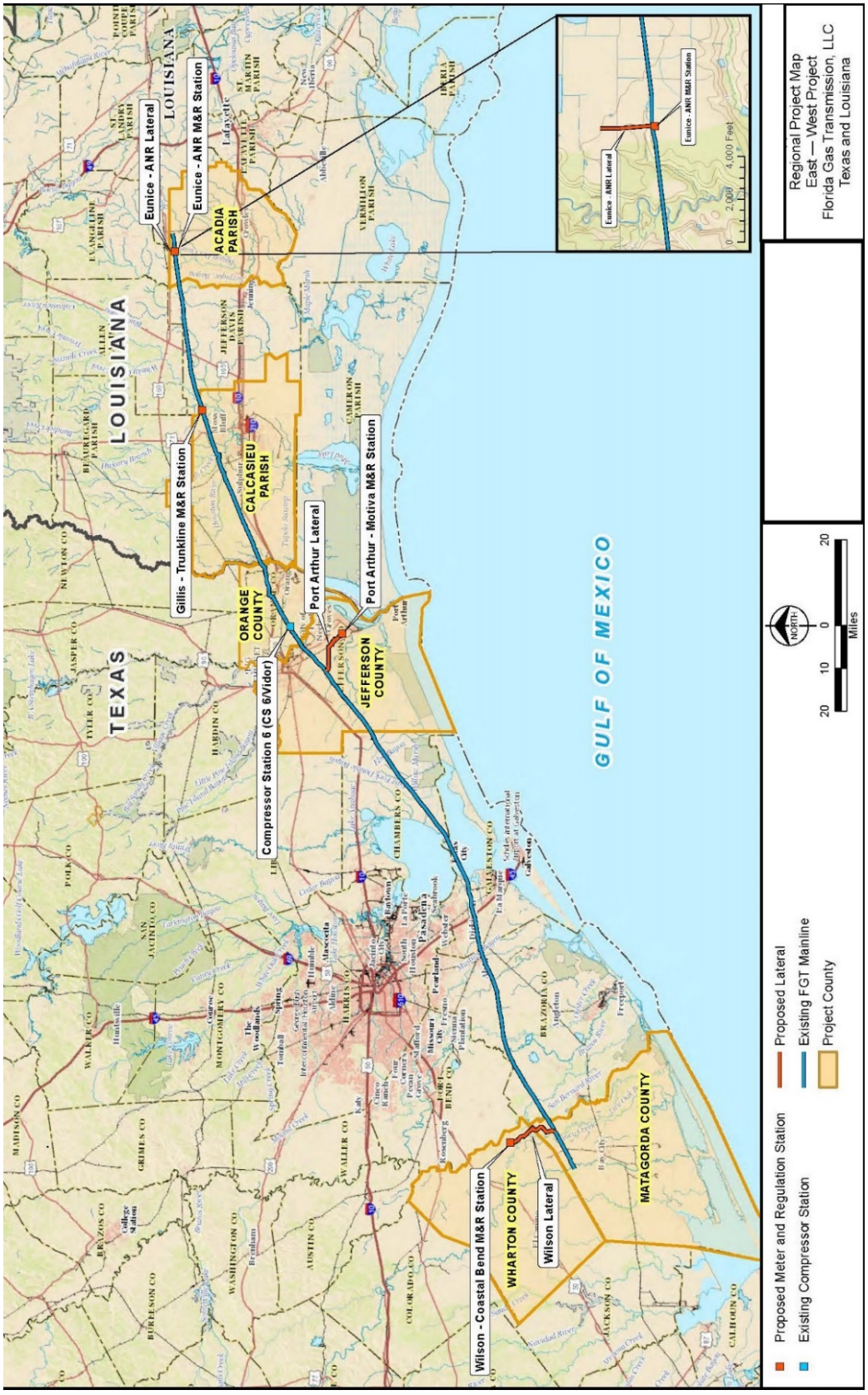
We also received comments from the Louisiana Department of Wildlife (LDWF) regarding specific mitigation measures. LDWF requests that FGT utilize adequate erosion control measures during construction and limit the construction right-of-way width to 75 feet and the permanent right-of-way width to 30 feet through wetlands. LDWF also suggests that FGT provide appropriate mitigation for impacts on wetland functions. Impacts and mitigation for wetlands are discussed in section B.2.3.

A.5. Proposed Facilities

FGT proposes to construct, own, and operate the following lateral pipeline and meter and regulator (M&R) station facilities as summarized below in table 1 and described further in the following sections. An overview map of the Project locations and facilities is provided on figure 1 below. Detailed maps and figures showing the pipeline routes, aboveground facilities, access roads, and staging/contractor yards are provided in appendix A.

Table 1. Proposed Project Facilities		
Facility Name	**County/Parish**	**Proposed Facilities**
TEXAS		
Wilson Lateral	Matagorda	6.5 miles of 12-inch-diameter delivery lateral pipeline
	Wharton	6.7 miles of 12-inch-diameter delivery lateral pipe
Wilson – Coastal Bend M&R Station	Wharton	new M&R facility at the end [milepost (MP) 13.28] of the Wilson Lateral.
Port Arthur Lateral	Jefferson	11.42 miles of 16-inch-diameter delivery lateral pipeline
Port Arthur – Motiva M&R Station	Jefferson	new M&R facility at about MP 11 along the Port Arthur Lateral.
Compressor Station 6 (CS 6/Vidor)	Orange	Modify station piping and install automated valves for bi-directional flow at existing compressor station
LOUISIANA		
Eunice – ANR Lateral	Acadia	0.5 mile of 16-inch-diameter connection piping
Eunice – ANR M&R Station	Acadia	new M&R station
Gillis – Trunkline M&R Station	Calcasieu	100 feet of 12-inch-diameter connection piping and a new M&R facility

Figure 1. Regional Project Map



A.5.1. Pipeline Facilities

Wilson Lateral

FGT would install an 8-inch hot tap[3] on FGT's existing 22-inch-diameter mainline at about MP 245.8, tie into the existing station discharge piping in the yard of FGT's existing CS 4, and install approximately 13.3 miles of 12-inch-diameter delivery lateral pipe that would connect to the Coastal Bend Header system. The lateral would be designed to have a Maximum Allowable Operating Pressure (MAOP) of 1,000 pounds per square inch (psig).

Port Arthur Lateral

FGT would install a 10-inch hot tap on FGT's existing 24-inch-diameter mainline at about MP 370.1 and approximately 11.4 miles of 16-inch-diameter delivery lateral pipe that would connect to an existing customer header system (Motiva). The lateral would be designed to have an MAOP of 975 psig.

Eunice - ANR Lateral

FGT would install a 10-inch hot tap on FGT's existing 24-inch-diameter mainline at about MP 475.4, tie into the station piping at FGT's existing CS 7, and install approximately 0.5 mile of 16-inch-diameter connection piping. The lateral would be designed to have an MAOP of 975 psig.

Lateral Connecter Pipeline (Gillis-Trunkline M&R Station)

FGT would install a 10-inch hot tap on FGT's existing 24-inch-diameter mainline at about MP 438.0 and install approximately 0.02 mile of 12-inch-diameter connection piping that would connect with the new proposed Gillis-Trunkline M&R station. The lateral connector would be designed to have an MAOP of 975 psig.

About 56 percent of the pipeline right-of-way would be collocated with existing pipeline and powerline rights-of-way. Table 2 summarizes the Project pipeline facilities and length of collocation by county.

[3] Hot taps are mechanical features designed to safely tie into a pressurized system, by drilling or cutting, while it is on stream and under pressure.

Table 2. Existing Rights-of-way Paralleled by the Project Facilities			
County	**Mile Post (Begin)**	**Mile Post (End)**	**Total Distance Paralleled (feet)**
Wilson Lateral and Wilson - Coastal Bend M&R Station			
Matagorda	3.7	6.4	14562
Wharton	6.4	8.1	8859
Wharton	9.2	11.3	11280
Wharton	11.5	11.9	2098
Wharton	12.1	12.9	4382
Port Arthur Lateral and Port Arthur – Motiva M&R Station			
Jefferson	0.9	3.9	13311
Jefferson	4.2	5.5	6701
Jefferson	6.0	7.1	5746
Jefferson	8.0	8.1	649
Jefferson	9.1	9.1	255
Jefferson	9.5	10.9	6929

A.5.2. Aboveground Facilities

Wilson Lateral and Wilson - Coastal Bend M&R Delivery Point

FGT would install meter, regulation, measurement, and appurtenant facilities at the terminus on the proposed Wilson Lateral (MP 13.28) in Wharton County, Texas. The M&R station would be designed to deliver 100 million cubic feet per day into the Coastal Bend Header system. Gulf South Pipeline Company, LP (Gulf South) would construct, own and operate the interconnecting facilities, meter site, gas quality, and communications equipment for the FGT proposed Wilson – Coastal Bend M&R station, pursuant to Gulf South's Blanket Certificate authority. Gulf South's facilities are included in the cumulative impacts analysis in section B.9 of this EA.

Aboveground facilities on the Wilson Lateral would also include a lateral tie in with FGT's mainline and mainline valve at MP 0 and two launchers and receivers (MP 0 and MP 13.28). Each of these facilities are included in the footprint of the construction workspace calculated for the Wilson Lateral and M&R station.

Port Arthur Lateral and Port Arthur- Motiva M&R Delivery Point

FGT would install meter, regulation, measurement and appurtenant facilities at the terminus of the proposed Port Arthur Lateral (approximate MP 11) in Jefferson County. The M&R station would be designed to deliver 175 million cubic feet per day into the existing customer header system (Motiva). Aboveground facilities on the Port Arthur Lateral would also include a lateral tie in with FGT's mainline and mainline valve at MP 0, two launchers and receivers (MP 0 and MP 11.42), two mainline valves (MPs 4.9 and 6.4), and a tie-in with Motiva at MP 11.42. Each of these facilities are included in the footprint of the construction workspace calculated for the Port Arthur Lateral and M&R station.

Eunice - ANR M&R Receipt Point

FGT would install meter, regulation, measurement, and appurtenant facilities in the yard of FGT's existing CS 7 at MP 0.0 on the proposed Eunice - ANR Lateral in Acadia Parish, Louisiana. The M&R station would be designed to receive 75 million cubic feet per day. Aboveground facilities on the Eunice-ANR Lateral would also include a lateral tie in with FGT's mainline and mainline valve at MP 0, a launcher and receiver at MP 0, and an ANR tap valve and launcher and receiver at MP 0.48. Each of these facilities are included in the footprint of the construction workspace calculated for the Eunice-ANR Lateral and M&R station.

Gillis - Trunkline M&R Receipt Point

FGT would install meter, regulation, measurement, and appurtenant facilities on the 12-inch-diameter connection piping, in Calcasieu Parish, Louisiana. The M&R station would be designed to receive 100 million cubic feet per day.

Facility Modifications

FGT would install station piping and valves at existing CS 6 in Orange County, Texas on FGT's 24-inch-diameter mainline at MP 382.2 so that CS 6 will be able to flow gas bi-directionally on the mainline. FGT would not add compression or modify existing compression facilities at CS 6.

A.5.3. Access Roads, Contractor Yards, Additional Temporary Workspace

Access Roads

In addition to public roads in the area, FGT would use 18 existing private access roads during construction of the Project in order to access the construction right-of-way. Additionally, FGT would construct six new access roads for pipeline activities. One of

these new access roads would be permanent. All access roads, whether existing or new, would be about 20 - 25 feet wide. Information on proposed access roads and land use impacts associated with the access roads is presented in appendix C. FGT would make improvements to existing access roads where necessary. Improvements would include blading to create a level surface and/or the addition of crushed rock.

FGT would install temporary access roads across several wetlands. If the wetland is not saturated, FGT would clear the area needed for the access road. If the wetland is saturated, FGT would place temporary matting along the entire crossing length of the wetland to support safe passage of construction equipment. Alternatively, FGT may lay down geotextile fabric with gravel or rock on top to support the safe passage of equipment. FGT would remove all materials used to support the temporary access road crossing and restore the wetland after construction is complete.

The FERC's *Wetland and Waterbody Construction and Mitigation Procedures* (Procedures) [4] restrict the use of access roads in wetlands to only existing roads that can be used without any modification, improvement, other than routine repair, and no impact on the wetland. More information on FGT's request to utilize access roads in wetlands is discussed in section B.2. We have reviewed these modifications to the FERC Procedures and agree that the justifications are adequate.

Contractor Yards

FGT proposes to use two staging/contractor yards (table 3). The locations of the staging/contractor yards are depicted in appendix A. One staging area would be located near MP 1 on the proposed Wilson Lateral. The second staging area would be located four miles off the construction right-of-way near MP 6 on the proposed Port Arthur Lateral. FGT would use staging areas for the temporary storage of materials and equipment, office trailers, parking, and vehicle maintenance. Staging area preparation, including any necessary clearing, grading, leveling and filling, would occur within upland areas only to the extent practicable. Following construction, staging areas would be restored in accordance with FERC's *Upland Erosion Control, Revegetation, and Maintenance Plan* (Plan), [5] agency requirements, and any landowner stipulations.

[4] The FERC Procedures can be viewed on the FERC Internet website at https://www.ferc.gov/industries/gas/enviro/procedures.pdf

[5] The FERC Plan can be viewed on the FERC Internet website at http://www.ferc.gov/industries/gas/enviro/plan.pdf.

Table 3. Contractor Yards			
Approximate MP	**Purpose of Contractor Yard**	**Total Acres**	**Existing Land Use**
Off right-of-way, nearest MP 1 (Wilson Lateral)	Staging Area	5.8	Open Land
Off right-of-way, 4 miles north of MP6 (Port Arthur Lateral)	Staging Area	3.1	Open Land

Additional Temporary Workspace

In addition to the typical construction rights-of-way, additional temporary workspace (ATWS) would be required to stage construction activities and store equipment, materials, and spoil in areas of topsoil segregation and at wetland, waterbody, and road crossings, at hydrostatic test water withdrawal pump locations, crossovers, and tie-ins, for staging and fabrication and drag sections, and at foreign pipeline crossings. ATWS also would be required whenever FGT would use special construction techniques.

FGT is required by the FERC Procedures to locate ATWS at least 50 feet away from wetlands and waterbodies. FGT is requesting modifications to the FERC Procedures to locate ATWS within 50 feet of wetlands. More information on these ATWS areas is discussed in section B.2 and appendix G, including FGT's justification for each ATWS proposed within 50 feet of a wetland or waterbody. We have reviewed these modifications to the FERC Procedures and agree that the justifications are adequate.

FGT has identified areas where contractor yards, staging areas, ATWS, and access roads would be required to construct the Project. However, additional or alternative areas could be identified in the future due to changes in site-specific construction requirements. FGT would be required to file information on each of those areas for FERC's review and approval prior to use. Appendix D provides further information on FGT's proposed ATWS.

A.6. Land Requirements

Construction of the Project would require a total of about 292 acres of land. Following construction, about 196.4 acres would be restored to preconstruction conditions. About 95.6 acres of land would be retained to operate and maintain the facilities. Table 4 summarizes the construction and operation impacts associated with the Project facilities. FGT would utilize a 75-foot-wide construction right-of-way width in uplands and wetlands. FGT would maintain a 30-foot-wide permanent easement in order to operate the Project.

Table 4. Land Requirements

Facility Name	Construction Impacts (Total Land Affected - Acres)	Permanent Operation Impact (Acres)
PIPELINES		
Wilson Lateral	128.7	49
Port Arthur Lateral	86.3	32.9
Eunice – ANR Lateral	6.0	1.8
Subtotal	***221***	***83.7***
ABOVEGROUND FACILITIES		
Wilson – Coastal Bend M&R Station	1.3	0.8
Port Arthur – Motiva M&R Station	3.5	1.7
Compressor Station 6 (CS 6) **a/**	19.2	0.0
Eunice – ANR M&R Station	1.1	0.7
Gillis – Trunkline M&R Station **b/**	2.4	0.9
Subtotal	***27.5***	***5.0***
ACCESS ROADS		
Access Roads - 18 Existing	30.4	7.5
Access Roads – 6 New	4.2	0.4
Subtotal	***34.6***	***7.9***
STAGING AREAS		
Wilson Lateral Yard 1	5.8	0.0
Port Arthur Lateral Yard 1	3.1	0.0
Subtotal	***8.9***	***0.0***
Project Total	**292**	**95.6**

a The proposed modification at CS6 will be wholly located within the existing facility fenceline.

b 100 feet (0.02 miles) of lateral connector pipeline included in footprint calculations

A.7. Construction Procedures

A.7.1. Construction Schedule and Workforce

FGT anticipates that mobilization and construction of the Project would commence in the winter of 2017/2018. These start dates are subject to receipt of necessary permits and regulatory approvals. FGT anticipates that all facilities would be placed in service in third or fourth quarter of 2018.

FGT anticipates that the workforce would be approximately 150-175 people for construction of each of the Wilson and Port Arthur laterals and approximately 50-80 people for the construction of the M&R stations. This workforce would include construction personnel along with necessary inspection staff. Construction for the Port Arthur and Wilson laterals is anticipated to take approximately 90 days and the construction of the M&R stations is expected to take approximately 45 days. Project construction is expected to take about 8-9 months to complete. FGT proposes to start construction on the Port Arthur Lateral and Port Arthur-Motiva M&R station, Eunice-ANR Lateral and M&R Station, and Gillis-Trunkline M&R Station first, followed by the Wilson Lateral and Wilson-Coastal Bend M&R Station.

Activities are expected to typically take place Monday through Saturday between the hours of 7 a.m. to 6 p.m. Construction could occur outside these days/times in the event a task is underway and interrupting the process could adversely impact the success and safe completion of the activity.

A.7.2. Construction, Operation, and Maintenance Procedures

The Project would be designed, constructed, operated, and maintained in accordance with applicable requirements defined by U.S. Department of Transportation (DOT) regulations in Title 49 CFR Part 192, *Transportation of Natural and Other Gas by Pipeline: Minimum Federal Safety Standards*; by FERC's *Siting and Maintenance Requirements* in 18 CFR 380.15; and by other applicable federal and state safety regulations.

FGT would comply with the FERC Plan. FGT would also implement its own *Wetland and Waterbody Construction and Mitigation Procedures* (FGT's Procedures), which follow the 2013 version of FERC's Procedures, with the exception of certain requested modifications (see appendix G).

To avoid or minimize the potential for harmful spills and leaks during construction, FGT would implement measures outlined in its Spill Prevention and

Response Plan (SPAR Plan).[6] The SPAR Plan describes spill and leak preparedness and prevention practices and procedures for emergency incidence response. It also describes proper handling of fuel and other materials associated with the Project near sensitive resource areas. We reviewed FGT's SPAR Plan and found it acceptable.

General Pipeline Construction Procedures

Construction of the Project pipeline would follow industry-standard practices and procedures. A construction typical diagram is provided in appendix B.

Prior to construction, FGT's selected construction contractor (construction crew or crews) would stake the pipeline centerline and the limits of the construction right-of-way and ATWS areas. Wetland boundaries and other environmentally sensitive areas would also be marked at this time. FGT would notify property owners prior to surveying and staking activities. Crews would install or relocate temporary fencing, safety fencing, or gates as needed and in accordance with permits and landowner agreements. A clearing crew would then clear the work area of vegetation and other obstacles, including trees, stumps, logs, brush, and rocks. Timber and other vegetative debris may be chipped for use as erosion-control mulch, or otherwise disposed of in accordance with applicable regulations.

Following clearing, crews would grade the construction right-of-way and ATWS areas where necessary to provide a level work surface. In areas disturbed by grading, FGT would install temporary erosion and sediment controls, in accordance with the FERC Plan and FGT's Procedures. FGT would hire an environmental inspector (EI) to ensure that the erosion and sediment controls are inspected and maintained throughout the construction and restoration phases of the Project.

[6] Can be found by accessing the FERC elibrary at https://www.ferc.gov/docs-filing/elibrary.asp. Click on advanced search and type in Accession No. 20161031-5284.

Crews would dig a trench following clearing and grading using trenching machines, backhoes, or other similar equipment. The trench would be excavated to a sufficient depth to allow a minimum of three feet of soil cover between the top of the pipe or concrete coating and the final land surface after backfilling. Crews would deposit trench spoil adjacent to the trench within the construction right-of-way. To prevent mixing of the soil horizons, FGT would require topsoil segregation in residential areas, non-saturated wetlands, croplands, improved pastures, and in areas requested by the landowner. Crews would replace topsoil and subsoil in the proper order during backfill operations.

Once trenching is completed, the pipe segments would be temporarily placed or strung alongside the trench, typically on skids, where they would be bent as necessary, welded together, inspected, and the joints coated in preparation for lowering. The pipe would be bent by hydraulic pipe-bending machines, where necessary to allow for a uniform fit with the contours at the bottom of the trench. After the pipe sections are bent, welders and construction crews would weld the pipe together into long sections and place the pipe on temporary supports.

Prior to lowering-in, construction crews would inspect the trench to ensure it is free of rocks and other debris that could damage the pipe or its protective coating. If the bottom of the trench is rocky, the pipe may be lowered onto sandbags or support pillows. Alternatively, sand, gravel, or screened soil would be used as padding for the pipe. Crews would then lift the pipe from the temporary supports and lower it into the trench using side-boom tractors or similar equipment. After the lowering in the pipe, construction crews would backfill the trench with previously excavated materials using bladed equipment or backhoes. If the previously excavated material contains large rocks or other materials that could damage the pipe or coating, FGT would require that clean fill or a protective coating be placed around the pipe prior to backfilling.

Construction crews would conduct trench dewatering as needed along the Project in areas with high ground water levels. Well pointing, which is the installation of a series of shallow wells to draw down the immediate surficial water table, may be warranted at certain locations. All dewatering activities would be in accordance with the FERC's Plan and FGT's Procedures and applicable permits to minimize impacts along the right-of-way. Construction crews would use best management practices (BMPs) such as filter bags or silt fence/hay bale structures to control erosion and siltation upon discharge.

After backfilling, FGT would hydrostatically test entire pipeline be hydrostatically tested in accordance with Title 49 CFR Part 192 and applicable permit conditions, to ensure that the system is free from leaks and provides the required margin of safety at operating pressures. This testing involves filling the pipeline with water and then

pressurizing the water. Any considerable loss of pressure indicates that a leak may have occurred and would require further inspection. If a leak is discovered, the pipeline would be repaired and the segment retested. More information on hydrostatic testing, such as source of water and discharge procedures is discussed in section B.2.

Where construction activities result in exposed soils that are subject to wind, and therefore erosion and the potential for excessive fugitive dust, FGT would implement measures to minimize the effects of fugitive dust and erosion in the immediate area. Construction crews would spray exposed soils with water during construction to mitigate fugitive dust when needed. FGT would use a municipal water source for dust suppression and disperse as needed via a standard water tank truck (approximately 4,000 gallon water tank).

Cleanup and stabilization would commence in the construction work area shortly after construction completion and as weather permits. FGT would make every effort to complete final cleanup (including final grading and installation of any permanent erosion control devices) within timeframes required by permits, in accordance with landowner requests, or in compliance with FERC's Plan and FGT's Procedures. FGT would ensure that all disturbed areas would undergo final rough grading and any remaining debris or trash would be collected and properly disposed of in compliance with all applicable regulations. Crews would restore contours to pre-existing conditions, including spreading the originally excavated topsoil over the surface of the disturbed areas to facilitate restoration. Revegetation and seeding of temporarily affected areas would be done in accordance with the FERC Plan.

Pipeline markers would be located along the right-of-way and installed in accordance with Title 49 CFR Part 192. The markers would identify FGT as the operator and also list telephone numbers for emergencies and inquiries. These facilities would generally be located at regular intervals adjacent to road crossings but within the permanent right-of-way. FGT would have personnel conduct periodic inspections of the right-of-way and further restoration measures would be implemented as necessary.

Specialized Construction Procedures

FGT would use special construction techniques when constructing across waterbodies, wetlands, roads, residential areas, and agricultural areas.

Waterbody Crossings

The Project would cross ephemeral, intermittent, and perennial waterbodies. FGT would use the open-cut (dry) and trenchless (bore or Horizontal Directional Drilling [HDD]) methods to construct the pipelines under waterbodies. For each waterbody crossing, FGT would adhere to the measures specified in their Procedures and additional

requirements identified in federal or state waterbody crossing permits, including applicable permits and approvals from the U.S. Army Corps of Engineers (COE) and various Texas and Louisiana agencies. The proposed crossing method for each of the waterbodies in the Project area is indicated in appendix E. Site-specific plans for HDD crossings of waterbodies are available on the FERC elibrary website.[7]

During the clearing and grading phase of construction, construction crews would install temporary bridges across waterbodies in accordance with FGT's Procedures to allow construction equipment and personnel to cross. Temporary bridges would minimize the potential for sediment, grease, oil, or other pollutants to enter the waterbody. Construction equipment would be required to use the bridges. The initial clearing and bridge installation crews would be allowed one pass through waterbodies before bridges are installed, unless such crossings are restricted by the Project permits. Crews would remove temporary bridges when construction and restoration activities are complete.

ATWS would be required on both sides of waterbody crossings to stage construction equipment, fabricate the pipeline, and store construction materials. ATWS would be located at least 50 feet away from the water's edge.

Clearing of the construction right-of-way and ATWS adjacent to waterbodies would require the removal of trees and brush. Crews would clear woody vegetation within the construction right-of-way to the edge of each waterbody. Initial grading of the herbaceous strip would be limited to the extent needed to create a safe approach to the waterbody and to install temporary bridges. During clearing, construction crews would install and maintain sediment barriers across the right-of-way adjacent to waterbodies and within ATWS to minimize the potential for sediment runoff. Crews would need to remove silt fence or equivalent BMPs located across the working side of the right-of-way during the day when vehicle traffic is present and replace them each night.

Construction crews would only conduct refueling and lubricating of equipment in upland areas that are at least 100 feet from the edge of the waterbody and adjacent wetlands. However, there could be certain instances where equipment refueling and lubricating may be necessary in or near waterbodies. For example, stationary equipment may need to be operated continuously on the banks of waterbodies for the duration of the crossing and may require refueling in place. In these instances, stationary equipment within the 100-foot buffer would be placed in appropriately sized secondary containment, as described in FGT's Procedures. FGT's SPAR Plan addresses the proper handling of fuel and other materials associated with the Project near sensitive resource areas. Copies

[7] Can be found by accessing the FERC elibrary at https://www.ferc.gov/docs-filing/elibrary.asp. Click on advanced search and type in Accession No. 20170731-5251. HDD site-specific plans are presented in Appendix P of FGT's revised resource reports filed on July 31, 2017.

of FGT's SPAR Plan would be available to construction personnel at each construction spread.

After the pipeline is installed across a waterbody, crews would backfill the trench with native material excavated from the trench. To the extent possible, streambeds would be returned to their preconstruction contours, and stream and river banks would be restored to their preconstruction condition and allowed to revegetate in accordance with the FERC Plan and FGT's Procedures and applicable permit conditions. Crews would also install temporary erosion controls immediately following bank restoration. FGT would inspect and maintain the waterbody crossing area until restoration of vegetation is complete.

Open Cut Crossing Method

Forwaterbodies or ditches that exhibit perceptible flow at the time of construction, a dry-ditch crossing method would be conducted. The dry-ditch crossing method would involve installation of either flume pipe(s), a dam and pump or combination of both prior to trenching (if flow is present) to divert the stream flow over or around the construction area and allow trenching of the stream crossing in drier conditions isolated from the stream flow. Flow would be maintained at all times during construction. Spoil removed during the trenching would be stored away from the water's edge and protected by sediment containment structures. Construction crews would cross ephemeral waterbodies and ditches, where there is no perceptible flow at the time of crossing, using standard upland crossing techniques.

Horizontal Directional Drilling

The HDD method allows for trenchless construction across an area by drilling a hole below the depth of a conventional lay, and then pulling a prefabricated section of pipe through the hole. This method is used to avoid direct impacts on sensitive environmental features or areas that otherwise present difficulties for standard pipeline construction. Table 5 summarizes the HDD locations for the Project. Detailed crossing plans for each of the HDDs can be found on the FERC elibrary website.[8]

To begin each crossing, a drill rig would be placed on the entry side of the HDD and a small pilot hole would be drilled along a predetermined path beneath the waterbody or roadway. The pilot hole would be progressively enlarged through a process called reaming. A reaming tool would be installed at the end of the drill string on the exit side of the pilot hole, and then drawn back to the drill rig to enlarge the hole. Several passes with progressively larger reaming tools could be needed to enlarge the hole to a sufficient

[8] Can be found by accessing the FERC elibrary at https://www.ferc.gov/docs-filing/elibrary.asp. Click on advanced search and type in Accession No. 20170731-5251. HDD site-specific plans are presented in Appendix P of FGT's revised resource reports.

diameter to accommodate the pipeline. During this process, drilling fluid, or mud, consisting of bentonite clay and water would be circulated through the hole to remove drill cuttings and maintain the integrity of the hole. Once the reaming process is complete, a prefabricated segment of pipe would be attached to the drill string on the exit side of the crossing, and pulled back through the hole toward the drill rig.

Although the HDD method typically avoids impacts on water quality by precluding disturbance of the waterbody bed and banks, an inadvertent release of drilling mud could occur if drilling fluid escapes the drill hole and is forced through the substrate to the ground surface. In order to minimize potential impacts of inadvertent releases of drilling fluids, FGT would implement measures identified in its HDD Contingency Plan.[9] This plan describes procedures to be used to monitor, contain, and clean up any inadvertent releases of drilling fluid. It also identifies contingency measures to be implemented in the event that an HDD is unsuccessful.

FGT would monitor source waters along and near the drill path for inadvertent releases. FGT would implement the measures identified in the HDD Contingency Plan to control and clean-up the inadvertent release, test the water for water quality, and provide an alternate supply of water to affected landowners until the inadvertent release is remediated. Additionally, FGT would offer pre and post-construction testing of wells and springs within 150 feet of construction areas for water quality and yield.

In most cases, drilling can continue during an inadvertent release. In some situations, however, the HDD may fail due to refusal of the drill bit or collapse of the hole in non-cohesive, unstable substrate. In cases where drilling fails, construction would be completed using one of the alternative crossing methods described above, subject to review and approval of the Commission staff and receipt of required permits or authorizations for the crossing.

[9] Can be found by accessing the FERC elibrary at https://www.ferc.gov/docs-filing/elibrary.asp. Click on advanced search and type in Accession No. 20170731-5251. FGT's HDD Contingency Plan is provided in Appendix P of FGT's revised resource reports filed July 31, 2017.

Table 5. Proposed HDDs

HDD Number	Beginning MP	Ending MP	Approximate Length (feet)	Resources Avoided
Wilson Lateral				
HDD01	3.47	3.55	421	1 waterbody (WBA03)
HDD02	8.19	8.39	1,028	CR 101, other utility crossings
Port Arthur Lateral				
HDD01	0.27	0.39	576	Humble Camp Road, water crossing (WBPI10)
HDD02	1.89	2.05	857	1 wetland (WETB09) 1 waterbody (WBB09)
HDD03	3.50	4.23	3,858	Hebert Rd. 3 wetlands (WETA16, WETA17, WETA18) 6 waterbodies (WBA08, WBA09, WBA10, WBA11, WBA12, WBA13)
HDD05	5.18	6.04	4,608	Hwy 93 and a railroad 6 wetlands (WETA04, WETA05, WETA02, WETA01, WETA06, WETA07) 4 waterbodies (WBA03, WBA02, WBA01, WBA04)
HDD07	7.15	7.47	1,864	Hwy 365 1 wetland (WETA10) 1 waterbody (WBA05)
HDD08	7.69	8.00	1,674	Forested portion of wetland WETA22
HDD09	8.76	8.85	472	2 waterbodies (WBB05 & WBB06)
HDD13	9.47	9.56	399	1 waterbody (WBB10)
HDD10	10.05	10.18	750	4 waterbodies (WBB04, WBB03, WBB02, WBB01)
HDD14	10.63	10.72	460	53rd Street 1 waterbody (WBPI03)
HDD11	10.89	11.02	633	Marion Anderson Ave./50th St. 1
HDD12	11.22	11.35	717	H O Mills Blvd, Hwy 73 1

Wetland Crossings

FGT would construct within wetlands in accordance with FGT's Procedures and requirements specified in federal, state, and local permits. Typical methods for construction across wetlands are described below. A list of wetland crossings along the pipeline routes is provided in appendix F.

Construction crews would delineate and mark wetland boundaries in the field with signs and/or highly visible flagging and install temporary erosion control devices to prevent sediment flow into wetlands prior to construction activities. These devices would be maintained until revegetation of wetlands and adjacent upland areas is complete. Crews would also install trench plugs (e.g., sand bags or non-topsoil earth filled sacks) at the wetland/upland boundary, as necessary, to maintain wetland hydrology. Construction equipment operating in wetland areas would be limited to that needed to clear the right-of-way, dig the trench, install the pipeline, backfill the trench, and restore the right-of-way. In areas where there is no reasonable access to the right-of-way except through wetlands, non-essential equipment would be allowed to travel through wetlands once, unless the ground is firm enough or has been stabilized to avoid rutting.

Crews would install sediment barriers across the full width of the construction right-of-way at the base of slopes adjacent to wetland boundaries and within wetlands along the edge of the right-of-way, where necessary, to minimize the potential for sediment to run off the construction right-of-way and into wetlands outside the work area. If trench dewatering is necessary, it would be conducted in accordance with the FERC Plan and FGT's Procedures and applicable permits.

In general, FGT would require a 75-foot-wide construction right-of-way through wetlands to allow for equipment crossings and to safely perform construction. Where soils are unstable, crews would install temporary work surfaces including timber riprap or prefabricated timber mats. If a riparian wetland is located adjacent to a waterbody, ATWS may need to be placed in the wetland. In areas where ATWS must be placed within 50 feet of a wetland boundary, FGT provided a site-specific justification. ATWS within 50 feet of wetlands is further discussed in section B.2.

Trees and shrubs would be cut flush with the surface of the ground and removed from the wetland. To avoid excessive disruption of wetland soils and the native seed and rootstock within the topsoil, FGT would limit stump removal, grading, topsoil segregation, and excavation to the area immediately over the trench line, except a limited amount of stump removal and grading may be conducted in other areas if required to stabilize the right-of-way for safety-related issues. The upper 12 inches of topsoil, or the total amount of topsoil if less than 12 inches, would be stripped from the area directly over the trench line (except in standing water or in saturated conditions) and stockpiled

separately from the subsoil. Crews would restore the segregated topsoil to its original location following installation of the pipe and backfilling of the trench in accordance with FGT's Procedures, which would allow the wetland to return to pre-construction conditions. FGT would ensure that timber mats and other temporary materials are removed during final clean-up and pre- construction contours restored.

Specific crossing procedures used to install the pipeline across wetlands would depend on soil stability and saturation during construction. Construction across unsaturated wetlands that can support equipment would be conducted in a manner similar to upland construction procedures. In areas proposed for conventional open trench construction but where soil conditions may not support equipment (saturated wetlands), crews would install timber mats to minimize wetland hydrology disturbance and maintain soil structure. In unsaturated wetlands, topsoil from the trench line would be stripped and stored separately from subsoil. In saturated and standing water wetlands, wetland topsoil would not be segregated.

FGT does not anticipate that the pipeline would need to be installed in saturated wetlands, therefore FGT would implement standard upland open cut pipeline installation in wetlands. If the trench contains water, crews would install trench plugs at the edges of the wetland. The trench plugs are designed to minimize sediment discharges into the wetland from the adjacent trench. Prior to backfilling, crews would also install trench breakers, where necessary, to prevent subsurface drainage of water from wetlands. Where topsoil is segregated, the subsoil would be backfilled first followed by the topsoil. Topsoil would be replaced to the original ground level leaving a slight crown over the trench line for soil settlement. Once construction is complete and access is no longer required to that area of the construction right-of-way, crews would remove all matting, restore contours, and allow the wetland to revegetate naturally.

Road Crossings

The Project pipelines would cross numerous public or private roads. Most two-lane (or wider) paved roads and highways would be crossed by boring methods. Roads that would be crossed by the Project are shown on Project alignments sheets.[10] Public road crossings would either be conventionally bored or crossed by HDD. The use of conventional boring methods would avoid road surface impacts. Table 6 provides a list of all public road crossings associated with the Project pipelines. Road crossing permits would be obtained from applicable federal, state, and local agencies. These permits would dictate the specific requirements for the day-to-day construction activities and methods at each crossing.

[10] Can be found by accessing the FERC elibrary at https://www.ferc.gov/docs-filing/elibrary.asp. Click on advanced search and type in Accession No. 20170731-5251. Project alignment sheets are presented in Appendix D of FGT's revised resource reports filed on July 31, 2017.

Boring would consist of excavating a pit on each side of the road; placing boring equipment within the pits; boring a hole under the roadbed; and pulling a section of pipe through the hole. Typically, there would be little or no disruption to traffic at road, highway, or railroad crossings during boring operations. Roads where traffic can be detoured would be crossed via open cut.

Table 6. Public Roads Crossed by the Project

Road Name	Approximate MP	Surface Type	Anticipated Crossing Method
Wilson Lateral and Wilson - Coastal Bend M&R Station			
FM 1301	4.9	paved	bore
FM 164	6.5	paved	bore
FM 100	7.4	paved	bore
FM 101	8.2	gravel	bore
FM 190	9.1	paved	bore
FM 442	11.8	paved	bore
FM 103	13	dirt	bore
Port Arthur Lateral and Port Arthur – Motiva M&R Station			
Humble Camp Road	0.3	gravel/dirt	HDD
Hillebrandt Road	1.3	paved	bore
Herbert Road	3.5	dirt/grass	HDD
TX State Hwy 93	5.9	paved	HDD
TX State Hwy 365	7.4	paved	HDD
Dorsey Street	7.9	paved	HDD
60th Street	10.1	dirt	HDD
53rd Street	10.6	paved	bore
Marion Anderson Ave.(50th Street)	10.9	paved	HDD
H O Mills Blvd	11.2	paved	HDD
TX State Hwy 73	11.3	paved	HDD
CS 6/Vidor Compressor Station			
None			
Eunice – ANR Lateral and M&R Station			
Fournerat Road	0.3	paved	bore

Overhead Power Lines

The Wilson Lateral would traverse an electric power transmission line, operated by CenterPoint Energy, in Wharton County at approximate milepost 9.8. The Port Arthur Lateral would traverse an electric power transmission line, operated by Entergy Texas, in Jefferson County at approximate milepost 8.2. FGT would make sure all construction crewmembers are aware of the location/presence of overhead lines and locate construction equipment away from powerlines when possible. Minimum clearance area signs that read "Danger: Overhead Power Lines" would be placed along the construction corridor on both sides of the powerlines. Once work begins, FGT would use a designated spotter to guide and keep equipment clear of powerlines. The spotter would order the movement of equipment be stopped if contact with lines appears to be likely or if conditions prevent the spotter from performing his/her job. A clear and understandable STOP signal will be determined between the spotter and equipment operators prior to equipment operation within proximity of powerlines.

Residential Areas

In residential areas, construction crews complete Project activities as quickly as practicable, while maintaining safe working conditions, to minimize disturbances to residents. Special care would be taken in residential areas to control noise and dust. FGT has identified three residences located within 50 feet of its proposed construction right-of-way along the Port Arthur Lateral. Construction crews would install safety fencing along the boundaries of the active construction right-of-way and coordinate directly with the landowners to provide appropriate notifications prior to commencing construction near the residences.

All reasonable efforts would be made to maintain access to the residences during construction. Where feasible, construction crews would use steel plates to provide access to driveways. Crews would segregate topsoil in residential areas unless specifically requested otherwise by a homeowner, or if FGT elects to import topsoil. Following the completion of construction activities, crews would remove all debris and restore residential areas to preconstruction conditions. Additional details regarding construction impacts within residential areas in included in section B.4. Residential site-specific drawings are included in appendix J.

Agricultural Land

In active croplands, pastures, rangelands, or hayfields, construction crews would strip and segregate topsoil from the full right-of-way in accordance with FERC's Plan. Following pipeline installation, the subsoil would be returned to the ditch and the topsoil replaced in the area from which it was stripped. As necessary, the working side of the construction right-of-way would be de-compacted prior to final grading and restoration.

Where livestock fences (including electric fences) need to be cut to access the construction right-of-way, crews would brace and secure the fencing prior to construction, and would repair the fences to pre-construction condition or better during the restoration phase of the Project. Further, FGT would work with landowners either to remove livestock to alternate fields during construction or maintain adequate fencing in grazing areas. If livestock are present during construction, construction crews would install temporary fencing around the right-of-way in areas where the pipe trench is left open overnight. FGT would negotiate with landowners regarding a potential grazing deferment to allow vegetation to reestablish within the right-of-way after construction is complete.

Prior to construction, FGT would consult with landowners in an attempt to locate existing drainage tiles. If drainage tiles are exposed or damaged during construction activities, FGT would implement appropriate measures to repair/replace them.

Aboveground Facility Construction Procedures

FGT would construct the aboveground facilities concurrently with pipeline installation using special fabrication crews that may work separately from the pipeline construction crews. Aboveground facilities would be constructed or modified in accordance with the DOT requirements. Construction of M&R stations and other appurtenances on each of the laterals would proceed in a fashion similar to construction of any facility. Sites would be surveyed, cleared, and graded; foundations established; meters, regulators, and related equipment installed; piping connected; outside equipment tied-in; and site cleanup and fencing completed. All equipment and safety systems would be tested. The piping work may occur either in a fabrication shop offsite, onsite, and/or at the contractor yard, subject to size and weight considerations. Piping installed below grade would be coated for corrosion protection prior to backfilling.

Before the facilities are placed in service, FGT would pressure-test the gas piping system (both above and below ground). After the facilities are in service, the disturbed areas would undergo final grading, clean up, and restoration. FGT would install security fencing around the perimeter of new facilities and place gravel on roads and/or parking areas. Tie-ins and valves construction would be similar to construction of meter stations, but without foundations, and associated facilities. Once construction is complete, FGT would operate the aboveground facilities in conjunction with the rest of the FGT system and in compliance with all applicable PHMSA regulations.

Environmental Compliance Inspection and Monitoring

FGT would include implementation details in its construction drawings and specifications so that construction of the proposed facilities would comply with the

measures identified in this EA and all applicable permitting agencies. Contractors and construction crews would receive copies of specifications and a Construction Drawing Package approved for construction and all environmental permits, certificates, and/or clearances associated with the Project. Additionally, FGT would conduct environmental training for its field construction personnel and construction contractor's personnel prior to and during construction of the Project. This training would focus on implementation of the FERC Plan and FGT's Procedures and other Project-specific permit conditions and mitigation measures, as appropriate.

Construction contractors employed by FGT would be required to observe and comply with federal, state, and local laws, ordinances, and regulations that apply to the conduct of their work. Contractors must also comply with Minimum Federal Safety Standards adopted by the DOT under the Natural Gas Pipeline Safety Act of 1968, as well as FGT's safety standards.

FGT would employ EIs to monitor environmental compliance during all phases of construction. There would be one EI for each of the Wilson and Port Arthur pipeline laterals, another for the Port Arthur – Motiva M&R Station and the Vidor Compressor Station (CS6), and one EI to oversee the activities in Louisiana. The EIs would be responsible for assuring that the measures contained in the FERC Plan and FGT's Procedures, Project-specific plans, and any other environmental permit conditions or agreements. The EI would have peer status with all other inspectors; be present throughout construction and restoration; and have the authority to enforce permit and FERC conditions, issue stop-activity orders, and impose corrective actions to maintain environmental compliance.

FERC staff would also conduct compliance inspections throughout construction and restoration to verify FGT's compliance with the Commission's orders.

Operation and Maintenance

FGT would operate and maintain the pipeline facilities in compliance with DOT regulations and 49 CFR 192 and maintenance provisions of the FERC Plan and FGT Procedures. Operational activity on the pipeline would be primarily limited to necessary vegetation maintenance of the permanent right-of-way and inspection, repair, and cleaning of the pipeline itself. Vegetation on the permanent right-of-way would be maintained by mowing, cutting, and trimming as necessary and in accordance with the FERC Plan, FGT Procedures, and landowner and other lease holder agreements. FGT would perform periodic aerial and ground inspections to identify soil erosion that may expose the pipe, dead or stressed vegetation that may indicate a leak in the line, vegetative cover and erosion control measures, unauthorized encroachment on the right-of-way, and other conditions that could present a safety hazard or require preventative

maintenance or repairs. Also, FGT would monitor and inspect the pipeline cathodic protection system to ensure proper and adequate corrosion protection.

