FERC/EIS-0219D

# Fayetteville/Greenville Expansion Project

## Draft Environmental Impact Statement

November 2007

**Federal Energy Regulatory Commission**
**Office of Energy Projects**
**Washington, DC 20426**

**FERC/EIS-0219D**

# Fayetteville/Greenville Expansion Project

## *Draft Environmental Impact Statement*

**Texas Gas Transmission, LLC**

**November 2007**

**Docket Nos. CP07-417-000**
**PF07-2-000**

**Cooperating Agencies:**

National Park Service
U.S. Fish & Wildlife Service
Natural Resources Conservation Service
Arkansas Natural Heritage Commission

In Reply Refer To:
OEP/DG2E/Gas Branch 2
Texas Gas Transmission, LLC
Docket No. CP07-417-000

TO THE PARTY ADDRESSED:

The staff of the Federal Energy Regulatory Commission (FERC or Commission) has prepared this draft environmental impact statement (EIS) on the construction and operation of the natural gas pipeline facilities (referred to as the Fayetteville/Greenville Expansion Project or Project) as proposed by Texas Gas Transmission, LLC (Texas Gas).

The draft EIS was prepared to satisfy the requirements of the National Environmental Policy Act (NEPA). The staff concludes that approval of the Fayetteville/Greenville Expansion Project, with appropriate mitigating measures as recommended, would have limited adverse environmental impact. The draft EIS evaluates alternatives to the proposal, including system alternatives, and pipeline alternatives.

The purpose of the Fayetteville/Greenville Expansion Project is to develop and provide new pipeline capacity to transport natural gas produced in north-central Arkansas to markets served by interstate and intrastate pipeline systems. The Project would be capable of transporting 853 million cubic feet per day (MMcf/d)[1] of natural gas through the proposed Fayetteville Lateral and 751 MMcf/d[2] of natural gas through the proposed Greenville Lateral.

The draft EIS addresses the potential environmental effects of the construction and operation of the following facilities in Arkansas and Mississippi:

- 166.2 miles of 36-inch-diameter pipeline in Conway, Faulkner, Cleburne, White, Woodruff, St. Francis, Lee, and Phillips Counties, Arkansas; and Coahoma County, Mississippi (Fayetteville Lateral);
- 96.4 miles of 36-inch-diameter pipeline in Washington, Sunflower, Humphreys, Holmes, and Attalla Counties, Mississippi (Greenville Lateral);

1 Based on 985.2 British thermal units (Btu) per standard cubic feet (scf), 841,000 million Btu per day (MMBtu/d) approximately equals 853 MMcf/d.
2 Based on 1,021.3 Btu/scf , 768,000 MMBtu/d approximately equals 751 MMcf/d.

- 0.8 mile of 36-inch-diameter tie-in pipeline in Attalla County, Mississippi (Kosciusko 36-inch Tie-in Lateral);
- 0.4 mile of 20-inch-diameter tie-in pipeline in Attalla County, Mississippi (Kosciusko 20-inch Tie-in Lateral);
- a 10,650-horsepower (hp) compressor station at milepost 96.4 on the Greenville Lateral in Attala County, Mississippi (Kosciusko Compressor Station);
- pipe modifications at Texas Gas's existing Greenville Compressor Station in Washington County, Mississippi; and
- 29 metering and regulating (M&R) stations, 30 interconnects (tie-ins), 21 main line valves (MLVs), and three launchers and three receivers.

## Comment Procedures and Public Meeting

Any person wishing to comment on the draft EIS may do so. To ensure consideration prior to a Commission decision on the proposal, it is important that we receive your comments before the date specified below. **Please carefully follow these instructions:**

- Send an **original and two copies** of your comments to:

  Kimberly D. Bose, Secretary
  Federal Energy Regulatory Commission
  888 First Street, N.E., Room 1A
  Washington, DC 20426

- **Reference Docket No. CP07-207-000**;
- Label one copy of your comments to the attention of Gas Branch 2, DG2E; and
- **Mail your comments so that they will be received in Washington, DC on or before January 7, 2007.**

Please note that the Commission encourages the electronic filing ("eFiling") of comments. See 18 CFR 385.2001(a)(1)(iii) and the instructions on the Commission's web site at http://www.ferc.gov under the "Documents and Filings" link.

In lieu of or in addition to sending written comments, we invite you to attend the public scoping meeting that will be scheduled for a date prior to the end of the draft EIS comment period. We will issue a notice about the time, date, and location of the comment meeting.

The public meeting will be posted on the FERC's calendar located at www.ferc.gov/EventCalendar/EventsList.aspx. Interested groups and individuals are encouraged to attend and present oral comments on the draft EIS. Transcripts of the meeting will be prepared.

After the comments are received and reviewed, any significant new issues are investigated, and modifications are made to the draft EIS, a final EIS will be published and distributed by the FERC staff. The final EIS will contain the staff's responses to timely comments received on the draft EIS.

The draft EIS has been placed in the public files of the FERC and is available for public inspection at:

Federal Energy Regulatory Commission
Public Reference and Files Maintenance Branch
888 First Street, N.E., Room 2A
Washington, DC 20426
(202) 502-8371

A limited number of copies are available from the Public Reference identified above. In addition, CD copies of the draft EIS have been mailed to affected landowners; various federal, state, and local government agencies; elected officials; environmental and public interest groups; Native American tribes; local libraries and newspapers; intervenors; and other individuals that expressed an interest in the proposed Project. Hard copies of this draft EIS have also been mailed to those who requested that format during scoping and comment periods for the Project.

Additional information about the Project is available from the Commission's Office of External Affairs, at **1-866-208-FERC** or on the FERC internet website (http://www.ferc.gov).

To access information via the FERC website click on the "eLibrary" link, click on "General Search" and enter the docket number excluding the last three digits in the Docket Number field. Be sure you have selected an appropriate date range. The "eLibrary" link provides access to the texts of formal documents issued by the Commission, such as orders, notices, and rulemakings. For assistance with "eLibrary", please contact FERC Online Support at FERCOnlineSupport@ferc.gov or toll free at 1-

866-208-3676, or for TTY at (202) 502-8659.

In addition, the Commission now 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 these documents. To learn more about "eSubscription" and to sign-up for this service please go to www.ferc.gov/esubscribenow.htm.

Kimberly D. Bose
Secretary

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## LIST OF ACRONYMS AND ABBREVIATIONS

| | |
|---|---|
| ACHP | Advisory Council on Historic Preservation |
| ADEQ | Arkansas Department of Environmental Quality |
| ADHHS | Arkansas Department of Health and Human Services (formerly Arkansas Department of Health) |
| AGC | Arkansas Geological Commission |
| AGFC | Arkansas Game and Fish Commission |
| AHPP | Arkansas Historic Preservation Program |
| ANHC | Arkansas Natural Heritage Commission |
| ANHP | Arkansas Natural Heritage Program |
| ANRC | Arkansas Natural Resources Commission |
| AOGC | Arkansas Oil and Gas Commission |
| ANR | ANR Pipeline Company |
| APCEC | Arkansas Pollution Control and Ecology Commission |
| APE | area of potential effect |
| API | American Petroleum Institute |
| AQCR | air quality control region |
| ARPA | Archaeological Resource Protection Act |
| ATWS | additional temporary workspace |
| ASME | American Society of Mechanical Engineers |
| AWS | American Welding Society |
| BA | biological assessment |
| BACT | best available control technology |
| bhp | brake horsepower |
| BMP | best management practices |
| BO | biological opinion |
| Btu | British thermal unit |
| C | centigrade |
| CAA | Clean Air Act |
| CAAA | Clean Air Act Amendment |
| CenterPoint | CenterPoint Energy |
| CEQ | Council on Environmental Quality |
| Certificate | Certificate of Public Convenience and Necessity |
| CFR | Code of Federal Regulations |
| CI | Chief Inspector |
| cm | centimeter |
| CO | carbon monoxide |
| $CO_2$ | carbon dioxide |
| Columbia Gulf | Columbia Gulf Transmission Company |
| Commission | Federal Energy Regulatory Commission |
| CREP | Conservation Reserve Enhancement Program |
| CRP | Conservation Reserve Program |
| CWA | Clean Water Act |
| dBA | A-weighted decibel scale |
| DOE | Department of Energy |
| DOI | Department of the Interior |

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## LIST OF ACRONYMS AND ABBREVIATIONS

| | |
|---|---|
| DOT | U.S. Department of Transportation |
| EI | Environmental Inspector |
| EIA | Energy Information Administration |
| EIS | Environmental Impact Statement |
| EPA | U.S. Environmental Protection Agency |
| ESA | Endangered Species Act |
| ESD | emergency shut down |
| FEMA | Federal Emergency Management Agency |
| FERC | Federal Energy Regulatory Commission |
| FSA | Farm Service Agency |
| FWS | U.S. Fish and Wildlife Service |
| GIS | geographic information system |
| Gulf South | Gulf South Pipeline Company, L.P. |
| HAP | Hazardous Air Pollutants |
| HCA | high consequence area |
| HDD | horizontal directional drilling |
| hp | horsepower |
| IBWO | ivory-billed woodpecker |
| INGAA | Interstate Natural Gas Association of America |
| $L_{dn}$ | day-night sound level |
| $L_{eq(24)}$ | 24-hour equivalent sound level |
| kPA | kilopascal |
| LEC | low emission combustion |
| LNG | liquefied natural gas |
| $m^3$ | cubic meter |
| MACT | Maximum Achievable Control Technology |
| MDAH | Mississippi Department of Archives and History |
| MDEQ | Mississippi Department of Environmental Quality |
| Memorandum | Memorandum of Understanding on Natural Gas Transportation Facilities |
| MLRA | Major Land Resource Area |
| MLV | main line valve |
| MMcf/d | million cubic feet per day |
| MMI | Modified Mercalli Intensity |
| MMNS | Mississippi Museum of Natural Sciences |
| MP | milepost |
| MRT | Mississippi River Transmission |
| MSNHP | Mississippi Natural Heritage Program |
| M&R | metering and regulating |
| MSOGB | Mississippi State Oil and Gas Board |
| NAAQS | National Ambient Air Quality Standards |
| NEPA | National Environmental Policy Act |
| NESHAP | National Emission Standards for Hazardous Air Pollutants |
| NGA | Natural Gas Act |
| NGPL | Natural Gas Pipeline Company of America |
| NHPA | National Historic Preservation Act |

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## LIST OF ACRONYMS AND ABBREVIATIONS

| | |
|---|---|
| NMHC | non-methane hydrocarbons |
| NNSR | nonattainment new source review |
| $NO_2$ | nitrogen dioxide |
| $NO_X$ | nitrogen oxides |
| NOAA | National Oceanographic and Atmospheric Administration |
| NOI | Notice of Intent to Prepare an Environmental Impact Statement for the Proposed Texas Gas Fayetteville/Greenville Expansion Project and Request for Comments on Environmental Issues and Notice of Public Scoping Meetings |
| NPDES | National Pollutant Discharge Elimination System |
| NPL | National Priorities List |
| NPS | U.S. National Park Service |
| NRCS | Natural Resources Conservation Service |
| NRHP | National Register of Historic Places |
| NRI | National Rivers Inventory |
| NSA | noise-sensitive area |
| NSPS | New Source Performance Standards |
| NSR | New Source Review |
| NWR | National Wildlife Refuge |
| $O_3$ | ozone |
| OEP | Office of Energy Projects |
| OPS | Office of Pipeline Safety |
| ORV | outstandingly remarkable value |
| Pb | lead |
| PCBs | polychlorinated biphenyls |
| PEM | palustrine emergent |
| PFO | palustrine forested |
| PHMSA | Pipeline and Hazardous Materials Safety Administration |
| Plan | Upland Erosion Control, Revegetation, and Maintenance Plan |
| $PM_{2.5}$ | particulate matter less than less than 2.5 microns |
| $PM_{10}$ | particulate matter less than less than 10 microns |
| ppm | parts per million |
| Procedures | Wetland and Waterbody Construction and Mitigation Procedures |
| Project | Fayetteville/Greenville Expansion Project |
| PSD | prevention of significant deterioration |
| PSS | palustrine scrub shrub |
| PTE | potential to emit |
| RCRA | Resource Conservation and Recovery Act |
| RM | Richter Magnitude |
| ROW | right-of-way |
| SCADA | Supervisory Control and Data Acquisition |
| scf | standard cubic feet |
| SHPO | State Historic Preservation Office |
| SI | spark ignition |
| $SO_2$ | sulfur dioxide |
| $SO_x$ | sulfur oxides |

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## LIST OF ACRONYMS AND ABBREVIATIONS

| | |
|---|---|
| Southern Natural | Southern Natural Gas Company |
| SPCC | Spill Prevention, Control, and Countermeasures |
| SQG | small quantity generator |
| Southwestern | Southwestern Energy Company |
| SSURGO | Soil Survey Geographic Database |
| SWPPP | Storm Water Pollution Prevention Plan |
| Tcf | trillion cubic feet |
| Tennessee | Tennessee Gas Pipeline Company |
| Texas Eastern | Texas Eastern Transmission Company |
| Texas Gas | Texas Gas Transmission, LLC |
| tpy | tons per year |
| Trunkline | Trunkline Gas Company, LLC |
| TSP | total suspended particulates |
| USACE | U.S. Army Corps of Engineers |
| USC | United States Code |
| USDA | U.S. Department of Agriculture |
| USGS | U.S. Geological Survey |
| UST | underground storage tank |
| VOC | volatile organic compound |
| WHPA | wellhead protection area |
| WMA | wildlife management area |
| WRP | Wetland Reserve Program |

# EXECUTIVE SUMMARY

This draft environmental impact statement (EIS) for the Fayetteville/Greenville Expansion Project (Project) proposed by Texas Gas Transmission, LLC (Texas Gas) has been prepared by the staff of the Federal Energy Regulatory Commission (FERC or Commission) to fulfill the requirements of the National Environmental Policy Act (NEPA), the Commission's implementing regulations (Title 18 Code of Federal Regulations (CFR) Part 380), and the Council on Environmental Quality Regulations for implementing NEPA (Title 40 CFR Parts 1500-1508). The purpose of this document is to make public our[1] analysis of the environmental impacts that would likely result from the construction and operation of the proposed Project. This document has been prepared in cooperation with the following federal agencies: the U.S. Fish and Wildlife Service (FWS), the National Park Service (NPS), the Natural Resource Conservation Service (NRCS); and this state agency: the Arkansas Natural Heritage Commission (ANHC).

## PROJECT BACKGROUND

On December 15, 2006, Texas Gas filed a request with the FERC to use its pre-filing process for the proposed Project. This request was approved on December 28, 2006, and a pre-filing Docket No. (PF07-2-000) was established to place information filed by Texas Gas and related documents issued by the FERC into the public record.

On July 11, 2007, Texas Gas filed an application with the FERC for a Certificate of Public Convenience and Necessity (Certificate) to construct, operate, and maintain natural gas pipeline, compression, and related facilities in Arkansas and Mississippi. The application was filed in Docket No. CP07-417-000 pursuant to Section 7(c) of the Natural Gas Act (NGA) and Part 157 of the Commission's regulations. We have prepared our analysis based on this application and subsequent filings by Texas Gas, and on comments filed about the scope and impact of the Project.

## PROPOSED ACTION

The Project would be designed to transport up to 853 MMcf/d[2] of natural gas through the proposed Fayetteville Lateral and up to 751 MMcf/d[3] of natural gas through the proposed Greenville Lateral. The proposed facilities would include:

- 166.2 miles of 36-inch-diameter pipeline in Conway, Faulkner, Cleburne, White, Woodruff, St. Francis, Lee, and Phillips Counties, Arkansas; and Coahoma County, Mississippi (Fayetteville Lateral);
- 96.4 miles of 36-inch-diameter pipeline in Washington, Sunflower, Humphreys, Holmes, and Attalla Counties, Mississippi (Greenville Lateral);
- 0.8 mile of 36-inch-diameter tie-in pipeline in Attalla County, Mississippi (Kosciusko 36-inch Tie-in Lateral);

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

2 Based on 985.2 British thermal units (Btu) per standard cubic feet (scf), 841,000 million Btu per day (MMBtu/d) approximately equals 853 MMcf/d.

3 Based on 1,021.3 Btu/scf , 768,000 MMBtu/d approximately equals 751 MMcf/d.

- 0.4 mile of 20-inch-diameter tie-in pipeline in Attalla County, Mississippi (Kosciusko 20-inch Tie-in Lateral);
- a 10,650-horsepower (hp) compressor station at milepost 96.4 on the Greenville Lateral in Attala County, Mississippi (Kosciusko Compressor Station);
- pipe modifications at Texas Gas's existing Greenville Compressor Station in Washington County, Mississippi; and
- 29 metering and regulating (M&R) stations, 30 interconnects (tie-ins), 21 main line valves (MLVs), and three launchers and three receivers.

The Project would be constructed in two phases over about 8 months. Phase I would include construction of the first 66 miles of the Fayetteville Lateral and related facilities from Conway County to the Bald Knob area of White County, Arkansas. Phase II would include construction of the remaining 100 miles of the Fayetteville Lateral from White County, Arkansas to Coahoma County, Mississippi, and the entire Greenville Lateral, including the Kosciusko Compressor Station and tie-in laterals. Texas Gas proposes beginning construction of both Phases I and II in June 2008. However, Phase I would be placed in service by August 1, 2008, and Phase II would be placed in service by January 1, 2009.

**PUBLIC OUTREACH AND COMMENTS**

On March 6, 2007, we issued a *Notice of Intent to Prepare an Environmental Impact Statement for the Proposed Texas Gas Fayetteville/Greenville Expansion Project and Request for Comments on Environmental Issues and Notice of Public Scoping Meetings* (NOI). The NOI explained the pre-filing process, described the proposed Project, and provided a preliminary list of environmental issues. The intent of the pre-filing process is to initiate scoping early in the project planning process and to encourage citizens, governmental entities, and other interested parties to identify and resolve issues prior to an application being formally filed with the FERC. The NOI was sent to interested parties, including affected landowners; federal, state, and local officials; agency representatives; conservation organizations; Native American tribes; local libraries and newspapers; and other interested parties. We conducted public scoping meetings in Lexington, Mississippi, and in Forrest City and Searcy, Arkansas, on March 19, 20, and 21, 2007, respectively, to provide an opportunity for the public to comment on the environmental issues to be addressed in the EIS.

On July 20, 2007, the FERC issued a Notice of Application for the proposed Project in Docket No. CP07-417-000. The notice announced that Texas Gas's application had been filed with the Commission on July 11, 2007, informed us that pre-filing process had ended, invited additional written comments on the proposed Project from the public, and established a closing date for receipt of comments on the application of August 13, 2007.

In response to our notices and scoping meetings, we received 22 written comments and several oral comments about the Project. The comments expressed concern about location; safety; easements; use of eminent domain; noise; impacts on agriculture, wetlands, soils, water resources, wildlife, vegetation, threatened and endangered species, national wildlife refuges, land use, wetland reserve program lands, the Natchez Trace Parkway, and residences. This draft EIS was filed with the U.S. Environmental Protection Agency (EPA) and mailed to various federal, state, and local agencies; elected officials; Native American tribes, newspapers, public libraries; television and radio stations; intervenors to the FERC's proceeding; and other interested parties (*i.e.*, landowners, miscellaneous individuals, and environmental groups who provided scoping comments or asked to remain on the mailing list). A formal notice indicating that the draft EIS is available for review and comment will be published in the Federal Register. The public has

45 days after the date of publication in the Federal Register to comment on the draft EIS in the form of written comments and at public meetings to be held in the project area. All environmental comments received on the draft EIS will be addressed in the final EIS.

**ENVIRONMENTAL IMPACTS AND MITIGATION**

Construction of the Project would disturb about 5,057.2 acres of land (including the pipeline construction rights-of-way, aboveground facility construction workspaces, additional temporary workspaces, access roads, and pipe/contractor yards). About 1,731.2 acres would be required for the permanent pipeline right-of-way and aboveground facilities.