The pipeline facilities would be clearly marked at line-of-sight intervals, at crossings of roads and other key points. The markers would clearly indicate the presence of the pipeline and provide a telephone number and address where a company representative could be reached in the event of an emergency or prior to any excavation in the area of the pipeline by a third party. FGT participates in all One-Call systems.

Post-construction monitoring would be conducted to identify erosion or washout areas, damaged or non-functional permanent erosion control devices, and to evaluate restoration of affected wetlands. Any issues identified during post-construction monitoring would be addressed in accordance with applicable federal and state regulations, and FERC Plan and FGT's Procedures. FGT would file quarterly activity reports with FERC documenting problems, including those identified by landowners, and corrective actions taken for at least 2 years following construction.

Actively cultivated areas would be allowed to revert to preconstruction use for the full width of the right-of-way. In all other upland areas, FGT would maintain a 30-foot-wide permanent pipeline right-of-way in a primarily herbaceous state. In wetlands, FGT would maintain a 10-foot corridor centered over the pipeline in an herbaceous state, and trees within 15 feet of the pipeline with roots that could compromise the integrity of the pipeline coating would be selectively cut and removed.

Operation and maintenance activities at meter stations would include calibration, inspection, and other scheduled or routine maintenance. FGT would also perform operational testing on safety equipment to ensure proper functioning. FGT would operate the aboveground facilities in conjunction with the rest of the FGT system and in compliance with all applicable PHMSA regulations.

A.8. Permits and Approvals

FGT would obtain all necessary permits and approvals relating to the construction and operation of the Project. Appendix K lists the applicable permits, approvals, and consultations.

A.9. Nonjurisdictional Facilities

Nonjurisdictional projects include facilities that would be built as a result of the new gas volumes associated with the Project including facilities that would be constructed to support operation of the aboveground facilities, e.g. electrical facilities. FGT identified one non-jurisdictional facility associated with the Project. An overhead

electric line would be constructed to feed the Trunkline Meter Station. The 5000-foot-long 100 Kilovolts electric line would be owned and operated by Beauregard Electric Coop, Inc. and would run along FGT's proposed permanent access road to the meter station. No federal permits are required for this overhead power line. The owner and operator would obtain a permit from the parish to install the electric line and supporting facilities. Approximately 25 power poles would be installed to support the overhead line. These facilities are discussed further in our cumulative impacts analysis in section B.9 of this EA.

B. ENVIRONMENTAL ANALYSIS

This analysis generally describes temporary, short-term, long-term, and permanent impacts and effects caused by the Project's construction and operation. A temporary effect generally occurs during construction with the resource returning to pre-construction condition immediately after restoration or within a few months. A short-term effect could continue for up to 3 years following construction. Long-term effects would last more than 3 years, but the affected resource would eventually recover to pre-construction conditions. A permanent effect would result from an activity that modifies a resource to the extent that it would not return to pre-construction conditions. In the following sections, we address direct and indirect effects collectively, by resource. Section B.9 of this EA analyzes the Project's contribution to cumulative impacts.

B.1. Geology and Soils

B.1.1. Geology

Existing Resources

The proposed Project is located within the West Gulf Coastal Plain section of the Coastal Plain physiographic province. The Coastal Plain physiographic province extends through the southeastern coastal portions of the United States. The West Gulf Coastal Plain is formed from Pleistocene and Holocene aged fluvial, tidal, and deltaic sediments, which are characterized by highly sinuous streams. Geological conditions of the region are associated with the prairie terraces consisting of alluvial deposits. The province forms the continental shelf and the relief is so low at the land-sea interface that the boundary between them is often indistinct (USGS, 2004).

Mineral Resources

The mineral industry of Texas and Louisiana comprises a wide variety of extractable commodities ranging from sand, gravel, and crushed stone to silver, titanium, and rare earth elements bearing minerals as well as oil and natural gas. The Texas Bureau of Economic Geology maintains spatial data of mining sites throughout

Texas and the Railroad Commission of Texas (RRC) is the permitting authority for oil and gas development in Texas. The Louisiana Department of Natural Resources (LDNR) maintains data on oil and gas extraction and coal mining sites. Other surficial mines do not require permits in Louisiana and are not tracked by the LDNR.

There were no active mining sites identified within a distance of 0.25 mile from the proposed Project. There are 16 active oil wells, and numerous plugged wells, dry holes and permitted locations within a distance of 0.5 mile from the Wilson Lateral between MP 9.85 and MP 12. There are also 16 active oil and gas wells, 2 injection wells and numerous plugged wells within a distance of 0.5 mile from the Port Arthur Lateral between MP 0 and MP 0.64. The nearest oil well identified in the database is located approximately 300 feet north of the Wilson Lateral.

Impacts and Mitigation for Geological Resources

Mineral Resources

FGT would coordinate its activities with existing subsurface mineral operators and prohibit future surface excavations on the permanent right-of-way. Conflicts related to existing or discovered oil/gas wells during construction would be addressed on a case-by-case basis, either through rerouting or reducing the width of the workspace, or isolating well features from work areas using safety fencing and signage.

Geologic Hazards

Geologic hazards are physical conditions that are capable of producing property damage and loss of life. Typically, these potential hazards could include seismic related issues such as ground rupture due to faulting, strong ground shaking due to earthquakes, liquefaction, subsidence, slope stability and landslides, flash floods, and karst terrain. These conditions are discussed below.

Seismicity

The U.S. Geological Survey (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 within a given area over a period of time. The 2014 USGS National Seismic Hazard Maps display earthquake ground motions for various probability levels across the United States and are applied in seismic provisions of building codes, insurance rate structures, risk assessments and other public policy. Values on these seismic hazard maps are called peak acceleration values and are expressed as a percentage of gravitational acceleration (g), where the higher the value, the greater the potential hazard. Review of the USGS map, which identifies the levels of horizontal shaking that have a 2-in-100 chance of being exceeded in a 50-year period,

shows that the peak acceleration values for the Project area range from one to two percent of g, which is the second lowest hazard level identified on the map. There are no active faults in the Project area. As a result, earthquakes and related seismic hazards are not anticipated to have an impact on the Project.

Landslides and Slope Stability

Landslides are very rare in Texas and Louisiana, as topography is generally fairly flat in this region. According to the USGS, the Project area is not susceptible to landslides and has the lowest incidence possible at 1.5 percent of the area involved (USGS 1997). Due to low incidence of landslides, the flat topography, and minimal threat of seismic activity, the likelihood of a landslide occurring in the Project area is low.

Flooding

The greatest potential for flash flooding to impact buried pipe is at a waterbody crossing during or after a large storm event with significant precipitation in a short period of time. Flooding with heavy rainfall is not uncommon in the southeast United States. In areas where the pipelines are installed using open-cut techniques, the pipeline would be buried with at least 36 inches of cover from the top of the pipe. FGT is traversing hurricane levees, canals, and bayous using either HDD or a bore. When HDD is used, the pipeline would be installed approximately 20 feet below the bed of the waterbody. When a bore is used to traverse a waterbody, FGT expects approximately 4 feet between the bottom of the waterbody and the top of the pipeline. By using trenchless construction techniques to install the pipeline under waterbodies designed to handle major rain events, the pipeline would be sufficiently covered as to minimize the potential for exposure from flooding or scouring. Further, FGT would perform routine inspections on all of its facilities; and, special inspections occur in certain areas immediately following a qualified major storm event.

The Wilson-Coastal Bend M&R Station is within the 100-year Federal Emergency Management Agency (FEMA) floodplain and is at an elevation of 75 feet above sea level. The Eunice-ANR M&R Station is partially located within the FEMA 100-year floodplain and is at an elevation of 35 feet above sea level. The Gillis-Trunkline M&R Station and the Port Arthur-Motiva M&R Station are at elevations of 15 feet and 5 feet, respectively; and, neither are located within the FEMA 100-year floodplain.

All M&R stations that are located within the FEMA 100-year floodplain would be designed and permitted through the appropriate regulatory authority for each affected county (floodplain development permits). The M&R stations are small facilities with a chain-linked fence surround the site. The fence would allow for the passage of any

flood waters. There is some piping above grade; however, piping would not affect the flow of flood waters nor would it increase the likelihood for flooding. The M&R stations do have subsurface foundations. Therefore, some flood storage capacity would be removed as a result of construction. The minor flood storage capacity lost would be taken into account in the floodplain permitting process. Project facilities are not anticipated to be affected by flooding.

Karst Terrain

Karst terrain and the potential for karst features such as sinkholes, and/or surface collapse can occur within areas underlain by soluble carbonate bedrock and can be problematic during construction. Based on current mapping from the USGS, there are no know karst features within the Project area. The hazards from surface subsidence due to karst is considered low.

Paleontological Resources

Modifications for the compressor station would occur within areas that have been previously disturbed and would only require minor amounts of excavation. While paleontological resources have been identified in the vicinity of the M&R stations, shallow bedrock is not present within the area; therefore paleontological resources are not expected to be affected by the Project. In the unlikely event that paleontological resources are discovered during construction at any of the proposed Project locations, FGT would temporarily cease excavation in the area, would notify the FERC, and follow the Unanticipated Discoveries Plan (UDP). The UDP addresses unexpected discoveries of cultural and paleontological resources and provides step-by-step instructions and procedures to follow to identify and protect these resources. We have reviewed the UDP and find it acceptable. Based on the discussion above, we conclude there would be no significant impact on geological resources.

B.1.2. Soils

Existing Resources

Soil series are soils that are grouped together due to their similar soil chemistry and physical properties. Each soil series is delineated as a single map unit and represent the dominant soil patterns or characteristics. A description of the soil series crossed by the Project was compiled from information provided by United States Department of Agriculture (USDA) Natural Resource Conservation Service (NRCS). Based on information from the NRCS's Web Soil Survey, there multiple soil series within the Project area. Table 7 lists the acreage of each soil mapping unit at each of the work spaces associated with the Project as well as above ground facilities and each mapping unit's limiting factors for construction and restoration activities.

Table 7. Acreage of Soil Map Units with Limitations within the Project

Map Symbol	Soil Name	Pipeline/ Aboveground Facility	Acreage	Acreage		
				High Erosion Potential from Wind[a]	Low Revegetation Potential	Prime / Unique Farmland
KvA	Kinder-Vidrine complex	Eunice - ANR Lateral & Eunice – ANR M&R Station	2.3	0	2.3	2.3
AdB	Acadiana silt loam	Eunice - ANR Lateral	4.2	0	0	4.2
PcA	Patoutville-Crowley complex	Eunice - ANR Lateral	0.14	0	0	0.1
Kd	Kinder-Gist complex	Gillis – Trunkline M&R Station	2.8	0	2.8	2.8
Ac	Acadia silt loam	Gillis – Trunkline M&R Station	3.3	0	3.3	3.3
Go	Guyton silt loam	Gillis – Trunkline M&R Station	1.3	0	1.3	0
HarA	Harris clay	Port Arthur Lateral	7.0	0	7.0	0
AniA	Anahuac-Aris complex	Port Arthur Lateral	0.83	0	0	0.8 (if drained)
AstA	Aris-Spindletop complex	Port Arthur Lateral	2.7	0	2.7	2.7 (if drained)
ZumA	Zummo muck	Port Arthur Lateral	13.5	0	13.5	0
BeaA	Beaumont clay	Port Arthur Lateral	4.9	0	4.9	0
LetA	Leton Loam	Port Arthur Lateral	0.97	0	0.97	0
LeaA	League clay	Port Arthur Lateral	14.1	0	0	14.0
VitA	Viterbo silty clay loam	Port Arthur Lateral	3.4	0	3.4	0
LaeA	Labelle clay loam	Port Arthur Lateral	5.7	0	0	5.7
SimA	Simelake clay	Port Arthur Lateral	3.7	0	3.7	0
BecA	Beaumont-Urban land complex	Port Arthur Lateral	0.47	0	0	0
NuC	Neel-Urban land complex	Port Arthur Lateral	0.29	0	0.30	0

Table 7. Acreage of Soil Map Units with Limitations within the Project

Map Symbol	Soil Name	Pipeline/ Aboveground Facility	Acreage	Acreage		
				High Erosion Potential from Wind[a]	Low Revegetation Potential	Prime / Unique Farmland
LegA	League clay	Port Arthur Lateral	1.1	0	0	1.1
BebA	Beaumont silty clay	Port Arthur Lateral	9.8	0	9.8	0
IjmB	Ijam clay	Port Arthur Lateral	3.08	0	3.1	0
LamA	Labelle-Levac complex	Port Arthur Lateral	20.2	0	0	20.1
Aa	Asa silt loam	Wilson Lateral	5.9	0	0	5.9
Me	Brazoria clay	Wilson Lateral & Wilson – Coastal Bend M&R Station	44.8	0	0	44.8
Mp	Churnabog clay	Wilson Lateral	0.12	0	0.12	0
As	Asa silty clay loam	Wilson Lateral	5.0	0	0	5.0
Pc	Pledger clay	Wilson Lateral	14.3	0	0	14.3
NoA	Norwood loam	Wilson Lateral	22.7	0	0	22.7
		Total Acreage	**198.5**	**0**	**59.2**	**146.4**

Sources: Soil Survey Staff, Natural Resources Conservation Service, United States Department of Agriculture. Web Soil Survey.

a Soil with a Wind Erodibility Group of 1 out of 8.

Prime Farmland

The USDA defines prime farmland as land that is best suited to food, feed, fiber, and oilseed crops. This designation includes cultivated land, pasture, woodland, or other lands that are either used for food or fiber crops or are available for these uses. Urbanized land and open water are excluded from prime farmland. Prime farmland typically contains few to no rocks, is permeable to water and air, is not excessively erodible or saturated with water for long periods, and is not subject to frequent, prolonged flooding during the growing season. Soils that do not meet the above criteria may be considered prime farmland if the limiting factor is mitigated. The Project area is located in a region that has historically and continues still to be predominately agricultural lands used for farming and pasture. Much of the soils in this region are considered to be prime farmland.

Impacts and Mitigation for Soils

Soil Rutting and Compaction

If construction activities, particularly the operation of heavy equipment, occur when soils are saturated, soil compaction and rutting could occur. In general, rutting and compaction of soils would be avoided or minimized through the use of timber mats, as deemed necessary during construction. Also, compaction would be minimized through the implementation of the construction and restoration measures outlined in the FERC's Plan and FGT's Procedures. These include the segregation of topsoil/subsoil in select areas, the use of timber mats in wetlands, plowing, preparation of a proper seed bed prior to seeding, revegetating the right-of-way with seed mixes suitable for the area, and conducting follow-up inspections to evaluate the success of revegetation efforts.

Soil Erosion

Factors that can influence the degree of erosion include soil texture, structure, length and percent of slope, vegetative cover, as well as rainfall or wind intensity. Soils most susceptible to erosion by water are typified by bare or sparse vegetative cover, non-cohesive soil particles with low infiltration rates, and moderate to steep slopes. Wind erosion processes are less affected by slope angles. Characterization of erosion potential includes both water and wind as agents of erosion. Clearing, grading, and equipment movement can accelerate the erosion process and, without adequate protection, result in discharge of sediment to waterbodies and wetlands. Soil loss due to erosion could also reduce soil fertility and impair revegetation. No soils in the Project area meet the criteria for high erosion potential due to wind. Most of the soils affected by the Project have a low to moderate erosion potential from water.

To minimize or avoid potential impacts due to soil erosion and waterbody sedimentation, FGT would utilize sediment and erosion controls that would be implemented in accordance with FERC's Plan and FGT's Procedures. Temporary erosion controls, including interceptor diversions and sediment filter devices, such as silt fences, would be installed immediately following land disturbing activities, as needed. Some areas may require the installation of controls prior to or directly after clearing, based on the techniques utilized in the field. These areas would be evaluated accordingly prior to construction. Temporary erosion control devices would be inspected by the EI on a regular basis and after each rainfall event of 0.5 inch or greater to ensure proper functioning. FGT would ensure that dust-control measures are utilized if necessary, including routine wetting of the construction workspace as necessary where soils are exposed. Temporary erosion control devices would be maintained until the Project area is successfully revegetated. Following successful revegetation of construction areas, temporary erosion control devices would be removed and permanent erosion controls, if needed, would be implemented in accordance with FERC's Plan.

Soil with Corrosive Potential

There are certain characteristics of some of the soil types that can lead to corrosion of buried steel pipe. Numerous soil types share the characteristic of corroding buried steel. A comment was submitted by Thomas Hunt on January 16, 2017, expressing concern with regard to potential corrosive soil in the area. In order to mitigate the effects of soil that could promote corrosion, and as required by PHMSA, the pipe will be coated with fusion bonded epoxy coating before being installed, it will be connected to FGT's cathodic protection system, and it will be examined internally at least every 7 years using in-line-inspection devices.

Low Revegetation Potential

Construction would temporarily and permanently remove existing vegetation, and revegetation in soils that have a low revegetation potential may be difficult. Soil properties that affect the growth of grasses and legumes include the topsoil thickness for the root zone, texture of the surface layer, available water capacity, wetness, surface stoniness, flood hazard, soil temperature, and slope. Table 7 lists areas where revegetation potential may be low in the Project area.

Upon completing construction, FGT would prepare the seedbed and utilize seed mix and fertilizer/lime application rates as specified by the FERC Plan and FGT's Revegetation Plan, or per landowner request to restore disturbed areas. FGT submitted a consultation letter to the NRCS requesting recommendations for seed mixes, seeding dates, erosion controls and invasive species controls. Monitoring and necessary maintenance activities would be conducted per the FERC Plan.

Prime Farmland

No prime farmland, unique farmland, or farmland of statewide importance would be precluded from future agricultural use along the Project pipeline routes. Once pipeline construction is complete, areas that are used for agricultural purposes would be allowed to return to pre-construction conditions and proceed with agricultural operations.

Construction of the aboveground facilities would result in a loss of approximately 4 acres of prime farmland. Prime farmland is prevalent in the Project area and we conclude that it would only result in a negligible impact on these soils. Therefore, no adverse impacts on the availability of prime farmland are anticipated to occur as a result of the Project.

Inadvertent Spills or Discovery of Contaminants

During construction, contamination from accidental spills or leaks of fuels, lubricants, and coolant from construction equipment could adversely impact soils. The effects of contamination are typically minor because of the low frequency and volumes of spills and leaks. FGT would implement their SPAR Plan that specifies cleanup procedures in the event of soil contamination from spills or leaks of fuel, lubricants, coolants, or solvents. FGT and its contractors would implement the SPAR Plan to prevent and contain accidental spills of any material that may contaminate soils, and to ensure that inadvertent spills of fuels, lubricants, or coolants are contained, cleaned up, and disposed of in an appropriate manner.

It is also possible that localized pre-existing evidence of contamination may be encountered during construction of the Project. In the event that hazardous wastes or substances are encountered, the Construction Chief and EI would be notified immediately, and construction activities within the impact and surrounding area up to 200 feet in either direction (to be determined by the EI) would be stopped. FGT's in-house environmental and engineering personnel would be notified and measures would be implemented to identify the impact material and notify appropriate agencies and landowners. An agreed-upon scope for mitigation would be employed and construction would resume only after appropriate agency and company clearance is provided. All materials would be handled and disposed of as necessary in accordance with applicable regulations. These protocols would be part of the environmental training program for the Project.

Impacts on soil with regard to prime farmland, compaction, erosion, corrosion, revegetation, and contamination would be minimized by using FERC's Plan and FGT's Procedures and the SPAR Plan. By using these plans and constructing in accordance with methods previously described in this section, impacts to soil would be minimal.

B.2. Water Resources

B.2.1. Groundwater Resources

Existing Groundwater Resources

The Project facilities in Texas are underlain by the Gulf Coast Aquifer, which parallels the Gulf of Mexico from the Louisiana border to the border with Mexico. It consists of several aquifers, including the Jasper, Evangeline, and Chicot aquifers, which are composed of discontinuous sand, silt, clay, and gravel beds. The maximum total sand thickness (depth to groundwater) of the Gulf Coast Aquifer ranges from 700 feet in the south to 1,300 feet in the north. Freshwater saturated thickness averages about 1,000 feet. Water quality varies with depth and locality; it is generally good in the central and

northeastern parts of the aquifer, but declines to the south, where the productivity of the aquifer decreases. The aquifer is used for municipal, industrial, and irrigation purposes (TWDB, 2011).

In Louisiana, Project facilities are underlain by the Chicot Aquifer system, the principal source of fresh groundwater in southwestern Louisiana. The Chicot Aquifer underlies about 9,900 square miles of Louisiana, extending west from the Atchafalaya River into southern Texas and south to the Gulf of Mexico. The system is composed of deposits of silt, sand, and gravel interlayered with deposits of clay and sandy clay that dip towards the south and southeast.

In the Project area, the Chicot aquifer system surficial confining layer of clay ranges from depths of 80 to 120 feet below land surface. There are scattered sand streaks and lenses within the surficial confining clay known as the shallow sand of the Chicot aquifer system. Depths of groundwater wells in the shallow sand of the Chicot aquifer area range from 18 to 95 feet below land surface, with a median depth of 39 ft (USGS, 2014).

Sole Source Aquifers

The U.S. Environmental Protection Agency (EPA) defines "Sole" or "Principal Source" aquifers as those that supply at least 50 percent of the drinking water consumed in an area overlying the aquifer. These areas are defined as having no alternative drinking water sources that physically, legally, and/or economically could be supplied to all of those who depend upon the aquifer for drinking water. The Chicot Aquifer system in southwest Louisiana is an EPA-designated sole-source aquifer; however, the sole-source designation has not been applied to the Texas portion of the aquifer. Project activities in Louisiana would occur over the area where Chicot Aquifer is designated as a sole-source aquifer.

Public and Private Water Supply Wells

The majority of Louisiana and Texas residents get their drinking water from groundwater sources, including those in the Project area. To protect groundwater from contamination, wellhead protection zones have been established by the Louisiana Department of Environmental Quality (LDEQ) and Texas Commission on Environmental Quality (TCEQ). These zones include a protection area around the wellhead, extending from a 500-foot to a 1-mile radius from the well, depending on the depth. LDEQ and TCEQ regulate activities in these zones to prevent contamination of groundwater supplies from poorly managed waste. In addition to establishing a protection area around the wellhead, potential sources of contamination are inventoried. Management options and contingency plans may be implemented during planning and zoning to protect wellhead areas.

FGT located public and private water supply wells and springs within 150 feet of the Project through field surveys and review of TCEQ and LDEQ records. FGT located one privately owned well used for livestock drinking water within the corridor for the Wilson Lateral at approximate MP 6.48. FGT has consulted with Mr. Lara, the owner of the well. Mitigation and protection measures for this well are discussed in the following section. No proposed Project components are located within a wellhead protection zone of a public water supply.

Springs

Based on data from the Texas Parks & Wildlife Department (TPWD), FGT has determined that there are no mapped springs, first magnitude springs, second magnitude springs, third magnitude springs or other mapped natural springs within 150 feet of construction (TPWD, 2016). However, some unmapped seeps or springs may occur along the Project route. There was no information available for springs used for drinking water in Louisiana. FGT did not identify springs during field surveys, but if a spring is found during construction, FGT would avoid the spring and minimize impacts on the spring as much as possible. FGT would file the location of any newly discovered springs or seeps with the Commission.

Contaminated Groundwater

FGT reviewed data sources from Louisiana Department of Environmental Protection and Texas Groundwater Protection Committee (TGPC) to assess potential groundwater contamination sources in the Project area. In Louisiana, the locations of the contaminations were not provided as part of the most recent study conducted by LDEQ, but the majority of ground water systems were ranked as having a medium risk of contamination (LDEQ, 2001). In Texas, the Joint Groundwater Monitoring and Contamination report indicates no current groundwater contamination cases within 1-mile of the Project area (TGPC, 2015).

Impacts and Mitigation for Groundwater

Although Project construction activities could affect groundwater, FGT would avoid or minimize impacts by adhering to the FERC Plan and its Procedures. Shallow aquifers could sustain minor impacts from changes in overland water flow and recharge caused by clearing and grading of the right-of-way. In forested areas, water infiltration, which is normally enhanced by vegetation, would be temporarily reduced until vegetation is reestablished. In addition, near-surface soil compaction caused by heavy construction vehicles could reduce the soil's ability to absorb water. These minor impacts would be temporary and would not significantly affect groundwater resources or change groundwater flow patterns.

Dewatering of the pipeline trench, the only activity requiring pumping of groundwater, may be necessary in areas where there is a high water table. However, pipeline construction activities within a particular location are typically completed within several days, and any lowering of localized groundwater is expected to be temporary. To recharge the aquifer and prevent silt laden waters from flowing into streams and wetlands, FGT would discharge all water from dewatering activities into well-vegetated upland areas, or into hay bale structures if vegetation is insufficient. FGT would conduct construction activities in accordance with the FERC Plan and FGT's Procedures to minimize potential impacts on groundwater in the vicinity of the Project.

Construction of the Project would require trenching and backfilling to a depth of approximately six feet below ground surface. Trenching and backfilling could potentially cause minor localized fluctuations in groundwater levels, and/or increase turbidity within the zone of shallow groundwater adjacent to the trench. Any shallow groundwater disturbance would be localized to the immediate area of the trenching and backfilling activity and would not affect the overall quality of groundwater in the Project area.

Use of the HDD method for waterbody or roadway crossings requires the use of drilling mud to maintain the borehole before installation of the prefabricated pipe. Even with proper engineering design, there is a risk of inadvertent release of drilling mud. In some cases, fractures in the underlying sediments can occur because of the high hydraulic pressures being placed on the drilling fluids in the process. If fractures occur or release of fluids contact groundwater, there can be temporary impacts on ground water quality. FGT has prepared an HDD Contingency Plan that describes the methods that would be used avoid or minimize the risk of drilling mud release, as well as the mitigation procedures that would be followed if an inadvertent release does occur. We have reviewed this plan and find it acceptable.

Further impacts on groundwater could occur where existing groundwater contamination is encountered during construction of the Project. Construction activities, such as trenching and dewatering, have the potential to cause movement of contamination in the shallow groundwater. FGT would implement measures to prevent the movement of shallow groundwater along the trench in accordance with FGT's Procedures. FGT has developed its SPAR Plan to ensure that potential impacts on groundwater resources are prevented and minimized to the extent possible. In addition, FGT would adhere to federal and state water quality standards (e.g., Clean Water Act, Sections 401, 402, and 404, and the Safe Drinking Water Act) to ensure that there would be no significant adverse effects on the quality of groundwater resources.

Spills or leaks of hazardous liquids have the potential for long-term impacts on groundwater resources. By following the SPAR Plan, the potential impacts on soils, groundwater, and water wells due to spills or leaks would be minimized. The SPAR Plan

prohibits refueling activities and storage of hazardous liquids within at least a 200-foot radius of all private wells and at least a 500-foot radius of all municipal or community water supply wells, should these wells exist in the vicinity of the Project construction area.

FGT would protect domestic wells by restricting refueling within 150 feet of the well and installing physical barricades (i.e., posts and extra flagging) around the well to prevent damage from equipment and vehicles. If the landowners request this in response to FGT's written offer, FGT would monitor any potable wells located within 150 feet of the Project construction area before and after construction for physical and chemical parameters to determine if the wells are adversely affected during construction. In addition to yield, FGT would test drinking water wells for volatile organic compounds (VOCs), pH, dissolved oxygen, total dissolved solids, and total suspended solids. If adverse impacts are discovered, FGT would provide an alternate source of potable water for the landowner until the water supply and/or well is repaired or replaced.

If any springs or seeps are identified near the Project, impacts would be temporary and localized, associated with the localized turbidity and water table fluctuations in the shallow groundwater. Potential long-term impacts could occur if blasting activities are conducted near springs. FGT does not anticipate blasting would be necessary. If blasting is required, FGT would consult with the LDEQ, Louisiana Department of Natural Resources (LDNR), TPWD, TWDB, and TCEQ, as appropriate, before conducting blasting activities in the vicinity of any known springs.

FGT would minimize potential impacts on groundwater resources by using the construction techniques detailed in its SPAR Plan and FERC's Plan and FGT's Procedures concerning excavation dewatering, equipment refueling, and hazardous materials storage. Because the majority of construction would involve shallow, temporary, and localized excavation, we conclude that pipeline construction activities are not likely to result in significant impacts on groundwater resources.

B.2.2. Surface Water Resources

Existing Surface Water Resources

The Wilson Lateral and Wilson - Coastal Bend M&R Station are located in the East Matagorda Bay Watershed and San Bernard Watershed. The Wilson Lateral would cross 1 perennial stream and 2 intermittent streams. The Port Arthur Lateral and Port Arthur - Motiva M&R Station are located in the Sabine Lake Watershed. The Port Arthur Lateral would cross 18 perennial streams, 10 intermittent streams, and 2 ephemeral streams. The Port Arthur Lateral would also closely parallel a large pond, but would not cross the pond. Access roads for these proposed laterals would cross 7 perennial and 2 intermittent streams. Most of the access roads have existing bridges over

the waterbodies. There are two locations on the Port Arthur Lateral where FGT would install new culverts to cross minor waterbodies with access roads (AR-5 and AR-4 at approximate MP 8.1 and 9.9, respectively).

The Eunice - ANR Lateral and Eunice - ANR M&R Station are located in the Mermentau Headwaters Watershed. The proposed Eunice – ANR Lateral Eunice lateral and its associated access roads would cross 1 intermittent stream and 2 ephemeral streams. No waterbodies would be affected by Project activities at the Gillis - Trunkline M&R Station or CS6.

It total, the proposed pipelines would cross 35 waterbodies, including 19 perennial streams, 13 intermittent streams, and 3 ephemeral streams. Two of the proposed waterbody crossings are major waterbodies (greater than 100 feet wide). The majority of waterbodies that would be crossed by the laterals are either intermediate (17 waterbodies between 10 and 100 feet wide) or minor waterbodies (16 waterbodies less than 10 feet wide). Access roads for the Project would cross a total of 10 waterbodies (5 intermediate and 5 minor). A complete list of waterbodies, including the milepost location, feature ID, waterbody name, state water quality classification, fisheries classification, FERC classification, flow regime, approximate crossing width, and proposed method of crossing for all affected waterbodies are provided in appendix E.

The Project facilities would not affect any sensitive waterbodies, which include, but are not limited to, waterbodies containing suitable or critical habitat for threatened or endangered species, waterbodies classified for drinking, or waterbodies listed as state or federal Wild and Scenic Rivers.

The Port Arthur Lateral crosses a segment of stream WBPI01, which is reported as an impaired water by the TCEQ. This stream segment was also reported on the 2014 Texas Integrated Report – Texas 303(d) List for parameters of containing toxicity in sediment and toxicity in water. Both parameters fall under category 5c requiring additional data or information collected and/or evaluated before further management strategies can be selected. FGT would cross this stream via the HDD construction method, which would avoid surface impacts at this waterbody crossing.

Public Watersheds

There are no public water supplies located within 3 miles downstream of any of the waterbody crossings. The Wilson Lateral would cross into the San Bernard Watershed, a protected watershed, at milepost 11.7. The goal of the San Bernard Watershed Protection Plan (SBWPP) is to improve water quality in the San Bernard Watershed in order to meet water quality standards needed for contact recreation by the

year 2025; and maintain those standards through 2040. About 1.5 miles of the Wilson Lateral would be located within the San Bernard Watershed.

Water Use for HDDs and Hydrostatic Testing

Under DOT regulations (49 CFR Part 192), FGT is required to verify the integrity of the piping associated with the Project facilities before placing them into service by conducting hydrostatic testing. This testing would involve filling the pipeline with water, pressurizing it, and then checking for pressure losses due to pipeline leakage. Additionally, the drilling fluid used during the HDD operations would also require large volumes of water. Tables 8 and 9 below summarizes the quantity and sources of water that would be required for hydrostatic testing and HDD operations.

Table 8. Hydrostatic Test Water Sources and Discharge Locations

Water Source	Nearest MP to Water Source	Water Source Location	Approx. Volume (gallons)	Discharge MP ab
Wilson Lateral & Wilson – Coastal Bend M&R Station				
New Gulf Reservoir	9.0	2 miles east of the Wilson Lateral on Vat Road	431,277	0.25 and 6.02
Unnamed pond abutting San Bernard River	12.0	2 miles southeast of M&R Station	2,464	13.28
Port Arthur Lateral & Port Arthur – Motiva M&R Station				
Hillebrandt Bayou	0.0	2 miles southwest of MP 0.0	552,440	0.54 and 6.0
Alligator Bayou Creek	11.43	½ mile south of the M&R Station	3,810	10.7
Eunice – ANR Lateral & Eunice – ANR M&R Station				
Municipal source	N/A	Nearby municipal source	29,546	upland area
Gillis - Trunkline M&R Station				
Municipal source	N/A	Nearby municipal source	~3,800	upland area
CS 6/Vidor				
Municipal source or well	N/A	Nearby municipal source or well	~1,000	upland area

a Discharge locations would be located outside the construction right-of-way in a well-vegetated upland area.

b All discharges would take place within the same watershed as withdrawals occurred.

Table 9. Water Needed for HDD Operations

HDD ID	Approximate Volume in 1000s gallons	Source Water
Port Arthur Lateral 16-inch HDDs		
1	14	municipal source
2	18	municipal source
3	15	municipal source
4	42	municipal source
5	13	municipal source
6	65	municipal source
7	24	municipal source
8	23	municipal source
9	12	municipal source
10	19	municipal source
11	10	municipal source
12	22	municipal source
Total	**277**	
Wilson Lateral 12-inch HDDs		
1	25	municipal source
2	10	municipal source
Total	**35**	**n/a**
Grand Total		
14 HDDs	**312**	**n/a**

Floodplains and Levee Crossings

As discussed in section B.1, several of the Project facilities are located in FEMA 100-year floodplains. Table 10 below shows the acreage of the Project that would occur within floodplains. The acreage of the Project's impacts in floodplains would be limited to semi-impervious areas consisting of rock surround, gravel roads, and aboveground piping at M&R stations. FGT is obtaining floodplain development permits from Wharton and Jefferson Counties. FGT is also in the process of consulting with Acadia and Calcasieu parishes regarding floodplain development permit requirements. Based on the configuration of the M&R stations, we conclude that there would be a minimal reduction in flood storage capacity.

Table 10. Impact Acreage Within 100- year Floodplains	
Facility	**Acreage within100-Year Floodplain (acres)**
ANR M&R Station	0.15
Trunkline M&R Station	0.16
PortArthur - Motiva M&R Station	1.06
Wilson Lateral and M&R Station	0.80

The Port Arthur Lateral would cross a hurricane flood protection levee managed by the Jefferson County Drainage District 7 (DD7). FGT proposes to HDD under the levee to avoid affecting the integrity of the levee system.

Impacts and Mitigation for Surface Water Resources

Construction activities such as clearing and grading of adjacent land, in-stream trenching, trench dewatering, and backfilling would affect surface water. The activities could temporarily increase erosion, sedimentation, and turbidity rates; decrease dissolved oxygen concentrations; result in the loss and modification of aquatic habitat; and increase the potential for the introduction of foreign substances. FGT would use waterbody crossing methods and restoration procedures as required by the COE, TCEQ, and LDEQ, and as described in the FGT's Procedures. Section A.7.2.2 provides a detailed discussion of FGT's proposed waterbody crossing methods.

The degree of impact on a particular waterbody would vary depending on the site-specific characteristics (i.e. precipitation events, sediment loads, stream area/velocity, channel integrity, and bed material) of the affected waterbody. For example, turbidity and sedimentation resulting from instream and adjacent construction activities may vary measurably depending on the sediment grain size and erosion/deposition patterns. The highest levels of turbidity and sedimentation would result from the use of the wet open-cut crossing method, which FGT does not anticipate using. The specific amounts of turbidity and sedimentation would depend on the depth and width of the stream, flow rate, and sediment composition.

Less sediment would be generated where dry crossing methods (e.g., dam and pump) are used. At the stream crossings where the dam and pump methods would be used, temporary construction-related impacts would be limited primarily to short periods

of increased turbidity before installation of the pipeline, during the installation of the upstream and downstream dams, and following installation of the pipeline when the dams are pulled and flow across the restored work area is re-established.

Impacts on waterbodies crossed by the HDD method would be avoided unless an inadvertent release of drilling mud (also referred to as a frac-out) occurs into the waterbody. Although drilling mud consists of nontoxic materials, if drilling mud were to be released into a waterbody in large quantities, it could affect fisheries or other aquatic organisms. Inadvertent releases are more likely to occur near the entry and exit points on an HDD. Because the staging areas and entry and exit points for the HDDs would be set back from the banks of the waterbodies, the potential for an inadvertent release to occur in the water would be minimized. To further minimize potential impacts of inadvertent releases of drilling fluids, FGT would implement the measures identified in its HDD Continency Plan. These measures include:

- visually inspecting the drill path for evidence of a release;
- monitoring of the drilling mud pressures and return flows;
- storing containment equipment on-site including portable pumps, hand tools, hay bales, and silt fencing; and
- notifying FERC and the COE if a release occurs.

Long-term impacts associated with pipeline operations and maintenance would be relatively minor and limited to periodic clearing of the vegetation within the permanent right-of- way at waterbody crossings. To allow for riparian areas to revegetate, clearing within 25 feet of waterbodies would be limited to a 10-foot-wide corridor over the pipeline being maintained in a herbaceous state.

FGT would minimize impacts on waterbodies by implementing measures outlined in the FERC Plan and its Procedures. These measures would include:

- completing in-stream work between June 1 and November 30 unless expressly permitted or required by appropriate agencies to cross the streams during another time frame;
- locating ATWS that are in undisturbed lands at least 50 feet back from waterbody boundaries unless a reduced setback is requested with sufficient justification on a site-specific basis;
- requiring temporary erosion and sediment control measures to be installed across

the construction right-of-way as necessary to prevent the flow of spoil or heavily silt-laden water into any waterbody;

- maintaining adequate flow rates throughout construction to protect aquatic life and prevent the interruption of existing downstream uses;

- designing and maintaining equipment bridges to prevent soil from entering the waterbody;

- restricting spoil placement near surface waters to the construction right-of-way to at least 10 feet from the water's edge or in other approved ATWS away from the water's edge; and

- mitigating the degree of sedimentation and turbidity by limiting the duration of in-stream construction activities (typically 24 to 48 hours).

FGT would restore streams after construction by returning the bed and banks to preconstruction contours and seeding the stream banks. If during the permitting process additional restoration measures are required, FGT would file this information with the Commission. FGT would try to achieve final grade and restore the waterbody, its banks, and 50-foot buffers within 24 hours of backfilling. Based on FGT's proposed construction techniques and the implementation of minimization and mitigation measures, we conclude that construction and operation of the Project would not significantly impact waterbodies.

FGT has identified two locations where temporary culverts may be needed along access roads associated with the Port Arthur Lateral and none with the other proposed Project facilities. The first culvert may be necessary so that heavy equipment can cross over an intermittent manmade ditch along access road #5 (waterbody ID WBB07) about 635 feet northeast of the proposed centerline (MP 7.9). The second culvert may be needed where access road #4 crosses a perennial manmade ditch (waterbody ID WBB04), about 1,800 feet south of the proposed centerline (MP 10.0). FGT anticipates the culverts would be approximately 20 feet long each and would be lowered in to the ditch in a similar manner as pipe being lowered into a trench. The size of the culverts would be suitable to the maximum expected flow within the respective ditch and a rock or mat bridge would be lain over the culvert to avoid negative impacts to the culvert from equipment traffic. FGT would remove culverts upon completion of construction.

Public Watersheds

There would be no stream crossings and one wetland crossing within the protected San Bernard Watershed. FGT would implement BMPs as outlined in FERC's Plan and FGT's Procedures to minimize erosion and sedimentation beyond the limits of the

construction work area. Additionally, FGT would implement its SPAR Plan in all Project areas. We believe these measures would adequately protect water quality in the San Bernard Watershed. However, FGT has not provided documentation of consultation with the TCEQ or the SBWPP managing agency regarding potential impacts on the watershed and required or recommended protection measures. For this reason, **we recommend that:**

- **<u>Prior to construction</u>, FGT should file with the Secretary of the Commission (Secretary) documentation that FGT has consulted with TCEQ and the San Bernard Watershed Protection Plan managing agency regarding impacts and mitigation measures for areas where the Project would cross the San Bernard Watershed. FGT should also file responses to any recommended protection measures and indicate how they would be incorporated into Project construction plans.**

Water Use for Hydrostatic Testing and HDDs

FGT would obtain the necessary permits in Texas and Louisiana prior to any water withdrawals/discharges and follow any necessary conditions required by those permits. FGT would minimize the environmental impacts from the withdrawal and discharge of test water by utilizing the measures outlined in its Procedures. These measures include:

- screening the intake hose to minimize the potential entrainment of fish;
- maintaining adequate flow rates to protect aquatic life, provide for all waterbody uses, and provide for downstream withdrawals of water by existing users;
- locating hydrostatic test manifolds outside of wetlands and riparian areas;
- adding no chemicals to the hydrostatic test water;
- complying with all appropriate permit requirements;
- discharging test water across a well vegetated upland area, and filtering through a filter bag and/or into erosion control barriers; and
- controlling the rate of discharge using an energy dissipating device in order to prevent flooding or erosion.

Upon completion of hydrostatic testing, the water would be discharged in compliance with RRC and LDEQ regulations, depending on the Project location. Test water would be discharged over-ground through an energy dissipating device and a hay bale filter or

sediment bag, or back into the withdrawal source with additional filtering. Because the facilities to be tested would consist of new pipe free of chemicals or lubricants and none of the hydrostatic test water would be chemically treated, we conclude that the test water discharges would not result in significant impacts on waterbodies in the Project area. In addition, we conclude that implementation of the measures in FGT's Procedures would minimize impacts associated with water withdrawals from surface waterbodies.

If water is left over from the HDD drilling process, it would be discharged in accordance with applicable permits into a well-vegetated upland area or an energy dissipation/sediment filtration device, such as a geotextile filter bag or straw bale (weed-free) dewatering structure, at the site. FGT states that it would dispose of excess drilling mud by incorporating it into the soil in an upland area or taking it to an approved disposal facility. For disposal of excess drilling mud into upland areas, FGT would need to request approval from FERC and receive Minor Permit(s) to Land Farm Drilling Mud in upland areas from the RRC.

Permits

The Project would traverse a number of regulated waterbodies, floodplains, and wetlands (discussed in section B.2.3 below); therefore, Clean Water Act (CWA) Section 404 Permits from the COE Galveston and New Orleans districts and Section 401 Certifications from the RRC and LDEQ would be required prior to the start of construction activities within jurisdictional waters and floodplains. FGT submitted pre-construction notifications in July 2017 for authorization to construct Project facilities within federal and state-regulated wetlands, waterbodies, and floodplains.

Additionally, a CWA Section 408 permit is required for the HDD crossing of the hurricane protection levee in Jefferson County DD7. The CWA Section 408 permit is currently under review by COE and DD7. FGT submitted its application to DD7 in January 2017. A Section 408 review number (SWG-408-17-6) was issued for the Project. DD7 forwarded the application information to COE for review on April 7, 2017. FGT is continuing to work with DD7 on specific components of the levee crossing.

FGT has retained GeoEngineers, Inc. to complete a detailed engineering design of the levee crossing in coordination with DD7 requirements. FGT has developed a specific HDD plan in coordination with DD7. FGT stated that they are working on a detailed geotechnical analysis and HDD implementation plan addressing potential concerns and mitigation measures for the levee crossing.

Because FGT has not filed the geotechnical analysis or HDD implementation plan specifically for the levee crossing, **we recommend that:**

- **<u>Prior to construction</u>, FGT should file with the Secretary, for review and written approval by the Director of the Office of Energy Projects (OEP), the finalized geotechnical analysis and HDD implementation plan addressing potential concerns and mitigation measures for the Jefferson County Drainage District 7 hurricane protection levee crossing.**

Construction and operation of the Project would be conducted in accordance with all applicable regulations and permit requirements. FGT would also comply with National Pollutant Discharge Elimination System requirements for Texas and Louisiana. The status of all permits is provided in appendix K.

Based on the mitigation measures that FGT would follow to minimize impacts on water resources during construction activities, we conclude that the Project would not have a significant effect on surface water resources.

B.2.3. Wetlands

Under Section 404 of the CWA, jurisdictional waters of the U.S. including wetlands are provided certain protections. The term "waters of the United States" refers to open waters or watercourses that are non-vegetated. "Wetland" is the collective term for swamps, marshes, bogs, wet meadows, and similar areas that are often located between open water and dry land. Wetlands are valuable resources that help to improve water quality, reduce flood and storm damage, provide important fish and wildlife habitat, and support outdoor recreational activities such as hunting and fishing. Wetland is defined by the COE as an area that is inundated or saturated by surface or groundwater at a frequency and duration sufficient to support, and that under normal circumstances does support, a prevalence of vegetation typically adapted for life in saturated soil conditions, commonly known as hydrophytic vegetation.