Construction and operation of the proposed Project would have minimal impact on geologic resources and geologic hazards are not expected to be an issue for Project construction and operation. About 55 miles of the westernmost portion of the proposed Fayetteville Lateral would cross Southwestern Energy Company's (Southwestern) Fayetteville Shale gas production area. Texas Gas has consulted with Southwestern to develop a pipeline route through the gas production area to minimize conflicts with ongoing development of this resource and to plan locations for tie-ins to interconnect with Southwestern's gathering pipelines. Blasting may be required along portions of the Fayetteville Lateral but would not be required for construction of the Greenville Lateral.

Construction and operation of the proposed Project would have minimal impact on soils. About 79 percent of the soil affected by the proposed Fayetteville Lateral would be considered agriculturally important, i.e., Prime Farmland or Farmland of Statewide Importance. About 67 percent of the soil that would be affected by construction of the Greenville Lateral would be classified as Prime Farmland or Prime Farmland when adequately drained. Texas Gas would implement the mitigation measures described in our[4] Upland Erosion Control, Revegetation and Maintenance Plan (Plan) to minimize impacts on soils due to construction of the Project. In agricultural and residential areas, up to 12 inches of topsoil would be removed and segregated from spoil. Subsoil would be decompacted, if needed, topsoil would be returned following construction, and the construction right-of-way would be revegetated according to our Plan. Impacts on soils resulting from construction and operation of the proposed pipelines would be temporary because the proposed pipeline would be buried and disturbed areas within the construction and permanent rights-of-way would largely revert to their preconstruction uses following restoration. Operation of aboveground facilities would permanently affect about 58 acres of Prime Farmland soil. Based on the prevalence of Prime Farmland soils in the Project area, we do not believe this loss to be significant. Texas Gas would use its Exotic and Invasive Species Control Plan to minimize the spread of invasive plants.

Construction and operation of the Project would have minimal impact on groundwater resources. No public water supply wells would be within 150 feet of the Fayetteville Lateral. Three public water supply wells would be within 150 feet of the Greenville Lateral. The Mississippi Department of Environmental Quality has no specific requirements for construction near these wells other than a request that caution be observed to avoid damage to the wellheads. Texas Gas would clearly mark the wellheads to prevent damage during construction. The greatest potential for impact on groundwater would be from spills, leaks, or other releases of hazardous substances during Project construction or operation. Texas Gas would use best management practices (BMPs) and implement the procedures of its Spill Prevention, Control, and Countermeasures (SPCC) Plan to prevent and control spills of hazardous materials near these wells.

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

The Arkansas Department of Health and Human Services (ADHHS) identified three well head protection areas within 1 mile of the proposed Fayetteville Lateral and informed that two watersheds (Brewer Lake and Little Red River watersheds) would be crossed. The ADHHS suggested a route variation and alternative to move the Fayetteville Lateral out of these watersheds or, alternatively, that Texas Gas should provide the ADHHS with its plan for constructing through the watersheds so that ADHHS may document any potential impact on the water supply. We analyzed the route variation and alternative suggested by the ADHHS but concluded that the corresponding segments of the proposed route were the preferred alternatives particularly due to the increased impact on residences along the alternative routes. We have, however, recommended that Texas Gas consult with the ADHHS about the construction methods it would use to cross the Brewer Lake and Little Red River watersheds so that any additional mitigation measures to protect these resources could be identified prior to construction.

Thirty-seven private water supply wells would be within 150 feet of Project construction workspaces. Texas Gas would conduct pre- and post-construction yield and water quality tests on water wells within 150 feet of construction workspaces, with landowner permission, and would repair any water supply systems damaged by construction activities. Texas Gas would provide a temporary source of water if water supplies are disrupted until repairs are made. We have recommended that Texas Gas update the locations of water wells and springs within 150 feet of construction workspaces prior to construction.

The Project would impact surface water resources since it would cross a total of 483 waterbodies (70 perennial and 413 intermittent) including the Mississippi River. To minimize impacts, Texas Gas would cross the Mississippi River and 15 other waterbodies by horizontal directional drill (HDD). Texas Gas would cross Cadron Creek (a state-designated Extraordinary Resource Waters and a National River Inventories [NRI] listed waterbody) by open cut. We have recommended that Texas Gas consult with the Arkansas Department of Environmental Quality (ADEQ) and NPS about crossing Cadron Creek and to file a supplemental site-specific crossing plan based on this consultation. To minimize Project construction impacts on surface waters, Texas Gas would implement the measures described in its Storm Water Pollution Prevention Plan (SWPPP) and our Wetland and Waterbody Construction and Mitigation Procedures (Procedures), and the requirements in the permits issued by the other federal and state agencies.

Construction of the proposed Project would impact a total of 141.3 acres of wetlands. Of this total, 107.4 acres would be temporarily impacted during construction and allowed to revert to preconstruction conditions. About 33.9 acres of wetlands would be within the 30-foot-wide maintained portion of the permanent right-of-way. Of those 33.9 acres, about 13.2 acres would be permanently converted from forested and scrub-shrub wetland types to wetlands with herbaceous vegetation. These impacts would occur in a 10-foot-wide herbaceous strip Texas Gas would maintain above the centerline to facilitate operation and maintenance of the pipeline. The remaining 20.7 acres of impact would be associated with the conversion from a forested community to a shrub-scrub or emergent system within two 10-foot-wide strips on either side of the centerline strip. To minimize impacts on wetlands, Texas Gas would implement the construction, restoration, and maintenance measures described in our Procedures. The proposed pipeline routes have been developed in consultation with the U.S. Army corps of Engineers (USACE) and would avoid and minimize impacts to wetlands where practicable. Wetland impacts would be minimized further by using HDDs to cross several larger wetlands and associated. Texas Gas would develop compensatory mitigation for all wetland impacts, in consultation with the USACE Little Rock, Memphis, and Vicksburg Districts. Compensation may include the purchase of wetland mitigation bank credits at a mitigation ratio determined by the USACE, but specific compensation would be finalized during the course of the USACE Section 404 permitting for the proposed Project. Also, about 0.2 acre of forested wetland would be permanently lost due to operation of the proposed Kosciusko Compressor Station. However, we have recommended that Texas Gas reconfigure the site layout to avoid this permanent loss.

Twelve federally listed endangered and threatened species potentially occur within the proposed Project area. These include: one mammal (Louisiana black bear), four birds (bald eagle, interior least tern, ivory-billed woodpecker, and woodstork), one fish (pallid sturgeon), four mussels (fat pocketbook, pink mucket, scaleshell, and speckled pocketbook), one insect (American burying beetle), and one plant (pondberry). In addition, one candidate fish species was identified: the yellow cheek darter. A number of state-listed plant and mussel species also were identified within the vicinity of the Project area. The FWS and Arkansas Game and Fish Commission (AGFC) recommended that a survey for the listed mussel species be conducted in 12 Arkansas waterbodies that would be crossed by the open-cut method. Texas Gas completed this survey in October 2007; however, the survey report has not yet been provided to the FERC or the FWS. Texas Gas indicates, however, that none of the federally listed mussel species were found. The FWS and ANHC are concerned about possible impacts on habitat of the pondberry, and the ANHC recommended avoiding its potential habitat. We recommend that Texas Gas identify the milepost locations of potential pondberry habitat within or immediately adjacent to construction workspaces and explain how it would implement the ANHC's recommendations to avoid suitable pondberry habitat at each location. We believe that, except for the federally listed mussel species, the Project is not likely to adversely affect federally listed threatened or endangered species. A determination on the federally listed mussel species would be made only after review of Texas Gas's pending mussel survey report. We also have recommended that Texas Gas not begin construction activities until our consultation with the FWS about federally listed threatened or endangered species is concluded.

Agricultural land would be the primary land use affected by construction and operation of the Project. Upland and managed forest land use would have the next greatest impact. Open land use types (non-forested rangeland, pastureland, non-agricultural fields, prairie and open land in the early stages of succession) and open water, and minor amounts of commercial/industrial land and residential land are the remaining land use types that would be affected by the Project. Land use impacts would include disturbance of existing land uses within construction work areas during construction and creation of a new permanent right-of-way for operation and maintenance of the pipeline and aboveground facilities. Most land uses would revert to preconstruction land use during operation.

The primary impact on agricultural land would be the loss of crops within the work area, and possibly immediately adjacent areas, since this land would be taken out of production for one growing season. Construction may affect irrigation which may affect crop yields. About 99 acres of the agricultural land crossed by the Project has pivot-irrigation and construction activities may interfere with it. Operation of the Project would not likely affect pivot irrigation systems. Construction may affect special crops such as rice. We have recommended that, prior to construction, Texas Gas provide site-specific plans for crossing rice fields impacted by construction since adequate restoration of these fields would be needed to reestablish productivity. Following construction, most agricultural land uses would continue within the permanent right-of-way and any loss of production would be a short-term impact. However, about 30.6 acres of orchards would be affected by Project construction, and 15.4 acres within the permanent right-of-way would be lost to orchard production during operation of the Project. Texas Gas would compensate landowners for the loss of orchard crops and this land use within the permanent right-of-way.

The primary impact of construction on forest land and managed forest land by the Project would be the removal of trees and shrubs from the construction right-of-way. Following construction, trees and shrubs would be allowed to regenerate in temporary workspaces, but since regrowth of forests could take over 20 years, the impact would be long-term to permanent. The impact on forest land use within the permanent 50-foot-wide right-of-way would be a permanent change to open land. Texas Gas would compensate landowners for loss of timber in accordance with negotiated easement agreements.

The Project would cross two federally managed areas: the Cache River National Wildlife Refuge (NWR) in Woodruff County, Arkansas, and the Hillside NWR in Holmes County, Mississippi. Both would be crossed by HDD, thereby minimizing impacts.

The Greenville Lateral would cross one tract that is in the NRCS Wetland Reserve Program (WRP). Impacts to the WRP land would be minimized by avoiding existing wetland habitat as much as possible and paralleling an existing road right-of-way. Impacts on WRP lands generally would be temporary. Following construction, the right-of-way would be restored to preconstruction conditions, or better. Texas Gas would select specific native species for revegetation of the WRP tract in consultation with the landowner/tenant and NRCS. Based on our consultation with the NRCS, the proposed route appears reasonable. However, the NRCS states that Texas Gas would be required to obtain a subordination of NRSC's easement for this tract prior to construction. We have recommended that Texas Gas complete consultation with the NRCS and develop a site-specific restoration plan for the affected WRP land prior to construction.

The proposed Greenville Lateral would cross the Natchez Trace Parkway (Parkway), which is managed by the NPS. Texas Gas would cross the Parkway by HDD to minimize and avoid direct construction impacts to the Parkway, its viewshed, and adjacent forested areas. The route across the Parkway and the crossing method were developed in consultation with the NPS to minimize impacts on this resource.

Texas Gas consulted with the Arkansas and Mississippi SHPOs and performed cultural resource investigations for areas that would be potentially affected by construction and operation of the Project.

Surveys are outstanding and the consultation process for the Project is not yet complete. Therefore, we have recommended that construction not be authorized until the required studies have been completed and we have received the SHPOs' comments on such studies.

Texas Gas prepared a Plan for the Unanticipated Discovery of Historic Properties and Human Remains during Construction for the Project, to be used in the event that any unanticipated historic properties (consisting of prehistoric or historic archaeological resources) or human remains are encountered during construction of the proposed Project.

Conservative modeling for the proposed Kosciusko Compressor Station emission sources indicates that the total facility impact would be below the National Ambient Air Quality Standards. Therefore, impacts on air quality are not expected to be significant. The calculated noise level for the proposed compressors would be below 55 decibels on the A-weighted scale (dBA).

To minimize and mitigate the environmental impacts of constructing and operating the proposed Project, Texas Gas has developed and would implement several measures and plans including but not limited to:

- our Plan;
- our Procedures;
- BMPs;
- SPCC Plan;
- Hydrostatic Test Plan;
- SWPPP; and

- Exotic and Invasive Species Control Plan.

Based on our review of these measures, we have determined that they are acceptable and consistent with our guidance documents,[5] but we have made several recommendations to further avoid, minimize, and mitigate environmental impacts. Also, Texas Gas would be required to obtain and adhere to several federal, state, and local permits and authorizations that may include additional requirements to minimize and mitigate environmental impacts resulting from construction and operation of the Project. Detailed descriptions of environmental impacts including cumulative impacts, Texas Gas's proposed impact avoidance and mitigation measures, and our recommendations are included in sections 2.0, 3.0, 4.0, and 5.0 of the draft EIS.

**ALTERNATIVES CONSIDERED**

We considered the alternatives of no action or postponed action. While the no action or postponed action alternatives would eliminate or postpone the environmental impacts identified in this EIS, the objectives of the proposed Project would not be met and Texas Gas would not be able to provide the additional infrastructure to support a new source of natural gas supply in the U.S.

There are no other pipeline systems that would be able to meet this Project's purpose and need. With respect to the pipeline alternatives, we concluded that there were no practicable system alternatives or design alternatives. We evaluated eight route alternatives and 24 route variations for the Project that were developed during pre-filing. Consultation with federal and state agencies about these route alternatives and variations and our analysis resulted in the incorporation of some of them into the pipeline route that was ultimately proposed by Texas Gas in its application We identified no other route alternatives or variations that would significantly reduce environmental impacts. We have recommended that Texas Gas develop an alternative site plan for the Kosciusko Compressor Station that would minimize or avoid permanent impact to a forested wetland.

**CONCLUSION**

As part of our review, we developed measures that we believe would appropriately and reasonably avoid, minimize, or mitigate environmental impacts associated with construction and operation of the proposed Project. We are recommending that these measures be attached as conditions to any authorization the Commission may issue. We conclude that if the Project is found to be in the public interest and is constructed and operated in accordance with Texas Gas's proposed mitigation measures and our mitigation measures, then the proposed Project would result in a limited adverse environmental impact. In support of this conclusion, we offer the following:

- The Fayetteville Lateral would generally be collocated with or parallel to existing rights-of-way for about 90.5 miles, or 54 percent, of its length. While the Greenville Lateral would largely require construction of a new right-way, the proposed route is largely located within agricultural land use, minimizing the need to clear more forested areas and wetlands.

- HDD construction methods would be used to cross many sensitive resources.

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[5] The Upland Erosion Control, Revegetation, and Maintenance Plan and Wetland and Waterbody Construction and Mitigation Procedures.

- Texas Gas would implement our Plan and Procedures, BMPs, SPCC Plan, and SWPPP, to mitigate impacts on soils, wetlands, and waterbodies.

- Texas Gas would implement an agency-approved wetland mitigation plan to mitigate for, and minimize impacts, on wetlands.

- Consultation with the FWS, as required by Section 7 of the Endangered Species Act, would be completed, and appropriate mitigation measures would be in-place before construction would be allowed to commence.

- Consultation with the SHPOs and, if necessary, the Advisory Council on Historic Preservation, as required by Section 106 of the National Historic Preservation Act, would be completed before construction would be allowed to commence.

- Texas Gas would implement an environmental inspection and mitigation monitoring program that would ensure compliance with all mitigation measures that become conditions of any FERC authorization.

# 1.0 INTRODUCTION

On July 11, 2007, Texas Gas Transmission, LLC (Texas Gas) filed an application with the Federal Energy Regulatory Commission (FERC or Commission) for a Certificate of Public Convenience and Necessity (Certificate) to construct, operate, and maintain the Fayetteville/Greenville Expansion Project (Project). The application was filed in Docket No. CP07-417-000 pursuant to Section 7(c) of the Natural Gas Act (NGA) and Part 157 of the Commission's regulations. When completed, the Project would be capable of transporting 853 million cubic feet per day (MMcf/d)[1] of natural gas through the proposed Fayetteville Lateral and 751 MMcf/d[2] of natural gas through the proposed Greenville Lateral. The Project would transport gas produced from the Fayetteville Shale in north central Arkansas to markets served by Texas Gas and other interstate transportation companies. The pipeline system would consist of the following facilities:

- **Fayetteville Lateral.** Originating in Conway County, Arkansas, this approximately 166.2-mile-long, 36-inch-diameter pipeline would extend eastward through Faulkner, Cleburne, White, Woodruff, St. Francis, Lee, and Phillips Counties, Arkansas; cross the Mississippi River near Helena, Arkansas; and terminate at an interconnection with the existing Texas Gas Main Line in Coahoma County, Mississippi.

- **Greenville Lateral**. Originating at the existing Texas Gas Greenville Compressor Station in Greenville, Mississippi, this approximately 96.4-mile-long, 36-inch-diameter pipeline would extend southeastward through Washington, Sunflower, Humphreys, and Holmes Counties, Mississippi, to an interconnection with existing Gulf South Pipeline Company, LP (Gulf South) and Southern Natural Gas Company (Southern Natural) facilities in Attala County, Mississippi.

- **Tie-in pipelines.** A 0.8-mile-long, 36-inch-diameter tie-in pipeline would connect the proposed Greenville Lateral to Gulf South's existing pipeline; and a 0.4-mile-long, 20-inch-diameter tie-in pipeline would connect the proposed Greenville Lateral to Southern Natural's existing pipeline at the Greenville Lateral terminus near Kosciusko, Mississippi.

- **The Kosciusko Compressor Station.** One 10,650-horsepower (hp) compressor station would be constructed near milepost (MP) 96.4 on the Greenville Lateral in Attala County, Mississippi.

- **Piping Modifications.** Piping modifications would be made at Texas Gas's existing Greenville Compressor Station in Greenville, Mississippi.

- **Ancillary Facilities.** Ancillary facilities including interconnects, metering and regulating stations, block valves, etc., would be constructed at various locations along the proposed pipelines.

We[3] have prepared this Draft Environmental Impact Statement (EIS) to assess the environmental impacts associated with construction and operation of the Project.

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1 Based on 985.2 British thermal units (Btu) per standard cubic feet (scf), 841,000 million Btu per day (MMBtu/d) approximately equals 853 MMcf/d.

2 Based on 1,021.3 Btu/scf , 768,000 MMBtu/d approximately equals 751 MMcf/d.

3 "We," "us," and "our" refer to the environmental staff of the FERC's Office of Energy Projects (OEP).

The Project would be constructed in two phases. Phase I would include the construction of the first 66 miles of the Fayetteville Lateral and related facilities from Conway County to the Bald Knob area of White County, Arkansas. Phase II would include construction of the remaining 100 miles of the Fayetteville Lateral from White County to Coahoma County, Mississippi, and the entire Greenville Lateral, including the Kosciusko Compressor Station and tie-ins. Texas Gas proposes beginning construction of both Phases I and II in June 2008. However, Phase I would be placed in service by August 1, 2008, and Phase II would be placed in service by January 1, 2009.

## 1.1 PROJECT PURPOSE AND NEED

Advances in technology have provided natural gas producers with the ability to produce significant amounts of natural gas from the Fayetteville Shale in north-central Arkansas. This region, however, currently lacks the pipeline infrastructure and capacity to transport this new and increasing natural gas supply to markets in the mid-western, northeastern, and southeastern U.S. Texas Gas states that the Fayetteville/Greenville Expansion Project is designed to meet the transportation and economic needs of these producers by creating new interstate transportation capacity from the north-central Arkansas production area to markets served by Texas Gas, Trunkline Gas Company, LLC (Trunkline), Columbia Gulf Transmission Company (Columbia Gulf), ANR Pipeline Company (ANR), Tennessee Gas Pipeline Company (Tennessee), and Texas Eastern Transmission System (Texas Eastern). Southwestern Energy Company (Southwestern), a natural gas producer and the anchor shipper of the Project, also requires that the Fayetteville Lateral route connect its production area to other existing pipeline systems at Bald Knob, Arkansas, in order to provide sufficient transportation flexibility.

Several government studies have demonstrated increasing demand and a need for additional supplies of natural gas nationally, and in the Midwest and Southeast specifically (DOE/EIA, 2001, 2004, 2005). The U.S. Department of Energy, Energy Information Administration (DOE/EIA) estimates that the total energy consumption in the U.S. will increase from 100.2 quadrillion Btu per year in 2005 to 131.2 quadrillion Btu per year in 2030 (DOE/EIA, 2007). To maintain pace with growing energy demands, the EIA anticipates that the consumption of natural gas in the U.S. will grow from 22.0 trillion cubic feet (Tcf) per year in 2005 to 26.1 Tcf by 2030. The growth in natural gas demand is being driven primarily by the increased use of natural gas for electricity generation and industrial applications (DOE/EIA, 2007).

Natural gas supplies in the U.S. currently come from three main sources: domestic production, pipeline imports from Canada and Mexico, and imported liquefied natural gas (LNG). Net pipeline imports of natural gas from Canada and Mexico are expected to decline in coming years, and although LNG represents an increasingly important source of natural gas, LNG imports are expected to account for only about 15 percent of the U.S. natural gas consumption by 2030. Domestically produced natural gas will continue to account for the majority of U.S. natural gas consumption, with onshore production expected to constitute the bulk of that supply, growing to 20.6 Tcf by 2030 (DOE/EIA, 2007). A major portion of onshore production of natural gas is expected to come from unconventional sources (e.g., shale, tight sands, and coal bed methane). The DOE/EIA (2007) projects that natural gas produced from unconventional sources in the lower 48 states will account for about 50 percent of the total domestic production of natural gas by 2030.

## 1.2 PURPOSE AND SCOPE OF THIS STATEMENT

The FERC is the federal agency responsible for approving the construction and operation of pipeline facilities in the U.S. As such, the FERC is the lead federal agency for the preparation of this Draft EIS in compliance with the requirements of the National Environmental Policy Act of 1969 (NEPA), the Council on Environmental Quality (CEQ) regulations for implementing NEPA (40 Code of Federal Regulations (CFR) Part 1500-1508), and the FERC's regulations implementing NEPA (18 CFR Part 380).

Consistent with NEPA and their respective responsibilities and regulations, the Department of the Interior (DOI), U.S. National Park Service (NPS) in Tupelo, Mississippi, and the DOI, U.S. Fish and Wildlife Service (FWS), and the Natural Resources Conservation Service (NRCS) in Jackson, Mississippi, are federal cooperating agencies for the development of this EIS. The Arkansas Natural Heritage Commission (ANHC) is a state cooperating agency for the development of this EIS.

This Draft EIS evaluates the potential environmental issues associated with the Project, presents our recommended mitigation measures, and will be used as an element of the Commission's review of the Texas Gas application and will be used to determine whether to authorize the Project. Final approval will be granted only if, after consideration of both environmental and non-environmental issues, the FERC finds that the proposed Project is in the public interest.

Our principal purposes in preparing this EIS are to:

- identify and assess potential direct, indirect, and cumulative impacts on the natural and human environments that would result from implementation of the proposed action;

- identify and assess reasonable alternatives to the proposed action that would avoid or minimize adverse effects on the natural and human environments;

- identify and recommend specific mitigation measures to minimize environmental impacts; and

- facilitate public involvement in identifying significant environmental impacts.

The analysis presented in this Draft EIS focuses on the facilities that are under the FERC's jurisdiction (i.e., the new pipeline system and ancillary facilities as proposed by Texas Gas).

The topics addressed in this EIS include geology; soils; water resources; wetlands; vegetation; wildlife, fisheries, threatened, endangered, and special-status species; land use, recreation, and visual resources; cultural resources; socioeconomics; air quality and noise; cumulative effects; reliability and safety; and alternatives. The Draft EIS describes the affected environment as it currently exists and the environmental consequences of the proposed Project, and analyzes alternatives and variations to the Project. The Draft EIS also presents conclusions and recommended mitigation measures.

## 1.3 PERMITS, APPROVALS, AND REGULATORY REQUIREMENTS

A number of federal, state, and local regulatory agencies have permit or approval authority or consultation requirements for portions of the proposed Project (see table 1.3-1). The FERC states in its orders that applicants should cooperate with federal, state, and local agencies; however, any state or local permits issued with respect to jurisdictional facilities must be consistent with the conditions of any Certificate the FERC may issue. The FERC encourages cooperation between applicants and state and local authorities, but this does not mean that state and local agencies, through application of state and local laws, may prohibit or unreasonably delay the construction or operation of facilities approved by the FERC.[4]

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[4] See, e.g., Schneidewind v. ANR Pipeline Co., 485 U.S. 293 (1988); National Fuel Gas Supply v. Public Service Commission, 894 F.2d 571 (2d Cir. 1990); and Iroquois Gas Transmission System, L.P., et al., 52 FERC 61,091 (1990) and 59 FERC 61,094 (1992).

**TABLE 1.3-1**

**Major Permits, Approvals, and Consultations**

| Agency | Permit/Approval/Consultations |
|---|---|
| **Federal** | |
| FERC | NGA, Section 7(c) (pipeline) – Certificate of Public Convenience and Necessity |
| Advisory Council on Historic Preservation (ACHP) | NHPA, Section 106 – Comment on the Project and its effect on historic properties |
| U.S. Army Corps of Engineers (USACE) Memphis District, Little Rock District, and Vicksburg District | Rivers and Harbors Act, Section 10 – Permit<br>Clean Water Act (CWA), Section 404 – Authorization |
| U.S. DOI<br>FWS, Arkansas and Mississippi Field Offices | Section 7, Endangered Species Act (ESA) – Threatened and endangered species consultation<br>Migratory Bird Treaty Act – Consultation<br>Fish and Wildlife Coordination Act Easement to traverse National Wildlife Refuges |
| U.S DOI<br>NPS | Easement to traverse the Natchez Trace Parkway |
| U.S. Environmental Protection Agency (EPA), Region IV and VI | CWA, Section 401 – Permitting authority delegated to states<br>CWA, Section 404 – Oversee issuance of the Section 404 permit<br>CWA, Section 402 – National Pollutant Discharge Elimination System (NPDES) permit (Notice of Intent). Construction General Permit – Stormwater Pollution Prevention Plan |
| U.S. Department of Agriculture<br>NRCS | Easement to traverse Wetland Reserve Program lands |
| **Arkansas** | |
| Arkansas Resource Conservation Commission (ARCC) | Review and permit withdrawals of water for hydrostatic testing |
| Arkansas Natural Heritage Commission (ANHC) | Review and comment on the impacts on state-listed species |
| Arkansas Historic Preservation Program (AHPP) | Review and comment on Project activities potentially affecting cultural resources |
| Arkansas Game and Fish Commission (AGFC) | Review and comment on Project activities located within wildlife management areas |
| Arkansas Department of Environmental Quality (ADEQ) | Permit to construct and operate facilities with the potential for air emissions<br>CWA, Section 401, Water Quality Certification, NPDES construction storm water discharge general permit, hydrostatic discharge general permit (pipeline) |
| Arkansas Waterways Commission | Consultation |
| Levee Districts | Letter of no objection (pipeline) |
| Arkansas Highway and Transportation Department | Road opening/access permit, road crossing permits (pipeline) |

**TABLE 1.3-1**

**Major Permits, Approvals, and Consultations**

| Agency | Permit/Approval/Consultations |
|---|---|
| **Mississippi** | |
| Mississippi Museum of Natural Sciences (MMNS) of the Mississippi Department of Wildlife, Fisheries and Parks | Review and comment on the impacts to state listed species. |
| Mississippi Department of Environmental Quality (MDEQ) | Permit for stream and wetland crossing in conjunction with USACE Section 404 permit |
| | Review and comment on impacts to state groundwater and waterbodies |
| | Section 402 permit for discharge of hydrostatic test water and construction dewatering to waters of the state. |
| | Permit to construct and operate facilities with the potential for air emissions |
| | Notification of withdrawals of water for hydrostatic testing required |
| Mississippi Department of Transportation | Road opening/access permit, road crossing permits (pipeline) |
| Mississippi, Department of Archives and History, Division of Historic Preservation | Review and comment of Project activities potentially affecting cultural resources |
| Levee Districts | Letter of no objection (pipeline) |

As the lead federal agency for the Project environmental review, the FERC is required to comply with Section 7 of the Endangered Species Act (ESA) of 1973 and Section 106 of the National Historic Preservation Act (NHPA). At the federal level, required permits and approval authority outside of the FERC's jurisdiction include compliance with the Clean Water Act (CWA), the Rivers and Harbors Act, and the Clean Air Act (CAA). Each of these statutes has been taken into account in the preparation of this document. The major permits, approvals, and consultations required for the Project are identified in table 1.3-1.

Section 7 of the ESA, as amended, states that any project authorized, funded, or conducted by any federal agency (for example, the FERC) should not "...jeopardize the continued existence of any endangered species or threatened species or result in the destruction or adverse modification of habitat of such species which is determined...to be critical..." (16 United States Code (USC) Section 1536(a)(2)(1988)). The FERC, or Texas Gas as a non-federal party, is required to consult with the FWS to determine whether any federally listed or proposed endangered or threatened species or their designated critical habitat occur in the vicinity of the proposed Project.

If, upon review of existing data or data provided by the applicant, the FERC determines that these species or habitats may be affected by the proposed Project, the FERC is required to prepare a biological assessment (BA) to identify the nature and extent of potential adverse impact and to recommend measures that would avoid the habitat and/or species or would reduce potential impact to acceptable levels. If, however, the FERC determines that no federally listed or proposed endangered or threatened species or their designated critical habitat would be affected by the proposed Project, no further action is necessary under the ESA. See section 4.7 of this Draft EIS for the status of this review.

Section 106 of the NHPA requires the FERC to take into account the effects of its undertakings on properties listed in or eligible for listing in the National Register of Historic Places (NRHP), including prehistoric or historic sites, districts, buildings, structures, objects, or properties of traditional religious or cultural importance to Indian Tribes, and to afford the ACHP an opportunity to comment on the undertaking. The FERC has requested that Texas Gas, as a non-federal party, assist in meeting the FERC's obligation under Section 106 by preparing the necessary information, analyses, and recommendations as required by the ACHP regulations in 36 CFR 800. See section 4.10 of this EIS for the status of this review.

Texas Gas is required to comply with Sections 401, 402, and 404 of the CWA. The EPA has delegated water quality certification (Section 401) to the jurisdiction of individual state agencies, but the EPA may assume this authority if no state program exists, if the state program is not functioning adequately, or at the request of a state. Water used for hydrostatic testing of pipelines that is point-source discharged into waterbodies will require a National Pollution Discharge Elimination System (NPDES) permit (Section 402) issued by the state with EPA oversight.

The USACE has the responsibility for determining compliance with the regulatory requirements of Section 404 of the CWA. The EPA also independently reviews Section 404 dredge and fill applications for the USACE and has Section 404(c) veto power for wetland permits issued by the USACE. The Section 404 permitting process regulates the discharge of dredge and fill material associated with the construction of pipelines across streams and in wetlands. In addition to its CWA responsibilities, the USACE has jurisdiction over Section 10 permits under the Rivers and Harbors Act of 1899. Section 10 permits would be required for all construction activities performed in navigable waterways. On July 11, 2007, Texas Gas filed with the appropriate USACE Districts its Preconstruction Notifications and requests for authorization of Nationwide Permit Number 12 for the Project for activities subject to Section 404 of the CWA and Section 10 of the Rivers and Harbors Act jurisdiction. The FERC, in the NEPA review required to prepare this Draft EIS, has analyzed the technical issues required for the Section 404 (b)(1) guidelines analysis, including analysis of natural resources and cultural resources that would be affected by the proposed Project, as well as analyses and route variations that would eliminate or minimize the discharge of dredge and fill material into waters of the United States. The USACE may use the Draft EIS to support its decision on the request for Nationwide Permits under Section 404 of the CWA permit for the proposed Project. See section 4.4 of this EIS for the status of this review.

Ambient air quality is protected by federal regulations under the CAA. These regulations include compliance under new source performance standards (NSPS) and the requirements for the prevention of significant deterioration (PSD). The federal permitting process for the CAA has been delegated to individual state agencies. Although applications are reviewed by both states and the EPA, the states would determine the need for NSPS and PSD permits. See section 4.11 of this EIS for the status of this review.

## 1.4 PUBLIC REVIEW AND COMMENT

On December 15, 2006, Texas Gas filed a request with the FERC to use its pre-filing process. At that time, Texas Gas was in the preliminary design stage of the Project, and no formal application had been filed with the FERC. The request to use the Pre-filing Process was approved on December 28, 2006, and a pre-filing docket number (PF07-2-000) was established to place information filed by Texas Gas and related documents issued by the FERC into the public record. The pre-filing process provided opportunities for interested stakeholders to become involved early in Project planning, facilitated interagency cooperation, and assisted in the identification of issues prior to Texas Gas filing its application with the FERC.

As part of its outreach efforts, Texas Gas mailed notification letters to landowners and to government and agency officials, and notified the general public of the proposed Project, inviting them to attend open houses held on January 29, 30, and 31 and February 1, 7, and 8, 2007, to learn about the proposed Project, ask questions, and express concerns. Notifications of the open houses also were published in the local newspapers. The open houses were held in Conway, Searcy, Forrest City, and Helena, Arkansas, for the Fayetteville Lateral, and in Belzoni and Lexington, Mississippi, for the Greenville Lateral. The FERC staff attended the open houses to explain the environmental review process to interested stakeholders and accept comments about the proposed Project. The concerns raised by the public at the open houses are addressed in this Draft EIS.

On March 6, 2007, we issued a *Notice of Intent to Prepare an Environmental Impact Statement for the Proposed Texas Gas Fayetteville/Greenville Expansion Project and Request for Comments on Environmental Issues and Notice of Public Scoping Meetings* (NOI). The NOI was sent to interested parties, including affected landowners; federal, state, and local officials; agency representatives; conservation organizations; Native American tribes; local libraries and newspapers; and other interested parties. The NOI provided a summary of the proposed Project, outlined our NEPA-required environmental review process, provided a list of the then currently identified environmental issues, and requested comments on the scope of the of the analysis for the Draft EIS. Publication of the NOI opened the time period for filing written comments on the Project with the Secretary of the Commission. It also established a closing date for filing comments of April 19, 2007, although we continued to review and accept comments after the close of the comment period.

We conducted three scoping meetings in Lexington, Mississippi, and Forrest City and Searcy, Arkansas, on March 19, 20, and 21, 2007, respectively, to give the general public an opportunity to comment on environmental issues to be addressed in the Draft EIS. The transcripts of all scoping meetings, as well as all written comments received are part of the public record for the proposed Project and are available for viewing on the FERC Web site (www.ferc.gov). We received a total of 22 verbal and written comments from members of the general public and federal and state resource agencies. The identified issues and concerns are summarized in table 1.4-1, which also lists the Draft EIS sections where the issues are addressed.

In addition to the public notice process described above, we consulted with federal and state agencies to identify issues that should be addressed in the EIS. We participated in an interagency meeting on April 24, 2007, with the FWS Arkansas Field Office, USACE Memphis District, NRCS, ANHC, and AGFC.

This Draft EIS has been filed with the EPA. A formal notice has been published in the Federal Register indicating that the Draft EIS is available, and has been mailed to individuals and organizations on the distribution list prepared for the proposed Project (see appendix A). In accordance with CEQ regulations implementing NEPA, the public has 45 days to comment on this Draft EIS. We will review and use the comments received to prepare a Final EIS for the proposed Project. All timely comment letters received on the Draft EIS will be addressed in the Final EIS.

## 1.5 NONJURISDICTIONAL FACILITIES

Under Section 7 of the NGA, as part of a decision to certificate jurisdictional facilities, the FERC is required to consider all facilities that are directly related to the Project where there is sufficient federal control and responsibility to warrant environmental analysis as part of this jurisdictional proceeding. The jurisdictional facilities for the Fayetteville/Greenville Expansion Project include the natural gas pipeline system and associated facilities, compressor station, interconnect meter stations, and ancillary facilities. These facilities are discussed in detail in this Draft EIS.

**TABLE 1.4-1**

**Issues Identified During the Public Scoping Process**

| Issue | Specific Comments | EIS Section Where Comments are Addressed |
|---|---|---|
| **General** | • Use most current best management practices (BMPs) to limit impacts from construction | 1.4, 4.2, 4.3, 4.4 |
| **Alternatives** | • Avoid wetlands, waterbodies, water supply watersheds; including agency suggested route variations and alternatives<br>• Collocate with existing utility corridors where possible<br>• Use BMPs where water supply watersheds cannot be avoided<br>• Cross more waterbodies by horizontal directional drill (HDD)waterbodies | 3.0 |
| Water Use and Quality | • Minimize impacts by use of HDDs and effective erosion and sediment control methods<br>• Minimize potential impacts on wells and springs from construction<br>• Use a 250-foot-wide riparian buffer between White River and HDD entry and exit holes | 3.5, 4.3, 4.4, 4.5 |
| **Wetlands** | • Minimize wetlands crossing impacts by:<br>- limiting right-of-way (ROW) width<br>- using construction methods that limit disturbance<br>- avoiding forested wetlands, including Cache River National Wildlife Refuge (NWR)<br>- using HDDs<br>- consulting with NRCS when crossing Wetland Reserve Program (WRP) areas | 4.4 |
| **Vegetation, Fish, and Wildlife** | • Consult with Hillside NWR Manager to identify and minimize impacts<br>• Avoid use of herbicides in ROW maintenance<br>• Use native species for revegetation<br>• Restrict construction near wading bird nesting areas to times outside of nesting season<br>• Minimize habitat fragmentation by avoiding large tracts of forest and by using HDDs and following existing ROWs | 4.5, 4.6.1, 4.6.2 |
| **Threatened, Endangered, and Special-Status Species** | • Consult with FWS on Louisiana black bear (*Ursus americanus luteolus*), interior least tern (*Sterna antillarum athalassos*), pallid sturgeon (*Scaphrhynchus albus*), bald eagle (*Haliaeetus leucocephalus*), and fat pocketbook mussel (*Arcidens confragosus*) | 4.7 |
| **Land Use, Recreation, and Visual Resources** | • Avoid surface crossing of Natchez Trace Parkway<br>• Address concerns about multiple pipeline crossings on individual properties and limitations on private property use<br>• Address concerns about aboveground facilities near residences<br>• Bury pipeline deep enough that agricultural operations are not impacted | 4.8 |
| **Socio-economics** | • Financial compensation for easements – how determined and landowner's role in process<br>• Impacts on tenant farmers' operations<br>• Purchase of easements prior to the FERC certificate approval | 4.9 |

**TABLE 1.4-1**

**Issues Identified During the Public Scoping Process**

| Issue | Specific Comments | EIS Section Where Comments are Addressed |
|---|---|---|
| **Air Quality and Noise** | • Concern about odors near pipeline and aboveground facilities<br>• Concern about noise from the compressor station | 4.11 |
| **Cumulative Impacts** | • Concern about multiple pipelines along a corridor and limitations on land use, property values, and loss of trees<br>• Consider cumulative impacts on wetlands in determining mitigation needs | 4.12 |
| **Mitigation** | • Provide compensatory mitigation for wetlands that cannot be avoided<br>• Use appropriate assessment methods to accurately determine mitigation needs | 4.4, 5.1 |
| **Safety** | • Safety of homes near pipeline<br>• Impacts on emergency services during construction | 4.13 |

Occasionally, proposed projects have associated facilities that do not come under the jurisdiction of the FERC. Southwestern, the anchor shipper for this Project, and other gas producer have constructed and continue to construct nonjurisdictional facilities related to the production and gathering of natural gas from the Fayetteville Shale. These facilities include gas wells, field lines, gas treatment and processing facilities, and compressor stations. Construction and operation of these facilities are under the jurisdiction of the Arkansas Oil and Gas Commission (AOGC) pursuant to the authority granted in Arkansas Code, Annotated, Title 15, Chapter 72 and the General Rules and Regulations of the AOGC implementing this authority. We are not aware of any significant federal control or responsibility over construction or operation of these gas production and gathering facilities. Therefore, we believe the Commission's control and responsibility over them are not sufficient to consider them a federal action in this environmental review.

# 2.0 DESCRIPTION OF THE PROPOSED ACTION

## 2.1 PROPOSED FACILITIES

Texas Gas proposes to construct, own, operate, and maintain two pipeline laterals and associated facilities in Arkansas and Mississippi. The Project would be constructed in two phases during an 8-month-long construction season in 2008. Phase I would consist of the western-most 66 miles of the Fayetteville Lateral, from Conway County to Bald Knob, Arkansas. Phase II would include: construction of the remaining 100 miles of the Fayetteville Lateral from White County, Arkansas, to the interconnect with Texas Gas's mainline in Coahoma County, Mississippi; the entire Greenville Lateral, including the Kosciusko 36-inch Tie-in Lateral and the Kosciusko 20-inch Tie-in Lateral; and the Kosciusko Compressor Station.