FGT identified potential wetland areas along the Project through a review of National Wetland Inventory maps, USGS topographic maps, and current aerial photography. Field wetland delineation surveys were conducted during August and September 2016 for areas where survey access was available. FGT completed field surveys in March and April of 2017.

Existing Wetland Resources

Three broad classes of palustrine freshwater wetlands (Cowardin et al. 1979) are present in the Project area: palustrine forested broad-leaved deciduous (bottomland

hardwood) (PFO), palustrine scrub-shrub broadleaved deciduous (hardwood) (PSS), and palustrine emergent (PEM). There are a total of 58 wetlands that would be crossed by the Project. The Project would cross 10 PFO wetlands, 7 PSS wetlands, and 41 PEM wetlands. Some wetlands crossed by the Project contain multiple classes of wetlands. Detailed information on wetlands crossed by the Project is provided in appendix F.

Forested wetlands are characterized by woody vegetation that is about 20 feet tall or taller and normally include an understory of young trees or shrubs, and an herbaceous layer. Scrub-shrub wetlands are generally dominated by woody vegetation less than 20 feet tall. Emergent wetlands are characterized by erect, rooted, herbaceous hydrophytes not including mosses and lichens. Wetland vegetation is further addressed in section B.3.

Impacts and Mitigation for Wetlands

About 53.3 acres of wetlands would be affected by the Project. Installation of the pipeline would affect about 51.6 acres of wetlands, about 19.8 acres of which would be maintained for operation of the pipeline. Access roads would affect about 1.7 acres of wetlands and these impacts would be temporary. There is one wetland located within the fenced facility at CS6; however, FGT would avoid this wetland during construction activities.

About 0.2 acres of wetlands would be permanently filled for the Project. Two mainline valve sites on the Port Arthur Lateral would be placed in PEM wetlands at MP 4.9 (wetland WETA20) and MP 6.4 (wetland WETA08). Each site would require 0.09 acre of fill, comprised of crushed rock in order to maintain access to the valve. Through the CWA Section 408 process, the placement of the mainline valves are a requirement of the Jefferson County Drainage District 7, due to the pipeline crossing (via HDD) a hurricane protection levee. Due to the small size of each of these sites, FGT would still be in compliance with the limitations of Nationwide Permit (NWP) 12.

Wetlands affected by the Project including the milepost location, feature ID, wetland type, proposed crossing method, and approximate crossing length are provided in appendix F. Table 11 below provides a summary of wetland types affected by the Project.

Table 11. Wetlands Affected by the Project by Wetland Class

Project Component	PFO wetlands affected (acres)		PSS wetlands affected (acres)		PEM wetlands affected (acres)		Total Wetlands Affected	
	Constr	**Oper**	**Constr**	**Oper**	**Constr**	**Oper**	**Constr**	**Oper**
Wilson Lateral	0.8	0.1	0.3	0.1	0.5	0.3	1.6	0.5
Port Arthur Lateral	1.6	0.5	10.6	3	37.8	15.9	50	19.3
Access Roads	0	0	0.6	0	1.1	0	1.7	0
Total	**2.4**	**0.6**	**11.5**	**3.1**	**39.5**	**16.2**	**53.3**	**19.8**

Constr = Temporary construction impacts (acres)
Oper= Permanent operation impacts (acres)

Construction of the Project would temporarily and permanently affect wetlands including wetland vegetation, hydrology, and soils characteristics. These effects would be most prominent during and immediately following construction. In emergent wetlands, impacts would be relatively short-term since herbaceous vegetation would regenerate quickly. In scrub-shrub wetlands, impacts would be greater due to the longer time required for woody vegetation to regenerate. In forested wetlands, impacts would be long-term as forested wetland vegetation would likely take decades to regenerate to its preconstruction condition.

Construction of the Project would increase the potential for sedimentation and soil mixing in wetlands, which could alter biological activities and chemical conditions within the wetland soils and could affect the reestablishment of wetland vegetation. The temporary stockpiling of soil and use of equipment in wetlands could compact wetland soils, which could alter the natural hydrologic patterns and inhibit revegetation. Trenching could penetrate impervious soil layers and drain perched water tables resulting in drier soil conditions that could impact the reestablishment of wetland vegetation. Clearing of wetland vegetation could also temporarily affect the wetland's capacity to buffer flood flows and/or control erosion.

Construction crews would temporarily install mats or timber riprap where necessary to create a stable surface for equipment, or use other methods such as low-ground-weight equipment, to minimize soils mixing and disturbance. Crews would segregate topsoil along the trenchline in non-saturated wetlands, which would prevent the mixing of the topsoil with the subsoil. In saturated wetlands, crews would use special construction techniques, such as the use of low ground pressure equipment and timber construction mats.

During vegetation clearing, crews would install temporary erosion control measures between upland construction areas and wetlands to prevent sedimentation from entering wetlands. Stump removal, grading, and excavation within wetland areas would be limited to the area immediately over the pipe trench line unless grading or stump removal is required to provide safe working conditions. FGT would maintain trench plugs in upland slopes adjacent to wetlands to prevent trench erosion. Trench plugs would also be maintained at the edges of the wetland where the potential to drain a wetland exists.

We received a comment from Thomas Hunt regarding the potential for pipeline construction to drain wetlands in pledger clay soils. Specifically, FGT would install "dams" comprised of sandbags within the pipeline trench, at the entry and exit boundaries of any wetlands that would be open cut, to prevent drainage of wetlands to surrounding upland areas. Any confining or perched layers that were breached during the construction would be restored during backfilling.

Where HDD crossings are used, most impacts on wetlands would be avoided. FGT has prepared an HDD Contingency Plan that describes the methods that would be used to avoid or minimize the risk of drilling mud release, as well as the mitigation procedures that FGT would follow if an inadvertent release does occur. To further reduce the potential of impacts on wetlands due to inadvertent spills, FGT would implement its SPAR Plan.

Most of the land along the Port Arthur Lateral between milepost 1.3 to 10.5 has been classified as wetland with periodic roads and canals separating the wetlands. Therefore, most of the HDD entry and exit points, and their associated ATWS are located within wetlands because the wetlands are unavoidable. The HDD entry and exit points for HDD 03 through 10 are within wetlands. FGT has not described special construction methods and mitigation measures for HDD exit and entry points within wetlands. Because we believe specialized mitigation measures are necessary at these locations, **we recommend that:**

- **<u>Prior to construction</u>, FGT should file with the Secretary, for review and written approval by the Director of OEP, a description of construction methods and impact minimization/mitigation measures that FGT would implement in areas where HDD entry and exit points occur within a wetland.**

Alternative Measures to the FERC Procedures

FGT is requesting site-specific exceptions to section VI.B.1 of the FERC Procedures related to locating ATWS within 50 feet of wetlands and constructing new/improving existing access roads within wetlands. FGT is proposing to locate

multiple ATWS areas within wetland boundaries. Impacts would be limited to stockpiling of soil from the adjacent feature requiring the ATWS (i.e. canal or road crossing). Construction impacts at the ATWS associated with an HDD would include staging and implementing the HDD (i.e. staging of HDD equipment, parking, etc.). Construction crews would strip the topsoil if the wetland is not saturated and use mats to limit impacts on the soil and hydrologic structure of the wetland. These wetlands would be restored to preconstruction contours and allowed to naturally revegetate**.** Locations where these alternative measures are being proposed, FGT's site-specific justifications, and our decision whether FGT provided sufficient justification for the proposed workspace, are provided in appendix G. Based on our review, we conclude that FGT's requests are justified.

FGT is also proposing to use 2 new and 2 existing access roads in wetlands on the Port Arthur Lateral (Access Roads 16, 4, 2A, and 12) that would result in temporary impacts on the wetlands. FGT would use timber matting to create new or improve existing access roads through wetlands. We agree that these access roads are justified because the area surrounding the Port Arthur Lateral where the access roads are proposed (between MPs 8 and 10) consists entirely of PEM wetlands. FGT would not be able to avoid these wetlands.

FGT has not filed a public copy of their Procedures with the Commission that incorporates the alternative measures described above. Therefore, **we recommend that:**

- **<u>Prior to construction</u>, FGT should file with the Secretary, for review and written approval by the Director of OEP, FGT's Wetland and Waterbody Construction and Mitigation Procedures that includes all modifications to the FERC Procedures.**

Following construction, FGT would remove timber mats and return ground contours to as close to pre-existing condition as possible. FGT would install permanent erosion controls, including terraces, interceptor diversion devices, riprap, and vegetative cover on adjacent upland areas to minimize long-term sedimentation of the wetlands. Permanent erosion controls that could alter hydrology would not be installed within wetland boundaries. Energy dissipation devices may be installed at the down-slope end of surface water diversion devices to prevent sediment leaving the right-of-way and entering wetlands.

During operation of the Project, FGT would maintain a 10-foot-wide corridor centered on the pipeline in an herbaceous state, and trees within 15 feet of the pipeline with roots that could compromise the integrity of the pipeline coating would be selectively cut and removed. FGT would revegetate wetlands in accordance with the FGT's Procedures and consultation with the COE. To facilitate revegetation in

unsaturated wetlands, up to 12 inches of topsoil would be removed from the trench line and stored separately from subsoil. This topsoil material functions as a seed bank for the germination of wetland plants. After the completion of construction, FGT would monitor wetland restoration and revegetation success for three years. Revegetation would be considered successful when: vegetation cover is at least 80 percent of either the cover documented for the wetland prior to construction, or at least 80 percent in adjacent wetland areas that were not disturbed by construction; the plant species composition is consistent with early successional wetland plant communities in the affected ecoregion; and invasive species and noxious weeds are absent, unless they are abundant in adjacent areas that were not disturbed by construction.

FGT would develop additional wetland mitigation measures in coordination with the COE during the permitting phase of the Project, and provide these mitigation plans to the FERC prior to construction. Compensatory wetland mitigation for construction impacts is likely to be requested by the COE. FGT intends to obtain mitigation credits from existing wetland mitigation banks for forested wetland impacts and mitigate for temporary impacts on emergent wetlands through on-site restoration.

FGT would minimize impacts on wetlands by implementing the measures in the FGT Procedures and conditions associated with applicable permits. Based on the implementation of mitigation measures outlined in FERC Plan and FGT's Procedures, which would minimize impacts on wetlands and help ensure the successful restoration of wetlands, and its commitment to mitigate for wetland impacts, we conclude that construction and operation of the Project would not significantly impact wetlands.

B.3. Vegetation, Wildlife, and Threatened and Endangered Species

B.3.1. Fisheries and Aquatic Resources

Existing Resources

A list of fish and aquatic species that could inhabit waterbodies in the Project area is provided in in table 12 below. There are no fisheries of special concern or essential fish habitat designated by the National Marine Fisheries Service in the Project area.

Table 12. Representative List of Aquatic Species in the Project Area	
Common Name	**Scientific Name**
Fishes	
Gizzard shad	*Dorosoma cepedianum*
Red shiner	*Cyprinella lutrensis*
Common carp	*Cyprinus carpio*
Golden shiner	*Notemigonus crysoleucas*
Black bullhead	*Ameiurus melas*
Blue catfish	*Ictalurus furcatus*
Redbreast sunfish	*Lepomis auritus*
Green sunfish	*Lepomis cyanellus*
Warmouth	*Lepomis gulosus*
Bluegill	*Lepomis macrochirus*
Longear sunfish	*Lepomis megalotis*
Redear sunfish	*Lepomis microlophus*
Largemouth bass	*Micropterus salmoides*
White crappie	*Pomoxis annularis*
Black crappie	*Pomoxis nigromaculatus*
Amphibians	
American bullfrog	*Lithobates catesbeianus*
Blanchard's cricket frog	*Acris blanchardi*
Southern leopard frog	*Lithobates sphenocephalus*
Spotted chorus frog	*Pseudacris clarkii*
Small-mouthed salamander	*Ambystoma texanum*
Reptiles	
Diamond-backed watersnake	*Nerodia rhombifer*
Red-eared slider	*Trachemys scripta elegans*
Yellow mud turtle	*Kinosternon flavescens*

Impacts and Mitigation for Fisheries and Aquatic Resources

The Project would involve open cut (dry) crossings of waterbodies, which would could potentially affect aquatic organisms. Potential impacts from open-cutting stream crossings could include a temporary increase in turbidity and sedimentation. Additionally, activities such as clearing of vegetation may temporarily increase local stormwater runoff volumes and sediment loading. If stream flow is present in any of the streams, FGT would use the dam and pump method to maintain flow during construction. This would reduce the erosion, siltation, and disturbance of the stream and

its biota. If a stream is dry at the time of construction, some bank and streambed alterations may be necessary to facilitate crossing. FGT would conduct waterbody crossings in accordance with COE regulations and FGT's Procedures. Because impacts on waterbodies would be temporary and FGT would implement its Procedures and other mitigation measures to protect aquatic resources, we conclude that the Project would not significantly impact fisheries or aquatic species.

B.3.2. Vegetation and Terrestrial Wildlife

Existing Resources

The Project would cross a variety of terrestrial and wetland habitats that support various wildlife species. There are several categories of vegetation cover types within the Project area that provide habitat for common wildlife species. These vegetation and habitat types and typical wildlife species that inhabit these areas are discussed below.

Agricultural Areas

Agricultural areas occur within the proposed Project area of the Wilson Lateral, Port Arthur Lateral, and Eunice - ANR Lateral. About 18.7 acres of agricultural land would be disturbed by construction of the Project and about 7 acres would be retained as permanent right-of-way for the Project, however these areas would be returned to previous agricultural land use. These areas consist of cultivated crops such as cotton and rice. Typical wildlife that utilizes agricultural land includes white-tail deer, raccoons, armadillo, chipmunk, ground squirrel, rabbit, coyote, skunk, great blue heron, great egret, wood duck, cattle egret, and crayfish.

Open Land Areas

Open lands, including existing pipeline easements, occur within the proposed Project area of the Wilson Lateral, Wilson - Coastal Bend M&R Station, Port Arthur Lateral, Port Arthur - Motiva M&R Station, Eunice - ANR Lateral, Eunice - ANR M&R Station, and Gillis - Trunkline M&R Station. About 154.5 acres of open land would be disturbed by construction of the Project and 53.4 acres would be permanently maintained for operation of the Project. Open lands include various vegetation communities including grasslands, prairies, and savannas, typically dominated by short-mid grass with a sparse amount of shrub species and hardwood trees. The vegetation communities in these areas include common ragweed, Australian beard grass, straggler daisy, Cherokee sedge, bermudagrass, woodrush flat sedge, tall fescue, sneezeweed annual marsh elder, pull and be damned, golden crown grass, bahia grass, brownseed paspalum, thin paspalum, southern dewberry, little bluestem, Johnson grass, and smut grass. Open lands typically support habitat for species such as various rodents, northern harrier, red-tailed

hawk, barn owl, American crow, American robin, northern cardinal, meadowlark, corn snake, Texas rat snake, prairie king snake, red rat snakes, and hognose snakes.

Deciduous Upland Forest

Upland forested areas dominated by deciduous hardwoods occur within the Project area of the Wilson Lateral and Port Arthur Lateral. About 2.7 acres of upland forest would be cleared for construction of the Project and about 0.6 acres would be permanently maintained for operation of the Project. Woody vegetation includes dominant species such as bitternut hickory, pecan, sugarberry, yaupon, Japanese privet, Chinese privet, post oak, Live oak, gum bully, and Chinese tallow. Herbaceous vegetation communities also occur throughout the understory of hardwood forests and included dominant species such as peppervine, straggler daisy, Cherokee sedge, Virginia wild rye, annual marsh elder, Chickasaw rose, southern dewberry, smut grass, and white crownbeard.

This vegetation community typically supports habitat for mammal species such as the white-tailed deer, gray fox, gray squirrel, southeastern pocket gopher, cotton rat, and least shrew. Typical bird species include the red-headed woodpecker, eastern kingbird, hairy woodpecker, eastern bluebird, brown-headed nuthatch, pine warbler, loggerhead shrike, yellow-rumped warbler, rufous sided-towhees, yellow-throated warblers, bobwhite quail, and the wild turkey. The box turtle, six-lined racerunner, black racer, eastern diamondback rattlesnake, striped newt and oak toad are typical reptiles and amphibians that may occur in upland forests.

Upland Forest - Pine Plantation

Upland forested areas dominated by pine plantations occur within the Project area of the Gillis -Trunkline M&R Station, including access roads, and the access roads associated with Compressor Station 6 (CS 6/Vidor). About 3.4 acres of pine plantation would be cleared for construction, and 2.2 acres would be maintained for operation of the Project. Due to the continual harvesting or thinning of trees, pine plantations typically show decreased vegetative and structural diversity compared to unmanaged upland forests, which typically equates to decreased capability to support various and abundant wildlife species. However, wildlife does utilize these areas and typically includes white-tailed deer, wild turkey, gray squirrel, bobwhite quail, mourning dove, cottontail rabbit, and gray squirrel.

Wetlands

Open waters and wetlands occur within the Project area of the Wilson Lateral, Port Arthur Lateral, Eunice - ANR Lateral, and Gillis - Trunkline M&R Station. As discussed in Section B.2., these wetland communities consist of a mixture of hardwood and herbaceous vegetation types. Wetland vegetation communities consist of three different wetland vegetation types including PEM, PSS, and PFO wetlands. A more detailed description of vegetation communities in each of these wetlands classes is below.

PEM wetlands are typically dominated by perennial emergent and rooted herbaceous hydrophytes, excluding mosses and lichens that are present for most of the growing season in most years. Emergent wetlands found in the Project area are composed of a large variety of herbaceous species tolerant of hydric conditions. Based on data collected during the field surveys, these areas typically include species such as alligator weed, switch cane, carpetgrass, Mexican devilweed, jointed flat sedge, woodrush flat sedge, green flat sedge, mountain spike rush, sand spike rush, little head spike rush, annual marsh elder, torpedo grass, golden crown grass, thin paspalum, Vasey's grass, swamp smartweed, short bristle horned beak sedge, and little bluestem.

PSS wetlands found in the Project area are composed of a large variety of hardwood species tolerant of hydric conditions. Based on data collected during the field surveys, these areas typically include species such as American hornbeam, green ash, wax myrtle black tupelo, black willow, Chinese tallowtree, American elm; and groundcover species including alligator weed, Cherokee sedge, green flat sedge, Jesuit's bark, lamp rush, swamp smartweed, short bristle horned beak sedge, Chickasaw rose, grass leaf arrowhead, and fringed greenbriar.

PFO wetlands found in the Project area are composed of a large variety of hardwood species tolerant of hydric conditions. These forested wetlands generally include mixed hardwood canopy species such as water hickory, sugarberry, green ash, wax myrtle, willow oak, black willow, Chinese tallowtree, and American elm. The sapling/shrub layer consists of groundseltree, sugarberry, green ash, deciduous holly, wax myrtle, water oak, willow oak, black locust, Chickasaw rose, poisonbean, Chinese tallowtree, and American elm. The groundcover species including Cherokee sedge, raven foot sedge, green flat sedge, annual marsh elder, lamp rush, swamp smartweed, short bristle horned beak sedge, southern dewberry, fringed greenbriar, and poison ivy.

Common reptile and amphibian species in Texas and Louisiana wetlands that utilize wetland habitats include the alligator, mud turtle, eastern ribbon snake, and cottonmouth. Birds include the great blue heron, great egret, wood duck, cattle egret, short-tail, hawk, anhinga, barred owl, and pileated woodpecker. Mammal species include cotton mouse, marsh rice rat, swamp rabbit, beaver, raccoon, and white-tail deer.

Impacts and Mitigation for Vegetation and Wildlife

Table 13 below shows acreages of the Project's impacts on each vegetation cover and habitat type.

Table 13. Acreages of Vegetation Categories Affected by the Project

Facility	Ag a/		Open		Upland Forest		Planted Pine		PEM		PSS		PFO	
	C	O	C	O	C	O	C	O	C	O	C	O	C	O
Wilson Lateral	5.7	2.3	115.1	43.9	2.7	0.6	-	-	0.5	0.3	0.3	0.1	0.8	0.1
Wilson-Coastal Bend M&R Station	-	-	1.3	0.8	-	-	-	-	-	-	-	-	-	-
Port Arthur Lateral	11.5	4.3	16.5	5.4	-	-	-	-	37.8	15.9	10.6	2.9	1.6	0.5
Port Arthur-Motiva M&R Station	-	-	3.4	1.6	-	-	-	-	-	-	-	-	-	-
Eunice-ANR Lateral	1.4	0.3	4.1	1.2	-	-	-	-	-	-	-	-	-	-
Eunice-ANR M&R Station	-	-	0.9	0.5	-	-	-	-	-	-	-	-	-	-
Gillis-Trunkline M&R Station	-	-	-	-	-	-	2.1	0.9	<0.1	<0.1	-	-	-	-
Access Roads	0.1	0.1	4.7	0.9	-	-	1.3	1.3	1.1	-	0.6	-	-	-
Contractor Yards	-	-	8.5	-	-	-	-	-	-	-	-	-	-	-
Total	**18.7**	**7.0**	**154.5**	**54.3**	**2.7**	**0.6**	**3.4**	**2.2**	**39.5**	**19.8**	**11.5**	**3.0**	**2.4**	**0.6**

a Agricultural areas
C- Construction impacts O – Operation impacts

The primary impact on vegetation would be the temporary and permanent alteration of vegetative cover along the pipeline right-of-way. Temporary workspace and ATWS outside of the permanent right-of-way would revert to preconstruction vegetative communities. Crews would clear the right-of-way where necessary to create a safe working surface for construction equipment. Vegetation would be removed by mechanical cutting or by hand. FGT would cut stumps as low to the ground as possible and if necessary for safe installation of the pipe, stumps would be removed. In the limited forested areas that would be affected by construction, FGT would cut timber from the right-of-way and dispose of it by one or more of the following ways:

- stacking along the right-of-way with landowner approval (brush piles)[11],
- chipping slash and brush and leaving the chips on the right-of-way,
- burning, unless specifically prohibited in an area, and only if authorized by local permits and with appropriate precautions to prevent spread of wildfires, or
- offsite disposal in approved disposal areas, and only if the preceding options are not viable.

Forested wetlands located within the new permanent pipeline right-of-way would be converted to emergent wetlands as a result of the construction and operation of the proposed Project. FGT would minimize impacts to wetlands by implementing measures identified in FGT's Procedures and conditions associated with agency permits. FGT indicates that compensatory mitigation would be provided to offset conversion of forested wetlands to emergent wetlands, as part of its COE permit. There would be no net loss of wetlands as a result of the construction and operation of the Project.

Following installation of the pipeline and re-contouring of the easements, all disturbed upland areas would be reseeded in accordance with the FERC Plan. The rate of revegetation would depend on several factors, including local climate, soil type, vegetation maintenance practices, land use, and the existing and seeded vegetation. The amount of time required for complete recovery of vegetation to pre-construction levels would depend on these factors as well as the size and age of the preexisting vegetation at the time of clearing. Forested areas would experience the greatest impact due to the long time it takes to regenerate mature forest communities.

The NRCS and the TPWD have established programs for the enhancement of monarch butterfly and other native pollinator habitats. FGT would coordinate with the NRCS and TPWD to identify a recommended seed mix that will improve the pollinator value of the right-of-way. FGT would not seed agricultural or pastureland areas, which comprise almost 70 percent of the Project. Although FGT would hold an easement on its

[11] In compliance with their Procedures, FGT would only be allowed to stack brush along the right-of-way if the landowner approves leaving materials onsite for beneficial reuse, stabilization, or habitat restoration.

pipeline right-of-way, individual landowners may choose to plant other species than those selected by FGT.

Operation and maintenance of the facilities would have little additional impact to ecological resources after construction is complete. Maintenance of the existing CS 6/Vidor would include routine mowing. Should excessive vegetation need to be removed from the permanent right-of-way, mechanical equipment, such as a bush hog or chainsaw, would be used as needed in upland areas to maintain appropriate vegetative cover. In accordance with the FERC Plan, FGT would not conduct vegetation clearing for maintenance of the right-of-way during the migratory bird nesting season (April 15-August 1).

Noxious Weeds

Based on the review of the Texas state-listed Noxious Weeds list provided by the USDA, NRCS, and subsequent field investigations, three noxious weeds occur throughout in multiple locations across the workspace of the proposed Project: torpedograss (*Panicum repens*), Chinese tallow, and alligator weed. To prevent further spread of these noxious weeds, FGT's selected contractor would utilize clean equipment practices during the construction phase of the proposed Project. Equipment would be cleaned prior to entering the construction work area. This measure should limit the potential for introducing new invasive or exotic species to the immediate area.

Prior to construction, FGT would provide its contractors with information and training regarding the proper identification of noxious weeds, and the potential impacts that noxious weeds could have on agriculture, livestock, and wildlife. Contractors would be informed of the importance in preventing the spread of noxious weed into uncontaminated areas and containing the proliferation of weeds in areas where it is already present. The following steps listed below would be taken to manage the spread of noxious weeds by construction and restoration activities associated with the Project.

- FGT would mark the entry and exit of areas of noxious weed infestation with signage along the construction right-of-way.

- Equipment cleaning stations would be identified with signs along the edge of the right-of-way for the duration of construction.

- Biological monitors would be made aware of the locations of noxious weed infestations and would conduct visits to these areas before, during, and after construction.

- In areas where high density noxious weed populations (26% and higher ground cover) exist, FGT would stockpile cleared vegetation and salvaged topsoil (full

right-of-way topsoiling method or as appropriate) adjacent to the area from which they were stripped in order to prevent the transport of soil-borne noxious weed seeds, roots, or rhizomes.

- Weed infested stockpiles would be marked with signage until the restoration phase.

- FGT would return weed-infested topsoil and vegetative material from the infestation sites to the areas from which they were stripped.

- No construction equipment would be allowed to work in or on these areas and stockpiles.

- An equipment cleaning program would implement the following guidelines:
    - any contractor vehicles and equipment arriving from out of state would be cleaned prior to beginning work;
    - any equipment or vehicle that comes into contact with vegetation or disturbed soil in areas where a known high-density noxious weed population is present would be cleaned before being allowed to proceed along the right-of-way; and
    - cleaning stations would be placed in approved locations.

- During post-construction revegetation monitoring site visits, FGT also would perform post-construction weed monitoring in designated areas.

Wildlife

Temporary impacts on wildlife would include disturbance to habitat during construction from noise and clearing activities. Permanent impacts on wildlife would include conversion of wildlife habitats to industrial use facilities and access roads to support the operation of the proposed Project (e.g. meter and regulation stations, pump stations, valve sites).

Construction and operation of the proposed Project would result in temporary and permanent alteration of wildlife habitat, as well as direct impact on wildlife species including disturbance, displacement, and mortality of smaller less mobile species. The clearing of vegetation would reduce cover, nesting, and foraging habitat for some wildlife. During construction, the more mobile species would be temporarily displaced from the proposed Project and surrounding areas to similar habitats nearby. Some wildlife displaced during construction would return to the newly disturbed area and adjacent, undisturbed habitats soon after completion of construction. Less mobile species, such as small mammals, reptiles, and amphibians, as well as bird nests located in the construction area, may be killed during construction activities.

Noise from construction, especially near HDD activities could temporarily affect wildlife behavior, including foraging, mating, nesting, etc. Noise may also cause individuals to temporarily relocate from the area. Because construction noise would be short-term and generally diminishes in a relatively short distance from the source of the project sites, wildlife would not likely experience significant effects due to noise disruption.

Routine maintenance activities on the permanent right-of-way would not significantly affect wildlife due to the minor extent of those activities. The impact of the proposed Project on agricultural and open land habitats and associated wildlife species would be minor and short term because these habitats would regenerate within 1-2 growing seasons after construction. Impacts on forested habitat would be longer term as these areas would require decades to regenerate and some forested areas would be permanently converted to herbaceous communities for pipeline operations. Overall, we concluded that due to the limited amount of permanent loss of vegetation communities and wildlife habitat and FGT's proposed restoration procedures and mitigation measures, the Project would not have significant impacts on vegetation and wildlife.

B.3.3. Threatened, Endangered, and Special Status Species

Game and non-game wildlife species are regulated and protected under federal and state laws, which are administered by agencies such as the FWS, LDWF, and TPWD. Several regulations such as the Endangered Species Act (ESA), the United States Fish and Wildlife Conservation Act of 1980 (16 USC.2901-2911), the Bald and Golden Eagle Protection Act (BGEPA), the Migratory Bird Treaty Act (MBTA), and the United States Fish and Wildlife Coordination Act of 1958 also regulate protected plant and animal species.

The Commission is required by Section 7 of the ESA to ensure that the construction and operation of any certificated project would not jeopardize the continued existence of a federally listed threatened or endangered species or result in the destruction or adverse modification of the designated critical habitat of a federally listed species.

FGT compiled a list of the federal and state-listed threatened and endangered species that have the potential to occur in or near the proposed Project area (appendix H). The list was compiled using data tracked by the TPWD, LDWF, FWS County Reports, and the FWS Information for Planning and Conservation system. Acting as FERC's non-federal representative, FGT initiated informal consultation with the FWS on July 27, 2016. FGT also submitted consultation letters to LDWF and TPWD on July 27, 2016. FGT submitted revised protected species reports to FWS, LDWF, and TPWD in April 2017. Impacts on federally listed and state-listed species and other species of special concern are discussed below.

Federally Listed Species

Between August and September 2016, and again in March and April 2017, FGT conducted field investigations within and adjacent to the proposed Project area to determine the presence of suitable habitat for federally listed threatened and endangered species. Federally endangered, threatened, or candidate species that could occur in the Project area are listed in appendix H. FGT identified potential suitable habitat for one federally listed species: the whooping crane (*Grus americana*). FGT did not identify suitable habitat for any other federally listed species that have the potential to occur in the Project area and therefore we conclude the Project would have no effect on these species.

The whooping crane is federally listed and state-listed as endangered in Texas. Whooping cranes generally nests in pothole wetlands during the summer months in Wood Buffalo National Park in Canada. During the winter months, the whooping crane migrates south, generally to the salt marshes of Aransas National Wildlife Refuge in Texas. Along the migration route, the species will stop to feed in emergent wetland and coastal plain areas where insects, frogs, rodents, small birds, minnows, and berries are generally abundant.

The whooping crane has the potential to occur within the proposed Project area of the Wilson Lateral as transient individuals foraging within wetlands and coastal plains. Based on the amount of potential foraging and winter stopover habitat located outside of the proposed Project area of the Wilson Lateral and the nature of the wetlands found within the Project construction corridor, we conclude that the Project ***may affect but would not likely adversely affect*** the whooping crane.

However, because FGT has not proposed mitigation measures to minimize impacts on whooping cranes, the FWS has not issued concurrence for this effect determination. Therefore, **we recommend that:**

- **FGT should not begin construction activities until:**

  a. The FERC staff completes ESA Section 7 consultation with the FWS; and
  b. FGT has received written notification from the Director of OEP that construction or use of mitigation may begin.

State-listed Species

In August and September 2016, and again in March and April 2017, FGT conducted field surveys within and adjacent to the proposed Project area to determine the presence of suitable habitat for state-listed threatened and endangered species. State-listed special status species with the potential to occur in the Project area are listed in appendix H. FGT identified potential suitable habitat for fifteen state-listed species, including the bald eagle. Details on the habitat of these species and an impact summary for each species is included in appendix H. In addition, potential suitable habitat for the ornate box turtle (*Terrapene ornata*), classified as restricted harvest, is present within and adjacent to the Project area. The Project would have no effect on all other state-listed species for which potential suitable habitat was not identified. Potential impacts on the bald eagle (state-listed as threatened in Texas and endangered in Louisiana) are discussed below under migratory birds.

FGT consulted with TPWD and LDWF on potential impacts on special status species and species of special concern listed by the state. FGT provided both agencies with their updated protected species report in April 2017. LDFW issued a letter on June 16, 2017 indicating that the Project would not have impacts on rare, threatened, or endangered species or critical habitats. They also indicated that no state or federal parks, wildlife refuges, wildlife management areas, or scenic streams are known to occur in the Project area (LDWF, 2017).

TPWD issued a letter to FGT on May 31, 2017 that stated recommendations for FGT to follow (TPWD, 2017). FGT responded to this letter agreeing to follow all of TPWD's recommendations, including specific measures for the protection of migratory birds, bald and golden eagles, state-listed species, aquatic wildlife, rare species, and prevention of the spread of invasive species.

FGT intends to have a trained EI on site during construction to help with identification of species and to direct workers in the event a state-listed species is identified within the construction corridor. All construction workers would attend pre-

construction environmental training. During the training, in addition to reviewing the requirements and conditions of all applicable environmental permits, the workers would be provided with detailed information regarding state and federally protected species, including photos and appropriate responses to implement when a snake or other animal is identified within the construction corridor. FGT has noted that the plains spotted skunk, Henslow's sparrow, southern crawfish frog, and western burrowing owl could occur within the Project area. FGT would include these species in its pre-construction environmental training materials so that construction personnel can identify and try to avoid them if observed within the right-of-way.

In response to TPWD's comments, FGT would further investigate the potential for aquatic invasive plans to be present within the streams that would be open cut (where equipment would actually be in contact with the stream banks and bottom). If necessary, wash stations may be implemented in order to mitigate for the spread of invasive species.

Migratory Birds and Birds of Conservation Concern

Migratory birds are protected under the MBTA, originally passed in 1918. The MBTA states that it is unlawful to pursue, hunt, take, capture, kill, possess, sell, purchase, barter, import, export, or transport any migratory bird, or any part, nest, or egg of any such bird, unless authorized under a permit issued by the Secretary of the Interior. Take is defined in the regulations as "pursue, hunt, shoot, wound, kill, trap, capture, or collect, or attempt to pursue, hunt, shoot, wound, kill, trap, capture, or collect" (50 CFR 10) (FWS, 2015). The MBTA also protects resident, non-migratory bird species in the United States and its territories.

A variety of migratory birds and birds of conservation concern use or could use the habitats affected by the Project. Birds use these habitats for resting (stopover), sheltering, foraging, breeding, and/or nesting. Birds of Conservation Concern (BCC) are a subset of protected birds under the MBTA and include all species, subspecies, and populations of migratory nongame birds that are likely to become candidates for listing under the ESA without additional conservation actions (FWS, 2008). The Project is located in Bird Conservation Region (BCR) 37. A list of BCCs within BCR 37 that could occur in the Project area are provided in table 14.

Table 14. Birds of Greatest Conservation Concern

Bird Conservation Region 37 – Gulf Coastal Prairie

Common Name	Scientific Name[b]	Seasonal Occurrence	Potential for Occurrence in the Project Area
American bittern	*Botaurus lentiginosus*	Wintering	Not likely
American kestrel	*Falco sparverius Paulus*	Year-round	Open meadows to brushy fields
American oystercatcher	*Haematopus palliates*	Year-round	Not likely
Bachman's sparrow	*Aimophila aestivalis*	Year-round	Not likely
Bald eagle	*Haliaeetus leucocephalus*	Year-round	Not likely
Bewick's wren	*Thryomanes bewickii ssp.*	Wintering	Dense brushy habitats
Black rail	*Laterallus jamaicensis*	Year-round	Not likely
Black skimmer	*Rynchops niger*	Year-round	Not likely
Brown-headed nuthatch	*Sitta pusilla*	Year-round	Not likely
Burrowing owl	*Athene cunicularia*	Year-round	Not likely
Chuck-will's-widow	*Caprimulgus carolinensis*	Breeding	Not likely
Dickcissel	*Spiza Americana*	Breeding	Grassy or weedy fallow fields
Fox sparrow	*Passerella iliaca*	Wintering	Brushy patches and thickets.
Gull-billed tern	*Gelochelidon nilotica*	Year-round	Not likely
Harris's sparrow	*Zonotrichia querula*	Wintering	Hedgerows and woody areas
Henslow's sparrow	*Ammodramus henslowii*	Wintering	Not likely
Hudsonian godwit	*Limosa haemastica*	Migrating	Not likely
Kentucky warbler	*Oporornis formosus*	Breeding	Not likely
Lark bunting	*Calamospiza melanocorys*	Wintering	Not likely
Le Conte's sparrow	*Ammodramus leconteii*	Wintering	Not likely
Least bittern	*Ixobrychus exilis*	Breeding	Not likely
Least tern	*Sterna antillarum*	Breeding	Not likely
Lesser yellowlegs	*Tringa flavipes*	Wintering	Not likely
Little blue heron	*Egretta caerulea*	Breeding	Not likely
Loggerhead shrike	*Lanius ludovicianus*	Year-round	Open pastures and prairies
Long-billed curlew	*Numenius americanus*	Wintering	Open fields
Louisiana waterthrush	*Parkesia motacilla*	Breeding	Not likely
Magnificent frigatebird	*Fregata magnificens*	Wintering	Not likely
Marbled godwit	*Limosa fedoa*	Wintering	Not likely
Mississippi kite	*Ictinia mississippiensis*	Breeding	Open areas intermixed with large trees
Mountain plover	*Charadrius montanus*	Wintering	Not likely

Table 14. Birds of Greatest Conservation Concern

Bird Conservation Region 37 – Gulf Coastal Prairie

Nelson's sparrow	*Ammodramus nelson*	Wintering	Not likely
Orchard oriole	*Icterus spurius*	Breeding	Scrubby woods and hedgerows with isolated
Painted bunting	*Passerina ciris*	Breeding	Brushy lowlands at forest edges
Peregrine falcon	*Falco peregrinus*	Wintering	Open areas, especially near water
Prairie warbler	*Setophaga discolor*	Breeding	Not likely
Prothonotary warbler	*Protonotaria citrea*	Breeding	Not likely
Red knot	*Calidris canutus rufa*	Wintering	Not likely
Red-headed woodpecker	*Melanerpes erythrocephalus*	Year-round	Not likely
Reddish egret	*Egretta rufescens*	Year-round	Not likely
Rusty blackbird	*Euphagus carolinus*	Wintering	Not likely
Sandwich tern	*Thalasseus sandvicensis*	Year-round	Not likely
Scissor-tailed flycatcher	*Tyrannus forficatus*	Breeding	Prairies and open fields with some trees
Seaside sparrow	*Ammodramus maritimus*	Year-round	Not likely
Sedge wren	*Cistothorus platensis*	Wintering	Dense grassy meadows with shrubs
Short-billed dowitcher	*Limnodromus griseus*	Wintering	Not likely
Short-eared owl	*Asio flammeus*	Wintering	Not likely
Snowy plover	*Caradrius alexandrines*	Wintering,	Not likely
Solitary sandpiper	*Tringa solitaria*	Wintering	Not likely
Sprague's pipit	*Anthus spriagueii*	Wintering	Fields with short or sparse grass
Swainson's warbler	*Limnothlypis swainsonii*	Breeding,	Not likely
Swallow-tailed kite	*Elanoides forficatus*	Breeding	Not likely
Whimbrel	*Numenius phaeopus*	Wintering	Not likely
White-tailed kite	*Buteo albicaudatus*	Year-round	Open savannas
Wilson's plover	*Charadrius wilsonia*	Year-round	Not likely
Wood thrush	*Hylocichla mustelina*	Breeding	Not likely
Worm eating warbler	*Helmitheros vermivorum*	Breeding, Migrating	Not likely
Yellow rail	*Coturnicops noveboracensis*	Wintering	Not likely

Executive Order (EO) 13186 was issued, in part, to ensure that environmental analyses of federal actions assess the impacts on migratory birds. It also states that emphasis should be placed on species of concern, priority habitats, and key risk factors and it prohibits the take of any migratory bird without authorization from the FWS. On

March 30, 2011, the FWS and the Commission entered into a Memorandum of Understanding (MOU) that focuses on avoiding or minimizing adverse impacts on migratory birds and strengthening migratory bird conservation through enhanced collaboration between the Commission and the FWS by identifying areas of cooperation. This voluntary MOU does not waive legal requirements under any other statutes and does not authorize the take of migratory birds.

Impacts and Mitigation for Migratory Birds

The impacts of the Project on bird species include short-term effects resulting from physical disturbance during construction, as well as long-term effects resulting from habitat modification, fragmentation, or loss (forest and wetlands). Any required clearing or other construction-related activities would directly and/or indirectly affect most birds that reside within the right-of-way. Construction activities could temporarily deprive some birds of cover and potentially subject them to increased natural predation. If construction occurs during the breeding season, construction activities may adversely affect the young of some species. The increased noise and activity levels during construction could potentially disturb the daily activities (e.g., breeding, foraging, etc.) of bird species inhabiting the areas adjacent to the right-of-way. The Project would involve a small amount of tree clearing (about 6 acres). FGT has agreed to not conduct tree clearing during the migratory breeding and nesting season (March 15-September 15).

During field surveys, FGT noted the presence of potential suitable habitat for bald eagles adjacent to the proposed Project area and an existing bald eagle nest within the existing CS6 facility. In 2010, an eagle pair was observed constructing a new nest within the CS6 facility. In January 2017, an eagle pair was observed nesting. On March 13, 2017 an eaglet was observed in the nest, and on April 18, 2017 the eaglet was observed flying around the nest. Additionally, field surveyors observed two recently fledged young near the nest, as well as the two adult eagles. The eagle nest at the CS6 facility, first constructed in the fall of 2010, is now being used on a consistent basis. The successful nesting occurred during normal operational activities at the facility and the eagles did not seem to be affected by the day-to-day activities at the facility. Given that the nest location is 7 years old, that the nest is currently in use and was successful during the current breeding season, it appears that the eagles have become acclimated to the onsite activities.

It is unlikely that continued operation of the site or the proposed construction activities would affect the nesting eagles. If construction activities align with nesting season, and the eagles are present, FGT would employ onsite biological monitors to observe the eagles and their nesting habits. If the biological monitor observes any behavior by the eagles indicative of annoyance by construction activities, a stop-work order would be issued until the eaglet(s) fledge the nest. In Texas, bald eagles nest from late October through June. The eagle pair at the CS6 facility in 2017 were active at the

nest from January through April and likely into May, and it is likely that this timeframe would be used in 2018. FGT consulted with the Charles Ardizzone of the FWS on May 3, 2017 in a telephone conversation. Mr. Ardizzone agreed that FGT's proposed measures (described above) to protect the eagles during construction are adequate (FWS, 2017).

If any other bald eagle nests are discovered within 1,000 feet of the Project area, FGT would perform an evaluation in consultation with the Division of Migratory Birds for the Southeast Region of FWS to determine whether the project is likely to disturb nesting bald eagles. Due to the limited amount of forest clearing that would be required for the Project and FGT's proposed mitigation and protection measures described above, we conclude that the Project would not significantly affect migratory birds, BCCs, or bald eagles.

B.4. Land Use, Recreation, and Visual Resources

Existing Resources

As summarized in section A.6, construction of the Project would disturb about 292 acres of land, including 221 acres for pipeline right-of-way and ATWS, 34.6 acres for access roads, 8.9 acres for contractor yards and staging areas, and 27.5 acres for aboveground facilities. Following construction, about 95.6 acres would be retained for operation of the Project, including 83.7 acres for permanent pipeline right-of-way, 7.9 acres of permanent access roads, and 5 acres for aboveground facilities. The land use categories identified within the Project areas include:

- Agricultural land: active cropland and hayfields
- Commercial/Industrial land/Utility rights-of-way: electric power or gas utility stations (including natural gas compressor stations), manufacturing or industrial plants, landfills mines, quarries, existing private/public roads and the respective rights-of-way, existing electric transmission line corridors, and existing pipeline corridors (water, liquids, gas)
- Open land: non-forested land, pasture land, and maintained land, PEM and PSS wetlands
- Residential land: yards, subdivisions, mobile home parks, and planned developments
- Forest: forested areas (including wetlands), other than agricultural windbreaks and pine plantations
- Pine plantations: areas of planted pine that will or has been harvested for lumber or other uses

Residential Areas

The Project facilities occur within primarily rural areas with few residential developments. FGT consulted with the counties crossed by the Project and found that no planned residential or commercial business development are within 0.25 mile of the Project. Table 15 shows the existing residences and other buildings/structures that are located within 50 feet of the proposed Port Arthur Lateral and Eunice-ANR Lateral. No existing structures or residences are located within 50 feet of the proposed Wilson Lateral, Wilson-Coastal Bend M&R Station, or Gillis-Trunkline M&R Station. There are three single-family residences within 50 feet of the proposed construction workspace for Port Arthur Lateral. Site-specific drawings/plans of the proposed pipeline alignment near these residences are provided in appendix J. The pipeline would be installed via HDD near most of the residences and buildings that are within 50 feet of FGT's proposed right-of-way, and therefore, the properties would not be disturbed by construction.

Table 15. Existing Residences and Buildings within 50 feet of the Construction Work Area

Milepost	Distance from Centerline (feet)	Distance from Active Construction Work Areas (feet)	Structure Type	Site Specific Plan Reference
Port Arthur Lateral and Port Arthur - Motiva M&R Station				
1.24	58	42	single-family residence	P8-009
7.35	0	HDD	storage shed	N/A
7.61	47	31	detached bldg behind residence	P8-010
7.63	37	21	detached garage behind residence	P8-010
7.72	15	HDD	single-family residence	P8-011, P8-031
7.76	17	HDD	portable shed	P8-011, P8-031
7.82	60	HDD	single-family residence	P8-012, P8-031
7.88	25	HDD	shed	P8-012, P8-031
10.72	0	0	storage shed	N/A
10.79	0	0	barn	N/A
Eunice - ANR Lateral and Eunice - ANR M&R Station				
0.38	29	1	Barn	P8-030
0.36	50	36	Silo	N/A

Recreation, Public Land, and Coastal Zone Management Areas

Several public land areas would be crossed by the Project. Table 16 below shows where the Project would cross these areas and summarizes the associated impacts. These parcels are owned or managed by public authorities and five would undergo direct construction impacts. The other four would be crossed using HDD. None of the lands are used for recreation.

Table 16. Public Lands Crossed by the Project

Tract	Land Manager	Milepost		Impacts (acres)		Crossing Method	Use
		Enter	Exit	Const.	Perm.		
Port Arthur Lateral							
PAL-JF-0034.100	Jefferson County DD7	5.22	5.58	0.0	0.08**a/**	Open cut & HDD	Canal corridor/ROW
PAL-JF-0033.000	Lower Neches Valley Authority	5.58	5.67	0.0	0.56**a/**	HDD	Canal corridor/ROW
PAL-JF-0031.001	COE & Jefferson County DD7	5.71	5.89	0.0	0.11**a/**	HDD	Hurricane Levee
PAL-JF-0029.003	Neches Canal	5.94	5.96	0.0	0.13**a/**	HDD	Canal corridor/ROW
PAL-JF-0027.000	Jefferson County	7.05	7.19	0.85	0.50	Open Cut	No designated use
PAL-JF-0026.000	City of Port Arthur	7.19	7.20	0.0	0.02	HDD	No designated use
PAL-JF-0025.000	County of Jefferson	7.20	7.42	0.0	1.4**a/**	HDD	Scrub shrub wetland – multiple pipelines
PAL-JF-0022.000	City of Port Arthur	7.84	7.95	0.0	0.64**a/**	HDD	Stormwater Control Pond/Reservoir
PAL-JF-0018.000	Jefferson County Drainage District Number 7	8.79	9.48	6.6	2.6	Open cut	Emergent wetland, stormwater control

a No ground disturbance would occur. Acreage represents the area of the easement to be acquired by FGT.

At approximate milepost 7.2, the County of Jefferson owns the land where wetland WETA10 was delineated. This land currently has no designated use and multiple pipelines are present on the property. There would be no land disturbances within this wetland or parcel as construction impacts would be avoided by using HDD. At approximate milepost 8.79, the Jefferson County DD7 owns the land where wetland WETB06 was delineated. This PEM wetland would be open cut for most of the crossing. FGT also proposes the placement of a temporary access road, HDD09 entry point, and associated ATWS. This land does not currently have a designated use but could be

utilized for future DD7 spoil storage. The project would not place any permanent fill within this wetland; and, once construction is complete, it would be allowed to return to its preconstruction state.

None of the Project areas are within 0.25 mile of any river in the National Wild and Scenic Rivers System, trails within the National Trails System, or designated recreational/public, landfill, or wilderness areas (designated under the Wilderness Act). Additionally, there are no special use areas such as state or national parks, or registered natural landmarks with 0.25 of the Project areas.

The Port Arthur Lateral and associated M&R station would be within the Texas Coastal Zone Management Area, which requires a consistency determination from the Texas General Land Office (TGLO). FGT consulted with the TGLO to obtain a consistency determination. TGLO determined that, because the Project is an automatic approval under the NWP, the Project would be consistent with the goals and policies of the Texas Coastal Management Program and that no additional review or consultation with TGLO is required for the Project.

Hazardous Waste Sites

Hazardous waste information is collected and maintained by regional and national EPA offices. All generators, transporters, treaters, storers, and disposers of hazardous waste are required to provide information about their activities to state environmental agencies (EPA, 2016). A search utilizing the online tools for identifying sites that report to the EPA for monitoring, Enviromapper provided by the EPA, indicated no known sites within 3,000 feet of a Project work area (five sites occur within two miles of the proposed Project route for the Port Arthur Lateral)

Visual Resources

No areas associated with the Project are within 0.25 mile of any visually sensitive area including scenic rivers, roadways, or parkways. The majority of the Project is located in rural areas with few residential developments. The aboveground facilities associated with the Project would be constructed within the new pipeline corridors, or would be parallel to existing facilities to minimize visual impacts. Visual impacts from each of the aboveground facilities to residential properties would be minimal due to the distance from these properties and presence of wooded land separating them.

Impacts and Mitigation for Land Use, Recreation, and Visual Resources

Agricultural Land

About 18.7 acres of agricultural land would be disturbed by the Project. The pipeline construction right-of-way would go through 18.6 acres of agricultural land, of which 6.9 acres would be within the permanent pipeline right-of-way, but would be able to continue being used as agricultural land. About 0.1 acres of agricultural land would be permanently maintained for an access road.

Agricultural lands within temporary construction areas will be restored to their former use following construction. Landowners would be compensated for crop loss during construction. Crops may be planted within the new pipeline easement once construction is completed. In the event the landowner experiences a loss in production after final stabilization, FGT would continue to work with the landowner and compensate for crop deficiencies that can be shown to be a result of construction of the project. To avoid or minimize soil impacts, FGT would employ the erosion and sedimentation control and restoration procedures described in the FERC Plan and FGT's Procedures. FGT would maintain soil productivity in agricultural lands by using topsoil segregation measures and alleviating compaction. In the case of agricultural wetlands, FGT would use standard agricultural upland protective measures, including workspace and topsoiling requirements described in the FERC Plan.

Open Land

About 154.5 acres of open land would be affected by the Project. The pipeline construction right-of-way would go through 135.7 acres of open land, of which 50.5 acres would be within the permanent pipeline right-of-way. About 3 acres of open land would be permanently affected by aboveground facilities and about 0.9 acres of open land would be permanently affected by access roads. Contractor yards would temporarily affect 8.5 acres of open land. It total, about 54.3 acres of open land would be permanently maintained by the Project, and 100.2 acres would revert to pre-construction use.

In open land areas, temporary workspace and ATWS areas would be allowed to revert back to open land use following the completion of the Project. Open land areas within the permanent right-of-way would also be returned to pre-construction conditions provided no woody vegetation is present. In upland areas, FGT would conduct routine vegetation maintenance on the permanent pipeline easement with a frequency of not more than once every three years. In addition, FGT would maintain a 10-foot-wide strip over the pipeline in an herbaceous state by mowing, cutting, and trimming on an annual basis.

Upland Forest and Pine Plantation

About 2.7 acres of unmanaged upland forest would be affected by the Project. The pipeline construction right-of-way for the Wilson Lateral would go through about 2.7 acres of unmanaged upland forest, 0.6 of which would be maintained as permanent pipeline right-of-way in an herbaceous state. About 3.4 acres of planted pine plantations would be cleared by the Project. The Gillis-Trunkline M&R Station would permanently remove 0.9 acres of pine plantation. Additionally 1.3 acres of pine plantation would be permanently removed by an access road. The remaining 1.2 acres would be allowed to revert to pine plantation. Because forest takes years to regenerate, areas that would be temporarily affected would take a longer time to return to former use.

Both short and long term impacts would occur on upland forest as a result of the construction and operation of the proposed Project. Where necessary, FGT would clear trees from the new permanent easement, temporary workspace, and ATWS. Following construction, FGT would allow the temporary workspace and the ATWS areas to revert to preconstruction conditions. Upland forest could take anywhere from 20-50 years to return to preconstruction conditions, depending on the woodland species and management practices. FGT would maintain the areas within the new permanent easement in a non-woody state per the FERC Plan and FGT Procedures, and clear the full permanent right-of-way every 3 years for safety and maintenance reasons (a 10-foot-wide strip would be maintained in an herbaceous state by mowing on an annual basis).

Residential Land

About 2.7 acres of residential land would be affected by the Project. The pipeline construction right-of-way would go through 2.6 acres of residential land, of which 0.9 acre would be within the permanent pipeline right-of-way. About 0.1 acres of residential land would be maintained for permanent access roads. In total, about 1 acre of residential land would be permanently affected by the Project, and 1.7 acres would be restored to pre-construction use.

The Port Arthur Lateral would pass through a residential area where three residences would be within 50 feet of the construction work area. Potential impacts on these residences would include increased levels of noise and dust during construction. Two out of the three residences would experience minimal impacts during construction because FGT intends to install the pipeline using HDD through the area where those residences are located.

During construction, crews would take safety measures to address public safety concerns, including installation of temporary construction fencing in residential areas (100 feet on either side of the residence) for public safety and to ensure that construction equipment and materials, including the spoil pile, remain within the construction work

area. Crews would not remove mature trees and landscaping within the edge of the construction work area, unless necessary for safe operation of construction equipment. Prior to construction, FGT would mail Commencement of Construction Notification letters at least 10 days prior to the start of construction to landowners with residences within 50 feet of the construction right-of-way, which would include an estimated date as to when construction would commence on or near their property. The letter would also provide the phone number and email information of FGT's land agent for that area of the Project.

One residence would be within 10 feet of the pipeline centerline; however, FGT intends to install the pipe using HDD through the area where this residence is located. FGT anticipates limiting construction disturbance to clearing and grading (minor hand clearing for HDD guide wire) of the right-of-way for equipment access. Additionally, FGT would utilize physical barriers to separate the construction right-of-way from the residence. FGT is currently working with affected the landowners to minimize impacts. Site-specific drawings of construction plans through areas where residences are within 50 feet of the construction right-of-way are shown in appendix J. We have reviewed these plans and find them acceptable. We encourage affected landowners to review these plans and provide comments to FERC staff.

Two barns would be affected during construction of the Port Arthur Lateral. FGT has consulted with the appropriate landowners, and are currently negotiating payment to compensate for loss and/or damage of the barns. FGT would fence the edge of the construction workspace and/or install a physical barrier to prevent equipment or vehicles from inadvertent damage. FGT's land agents have been communicating with the respective owners and FGT's right-of-way manager confirms that the landowners do not have concerns with regard to potential damage to the barns.

Immediately after backfilling the trench, FGT would ensure that construction crews restore all lawn areas and landscaping within the construction work area consistent with the requirements of the FERC Plan. After the pipeline has been installed and all construction related activities are complete, the landowners may use the permanent easement provided they do not interfere with the rights granted to FGT. No structures, including houses, tool sheds, garages, guy wires, catch basins, swimming pools, trailers, leach fields, septic tanks, and any other objects not easily removable, would be permitted on the permanent easement.

Commercial Land, Roads, and Other Rights-of-Way

About 55.5 acres of commercial land, roads, and utility rights-of-way would be affected by the Project. The pipeline construction right-of-way would affect about 8.8 acres of this land use type, of which about 4 acres would be in the permanent pipeline right-of-way. About 26.6 acres would be affected by access roads, of which 5.5 acres

would be permanent. Table 17 below shows acreages of land use affected by the Project.

Table 17. Acreages of Land Use Categories Affected by the Project (acres)

Facility	Ag a/		Open		Forest		Planted Pine Forest		Commerc/ Roads and ROWs b/		Resid c/	
	C	O	C	O	C	O	C	O	C	O	C	O
Wilson Lateral	5.7	2.3	115.9	44.3	3.5	0.7	-	-	3.5	1.6	-	-
Wilson-Coastal Bend M&R Station	-	-	1.3	0.8	-	-	-	-	-	-	-	-
Port Arthur Lateral	11.5	4.3	64.9	24.2	1.6	0.5	-	-	5.3	2.4	2.1	0.7
Port Arthur-Motiva M&R Station	-	-	3.4	1.6	-	-	-	-	0.1	0.1	-	-
Eunice-ANR Lateral	1.4	0.3	4.1	1.2	-	-	-	-	-	-	0.5	0.2
Eunice-ANR M&R Station	-	-	0.9	0.5	-	-	-	0.2	0.2	0.1	-	-
Gillis-Trunkline M&R Station	-	-	-	-	-	-	2.1	0.9	0.3	-	-	-
Compressor Station 6	-	-	-	-	-	-	-	-	19.2	-	-	-
Access Roads	0.1	0.1	6.4	0.9	-	-	1.3	1.3	26.6	5.5	0.1	0.1
Contractor Yards	-		8.5	-	-	-			0.3	-	-	-
Total	**18.7**	**7.0**	**205.5**	**73.5**	**5.1**	**1.2**	**3.4**	**2.2**	**55.5**	**9.7**	**2.7**	**1.0**

a Agricultural land
b Commercial/industrial land, roads, and other utility right-of-ways.
c Residential Land
C – Construciton Impacts O – Operation Impacts

Hazardous Waste Sites

Several hazardous waste sites are within five miles of the Project. In the unlikely event that hazardous wastes or substances are encountered, the Construction Chief and EI will be notified immediately, and construction activities within the impact and surrounding area up to 200 feet in either direction (to be determined by the EI) will be stopped. FGT's in-house environmental and engineering personnel will be notified and measures would be implemented to identify the impact material and notify appropriate agencies and landowners. An agreed-upon scope for mitigation would be employed and construction would resume only after appropriate agency and company clearance is provided. All materials would be handled and disposed of as necessary in accordance with applicable regulations. These protocols would be part of the environmental training program for the Project.

Due to the limited amount of land that would be permanently affected by the Project, the small footprint of the Project's proposed permanent structures, and the fact that temporary areas would return to pre-construction use shortly after construction is completed, we conclude that the Project would not have a significant effect on land use, recreation, or visual resources.

B.5. Cultural Resources

The NHPA (54 U.S.C. 3001 et seq.), is the linchpin piece of legislation in the nation's historic preservation program. While there are other federal historic preservation laws and regulations, most of them do not apply to FERC, although they may apply to federal land managing agencies.[12] The NHPA set-up the Advisory Council on Historic Preservation (ACHP), created the National Register of Historic Places (NRHP), and established State Historic Preservation Offices (SHPO).

Section 101 of the NHPA requires the identification of religious and cultural properties in the area of potential effect (APE) that may be important to Indian tribes that historically occupied or used the Project area, and may be eligible for listing on the NRHP. Indian tribes are defined in 36 CFR 800.16(m) as: "an Indian tribe, band, nation, or other organized group or community, including a Native village, Regional Corporation, or Village Corporation, as those terms are defined in Section 3 of the Alaska Native Claims Settlement Act (43 U.S.C. 1602), which is recognized as eligible for the special programs and services provided by the United States to Indians because of their special status as Indians." FERC acknowledges that we have trust responsibilities to Indian tribes; so on July 23, 2003, the Commission issued a "Policy Statement on

[12] For example, the Archaeological Resources Protection Act of 1979 applies to federal and tribal lands, but FERC does not own or manage any lands.

Consultations with Indian Tribes in Commission Proceedings" in Order 635. It is the obligation of FERC, on behalf of all of the federal cooperating agencies, to consult on a government-to-government basis with Indian tribes that may have an interest in the Project.

Section 106 of the NHPA requires that all federal agencies, including FERC, take into account the effects of their undertakings on historic properties and afford the ACHP an opportunity to comment. Historic properties are archaeological sites, historic districts, buildings, structures, objects, or properties of traditional, religious, or cultural importance that are listed on or eligible for the NRHP. FGT is assisting us by providing information, analyses, and recommendations, as allowed by the regulations for implementing Section 106 at Part 800.2(a)(3), and FERC's regulations at 18 CFR 380.12(f). FERC remains responsible for all findings and determinations under the NHPA. As the lead federal agency for this Project,[13] FERC addresses compliance with Section 106.

Consultations

We sent copies of our NOI issued December 19, 2016 for the FGT Project to a wide range of stakeholders, including other federal agencies, such as the ACHP, EPA, COE, the NPS, and Bureau of Indian Affairs (BIA); state agencies, including the Texas and Louisiana SHPOs; and Indian tribes that may have an interest in the Project. The NOI contained a paragraph about Section 106 of the NHPA, and stated that we use the notice to initiate consultations with the SHPOs, and to solicit their views, and those of other government agencies, interested Indian tribes, and the public on the project's potential effects on historic properties. No federal, state, or local government agencies filed comments on cultural resources issues in response to our NOI.

The FERC NOI was sent to the Indian tribes and Native Americans listed on table 18. Only the Quapaw Tribe of Oklahoma responded to our NOI. In a letter to FERC, dated January 6, 2017, the Quapaw Tribe indicated that the Project was outside its area of interest.

In addition to FERC's consultations, FGT communicated with interested Indian tribes and the Louisiana and Texas SHPOs. In a letter dated September 13, 2016, FGT introduced the Project to the 26 Indian tribes and Native Americans listed on table 18. Only two tribes responded back to FGT. In an October 21, 2016 letter addressed to Burns & McDonald, FGT's consultant, the Quapaw Tribal Historic Preservation Officer (THPO) indicated that the Project is outside of the tribe's area of interest. The THPO for the Alabama-Coushatta Tribe of Texas, in an October 22, 2016 letter to FGT, indicated that impacts to cultural assets of the tribe could not be ascertained, but the tribe should be

[13] Pursuant to 36 CFR 800.2(a)(2), the May 2002 "Interagency Agreement on Early Coordination of Required Environmental and Historic Preservation Reviews," and the Energy Policy Act of 2005.

notified in the event of an inadvertent discovery.

Table 18. Indian Tribes and Native Americans Contacted About the Project

Sent FERC's December 19, 2016 NOI	Sent FGT's September 13, 2016 Letters	Responses
Alabama Coushatta Tribe of Texas c/o Jianne Battise, Chair, and Bryant Celestine, THPO a/	Alabama Coushatta Tribe of Texas c/o Bryant Celestine, THPO	10/22/16 letter to FGT indicated that impacts on the tribe's cultural assets could not be completely ascertained.
Alabama-Quassarte Tribal Town of Oklahoma c/o Tarpie Yargee, Chief	Alabama-Quassarte Tribal Town of Oklahoma c/o Tarpie Yargee, Chief	None filed to date.
Apache Tribe of Oklahoma c/o Bobby Komardly, Chair & Lyman Guy, Chair	Apache Tribe of Oklahoma c/o Lyman Guy, Chair	None filed to date.
Atakapa-Ishak Nation c/o Edward Chretien, Chief	Atakapa-Ishak Nation c/o Edward Chretien, Chief	None filed to date.
Caddo Nation of Oklahoma c/o Tamara Francis, Chair & Kim Penrod, THPO	Caddo Nation of Oklahoma c/o Tamara Francis, Chair	None filed to date.
Cherokee Nation of Oklahoma c/o Bill Baker, Chief	Cherokee Nation of Oklahoma c/o Bill Baker, Chief	None filed to date.
Chitimacha Tribe of Louisiana c/o O'Neil Darden, Chair, & Kimberly Walden, THPO	Chitimacha Tribe of Louisiana c/o Kimberly Walden, THPO	None filed to date.
Choctaw Nation of Oklahoma c/o Ian Thompson, THPO	Choctaw Nation of Oklahoma c/o Ian Thompson, THPO	None filed to date.
Comanche Tribe of Oklahoma c/o Wallace Coffey, Chair & Jimmy Arteberry, THPO		None filed to date.
Coushatta Tribe of Louisiana c/o Lovelin Poncho, Chair & Linda Langley, THPO	Coushatta Tribe of Louisiana c/o Linda Langley, THPO	None filed to date.
Delaware Nation of Oklahoma c/o Cleanan Watkins, President	Delaware Nation of Oklahoma c/o Cleanan Watkins, President	None filed to date.
Jena Band of Choctaw Indians in Louisiana c/o Cheryl Smith, Chief & Alina Shively, THPO	Jena Band of Choctaw Indians in Louisiana c/o Alina Shively, THPO	None filed to date.
Jicarilla Apache Tribe of Oklahoma c/o Wainwright Velarde, President		None filed to date.
Kialegee Tribal Town of Oklahoma c/o Jeremiah Hobia, Town King	Kialegee Tribal Town of Oklahoma c/o Jeremiah Hobia, Town King	None filed to date.
Kickapoo Tribe of Oklahoma c/o Gilbert Salazar, Chair	Kickapoo Tribe of Oklahoma c/o Gilbert Salazar, Chair	None filed to date.
Kickapoo Tribe of Texas c/o Estavio Elizondo, Chair		None filed to date.
Kiowa Tribe of Oklahoma c/o Amber Toppah, Chair	Kiowa Tribe of Oklahoma c/o Amber Toppah, Chair	None filed to date.

Table 18. Indian Tribes and Native Americans Contacted About the Project

Sent FERC's December 19, 2016 NOI	Sent FGT's September 13, 2016 Letters	Responses
Choctaw Turtle Tribe of Louisiana c/o James Gil, Chief	Choctaw Turtle Tribe of Louisiana c/o James Gil, Chief	None filed to date.
Mescalero Apache Tribe of New Mexico c/o Holly Hougten, THPO	Mescalero Apache Tribe of New Mexico c/o Holly Hougten, THPO	None filed to date.
Mississippi Band of Choctaw Indians c/o Kenneth Carlton, THPO	Mississippi Band of Choctaw Indians c/o Kenneth Carlton, THPO	None filed to date.
Muscogee Creek Nation of Oklahoma c/o RaeLynn Butler, THPO	Muscogee Creek Nation of Oklahoma c/o RaeLynn Butler, THPO	None filed to date.
Poarch Band of Creek Indians of Alabama c/o Robert Thrower, THPO	Poarch Band of Creek Indians of Alabama c/o Robert Thrower, THPO	None filed to date.
Quapaw Tribe of Oklahoma c/o Everett Bandy, THPO	Quapaw Tribe of Oklahoma c/o Everett Bandy, THPO	10/21/16 letter to Burns & McDonald stated that the project is outside the tribe's area of interest. 1/6/17 letter to FERC stated that the project is outside the tribe's area of interest.
Seminole Nation of Oklahoma c/o Leonard Harjo, Chief	Seminole Nation of Oklahoma c/o Leonard Harjo, Chief	None filed to date.
Thlopthlocco Tribal Town of Oklahoma c/o Charles Coleman, THPO	Thlopthlocco Tribal Town of Oklahoma c/o Charles Coleman, THPO	None filed to date.
Tonkawa Tribe of Oklahoma c/o Russell Martin, President	Tonkawa Tribe of Oklahoma c/o Russell Martin, President	None filed to date.
Tunica-Biloxi Tribe of Louisiana c/o Joey Barby, Chair & Earl Barbry, THPO	Tunica-Biloxi Tribe of Louisiana c/o Earl Barbry, THPO	None filed to date.
United Keetoowah Band of Cherokee Indians in Oklahoma, c/o George Wickliffe, Chief	United Keetoowah Band of Cherokee Indians in Oklahoma, c/o George Wickliffe, Chief	None filed to date.
Wichita and Affiliated Tribes of Oklahoma c/o Terri Parton, President	Wichita and Affiliated Tribes of Oklahoma c/o Terri Parton, President	None filed to date.
Ysleta de Sur Pueblo in Texas c/o Carlos Hisa, Governor		None filed to date.
United South and Eastern Tribes c/o Kitcki Carroll, Executive Director		None filed to date.

a/ THPO = Tribal Historic Preservation Officer

FGT initiated communications with the Texas Historical Commission, representing the SHPO, on August 10, 2016. That letter included proposed archaeological survey methods (Norton, 10 August 2016), that the Texas SHPO accepted on August 26, 2016. On April 19, 2017, the Texas SHPO acknowledged receipt from Burns & McDonnell representing FGT of the revised survey report for the Wilson Lateral and Wilson – Coastal Bend M&R Station (Fischbeck et al., 19 April 2017). On May 8, 2017, the Texas SHPO sent an email to Burns & McDonald with comments on the Wilson Lateral survey report.

Communications between FGT and the Louisiana Office of Cultural Development, representing the SHPO, began on September 7, 2016. That letter also included proposed archaeological survey methods (Fischbeck, 7 September 2016). In a stamp on that letter, dated September 28, 2016, the Louisiana SHPO indicated that: "No known historic properties will be affected by this undertaking." In a letter to Burns and McDonnell dated July 25, 2017, the Louisiana SHPO commented on the revised survey report covering the Eunice-ANR Laterals, Eunice-ANR M&R Station, and Gillis-Trunkline M&R Station (Fischbeck et al. July 2017).

On January 16, 2017, Thomas Hunt, a landowner, filed at letter at FERC that indicated that there are the remains of prehistoric villages associated with the Karankawa Indians located in the vicinity of the San Bernard Cane Creek area on his ranch. In a July 6, 2017 filing, FGT indicated that no historic properties were identified during surveys across the Hunt property, or in nearby areas that were deep tested.

Cultural Resources Investigations

Areas of Potential Effect

Resource Report 4 in the Environmental Report attached to of FGT's application defined the direct APE for archaeological and architectural sites as the nominal 100-foot-wide construction right-of-way in uplands, plus ATWS, the 75-foot-wide construction right-of-way through wetlands, and the acres impacted at locations of aboveground facilities. However, the August 10, 2016 letter to the Texas SHPO indicated that the APE is 150 feet on each side of a pipeline (300-foot-wide corridor). The Texas SHPO accepted that definition of the APE on August 26, 2016; and we agree.

In its survey report covering the Wilson Lateral, Burns & McDonald indicated that the APE was 150 feet on each side of the pipeline, for its length of 13.3 miles, covering 484 acres; while the APE for the Wilson-Coastal Bend M&R Station covered 1.4 acres (Fischbeck et al., 29 September 2016a). The survey report for the Port Arthur Lateral indicated that the APE for that facility was 150 feet on each side of the pipeline for about 11 miles, covering 400 acres, plus 1.4 acres at the Port Arthur-Motiva M&R Station (Fischbeck et al., 29 September 2016b). In its February 28, 2017 response to our

environmental information response (EIR), FGT clarified that its APE was a 300-foot-wide corridor along the proposed pipelines.

Overview Results

In its August 10, 2016 letter to the Texas SHPO, Burns & McDonald, representing FGT, indicated that three previous surveys could be documented within one mile of the proposed Wilson Lateral. Six previously recorded archaeological sites and four previously recorded historic architectural sites were located within one mile of the Wilson Lateral. Nine previous surveys were documented and four previously recorded historic architectural sites were located within one mile of the proposed Port Arthur Lateral (Norton, 10 August 2016).

FGT's October 31, 2016 application to the FERC also contained the results of site file searches in Resource Report 4. Eight previously recorded archaeological sites and four historic architectural sites were identified within one mile of the proposed Wilson Lateral and Wilson-Coastal Bend M&R Station. Four known historic architectural sites were identified within one mile of the proposed Port Arthur Lateral and Port Arthur-Motiva M&R Station. Three previously recorded archaeological sites were identified within one mile of the proposed Eunice-ANR Lateral and Eunice-ANR M&R Station. No previously recorded sites were identified within one mile of the proposed Gillis-Trunkline M&R Station.

In its September survey report for proposed facilities in Louisiana, Burns & McDonnell indicated that it performed site file searches at the Louisiana Division of Archaeology's on-line Cultural Resource Viewer, inspected historic aerial photographs at the Louisiana State University's Department of Geology and Anthropology Cartographic Information Center, and reviewed the USGS Historic Topographic Map Explorer. The results of this research was that five previous surveys, and three previously recorded archaeological resources, were documented within one mile of the Eunice-ANR Lateral and Eunice-ANR M&R Station. Four previous surveys, and no previously recorded sites, were documented within one mile of the Gillis-Trunkline M&R Station (Shaver, D., et al. 27 September 2016).

None of the previously recorded sites identified during the literature reviews and cite file searches were relocated by FGT within the direct APE for the Project during on-the-ground pedestrian inventories of the proposed facilities.

Inventory Results

Burns & McDonnell conducted pedestrian cultural surveys of the Wilson Lateral and Wilson-Coastal Bend M&R Station in August – September 2016 and March 2017, and deep testing within the Caney Creek Valley in February 2017. Two new historic

archaeological sites (41WH143 and 144) were recorded during this field work along the lateral. Both sites were evaluated as not eligible for the NRHP within the APE. In addition, an abandoned historic era (ca. 1940s) dwelling was noted; also evaluated as not eligible (Fischbeck et al., 19 April 2017).

The September 2016 draft survey report for the Wilson Lateral (Fishbeck et al., 29 September 2016a), indicated that 0.7 mile along the lateral was not yet inventoried. In our February 7, 2017 EIR, we requested that FGT file the Texas SHPO review of that report. Instead, in its April 2017 response, FGT filed a revision of the report (Fischbeck et al., 19 April 2017). That revised report indicated that about 0.2 mile along the Wilson Lateral was not yet inspected. In a May 8, 2017 email to Burns & McDonald, the Texas SHPO accepted the Wilson Lateral revised survey report. The SHPO stated that no historic properties are present or would be affected within the areas inventoried. We concur.

No new archaeological sites were identified during the August 2016 survey along the Port Arthur Lateral. The September 2016 draft survey report for the Port Arthur Lateral (Fishbeck et al., 29 September 2016b), indicated that about 5 miles of the lateral was not yet inventoried. The April 2017 revised survey report indicated that only 1.4 miles of lateral route remained to be inspected. Seventy-three shovel tests were excavated; all negative. Three historic dwellings were identified and recommended as not eligible for the NRHP (Fischbeck, et al. 21 April 2016). In a May 25, 2017 email to Burns & McDonald, the Texas SHPO accepted the Port Arthur Lateral revised survey report. The SHPO stated that no historic properties are present or would be affected within the areas inventoried. We concur.

On July 31, 2017, FGT filed a revised survey report covering the Eunice-ANR Lateral and the Eunice-ANR M&R Station, and the Gillis-Trunkline M&R Station (Fischbeck et al. 27 July 2017). The survey examined about 18 acres at the Eunice-ANR Lateral and the Eunice-ANR M&R Station with 37 shovel probes examined and 1.4 acres at the Gillis-Trunkline M&R Station with 4 shovel probes examined. One newly discovered historic archaeological site (16AC65) was recorded along the Eunice-ANR Lateral. That site was evaluated as not eligible for the NRHP (Shaver et al. 27 September 2016).

On July 31, 2017, FGT filed a letter from the Louisiana SHPO dated July 25, 2017 accepting the July 2017 survey report covering the Eunice-ANR Lateral, Eunice-ANR M&R Station, and Gillis-Trunkline M&R Station. The SHPO stated the site 16AC65 is not eligible for the NRHP and the Project would have no effect on historic properties. We agree.

Unanticipated Discovery Plan

As Appendix M1 of its Environmental Report included with its October 2017 application to the FERC, FGT attached its UDP for the Texas Segments of the Project. The UDP for the Louisiana Segments was attached as Appendix M2. Our February 7, 2017 EIR requested that FGT revise the UDPs, and document SHPO reviews. Revised UDPs were filed by FGT on February 28, 2017. In addition, copies of the revised UDP was included in the revised cultural resources survey report. The Texas SHPO accepted the UDP for Texas when it accepted the Wilson Lateral and Port Arthur Lateral revised survey reports. The SHPO's May 8 and 25 emails to Burns & McDonnell stated that the SHPO "concurs with the information provided." The Louisiana SHPO approved the UDP attached as Appendix C to the July 2017 survey report for the Eunice-ANR Lateral, Eunice-ANR M&R Station, and Gillis-Trunkline M&R Station when it accepted that report in a letter dated July 25, 2017. As requested by the THPO, the UDP includes a requirement that the Alabama-Coushatta Tribe of Texas be notified in the event of an unanticipated discovery.

Compliance with the National Historic Preservation Act

No traditional cultural properties, sacred sites, aboriginal burials, or objects of cultural patrimony were identified in the APE by the NPS, BIA, SHPOs, Burns & McDonald, or FGT, or any Indian tribes. After consultations with the SHPOs and Indian tribes, FERC concludes that the Project would have no effect on sites of traditional, cultural, or religious importance to Indian tribes, and therefore, we have completed compliance with Section 101(d)(6) of the NHPA.

We have not yet completed the process of compliance with Section 106 of the NHPA for all facilities proposed in Texas. About 0.2 mile of pipeline route along the Wilson Lateral, and 1.1 miles along the Port Arthur Lateral remain to be inventoried. FGT would have to document that those segments were surveyed, file revised reports, and the SHPO review of those reports. Therefore, **we recommend that:**

- **FGT should <u>not begin construction of the Wilson Lateral and Port Arthur Lateral in Texas</u>, including the use of staging, storage, or temporary work areas and new or to-be-improved access roads, <u>until</u>:**

  a. FGT files with the Secretary:

  (1) revised cultural resources survey reports documenting complete inventories of the Wilson Lateral and Port Arthur Lateral;
  (2) site evaluation reports and avoidance/treatment plans, as necessary; and
  (3) comments on the revised cultural resources reports and plans

from the Texas SHPO.

b. The Advisory Council on Historic Preservation is afforded an opportunity to comment if historic properties would be adversely affected.

c. The FERC staff reviews and the Director of OEP approves the cultural resources reports and plans, and notifies FGT in writing that treatment plans/mitigation measures (including archaeological data recovery) may be implemented and/or construction may proceed.

All materials filed with the Commission containing <u>location, character, and ownership</u> information about cultural resources must have the cover and any relevant pages therein clearly labeled in bold lettering: "<u>CUI//PRIV- DO NOT RELEASE</u>."

B.6. Air Quality

Existing Resources

Federal and state air quality standards are designed to protect human health. The EPA has developed National Ambient Air Quality Standards (NAAQS) for criteria air pollutants such as oxides of nitrogen (NO_x), carbon monoxide (CO), sulfur dioxide (SO_2), and inhalable particulate matter ($PM_{2.5}$ and PM_{10}). $PM_{2.5}$ includes particles with an aerodynamic diameter less than or equal to 2.5 micrometers and PM_{10} includes particles with an aerodynamic diameter less than or equal to 10 micrometers. The NAAQS were set at levels the EPA believes are necessary to protect human health and welfare. Volatile organic compounds (VOC) and hazardous air pollutants (HAPs) are also emitted during fossil fuel combustion.

Greenhouse Gases (GHG) produced by fossil-fuel combustion are carbon dioxide (CO_2), methane (CH_4), and nitrous oxide (N_2O). GHGs status as a pollutant is not related to toxicity. GHGs are non-toxic and non-hazardous at normal ambient concentrations, and there are no applicable ambient standards or emission limits for GHG under the Clean Air Act. GHGs emissions due to human activity are the primary cause of increased levels of all GHG since the industrial age. During construction and operation of the Project, these GHGs would be emitted from construction equipment and line heaters. Emissions of GHGs are typically expressed in terms of CO_2 equivalents (CO_{2e}).

If measured ambient air pollutant concentrations for a subject area remain below the NAAQS criteria, the area is considered to be in attainment with the NAAQS. The Project areas are in attainment for all NAAQS. Therefore, a general conformity determination is not required under the Clean Air Act (CAA).

The CAA is the basic federal statute governing air pollution in the United States. We have reviewed the following federal requirements and determined that they are not applicable to the proposed Project:

- New Source Review;
- Title V;
- National Emissions Standards for Hazardous Air Pollutants;
- New Source Performance Standards;
- Greenhouse Gas Reporting Rule; and
- General Conformity of Federal Actions

Impacts and Mitigation for Air Quality

Construction Impacts

During construction, a temporary reduction in ambient air quality may result from criteria pollutant emissions and fugitive dust generated by construction equipment. The quantity of fugitive dust emissions would depend on the moisture content and texture of the soils that would be disturbed. Fugitive dust and other emissions due to construction activities generally do not pose a significant increase in regional pollutant levels; however, local pollutant levels could increase. Dust suppression techniques, such as watering the right-of-way may be used as necessary in construction zones near residential and commercial areas to minimize the impacts of fugitive dust on sensitive areas. The Project construction emissions are presented in table 19.

Table 19. Construction Emissions (tons/year)

Source	NO_x	CO	VOC	SO_2	PM_{10}	$PM_{2.5}$	GHG (as CO_{2e})
Construction engine emissions	9.61	74.99	3.01	0.60	0.63	0.61	1,701.35
Unpaved roads	--	--	--	--	58.43	5.84	--
Paved roads	--	--	--	--	40.67	9.98	--
Equipment on construction site	--	--	--	--	14.95	1.50	--
Earthmoving	--	--	--	--	4.63	0.96	--
On-Road Tailpipe	19.24	98.04	11.29	0.14	1.21	1.03	6,643.19
Open burning	0.12	4.33	0.74	--	0.53	0.53	12.84
Total	**28.97**	**177.36**	**15.04**	**0.74**	**121.05**	**20.45**	**8,357.38**

These emissions represent the combined emissions of construction equipment combustion, on-road vehicle travel, off-road vehicle travel, and earthmoving fugitive dust. Construction related emission estimates were based on a typical construction

equipment list, hours of operation, and vehicle miles traveled by the construction equipment and supporting vehicles for each area of the Project. Emission factors for construction equipment were based on MOVES2010b and U.S. EPA MOBILE6.2 emission estimates.

Operational Impacts

The proposed Wilson-Coastal Bend M&R Station, the proposed Port Arthur-Motiva M&R Station, the proposed Eunice-ANR M&R station, and the Gills-Trunkline M&R Station, as well as the lateral pipelines would have some fugitive emissions. Estimated fugitive emissions from the Project facilities are: 0.12 tons/year of CO_2; 0.08 tons/year of VOCs; 0.29 tons/year of CH_4; and 7.48 tons/year of GHGs. These emissions would not have a significant impact on ambient air quality and would not contribute to an exceedance of any air quality standards.

The Project would result in direct and indirect GHG emissions. GHG emissions are discussed above and in table 19. While we do not know the ultimate fate of the Project's requested natural gas capacity; it may be used domestically, or may be designated for liquefaction and shipped overseas. The downstream emissions were quantified assuming full capacity and assuming that the emissions were burned as not used as feedstock. With this assumption, downstream emissions would be 8364.5 metric tonnes of CO_2 per year.[14] If this were to be burned, and not replace coal or fuel-oil in Texas[15], this volume of GHG emissions would result in a 1 percent increase of GHG emissions from fossil fuel combustion in Texas and less than 1 percent increase of National GHG emissions.[16]

Conclusion

Given the implementation of construction work practices, the short duration of the construction activities, a review of the estimated emissions from construction and operation, we find there would be no regionally significant impacts on air quality.

[14] CO_2, not CO_{2e}, as we do not account for downstream N_2O in combustion (very minor component) or methane leakage.
[15] Based upon Texas GHG emission of 640 million metric tonnes per year EIA 2014
[16] Based upon the 2015 National inventory of 5.4 billion tons of GHG per year.

B.7. Noise

Existing Resources

HDD construction can generate a significant amount of noise that could disturb nearby noise sensitive areas (NSA). There are nine HDD sites where NSAs are located within 0.5 mile. Table 20 below shows how many NSAs are within 0.5 mile of these HDD sites.

Table 20. Noise Sensitive Areas Within 0.5 mile of HDD Sites

HDD Number	Beginning MP	Ending MP	NSAs within 0.5 mile of HDD site
Wilson Lateral			
HDD01	3.47	3.55	0
HDD02	8.19	8.39	2
Port Arthur Lateral			
HDD01	0.27	0.39	76
HDD02	1.89	2.05	0
HDD03	3.50	4.23	0
HDD05	5.18	6.04	0 **a**
HDD07	7.15	7.47	68
HDD08	7.69	8.00	68
HDD09	8.76	8.85	1
HDD13	9.47	9.56	0
HDD10	10.05	10.18	53
HDD14	10.63	10.72	184
HDD11	10.89	11.02	160
HDD12	11.22	11.35	97

a Potential residence within 0.5 mile of HDD entry/exit point. However, the structure appeared vacant/abandoned on aerial imagery; therefore, it was not counted as an NSA.

Impacts and Mitigation for Noise

The noise environment can be affected both during construction and operation of pipeline projects. The magnitude and frequency of environmental noise may vary considerably over the course of the day, throughout the week, and across seasons, in part due to changing weather conditions and the effects of seasonal vegetative cover. Two measures to relate the time-varying quality of environmental noise to its known effect on people are the 24-hour equivalent sound level (L_{eq}) and day-night sound level (L_{dn}). The L_{eq} is the level of steady sound with the same total (equivalent) energy as the time-varying sound of interest, averaged over a 24-hour period. The L_{dn} is the L_{eq} plus 10 decibels on the A-weighted scale (dBA) added to account for people's greater sensitivity to nighttime sound levels (between the hours of 10 p.m. and 7 a.m.). The A-weighted scale is used because human hearing is less sensitive to low and high frequencies than mid-range frequencies. The human ear's threshold of perception for noise change is considered to be 3 dBA; 6 dBA is clearly noticeable to the human ear, and 10 dBA is perceived as a doubling of noise.

Construction Noise

Construction noise is highly variable. Many construction machines operate intermittently, and the types of machines in use at a construction site change with the construction phase. The sound level impacts on residences along the pipeline right-of-way due the construction activities would depend on the type of equipment used, the duration of use for each piece of equipment, the number of construction vehicles and machines used simultaneously, and the distance between the sound source and receptor. Nighttime noise due to construction would be limited since construction generally occurs during daylight hours, Monday through Saturday.

HDD Construction

FGT has committed to not using HDD during nighttime hours. FGT would attempt to meet the FERC's 55 dBA L_{dn} criteria at the closest NSAs using mitigation measures and construction procedures such as:

- installing noise barriers;
- enclosing the drill rig fully or partially;
- restricting HDD operation to day time hours only; and
- offering temporary relocation for affected NSAs during periods of elevated noise.

In the event that FERC's noise criterion is exceeded, FGT would work with specific landowners at NSAs to address concerns on a case by case basis. FGT anticipates the majority of HDD operations would occur during daylight hours; however, overnight operations may be necessary if there is a risk to the integrity of the drill. In the

event drilling operations are required during night-time hours, FGT would offer temporary relocation or compensation to residents that would experience a nighttime dba of 55 or greater. Table 21 below summarizes the estimated sound levels of HDD operations at the nearest NSAs.

FGT conducted an acoustical analysis to estimate the noise levels attributable to each HDD and the total noise level at each NSA. With the exception of HDD09, predicted noise levels exceeded 55 dbA at all NSAs. Further, increases above ambient noise levels of between 25-44.8 dBA were predicted for seven NSAs. These are very large increases in noise, even over the short period of HDD activities. FGT anticipates that each HDD would take 5-7 days to complete. To ensure that the noise would not have a significant impact on local residents, **we recommend that:**

- **<u>Prior to construction</u>, FGT should file with the Secretary, for the review and written approval by the Director of OEP, a HDD noise mitigation plan to reduce the projected noise level attributable to the proposed drilling operations at NSAs with predicted noise levels above 55dBA. During drilling operations, FGT should implement the approved plan, monitor noise levels, and make all reasonable efforts to restrict the noise attributable to the drilling operations to no more than a L_{dn} of 55 dBA at the NSAs.**

Table 21. Estimated Sound Contribution of Daytime HDD Operations at NSAs

HDD No.	Closest NSA	Entry Exit Point	Distance & Direction of Closest NSA	HDD Noise Levels L_{eq} (without noise control measures) (dBA)	HDD Noise Levels L_{eq} (with noise control measures) (dBA)	Ambient L_{dn} (dBA)	Total L_{dn} of HDD + Ambient L_{dn} (dBA)	Increase Above Ambient L_{dn} (dBA)
Wilson Lateral								
HDD02	NSA1a/NSA1b	Entry	1686 ft. SE	58.0	TBD	39.5	58.1	18.6
		Exit	1,640 ft. S	56.3	TBD	39.5	56.4	16.9
Port Arthur Lateral								
HDD01	NSA2c/NSA2d	Entry	1,410 ft. W	59.4	TBD	39.5	56.9	17.4
		Exit	1,843 ft. NW	56.2	TBD	39.5	56.3	16.8
HDD07	NSA3a/NSA3c	Entry	289 ft. SW	72.3	TBD	39.5	72.36	32.8
		Exit	298 ft. W	69.9	TBD	39.5	69.9	30.4
HDD08	NSA4a/NSA4e	Entry	131 ft. SE	84.3	TBD	39.5	84.3	44.8
		Exit	331 ft. W	73.8	TBD	39.5	73.8	34.3
HDD09	NSA10a	Entry	2,549 ft. NW	53.1	TBD	39.5	53.3	13.8
		Exit	2,549 ft. NW	53.1	TBD	39.5	53.3	13.8
HDD10	NSA5c/NSA5b	Entry	1,952 ft. SW	56.8	TBD	55.4	59.2	3.8
		Exit	1,528 ft. S	57.6	TBD	55.4	59.6	4.2
HDD11	NSA11a/NSA11b	Entry	475 ft. SE	71.0	TBD	58.9	71.3	12.4
		Exit	165 ft. E	80.6	TBD	55.4	80.6	25.2
HDD12	NSA12a/NSA12b	Entry	565 ft. NW	65.9	TBD	58.9	66.7	7.8
		Exit	945 ft. NW	61.8	TBD	55.4	62.7	7.3
HDD14	NSA6c/NSA6d	Entry	239 ft. E	72.5	TBD	39.5	72.5	33.0
		Exit	92 ft. SW	81.0	TBD	39.5	81.0	41.5

Operational Noise

Noise would generally be produced on a continuous basis, as it is currently. Piping and valves would be installed at CS 6/Vidor; However, the modification would not be expected to change the current operational noise conditions. Table 22 below shows the projected noise levels from the proposed M&R Stations.