This section describes the proposed pipeline facilities, land requirements, construction procedures, construction schedule, environmental compliance and inspection monitoring, operation and maintenance procedures, and safety controls. Figure 2.1-1 shows the general location of the proposed Project. More detailed maps of the Project are in appendix B.

### 2.1.1 Pipeline Facilities: Fayetteville and Greenville Laterals

Texas Gas proposes to construct a total of about 263.4 miles of 36-inch-diameter natural gas pipeline in Conway, Faulkner, Cleburne, White, Woodruff, St. Francis, Lee, and Philips Counties, Arkansas, and Coahoma, Washington, Sunflower, Humphreys, Holmes, and Attala Counties, Mississippi. Texas Gas also would construct about 0.4 mile of 20-inch-diameter natural gas pipeline in Attala County, Mississippi. Table 2.1.1-1 lists the proposed Project pipelines in each affected county by milepost.

*Fayetteville Lateral*

The Fayetteville Lateral would parallel existing pipeline and utility corridors along about 56 percent (87.7 miles) of its proposed route in Arkansas, and about 100 percent (9 miles) of its proposed route in Mississippi. The Fayetteville Lateral pipeline would cross the Mississippi River near Helena, Arkansas, and continue to run parallel to an existing Texas Gas right-of-way to its terminus with the existing Texas Gas mainline in Coahoma County, Mississippi.

*Greenville Lateral*

The Greenville Lateral would create about 96.4 miles of new natural gas pipeline right-of-way, extending from Texas Gas's existing Greenville Compressor Station in Washington County, Mississippi, through Washington, Sunflower, Humphreys, and Holmes Counties to the southern portion of Attala County, Mississippi, where it would terminate at the new Kosciusko Compressor Station.

*Kosciusko 36-inch Tie-in Lateral*

The 0.8-mile-long Kosciusko 36-inch Tie-in Lateral would begin at the proposed, new Kosciusko Compressor Station, extend west to Niles Road and then follow Niles Road, trending generally south to tie-ins with a Gulf South pipeline and a Texas Eastern pipeline at MP 0.8.

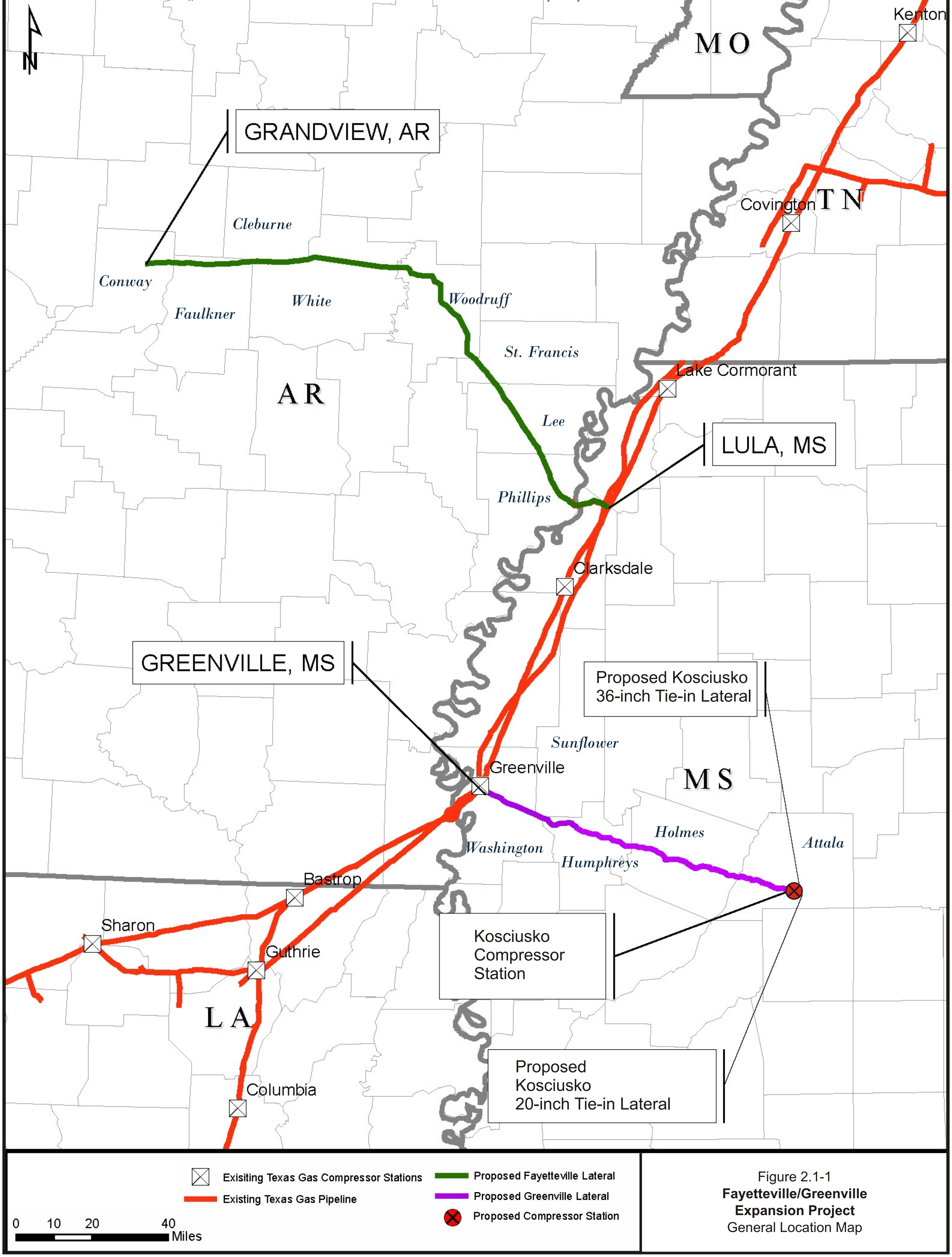



Figure 2.1-1
**Fayetteville/Greenville Expansion Project**
General Location Map

**TABLE 2.1.1-1**

**Pipeline Facilities**

| Pipeline Segment | Diameter (inches) | Milepost From | Milepost To | Length (miles) | County, State |
|---|---|---|---|---|---|
| **Fayetteville Lateral** | | | | | |
| Steel Natural Gas Pipeline | 36 | 0 | 7.8 | 7.8 | Conway County, AR |
| | 36 | 7.8 | 29.2 | 21.4 | Faulkner County, AR |
| | 36 | 29.2 | 41.1 | 11.9 | White County, AR |
| | 36 | 41.1 | 41.6 | 0.5 | Cleburne County, AR |
| | 36 | 41.6 | 42.5 | 0.9 | White County, AR |
| | 36 | 42.5 | 44.2 | 1.7 | Cleburne County, AR |
| | 36 | 44.2 | 69.6 | 25.4 | White County, AR |
| | 36 | 69.6 | 108.0 | 38.4 | Woodruff County, AR |
| | 36 | 108.0 | 116.5 | 8.5 | St. Francis County, AR |
| | 36 | 116.5 | 139.2 | 22.7 | Lee County, AR |
| | 36 | 139.2 | 157.7 | 18.5 | Phillips County, AR |
| | 36 | 157.7 | 166.2 | 8.5 | Coahoma County, MS |
| **Total Lateral Length** | | | | 166.2 | |
| **Greenville Lateral** | | | | | |
| Steel Natural Gas Pipeline | 36 | 0.0 | 17.3 | 17.3 | Washington County, MS |
| | 36 | 17.3 | 20.1 | 2.8 | Sunflower County, MS |
| | 36 | 20.1 | 20.3 | 0.2 | Washington County, MS |
| | 36 | 20.3 | 46.1 | 25.8 | Humphreys County, MS |
| | 36 | 46.1 | 77.7 | 31.6 | Holmes County, MS |
| | 36 | 77.7 | 96.4 | 18.7 | Attala County, MS |
| **Total Lateral Length** | | | | **96.4** | |
| **Total Mainline Pipeline Length** | | | | **262.6** | |
| **Kosciusko 36-inch Tie-in Lateral** | | | | | |
| Steel Natural Gas Pipeline | 36 | 0.0 | 0.8 | 0.8 | Attala County, MS |
| **Total 36-inch Tie-in Length** | | | | **0.8** | |
| **Kosciusko 20-inch Tie-in Lateral** | | | | | |
| Steel Natural Gas Pipeline | 20 | 0.0 | 0.4 | 0.4 | Attala County, MS |
| **Total Tie-in Length** | | | | **0.4** | |
| **Total Tie-ins Pipeline Length** | | | | **1.2** | |

*Kosciusko 20-inch Tie-in Lateral*

The 0.4-mile-long Kosciusko 20-inch Tie-in Lateral would begin at the tie-in with Gulf South and extend generally south-southeast to a tie-in with a Southern Natural pipeline.

### 2.1.2 Aboveground Facilities

The proposed aboveground facilities for the Project include one new compressor station, 29 metering and regulating (M&R) stations, 30 interconnects (tie-ins), 21 main line valves (MLVs), and three launchers and three receivers. Table 2.1.2-1 lists the proposed aboveground facilities by MP and county. Descriptions of the proposed facilities are provided in the following subsections.

*Kosciusko Compressor Station*

Texas Gas would construct a 10,650-hp compressor station at the eastern terminus of the Greenville Lateral. The Kosciusko Compressor Station would contain two Caterpillar 3612 engines driving Arial compressors (3,550 hp each) and two Caterpillar 3606 engines driving Arial compressors (1,775 hp each). This compressor station would be near Kosciusko, Attala County, Mississippi, and would occupy an irregularly shaped 65-acre area.

*Meter and Regulation Stations*

Each of the proposed M&R stations and tie-in interconnects to existing pipelines would include meter runs consisting of a custody-transfer flow meter, pressure regulator, isolation block valves, and associated instrumentation and controls to measure the flow of natural gas from the proposed new pipeline to the existing interconnecting pipeline. Texas Gas would construct a total of 29 M&R stations for the Project, 19 on the Fayetteville Lateral and 10 on the Greenville Lateral. The proposed M&R station locations are identified in table 2.1.2-1.

*Main Line Valves, Launchers, and Receivers*

MLVs segment a pipeline for safety, operational, and maintenance purposes, in accordance with U.S. Department of Transportation (DOT) regulations. MLVs are used to shut down gas flow in the pipeline and also allow for surface access to the pipeline. Texas Gas would install MLVs at the beginning and end of each line, and at intermediate locations as necessary to meet operational and federal regulatory requirements. A total of 21 MLVs would be installed, 11 on the Fayetteville Lateral and 10 on the Greenville Lateral (including two on the Kosciusko 36-inch Tie-in Lateral and one on the Kosciusko 20-inch Tie-in Lateral). All MLVs would be within the permanent rights-of-way. The proposed MLV locations are listed in table 2.1.2-1.

The MLVs would be installed on the buried pipeline, with the blowdown valve and manual valve operator extending aboveground within a fenced, gated, and locked area within the permanent pipeline right-of-way, either on their own or within an associated M&R station or launcher/receiver site. Each MLV would be remotely monitored and controlled from a central control facility via the Supervisory Control and Data Acquisition (SCADA) system.

**TABLE 2.1.2-1**

**Aboveground Facilities**

| Type of Facility/Pipeline Lateral | Description | Milepost | County/State |
|---|---|---|---|
| **M& R Stations** | | | |
| **Fayetteville Lateral** | | | |
| | M&R Station and tie-in to Southwestern | 0.0 | Conway County, AR |
| | M&R Station and tie-in to Southwestern | 3.1 | Conway County, AR |
| | M&R Station and tie-in to Southwestern | 6.7 | Conway County, AR |
| | M&R Station and tie-in to Southwestern | 9.4 | Faulkner County, AR |
| | M&R Station and tie-in to Southwestern | 13.4 | Faulkner County, AR |
| | M&R Station and tie-in to Southwestern | 16.5 | Faulkner County, AR |
| | M&R Station and tie-in to Southwestern | 19.6 | Faulkner County, AR |
| | M&R Station and tie-in to Southwestern | 23.7 | Faulkner County, AR |
| | M&R Station and tie-in to Southwestern | 28.4 | Faulkner County, AR |
| | M&R Station and tie-in to Southwestern | 32.8 | White County, AR |
| | M&R Station and tie-in to Southwestern | 35.9 | White County, AR |
| | M&R Station and tie-in to Southwestern | 39.2 | White County, AR |
| | M&R Station and tie-in to CenterPoint Energy (CenterPoint) | 45.9 | White County, AR |
| | M&R Station and tie-in to Southwestern | 50.4 | White County, AR |
| | M&R Station and tie-in to Southwestern | 55.5 | White County, AR |
| | M&R Station and tie-in to Natural Gas Pipe Line Company of America (NGPL) | 64.1 | White County, AR |
| | M&R Station and tie-in to dual Mississippi River Transmission (MRT) pipelines | 65.6 | White County, AR |
| | M&R Station and tie-in to Texas Eastern | 65.9 | White County, AR |
| | M&R Station and tie-in to Texas Gas | 166.2 | Coahoma County, MS |
| **Greenville Lateral** | | | |
| | M&R Station and tie-in to Texas Gas | 0.0 | Washington County, MS |
| | M&R Station and tie-in to Tennessee | 0.5 | Washington County, MS |
| | M&R Station and tie-in to American Natural Resources | 1.8 | Washington County, MS |
| | M&R Station and tie-in to Trunkline | 6.4 | Washington County, MS |
| | M&R Station and tie-in to Columbia Gulf | 28.7 | Humphreys County, MS |
| | M&R Station and tie-in to Tennessee | 29.8 | Humphreys County, MS |
| | M&R station and tie-in to Gulf South (via Kosciusko 36-inch Tie-in Lateral) | 96.4 | Attala County, MS |
| | M&R Station and tie-in to Texas Eastern (via Kosciusko 36-inch Tie-in Lateral) | 96.4 | Attala County, MS |
| | M&R Station and tie-in to Southern Natural (via Kosciusko 20-inch Tie-in Lateral) | 96.4 | Attala County, MS |
| | M&R Station and tie-in to Texas Eastern | 96.4 | Attala County, MS |

**TABLE 2.1.2-1**

**Aboveground Facilities**

| Type of Facility/Pipeline Lateral | Description | Milepost | County/State |
|---|---|---|---|
| **Launchers and Receivers** | | | |
| **Fayetteville Lateral** | | | |
| | Launcher with MLV No. 1 | 0.0 | Conway County, AR |
| | Receiver | 66.0 | White County, AR |
| | Launcher | 66.0 | White County |
| | Receiver at Texas Gas M&R Station | 166.2 | Coahoma County, MS |
| **Greenville Lateral** | | | |
| | Launcher at Texas Gas's existing Greenville Compressor Station | 0.0 | Washington County, MS |
| | Receiver at Texas Eastern Transmission M&R Station at Kosciusko Compressor Station | 96.4 | Attala County, MS |
| **MLVs** | | | |
| **Fayetteville Lateral** | | | |
| | MLV No. 1 with launcher | 0.0 | Conway County, AR |
| | MLV No. 2 | 19.6 | Faulkner County, AR |
| | MLV No. 3 | 38.9 | White County, AR |
| | MLV No. 4 | 54.2 | White County, AR |
| | MLV No. 5 | 66.0 | White County, AR |
| | MLV No. 6 | 85.4 | Woodruff County, AR |
| | MLV No. 7 | 105.2 | Woodruff County, AR |
| | MLV No. 8 | 120.2 | Lee County, AR |
| | MLV No.9 | 136.0 | Lee County, AR |
| | MLV No. 10 | 153.2 | Phillips County, AR |
| | MLV No. 11 with receiver | 166.2 | Coahoma County, MS |
| **Greenville Lateral** | | | |
| | MLV No. 1 with launcher | 0.0 | Washington County, MS |
| | MLV No. 2 with Trunkline M&R station | 6.4 | Washington County, MS |
| | MLV No. 3 | 19.4 | Sunflower County, MS |
| | MLV No. 4 | 29.8 | Humphreys County, MS |
| | MLV No. 5 | 42.0 | Humphreys County, MS |
| | MLV No. 6 | 54.0 | Holmes County, MS |
| | MLV No. 7 | 66.1 | Holmes County, MS |
| | MLV No. 8 | 73.0 | Holmes County, MS |
| | MLV No. 9 | 81.8 | Attala County, MS |
| | MLV No. 10 | 96.4 | Attala County, MS |
| **Compressor Station** | | | |
| **Greenville Lateral** | 10,650-hp Kosciusko Compressor Station | 96.4 | Attala County, MS |

Launcher and receiver facilities would be used to send and receive internal inspection equipment (pigs) that travels through the pipeline. Texas Gas would construct two launchers and two receivers on the Fayetteville Lateral and one launcher and one receiver on the Greenville Lateral (see table 2.1.2-1). A launcher and receiver would be installed at the beginning and end of each lateral, and a launcher and receiver would be installed at MP 66.0 of the Fayetteville Lateral. A distillate storage tank would be installed at each of the three receiver locations to collect any fluids that might be discharged from the pipeline after testing for disposal at appropriate sites.

To the extent practicable, the aboveground facilities would be constructed near existing roads. Texas Gas would construct permanent access roads from the existing roads to the aboveground facility as part of facility construction.

## 2.2 LAND REQUIREMENTS

Construction of the Project would require a total of 5,057.2 acres of land, including the pipeline construction rights-of-way (3,199.6 acres), extra workspaces (635.0 acres), aboveground facilities (113.5 acres), access roads (162.5 acres), and temporary pipe storage and contractor yards (946.6 acres). Table 2.2-1 summarizes the land requirements for the Project. A detailed description of the land uses that would be affected by construction and operation of the Project is presented in section 4.8.

**TABLE 2.2-1**

**Summary of Land Requirements**

| Facility | Land Affected During Construction (acres) | Land Affected During Operation (acres) |
|---|---|---|
| Fayetteville Lateral | 2,465.4 | 1,009.1 |
| Greenville Lateral | 1,353.9 | 586.2 |
| Kosciusko 36-inch Tie-in Lateral | 10.4 | 4.9 |
| Kosciusko 20-inch Tie-in Lateral | 4.9 | 2.4 |
| Aboveground facilities | 113.5 | 113.5 |
| Pipe storage and contractor yards | 946.6 | 0.0 |
| Access roads | 162.5 | 15.1 |
| **TOTAL: Project** | **5,057.2** | **1,721.6** |

Of the 5,057.2 acres of land required for construction, about 1,731.2 acres would be required for operation. Of this total, about 1,602.6 acres would be required for the permanent pipeline rights-of-way, 113.5 acres would be required for operation of the aboveground facilities, and 15.1 acres would be required for new access roads.

About 3,326.0 acres would be affected only during construction of the Project. Following construction, they would be restored or allowed to return to their preconstruction cover and land use.

### 2.2.1 Pipeline Facilities

#### 2.2.1.1 Rights-of-Way and Temporary Workspaces

The Fayetteville Lateral would parallel existing pipeline and utility corridors along about 56 percent (87.7 miles) of its proposed route in Arkansas and about 100 percent (9 miles) of its proposed route in Mississippi. The Greenville Lateral would create about 96.4 miles of new natural gas pipeline right-of-way from the existing Greenville Compressor Station in Washington County, Mississippi, through Washington, Sunflower, Humphreys, and Holmes Counties to the southern portion of Attala County, Mississippi.

Texas Gas would generally use a 100-foot-wide construction right-of-way. A 75-foot-wide construction right-of-way would be used to install the pipeline through wetlands. Texas Gas would require a 150-foot-wide construction corridor along the path of all proposed horizontal directional drills (HDDs) on both the Fayetteville and Greenville Laterals. However, because the HDD method involves installation of the pipeline(s) by drilling beneath a waterbody or land surface, there would be minimal land disturbance along the path of the HDD; only small areas along the edges of the 150-foot-wide construction right-of-way would be disturbed for placement of the electric grid guide wires used to guide the drill.

The typical 100-foot-wide pipeline construction right-of-way in upland areas would be divided into a 65-foot-wide working side and a 35-foot-wide spoil side. Figure 2.2.1-1 is a cross section that shows the typical construction and permanent rights-of-way that would be used for the Fayetteville and Greenville Laterals. Actual dimensions and the configuration (e.g., spoil storage, equipment travel lane) within the construction right-of-way may vary depending on site-specific conditions at the time of construction and construction methods used. Where the Project would be collocated adjacent to an existing pipeline, the construction right-of-way would be no closer than 15 feet from the existing pipeline to keep construction equipment away from the operating pipeline. Texas Gas would use a slightly different workspace configuration where the Project would be collocated with the existing CenterPoint pipeline right-of-way and with gathering lines. Where the Project would be collocated with the CenterPoint pipeline, Texas Gas would use a 40-foot-wide working side and a 60-foot-wide spoil side construction right-of-way configuration, which would overlap the existing pipeline easement by 10 feet. The overlapped areas would be used for temporary workspace. Where the Project would be collocated with gathering lines, Texas Gas would use a 45-foot-wide working side and a 55-foot-wide spoil side construction right-of-way configuration. This right-of-way configuration would overlap the existing gathering pipeline easement by 5 feet. Again, the overlapped area would be used for temporary workspace. Pipeline construction methods are described in more detail in section 2.5.

Additional temporary workspace would be required to safely install the pipeline in rugged terrain. All of the identified areas with rugged terrain would be along the Fayetteville Lateral, and table 2.2.1-1 lists them by milepost. The land requirement due to construction through rugged terrain would add about 8.8 acres of temporary impact.[1] When constructing the Project through agricultural land, Texas Gas would require an additional 20 feet of temporary workspace along the construction right-of-way, which it would use for full topsoil segregation in areas of rice production. See section 4.2 for additional information about construction through agricultural land. Texas Gas identified a total of 635.0 acres of temporary extra workspace that would be required for construction at wetland, waterbody, HDD, foreign pipeline, and road/railroad crossings; and for topsoil segregation, sharp bends in the pipeline, truck turnarounds, and staging and fabrication. The locations, sizes, and land use of the identified temporary extra

[1] The land requirement for extra workspaces in rugged terrain is included in the total land requirement for the Project.

workspaces and staging areas are listed in table C-1 in appendix C and are shown on the Project location maps in appendix B.

Following construction, Texas Gas would maintain a permanent 50-foot-wide right-of-way for operation of the pipeline. Generally, there would be a 50-foot separation between the proposed pipeline and any adjacent foreign pipeline. About 1,009.1 acres of land for the Fayetteville Lateral and 593.5 acres of land for the Greenville Lateral and associated tie-ins would be required for the permanent right-of-way.

**TABLE 2.2.1-1**

**Land Requirements for Rugged Terrain Crossings**

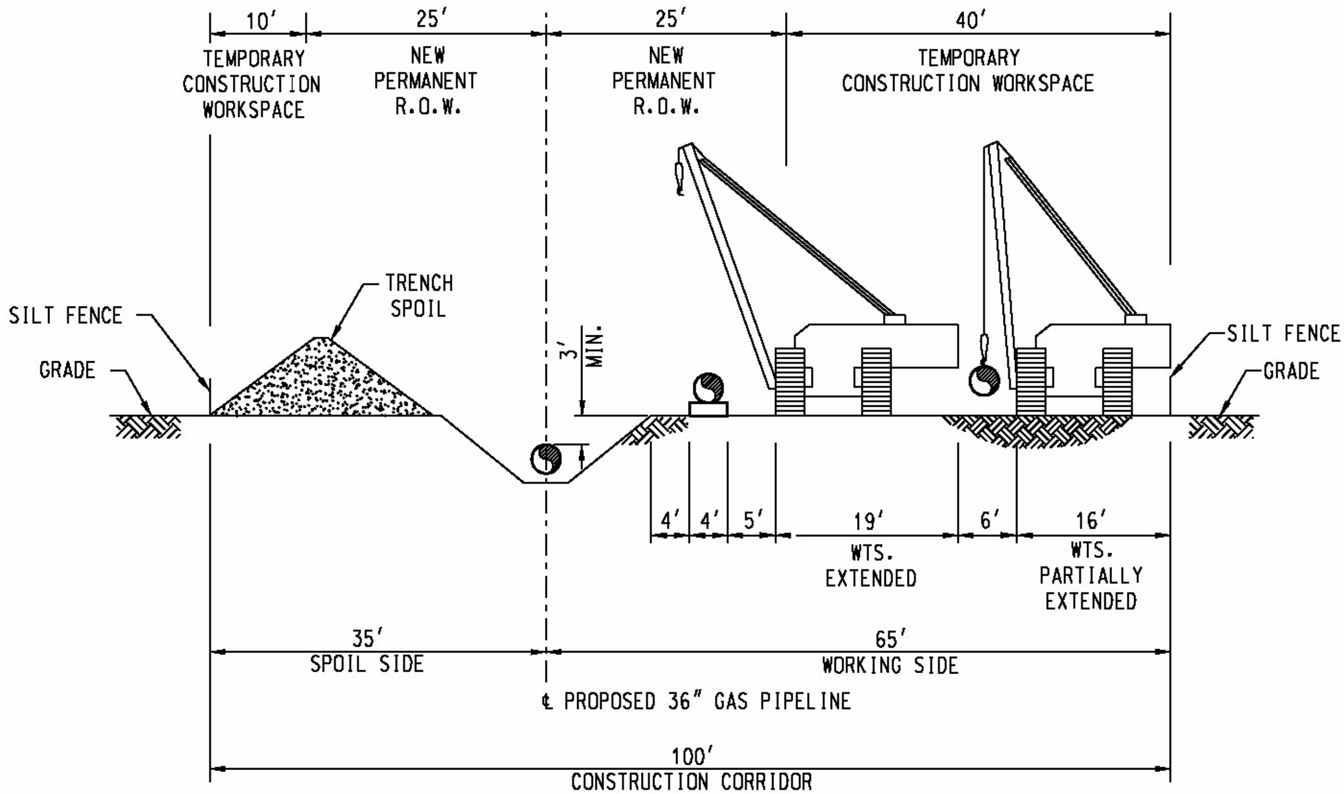
| County, State | Milepost Range | Approximate Length (feet) | Additional Construction Right-of-way Width | Additional Temporary Workspace Acreage |
|---|---|---|---|---|
| **Fayetteville Lateral** | | | | |
| Conway, AR | 4.3 to 4.8 | 2,500 | 25 | 1.4 |
| Conway, AR | 7.1 to 7.3 | 950 | 25 | 0.5 |
| Celburne, AR | 41.7 to 41.7 | 300 | 50 | 0.3 |
| Celburne, AR | 42.6 to 43.1 | 2,350 | 25 | 1.3 |
| White, AR | 44.1 to 44.2 | 450 | 25 | 0.3 |
| White, AR | 44.3 to 44.4 | 525 | 25 | 0.3 |
| White, AR | 56.0 to 56.8 | 850 | 25 | 0.5 |
| White, AR | 59.8 to 60.3 | 2,340 | 25 | 1.3 |
| White, AR | 61.4 to 61.6 | 1,150 | 25 | 0.7 |
| White, AR | 62.2 to 62.3 | 430 | 25 | 0.2 |
| White, AR | 62.4 to 62.4 | 100 | 25 | 0.1 |
| White, AR | 62.4 to 62.5 | 300 | 50 | 0.3 |
| White, AR | 62.5 to 62.8 | 1,625 | 25 | 0.9 |
| White, AR | 63.1 to 63.2 | 250 | 50 | 0.3 |
| White, AR | 63.2 to 63.2 | 200 | 25 | 0.1 |
| White, AR | 63.2 to 63.3 | 600 | 25 | 0.3 |
| **Total** | | **14,920** | | **8.8** |

### 2.2.1.2 Access Roads

Texas Gas would use 160 access roads with a total length of about 59.9 miles to provide access to the construction right-of-way for construction materials and equipment. All access roads proposed by Texas Gas would be existing dirt, gravel, or paved roads, although some would need modifications. The existing access roads may be improved by grading or adding gravel to support movement of construction equipment and materials, as required. Following construction, all temporary access roads would, at a minimum, be returned to their preconstruction condition. Use of the access roads would temporarily affect about 162.5 acres of land during construction. Of that amount, about 15.1 acres of access roads would be retained for operation of the Project. The proposed access roads are shown on the Project location maps in appendix B.

#### 2.2.1.3 Pipe Storage/Contractor Yards

Texas Gas identifies 40 sites that it would use temporarily as pipe storage yards, contractor's office, and equipment/tool room trailers; construction equipment and employee parking areas; equipment laydown, warehouse, and maintenance areas; and staging areas for other construction activities. These sites would range in size from about 0.2 to 109.0 acres and total about 946.6 acres. Depending upon site conditions and their current use, some surface grading, drainage improvements, placement of surface materials (e.g., crushed rock), and/or construction of internal roadways may be required. The location of each potential




PROFILE

**NOT TO SCALE**

Figure 2.2.1-1
**Fayetteville/Greenville Expansion Project**
Typical 36-inch-Diameter Pipe - Cross Section
Without Topsoil Segregation

yard is shown on the Project location maps in appendix B. All sites would, at a minimum, be returned to their preconstruction land use, ground cover, and condition following construction.

### 2.2.2 Aboveground Facilities

Construction and operation of the Kosciusko Compressor Station, M&R stations/interconnect sites, MLVs, and launchers/receivers would require about 113.5 acres of land. The compressor station would occupy about 65.0 acres; the remaining acres would be occupied by M&R stations. The sizes of M&R stations range from 0.9 acre to 2.6 acres. All MLVs and launchers/receivers would be located within the pipeline right-of-way and thus are not included in the 113.5 acres of land required for construction and operation of aboveground facilities. Each MLV and each launcher/receiver would occupy less than 0.1 acre.

## 2.3 CONSTRUCTION SCHEDULE

Texas Gas proposes to construct the pipeline facilities in two phases. Phase I would include construction of the first 66 miles of the Fayetteville Lateral and related facilities from Conway County to the Bald Knob area of White County, Arkansas. Phase II would include construction of the remaining 100 miles of the Fayetteville Lateral from White County to Coahoma County, Mississippi, the entire Greenville Lateral and associated tie-in laterals, and the Kosciusko Compressor Station. Texas Gas proposes beginning construction of both Phases I and II in June 2008. However, Phase I would be placed in service by August 1, 2008, and Phase II would be placed in service by January 1, 2009. Texas Gas would be required to obtain written approval to begin service on each segment of the Project. Therefore, **we recommend that:**

- **Texas Gas must receive written authorization from the Director of Office of Energy Projects (OEP) before commencing service on each pipeline segment. Such authorization would be granted only following a demonstration that rehabilitation and restoration of the Project area is proceeding satisfactorily.**

## 2.4 ENVIRONMENTAL COMPLIANCE AND MITIGATION MONITORING

To ensure that construction of the proposed facilities would comply with mitigation measures identified in Texas Gas's application, the FERC Certificate, and other permits, Texas Gas would employ at least one Environmental Inspector (EI) on each construction spread during construction and restoration. EIs would report to the Chief Inspector (CI) who would have overall authority over construction, but would have peer status with all other activity inspectors. EIs would have the authority to stop activities that violate the environmental conditions of the FERC Certificate, other permits, or landowner requirements, and to order appropriate corrective action. At a minimum, the EIs would be responsible for:

- ensuring and documenting compliance with the requirements of our Upland Erosion Control, Revegetation, and Maintenance Plan (Plan) and Wetland and Waterbody Construction and Mitigation Procedures (Procedures), the Stormwater Pollution Prevention Plan (SWPPP), the Spill Prevention and Countermeasure Plan (SPCC), the best management practices (BMP), the Hydrostatic Test Plan, the environmental conditions of the Certificate, the mitigation measures proposed by Texas Gas (as approved and/or modified by the Certificate), other environmental permits and approvals, and environmental requirements in landowner easement agreements;

- identifying, documenting, and overseeing corrective actions as necessary to bring an activity back into compliance;

- verifying that the limits of authorized construction work areas and locations of access roads are properly marked before clearing;
- verifying the location of signs and highly visible flagging marking the boundaries of sensitive resource areas, waterbodies, wetlands, noxious weed infestations, and areas with special requirements along the construction work area and confirming that the appropriate resource monitoring is being conducted to protect these areas;
- verifying that equipment and vehicles have been cleaned prior to arrival at the work site, and are cleaned after working in areas of known noxious weed infestations before moving on to other areas;
- identifying erosion/sediment control and soil stabilization needs in all areas;
- ensuring that the location of dewatering structures and slope breakers would not direct water into known cultural resources sites or locations of sensitive species;
- verifying that hydrostatic test dewatering structures are located at approved discharge sites;
- verifying that trench and hydrostatic test dewatering activities do not result in the deposition of sand, silt, and/or sediment near the point of discharge into a wetland or waterbody. If such deposition is occurring, the dewatering activity would be stopped and the design of the discharge would be changed to prevent recurrence;
- ensuring that subsoil and topsoil are tested in agricultural and residential areas to measure compaction and determine the need for corrective action;
- advising the CI when conditions (such as wet weather) make it advisable to restrict construction activities to avoid excessive rutting;
- documenting that materials and wastes are properly handled, stored, transported, and disposed of in accordance with the SPCC;
- documenting that spills are controlled, contained, and cleaned up in accordance with the SPCC;
- ensuring restoration of contours and topsoil;
- verifying that the soils imported for agricultural or residential use have been certified as free of noxious weeds and soil pests, unless otherwise approved by the landowner;
- determining the need for and ensuring that temporary erosion controls are properly installed as necessary to prevent sediment flow into wetlands, waterbodies, sensitive areas, and onto roads;
- documenting that seeding, fertilizing, mulching, and tree and shrub planting are carried out in accordance with any required reclamation plan;
- inspecting and ensuring the maintenance of temporary erosion control measures at least:

  - on a daily basis in areas of active construction or equipment operation;
  - on a weekly basis in areas with no construction or equipment operation; and
  - within 24 hours of each 0.5 inch of rainfall;

- ensuring the repair of all ineffective temporary erosion control measures within 24 hours of identification;
- keeping records of compliance with the environmental conditions of the FERC Certificate, and the mitigation measures proposed by Texas Gas in its FERC application, and other federal, state, or local environmental permits during active construction and restoration; and
- identifying areas that should be given special attention to ensure stabilization and restoration after the construction phase.

After construction, Texas Gas would conduct follow-up inspections of all disturbed areas after the first and second growing seasons to determine the success of revegetation. Revegetation would be considered successful in agricultural areas if crop yields are similar to adjacent undisturbed portions of the same field. In other areas, revegetation would be considered successful if, upon visual survey, the density and cover of non-nuisance vegetation is similar in density and cover to adjacent undisturbed lands. In all cases, construction debris must be removed (unless requested otherwise by the landowner or land management agency) and proper drainage must be restored. Texas Gas would submit quarterly reports to the FERC for at least two years following construction documenting any problems identified by Texas Gas or landowners and describing the corrective actions taken to remedy those problems.

For a period of at least three years after construction, Texas Gas would monitor the proposed Project area annually for noxious weed infestations. Areas where noxious weeds are noted would be further evaluated to determine if remedial action or treatment is necessary. Treatment may involve mechanical means (e.g., mowing or disking) and/or herbicide application. Treatment methods would be based on site-specific conditions and would be coordinated with the landowner and appropriate federal, state, and local regulatory authorities.

After construction, the FERC would continue to conduct oversight inspection and monitoring. If it is determined that any of the proposed monitoring time frames are not adequate to assess the success of restoration, Texas Gas would be required to extend its post-construction monitoring programs.

As the lead federal agency for the proposed Project, the FERC may impose conditions on any Certificate granted for the proposed Project. These conditions could include additional requirements and mitigation measures identified in this EIS to minimize the environmental impact that would result from the construction of the proposed Project (see section 5.0). We would recommend to the Commission that these additional requirements and mitigation measures (offset with bold type in the text) be included as specific conditions to any approving Certificate issued for the proposed Project. If it approves the proposed Project, the FERC would require Texas Gas to implement the construction procedures and mitigation measures that Texas Gas has proposed as part of the Project unless specifically modified by other Certificate conditions.

We recognize that during or after construction, issues or complaints may develop that were not addressed during the environmental proceedings at the Commission, and it is imperative that landowners continue to have an avenue to contact Texas Gas's representatives. We are interested in ensuring that landowner issues and complaints received during construction are resolved in a timely and efficient manner (if the proposed Project is approved). Therefore, **we recommend that:**

- **Texas Gas develop and implement an environmental complaint resolution procedure. The procedure should provide landowners with clear and simple directions for identifying and resolving their environmental mitigation problems/concerns during construction of the Project and restoration of the right-of-way. Prior to construction, Texas Gas should mail the complaint procedures to each landowner whose property would be crossed by the Project.**

  **a. In its letter to affected landowners, Texas Gas should:**

  **(1) provide a local contact that the landowners should call first with their concerns; the letter should indicate how soon a landowner should expect a response;**

  **(2) instruct the landowners that if they are not satisfied with the response, they should call Texas Gas's Hotline; the letter should indicate how soon to expect a response; and**

  **(3) instruct the landowners that if they are still not satisfied with the response from Texas Gas's Hotline, they should contact the Commission's Enforcement Hotline at (888) 889-8030, or at hotline@ferc.gov.**

  **b. In addition, Texas Gas should include in its weekly status report a copy of a table that contains the following information for each problem/concern:**

  **(1) the date of the call;**

  **(2) the identification number from the certificated alignment sheets of the affected property and approximate location by MP;**

  **(3) the description of the problem/concern; and**

  **(4) an explanation of how and when the problem was resolved, would be resolved, or why it has not been resolved.**

## 2.5 CONSTRUCTION PROCEDURES

This section describes the general construction procedures proposed by Texas Gas for construction of the pipeline. Section 4 contains more detailed information about proposed construction, mitigation, and restoration procedures as well as additional measures that we are recommending to mitigate environmental impacts on specific resources.

### 2.5.1 Pipeline Facilities

The proposed pipeline would be designed, constructed, operated, and maintained in accordance with federal safety standards that are intended to ensure adequate protection for the public and to prevent natural gas pipeline accidents or failures. These regulations include DOT regulations in 49 CFR Part 192, Transportation of Natural and Other Gas by Pipeline: Minimum Federal Safety Standards. Among other design standards, 49 CFR Part 192 specifies pipeline material selection; minimum design requirements; protection from internal, external, and atmospheric corrosion; and qualification procedures for welders and operations personnel. In addition, Texas Gas would comply with the siting and maintenance requirements in 18 CFR Part 380.15, Siting and Maintenance Requirements, and other applicable federal and state regulations.

#### 2.5.1.1 General Pipeline Construction Techniques

Figure 2.5.1-1 shows the typical steps of upland pipeline construction. Standard pipeline construction proceeds in the manner of an outdoor assembly line comprising specific activities that make up the linear construction sequence. These sequenced operations include survey and staking of the right-of-way, clearing and grading, trenching, pipe stringing and bending, welding and coating, lowering-in and backfilling, hydrostatic testing, and cleanup.

In addition to the standard pipeline construction methods described below, Texas Gas would use special construction techniques where warranted by site-specific conditions. These special techniques would be used for crossing waterbodies, wetlands, agricultural areas, roads, railroads, foreign pipelines, and residential and commercial/industrial areas (see section 2.5.1.2).