Table 22. Projected Noise from M&R Stations

NSA ID	Distance and Direction of NSA from M&R Location	Assumed Ambient L_{dn} (dBA)	M&R Station Operation L_{dn} (dBA)	M&R Station Operation and Ambient Noise L_{dn} (dBA)	Potential Increase
Eunice - ANR M&R Station					
NSA 7a (Residences)	1,702 feet N	39.5	36.4	43.6	4.1
NSA 7b (Residences)	2,578 feet E	39.5	31.4	41.3	1.8
Wilson - Coastal Bend M&R Station					
NSA 8a (Residences)	1,778 feet S	39.5	35.9	43.6	4.1
Port Arthur - Motiva M&R Station					
NSA 9a (Residences)	880 feet NE	55.4	43.7	55.7	0.3
NSA 9b (Residences)	159 feet NE	55.4	60.2	61.4	6
NSA 9c (Residences)	2,165 feet NE	55.4	33.4	55.4	0
NSA 9d (Residences)	472 feet SE	58.9	50	59.4	0.5
NSA 9e (Residences)	462 feet SW	55.4	49.9	56.5	1.1
NSA 9f (Residences)	1,099 feet NW	55.4	41.2	55.6	0.2
NSA 9g (Residences)	804 feet NW	55.4	44.5	55.7	0.3

The proposed Port Arthur – Motiva M&R Station would exceed FERC's noise limit of 55 L_{dn} dBA. One NSA (NSA 9a) would potentially have a noticeable noise level impact. Therefore, to ensure noise impacts are reduced to less than significant levels, **we recommend that:**

- **FGT should file a noise survey with the Secretary no later than 60 days after placing the Port Arthur – Motiva M&R Station in service. If maximum flow is not possible, FGT should provide and interim survey at the highest possible flow and provide the maximum flow survey within 6 months. If the noise attributable to the operation of the Port Arthur – Motiva M&R Station exceeds an L_{dn} of 55 dBA at any nearby NSAs, FGT should file a report on what changes are needed and should install the additional noise controls to meet the level within 1 year of the in-service date. FGT should confirm compliance with the above requirement by filing a second noise survey with the Secretary no later than 60 days after it installs the additional noise controls.**

Conclusion

Given the temporary nature of construction activities and our noise conditions for HDD activities and operation of the Port Arthur – Motiva M&R Station, we conclude construction and operation noise impacts would not be significant.

B.8. Reliability and Safety

The transportation of natural gas by pipeline involves some risk to the public in the event of an accident and subsequent release of gas. The greatest hazard is a fire or explosion following a major pipeline rupture. Methane, the primary component of natural gas, is colorless, odorless, and tasteless. It is not toxic, but is classified as a simple asphyxiate, possessing a slight inhalation hazard. If breathed in high concentration, oxygen deficiency can result in serious injury or death.

The pipeline and aboveground facilities associated with the project must be designed, constructed, operated, and maintained in accordance with the DOT Minimum Federal Safety Standards in 49 CFR Part 192. The regulations are intended to ensure adequate protection for the public and to prevent natural gas facility accidents and failures.

The DOT pipeline standards are published in Parts 190-199 of Title 49 of the CFR. For example, Part 192 of 49 CFR specifically addresses natural gas pipeline safety issues, prescribes the minimum standards for operating and maintaining pipeline facilities, and incorporates compressor station design, including emergency shutdowns and safety equipment. Part 192 also requires a pipeline operator to establish a written

emergency plan that includes procedures to minimize the hazards in a natural gas pipeline emergency.

The operator must also establish a continuing education program to enable customers, the public, government officials, and those engaged in excavation activities to recognize a gas pipeline emergency and report it to appropriate public officials.

Facilities associated with the FGT Project must be designed, constructed, operated, and maintained in accordance with DOT standards, including the provisions for written emergency plans and emergency shutdowns. FGT would provide the appropriate training to local emergency service personnel before the facilities are placed in service.

FGT's pipeline construction and operation would represent a minimum increase in risk to the public and we are confident that with the options available in the detailed design of FGT's facilities, that they would be constructed and operated safely. FGT's construction and operation of the Project would represent a minimum increase in risk to the nearby public and we are confident that with implementation of the standard safety design criteria, that the Project would be constructed and operated safely.

B.9. Cumulative Impacts

The CEQ regulations for implementing NEPA, at 40 CFR 1508.7, define cumulative impacts as: "impacts on the environment which result from incremental impact of the [proposed] action when added to other past, present, and reasonably foreseeable future actions…." The current environment of the Project area reflects a mixture of natural processes and human influences across a range of conditions. Current conditions have been affected by innumerable activities over thousands of years.

The Project area was settled by American and European settlers in the 1800s, during which the primary industries were cattle ranching and agriculture. This continued and by 1900s most of the Project area's labor force worked in cattle ranching and agriculture. By the first quarter of the 20th century, farming had overtaken the region, with cotton becoming the most important cash crop. Today, the Project area economy is supported by energy, chemical and maritime industries, agriculture, and industrial manufacturing.

The CEQ issued an interpretive memorandum on June 24, 2005, regarding analysis of past actions, which stated: "agencies can conduct an adequate cumulative effects analysis by focusing on the current aggregate effects of past actions without delving into the historical details of individual past actions.' In order to understand the contribution of past actions to the cumulative effects of the proposed action, this analysis relies on current environmental conditions as a proxy for the impacts of past actions. This is because

existing conditions reflect the aggregate impact of all prior human actions and natural events that have affected the environment and might contribute to cumulative effects. In this analysis, we generally consider the impacts of past projects within the resource-specific geographic scopes as part of the affected environment (environmental baseline), which was described under the specific resources discussed throughout section B. However, this analysis does include the present effects of past actions that are relevant and useful.

In accordance with the CEQ regulations for implementing NEPA, we identified other actions located in the vicinity of the Project and evaluated the potential for a cumulative impact on the environment. This analysis evaluates other actions that impact resources also affected by the Project, within the resource-specific geographic scopes described below. Actions located outside the geographic scopes are generally not evaluated because their potential to contribute to a cumulative impact diminishes with increasing distance from the Project.

As described throughout this EA, the Project would temporarily and permanently impact the environment. We found that most impacts would be temporary and short-term during construction and restoration of the Project. Long-term impacts were found where the operational easement would be cleared of forest and maintained in a grassy condition. Permanent impacts would occur at aboveground facilities and permanent new access roads. However, we conclude that with the mitigation measures proposed by FGT, or recommended by staff for inclusion in a Commission Order, or by other agency permits, impacts would not be significant.

Our review of the estimated Project impacts concludes that nearly all construction impacts would be contained within the right-of-way and extra workspaces. Erosion control measures included in FERC's Plan, for example, would keep disturbed soils within work areas. Consequently, most of the construction impacts would be temporary and localized and are not expected to contribute to regional cumulative impacts.

We determined that the Project would not significantly contribute to cumulative impacts on the following resources:

- soils;
- geological resources; and
- groundwater.

We conclude that there would be no cumulative impacts on soils due to the fact that the Project's impacts on soils are limited to the immediate area of construction. We also conclude that the Project would not contribute to cumulative impacts on geological resources and groundwater because our EA concludes that the Project would have negligible impacts on geological resources and groundwater resources.

Exceptions exist where the impacts may migrate outside of designated work areas. Of these, we consider construction and operational air emissions to the airshed, noise impacts, and stream turbidity to possibly contribute to cumulative impacts. However, FGT would limit any potential stream turbidity through the use of HDDs and dry-cut stream crossings. Another construction resource impact that possibly would be cumulative based on the time required to achieve restoration is forest clearing.

For the purposes of this analysis, we are including the following resources: surface water, and wetlands; vegetation; wildlife; fisheries and aquatic resources; land use, and visual resources; cultural resources; and air quality and noise. For each environmental resource, the potential direct and indirect impacts associated with the Project are discussed in relation to the cumulative effects that may occur when they are added to other past, present, or reasonably foreseeable projects within the geographic scope of analysis, as described further below. Based on the impacts of the Project, the cumulative impact analysis for the projects included the following resource-specific geographic scopes listed in table 23.

Table 23. Resource-Specific Geographic Scopes

Resource(s)	Cumulative Impact Geographic Scope	Justification for Geographic Scope
Wetlands, Vegetation, Wildlife	Hydrologic Unit Code (HUC)-12 subwatershed boundary	Cumulative effects on biological resources typically are assessed within watershed boundaries due to the connectivity between biotic and abiotic resources that occurs within a drainage system. We chose the HUC-12 sub-level watershed because of the small scale of the Project's ground disturbance in relation to the area.
Surface Water Resources	HUC-12 sub-watershed boundary within the same timeframe as construction of the East - West Project	Impacts on surface waters can result in downstream contamination or turbidity; therefore, the geographic scope used to assess cumulative impacts on waterbodies includes the HUC-12 sub-watershed crossed by the Project. We chose the HUC-12 sub-level watershed because of the small scale of the Project's ground disturbance in relation to the area.
Cultural Resources	Overlapping impacts within the Area of Potential Effect (APE)	The APE is the "geographic area or areas within which an undertaking may directly or indirectly cause changes to the character of or use of historic properties, if any such properties exist". The Direct APE for archaeological resources is 150 feet on each side of the pipelines centerlines (300-foot-wide corridor).. The Geographic Area of Analysis for indirect effects encompasses historic structures, buildings, or districts within view of new Project aboveground facilities. Because direct impacts are localized and limited to the period of construction, cumulative impacts to cultural resources only occur if other projects are constructed at the same time and in the same geographic boundaries as the Project.
Land Use	1 mile from Project workspaces	Project impacts on land use would be generally restricted to the construction workspaces. We determined the geographic scope for land use to be a 1 mile buffer from the centerline/fenceline of the proposed Project work areas.
Visual Impacts	Approximately 500 feet (aboveground facilities); 0.25 mile from pipeline	No new aboveground facilities are proposed for the Project, except for M&R stations. We determined the geographic scope to be a distance of 500 feet from the M&R Stations, which is generally the distance that the tallest feature of the M&R stations would be visible from neighboring communities. We considered a distance of 0.25-mile to assess cumulative visual impacts from the pipeline facilities.

Table 23. Resource-Specific Geographic Scopes		
Noise	0.25 mile from pipeline and aboveground facilities, 0.5 mile from HDD operations	The geographic scope for assessing potential cumulative impacts on noise was determined to be areas within 0.25 mile of Project construction activities and that are within the same temporal scope (active construction period) as the Project. We assessed A 0.5-mile distance for areas where HDD activities would occur. There would be no operational noise associated with the Project.
Air Quality - Operations	Air emission sources within a 50-kilometer radius	There would be a minor increase in emissions due to modifications at the CS 6/Vidor; therefore we evaluated a 50- kilometer radius around the existing compressor station for cumulative impacts on air.
Air Quality - Construction	0.25 mile from the Project	Due to the Project's limited scope, the short construction duration and the minimal amount of emissions generated by construction equipment, the geographic scope used to assess potential cumulative impacts on air from construction activities was set at 0.25 mile from the Project area.

We also considered temporal relationships or a temporal scope when analyzing the Project's potential cumulative impacts. Reasonably foreseeable projects that may be authorized in the near future were also included for consideration.

We identified five projects within the resource-specific geographic scopes and temporal scope established for the Project: a railroad offloading facility, the Golden Pass LNG Terminal (FERC Docket CP14-517 and CP14-518), Formosa Ethane Pipeline, Coastal Bend Header Project (CBHP) (FERC Docket CP15-517-000), and non-jurisdictional electrical facilities to support operation of the Trunkline Meter Station.

The non-jurisdictional electrical facilities to support the Gillis-Trunkline M&R Station would require 25 power poles to support an overhead power line. An approximate 50-foot-wide corridor would be cleared for construction and operation of the power line. About 3.5 acres of open land and 2.1 acres of planted pine would be cleared and maintained in an herbaceous state. These facilities could cause minor visual impacts and impacts on land use, vegetation, and wildlife. Because of the limited amount of ground disturbance associated with these facilities, we do not consider them further in the cumulative impacts analysis. The other projects are summarized in table 24 and discussed below under each resource-specific cumulative impact analysis.

Table 24. Past, Present, and Reasonably Foreseeable Projects Considered in the Cumulative Impact Analysis

Project Name/Proponent	Location and Distance from East-West Project	Project Description	Shared HUC-12 with East-West Project	Resources Affected
Railroad Offloading Facility Golden Triangle Properties, LLC	Jefferson County, Texas 2.1 miles south of Port Arthur Lateral	Affect a total of ~17 acres of PEM wetlands for the purpose of developing an offloading facility for railroad tank cars. Located to the south of the Project. **Total footprint: 250 acres** **Timeframe: Began construction in 2016**	Salt Bayou Watershed	Wetlands, Waterbodies, Vegetation. Wildlife, Land Use
Golden Pass LNG Terminal Golden Pass Products LLC and Golden Pass Pipeline LLC	Jefferson County, Texas 23.3 miles south of Port Arthur Lateral	Expand existing Liquefied Natural Gas Import which includes liquefaction trains, staging areas, a supply dock, and pipeline compressor stations. The terminal is located to the south of the Project. Impacts 393 acres of PEM wetlands, 1.2 acres of PSS wetlands, 0.5 acre of PFO wetlands. **Total Footprint: 918 acres** **Timeframe: Construction began in 2016**	Salt Bayou Watershed	Wetlands, Waterbodies. Vegetation. Wildlife, Land Use
Coastal Bend Header Project 36-inch natural gas pipeline and – Wilson Compressor Station Gulf South	Wharton County, Texas Abutting Wilson – Coastal Bend M&R Station and crosses Wilson Lateral at MP13.0.	New 66-mile-long, 36-inch-diameter natural gas pipeline. The pipeline crosses the Wilson Lateral at MP13 and runs parallel for 0.3 mile. It then continues southeast, away from the Wilson Lateral. A new compressor station would be adjacent to the proposed Wilson – Coastal Bend M&R Station (MP 13.28). **Footprint (in HUC-12 geographic scope):** 29.7 acres for compressor station, 170 acres for pipeline. **Timeframe:** Currently under construction.	A portion of the pipeline (14 miles) and the compressor station are in the Linnville Bayou - San Bernard River Watershed	Wetlands, Waterbodies, Vegetation, Wildlife, Land Use, Visual Resources

Table 24. Past, Present, and Reasonably Foreseeable Projects Considered in the Cumulative Impact Analysis				
Project Name/Proponent	**Location and Distance from East-West Project**	**Project Description**	**Shared HUC-12 with East-West Project**	**Resources Affected**
Formosa Ethane Pipeline	Wharton County, Texas 0.75 mile from Wilson Lateral	Construction of a new 110-mile, 16-inch-diameter ethane pipeline that would be located perpendicular (3/4 mile south) of the proposed Wilson Lateral (MP 0.0).6.2 miles of this project crosses the Linnville Bayou HUC12 watershed. Within the Linnville Bayou HUC12 watershed, this project would impact PFO (4.7 acres) and PEM (2.4 acres) wetlands. **Footprint:** 1,000 acres total and about 56 acres in the HUC-12 geographic scope of the Project. **Timeframe:** Construction expected to begin 4th quarter of 2017 – 2nd quarter of 2018	Linnville Bayou Watershed	Wetlands, Waterbodies, Vegetation, Wildlife, Land Use

As identified in section B.1, there are 16 active oil wells, and numerous plugged wells, dry holes and permitted locations within a distance of 0.5 mile from the Wilson Lateral between MP 9.85 and MP 12. There are also 16 active oil and gas wells, 2 injection wells and numerous plugged wells within a distance of 0.5 mile from the Port Arthur Lateral between MP 0 and MP 0.64. The nearest oil well identified in the database is located approximately 300 feet north of the Wilson Lateral. Some of these wells fall within the geographic scope of the resources considered here and could contribute to cumulative impacts. However, the timing of the construction and the resources affected by construction of the well pads is not known and is therefore not considered further. We recognize that operational impacts, such as air emissions, would likely contribute to cumulative impacts on air. However, given the small number of wells identified, we conclude that the impact would be less than significant.

Waterbodies

There are three projects that are occurring or are anticipated to occur within two Hydrologic Unit Code (HUC)-12 watersheds affected by the Project's proposed waterbody crossings. The watersheds affected are the Salt Bayou Watershed and Linnville Bayou Watershed. The Project overall would affect 45 waterbodies. FGT would cross 26 waterbodies using the HDD method and 9 waterbodies using the dry open cut method (dam and pump). Access roads (most existing bridges) would cross 10 waterbodies. Waterbodies crossed by the HDD method and existing access roads would not be affected. Waterbodies crossed by the open cut method would be affected through trenching and bank disturbance resulting in erosion, sedimentation, and turbidity.

Two projects recently constructed/ongoing are located within the Salt Bayou Watershed and would affect waterbodies: a railroad offloading facility and the Golden Pass LNG Terminal. A railroad offloading facility being constructed (construction started in 2016) and operated by Golden Triangle Properties, LLC is about 2 miles south of the Port Arthur Lateral and Port Arthur-Motiva M&R Station in Jefferson County, Texas. Public data was not available on the waterbodies affected by this project, however we are assuming that several canals were affected, and based on aerial imagery, two bridges were constructed for the project. The Golden Pass LNG Terminal was constructed in 2016 about 23.3 miles south of the proposed Port Arthur Lateral components of the Project. The facilities constructed as part of the Golden Pass LNG are located within Sabine Niches Waterway (SNWW), which is classified as an estuarine tidal waterbody. Construction of Golden Pass LNG Terminal crossed the SNWW and three agricultural/roadside ditches considered as potentially ephemeral waterbodies. The Port Arthur Lateral crosses through the Salt Bayou Watershed. FGT proposes to cross five waterbodies using the dry open cut method to construct the Port Arthur Lateral, the rest would be done using HDD. Because of the limited number of open cut crossings proposed for the Port Arthur Lateral, the Project would not likely have cumulative impacts on this watershed when assessed with other projects in the geographic and temporal scope.

There is one proposed project (Formosa Ethane Pipeline) within the Linnville Bayou Watershed that would affect waterbodies. The Formosa Ethane Pipeline is proposed to be constructed about 0.75 mile south of the Wilson Lateral. This project would cross eight streams within this watershed. We assume these waterbodies would be crossed using the open cut method. The Wilson Lateral would cross 2 intermittent streams (open cut construction) and 1 perennial stream (HDD techniques) in this watershed.

Cumulative impacts could occur in these watersheds if multiple projects conducted open cut crossings that caused turbidity and sedimentation within similar timeframes. Impacts on waterbodies from turbidity caused by the open cut method are temporary due

to the fact that turbidity persists for only a short amount of time. Impacts from sedimentation could be longer term particularly where sediments accumulate downstream and affect aquatic habitat and stream morphology. Due to the temporal and spatial separation of construction for each of these projects, there is unlikely to be cumulative impacts on waterbodies in these watersheds. Further, FGT would follow its Procedures to minimize impacts on waterbodies crossed.

Due to the limited number of waterbodies crossed using open cut method, the short duration of in-water construction, and FGT's mitigation measures to protect waterbodies and downstream resources, we conclude that the Project would not significantly contribute to cumulative impacts on waterbodies when considered with other projects in the geographic scope.

Wetlands

There are four projects that are occurring or are anticipated to occur within three HUC-12 watersheds affected by the Project's proposed wetland crossings. The watersheds affected are the Salt Bayou Watershed, Linnville Bayou Watershed and the Linnville Bayou-San Bernard Watershed. The Project overall would affect about 39.5 acres of PEM wetlands, 11.5 acres of PSS wetlands, and 2.4 acres of PFO wetlands.

As previously stated, two projects recently constructed/ongoing are located within the Salt Bayou Watershed: the railroad offloading facility being constructed and operated by Golden Triangle Properties, LLC and the Golden Pass LNG Terminal. Impacts on wetlands in this watershed as a result of these projects are given in table 25. The Project would contribute about 36 acres of wetland impacts in this watershed, which is not a significant contribution to the total wetlands impacts.

The Formosa Ethane Pipeline, which would occur in the Linnville Bayou Watershed, would affect about 7.1 acres of wetlands (Table 25). Total wetlands affected in this watershed would be about 8 acres. The Project would have less than an acre of wetland impacts in this watershed, which is not a significant contribution to the total wetlands impacts. Table 25 shows acreages of wetland affected by each project in the Salt Bayou Watershed and Linville Bayou Watershed and the total cumulative wetland impact in each watershed.

Table 25. Cumulative Wetland Impacts (acres)				
Project Name	**PEM**	**PSS**	**PFO**	**Total Wetland Impacts**
Salt Bayou Watershed				
East – West Project	26	6.8	3.5	36.3
Golden Pass LNG Terminal	393	1.2	0.5	394.7
Golden Triangle Railroad Offloading Facility	17	0	0	17
Totals	**436**	**8**	**4**	**448**
Linnville Bayou Watershed				
East – West Project	0.5	0	0.4	0.9
Formosa Ethane Pipeline Project	2.4	0	4.7	7.1
Totals	**2.9**	**0**	**5.1**	**8**

The Coastal Bend Header Project (CBHP) would occur within the Linnville Bayou – San Bernard River watershed. Total wetland impacts from Project and the CBHP in this watershed would be 2.9 acre. The Project's wetland impacts in this watershed would be less than 1 acre. The Project's cumulative contribution to wetland impacts in this watershed are negligible and are not included in the table 25.

FGT would restore wetlands to pre-construction condition after construction is complete. Complete restoration could take 1-3 years, except for PFO wetlands, which would take much longer to regenerate. Overall, when considered with past, present and reasonably foreseeable future projects, the Project would not significantly contribute to wetland losses in the geographic scope of the Project.

Vegetation

Multiple projects occurring within similar geographic areas and construction timelines could result in cumulative impacts on forest and vegetation communities. In general, the impacts from forest clearing are long-term and loss of forested areas results in various changes to ecosystem functions. The Project would affect 6 acres of upland forest (about 3.4 acres of planted pine). Clearing of vegetation can also result in changes in vegetation communities over the long term and introduce the spread of invasive species. To prevent further spread of noxious weeds that may occur in Project work areas, FGT would implement specific measures during construction of the Project. These measures are discussed in section B.3 of the EA.

As stated previously, there are four other projects that occur in watersheds affected by the Project. For the purposes of this analysis, in this section we are only discussing

upland vegetation communities. Impacts on wetlands are discussed above. Within the Salt Bayou watershed, the Project would affect 28 acres of open land vegetation communities. The Golden Pass LNG Terminal and railroad offloading facility would affect a total of 224 acres of open land communities within this watershed. The Project would not clear any forested uplands in this watershed.

Within the Linnville Bayou watershed, the Project would affect about 3.4 acres of forested uplands and about 85.5 acres of open land vegetation. The total impacts on forest in the Linneville Bayou watershed as a result of the Formosa Ethane Pipeline and the East-West Project would be about 5 acres, and the total impacts on open land vegetation would be about 133 acres.

The two projects within the Linnville Bayou – San Bernard River watershed would result in cumulative impacts of about 197 acres of total upland vegetation (13.6 acres from the Project). The Project would not clear any forest in this watershed. Cumulative impact acreages on vegetation from all projects are shown in table 26 below.

Table 26. Cumulative Vegetation Impacts (acres)

Project Name	Forested Uplands	Open Land	Total Upland Impacts
Salt Bayou Watershed			
East – West Project	0.0	28	28
Golden Pass LNG Terminal	62	41	103
Golden Triangle Railroad Offloading Facility	0.0	183	183
Totals	**62**	**252**	**314**
Linnville Bayou Watershed			
East – West Project	3.4	85.5	88.9
Formosa Ethane Pipeline Project	1.6	47.3	48.9
Totals	**5.0**	**132.8**	**137.8**
Linnville Bayou – San Bernard River Watershed			
East – West Project	0.0	13.6	13.6
Coastal Bend Header Project	12.1	171.5	183.6
Totals	**12.1**	**185.1**	**197.2**

Due to the limited about of forest clearing that would occur as a result of the Project, and FGT's commitment to restore temporary workspace areas to pre-construction vegetation communities, we conclude that the Project would not significantly contribute to cumulative impacts on vegetation when considered with other projects in the geographic scope.

Wildlife and Special Status Species

Loss of forested areas, vegetation communities, and wetlands can result in cumulative impacts on habitat for wildlife and sensitive species. Additionally, sedimentation and turbidity caused by in-water work from multiple projects could result in cumulative impacts on aquatic species through alteration of habitat and changes to the aquatic environment.

Due to the limited amount of forest clearing that would occur as a result of the Project, and FGT's commitment to restore temporary workspace areas, we do not believe that the Project would significantly contribute to cumulative impacts on wildlife when considered with other projects in the geographic scope. Additionally, we conclude that the Project would not significantly contribute to cumulative impacts on waterbodies, and therefore, aquatic species.

Land Use

The Project would result in the conversion of certain land-use types to industrial or maintained right-of-way. About 95.6 acres of land would be retained for operation of the Project. About 12 acres would consist of permanent aboveground facilities.

We used a geographic scope of 1-mile to assess potential cumulative land use impacts. Other projects in this geographic scope include the Formosa Ethane Pipeline and the CBHP. These projects would also result in conversion of forested lands to maintained rights-of-way and an increase in industrial land. The Formosa Ethane Pipeline Project would result in 1,000 acres of ground disturbance overall and about 56 acres of the disturbance would be within the Linnville Bayou Watershed. The amount of acres affected within the geographic scope analyzed for cumulative land use impacts (1-mile buffer) would be a fraction of the acreage affected in the Linnville Bayou Watershed.

The CBHP is currently under construction at the time of this EA. Within the geographic scope of the Project, the CBHP includes a compressor station and a few miles of pipeline. In Wharton County, the CBHP would permanently affect a total of about 240 acres of land (converting it to industrial land and pipeline rights-of-way) most of which would be agricultural. In the Linnville Bayou Watershed, the CBHP would affect 29.7 acres of land to construct a compressor station, and 170 acres to construct the pipeline. We were unable to obtain the exact acreage that would occur with the 1-mile geographic scope of the Project. Because the compressor station for the CBHP would be constructed adjacent to the Wilson-Coastal Bend M&R Station, there would be an additive increase in industrial land use. However, the M&R Station would add less than an acre of permanent impact, which would not result in significant cumulative land use impacts. Projects under FERC jurisdiction would be required to follow the same restoration measures as

the Project. Therefore, most impacts on land use would be temporary (except for aboveground facilities) and would not result in significant cumulative permanent impacts.

We conclude that the Project would not add significant cumulative impacts on land use within the geographic scope. In addition, because the Project would permanently impact 12 acres of land spread out over the entire land area that the Project spans (over 300 acres), we conclude that the Project would not add significantly to cumulative impacts on land use when considered with other projects in the area.

Visual Impacts

As part of the CBHP, Gulf South is in the process of constructing a 36-inch-diameter natural gas pipeline and new compressor station within 1 mile of the proposed Wilson Lateral and Wilson – Coastal Bend M&R Station. At this location there could be a cumulative impact on viewsheds surrounding the new facilities. The surrounding land use is open land/agricultural and industrial (due to other oil and gas aboveground facilities in the immediate area). Therefore, combined visual impacts in the immediate area of the proposed M&R Station and Gulf South's compressor station would be noticeable, but would not result in a significant change in the current overall viewshed.

Residential Areas

The Project would affect several residential areas located in a generally rural landscape. Only 2.7 acres of residential land would be affected by the Project. We did not identify other projects in the geographic and temporal scope of the project that could result in cumulative impacts on the residential areas affected by the Project. Because the Project's impacts would be limited and temporary, we conclude that no cumulative impacts would result on residential areas located within the Project's geographic scope.

Due to the limited amount of land that would be permanently converted for operation of the Project, and FGT's commitment to restore temporary workspace areas to pre-construction conditions, we conclude that the Project would not significantly contribute to cumulative impacts on land use.

Cultural Resources

No Project impacts on historic properties (pending revised reports for Texas facilities) are anticipated. We will make certain the Project complies with the NHPA. Therefore, the Project would not likely add to cumulative impacts on historic properties

Air Quality

FGT would not install new air emission sources for this Project. There would be no increase in operational emissions resulting from this Project. The potential cumulative impacts resulting from short-term construction activities would be limited due to the short term nature of the pipeline and regulator station construction activity.

With the exception of the GHG emissions, air impacts would be localized and confined primarily to the airshed in which the Project occurs. Furthermore, although the Project is expected to slightly increase GHG emissions, the Project would not have a discernible influence on regional climate change. The combined effect of multiple construction projects occurring in the same airshed and timeframe could temporarily add to the ongoing air quality effects of existing activities. Typically, smaller local projects have varying construction schedules and would take place over a relatively large geographic area. We conclude that the Project would not have a significant long-term adverse impact on air quality and would not add significantly to the long-term cumulative impact of the area.

Noise

The Project could contribute to cumulative noise impacts. The CBHP is the only project within the geographic scope of the Project for noise impacts. The CBHP intersects with the Project at the Wilson Lateral – Coastal Bend M&R station, which would not produce operational noise impacts. In general, the impact of construction noise is highly localized and attenuates quickly as the distance from the noise source increases. Therefore, cumulative impacts are unlikely unless one or more of the local projects is constructed at the same time in the same location. Therefore, we conclude that the project would not have a significant contribution to cumulative noise impacts.

Conclusion

We conclude that that the Project would not significantly contribute to cumulative impacts on any resources due to the fact that most impacts from the Project would be short-term and occur within or immediately adjacent to the construction workspace. Long-term impacts on forested habitat would occur, but the Project would only clear about 6 acres of forest. In general, the small footprint of the Project when considered with other projects in the geographic and temporal scope of the Project would not add significantly to any potential cumulative effects on resources affected by the Project.

C. ALTERNATIVES

In accordance with NEPA and FERC policy, we evaluated alternatives to the Project. These alternatives included the no-action alternative, system alternatives, and pipeline route alternatives and minor route adjustments. The evaluation criteria used for developing and reviewing alternatives were:

- ability to meet the Project's stated objective;
- technical feasibility and practicality; and
- significant environmental advantage over the proposed action.

Through environmental comparison and application of our professional judgment, each alternative is considered to a point where it becomes clear if the alternative could or could not meet the three evaluation criteria. To ensure a consistent environmental comparison and to normalize the comparison factors, we generally use desktop sources of information (e.g., publicly available data, geographic information system data, aerial imagery) and assume the same right-of-way widths and general workspace requirements. Where appropriate, we also use site-specific information (e.g., field surveys or detailed designs). Our environmental analysis and this evaluation consider quantitative data (e.g., acreage or mileage) and uses common comparative factors such as total length, amount of collocation, and land requirements. Our evaluation also considers impacts on both the natural and human environments. The impacts associated with the Project was described in detail in section B of this EA. Because the alternatives represent mostly alternative locations for natural gas facilities, the specific nature of these impacts on the natural and human environments would generally be similar to the impacts described in section B. In recognition of the competing interests and the different nature of impacts resulting from an alternative that sometimes exist (i.e. impacts on the natural environment versus impacts on the human environment), we also consider other factors that are relevant to a particular alternative and discount or eliminate factors that are not relevant or may have less weight or significance.

The alternatives were reviewed against the evaluation criteria in the sequence presented above. The first consideration for including an alternative in our analysis is whether or not it could satisfy the stated purpose of the Project. An alternative that cannot achieve the purpose for the project cannot be considered as an acceptable replacement for the project. All of the alternatives considered here are able to meet the Project purpose stated in section A.2 of this EA.

Many alternatives are technically and economically feasible. Technically practical alternatives, with exceptions, would generally require the use of common construction methods. An alternative that would require the use of a new, unique or experimental construction method may not be technically practical because the required

technology is not available or is unproven. Economically practical alternatives would result in an action that generally maintains the price competitive nature of the proposed action. Generally, we do not consider the cost of an alternative as a critical factor unless the added cost to design, permit, and construct the alternative would render the project economically impractical.

Alternatives that would not meet the Project's objective or were not feasible were not brought forward to the next level of review (i.e., the third evaluation criterion). Determining if an alternative provides a significant environmental advantage requires a comparison of the impacts on each resource as well as an analysis of impacts on resources that are not common to the alternatives being considered. The determination must then balance the overall impacts and all other relevant considerations. In comparing the impact between resources, we also considered the degree of impact anticipated on each resource. Ultimately, an alternative that results in equal or minor advantages in terms of environmental impact would not compel us to shift the impacts from the current set of landowners to a new set of landowners.

One of the goals of an alternatives analysis is to identify alternatives that avoid significant impacts. In section B, we evaluated each environmental resource potentially affected by the Project and concluded that constructing and operating the Project would not significantly impact these resources. Consistent with our conclusions, the value gained by further reducing the (not significant) impacts of the Projects when considered against the cost of relocating the route/facility to a new set of landowners was also factored into our evaluation.

No Action Alternative

Under the no-action alternative, the Project would not be constructed and no environmental impacts would occur. However, FGT would be unable to meet the customer's transportation requirements for natural gas volumes and pressures at the Wilson - Coastal Bend, Port Arthur - Motiva, Eunice - ANR, or Gillis - Trunkline delivery and receipt points. It is reasonable to assume that the customers would identify alternative transportation measures that would also result in some level of environmental impact. Based on the minor impacts identified for the Project, the alternative of the customers seeking another transportation mechanism is not likely to provide a significant environmental advantage. Further, the no-action alternative would not meet the objective of the Project. Therefore, we did not consider it further.

System Alternatives

We assessed system alternatives to evaluate whether a system alternative could satisfy the objective of the Project and provide a significant environmental advantage over the Project. System alternatives to the Project include making use of existing,

modified, or already proposed natural gas pipeline systems to meet the objectives of the Project. A system alternative may make it unnecessary to construct all or part of the Project, although some modifications or additions to other existing pipeline systems may be required to increase the respective capability, or another entirely new system may need to be constructed. Such modifications or additions would result in environmental impacts that could be less than, similar to, or greater than that associated with the Project.

Based on an analysis of existing pipeline systems in and around the Project, FGT concluded that no existing pipeline system(s) could practicably be utilized or modified in order to meet the customer's needs without constructing significantly more pipeline infrastructure. Because we did not identify system alternatives that would provide a significant environmental advantage over the Project, we did not consider them further.

Alternative Pipeline Routes and Minor Route Variations

FGT's proposed pipeline route for each lateral was selected based on an assessment of least environmentally damaging alternatives. FGT evaluated several routes during the initial planning phases of the Project; however, none of the routes provided a significant environmental advantage over the currently proposed route. FERC staff requested that FGT review alternatives to the pipeline route that would reduce permanent impacts on forested wetlands. In response to our request, FGT made minor variations to their original proposed route to avoid several areas of forested wetlands, which reduced impacts on forested wetlands from about 4 acres to about 2.4 acres.

FERC staff also requested that FGT review potential route alternatives or route deviations for the Port Arthur Lateral between MP 7.6 and 7.8 that would avoid locating the pipeline right-of-way within 50 feet of residential homes. To minimize impacts on residences within 50 feet of the proposed right-of-way, FGT reduced the originally proposed construction right-of-way from 100 feet to 75 feet. FGT also made minor adjustments to the route in response to landowner concerns. The current route as described in sections A and B of this EA includes all of FGT's minor route variations.

We also took into consideration alternatives suggested by a landowner, Thomas Hunt. Mr. Hunt suggested various alternatives to the Project and pipeline route. Mr. Hunt suggested that FGT should either avoid or conduct an HDD in pledger clay area of Matagorda and Wharton Counties instead of open trench construction to prevent draining of wetlands. Pledger clay soils cover much of the Project area along the Wilson Lateral route (over 14 acres). The pipeline route would cross roughly six miles total of pledger clay soils separated across several different locations. Using the HDD method to cross these areas would require multiple HDD installations and entry and exit points, which would result in increased noise disturbance to nearby NSAs and would not provide a significant environmental advantage over the proposed route. Any alternative to avoid these soils would result in adding excessive mileage to the proposed pipeline routes. A

75-foot-wide right-of-way affects about 9 acres of land per mile of pipeline. Therefore, adding additional miles of pipeline would increase the total acreage affected by the Project and not provide an environmental advantage to the proposed route.

Conclusion

We did not identify any alternatives that would meet all three evaluation criteria to be considered a successful alternative to the Project. In summary, we have determined that the proposed action, as modified by our recommended mitigation measures, is the preferred alternative that can meet the Project's objectives.

D. CONCLUSIONS AND RECOMMENDATIONS

Based upon the analysis in this EA, we have determined that if FGT was to construct and operate the proposed facilities in accordance with its application, supplements, Project-specific plans, and the staff's recommended mitigation measures below, approval of the Project would not constitute a major federal action significantly affecting the quality of the human environment. The staff recommends that the Commission Order contain a finding of no significant impact and the following mitigation measures be included as conditions of any Certificate the Commission may issue.

1. FGT shall follow the construction procedures and mitigation measures described in its application and supplements, including responses to staff data requests, and as identified in the EA, unless modified by the Order. FGT must:

    a. request any modification to these procedures, measures, or conditions in a filing with the Secretary;
    b. justify each modification relative to site-specific conditions;
    c. explain how that modification provides an equal or greater level of environmental protection than the original measure; and
    d. receive approval in writing from the Director of OEP **before using that modification**.

2. The Director of OEP, or the Director's designee, has delegated authority to address any requests for approvals or authorizations necessary to carry out the conditions of this Order, and take whatever steps are necessary to ensure the protection of all environmental resources during construction and operation of the project. This authority shall allow:

    a. the modification of conditions of the Order;
    b. stop-work authority; and
    c. the imposition of any additional measures deemed necessary to ensure continued compliance with the intent of the conditions of the Order as well as the avoidance or mitigation of unforeseen adverse environmental impact resulting from Project construction and operation.

3. **Prior to any construction**, FGT shall file an affirmative statement with the Secretary, certified by a senior company official, that all company personnel, EIs, and contractor personnel will be informed of the EI's authority and have been or will be trained on the implementation of the environmental mitigation measures appropriate to their jobs **before**

becoming involved with construction and restoration activities.

4. The authorized facility locations shall be as shown in the EA, as supplemented by filed alignment sheets. **As soon as they are available, and before the start of construction**, FGT shall file with the Secretary any revised detailed survey alignment maps/sheets at a scale not smaller than 1:6,000 with station positions for all facilities approved by the Order. All requests for modifications of environmental conditions of the Order or site-specific clearances must be written and must reference locations designated on these alignment maps/sheets.

   FGT's exercise of eminent domain authority granted under Natural Gas Act (NGA) section 7(h) in any condemnation proceedings related to the Order must be consistent with these authorized facilities and locations. FGT's right of eminent domain granted under NGA section 7(h) does not authorize it to increase the size of its natural gas facilities to accommodate future needs or to acquire a right-of-way for a pipeline to transport a commodity other than natural gas.

5. FGT shall file with the Secretary detailed alignment maps/sheets and aerial photographs at a scale not smaller than 1:6,000 identifying all route realignments or facility relocations, and staging areas, pipe storage yards, new access roads, and other areas that would be used or disturbed and have not been previously identified in filings with the Secretary. Approval for each of these areas must be explicitly requested in writing. For each area, the request must include a description of the existing land use/cover type, documentation of landowner approval, whether any cultural resources or federally listed threatened or endangered species would be affected, and whether any other environmentally sensitive areas are within or abutting the area. All areas shall be clearly identified on the maps/sheets/aerial photographs. Each area must be approved in writing by the Director of OEP **before construction in or near that area**.

   This requirement does not apply to extra workspace allowed by the FERC *Upland Erosion Control, Revegetation, and Maintenance Plan* and/or minor field realignments per landowner needs and requirements which do not affect other landowners or sensitive environmental areas such as wetlands.

   Examples of alterations requiring approval include all route realignments and facility location changes resulting from:

   a. implementation of cultural resources mitigation measures;

b. implementation of endangered, threatened, or special concern species mitigation measures;
c. recommendations by state regulatory authorities; and
d. agreements with individual landowners that affect other landowners or could affect sensitive environmental areas.

6. **Within 60 days of the acceptance of the authorization and before construction begins**, FGT shall file an Implementation Plan with the Secretary for review and written approval by the Director of OEP. FGT must file revisions to the plan as schedules change. The plan shall identify:

a. how FGT will implement the construction procedures and mitigation measures described in its application and supplements (including responses to staff data requests), identified in the EA, and required by the Order;
b. how FGT will incorporate these requirements into the contract bid documents, construction contracts (especially penalty clauses and specifications), and construction drawings so that the mitigation required at each site is clear to onsite construction and inspection personnel;
c. the number of EIs assigned per spread, and how the company will ensure that sufficient personnel are available to implement the environmental mitigation;
d. company personnel, including EIs and contractors, who will receive copies of the appropriate material;
e. the location and dates of the environmental compliance training and instructions FGT will give to all personnel involved with construction and restoration (initial and refresher training as the project progresses and personnel change),
f. the company personnel (if known) and specific portion of FGT's organization having responsibility for compliance;
g. the procedures (including use of contract penalties) FGT will follow if noncompliance occurs; and
h. for each discrete facility, a Gantt or PERT chart (or similar project scheduling diagram), and dates for:

(1) the completion of all required surveys and reports;
(2) the environmental compliance training of onsite personnel;
(3) the start of construction; and
(4) the start and completion of restoration.

7. FGT shall employ at least one EI per construction spread. The EIs shall be:

    a. responsible for monitoring and ensuring compliance with all mitigation measures required by the Order and other grants, permits, certificates, or other authorizing documents;
    b. responsible for evaluating the construction contractor's implementation of the environmental mitigation measures required in the contract (see condition 6 above) and any other authorizing document;
    c. empowered to order correction of acts that violate the environmental conditions of the Order, and any other authorizing document;
    d. a full-time position, separate from all other activity inspectors;
    e. responsible for documenting compliance with the environmental conditions of the Order, as well as any environmental conditions/permit requirements imposed by other federal, state, or local agencies; and
    f. responsible for maintaining status reports.

8. Beginning with the filing of its Implementation Plan, FGT shall file updated status reports with the Secretary on a **biweekly** basis until all construction and restoration activities are complete. On request, these status reports will also be provided to other federal and state agencies with permitting responsibilities. Status reports shall include:

    a. an update on FGT's efforts to obtain the necessary federal authorizations;
    b. the construction status of the project, work planned for the following reporting period, and any schedule changes for stream crossings or work in other environmentally-sensitive areas;
    c. a listing of all problems encountered and each instance of noncompliance observed by the EI(s) during the reporting period (both for the conditions imposed by the Commission and any environmental conditions/permit requirements imposed by other federal, state, or local agencies);
    d. a description of the corrective actions implemented in response to all instances of noncompliance, and their cost;
    e. the effectiveness of all corrective actions implemented;
    f. a description of any landowner/resident complaints which may relate to compliance with the requirements of the Order, and the measures taken to satisfy their concerns; and
    g. copies of any correspondence received by FGT from other federal, state, or local permitting agencies concerning instances of noncompliance, and FGT's response.

9. FGT must receive written authorization from the Director of OEP **before commencing construction of any Project facilities.** To obtain such authorization, FGT must file with the Secretary documentation that it has received all applicable authorizations required under federal law (or evidence of waiver thereof).

10. FGT must receive written authorization from the Director of OEP **before placing each phase of the Project into service**. Such authorization will only be granted following a determination that rehabilitation and restoration of the right-of-way and other areas affected by the project are proceeding satisfactorily.