*Survey and Staking*

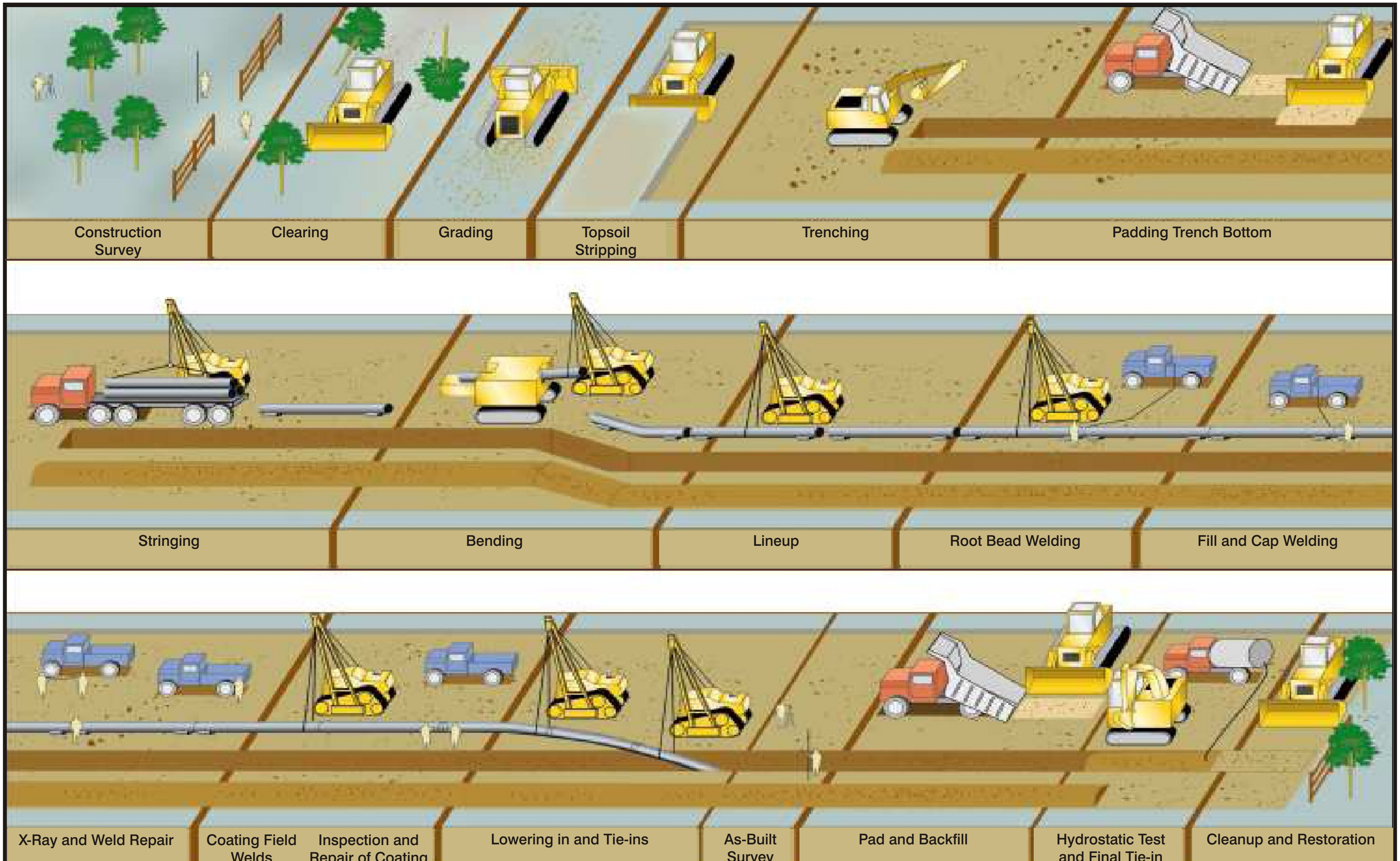
Before beginning construction, a civil survey crew would stake the outside limits of the right-of-way, the centerline location of the pipeline(s), drainage centerlines and elevations, highway and railroad crossings, and any temporary extra workspaces such as laydown areas or at stream crossings. Arkansas and Mississippi One Call systems would be contacted, and underground utilities (i.e., cables, conduits, and pipelines) would be located and flagged. Affected landowners would be notified prior to surveying and staking of the construction right-of-way.

*Clearing and Grading*

The construction right-of-way and additional temporary work areas would be cleared of shrubs and trees and other obstructions. Timber would only be removed when absolutely necessary for construction purposes. Timber and other vegetation debris may be chipped for use as erosion-control mulch, burned, or otherwise disposed of in accordance with applicable state and local regulations and landowner agreements. Fences would be cut and braced along the right-of-way, and temporary gates would be installed to control livestock and limit public access.

The right-of-way would then be graded where necessary to create a reasonably level working surface to allow safe passage of construction equipment and materials. Grading would not take place in wetlands unless topographic or other features make the right-of-way unsafe for construction equipment. Where applicable, topsoil would be stockpiled separately from excavated subsoil. Conserved topsoil would be stockpiled along one side of the right-of-way, allowing the other side to be used for access, material transport, and pipe assembly. Temporary erosion controls would be installed immediately after initial disturbance of the soil to minimize erosion and would be maintained throughout construction, consistent with our Plan.

Blasting may be required for grading and trenching in areas where bedrock is shallow and where mechanical excavation or rock-trenching methods are inadequate. See section 4.1 for additional information.




**NOT TO SCALE**

Figure 2.5.1-1
**Fayetteville/Greenville Expansion Project**
Typical Upland Pipeline Construction Sequence

*Trenching*

The pipeline trench would be excavated with a rotary trenching machine, a track-mounted backhoe, or similar equipment. The trench would be excavated at least 12 inches wider than the diameter of the pipe, or a minimum of 48 inches for the 36-inch-diameter pipelines. The sides of the trench would be sloped (for safety), with the top of the trench up to 20 feet across, depending upon the stability of the native soils. The trench would be excavated to a sufficient depth to allow a minimum of 3 feet of soil cover between the top of the pipe and the final land surface after backfilling. Excavated soils would be stockpiled along the right-of-way on the side of the trench away from the construction traffic and pipe assembly area.

Where the new pipeline right-of-way would be collocated adjacent to an existing pipeline right-of-way, the spoil would be placed on the same side of the trench as, but not directly over, the existing pipeline to keep equipment off the operating pipeline. In areas where topsoil stripping is required, the topsoil and subsoil would be stored in separate windrows on the construction right-of-way and would be prevented from mixing. The landowner would be offered the option of whether to segregate the topsoil across the full width for the construction right-of-way, or to segregate just the ditch and spoil-side topsoil.

*Stringing and Bending*

Steel pipe for the pipeline would be procured in 40-foot and 80-foot lengths, or "joints," protected with an epoxy coating applied at the factory (the beveled ends would be left uncoated for welding followed by field coating) and shipped to strategically located storage areas, or pipe yards. The individual joints would be transported to the right-of-way by truck and unloaded by small portable cranes and/or side-boom tractors that would place the joints along the excavated trench. In upland areas, the pipe would be placed along the excavated trench in a single, continuous line, easily accessible to the construction personnel on the "working" side of the trench, opposite the "spoil" side. At waterbody and wetland crossings, the amount of pipe required to span the waterbody or wetland would be stockpiled in temporary workspaces at least 50 feet from the waterbody or wetland, as specified in our Procedures. Where bending is required to allow the pipe to follow natural grade and direction changes, a track-mounted hydraulic bending machine would bend the individual joints of pipe to the desired angle. In certain areas, prefabricated fittings would be used where field bending is not practicable.

*Welding and Coating*

After stringing and bending are complete, the pipe joints would be aligned, welded together, and placed on temporary supports along the edge of the trench. The ends would be carefully aligned and welded together using multiple passes, which would provide for a full-penetration weld. Only qualified welders would be permitted to perform the welding. Welders would be qualified according to applicable American Welding Society (AWS), American Society of Mechanical Engineers (ASME), American Petroleum Institute (API) and DOT standards. All welds would be inspected, both visually and radiographically, for integrity, and any welds that do not meet the design strength requirement would be repaired or cut out and rewelded. Following welding, the previously uncoated ends of the pipe at the joints would be cleaned and coated with epoxy. The coating on the completed pipe section would then be inspected, and any damaged areas would be repaired.

*Lowering-in and Backfilling*

After welding and coating are completed, the pipe section would be lifted off the temporary supports and lowered into the trench by side-boom tractors. Prior to lowering the pipe, the trench would be inspected to ensure that it is free of rocks and other debris that could damage the pipe or the coating, and the pipe and trench would be inspected to ensure that the pipe and trench configurations are compatible. In rocky areas, if the bottom is not smooth, a layer of soil may be placed on the bottom of the trench to protect the pipe. Foreign pipelines would typically be crossed by installing the proposed pipeline under the foreign pipeline. Concrete-coated pipe would be used, if required, for negative buoyancy in saturated soils. Bladed equipment or backhoes would be used to push the excavated material back into the trench. No construction debris, including wooden supports, welding rods, containers, brush, trees, or refuse of any kind, would be permitted in the backfill. Where the previously excavated material contains large rocks or other materials that could damage the pipe or coating, clean fill or protective coating would be placed around the pipe prior to backfilling. Segregated topsoil would be placed after backfilling the trench with subsoil. Following backfilling in open land or specified areas, a small crown of material would be left over the pipeline to allow for any future soil settling that might occur. In upland areas, excess soil would be distributed evenly on the right-of-way, while maintaining pre-construction contours.

*Hydrostatic Testing*

After backfilling, the pipeline would be hydrostatically tested in accordance with DOT Office of Pipeline Safety requirements identified in 49 CFR Part 192. Prior to being placed into service, test segments of the pipeline would be capped and filled with water, and the water would be pressurized and held for a minimum of 8 hours. If a leak or break in the line were to occur during testing, that section of pipeline would be repaired and retested until DOT specifications are met.

Upon completion of the test in one segment of pipe, the water may be pumped to the next pipe segment for testing or discharged. After testing is completed, the test water would be discharged through an energy-dissipating device and returned to the original source or as otherwise directed in compliance with the NPDES Permit conditions. Test water would not be discharged directly into surface waters. Once a segment of pipe has been successfully tested and dried, the test cap and manifold would be removed and the pipe would be connected to the remainder of the pipeline. Hydrostatic test water for testing the pipes within the new Kosciusko Compressor Station and the pipe modifications within the existing Greenville Compressor Station would be obtained from nearby municipalities. Test water would contact only new pipe. No chemicals would be added to the test water, and no desiccant or chemical additives would be used to dry the pipe. Texas Gas would implement section VII of our Procedures regarding hydrostatic testing, as well as any specifications in individual state permit guidelines to minimize impacts related to water withdrawal and discharge. See section 4.3 for additional information about hydrostatic testing for the Project.

*Cleanup/Restoration*

Post-construction restoration activities would be performed in accordance with our Plan and Procedures. After the segment of pipe has been installed, backfilled, and successfully tested, the right-of-way, temporary extra workspaces, and other disturbed areas would be finish-graded to original contours and construction debris would be disposed of properly. Permanent soil stabilization efforts would include revegetation of all previously vegetated areas that were disturbed by construction. In agricultural areas, compacted subsoil would be disked, and the segregated topsoil would be returned to its original horizon. Temporary and permanent erosion and sediment control measures, including silt fencing, diversion terraces, and vegetation, would be installed at that time. Private and public property, such as fences, gates, driveways, and roads, would be restored to original or better condition.

Active cropland may be left unseeded at the request of the landowner if preparation of the ground for planting is imminent following construction. Pasture would be reseeded with a similar species or mixture. Residential and commercial lawns would be reseeded or sodded, depending upon the original grass variety. Shrubs and small trees on residential properties would be temporarily transplanted and replaced, where practicable and where allowed relative to the permanent right-of-way. Forested areas would be allowed to recover naturally, except that no trees would be allowed to grow within the 50-foot-wide permanent pipeline right-of-way in upland areas to facilitate pipeline inspections.

*Post-Construction Monitoring*

The revegetation success would be monitored by Texas Gas. Revegetation in non-agricultural areas would be considered successful if upon visual survey the density and cover of non-nuisance vegetation are similar in density and cover to adjacent undisturbed lands. In agricultural areas, revegetation would be considered successful if crop yields are similar to adjacent undisturbed portions of the same field. Texas Gas would utilize reseeding, fertilizing, and other measures until a cover equivalent to similar adjacent areas is achieved. Temporary and interim erosion control measures would be removed at that time.

#### 2.5.1.2 Special Construction Techniques

Areas where specialized construction techniques would be used include the crossings of agricultural areas, waterbodies, wetlands, roads/railroads, foreign pipelines, and residential or commercial/industrial areas. Texas Gas would use specialized construction techniques to cross one or a combination of several of these areas, as described below. Most waterbodies would be crossed using the open cut method. Most major and sensitive waterbodies would be crossed using the HDD method. See section 4.3 for further information about waterbody crossing methods and section 4.4 for further information about crossing wetlands. All waterbody and wetland crossings would be constructed in accordance with our Procedures.

*Agricultural Areas*

Topsoil would be conserved in actively cultivated and rotated cropland, improved pastureland, non-saturated wetlands, and residential areas. Topsoil would be conserved in pastures if requested by the landowner. A maximum of 12 inches of topsoil would be segregated in these areas, as well as in other areas at the specific request of the landowner or land management agency. The topsoil and subsoil would be temporarily stockpiled in separate windrows within the construction right-of-way, and the topsoil would not be allowed to mix with subsoil. Where the topsoil is less than 12 inches deep, the actual depth of the topsoil would be removed and segregated.

Rock would not be used as backfill in rotated or permanent cropland. The depth of the trench would vary with the diameter of the pipeline, but in all cases it would be sufficiently deep to allow for at least 3 feet of cover on top of the pipe. In actively or previously tilled land and pasture, Texas Gas would leave at least 4 feet of cover on top of the pipe. Texas Gas would consult with agricultural land owners or tenants to assess if additional depth of burial for the pipeline would be required due to certain agricultural practices such as deep tilling. If needed, Texas Gas would install the pipeline at greater depth.

Texas Gas would consult with landowners before performing construction through rice fields to time construction so as to cause the least interference with flooding of these areas. Texas Gas also would request landowners not to flood the fields through which construction is planned. This would allow sufficient time for the fields to dry so that Texas Gas would be able to use conventional construction methods through them. Texas Gas states that any irrigation ditches that are dry at the time of construction would be open cut, then repaired to the satisfaction of the landowner. Any irrigation ditches that have water flowing at the time of construction would be flumed to maintain water flow when they are crossed. After construction activities are completed, all levees, ditches, contours, and grade would be repaired and/or restored to original condition.

Texas Gas states it would compensate landowners for crop loss when the land is out of production during construction and for a time following restoration according to individual agreements. Also, Texas Gas would enter into specific agreements with landowners with precision-leveled fields. These agreements would specify that the landowner would be compensated to restore these fields following construction.

*Waterbodies*

Texas Gas would use one of four methods to cross waterbodies along the proposed pipeline route: conventional open-cut, flume, dam-and-pump, or HDD. Texas Gas anticipates using the open-cut method for all ephemeral and intermittent waterbodies and most perennial waterbodies, unless precluded by engineering considerations or environmental sensitivities and associated regulatory requirements.

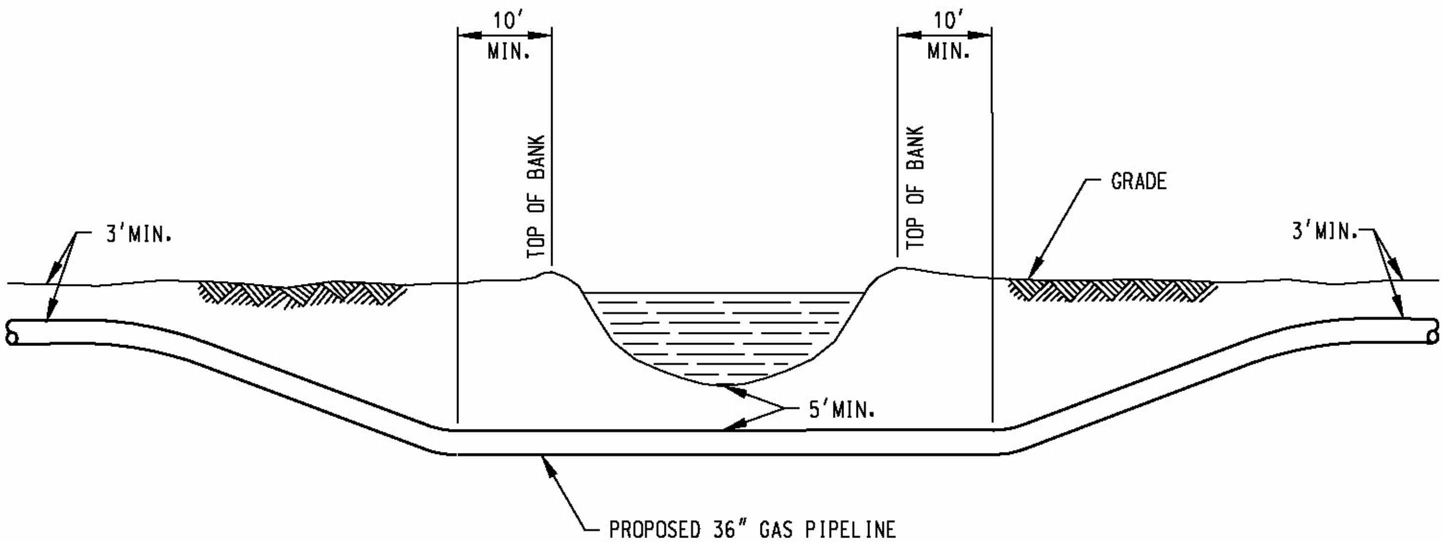
For certain environmentally sensitive crossings and for some minor (10 feet wide or less) and smaller intermediate (10 to 100 feet wide) crossings, the dam-and-pump or flume dry waterbody crossing methods rather than the conventional open-cut method may be feasible. These methods isolate the construction workspaces from the water flow, provide for continuous flow, and minimize downstream sedimentation and turbidity. Texas Gas anticipates using the HDD method at selected major (greater than 100 feet wide) waterbodies and other locations where environmental concerns favor the use of this technique.

Figure 2.5.1-2 shows a cross-section of a typical waterbody crossing. A description of each waterbody crossing method is provided below.

Following construction, waterbodies would be restored in a manner consistent with our Procedures. For open-cut crossings, waterbody banks would be stabilized and temporary sediment barriers would be installed within 24 hours of completing in-stream construction activities. For dry-ditch crossings, streambed and bank stabilization would be completed before returning flow to the waterbody channel. All waterbody banks would be returned to preconstruction contours or to a stable angle of repose. All disturbed riparian areas would be revegetated with conservation grasses and legumes or native plant species, preferably woody species. Permanent slope breaker(s) would be installed across the construction right-of-way at the base of slopes greater than 5 percent that are less than 50 feet from the waterbody, or as needed to prevent sediment transport into the waterbody.

**Conventional Open-Cut Method.** The open-cut crossing method is proposed for intermediate crossings, unless HDD is used. The open-cut crossing method also is proposed for some major waterbodies.

Open cut waterbody crossings would involve excavation of the pipeline trench across the waterbody, installation of the pipeline, and backfilling of the trench with no effort to isolate stream flow from construction activities. Excavation and backfilling of the trench would be accomplished using backhoes or other excavation equipment working from the banks of the waterbody. Where there are potentially saturated wetlands along the banks, the excavator and other heavy equipment would operate off timber mats to provide stability and prevent damage to the adjacent wetland where practicable. Trench spoil would be stored on the bank of the waterbody above the high-water mark, at least 10 feet from the water's edge (topographic conditions permitting), for use as backfill. A prefabricated segment of pipeline would be laid horizontally across the bed of the waterbody and continue at least 10 feet past the high banks on each side of the waterbody before raising in elevation to the normal trench level. The pipeline may be weighted with concrete weights, screw anchors, and/or concrete coating in order to obtain sufficient negative buoyancy. The trench would then be backfilled, the bottom and banks of the waterbody would be restored and stabilized, and all foreign objects would be removed from the waterbody. Ditch plugs of crushed stone, sandbags, or dry soil also may be used to keep backfill from sloughing in toward the center of the stream. Sediment barriers such as silt fencing, staked straw bales, and trench plugs would be installed to prevent spoil and sediment-laden water from entering the waterbody.




TYPICAL WATERBODY CROSSING

NOT TO SCALE

Figure 2.5.1-2
**Fayetteville/Greenville Expansion Project**
Typical Waterbody Crossing

**Flume Method.** A flumed or dry crossing of a waterbody involves redirecting stream flow through a flume pipe or pipes at the crossing. This allows for trenching, pipe installation, and restoration in relatively dry conditions while maintaining continuous downstream flow. For this method to be used successfully and safely, soil characteristics must be very stable and stream flow should be low to moderate. The flume pipe(s) must be long enough to accommodate a potential increase in trench width due to sloughing during excavation. Ideally, the flume pipe(s) extends from the inlet side of the equipment crossing to the opposite side of the construction right-of-way. An effective seal is created around the flume pipe(s) so that water cannot penetrate and possibly wash out channelized dams on both the inlet and outlet ends. The flume would not be removed until the pipeline has been installed and the stream and banks have been restored. Figure 2.5.1-3 shows a typical flumed waterbody crossing.

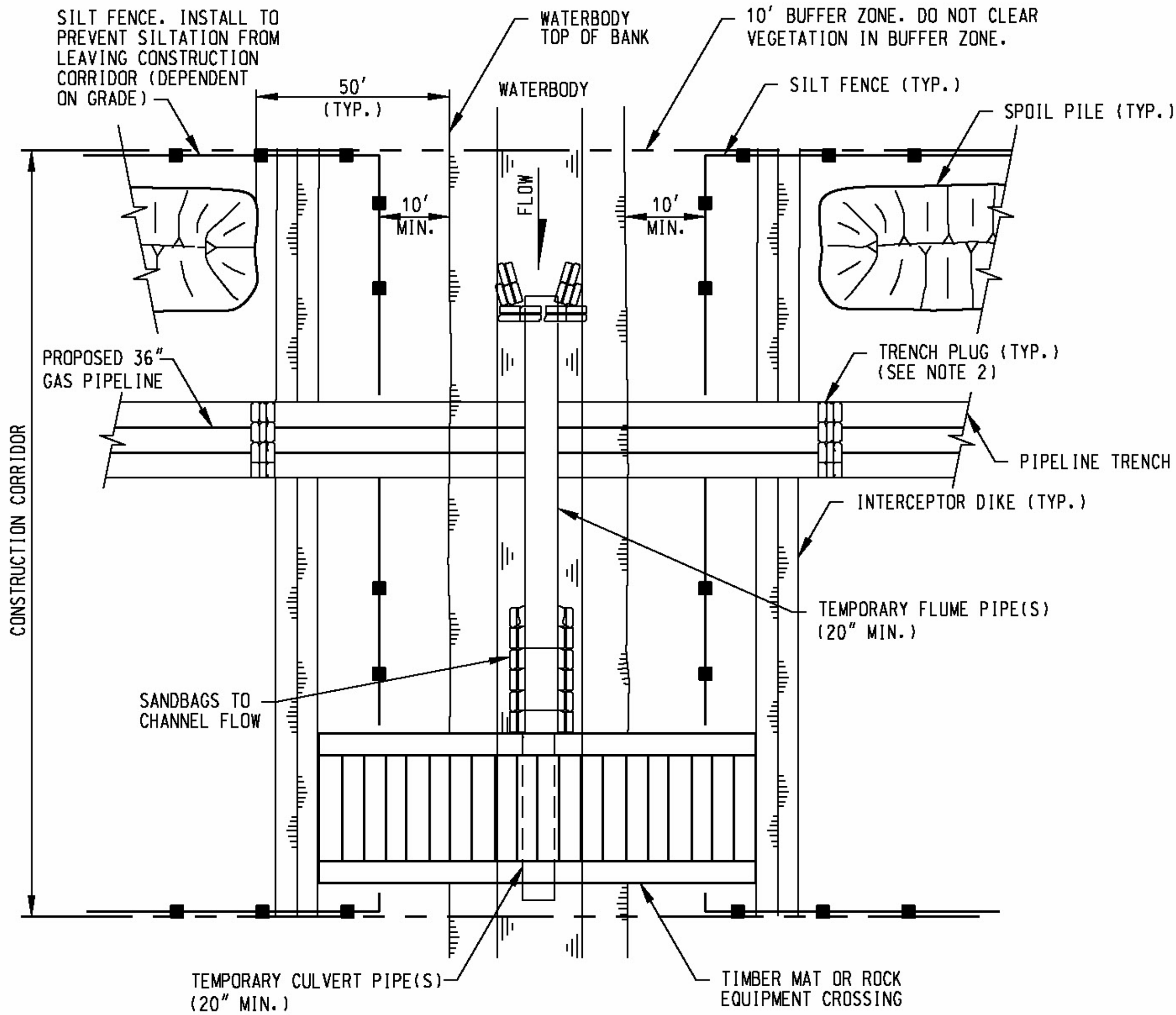
**Dam-and-Pump Method.** The dam-and-pump method is an "isolated" crossing technique that maintains waterbody flows during in-stream activities. Initially, a dam would be created upstream of the crossing and the water then re-rerouted over upland surfaces (using a pump and hose) to the downstream side of the crossing. If a sudden increase in stream flow occurs during the crossing, the flume method would be used as an alternative to maintain flow and keep the crossing dry. Once the waterbody crossing site is dry, the trench would be excavated, including any upland plugs, and the pipe would be bent, welded, and then lowered into the trench. The crossing pipe would then be tied into the upland construction, and water flow would be restored. The construction is considered "isolated" because the actual waterbody crossing and the upland construction may occur at different times. If the upland construction occurs first, the upland pipe would be installed in the trench with temporary end caps in place and a hard earth plug left between the upland work completed and the work to be done for the waterbody crossing.

**HDD Method.** The HDD method is a trenchless installation process by which pipeline is installed beneath obstacles or sensitive resources by using equipment and techniques derived from the oil well drilling industry.

Figure 2.5.1-4 shows a typical HDD waterbody crossing. The primary advantage of the HDD method is that there is minimal disturbance of the ground surface between the entry and exit points of the HDD, provided there is reasonable access to the entry and exit points for the drilling rig, reaming pipe, and fluids handling equipment. The length of pipeline that can be installed by HDD depends upon subsurface conditions (geology) and pipe diameter, and is limited by available technology and equipment sizes.

For most HDD crossings, electric-grid guide wires would be hand-laid along the edges of the 150-foot-wide pipeline right-of-way to help guide the drill bit along the predetermined HDD route. In thickly vegetated areas, 2- to 3-foot-wide corridors may be cut using hand tools to lay these electric-grid guide wires, resulting in minimal ground and vegetation disturbance. No large-diameter vegetation would be cut to accomplish guide wire installation. Following guide wire installation, an HDD rig would be set up and a small-diameter pilot hole would be drilled along a prescribed profile.

An HDD crossing is a multi-stage process that consists of establishing a small-diameter pilot hole along a crossing profile, followed by enlargement of the pilot hole (reaming) to accommodate pullback of the pipeline. The pilot hole is drilled using rotation cutting and/or jetting with a jetting assembly attached to drill pipe. The cutting action of the drill head is remotely operated to control its orientation and direction. The position of the drill string is electronically monitored, and directional corrections are made as necessary to ensure that the drill string maintains the desired alignment.

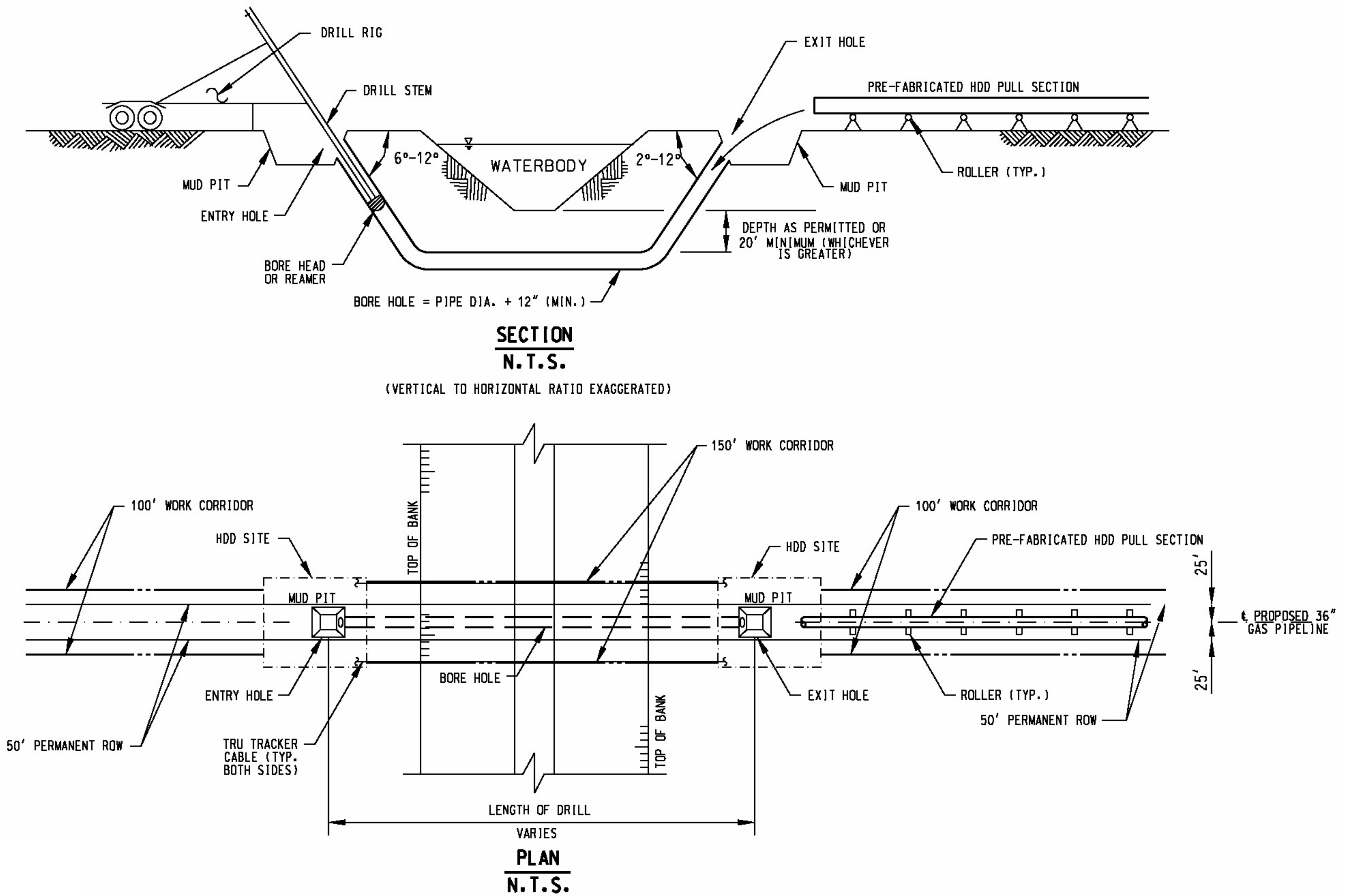



1. SILT FENCE AND INTERCEPTOR DIKE TO BE REMOVED ACROSS PIPELINE TRENCH DURING CONSTRUCTION OF PIPELINE. SILT FENCE AND INTERCEPTOR DIKES TO BE REPLACED AFTER BACKFILL OF TRENCH.

2. USE HARD OR SOFT PLUGS PRIOR TO PIPE INSTALLATION. INSTALL PERMANENT TRENCH PLUGS AFTER PIPE INSTALLATION AND PRIOR TO BACKFILLING PIPELINE TRENCH.

**NOT TO SCALE**

Figure 2.5.1-3
**Fayetteville/Greenville Expansion Project**
Waterbody Crossing,
Flumed Crossing Method




**NOT TO SCALE**

Figure 2.5.1-4
**Fayetteville/Greenville Expansion Project**
Typical HDD Waterbody Crossing

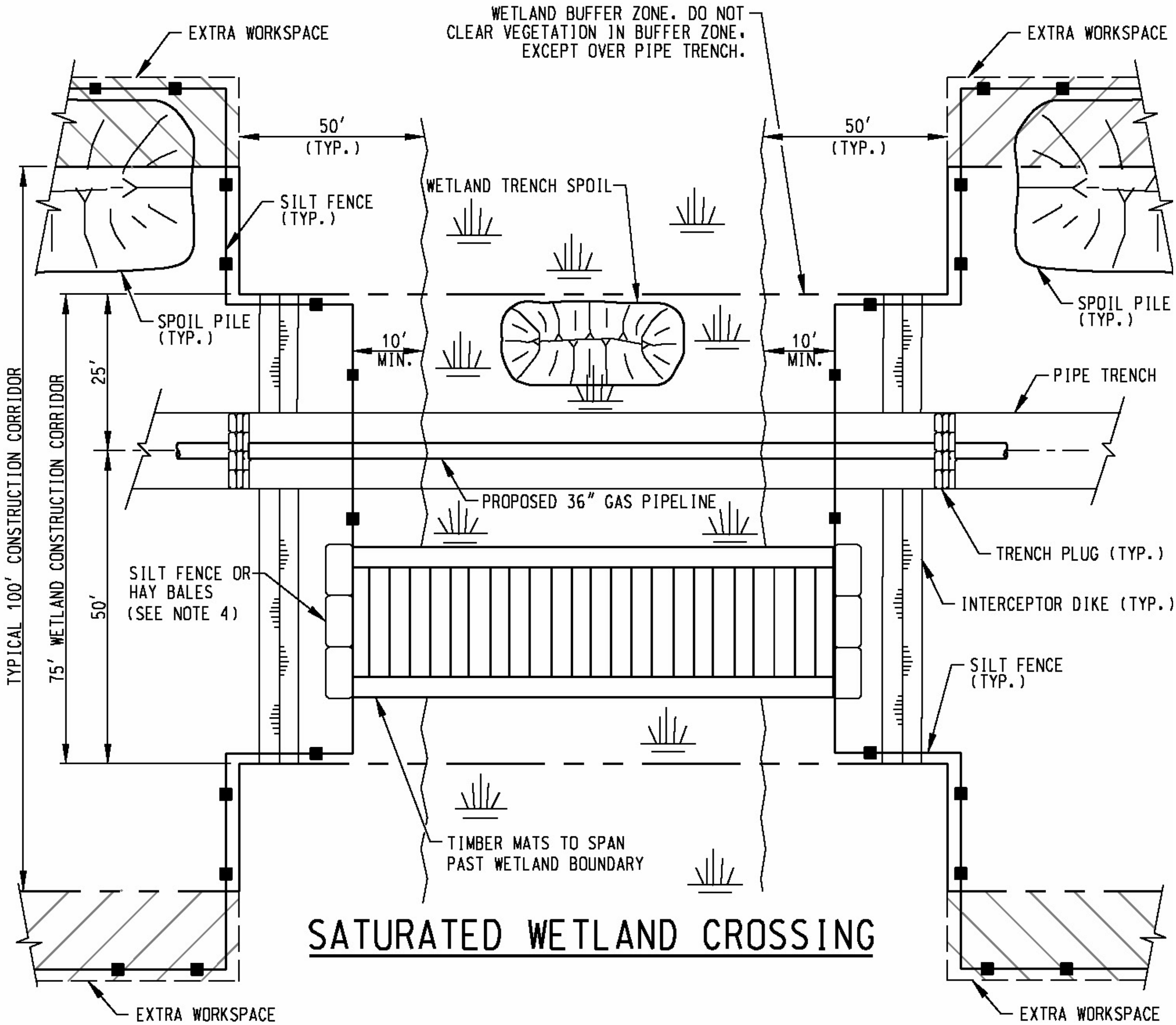
Enlarging the pilot hole is an incremental process accomplished with multiple reaming passes, depending on the pipeline diameter and subsurface geology, to increase the hole diameter. Upon successful completion of the reaming operation, a cylinder-shaped swab is pulled through the hole to ensure the integrity of the completed hole and prepare for pullback of the pipe. The pre-assembled, hydrostatically tested section of pipeline is then pulled into the completed hole. Bentonite drilling fluid is delivered to the cutting head through the drill string to provide the hydraulic cutting action, lubricate the drill bit, help stabilize the hole, and remove cutting spoil as the drilling fluid is returned to the entry point. Drilling fluid is again used during the reaming process to remove cutting spoil. Drilling fluid circulated through the bore hole during the pilot hole drilling and reaming process is collected at the surface and processed to remove spoils, allowing the fluid to be reused. Excess spoils and drilling fluid are treated for disposal and disposed of at an approved location in accordance with regulatory requirements, agreements, and permit conditions. The proposed HDD drilling fluid would consist of water and bentonite. Bentonite is a mixture of non-toxic clays and rock particles consisting of about 85 percent montmorillinite clay, 10 percent quartz and feldspars, and 5 percent accessory materials such as calcite and gypsum.

A successful HDD operation would result in little or no impact on the waterbody being crossed. The HDD method is not without risk, however, as inadvertent drilling fluid releases could result if the fluid escapes containment at pits that would be excavated at the HDD entrance and exit points, or if a “frac-out” occurs. A frac-out occurs when drilling fluids escape the drill bore hole and are forced through the subsurface substrate to the ground surface. Frac-outs occur most often in highly permeable soils during the entrance and exit phases of drilling the pilot hole, as this is when the greatest pressures are exerted on the bore walls in shallow soils. Drilling fluid pressures in the bore hole and drilling fluid pumping and return flow rates would be monitored to detect the potential occurrence of a frac-out. If survey and monitoring procedures indicate that a frac-out may have occurred, Texas Gas would implement the corrective measures specified in its HDD plan to determine a course of action, including modification of drilling fluid parameters or complete suspension of drilling operations. These corrective measures would be implemented to minimize or prevent further releases. Any released drilling fluids would be contained, clean-up procedures would commence, and the appropriate agencies would be notified. Additional information about the potential impacts of this method of construction on waterbodies and wetlands is provided in sections 4.3 and 4.4.

*Wetlands*

The construction right-of-way width would be 75 feet in wetlands. Operation of construction equipment in wetlands would be limited to that needed to clear the right-of-way, dig the trench, fabricate the pipe, install the pipe, backfill the trench, and restore the right-of-way. Texas Gas would segregate the topsoil up to 1 foot in depth in unsaturated wetlands where hydrologic conditions permit this practice. Segregated topsoil would be placed in the trench following subsoil backfilling. Restoration and monitoring of wetland crossings would be conducted in accordance with our Procedures to help ensure successful wetland revegetation. Fuel would not be stored within wetlands. Figure 2.5.1-5 shows a typical saturated wetland crossing.

Wetland construction would be completed in accordance with all applicable permits and our Procedures. Site-specific conditions at the time of pipeline installation, including soil stability and soil saturation, would determine the specific crossing technique that would be used in each wetland.




## SATURATED WETLAND CROSSING

NOTES:

1. INSTALL PERMANENT INTERCEPTOR DIKES AT THE BASE OF ALL SLOPES ADJACENT TO THE WETLAND.
2. CONTRACTOR SHALL POSTPONE GRADING OF RIGHT-OF-WAY ADJACENT TO WETLAND UNTIL STAGING AREA IS PREPARED AND WORK IN THE WETLAND IS READY TO COMMENCE.
3. SILT FENCE OR HAY BALES SHALL BE PLACED IN THE GAP AT THE TIMBER MATS BY THE END OF EACH DAY OR PRIOR TO APPROACHING RAIN TO PREVENT SEDIMENT FLOW INTO WETLAND.
4. USE ADDITIONAL TIMBER MAT LAYERS TO RAISE CROSSING ABOVE GRADE WHERE POOR SOIL CONDITIONS EXIST.
5. SILT FENCE AND INTERCEPTOR DIKE TO BE REMOVED ACROSS PIPE TRENCH AND DURING CONSTRUCTION OF PIPELINE. SILT FENCE AND INTERCEPTOR DIKE TO BE REPLACED AFTER BACKFILL OF TRENCH.

**NOT TO SCALE**

Figure 2.5.1-5
**Fayetteville/Greenville Expansion Project**
Typical Saturated Wetland Crossing

**Conventional Lay Method.** Soils capable of supporting construction equipment would generally be crossed using conventional wetland construction methods. Conventional wetland construction is similar to upland construction, as described in section 2.5.1.1. In some areas, site-specific conditions may not support construction equipment proposed for conventional wetland construction; in these cases, construction mats would be used to minimize disturbances to wetland hydrology and maintain soil structure.