11. **Within 30 days of placing the authorized facilities in service**, FGT shall file an affirmative statement with the Secretary, certified by a senior company official:

    a. that the facilities have been constructed in compliance with all applicable conditions, and that continuing activities will be consistent with all applicable conditions; or
    b. identifying which of the conditions in the Order FGT has complied with or will comply with. This statement shall also identify any areas affected by the project where compliance measures were not properly implemented, if not previously identified in filed status reports, and the reason for noncompliance.

12. **Prior to construction,** FGT shall file with the Secretary documentation that FGT has consulted with TCEQ and the San Bernard Watershed Protection Plan managing agency regarding impacts and mitigation measures for areas where the Project will cross the San Bernard Watershed. FGT shall also file responses to any recommended protection measures and indicate how they will be incorporated into Project construction plans.

13. **Prior to construction,** FGT shall file with the Secretary, for review and written approval by the Director of OEP, the finalized geotechnical analysis and HDD implementation plan addressing potential concerns and mitigation measures for the Jefferson County Drainage District 7 hurricane protection levee crossing.

14. **Prior to construction,** FGT shall file with the Secretary, for review and approval by the Director of OEP, a description of construction methods and impact minimization/mitigation measures that FGT will implement in areas where HDD entry and exit points occur within a wetland.

15. **Prior to construction,** FGT shall file with the Secretary, for review and written approval by the Director of OEP, FGT's Wetland and Waterbody Construction and Mitigation Procedures that includes all modifications to the FERC Procedures.

16. FGT shall not begin construction activities **until**:

    a. the FERC staff completes ESA Section 7 consultation with the FWS; and
    b. FGT has received written notification from the Director of OEP that construction or use of mitigation may begin.

17. FGT **shall not begin construction** of the Wilson Lateral and Port Arthur Lateral in Texas, including the use of staging, storage, or temporary work areas and new or to-be-improved access roads **until**:

    a. FGT files with the Secretary:

        (1) remaining cultural resources survey reports documenting complete inventories of the Wilson Lateral and Port Arthur Lateral;
        (2) site evaluation reports and avoidance/treatment plans, as required; and
        (3) comments on the revised cultural resources reports and plans from the Texas SHPO.

    b. The Advisory Council on Historic Preservation is afforded an opportunity to comment if historic properties would be adversely affected.

    c. The FERC staff reviews and the Director of OEP approves the cultural resources reports and plans, and notifies FGT in writing that treatment plans/mitigation measures (including archaeological data recovery) may be implemented and/or construction may proceed.

All materials filed with the Commission containing **location, character, and ownership** information about cultural resources must have the cover and any relevant pages therein clearly labeled in bold lettering: "**CUI//PRIV- DO NOT RELEASE**."

18. **Prior to construction,** FGT shall file with the Secretary, for review and written approval by the Director of OEP, a HDD noise mitigation plan to reduce the projected noise level attributable to the proposed drilling

operations at NSAs with predicted noise levels above 55 dBA. During drilling operations, FGT shall implement the approved plan, monitor noise levels, and make all reasonable efforts to restrict the noise attributable to the drilling operations to no more than a L_{dn} of 55 dBA at the NSAs.

19. FGT shall file a noise survey with the Secretary **no later than 60 days after** placing the Port Arthur – Motiva M&R Station in service. If maximum flow is not possible, FGT shall provide and interim survey at the highest possible flow and provide the maximum flow survey **within 6 months.** If the noise attributable to the operation of the Port Arthur – Motiva M&R Station exceeds an L_{dn} of 55 dBA at any nearby NSAs, FGT should file a report on what changes are needed and shall install the additional noise controls to meet the level **within 1 year** of the in-service date. FGT shall confirm compliance with the above requirement by filing a second noise survey with the Secretary **no later than 60 days after** it installs the additional noise controls.

E. REFERENCES

Cowardin, L. M., Carter, V., Golet, F. C., and LaRoe, E. T. 1979. Classification of Wetlands and Deepwater Habitats of the United States, FWS/OBS-79/31, U.S. Fish and Wildlife Service, Office of Biological Services, Washington, DC .

Fischbeck, S. 7 September 2016. Letter to the Louisiana Office of Cultural Development. Florida Gas Transmission Company, Houston.

Fischbeck et al. 29 September 2016a. Project, Wilson Lateral and Wilson-Coastal Bend M&R Station Cultural Resources Survey, Wharton and Matagorda Counties, Texas. Burns & McDonald, Houston.

Fischbeck, et al. 29 September 2016b. Project, Port Arthur Lateral and Port Arthur-Motiva M&R Station Cultural Resources Survey, Jefferson County, Texas. Burns & McDonald, Houston.

Fischbeck et al. 19 April 2017. Project, Wilson Lateral and Wilson-Coastal Bend M&R Station Cultural Resources Survey, Wharton and Matagorda Counties, Texas. Burns & McDonald, Houston.

Fischbeck, et al. 21 April 2017. Project, Port Arthur Lateral and Port Arthur-Motiva M&R Station Cultural Resources Survey, Jefferson County, Texas. Burns & McDonald, Houston.

Fischbeck et al. 27 July 2017. East-West Project, Eunice-ANR Lateral, Eunice-ANR M&R Station, Gillis-Trunkline M&R Station, Phase I Cultural Resources Survey, Acadia and Calcasieu Parishes, Louisiana. Burns & McDonnel Engineering Company Inc., Houston.

Louisiana Department of Environmental Quality (LDEQ). 2016. Source Water Assessment Program (SWAP), 2001. Accessed site August 2016. Website: http://www.deq.louisiana.gov/portal/Portals/0/ evaluation/aeps/swap/Document.pdf

Louisiana Department of Wildlife and Fisheries (LDWF). 2017. Letter from Carey Lynn Perry of the Louisiana Department of Wildlife and Fisheries to Jonathan Minton of Energy Transfer Partners dated June 16, 2017.

Norton, D. 10 August 2016. Letter to the Texas Historical Commission. Burns & McDonald, Houston.

Shaver, D., et al. 27 September 2016. Project, Eunice-ANR Lateral and Eunice-ANR M&R Station, and Gillis-Trunkline M&R Station Cultural Resources Survey, Acadia and Calcasieu Parishes, Louisiana. Burns & McDonald, Houston.

Texas Groundwater Protection Committee (TGPC). 2016. Joint Groundwater Monitoring and Contamination Report – 2015. Accessed site September 2016. Website: https://www.tceq.texas.gov/publications/sfr/056

Texas Parks & Wildlife Department (TPWD). 2016. TPWD Springs. Accessed site August 2016. Website: https://tnris.org/data-catalog/entry/tpwd-springs/

Texas Parks and Wildlife Department. 2017. Letter from Rachel Lange of the Texas Parks and Wildlife Department to Jonathan Minton at Energy Transfer Partners dated May 31, 2017.

Texas Water Development Board (TWDB). 2011. Aquifers of Texas Report 380. S. Doenges, Ed. 172 pgs. Texas Water Development Board, P.O. Box 13231, Austin Texas 78711-3231. Accessed site July 13, 2016. Website: http://www.twdb.texas.gov/publications/reports/numbered_reports/doc/R380_AquifersofTexas.pdf#page=52

U.S. Geological Survey (USGS). 1997. *Digital compilation of landslide overview map of the conterminous United States*. Retrieved August 2016 from http://landslides.usgs.gov/hazards/|nationalmap/index.php.

U.S. Geological Survey (USGS). June 2014. Fact Sheet: Water Resources of Acadia Parish, Louisiana. Retrieved September 2017 from https://pubs.usgs.gov/fs/2014/3043/pdf/fs2014-3043.pdf

US Environmental Protection Agency (EPA). 2015. AirData. Data files available for download. Available online at: http://aqsdr1.epa.gov/aqsweb/aqstmp/airdata/download_files.html. Accessed May 2016.

U.S. Environmental Protection Agency (EPA). 2016. EnviroMapper for Envirofacts database search engine. Accessed via the internet at: https://www.epa.gov/emefdata/em4ef.home in September 2016.

US Environmental Protection Agency (EPA). 2017. NAAQS. Available online at: https://www.epa.gov/criteria-air-pollutants/naaqs-table, Last updated 3/29/2016. Accessed May 2017.

US Environmental Protection Agency (EPA). 2017. EPA Green Book Nonattainment Areas. Available online at: https://www3.epa.gov/airquality/greenbook/. Accessed June 2017.

U.S. Fish and Wildlife Service (FWS). 2008. Birds of Conservation Concern 2008. Available online at http://www.fws.gov/migratorybirds/pdf/grants/BirdsofConservationConcern2008.pdf. Accessed September 2015.

U.S. Fish and Wildlife Service (FWS). 2017. Telephone memorandum between Robyn Susemihil of Burns and McDonnell and Charles Ardizzone of the U.S. Fish and Wildlife Service dated May 3, 2017.

F. LIST OF PREPARERS

Mardiney, Amanda – Project Manager, Water Resources, Wetlands, Vegetation, Fisheries, Wildlife, Special Status Species, Land Use, Alternatives, Cumulative Impacts

M.A., Environmental Resource Policy, 2012, The George Washington University
B.S., Biology, 2009, The University of Maryland, College Park

Jernigan, Anthony – Geology and Soils

B.A., Geophysical Sciences, 1995, The University of Chicago

Jeudy, Harry – Air Quality, Noise, and Reliability and Safety

B.S., Mechanical Engineering, 2000, The Pennsylvania State University

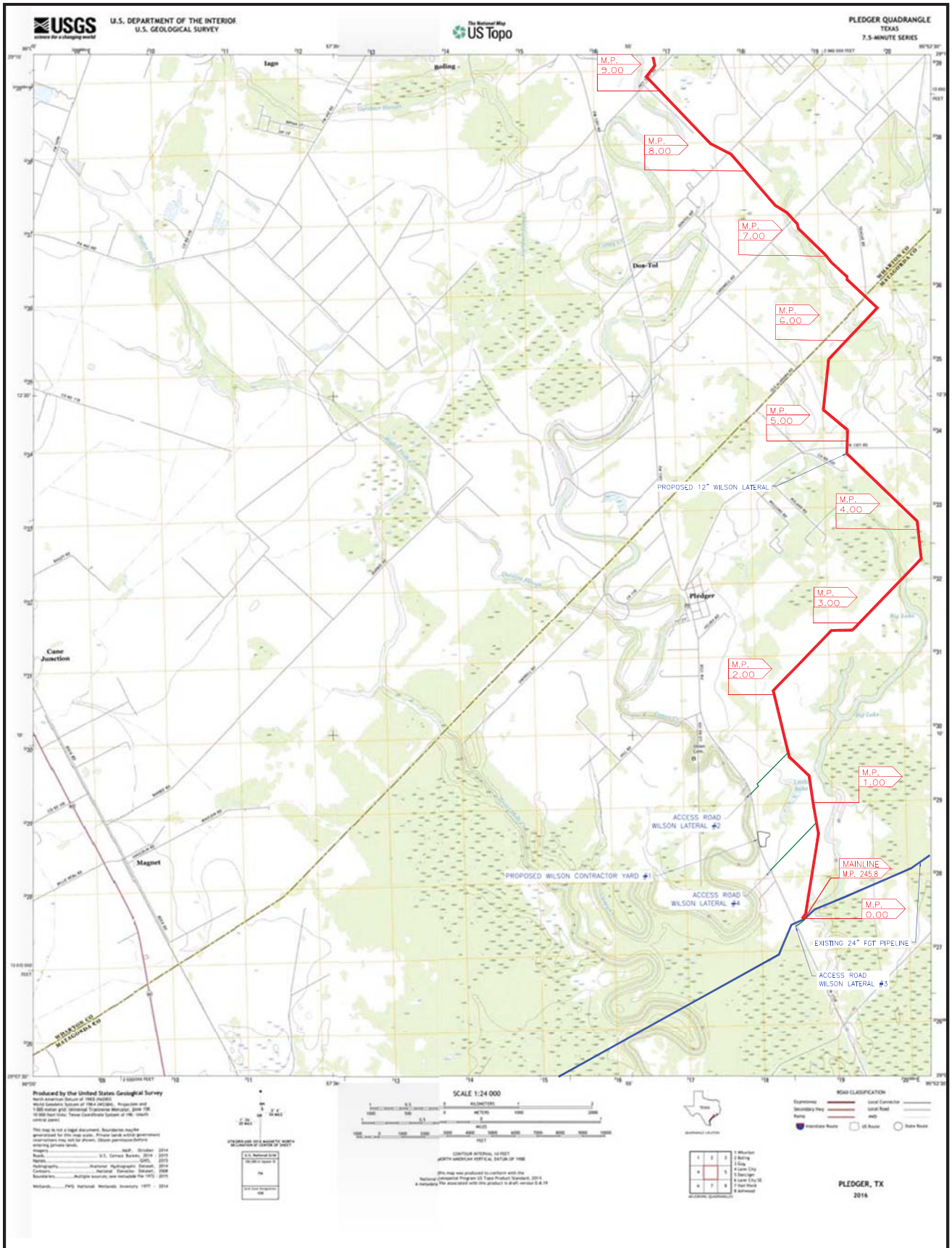
Friedman, Paul– Cultural Resources

M.A., History, 1980, University of California, Santa Barbara
B.A., Anthropology and History, 1976, University of California, Santa Barbara

Appendix A

Project Maps

Wilson Lateral
and
Wilson - Coastal Bend M&R Station



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A	ISSUED FOR FERC FILING	MEH	10/04/16	JRW

RE-ISSUED FOR FERC FILING
04/21/17

P.I./STA. ACCT. NO.		
CONSTRUCTION YR		
	BY	DATE
DESIGN	MEH	09/27/16
DRAWN	MEH	09/27/16
ASBUILT		
FILE NO.:		
SCALE: 1"=2000'		

Florida Gas Transmission Company
An Energy Transfer/Kinder Morgan Affiliate

TRC
16350 PARK TEN PLACE, SUITE 150, HOUSTON, TX, 77084
PH: (281) 870-0100
TRC FIRM #3575, LIC. NO. TX-4-62

EAST-WEST PROJECT
PROPOSED 12" WILSON LATERAL
WILSON QUAD #1
MATAGORDA/WHARTON COUNTY, TX

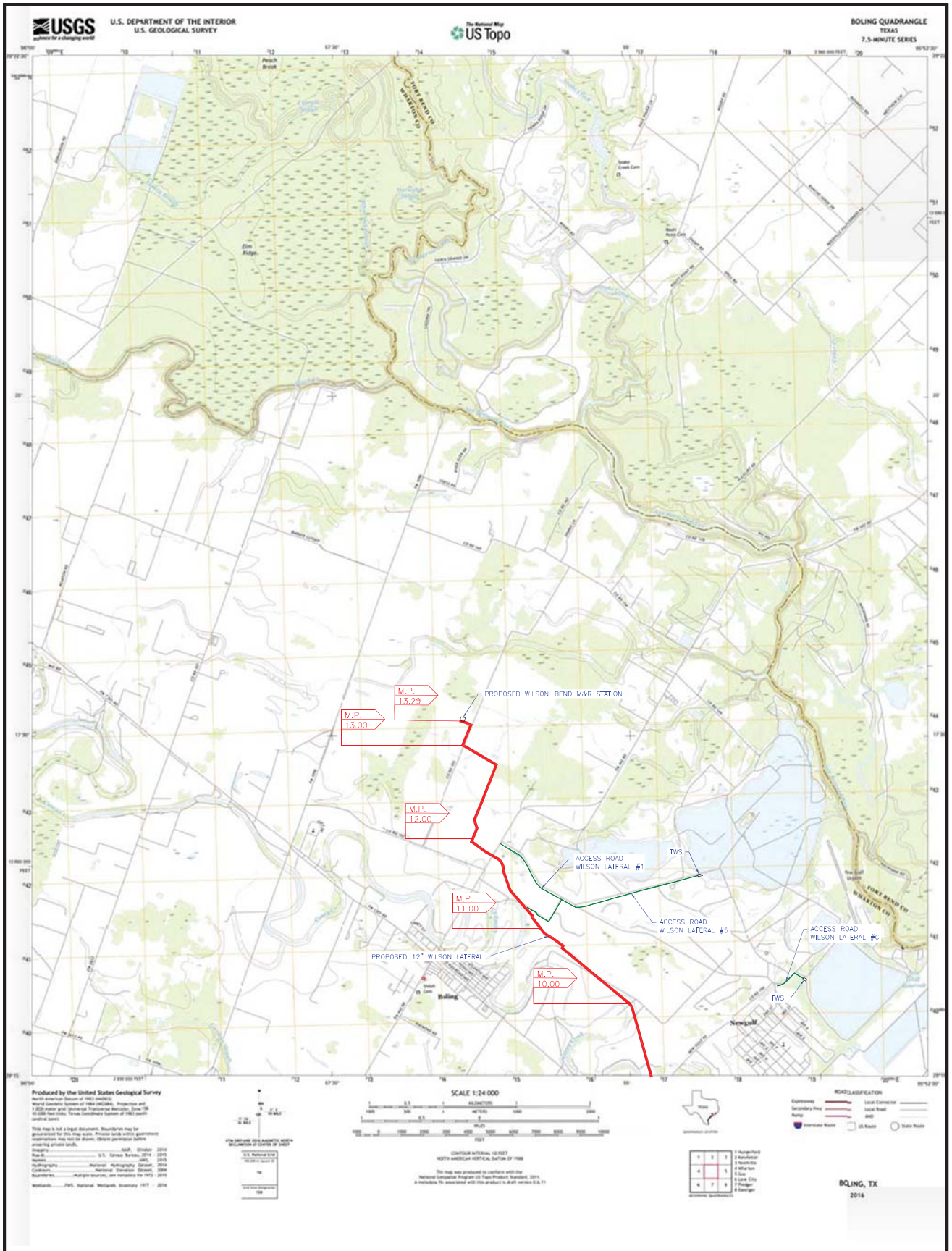
PROJECT NO.
260575

PREVIOUS DWG. NO.

SHT. OF

DWG. NO.
P1-003
SHT. 1 OF 2

B



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RE-ISSUED FOR FERC FILING

04/21/17

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ASBUILT		
FILE NO.:		
SCALE: 1"=2000'		

Florida Gas Transmission Company
An Energy Transfer/Kinder Morgan Affiliate

TRC

EAST-WEST PROJECT
PROPOSED 12" WILSON LATERAL
WILSON QUAD #2
WHARTON COUNTY, TX

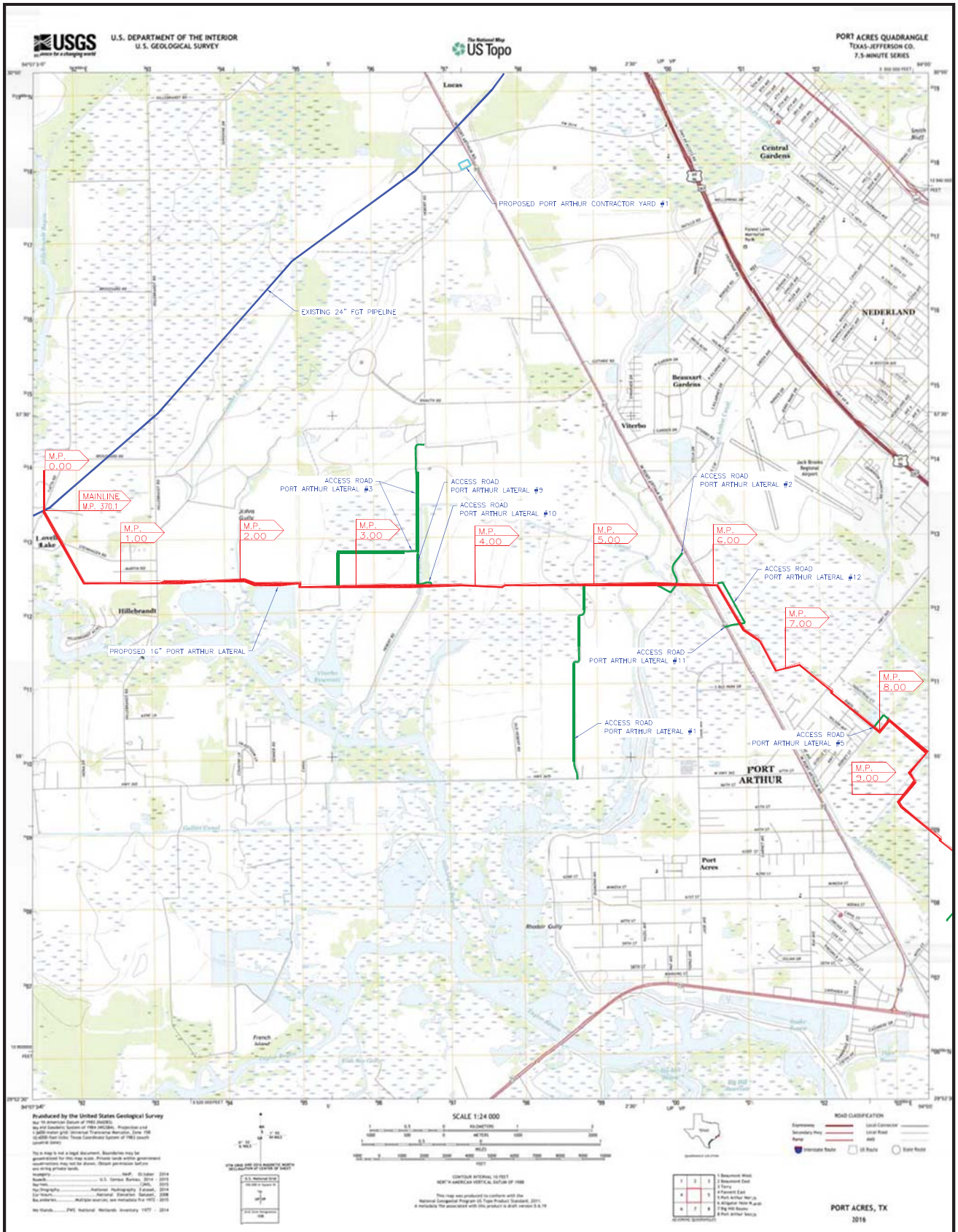
PROJECT NO. 260575

PREVIOUS DWG. NO. P1-003 SHT. 1 OF 2

DWG. NO. P1-004 SHT. 2 OF 2

B

Port Arthur Lateral
and
Port Arthur - Motiva M&R Station



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04/21/17

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DRAWN	MEH	09/27/16
ASBUILT		
FILE NO.:		
SCALE: 1"=2000'		

Florida Gas Transmission Company
An Energy Transfer/Kinder Morgan Affiliate

TRC

EAST-WEST PROJECT
PROPOSED 16" PORT ARTHUR LATERAL
PORT ARTHUR QUAD #1
JEFFERSON COUNTY, TX

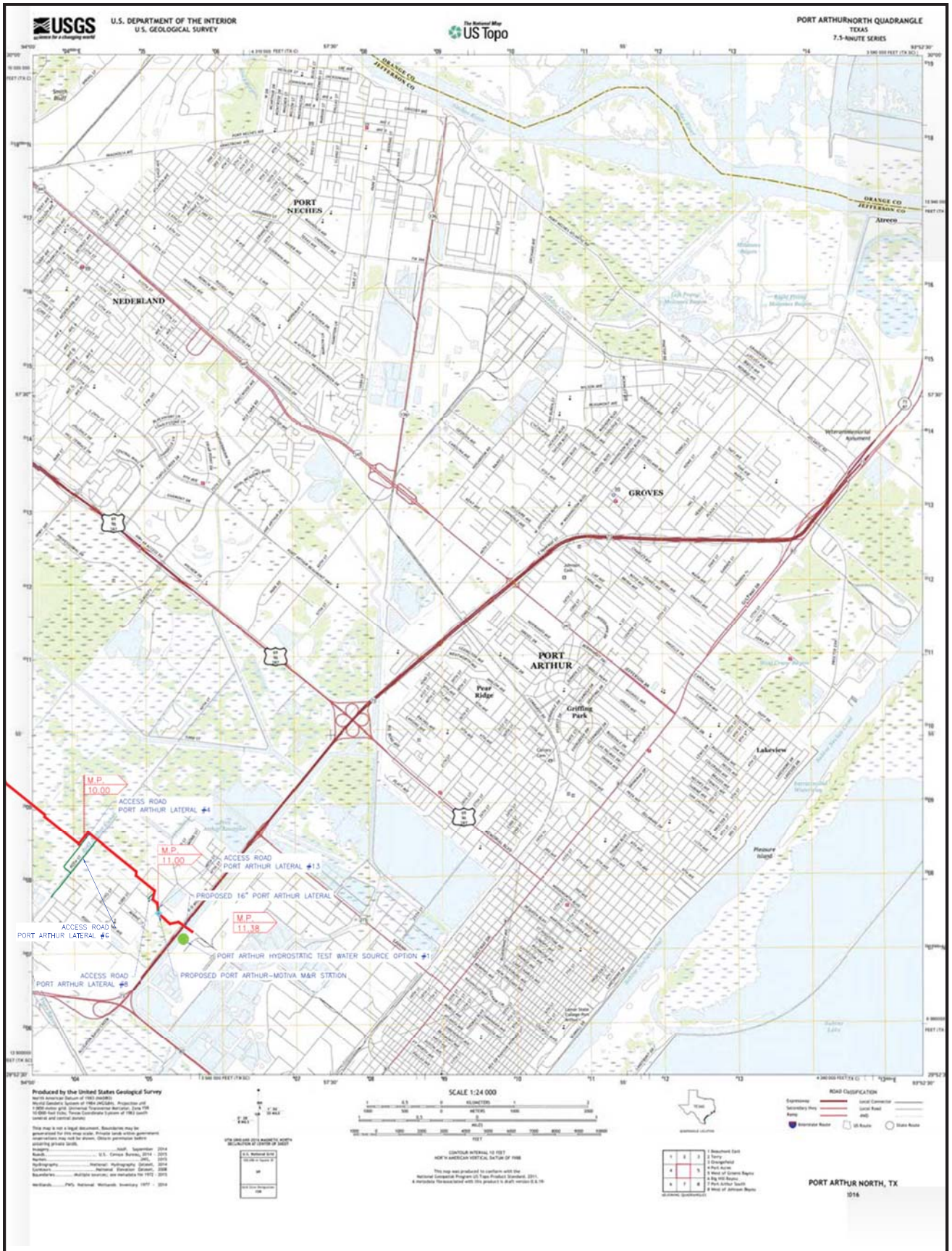
PROJECT NO.
260575

PREVIOUS DWG. NO.

SHT. OF

DWG. NO.
P1-005
SHT. 1 OF 3

B



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RE-ISSUED FOR FERC FILING

04/21/17

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ASBUILT		
FILE NO.:		
SCALE: 1"=2000'		

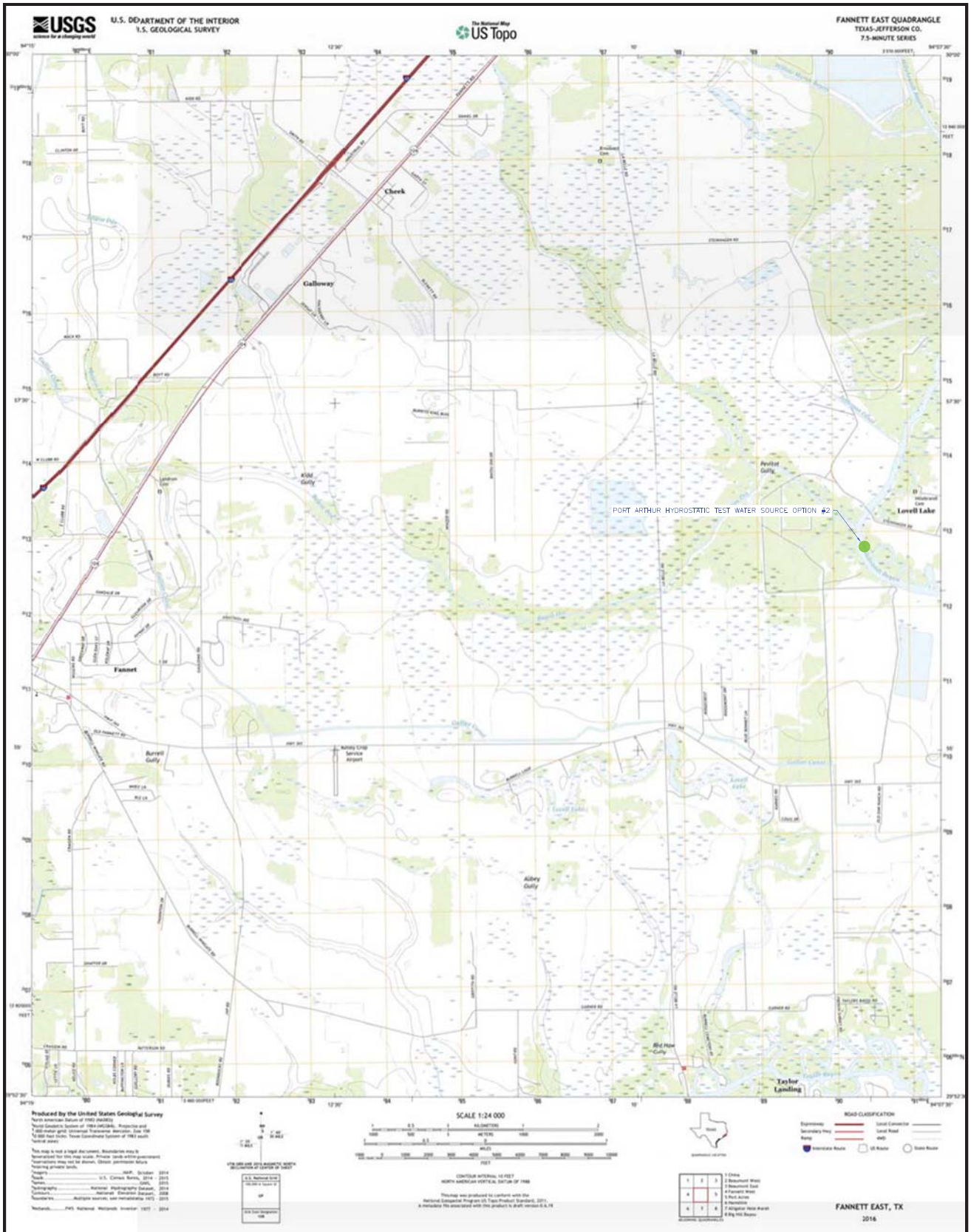
Florida Gas Transmission Company
for Energy Transfer/Kinder Morgan Affiliate

TRC

EAST-WEST PROJECT
PROPOSED 16" PORT ARTHUR LATERAL
PORT ARTHUR QUAD #2
JEFFERSON COUNTY, TX

PROJECT NO.	260575
PREVIOUS DWG. NO.	P1-005 SHT. 1 OF 2
DWG. NO.	P1-006 SHT. 2 OF 3

B



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RE-ISSUED FOR FERC FILING

04/21/17

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DRAWN	MEH	09/27/16
ASBUILT		
FILE NO.:		
SCALE: 1"=2000'		

Florida Gas Transmission Company
An Energy Transfer/Kinder Morgan Affiliate

TRC

PROPOSED 16" PORT ARTHUR LATERAL
PORT ARTHUR QUAD #3
JEFFERSON COUNTY, TX

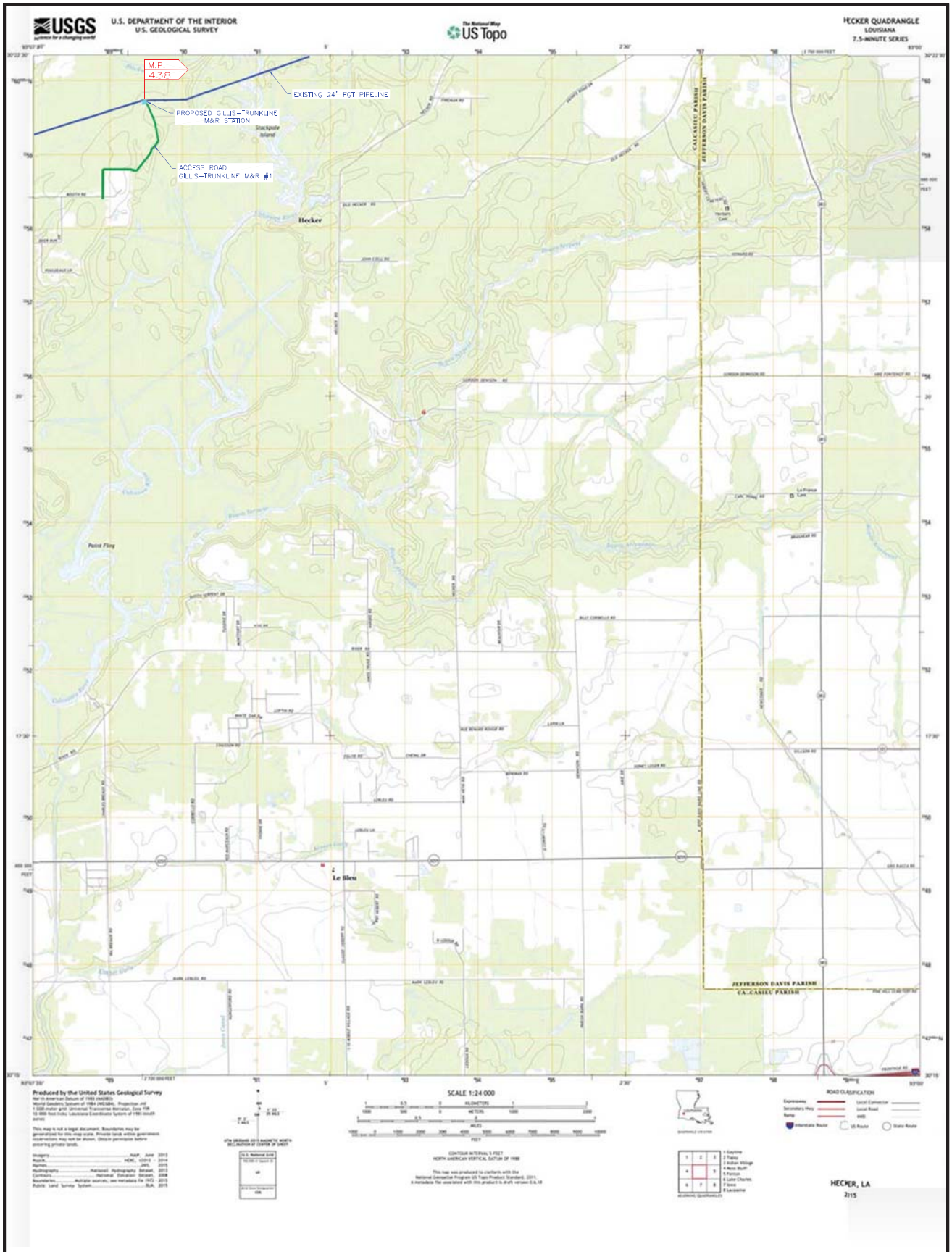
PROJECT NO.
260575

PREVIOUS DWG. NO.
P1-006
SHT. 2 OF 3

DWG. NO.
P1-007
SHT. 3 OF 3

B

Gillis - Trunkline M&R Station



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04/21/17

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DRAWN	MEH	09/27/16
ASBUILT		
FILE NO.:		
SCALE: 1"=2000'		

Florida Gas Transmission Company
An Energy Transfer/Kinder Morgan Affiliate

TRC

EAST-WEST PROJECT
GILLIS-TRUNKLINE M&R STATION
GILLIS-TRUNKLINE QUAD
CALCASIEU PARISH, LA

PROJECT NO. 260575

PREVIOUS DWG. NO.

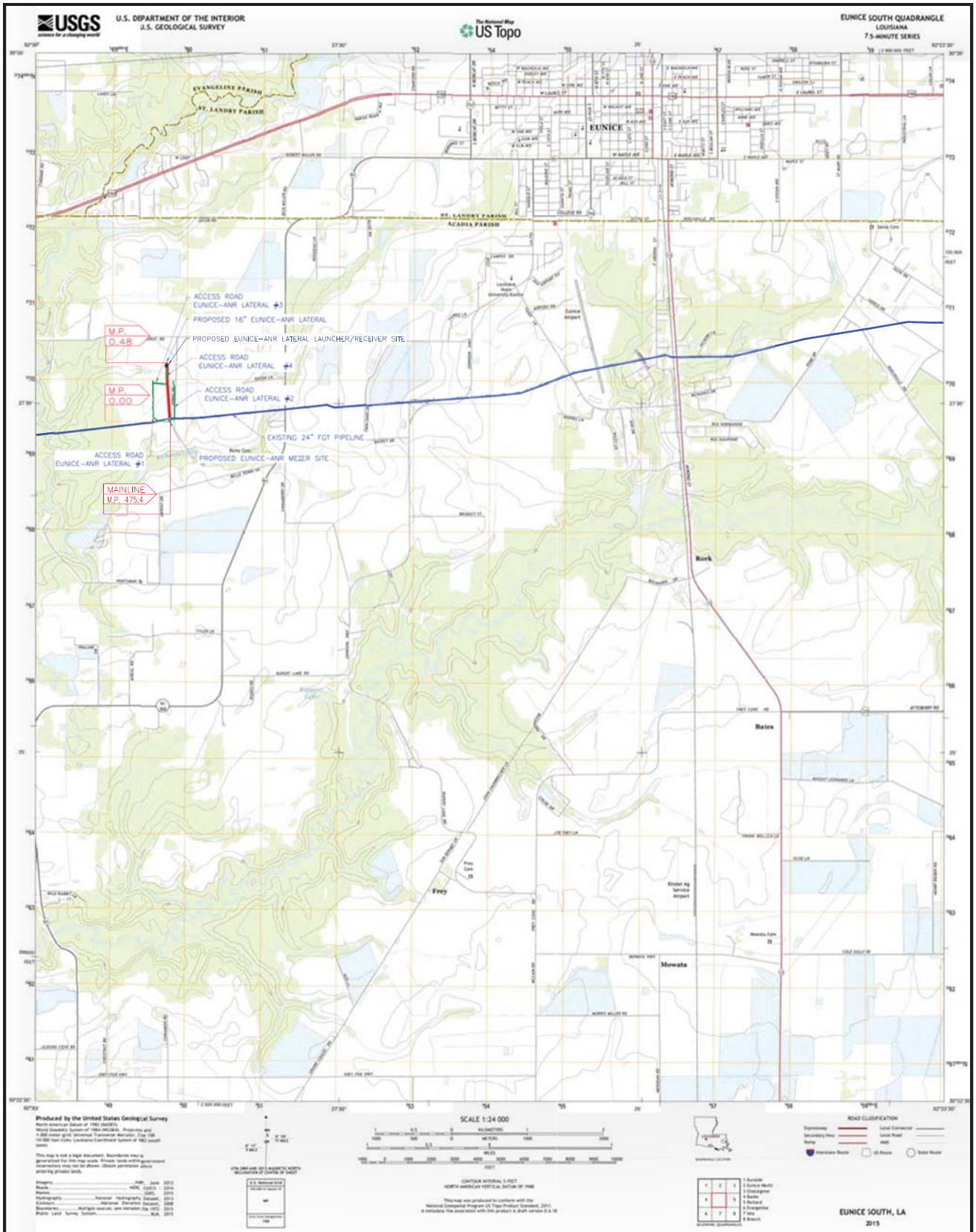
SHT. OF

DWG. NO. P1-002

SHT. 1 OF 1

B

Eunice - ANR Lateral
and
M&R Station



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RE-ISSUED FOR FERC FILING

04/21/17

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FILE NO.:		
SCALE: 1"=2000'		

Florida Gas Transmission Company
An Energy Transfer/Kinder Morgan Affiliate

TRC

EAST-WEST PROJECT
PROPOSED 16" EUNICE-ANR LATERAL
EUNICE-ANR QUAD
ACADIA PARISH, LA

PROJECT NO.
260575

PREVIOUS DWG. NO.

SHT. OF

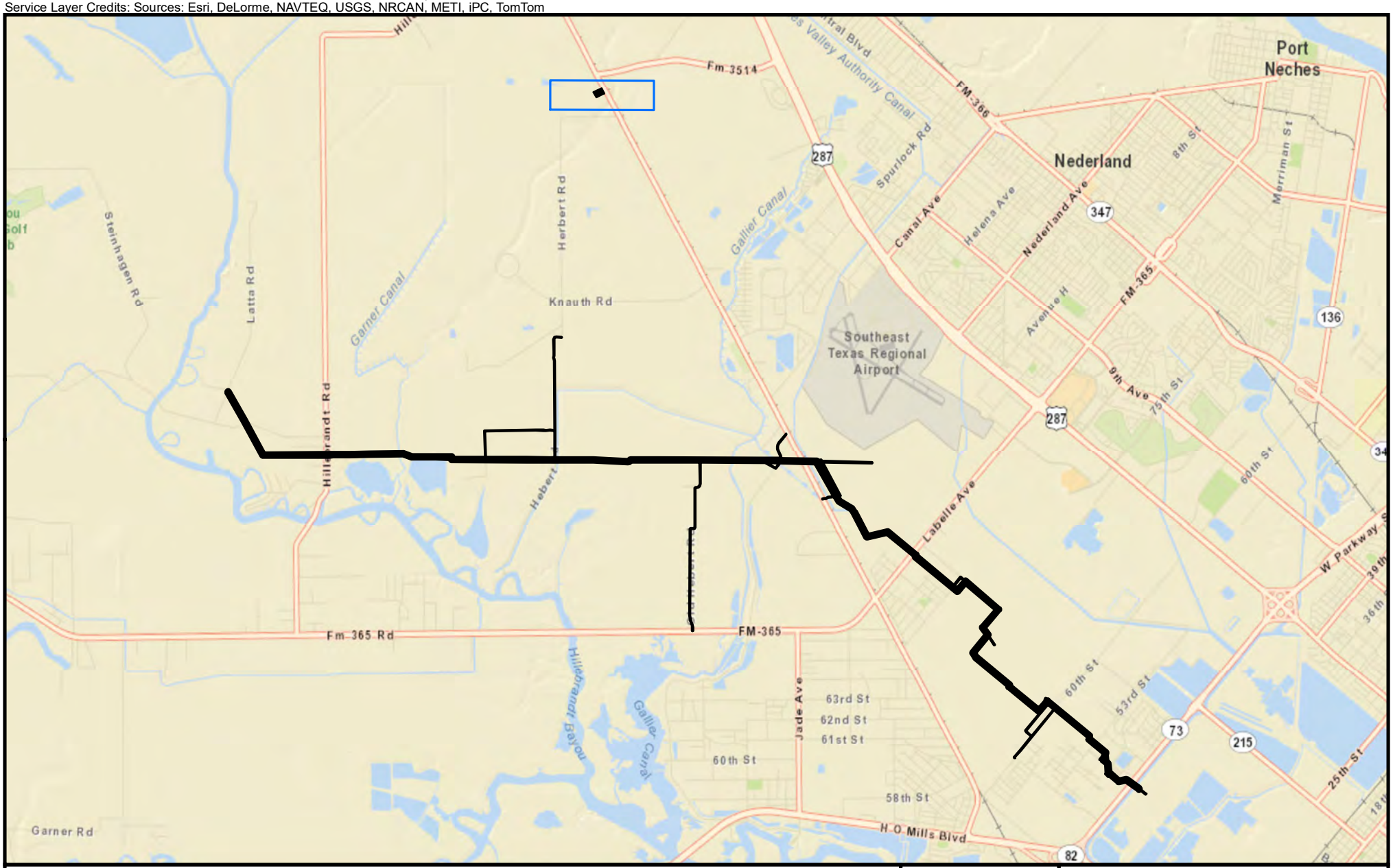
DWG. NO.
P1-001
SHT. 1 OF 1

B

Port Arthur Stanging Area/Contractor Yard

Path: \\bmcd\dfs\Clients\ESP\EnergyTrans\92905_ETCEastToWest\Studies\Geospatial\DataFiles\ArcDocs\Wetlands Appendix A\FigureA-3_PortArthur_Lateral_Index.mxd apbrown 4/19/2017

Service Layer Credits: Sources: Esri, DeLorme, NAVTEQ, USGS, NRCAN, METI, iPC, TomTom



Staging Area Call-out box

Survey Area

NORTH

1.25 0.625 0 1.25

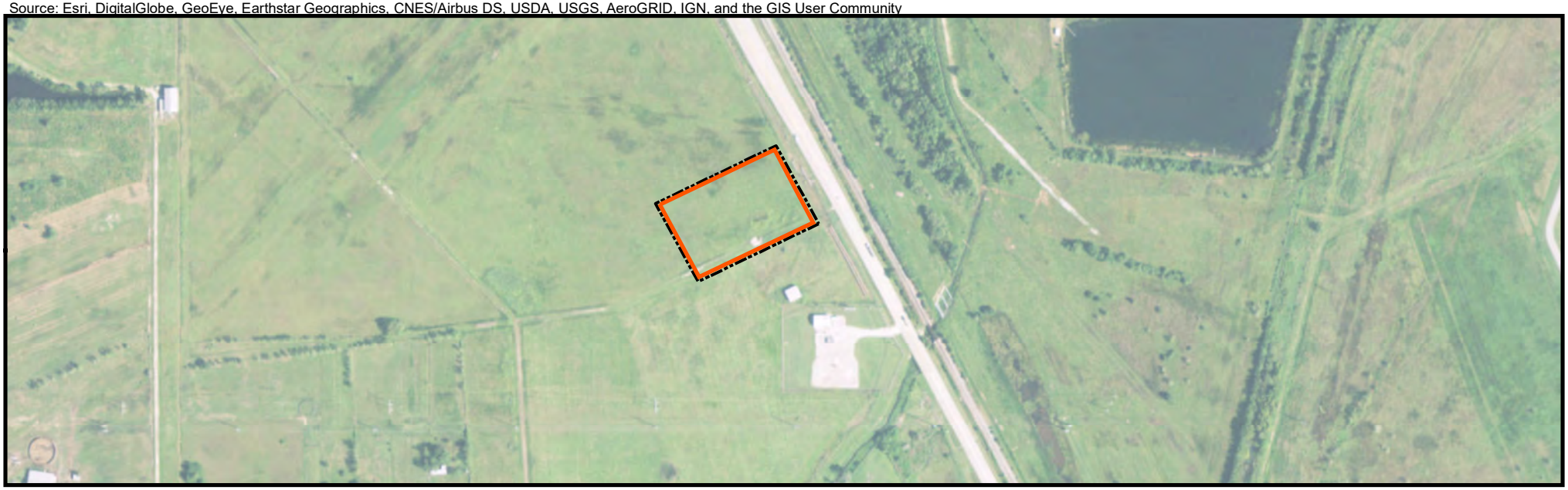
Miles

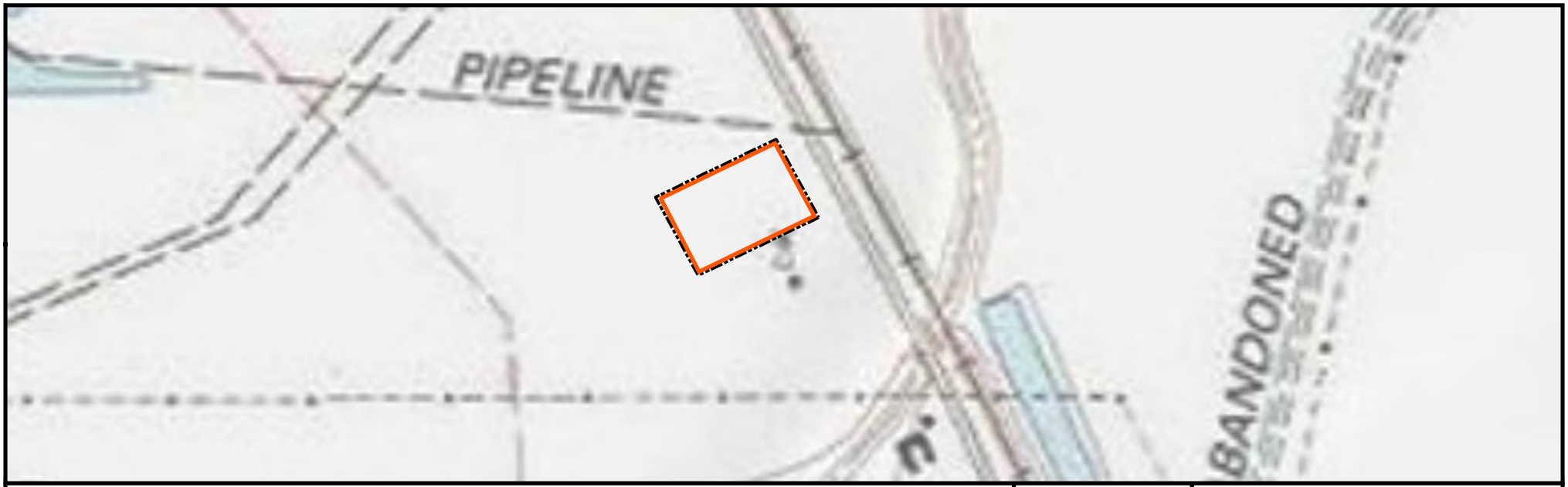
BURNS McDONNELL

Staging Area/Contractor Yard
Port Arthur Lateral and
Port Arthur-Motiva M&R Station
Jefferson County, TX

Source: Burns & McDonnell Engineering Company, Inc.

Issued: 4/19/2017





Survey Area

Staging Area/ Contractor Yard Boundary

Waterbodies
- Ephemeral
- Intermittent
- Perennial
- Pond

Wetlands
- PEM
- PFO
- PSS

NORTH

0 250 500
Scale in Feet

BURNS McDONNELL

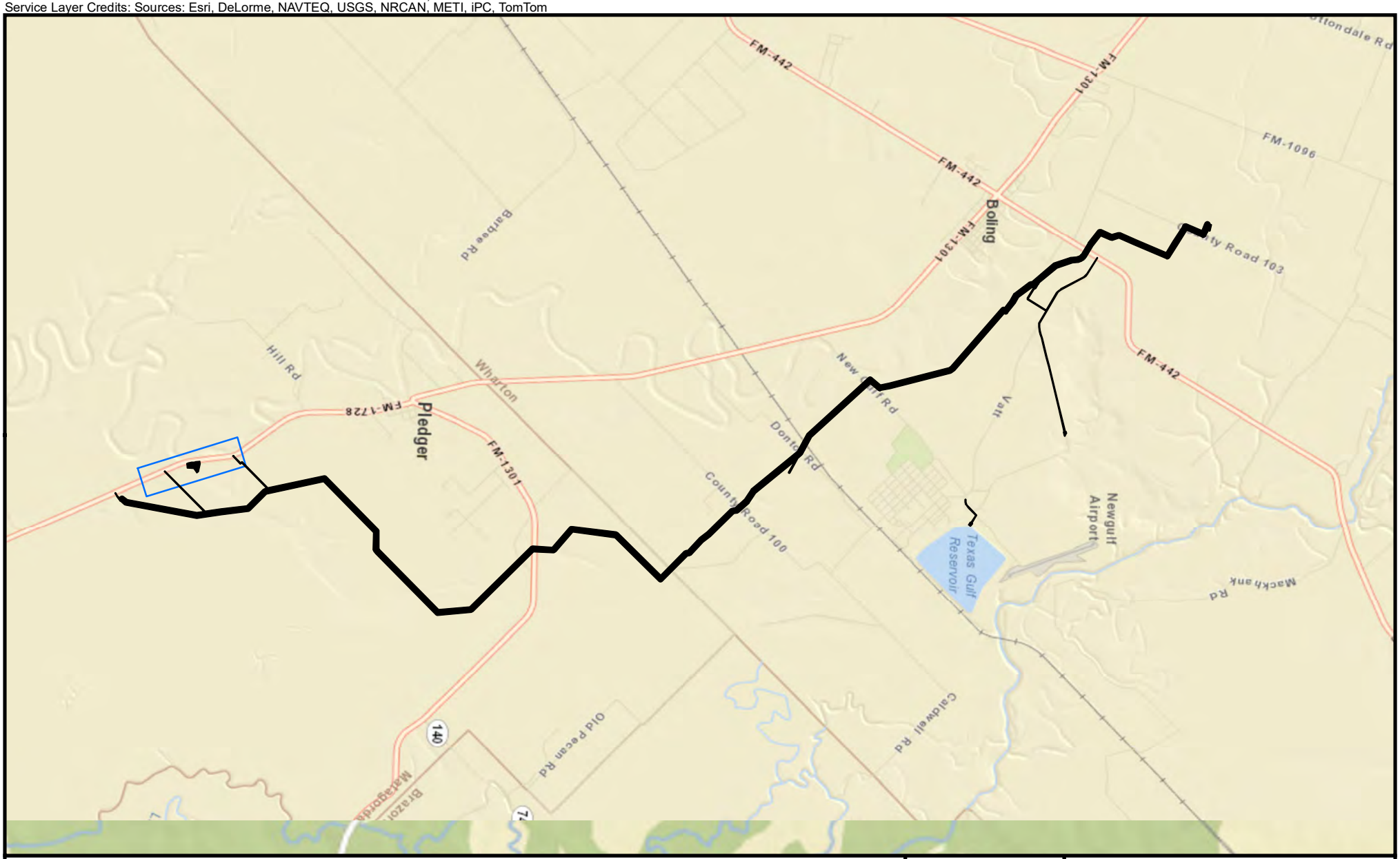
Staging Area/Contractor Yard
Port Arthur Lateral and
Port Arthur-Motiva M&R Station
Jefferson County, TX

Source: ESRI Data; Burns & McDonnell Engineering Company, Inc.

Issued: 5/12/2017

Wilson Lateral Staging Area/Contractor Yard

Path: \\bmcd\dfs\Clients\ESP\EnergyTrans\92905_ETCEastToWest\Studies\Geospatial\DataFiles\ArcDocs\Wetlands Appendix A\FigureA-2_Wilson_Lateral_Index.mxd apbrown 4/14/2017



Survey Area

Staging Area Call-out Box

NORTH

1.25 0.625 0 1.25

Miles

BURNS McDONNELL

Staging Area Location Map
Wilson Lateral and
Wilson-Coastal Bend M&R Station
Matagorda and
Wharton Counties, TX

Source: Burns & McDonnell Engineering Company, Inc.

Issued: 4/14/2017

Path: \\bmcd\dfs\Clients\ESP\EnergyTrans\92905_ETCEastToWest\Studies\Geospatial\DataFiles\ArcDocs\Wetlands Appendix A\FigureA-2_Wilson_Lateral.mxd apbrown 4/18/2017

Service Layer Credits: Copyright:© 2013 National Geographic Society, i-cubed
Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community

Survey Area
Access Road
Staging Area/Yard Boundary

Waterbodies
Intermittent
Perennial

Wetlands
PEM
PFO
PSS

NORTH

0 250 500
Scale in Feet

BURNS McDONNELL

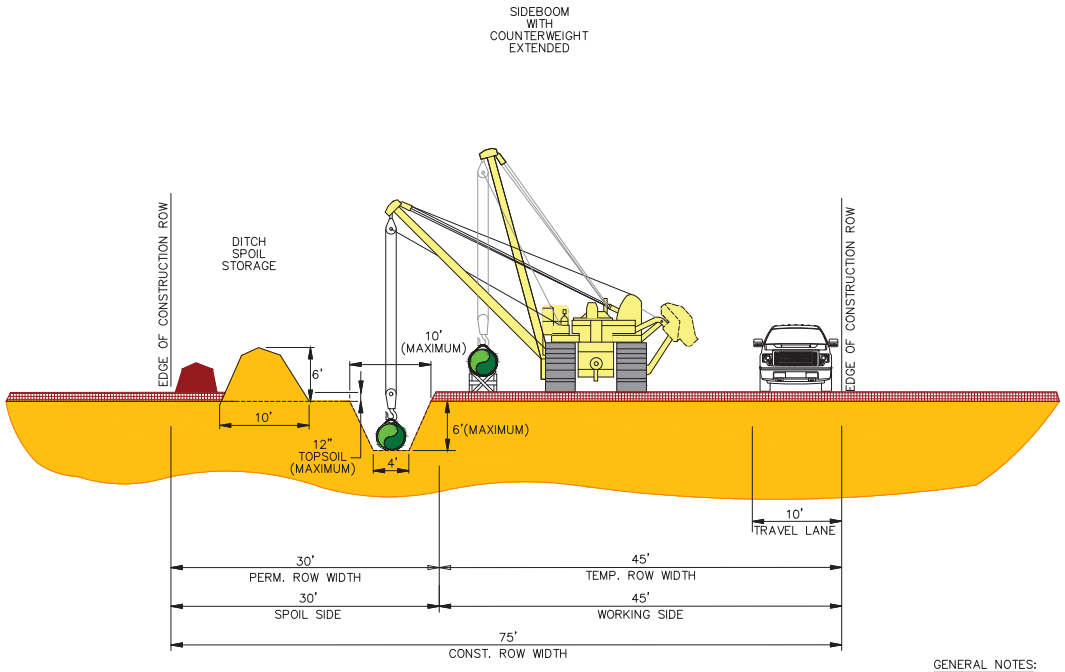
Staging Area/Contractor Yard
Wilson Lateral and
Wilson-Coastal Bend M&R Station
Matagorda and
Wharton Counties, TX

Source: ESRI Data; Burns & McDonnell Engineering Company, Inc.

Issued: 4/18/2017

Appendix B
Construction Typical Diagram

WORKING AREA



GENERAL NOTES:

1. EXTRA DEPTH MAY BE REQUIRED FOR CONCRETE COATED PIPE OR WEIGHTS

ISSUED FOR
FERC FILING
06/28/17

REV.	DESCRIPTION	BY	DATE	APPR.
B	REVISED PER FERC DATA REQUEST	MEH	06/28/17	JRW
A	ISSUED FOR FERC FILING	MEH	10/04/16	JRW

DWG. STATUS	CHECKED BY	CHECKED DATE	APPROVED BY	APPROVED DATE
PRELIM				
BID				
CONST.				
PLOT DATE				
FILE NAME				

P.L./STA. ACCT. NO.		
CONSTRUCTION YR		
	BY	DATE
DESIGN	MEH	09/27/16
DRAWN	MEH	09/27/16
ASBUILT		
FILE NO.:		
SCALE: NTS		

Florida Gas Transmission Company

EAST–WEST PROJECT
PROPOSED
RIGHT–OF–WAY

PROJECT NO.
260575

PREVIOUS DWG. NO.

SHT. OF

DWG. NO.
P11–004A

SHT. 1 OF 1

B

Appendix C
Access Roads Associated with the Project

Access Roads Associated with the East – West Project																
						Land Use Impacts (acres) Total (acres) [a]										
Access Road ID	Approx. MP	Length (feet)	Temporary or Permanent	Existing or New Road	Improvements Needed	Commercial/ Industrial	Open Land	Road and other ROW	Residential	Upland Forest	Planted Pine	Wetlands	Agricultural Land	Open Water	Total (acres)
Wilson Lateral and Wilson – Coastal Bend M&R Station																
3	0.0	517	Temporary	New	blade and gravel as needed	0.2	--	--	--	--	--	--	--	--	0.2
4	0.8	2,942	Temporary	New	blade and gravel as needed	--	1.3	--	--	--	--	--	--	--	1.3
2	1.5	2,536	Temporary	New	blade and gravel as needed	--	1.2	--	--	--	--	--	--	--	1.2
1	11.2	6,155	Temporary	Existing	gravel as needed	--	0.6	2.3	--	--	--	--	--	--	2.9
5	N/A	6,348	Temporary	Existing	none (road to hydrostatic test water source)	--	0.2	2.7	--	--	--	--	--	--	2.9
6	N/A	1,580	Temporary	Existing	none (road to hydrostatic test water source)	--	--	0.4	--	--	--	--	--	--	0.4
7	13.2	621	Permanent	New	blade and gravel as needed	--	0.3	<0.1	--	--	--	--	--	--	0.3
Port Arthur Lateral and Port Arthur – Motiva M&R Station																
15	0.0	86	Permanent	Existing	gravel as needed	--	--	<0.1	--	--	--	--	--	--	<0.1
14	2.5	9,840	Temporary	Existing	gravel as needed	--	--	4.5	--	--	--	--	--	--	4.5
3	2.8	10,073	Temporary	Existing	gravel as needed	--	--	4.6	--	--	--	--	--	--	4.6
9	3.5	1,483	Temporary	Existing	blade and gravel as needed	--	--	0.7	--	--	--	--	--	--	0.7
1	4.9	9,052	Permanent	Existing	none	--	--	4.2	--	--	--	--	--	--	4.2
2A	5.4	2,284	Temporary	Existing	blade and gravel as needed	--	--	0.8	--	--	--	0.2	--	--	1.0
12	6.0, 6.4	2,278	Temporary	Existing	gravel as needed	--	--	1.0	--	--	--	<0.1	--	--	1.0
11	6.4	758	Permanent	Existing	gravel as needed	--	--	0.3	--	--	--	--	--	--	0.3
5	8.1	2,943	Temporary	Existing	gravel as needed	--	--	1.4	--	--	--	--	--	--	1.4
16	8.6, 8.8	1421	Temporary	New	blade and gravel as needed	--	--	0.1	--	--	--	0.6	--	--	0.7
4	9.9	511	Temporary	New	blade and gravel as needed	--	--	0.2	--	--	--	0.8	--	0.1	1.1
6	10.2	3,277	Temporary	Existing	blade and gravel as needed	--	--	1.5	--	--	--	--	--	--	1.5

8	10.8	455	Temporary	Existing	blade and gravel as needed	- -	0.2	--	- -	- -	- -	- -	- -	- -	0.2
13	11	192	Permanent	Existing	blade and gravel as needed	- -	<0.1	0.1	- -	- -	- -	- -	- -	- -	0.1
Eunice – ANR Lateral and M&R Station															
4	0.27	558	Temporary	Existing	blade and gravel as needed	- -	- -	- -	0.1	- -	- -	- -	0.1	- -	0.2
2	0.04	1,809	Temporary	Existing	none	- -	- -	0.8	- -	- -	- -	- -	- -	- -	0.8
Gillis – Trunkline M&R Station															
1	N/A	6,183	Permanent	Existing	blade and gravel as needed	- -	0.6	0.9	- -	- -	1.3	- -	- -	- -	2.8
					Access Road Totals	**0.2**	**4.7**	**26.4**	**0.1**	**0.0**	**1.3**	**1.7**	**0.1**	**0.1**	**34.6**

a The numbers in this table have been rounded for presentation purposes. Thus, the totals may not reflect the exact sum of the addends in all cases.

Appendix D
Additional Temporary Workspace

East - West Project
Additional Temporary Workspaces [a]

ATWS ID	Dimensions (feet)		Milepost (midpoint)	Land Use (acres)						Justification
	Length	Width		Agricultural	Developed	Forested	Open Land	Open Water	Wetland	
Wilson Lateral										
ATWS-01	100	25	0.15		0.057					wetland crossing
ATWS-02	100	25	0.20		0.057					wetland crossing
ATWS-03	200	45	1.07				0.207			TWS crossover
ATWS-04	200	45	1.11				0.207			TWS crossover
ATWS-05	200	45	1.48				0.193			TWS crossover
ATWS-06	200	45	1.52				0.192			TWS crossover
ATWS-07	100	25	3.48				0.057			HDD entry
ATWS-08	100	25	3.55				0.057			HDD exit
ATWS-09	100	25	3.71				0.057			foreign pipeline crossing
ATWS-10	130	25	3.77				0.069			foreign pipeline crossing
ATWS-11	100	25	3.81				0.057			wetland crossing
ATWS-12	100	25	3.91			0.057				wetland crossing
ATWS-13	100	25	4.01				0.057			wetland crossing
ATWS-14	160	25	4.07				0.093			wetland crossing
ATWS-15	150	25	4.14				0.087			wetland crossing & foreign pipeline crossing
ATWS-16	170	25	4.23				0.098			wetland crossing & foreign pipeline crossing
ATWS-17	150	25	4.28				0.087			wetland crossing & foreign pipeline crossing
ATWS-18	100	25	4.32				0.057			foreign pipeline crossing
ATWS-19	100	25	4.89				0.059			road crossing
ATWS-20	100	25	4.94		.004		0.053			road crossing
ATWS-21	130	25	5.10				0.074			wetland crossing
ATWS-22	100	25	5.15				0.057			wetland crossing
ATWS-23	100	25	5.60				0.057			foreign pipeline crossing
ATWS-24	100	25	5.64				0.057			foreign pipeline crossing
ATWS-25	100	25	6.10				0.056			wetland crossing
ATWS-26	100	25	6.22				0.057			wetland crossing
ATWS-27	100	25	6.34				0.057			utility crossing
ATWS-28	100	25	6.38				0.058			point of inflection (PI)

East - West Project
Additional Temporary Workspaces [a]

ATWS ID	Dimensions (feet)		Milepost (midpoint)	Land Use (acres)						Justification
	Length	Width		Agricultural	Developed	Forested	Open Land	Open Water	Wetland	
ATWS-29	100	25	6.53		.001		0.056			road crossing
ATWS-30	100	25	6.57		.003		0.046			road crossing
ATWS-31	225	25	6.75				0.130			PI
ATWS-32	100	25	7.15				0.057			waterbody crossing
ATWS-33	100	25	7.20				0.057			waterbody crossing
ATWS-34	100	25	7.41		.001		0.057			road crossing
ATWS-35	100	25	7.47				0.057			road crossing
ATWS-36	100	25	7.53				0.057			waterbody crossing
ATWS-37	100	25	7.58			0.043	0.015			waterbody crossing
ATWS-38	1190	50	8.18				1.214			HDD exit & pull string
ATWS-39	190	25	8.39				0.109			HDD entry
ATWS-40	105	25	9.10				0.060			road crossing
ATWS-41	300	25	9.15		0.067		0.105			road crossing
ATWS-42	100	25	9.24				0.057			foreign pipeline crossing
ATWS-43	120	25	9.29				0.063			foreign pipeline crossing
ATWS-44	100	25	9.62				0.057			foreign pipeline crossing
ATWS-45	100	25	9.65				0.057			foreign pipeline crossing
ATWS-46	55	25	10.75				0.031			PI & pipeline crossing
ATWS-47	245	25	10.77				0.140			PI & pipeline crossing
ATWS-48	100	25	10.86				0.057			utility crossing
ATWS-49	75	25	11.18				0.043			utility crossing
ATWS-50	265	25	11.25				0.152			utility crossing
ATWS-51	100	25	11.75				0.057			road crossing
ATWS-52	100	25	11.78		.002		0.055			road crossing
ATWS-53	100	25	12.71	0.057						foreign pipeline crossing
ATWS-54	100	25	12.81	0.057						utility crossing
ATWS-55	100	25	12.84	0.057						utility crossing
ATWS-56	100	25	12.98	0.058						road crossing
ATWS-57	170	25	13.01	0.099						road & pipeline crossing
ATWS-58	100	25	13.04	0.057						pipeline crossing
ATWS-59	100	25	13.16	0.057						pipeline crossing

East - West Project
Additional Temporary Workspaces [a]

ATWS ID	Dimensions (feet)		Milepost (midpoint)	Land Use (acres)						Justification
	Length	Width		Agricultural	Developed	Forested	Open Land	Open Water	Wetland	
ATWS-61	600	50	12.28				0.66			Truck turnaround
Subtotal				*0.444*	*0.194*	*0.100*	*5.622*	*0*	*0*	N/A
Port Arthur Lateral										
ATWS-01	200	50	0.28				0.23			HDD exit
ATWS-02	200	50	0.39				0.23			HDD entry
ATWS-03	100	25	1.28		0.057					road crossing
ATWS-04	100	25	1.32	0.058						road crossing
ATWS-05	200	50	1.89	0.23						HDD exit
ATWS-06	210	50	2.05	0.239						HDD entry
ATWS-07	110	25	2.53						0.117	PI & pipeline crossing
ATWS-55	200	25	2.51						0.115	pipeline crossing
ATWS-08	100	25	2.59						0.057	waterbody crossing
ATWS-09	100	25	2.63						0.057	waterbody crossing
ATWS-10	100	25	2.77						0.057	pipeline crossing
ATWS-11	100	25	3.18						0.057	waterbody crossing
ATWS-12	95	25	3.24						0.055	waterbody crossing
ATWS-13	200	50	3.50						0.23	HDD exit
ATWS-16	420	25	4.22						0.329	HDD entry
ATWS-56	75	0-30	4.23						0.329	HDD entry
ATWS-18	100	25	4.35						0.057	pipeline crossing
ATWS-19	100	25	4.52						0.057	waterbody & pipeline crossing
ATWS-20	100	25	4.56	0.057						waterbody & pipeline crossing
ATWS-21	200	50	5.18						0.23	HDD entry

East - West Project
Additional Temporary Workspaces [a]

ATWS ID	Dimensions (feet)		Milepost (midpoint)	Land Use (acres)						Justification
	Length	Width		Agricultural	Developed	Forested	Open Land	Open Water	Wetland	
ATWS-57	95	40	6.04						0.084	HDD exit, pipe string & PI
ATWS-24	150	20-50	6.05						0.312	HDD exit, pipe string & PI
ATWS-58	125	20	6.91						0.053	PI
ATWS-25	135	50-75	7.11						0.413	HDD entry
ATWS-29	135	25	7.47						0.077	HDD exit & PI
ATWS-59	250	0-50	7.50						0.159	HDD exit & PI
ATWS-30	200	50	7.68						0.23	HDD entry
ATWS-31	2050	50-100	8.00						2.423	HDD exit
ATWS-64	50	0-50	8.10						.029	PI
ATWS-60	50	40	8.11				.046			waterbody crossing of access road – S quadrant
ATWS-61	50	40	8.11				.044			waterbody crossing of access road – E quadrant
ATWS-62	50	40	8.11				.048			waterbody crossing of access road – N quadrant
ATWS-63	50	40	8.11				.046			waterbody crossing of access road – W quadrant
ATWS-65	50	40	8.58				.045			waterbody crossing of access road – S quadrant
ATWS-66	50	40	8.58				.046			waterbody crossing of access road – E quadrant
ATWS-67	50	40	8.58				.045			waterbody crossing of access road – W quadrant
ATWS-68	50	40	8.58				.046			waterbody crossing of access road – N quadrant
ATWS-32	600	50-100	8.76						0.709	HDD exit & pull string
ATWS-33	105	25	8.75						0.059	HDD exit
ATWS-34	105	25	8.86						0.060	HDD entry & PI
ATWS-35	95	25	8.85						0.055	HDD entry & PI
ATWS-36	100	25	9.25						0.057	pipeline crossing

East - West Project
Additional Temporary Workspaces [a]

ATWS ID	Dimensions (feet)		Milepost (midpoint)	Land Use (acres)						Justification
	Length	Width		Agricultural	Developed	Forested	Open Land	Open Water	Wetland	
ATWS-37	100	25	9.28						0.057	pipeline crossing
ATWS-38	200	50	9.48						0.23	HDD exit
ATWS-39	155	50-120	9.55						0.307	HDD entry
ATWS-40	100	25	9.74						0.057	waterbody crossing
ATWS-41	100	25	9.79						0.057	waterbody crossing
ATWS-69	50	20	9.92						.023	PI
ATWS-70	50	40	9.92						.046	access road crossing canal
ATWS-71	100	50	9.92				.115			access road crossing canal
ATWS-72	50	40	9.92						.046	access road crossing canal
ATWS-42	100	100	10.05						0.230	HDD entry
ATWS-43	100	25	10.18						0.057	HDD exit
ATWS-44	200	50	10.62						0.23	HDD entry
ATWS-45	200	50	10.70		0.23					HDD exit
ATWS-46	80	45	10.80				0.083			PI
ATWS-47	100	50	10.81				0.115			HDD pipe string
ATWS-73	200	50	10.88				0.23			HDD exit
ATWS-49	215	110-160	11.01				0.584			HDD entry & PI
ATWS-50	170	75	11.02				0.275			HDD entry & PI
ATWS-51	120	25	11.14						0.063	pipeline crossing
ATWS-52	100	25	11.17						0.057	pipeline crossing
ATWS-53	325	35-50	11.22		0.252					HDD entry
ATWS-54	975	50	11.38		1.119					HDD exit & pull string
Subtotal				*0.584*	*1.658*	*0*	*2.228*	*0*	*7.656*	N/A
Eunice – ANR Lateral										
ATWS-01	450	25 - 50	0.03		.024		0.434			M&R site
ATWS-02	100	25	0.11				0.057			waterbody crossing
ATWS-03	145	25	0.16				0.071			waterbody crossing
ATWS-04	100	25	0.24				0.057			waterbody crossing
ATWS-05	120	25	0.32				0.069			road crossing

East - West Project
Additional Temporary Workspaces [a]

ATWS ID	Dimensions (feet)		Milepost (midpoint)	Land Use (acres)						Justification
	Length	Width		Agricultural	Developed	Forested	Open Land	Open Water	Wetland	
ATWS-06	245	25	0.37		0.138					road crossing & workspace shift-around existing structures.
ATWS-07	200	85	0.46	0.310						receiver surface site
ATWS-08	200	40	0.46	0.184						receiver surface site
Subtotal				*0.494*	*0.162*		*0.688*			N/A
TOTALS				**1.522**	**2.014**	**0.100**	**8.538**	**0**	**7.656**	N/A

[a] The numbers in this table have been rounded for presentation purposes. As a result, the totals may not reflect the exact sum of the addends in all cases.

Appendix E
Waterbodies Crossed by the Project

Waterbodies Affected by the East – West Project							
Feature ID	**Stream Name**	**Type**	**MP**	**Ordinary High Water Mark (ft)**	**Crossing Method**	**Water Quality/ALU Designation a/**	**FERC Classification a/**
Wilson Lateral and Wilson - Coastal Bend M&R Station							
WBA03	UNT to Big Lake	Perennial	3.50	95	HDD01	none	Intermediate Waterbody
WBA02	UNT to Big Lake	Intermittent	7.17	10	Open Cut (Dam & Pump)	none	Minor Waterbody
WBA01	UNT to Big Lake	Intermittent	7.55	20	Open Cut (Dam & Pump)	none	Intermediate Waterbody
Streams Crossed by Access Roads associated with the Wilson Lateral							
None							
Port Arthur Lateral and Port Arthur - Motiva M&R Station							
WBPI10	UNT to Hillebrandt Bayou	Intermittent	0.33	14	HDD01	none	Intermediate Waterbody
WBB10	UNT to Johns Gully	Perennial	1.31	26	Open Cut (Dam & Pump)	none	Intermediate Waterbody
WBB09	Johns Gully/Garner Canal	Perennial	2.00	38	HDD02	none	Intermediate Waterbody
WBB08	UNT to Hillebrandt Bayou	Perennial	2.48	34	Open Cut (Dam & Pump)	none	Intermediate Waterbody
WBA06	UNT to Viterbo Reservoir	Perennial	2.61	12	Open Cut (Dam & Pump)	none	Intermediate Waterbody
WBA07	UNT to Viterbo Reservoir	Perennial	3.23	12	Open Cut (Dam & Pump)	none	Intermediate Waterbody
WBA08	Gallier Canal	Perennial	3.55	80	HDD03	none	Intermediate Waterbody
WBA09	Manmade ditch	Perennial	3.61	25	HDD03	none	Intermediate Waterbody
WBA10	Manmade ditch	Intermittent	3.95	5	HDD03	none	Minor Waterbody
WBA11	Manmade ditch	Intermittent	3.96	5	HDD03	none	Minor Waterbody
WBA12	Manmade ditch	Intermittent	4.11	5	HDD03	none	Minor Waterbody
WBA13	Manmade ditch	Perennial	4.20	10	HDD03	none	Minor Waterbody
WBA14	Manmade ditch	Intermittent	4.53	10	Open Cut (Dam & Pump)	none	Minor Waterbody
WBA03	Rhodair Gulley	Perennial	5.23	95	HDD05	none	Intermediate Waterbody
WBA02	Manmade ditch	Intermittent	5.57	8	HDD05	none	Minor Waterbody
WBA01	Gallier Canal	Perennial	5.60	120	HDD05	none	Major Waterbody
WBA04	Port Arthur Canal	Perennial	5.95	40	HDD05	none	Intermediate Waterbody
WBA05	Manmade ditch	Intermittent	7.19	8	HDD07	none	Minor Waterbody
WBA16	Manmade ditch	Perennial	7.96	12	HDD08	none	Intermediate Waterbody
WBB07	Manmade ditch	Intermittent	7.97	9	HDD08	none	Minor Waterbody

Waterbodies Affected by the East-West Project

Feature ID	Stream Name	Type	MP	Ordinary High Water	Crossing Method	Water Quality/ALU Designation	FERC Classification a/
WBB05	Manmade ditch/canal	Perennial	8.80	32	HDD09	none	Intermediate Waterbody
WBB06	Manmade ditch flowing in to Main C Canal	Intermittent	8.80	23	HDD09	none	Intermediate Waterbody
WBB10	Manmade ditch flowing in to Main C Canal	Intermittent	9.52	26	HDD13	none	Intermediate
WBB04	Manmade ditch/canal	Perennial	10.05	9	HDD10	none	Minor Waterbody
WBB03	C-1 Lateral	Ephemeral	10.10	9	HDD10	none	Minor Waterbody
WBB02	Port Arthur Canal	Perennial	10.12	60	HDD10	none	Intermediate Waterbody
WBB01	Manmade ditch	Ephemeral	10.17	9	HDD10	none	Minor Waterbody
WBPI03	Manmade ditch	Perennial	10.66	10	HDD14	none	Minor Waterbody
WBPI02	Manmade ditch	Perennial	10.99	10	HDD11	none	Minor Waterbody
WBPI01	Main Outfall Canal	Perennial	11.29	194	HDD12	Impaired – 303(d)	Major Waterbody
Streams Crossed by Access Roads associated with the Port Arthur Lateral							
WBB09	Johns Gully/Garn	Perennial	N/A	34	Access Road 14	none	Intermediate
WBA07	UNT to Viterbo Reservoir	Perennial	N/A	12	Access Road 3	none	Intermediate
WBA04	Port Arthur Canal	Perennial	5.95	40	Access Road11	none	Intermediate Waterbody
WBPI11	Manmade ditch	Intermittent	6.32	13	Access Road 12	none	Intermediate Waterbody
WBB08	Manmade ditch/canal	Perennial	N/A	9	Access Road 5, may require new	none	Minor Waterbody
WBB07	Manmade ditch	Intermittent	N/A	9	Access Road 5, may require new	none	Minor Waterbody
WBB05	Manmade ditch/canal	Perennial	8.8	32	Access Road 16, existing	none	Intermediate Waterbody
WBB04	Manmade ditch/canal	Perennial	10.05	9	Access Road 4, may require new	none	Minor Waterbody
WBPI02	Manmade ditch	Perennial	10.99	10	Access Road 13	none	Minor Waterbody
Eunice - ANR Lateral and Eunice - ANR M&R Station							
WBA01	UNT to Bayou Des Cannes	Ephemeral	0.07	1	Open Cut (Dam & Pump) unless dry	none	Minor Waterbody

Waterbodies Affected by the East-West Project

Feature ID	Stream Name	Type	MP	Ordinary High Water	Crossing Method	Water Quality/ALU Designation	FERC Classification a/
WBA02	UNT to Bayou Des Cannes	Intermittent	0.22	2	Open Cut (Dam & Pump) unless dry	none	Minor Waterbody
Streams Crossed by Access Roads associated with the Eunice – ANR Lateral							
WBA01	UNT to Bayou Des Cannes	Ephemeral	0.07	1	Access Road 2	none	Minor Waterbody
Gillis - Trunkline M&R Station & Compressor Station 6							
No waterbodies crossed by these components of the proposed Project.							

UNT = Unnamed Tributary

A Minor waterbody = bank width less than 10 feet
Intermediate waterbody = bank width between 10 and 100 feet
Major waterbody = bank width over 100 feet

Appendix F
Wetlands Affected by the Project

Wetlands Crossed by the East – West Project								
Wetland ID	**Wetland Class[a]**	**MP Entry[b]**	**MP Exit[b]**	**Length of Crossing (feet)[c]**	**Anticipated Crossing Method[d]**	**Construction Impacts (acres)[e]**	**Permanent Impacts (acres)[f]**	**PFO Permanent Conversion**
Wilson Lateral and Wilson - Coastal Bend M&R Station								
WETA07	PEM	0.17	0.18	33	open cut	0.06	0.02	
WETA08	PFO1	3.84	3.88	183	open cut	0.31	0.07	0.07
	PEM	3.84	3.88			0.05	0.05	
WETA09	PEM	4.03	4.05	102	open cut	0.16	0.07	
WETA10	PEM	4.10	4.11	51	open cut	0.05	0.02	
	PFO1	4.10	4.11			0.04	0.00	
WETA11	PEM	4.25	4.26	20	open cut	0.04	0.02	
WETA06	PEM	4.70	4.71	60	side	0.02	0.02	
WETA05	PEM	5.12	5.13	24	open cut	0.05	0.02	
WETA04	PEM	6.12	6.13	219	open cut	0.05	0.04	
	PSS1	6.13	6.18			0.27	0.06	
WETC01	PEM	12.60	12.67	109	open cut	0.06	0.06	
	PFO1	12.65	12.67			0.40	0.06	0.06
PEM Wetland Impacts						*0.54*	*0.32*	
PSS1 Wetland Impacts						*0.27*	*0.06*	
PFO1 Wetland Impacts						*0.75*	*0.13*	*0.13*
Wilson Lateral Wetland Impacts						***1.56***	***0.51***	
Port Arthur Lateral and Port Arthur - Motiva M&R Station								
WETPI01	PEM	0.32	0.33	30	HDD01	0.00	0.00	
WETPI02	PSS1	0.33	0.33	0	HDD01	0.00	0.00	
WETPI03	PFO1	0.33	0.33	0	HDD01	0.00	0.00	
WETPI04	PEM	0.34	0.37	139	HDD01	0.00	0.00	
WETB10	PEM	1.58	1.64	303	open cut	0.50	0.21	
WETB09	PEM	1.92	1.98	278	HDD02	0.00	0.00	
WETB08	PEM	2.00	2.04	218	open cut	0.30	0.15	
WETA12	PEM	2.52	2.6	300	open cut	0.64	0.22	
WETA13	PEM	2.62	2.85	1,240	open cut	2.25	0.85	
WETA14	PEM	2.86	3.22	1,878	open cut	3.20	1.30	
WETA15	PEM	3.23	3.52	1,529	open cut	1.72	1.05	
WETA16	PEM	3.62	3.94	1,717	HDD03	0.00	0.00	
WETA17	PEM	3.96	4.09	712		0.00	0.00	
WETA18	PEM	4.11	4.18	388		0.00	0.00	
WETA19	PEM	4.21	4.53	1,732	open cut	2.20	1.19	
WETA20[g]	PEM	4.65	4.91	1,428	open cut	2.45	0.99	
WETA21	PEM	4.92	5.2	1,478	open cut	2.53	1.02	
WETA04	PEM	5.25	5.55	1,601	HDD05	0.00	0.00	
WETA05	PEM	5.57	5.58	0	HDD05	0.00	0.00	
WETA02	PFO1	5.64	5.67	211	HDD05	0.00	0.00	
	PEM	5.67	5.68			0.00	0.00	
WETA01	PEM	5.7	5.88	494	HDD05	0.00	0.00	
	PSS1	5.71	5.81			0.00	0.00	

	PFO1	5.80	5.81			0.00	0.00	
WETA06	PEM	5.91	5.92	26	HDD05	0.00	0.00	
WETA07	PEM	5.96	6.00	144	HDD05	0.00	0.00	
WETA08[g]	PEM	6.03	6.41	1,617	open cut	2.92	1.10	
	PFO1	6.03	6.10			0.05	0.00	
WETA09	PEM	6.42	7.18	3,504	open cut	6.06	2.41	
WETA10	PFO1	7.21	7.34	1,715	HDD07	0.00	0.00	
	PEM	7.3	7.31			0.00	0.00	
WETA22	PEM	7.45	7.55	961	open cut	1.13	0.37	
	PSS1	7.55	7.74			1.54	0.56	
	PFO1	7.74	7.84		HDD08	0.00	0.00	
WETB07	PSS1	7.97	8.77	1264	open cut	3.91	0.79	
	PEM	7.99	8.00			0.14	0.13	
	PFO1	8.54	8.78			1.58	0.50	0.50
WETB06	PSS1	8.8	9.25	2057	open cut	4.09	1.38	
	PEM	9.14	9.51			2.80	1.19	
WETB05	PEM	9.53	10.11	3066	open cut	5.33	2.11	
WETB04	PEM	10.16	10.53	1529	open cut	2.06	1.09	
	PSS1	10.18	10.45			1.02	0.20	
WETB03	PEM	10.61	10.65	228	open cut	0.43	0.16	
WETB01	PEM	10.83	10.84	0	side	0.09	0.00	
WETB02	PEM	10.84	10.85	27	open cut	0.09	0.02	
WETA11	PEM	11.07	11.18	805	open cut	0.98	0.34	
PEM Wetland Impacts						*37.82*	*15.90*	
PSS1 Wetland Impacts						*10.56*	*2.93*	
PFO1 Wetland Impacts						*1.63*	*0.50*	*0.50*
Total Port Arthur Lateral Wetland Impact						***50.01***	***19.33***	
Eunice - ANR Lateral and Eunice - ANR M&R Station								
No wetlands associated with this facility.								
Gillis - Trunkline M&R Station								
WETCO2	PEM	N/A	N/A	side	N/A	0.04	0.00	
Compressor Station 6 (CS 6/Vidor)								
WETPI01	PEM	N/A	N/A	0.0	N/A	0.00	0.00	
Temporary Access Roads								
PAL Access Road 3								
WETA13	PEM	2.8	N/A	4,454	N/A	0.0	0.00	
PAL Access Road 1								
WETA21	PEM	4.9	N/A	1,096	N/A	0.0	0.00	
PAL Access Road 2A								
WETA04	PEM	5.5	N/A	588	matting	0.21	0.00	
PAL Access Road 12								
WETA08	PEM	6.1	n/a	196	matting	0.03	0.0	
PAL Access Road 16								
WETB07	PSS	8.6	n/a	61	matting	0.02	0.00	
WETB06	PSS	8.6	n/a	1,222	matting	0.60	0.00	
PAL Access Road 4								
WETB05	PEM	9.9	n/a	500	matting	0.83	0.0	
PEM Wetland Impacts						*1.07*	*0.0*	

PSS1 Wetland Impacts	*0.62*	*0.0*	
Access Roads Wetland Impact	***1.69***	***0.0***	
Total PEM Impacts:	39.47	16.22	- -
Total PSS Impacts:	11.45	2.99	- -
Total PFO impacts:	2.38	0.63	0.63
Total Impacts:	**53.3**	**19.8**	**0.63**

a Wetland Classification (Cowardin et. al., 1979): PFO1 = palustrine forested broad-leaved deciduous (bottomland hardwood), PEM = palustrine emergent, PSS1 = palustrine scrub-shrub broad-leaved deciduous (hardwood)

b Mileposts were determined by GIS data and are approximate: MP Entry represents initial crossing into a wetland; MP Exit represents final crossing out of a wetland.

c Length of Crossing represents centerline crossing across wetland type: for multiple crossings of the same wetland, this is the sum of all crossings between MP Entry/Exit points.

d Open cut means the pipeline centerline will traverse the wetland. "Side" means the wetland is located within the construction corridor but will not be crossed directly by the centerline. HDD means the entire wetland will be avoided by the HDD construction method.

e Construction impacts represent the total wetland impacts that would occur during construction of the Project. Includes temporary impacts on wetlands from TWS, ATWS and the permanent easement.

f These numbers are exclusive of the temporary impacts. Permanent impacts are the acreages that will be maintained as part of the operational pipeline easement.

g Wetlands WETA20 and WETA08 will each contain mainline valve sites, which will result in 0.09 acre of permanent fill within WETA20 and 0.09 acre of fill within WETA08.

Appendix G
Additional Temporary Workspace within 50 Feet of a Wetland

Wetlands within 50 feet of ATWS for the East – West Project					
ATWS ID	**Wetland ID**	**Milepost**	**Wetland Type a/**	**Distance from ATWS to Wetland**	**Justification**
Port Arthur Lateral					
ATWS-02	WETPI04	0.38	PEM	0	ATWS is at Humble Camp Road crossing with large wetland on southeast side of road. Workspace is needed for HDD entry point and a vehicle turnaround.
ATWS-55	WETA12	2.50	PEM	30	ATWS is at a stream crossing with wetlands on east side. Workspace is needed for construction of a point of inflection in the pipeline.
ATWS-07	WETA12	2.53	PEM	0	ATWS is at a stream crossing with wetlands on east side. Workspace is needed for construction of a point of inflection in the pipeline.
ATWS-08	WETA12	2.59	PEM	0	ATWS is at a stream crossing with wetlands on both sides. Workspace is needed to facilitate an irrigation ditch crossing.
ATWS-09	WETA13	2.63	PEM	0	ATWS is at a stream crossing with wetlands on both sides. Workspace is needed to facilitate an irrigation ditch crossing.
ATWS-10	WETA13	2.77	PEM	0	ATWS is in a plain south of an O&G facility. Workspace is needed for pipeline crossing of the O&G facility.
ATWS-11	WETA14	3.18	PEM	0	ATWS is at a stream crossing with wetlands on both sides. Workspace is needed to facilitate an irrigation ditch crossing.
ATWS-12	WETA15	3.24	PEM	0	ATWS is at a stream crossing with wetlands on both sides. Workspace is needed to facilitate an irrigation ditch crossing.
ATWS-13	WETA15	3.50	PEM	0	ATWS is at Gallier Canal crossing with wetland on west side. Workspace is needed for the HDD exit point and a vehicle turnaround.
ATWS-16	WETA19	4.23	PEM	0	ATWS is at a stream crossing with wetlands on both sides. Workspace is needed for the HDD entry point, a vehicle turnaround, and for the pipeline crossing.

Wetlands within 50 feet of ATWS for the East – West Project					
ATWS ID	**Wetland ID**	**Milepost**	**Wetland Type a/**	**Distance from ATWS to Wetland**	**Justification**
ATWS-56	WETA19	4.23	PEM	0	ATWS is at a stream crossing east of O&G facility. Workspace is needed for the HDD entry point.
ATWS-18	WETA19	4.35	PEM	0	ATWS is in a plain with wetlands between two streams. Workspace is needed for crossing an existing pipeline.
ATWS-19	WETA 19	4.52	PEM	0	ATWS is a stream crossing with wetland on west side. Workspace is needed to facilitate an irrigation ditch crossing.
ATWS-21	WETA21	5.15	PEM	0	ATWS is at a stream crossing with wetlands on both sides. Workspace is needed for the HDD exit point.
ATWS-24	WETA08	6.03	PFO	5	ATWS at the Port Arthur Canal Crossing (bore) with abutting wetlands on both sides. Workspace is needed for the HDD entry point and for a vehicle turnaround.
ATWS-58	WETA09	6.92	PEM	0	ATWS is in a plain east of Port Arthur Canal. Workspace is needed for construction of a point of inflection in the pipeline.
ATWS-25	WETA09	7.12	PEM	0	ATWS in a plain east of Port Arthur Canal. Workspace is needed for the HDD entry point, a vehicle turnaround, and for construction of a point of inflection in the pipeline.
ATWS-29	WETA22	7.46	PEM	0	ATWS is in wetlands on east side of Hwy 365 crossing. Workspace is needed for the HDD exit.
ATWS-59	WETA22	7.50	PEM	0	ATWS is in wetlands on east side of Hwy 365 crossing. Workspace is needed for the HDD exit and for pipe stringing for the HDD pull back.
ATWS-30	WETA22	7.67	PSS	0	ATWS is in a wetland west of reservoir. Workspace is needed for the HDD entry point and for a vehicle turnaround.
ATWS-31	WETB07	8.0	PSS	0	ATWS is at a stream crossing with wetlands on east side. Workspace is needed for the HDD exit, pipe stringing corridor for the HDD pipe pull back, and for a vehicle travel lane.

Wetlands within 50 feet of ATWS for the East – West Project					
ATWS ID	**Wetland ID**	**Milepost**	**Wetland Type a/**	**Distance from ATWS to Wetland**	**Justification**
ATWS-64	WETB07	8.11	PSS	0	ATWS is at a stream crossing with wetlands on east side. Workspace is needed for construction of a point of inflection in the pipeline and for a vehicle movement.
ATWS-65	WETB07	8.57	PSS	10	ATWS is at an access road to cross a canal. Workspace is needed for the access road to safely cross the canal.
ATWS-66	WETB07	8.58	PSS	10	ATWS is at an access road to cross a canal. Workspace is needed for the access road to safely cross the canal.
ATWS-67	WETB07	8.58	PSS	10	ATWS is at an access road to cross a canal. Workspace is needed for the access road to safely cross the canal.
ATWS-68	WETB07	8.58	PSS	10	ATWS is at an access road to cross a canal. Workspace is needed for the access road to safely cross the canal.
ATWS-32	WETB07	8.76	PFO/PSS	0	ATWS is at a stream crossing with wetlands on both sides. Workspace is needed for the HDD exit point and for a stringing corridor for the HDD pipe pull back.
ATWS-33	WETB07	8.76	PFO/PSS	0	ATWS at a stream crossing with wetlands on both sides. Workspace is needed for the HDD exit point.
ATWS-34	WETB06	8.85	PSS	0	ATWS at a stream crossing with wetlands on both sides. Workspace is needed for the HDD entry point.
ATWS-35	WETB06	8.85	PSS	0	ATWS at a stream crossing with wetlands on both sides. Workspace is needed for HDD entry point.
ATWS-36	WETB06	9.25	PSS	0	ATWS in a plain with wetlands between two streams. Workspace is needed for crossing an existing pipeline.
ATWS-37	WETB06	9.29	PEM	0	ATWS in a plain with wetlands between two streams. Workspace is needed for crossing an existing pipeline.
ATWS-38	WETB06	9.48	PEM	0	ATWS is at a stream crossing with wetlands on both sides. Workspace is needed for the HDD exit point and for a vehicle turnaround.

Wetlands within 50 feet of ATWS for the East – West Project					
ATWS ID	**Wetland ID**	**Milepost**	**Wetland Type a/**	**Distance from ATWS to Wetland**	**Justification**
ATWS-39	WETB05	9.55	PEM	0	ATWS is at a stream crossing with wetlands on both sides. Workspace is needed for the HDD entry point and for a vehicle turnaround.
ATWS-40	WETB05	9.74	PEM	0	ATWS is in a plain with wetlands between two streams. Workspace is needed to facilitate an irrigation ditch crossing.
ATWS-41	WETB05	9.79	PEM	0	ATWS is in a plain with wetlands between two streams. Workspace is needed to facilitate an irrigation ditch crossing.
ATWS-69	WETB05	9.92	PEM	0	ATWS is in a plain with wetlands between two streams. Workspace is needed for construction of a point of inflection in the pipeline.
ATWS-42	WETB05	10.05	PEM	0	ATWS in a plain with wetlands between two streams. Workspace is needed for the HDD entry and for a vehicle turnaround
ATWS-43	WETB04	10.18	PSS	0	ATWS at a stream crossing with wetlands on both sides. Workspace is needed for the HDD exit.
ATWS-44	WETB03	10.61	PEM	0	ATWS is at a stream crossing with wetlands on west side. Workspace is needed for the HDD entry.
ATWS-73	WETB02	10.88	PEM	7	ATWS is located in open land with winding wetlands. Workspace is needed for the HDD exit point.
ATWS-51	WETA11	11.12	PEM	0	ATWS is in wetlands on west side of Hwy 73 crossing. Workspace is needed for construction of a point of inflection in the pipeline and to facilitate the highway crossing.
ATWS-52	WETA11	11.15	PEM	7	ATWS is in wetlands on west side of Hwy 73 crossing. Workspace is needed for construction of a point of inflection in the pipeline and to facilitate the highway crossing.
a PEM = palustrine emergent wetland, PSS = palustrine scrub shrub wetland, PFO = palustrine forested wetland					

Appendix H
Special Status Species Potentially Affected by the Project

Federally and State Protected Species Potentially Present in or Near the East – West Project									
Common Name	**Scientific Name**	**Federal Status**	**LA State Status**	**LA Parish**	**TX State Status**	**TX County**	**Habitat Requirements**	**Suitable Habitat Present/Impact Summary**	**Effect**
Birds									
American Peregrine Falcon	*Falco peregrinus anatum*	N	N	N	T	Jefferson, Matagorda, Wharton	Wide range of habitats during migration, including urban, concentrations along coast and barrier islands; low-altitude migrant, stopovers at leading landscape edges such as lake shores, coastlines, and barrier islands.	**Yes**, suitable habitat may be present within Project area due to wide array of general habitat for this species. No clearing will occur from May 15 – September 15. No impacts anticipated.	Not likely to impact
Attwater's Greater Prairie-Chicken	*Tympanuchus cupido attwateri*	N	N	N	E	Wharton	Open prairies of mostly thick grass one to three feet tall	**No**, suitable habitat is not identified within Project area due to lack of open tall grass prairies.	No effect
Bald Eagle	*Haliaeetus leucocephalus*	BGEPA	E	Calcasieu	T	Jefferson, Matagorda, Wharton	Found primarily near rivers and large lakes; nests in tall trees or on cliffs near water; communally roosts, especially in winter	**Yes**, suitable habitat may be present within Project area due to the presence of large rivers/streams in the area. Bald eagle nest observed in Orange County inside the existing CS 6/Vidor. No clearing will occur from May 15 – September 15. No impacts anticipated.	Not likely to impact
Eskimo Curlew	*Numenius borealis*	N	N	N	E	Matagorda	Open grasslands, marshes and, mudflats	**Yes,** suitable habitat may be present during March and April in the open areas that are present along the Wilson Lateral. No clearing will occur from May 15 – September 15. No impacts anticipated.	Not likely to impact

Federally and State Protected Species Potentially Present in or Near the East – West Project									
Common Name	**Scientific Name**	**Federal Status**	**LA State Status**	**LA Parish**	**TX State Status**	**TX County**	**Habitat Requirements**	**Suitable Habitat Present/Impact Summary**	**Effect**
Interior Least Tern	*Sterna antillarum athalassos*	E	N	N	E	Wharton	Nests along sand and gravel bars within braided streams, rivers; also know to nest on man-made structures (inland beaches, wastewater treatment plants, gravel mines, etc.)	**No,** suitable habitat is not present within Project corridor and would not be disturbed by construction of the Project.	No effect
Northern Aplomado Falcon	*Falco femoralis septentrionalis*	E	N	N	E	Matagorda	Open country, especially savanna and open woodland, and sometimes in very barren areas; grassy plains and valleys with scattered mesquite, yucca, and cactus	**No**, these falcons typically inhabit the ecoregions of South Texas and the Trans-Pecos region. No suitable habitat in Project area.	No effect
Peregrine Falcon	*Falco peregrinus*	N	N	N	T	Jefferson, Matagorda, Wharton	Wide range of habitats during migration, including urban, concentrations along coast and barrier islands; low-altitude migrant, stopovers at leading landscape edges such as lake shores, coastlines, and barrier islands.	**Yes**, suitable habitat may be present within Project area due to wide array of general habitat for this species. No individuals were observed during field surveys. No clearing will occur from May 15 – September 15. No impacts anticipated.	Not likely to impact
Piping Plover	*Charadrius melodus*	T	N	N	T	Jefferson, Matagorda	Wintering migrant along the Texas Gulf Coast; beaches and bayside mud or salt flats	**No**, suitable habitat was not identified within Project area due to lack of beaches, bayside mud flats, and salt flats.	No effect

Federally and State Protected Species Potentially Present in or Near the East – West Project									
Common Name	**Scientific Name**	**Federal Status**	**LA State Status**	**LA Parish**	**TX State Status**	**TX County**	**Habitat Requirements**	**Suitable Habitat Present/Impact Summary**	**Effect**
Red-Cockaded Woodpecker	*Picoides borealis*	E	E	Calcasieu	N	N	Requires mature, open stands of pine forest with low understory. The USFWS defines suitable nesting habitat as pine, pine/hardwood, and hardwood/pine stands that contain pines 60 years in age or older. Suitable foraging habitat is defined as a pine or pine/hardwood stands of forest, woodland, or savannah in which 50 percent or more of the dominant trees are pines and the dominant pine trees are generally 30 years in age or older.	**No**, suitable habitat was not observed within Project area, and no birds were observed during surveys No clearing would occur from May 15 – September 15. No impacts anticipated.	No effect
Red Knot	*Calidris canutus rufa*	T	N	N	N	N	Primarily marine habitats near coastlines	**No**, suitable habitat was not identified within Project area due to lack of marine areas	No effect
Reddish Egret	*Egretta rufescens*	N	N	N	T	Jefferson, Matagorda	Brackish marshes and shallow salt ponds and tidal flats	**No**, suitable habitat was not identified within Project area due to lack of marine areas	No effect
Sooty Tern	*Sterna fuscata*	N	N	N	T	Matagorda	Flat and open sandy or coral and rocky marine areas.	**No**, suitable habitat was not identified within Project area due to lack of marine areas	No effect
Swallow-tailed Kite	*Elanoides forficatus*	N	N	N	T	Jefferson	Lowland forested regions, especially swampy areas, ranging into open woodland; marshes, along rivers, lakes, and ponds; nests high in tall tree in clearing or on forest woodland edge, usually in pine, cypress, or various deciduous trees	**Yes**, suitable habitat may be present within Project area due to forested areas in and around the Port Arthur Lateral. No species were observed during the April 2017 field surveys. No clearing will occur from May 15 – September 15. No impacts anticipated.	Not likely to impact

Federally and State Protected Species Potentially Present in or Near the East – West Project									
Common Name	**Scientific Name**	**Federal Status**	**LA State Status**	**LA Parish**	**TX State Status**	**TX County**	**Habitat Requirements**	**Suitable Habitat Present/Impact Summary**	**Effect**
White-faced Ibis	*Plegadis chihi*	N	N	N	T	Jefferson, Matagorda, Wharton	Freshwater marshes, sloughs, and irrigated rice fields, but will attend brackish and saltwater habitats	**Yes**, potentially suitable habitat is present within the Port Arthur Lateral project area. No species were observed during the April 2017 field surveys. No clearing will occur from May 15 – September 15. No impacts anticipated.	Not likely to impact
White-tailed Hawk	*Buteo albicaudatus*	N	N	N	T	Matagorda, Wharton	Near coast on prairies, cordgrass flats, and scrub-live oak; further inland on prairies, mesquite and oak savannas, and mixed savanna-chaparral	**Yes**, suitable habitat may be present within the Wilson Lateral project area due to wide array of general habitat for this species. No individuals were observed during field surveys. No clearing will occur from May 15 – September 15. No impacts anticipated.	Not likely to impact
Whooping Crane	*Grus americana*	E	N	N	E	Matagorda, Wharton	Coastal plains and wetland areas	**Yes**, suitable habitat may be present within Project area due to the presence of wetland areas for winter migration stopover habitat. Due to the nature of the wetlands affected by the Project, and the availability of wetland habitat surrounding the Project area, we conclude that the Project would not likely adversely affect whooping cranes.	Not likely to adversely affect
Wood Stork	*Mycteria americana*	N	N	N	T	Jefferson, Matagorda, Wharton	Marshes, swamps, lagoons, ponds, flooded fields; depressions in marshes are important during drought; also occurs in brackish wetlands.	**Yes**, suitable habitat is present along much of the Port Arthur Lateral. However, no individuals or rookeries were observed during surveys. No clearing will occur from May 15 – September 15. No impacts anticipated.	Not likely to impact

Federally and State Protected Species Potentially Present in or Near the East – West Project									
Common Name	**Scientific Name**	**Federal Status**	**LA State Status**	**LA Parish**	**TX State Status**	**TX County**	**Habitat Requirements**	**Suitable Habitat Present/Impact Summary**	**Effect**
Fish									
Blue Sucker	*Cycleptus elongatus*	N	N	N	T	Matagorda, Wharton	Larger portions of major rivers in Texas; usually in channels and flowing pools with a moderate current; bottom type usually of exposed bedrock	**No**, suitable habitat is not identified within Project area due to lack of major river habitats crossed by the Wilson Lateral.	No effect
Smalltooth Sawfish	*Pristis pectinata*	N	N	N	E	Jefferson, Matagorda	Young found very close to shore in muddy and sandy bottoms, seldom descending to depths greater than 32 ft (10 m); in sheltered bays, on shallow banks, and in estuaries or river mouths; adult sawfish are encountered in various habitat types (mangrove, reef, seagrass, and coral), in varying salinity regimes and temperatures, and at various water depths, feed on a variety of fish species and crustaceans	**No**, suitable habitat is not identified within Project area due to lack of suitable waterways.	No effect
Mammals									
Black Bear	*Ursus americanus*	N	N	N	T	Jefferson	Bottomland hardwoods and large tracts of inaccessible forested areas	**No**, suitable habitat was not identified within Project area due to lack of large tracts of inaccessible forest along the Port Arthur Lateral. Suitable habitat may be present, however, in Louisiana.	No effect

Federally and State Protected Species Potentially Present in or Near the East – West Project									
Common Name	**Scientific Name**	**Federal Status**	**LA State Status**	**LA Parish**	**TX State Status**	**TX County**	**Habitat Requirements**	**Suitable Habitat Present/Impact Summary**	**Effect**
Louisiana Black Bear	*Ursus americanus luteolus*	N	N	N	T	Jefferson, Matagorda, Wharton	Bottomland hardwoods and large tracts of inaccessible forested areas	**No**, suitable habitat is not identified within Project area due to the lack of large tracts of inaccessible forest along the project corridors. Suitable habitat may be present, however, in Louisiana.	No effect
Ocelot	*Leopardus pardalis*	N	N	N	E	Matagorda	Dense chaparral thickets; mesquite-thorn scrub and live oak mottes	**No**, suitable habitat is not identified within Project area due to lack of scrub-lands	No effect
Rafinesque's Big-eared Bat	*Corynorhinus rafinesquii*	N	N	N	T	Jefferson	Roosts in cavity trees of bottomland hardwoods, concrete culverts, and abandoned man-made structures	**Yes**, suitable habitat may be present within Project area; however, no impacts to bottomland hardwoods or culverts will occur. Impacts are unlikely.	No effect
Red Wolf	*Canis rufus*	N	N	N	E	Jefferson, Matagorda, Wharton	Formerly known throughout eastern half of Texas in brushy and forested areas, as well as coastal prairies	**Yes**, suitable foraging habitat may be present within Project area due to the presence of forested areas and prairies within the areas surrounding the workspaces. No direct impacts on preferred habitat will occur, and no individuals were seen during surveys.	Not likely to impact
West Indian Manatee	*Trichechus manatus*	E	N	N	E	Matagorda	Gulf and bay system	**No**, suitable habitat was not identified within Project as the Wilson Lateral is over 25 miles north of the coast.	No effect
Mollusks									
Louisiana Pigtoe	*Pleurobema riddellii*	N	N	N	T	Jefferson	Streams and moderate-size rivers, usually flowing water on substrates of mud, sand, and gravel	**No**, suitable habitat was not identified within Project area due to lack of moderate sized streams with flowing water. The Port Arthur Lateral will cross multiple manmade ditches and canals; however, mostly by HDD.	No effect

Federally and State Protected Species Potentially Present in or Near the East – West Project

Common Name	Scientific Name	Federal Status	LA State Status	LA Parish	TX State Status	TX County	Habitat Requirements	Suitable Habitat Present/Impact Summary	Effect
Sandbank Pocketbook	*Lampsilis satura*	N	N	N	T	Jefferson	Small to large rivers with moderate flows and swift current on gravel, gravel- sand, and sand bottoms	**No**, suitable habitat is not identified within Project area due to lack of rivers with moderate flow and swift currents.	No effect
Smooth Pimpleback	*Quadrula houstonensis*	C	N	N	T	Matagorda, Wharton	Small to moderate streams and rivers as well as moderate size reservoirs; mixed mud, sand, and fine gravel	**No**, suitable habitat is not identified within Project area due to lack of aquatic habitat	No effect
Southern Hickorynut	*Obovaria jacksoniana*	N	N	N	T	Jefferson	Medium sized gravel substrates with low to moderate current	**No**, suitable habitat is not identified within Project area due to lack of aquatic habitat	No effect
Texas Fawnsfoot	*Truncilla macrodon*	C	N	N	T	Matagorda, Wharton	Possibly rivers and larger streams, and intolerant of impoundment	**No**, suitable habitat is not identified within Project area due to lack of aquatic habitat	No effect
Texas Heelsplitter	*Potamilus amphichaenus*	N	N	N	T	Jefferson	Quiet waters in mud or sand and also in reservoirs	**No**, suitable habitat is not identified within Project area due to lack of aquatic habitat	No effect
Texas Pigtoe	*Fusconaia askewi*	N	N	N	T	Jefferson	Rivers with mixed mud, sand, and fine gravel in protected areas associated with fallen	**No**, suitable habitat is not identified within Project area due to lack of aquatic habitat	No effect
Texas Pimpleback	*Quadrula petrina*	C	N	N	T	Wharton	Mud, gravel and sand substrates, generally in areas with slow flow rates	**No**, suitable habitat is not identified within Project area due to lack of aquatic habitat	No effect
Triangle Pigtoe	*Fusconaia lananensis*	N	N	N	T	Jefferson	Mixed mud, sand, and fine gravel substrates	**No**, suitable habitat is not identified within Project area due to lack of aquatic habitat	No effect

Federally and State Protected Species Potentially Present in or Near the East – West Project									
Common Name	**Scientific Name**	**Federal Status**	**LA State Status**	**LA Parish**	**TX State Status**	**TX County**	**Habitat Requirements**	**Suitable Habitat Present/Impact Summary**	**Effect**
Reptiles and Amphibians									
Alligator Snapping Turtle	*Macrochelys temminckii*	N	RH	Acadia	T	Jefferson	Perennial waterbodies; deep water of rivers, canals, lakes, and oxbows; also swamps, bayous, and ponds near deep running water; sometimes enters brackish coastal waters; usually in water with mud bottom and abundant aquatic vegetation	**Yes**, suitable habitat was identified within Port Arthur Lateral project area. No individuals were observed during surveys. Most canals and ditches will be crossed using HDD. Workers will monitor for individuals and will remove them from the Project area if they are identified in accordance with TPWD recommendations.	Not likely to impact
Atlantic Hawksbill Sea Turtle	*Eretmochelys imbricata*	E	N	N	E	Jefferson, Matagorda	Gulf and bay system, warm shallow waters especially in rocky marine environments, such as coral reefs and jetties	**No**, suitable habitat is not identified within Project area due to lack of coastal marine habitat.	No effect
Green Sea Turtle	*Chelonia mydas*	T	N	N	T	Jefferson, Matagorda	Gulf and bay system; shallow water seagrass beds, open water between feeding and nesting areas, barrier island beaches	**No**, suitable habitat is not identified within Project area due to lack of coastal marine habitat.	No effect
Hawksbill Sea Turtle	*Eretmochelys imbricata*	E	N	N	N	N	Gulf and bay system, adults stay within the shallow waters of the Gulf of Mexico	**No**, suitable habitat is not identified within Project area due to lack of coastal marine habitat.	No effect
Kemp's Ridley Sea Turtle	*Lepidochelys kempii*	E	N	N	E	Jefferson, Matagorda	Gulf and bay system	**No**, suitable habitat is not identified within Project area due to lack of coastal marine habitat.	No effect
Leatherback Sea Turtle	*Dermochelys coriacea*	E	N	N	E	Jefferson, Matagorda	Gulf and bay systems, and widest ranging open water reptile	**No**, suitable habitat is not identified within Project area due to lack of coastal marine habitat.	No effect
Loggerhead Sea Turtle	*Caretta*	T	N	N	T	Jefferson, Matagorda	Gulf and bay system primarily for juveniles, adults are most pelagic of the sea turtles	**No**, suitable habitat is not identified within Project area due to lack of coastal marine habitat.	No effect

Federally and State Protected Species Potentially Present in or Near the East – West Project									
Common Name	**Scientific Name**	**Federal Status**	**LA State Status**	**LA Parish**	**TX State Status**	**TX County**	**Habitat Requirements**	**Suitable Habitat Present/Impact Summary**	**Effect**
Northern Scarlet Snake	*Cemophora coccinea copei*	N	N	N	T	Jefferson	Mixed hardwood scrub on sandy soils	**Yes**, suitable habitat may be present in areas surrounding the Port Arthur Lateral. No individuals were observed during surveys. If individuals are identified during construction, they will be removed to an off-right-of-way location in accordance with TPWD recommendations.	Not likely to impact
Ornate Box Turtle	*Terrapene ornata*	N	RH	Calcasieu	N	N	Open areas dominated by grasses and brushy vegetation such as prairies, grasslands, and sandy plains; occasionally found in forests	**Yes**, suitable habitat may be present within Project area due to wide array of general habitat for this species. If individuals are identified during construction, they will be moved to a safe off- right-of-way location in accordance with TPWD recommendations.	Not likely to impact
Texas Horned Lizard	*Phrynosoma cornutum*	N	N	N	T	Jefferson, Matagorda, Wharton	Open, arid and semi-arid regions with sparse vegetation, including grass, cactus, scattered brush or scrubby trees	**No**, suitable habitat is not identified within Project area due to lack of arid habitat	No effect
Texas Scarlet Snake	*Cemophora coccinea lineri*	N	N	N	T	Matagorda	Mixed hardwood scrub on sandy soils	**Yes**, suitable habitat may be present in areas near the Wilson Lateral. No individuals were observed during surveys. If individuals are identified during construction, they will be removed to an off-right-of-way location in accordance with TPWD recommendations.	Not likely to impact
Texas Tortoise	*Gopherus berlandieri*	N	N	N	T	Matagorda	Open brush with a grass understory	**No**, suitable habitat is not identified within Project area due to lack of brush-lands	No effect

Federally and State Protected Species Potentially Present in or Near the East – West Project

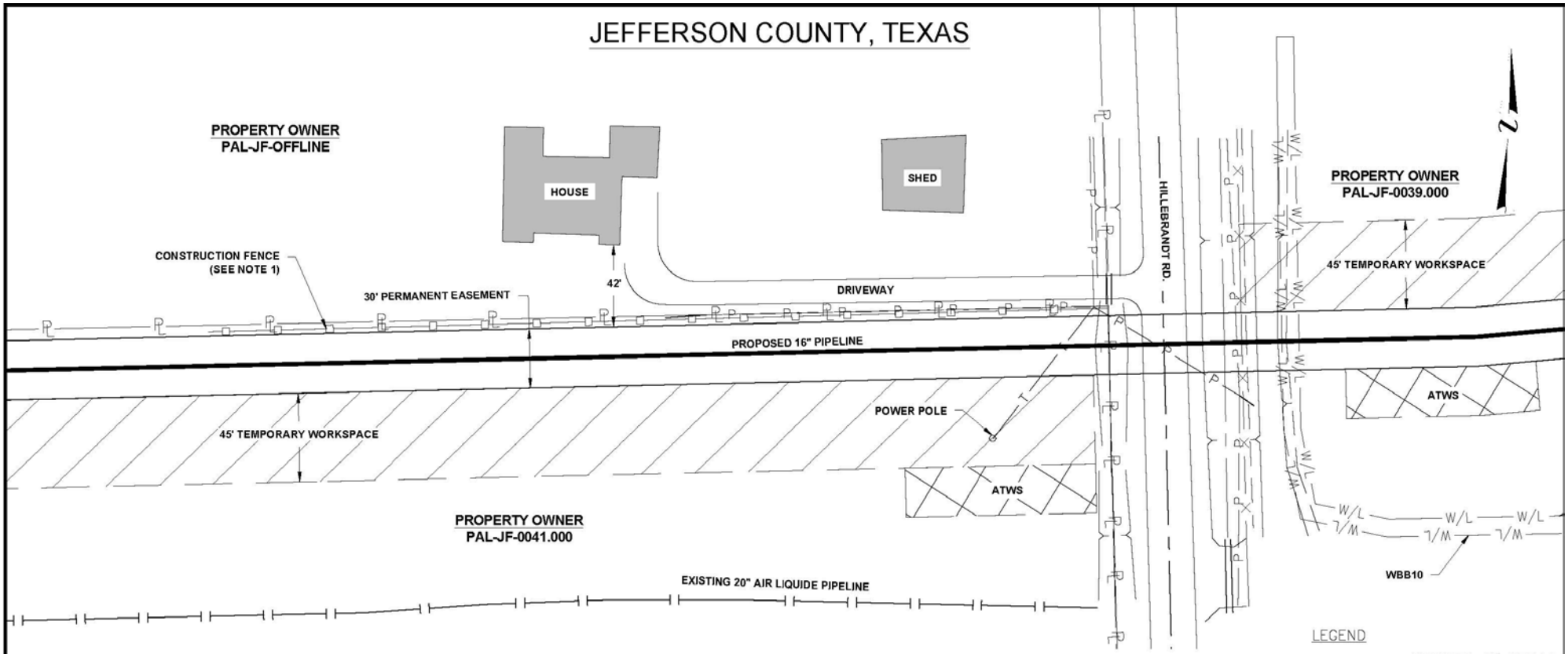
Common Name	Scientific Name	Federal Status	LA State Status	LA Parish	TX State Status	TX County	Habitat Requirements	Suitable Habitat Present/Impact Summary	Effect
Timber Rattlesnake	*Crotalus horridus*	N	N	N	T	Jefferson, Matagorda, Wharton	Swamps, floodplains, upland pine and deciduous woodlands, riparian zones, abandoned farmland; limestone bluffs, sandy soil or black clay	**Yes**, suitable habitat (swamps, floodplains) were observed along the Port Arthur Lateral in Jefferson County. If individuals are identified during construction, they will be removed to an off-right-of-way location in accordance with TPWD recommendations.	Not likely to impact

Sources: USFWS, TPWD, LDWF

E = Endangered, T = Threatened, C = Candidate Species, RH = Restricted Harvest, N = Not Listed in counties crossed by the Project, BGEPA = Protected under the Bald & Golden Eagle

Appendix J
Residential Site-Specific Construction Plans

JEFFERSON COUNTY, TEXAS



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RE-ISSUED FOR FERC FILING
08/17/17

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BID				
CONST.				
PLOT DATE				
FILE NAME				

P.L./STA. ACCT. NO.

CONSTRUCTION YR	BY	DATE
DESIGN	MEH	09/27/16
DRAWN	MEH	09/27/16
ASBUILT		

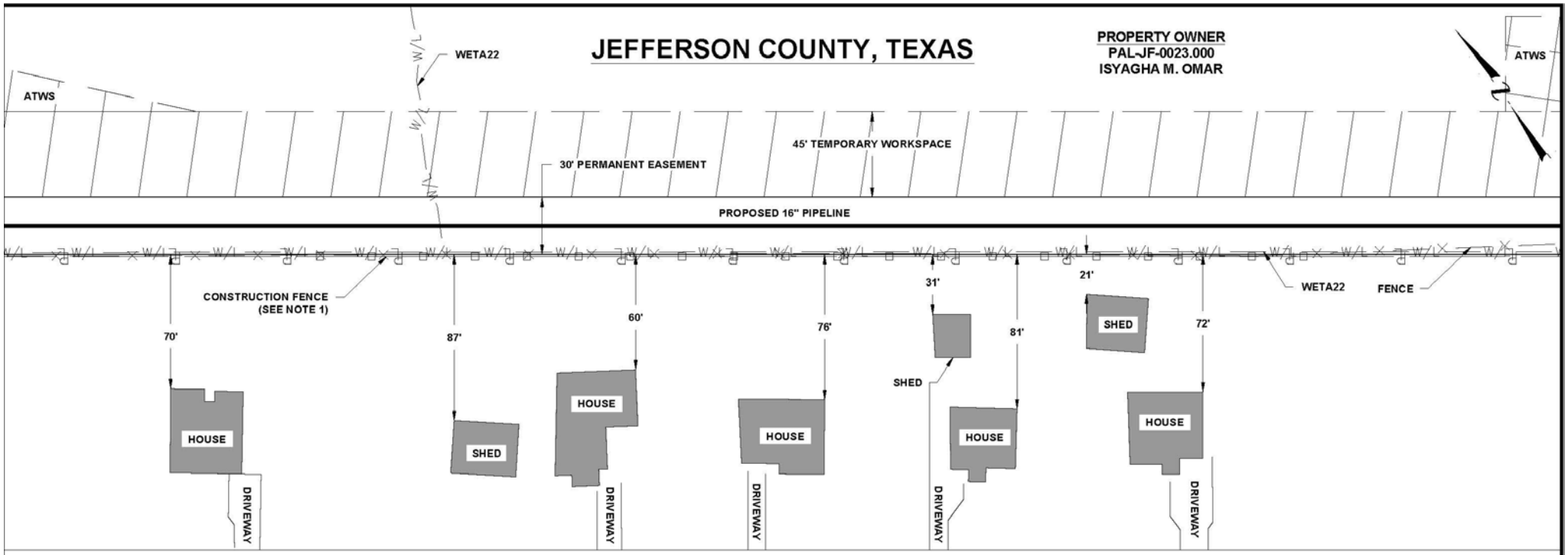
FILE NO.:
SCALE: 1"=50'

Florida Gas Transmission Company
An Energy Transfer/Kinder Morgan Affiliate

TRC
15330 PARK TEN PLACE, SUITE 101, HOUSTON, TX. 77084
PH. (281) 616-0100
TRC PROJ. #270575, LIC. No. TX-F-62

EAST-WEST PROJECT
PROPOSED PORT ARTHUR LATERAL
SITE-SPECIFIC RCP FOR: HILLEBRANDT RD.
JEFFERSON COUNTY, TX

PROJECT NO.
260575
PREVIOUS DWG. NO.
SHT. OF
DWG. NO.
P8-009
SHT. 1 OF 4
C



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ASBUILT		

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SCALE: 1"=50'

Florida Gas Transmission Company
An Energy Transfer/Kinder Morgan Affiliate

TRC
15350 PARK TEN PLACE, SUITE 101, HOUSTON, TX 77084
PH: (281) 619-0100
TRC PROJ. #260575, LIC. No. TX-F-62

EAST- WEST PROJECT
PROPOSED PORT ARTHUR LATERAL
SITE-SPECIFIC RCP FOR: DAVIS AVE.
JEFFERSON COUNTY, TX

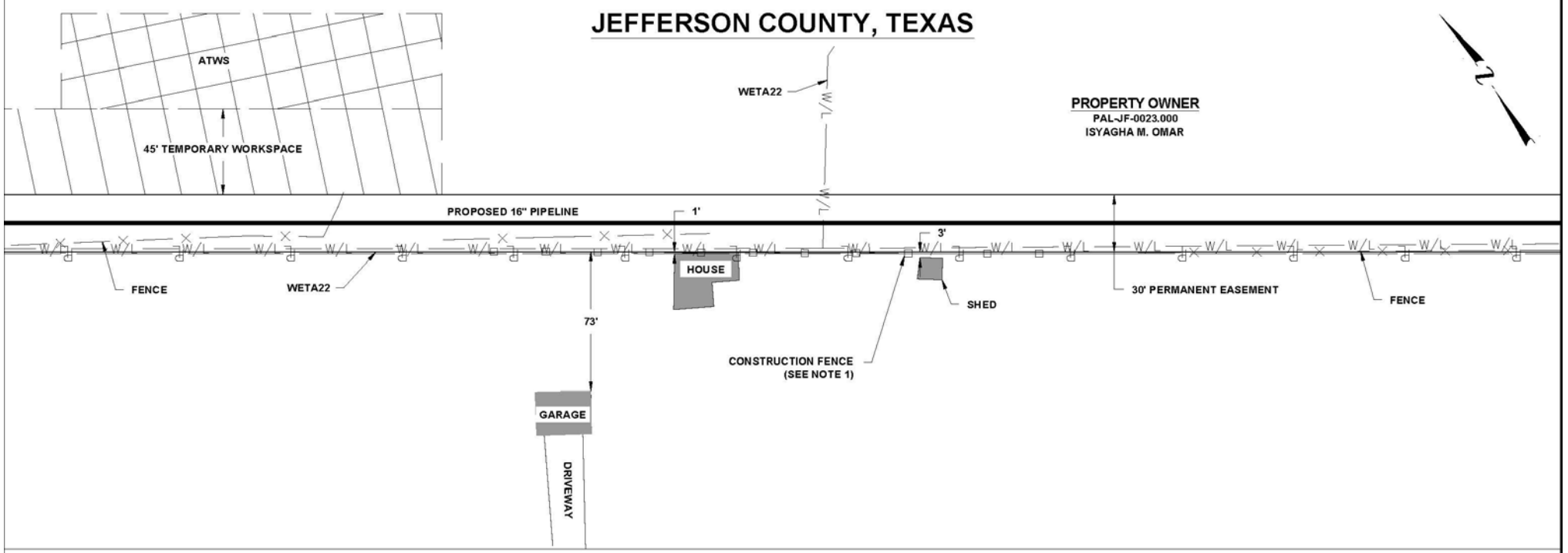
PROJECT NO.
260575

PREVIOUS DWG. NO.
P8-009
SHT. 1 OF 4

DWG. NO.
P8-010
SHT. 2 OF 4

C

JEFFERSON COUNTY, TEXAS



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PH. (281) 618-0100
TRC PROJ. #260575, LIC. No. TX-F-62

EAST-WEST PROJECT
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SITE-SPECIFIC RCP FOR: DAVIS AVE.
JEFFERSON COUNTY, TX

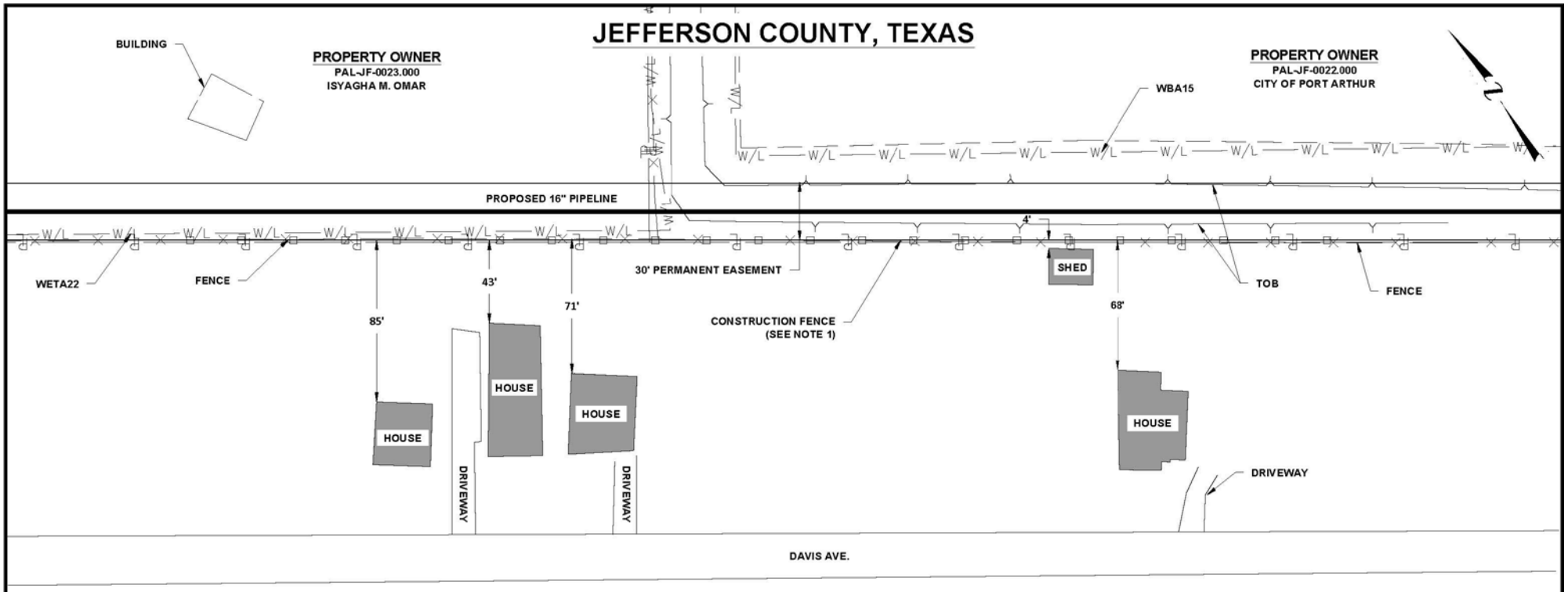
PROJECT NO.
260575

PREVIOUS DWG. NO.
P8-010
SHT. 2 OF 4

DWG. NO.
P8-011
SHT. 3 OF 4

C

JEFFERSON COUNTY, TEXAS



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PROJECT NO.
260575

PREVIOUS DWG. NO.
P8-011
SHT. 3 OF 4

DWG. NO.
P8-012
SHT. 4 OF 4

C

Appendix K
Federal & State Environmental Permits, Approvals, & Consultations

Federal & State Environmental Permits, Approvals, & Consultations		
Permit, Approval, or Consultations	**Agency**	**Filing Status**
Federal Permits		
Certificate of Public Convenience and Necessity under Section 7(c) of the Natural Gas Act	Federal Energy Regulatory Commission	Application filed on October 31, 2016
Consultations under Section 7 of the Endangered Species Act (ESA)	U.S. Department of the Interior – Fish and Wildlife Service	Consultation initiated July 27, 2016. Protected species reports submitted on June 26, 2017. No response received. FERC will complete Section 7 consultation.
Federal Consistency Determination – Coastal Zone Management Act	Texas General Land Office	Port Arthur Lateral and M&R Station are in the Texas Coastal Zone. Consistency determination is automatic approval under the NWP.
Section 404 Clean Water Act – Nationwide Permit 12	U.S. Army Corps of Engineers – Galveston District	Received Project Number: SWG-2016- SWG-00617. Filed PCN for NWP 12 on May 30, 2017. Will file revised PCN in fourth quarter 2017.
	U.S. Army Corps of Engineers – New Orleans District	Received account number MVN-2016- 01505-SY. Anticipate filing PCN August 8, 2017. Anticipate authorization under NWP 12.
Section 408 Levee (Minor Review) Crossing Permit	U.S. Army Corps of Engineers – Galveston District, Jefferson County Drainage District No. 7	Application filed in January 2017. Section 408 review number is SWG- 408-17-6. Drainage District 7 passed information to COE for review on April 7, 2017. Anticipate 408 authorization upon completion of DD7 review.

Federal & State Environmental Permits, Approvals, & Consultations		
Permit, Approval, or Consultations	**Agency**	**Filing Status**
State Permits - Texas		
Farmland Protection Policy Act – Consultation regarding erosion and sedimentation controls and seed mixes for compliance with FPPA.	U.S. Department of Agriculture (USDA), Natural Resources Conservation Service (NRCS)	Consultation initiated July 27, 2016; NRCS Confirmed exemption on August 8, 2016.
State-listed threatened and endangered species, and potential impacts on essential fish habitat, oyster reefs, and sea grass beds	Texas Parks and Wildlife Department	Consultation letter submitted July 27, 2016. Protected species report submitted on April 25, 2017. TPWD submitted recommendations in a letter dated May 31, 2017. FGT responded to TPWD recommendations on June 27, 2017.
Commercial Application for State Land Use Lease	Texas General Land Office	Response received on September 6, 2016; project located outside of Texas' Lands jurisdiction.
Consultation for cultural resources under Section 106 of the National Historic Preservation Act or state law	Texas Historical Commission	Concurrence issued for Port Arthur Lateral and meter station on May 25, 2017. Concurrence issued for Wilson Lateral and meter station on May 8, 2017.
Permit to Discharge Wastes (Hydrostatic Test Discharge Permits)	Railroad Commission (RRC) of Texas Oil and Gas Division	RRC discharge permits will be submitted 30 days prior to anticipated discharge
Minor Permit to Landfarm Drilling Mud	RRC of Texas Oil and Gas Division	Typically takes 90 days or less. FGT would also need permission from FERC to discharge drilling mud into upland soils.
Temporary water withdrawal/acquisition permits	Water Section Manager Texas Commission on Environmental Quality (TCEQ)	Anticipate filing applications in 2017. Permit valid up to 1 year, based on availability of water.
State - Louisiana		
State-listed threatened and endangered species, and potential impacts on essential fish habitat, oyster reefs, and sea grass beds	Louisiana Department of Wildlife and Fisheries	Consultation letter submitted July 27, 2016 and a field survey report on April 24, 2017. Concurrence received June 16, 2017.

Federal & State Environmental Permits, Approvals, & Consultations		
Permit, Approval, or Consultations	**Agency**	**Filing Status**
Consultation for cultural resources under Section 106 of the National Historic Preservation Act or state law	Louisiana Department of Archaeology	Phase I Cultural Resources Report submitted on July 7, 2017. Comments on report and concurrence on findings issued July 25, 2017. Final Phase I Report submitted on July 28, 2017.
Hydrostatic Test Discharge permit – National Pollutant Discharge Elimination System	Louisiana Department of Environmental Quality, Office of Environmental Services – Waste Permits Division	Authorized under the Louisiana Pollutant Discharge Elimination System (LPDES) Statewide Operations; FGT Statewide Permit Coverage: for operations in multiple parishes – LAG670000
Floodplain Development Permit	Matagorda, Wharton, Jefferson, and Orange counties, Texas	Response received from Jefferson, Matagorda, and Wharton counties. Permit requested for Jefferson and Wharton counties (only).
Floodplain Development Permit	Acadia and Calcasieu parishes, Louisiana	Permits required for permanent aboveground facilities located in floodplains. Permit requested for Calcasieu Parish.