**Push/Float Method.** The push/float method of construction would be used in inundated lowland or saturated wetland areas where the soils and hydrology cannot support conventional pipe-laying equipment and where there are sufficient quantities of water to allow for pipe to be floated through the open ditch. The pipe trench would be excavated using low-ground-weight equipment, thus limiting the need for grubbing and grading activities over the trench line or, for safety reasons, on the working side of the right-of-way. The coated and weighted pipe would be welded together at a staging area. There, floats would be attached to the pipe to give it buoyancy in order to allow the welded pipe to then be pushed along the water-filled trench until the pipe string is in place. As necessary, "pulling" of the pipe may be required to move the pipeline along the trench. The floats would then be cut loose, allowing the pipe to sink to the bottom of the trench. The trench would then be backfilled. The push/float construction method minimizes the number of equipment passes, reducing wetland impacts and soil compaction. The staging areas for this type of wetland crossing, if needed, would be established within the construction corridor. Original surface hydrology would be re-established in wetlands by backfilling the pipe trench and grading the surface with backhoes or draglines operating from the board road, depending upon the water level, degree of soil saturation, and the bearing capacity of the soils. Segregated topsoil would be replaced in unsaturated wetlands. Roots and stumps would be removed only in the areas of the pipe trench, allowing existing vegetation to recover more rapidly in the remainder of the right-of-way once the board roads and spoil piles have been removed.

Texas Gas would work with the USACE, FWS, state and local agencies, and landowners to develop an acceptable wetland revegetation plan prior to commencement of construction. The permanent right-of-way in forested wetlands would be maintained in accordance with our Procedures, which require that the permanent right-of-way in forested wetlands be allowed to return to forest except for a 10-foot-wide herbaceous corridor centered over the pipeline and a 30-foot-wide corridor centered over the pipeline where trees greater than 15 feet may be selectively cut and removed.

**HDD Method.** The HDD method used to cross wetlands is the same as that used to cross waterbodies.

*Bored Crossings*

Some waterbodies, and all major highways and railroads would be bored. Boring involves pushing the pipe through a hole below the waterbody, road, or railroad. A bore pit is dug on one side of the crossing and a receiving pit is dug on the other side of the crossing, and both are excavated to a depth equal to the depth of the ditch (at least 5 feet below the road surface and 10 feet below the toe of a railroad embankment). The bore pit is then graded so that the bore is at the proper elevation for installation of the pipe. A boring machine is then lowered to the bottom of the bore pit and placed on supports. The machine cuts a shaft under the crossing using a cutting head mounted on an auger. The pipeline is then pushed through behind the auger.

*Roads and Railroads*

Construction of the pipeline across hard surfaced roads and railroads would typically be accomplished by boring through the road or railroad bed with a borehole on either side of the road or railroad bed providing a working area for the equipment (see above). Road crossings would be maintained continuously by using steel plates to cover the trench at the crossing or alternate access to minimize inconvenience to the public if they are open cut. The pipelines would cross 248 federally, state-, or locally maintained roads and 11 railroads. Installation of the pipeline under major paved highways and railroads, along which traffic cannot be interrupted, would be accomplished by boring or HDD.

Crossing most dirt or gravel roads would be accomplished by an open cut. Roads would then be restored to preconstruction conditions pursuant to the requirements of the permitting agency. Immediately following backfilling, Texas Gas would restore the road surface by topping the disturbed area with dense, graded aggregate limestone and a top layer matching the existing roadway. If an open-cut for a road crossing requires extensive time, provisions would be made for temporary detours or other measures to allow safe traffic flow during construction. All road and railroad crossings would be installed in compliance with applicable permits and approvals. Appropriate safety measures such as flag persons, signs, barricades, guardrails, and signals would be placed by the contractor.

Where pipe installation requires a casing, the pipe would be supported on each end of the casing, a vent would be installed on each end, and the resistance of the pipe to the casing tested for electrical shorts. Existing underground utilities would be protected and normally given a clearance of 24 inches, but with a minimum of 12 inches clearance between the gas pipeline and the other utilities. Casings would be installed only where specifically required by road/railroad authorities. All road and railroad crossings would be installed in compliance with applicable permits and approvals.

*Residential Areas*

Where residences would be within 50 feet of the construction work area, Texas Gas would reduce pipeline offset or construction workspaces to minimize inconvenience to property owners where practicable. If construction requires the removal of private property features such as gates or fences, the landowner or tenant would be notified prior to the action. Following completion of construction, the property would be restored as requested by the landowner insofar as the landowner's requirements are compatible with Texas Gas's standards regarding right-of-way restoration and maintenance.

- In areas where construction would affect residential property, Texas Gas would implement the following construction techniques. Texas Gas would notify the landowner(s) prior to construction and arrange work hours to take landowner needs into consideration. Dust minimization techniques would be used on site, and all litter and debris would be removed daily from the construction work area. During construction, the edge of the construction work area would be safety fenced for a distance of 100 feet on either side of the residence to ensure that construction equipment and materials, including spoil piles, remain within the construction work area. Mature trees and landscaping would be preserved to the extent practicable while ensuring the safe operation of construction equipment. Where residences are less than 25 feet from the construction work area, the pipe section would be welded, inspected, and welds coated prior to any trench excavation. The trench would not be excavated until the pipe is ready for installation, and the trench would be backfilled immediately after pipe installation. Every effort would be made to excavate the trench, lower the pipeline, make tie-ins, and backfill the trench in one day. Immediately after backfilling the trench, all lawn areas and landscaping within the construction work area would be restored. Site-specific construction drawings depicting the temporary and permanent rights-of-way and noting special construction techniques would be prepared.

*Commercial/Industrial Areas*

Impacts on commercial and industrial areas would be limited to the construction and post-construction restoration periods, when construction activities can inconvenience business owners, employees, and customers. Texas Gas would maintain close coordination with business owners to maintain access, decrease construction duration, and generally minimize impacts.

*Foreign Pipeline Crossings*

The proposed Project is located in an active oil and gas producing area. In particular, the Fayetteville Lateral would be constructed in an area where there is active drilling and construction of gathering pipelines. As a result, the Project pipeline would cross numerous foreign pipelines. The Texas Gas pipelines would be installed under most existing foreign pipelines at an appropriate depth to meet DOT soil cover and separation requirements. Extra workspace would be required at foreign pipeline crossings to accommodate the increased excavation depths and avoid placing the spoil or construction equipment over the existing pipelines for safety reasons. Texas Gas would notify the owners/operators of foreign pipelines when construction activities are near these pipelines.

### 2.5.2 Aboveground Facilities

Construction of aboveground facilities would involve typical industrial facility construction procedures. Construction activities and storage of construction materials and equipment would be confined to the facility footprint. Following the initial earth work, excavation would be completed as needed for the concrete foundations for the metering equipment and any buildings. Subsurface friction piles may be required to support foundations, depending upon the bearing capacity of the existing soils and the equipment loads. Forms would be set, rebar installed, and the concrete poured and cured in accordance with applicable industry standards. Backfill would be compacted in place, and excess soil would be used elsewhere or distributed around the site to improve grade.

The metering equipment and other materials would be delivered to the site by truck, off-loaded using cranes and/or front-end loaders, positioned on the foundations, leveled, grouted where necessary, and secured with anchor bolts. All components in high-pressure natural gas service would be hydrostatically tested, and all controls and safety equipment and systems, including emergency shutdown systems, relief valves, and gas and fire detection equipment would be checked and tested before being placed in service. Following completion of construction, each site would be fenced and most areas in and around the meters and associated piping and equipment would be covered with crushed rock (or equivalent). Permanent roads and parking areas may be surfaced with crushed rock, concrete, or asphalt. Other ground surfaces, including adjacent areas outside the fence that would surround the facility, would be restored, seeded, and revegetated.

## 2.6 OPERATION AND MAINTENANCE PROCEDURES

### 2.6.1 Pipeline Facilities

Texas Gas would operate and maintain the proposed pipeline and aboveground facilities in compliance with DOT regulations provided at 49 CFR 192, FERC's regulations at 18 CFR 380.15, and the maintenance provisions of our Plan and Procedures.

A locally based, full-time staff would be assigned to operate and maintain the pipeline. Maintenance activities would include monitoring, inspection, and repair of the right-of-way, and cleaning of the pipeline. Periodic aerial and ground inspections by pipeline personnel would be performed to identify (1) soil erosion that may expose the pipe, (2) dead vegetation that may indicate a leak in the line, (3) unauthorized encroachment on the right-of-way such as by buildings, (4) areas requiring revegetation or repair of erosion control measures, and (5) other conditions that could present a safety hazard or require preventive maintenance or repairs. The pipeline cathodic protection system also would be monitored and inspected periodically to ensure proper and adequate corrosion protection. The pipeline has been designed to use “smart pig” inspection technology.

Texas Gas would maintain vegetation on the permanent right-of-way in upland areas by mowing, cutting, and trimming. Large brush and trees would be removed periodically from within the operational right-of-way. Trees greater than 15 feet in height or deep-rooted shrubs that could damage the pipeline’s protective coating, obscure periodic surveillance, or interfere with potential repairs would not be allowed to grow within 15 feet of the pipeline in wetlands or within 25 feet of the pipeline in uplands. The frequency of vegetation maintenance would depend upon the growth rates but would not be more frequent than dictated by our Plan and Procedures. Vegetation maintenance would not normally be required in agricultural or grazing areas. Other than preventing wetland tree growth as described above, vegetation maintenance would not normally be required in wetlands.

The pipelines would be clearly marked at line-of-sight intervals and at crossings of roads, railroads, waterbodies, and other key points in accordance with DOT regulations. 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. Texas Gas would participate in the Arkansas and Mississippi One-Call systems.

### 2.6.2 Compressor Station and Other Aboveground Facilities

Compressor station crews would perform operation and maintenance of all equipment. Station personnel would perform routine checks of the facilities, including calibration of equipment and instrumentation, inspection of critical components, and scheduled and routine maintenance of equipment. Safety equipment such as pressure relief devices, fire detection and suppression systems, and gas detection systems would be tested for proper operation. Corrective actions would be taken for any identified problem.

The stations would be equipped with combustible gas and fire detection alarm systems and an emergency shutdown system. The gas detection system would send an alarm upon detection of 25 percent of the lower explosive limit of natural gas in air. Automatic emergency shutdown of the compressor, evacuation or venting of gas from the station piping, and isolation of the station from the main pipeline would occur following a fire detection alarm or the detection of 50 percent of the lower explosive limit inside the station. The compressor station also would be equipped with relief valves or pressure protection devices to protect the station piping from over-pressurization if station or unit control systems fail. A telemetry system would notify local personnel and personnel at the gas control headquarters in Owensboro, Kentucky, of the activation of safety systems and alarms, who would in turn instruct maintenance personnel to investigate and take proper corrective actions.

Routine operation and maintenance also would be performed at all other aboveground facilities by qualified personnel. Safety equipment such as pressure relief devices, fire detection and suppression systems, and gas detection systems would be maintained throughout the life of each facility. Mainline valves also would be inspected, serviced, and tested to ensure proper functioning.

## 2.7 SAFETY CONTROLS

### 2.7.1 Pipeline

The pipeline would be constructed, operated, and maintained in accordance with all applicable federal, state, and local laws and regulations, including but not limited to the DOT regulations in 49 CFR Part 192.

#### 2.7.1.1 Cathodic Protection

To protect the pipeline from corrosion, cathodic protection would be provided by an impressed current system supplemented, where necessary, by sacrificial magnesium anodes. An epoxy coating to protect the pipe against corrosion would be applied to all buried facilities, and all aboveground facilities would be primed and painted. Cathodic protection units would be monitored regularly to maintain required pipe-to-soil potential in accordance with the specifications set forth by DOT regulations.

#### 2.7.1.2 Emergency Response Procedures

Pipeline system emergencies can include gas leaks, fire or explosion, and/or damage to the pipeline and aboveground facilities. In accordance with DOT regulations, Texas Gas would develop a plan that would address procedures to be followed in the event of a pipeline emergency. This plan would include training of employees in emergency procedures; establishing liaison with appropriate fire, police, and other community officials; and informing the public about how to identify and report an emergency condition along the pipeline route.

## 2.8 FUTURE PLANS AND ABANDONMENT

At this time, Texas Gas has no plans to expand or abandon any of the pipeline system. However, as market conditions evolve, Texas Gas may investigate pipeline expansion opportunities. Expansion or abandonment of the pipeline system and associated facilities would be subject to appropriate FERC authorization and environmental analysis in accordance with applicable federal, state, and local regulations in effect at that time.

# 3.0 ALTERNATIVES

As required by the NEPA, we have evaluated several alternatives to the proposed Fayetteville/Greenville Expansion Project to determine whether they would be reasonable and environmentally preferable to the proposed action. Our analysis of alternatives includes alternatives proposed by other federal and state resource agencies as well as those proposed by the general public. Our analysis also considers the environmental differences resulting from each alternative compared to the corresponding portion of the proposed Project and the alternative's ability to achieve the proposed Project's purpose.

We considered the No-Action Alternative and Postponed-Action Alternative, the effects of energy conservation, alternative energy sources, system alternatives, route alternatives, route variations, and aboveground facility siting alternatives. We also considered the potential impacts on environmental resources and land uses in our alternatives analysis and evaluated alternatives that would avoid or minimize impacts on them.

The following evaluation criteria were used to determine whether alternatives would be environmentally preferable:

- significant environmental advantage over the proposed Project,
- ability to meet the proposed Project's need and purpose, and
- technical feasibility.

## 3.1 NO-ACTION OR POSTPONED-ACTION ALTERNATIVE

The Commission has three alternative courses of action in processing an application. It may (1) deny the application, (2) delay approval of the application pending further study, or (3) approve the application with or without conditions.

If the Commission denies the proposal (i.e., selects the No-Action Alternative), the proposed Project would not be constructed. Selection of the No-Action Alternative would not meet the purpose and need for the proposed Project; thus, specific shipper needs would not be met. No additional transportation capacity would be provided for the substantial volumes of newly produced natural gas in north-central Arkansas, which would potentially prevent the production of additional gas supplies from these fields. On a broader scale, implementation of this alternative would not meet the stated national goal of increasing the production of stable and reliable natural gas supplies in the U.S. (The White House National Economic Council, February 2006). If adequate natural gas supplies are not available in the U.S., consumers would need to seek other sources of fuel, many of which are potentially more costly and could result in greater environmental impacts associated with combustion of other fuels. Natural gas shortages also would be possible, since natural gas demand in the U.S. is expected to continue to grow, while U.S. production is expected to continue to decline. Analysis by the DOE/EIA indicates that, in the lower 48 states, demand is expected to exceed supply by about 8 Tcf by 2010 (DOE/EIA, 2005). Electric power generation is expected to become the largest individual component of the growth of natural gas consumption (U.S. Natural Gas Markets, 2001).

If the No-Action Alternative is selected, the impacts of constructing and operating the proposed Project would be avoided. However, if this Project is not implemented, other projects and activities would be needed, and these projects would result in their own environmental impacts. In addition, the beneficial impacts of implementing the proposed Project would not occur, including increased employment, income, and tax revenues. The No-Action Alternative was rejected for these reasons.

A delay in approval (the Postponed-Action Alternative) would only defer any construction-related environmental impacts to the future. Other gas transportation projects would still be required to meet the demand for natural gas and to transport the new Fayetteville Shale natural gas production. Reduction in available supply could result in higher natural gas prices, potentially causing switching to less environmentally benign sources of fuel or the curtailment of economic growth. Delay in approval would not meet the stated purpose of the Project to develop an interstate transportation infrastructure for an additional 853 MMcf/d of natural gas from north-central Arkansas to consumer markets served by Texas Gas, Trunkline, Columbia Gulf, ANR, Tennessee, and Texas Eastern.

*Energy Conservation Alternatives*

An increase in the scope of energy conservation measures employed throughout the market area that would be served by the proposed Project could also potentially decrease or slow the amount of increase in the nation's energy demand. However, as noted in section 1.1, energy demand in the United States has been increasing steadily, with total energy consumption in the United States estimated to increase from 100.2 quadrillion Btu per year in 2005 to 131.2 quadrillion Btu per year in 2030 (DOE/EIA, 2007). Natural gas usage will represent about 22 percent of all energy consumption in the United States by 2025. To maintain pace with growing energy demands, the EIA anticipates that consumption of natural gas in the United States will grow from 22.4 Tcf per year in 2005 to 26.1 Tcf by 2030. The growth in natural gas demand is being driven primarily by increased use of natural gas for electricity generation and industrial applications. Given the anticipated increases of energy consumption over the next 20 years, it is unlikely that voluntary energy conservation measures would be sufficient to offset increasing demand in general or affect the need for the proposed Project in particular.

*Other Energy Alternatives*

Other energy sources could be used as short-term and long-term alternatives to the use of natural gas. In general, alternative energy sources include coal, oil, nuclear, hydropower, solar, wind, biofuels, and geothermal. Most of these alternative energy sources are suitable for electric power generation, but are either not suitable or are less suitable for residential heating and some industrial processes.

Coal is an available fuel alternative for power generation. However, coal combustion results in higher air emissions than natural gas combustion on an equivalent basis. In addition, coal mining and coal transportation result in environmental impacts. The use of oil (fuel oil) for power generation also results in greater air emissions than natural gas. When combusted, natural gas generates 34 percent to 52 percent less carbon dioxide ($CO_2$) than other fuels such as oil or coal. Other emissions generated by the combustion of natural gas also are significantly lower than those from oil or coal combustion, including sulfur oxides ($SO_X$) and nitrogen oxides ($NO_X$). Other impacts resulting from the use of oil as a fuel are associated with processing and transporting supplies (Interstate Natural Gas Association of America [INGAA], 2004). These impacts include potential spills and the impacts of constructing and operating facilities such as refineries and terminals associated with increased use of crude oil.

Using nuclear energy for power generation is a potential alternative, although the political, social, and regulatory issues associated with the safety and waste management considerations of this technology are very substantial and prevent this alternative from being viable, at least in the short and medium term. Hydropower is a viable power generation alternative in some geographic areas, but there is not sufficient generation capacity in most geographic areas to allow this technology to provide the required levels of power generation. In addition, use of this technology results in some environmental impacts. It is important to note that there is no projected national growth in the supplies of nuclear and hydropower in the United States (DOE/EIA, 2004). Though efficiency upgrades at existing hydropower facilities are expected to produce incremental additions of power production in the coming years, it is unlikely that new and/or significant sources of hydropower would be permitted and brought on-line as reliable energy source alternatives to the proposed Project.

Federal, state, and local initiatives will likely contribute to an increase in the availability and cost effectiveness of non-hydropower renewable energy sources such as wind, solar, tidal, geothermal, and biomass. For example, state and local initiatives have increased the availability of wind power-derived energy to local consumers in Texas (Texas Renewable Energy Industries Association, 2006), and renewable energy is playing a larger role in the Mid-Atlantic and Northeast regions of the United States (CSC, 2004; NYSERDA, 1999). Still, the percentage of electricity generated from non-hydropower renewable energy sources at the national level is projected to increase to only 3.2 percent by 2025 (DOE/EIA, 2006a), which would offset only a small portion of the projected national energy demands; therefore, we believe that these other energy sources would not be able to meet the overall objectives of the proposed Project and as a result are not preferable to the proposed action.

## 3.2 PIPELINE SYSTEM ALTERNATIVES

System alternatives are alternatives to the proposed action that would make use of existing, modified, or proposed pipeline systems to meet the stated objectives of the proposed Project. Implementation of a system alternative would make it unnecessary to construct the proposed Project, although some modifications or additions to existing or proposed pipeline systems may be required to meet the objectives of the proposed Project. Modifications or additions to existing or proposed pipeline systems would result in environmental impacts that may be less than, similar to, or greater than those associated with construction and operation of the proposed Project. The purpose of identifying and evaluating system alternatives is to determine whether the environmental impacts associated with construction and operation of the proposed Project would be avoided or reduced by using existing, modified, or proposed pipeline systems.

Our analysis of pipeline system alternatives included examination of the use of existing and proposed pipeline systems to meet the need and purpose of the proposed Project.

### 3.2.1 Existing Pipeline Systems

*Fayetteville Lateral*

Texas Gas has no existing pipelines in the Project area that could be used "as is" or modified to meet the purpose and need of the proposed Project. Other pipeline systems that are located in the general Project area include CenterPoint, Texas Eastern, Natural Gas Pipeline Company of America (NGPL), Mississippi River Transmission (MRT), and Ozark (see figure 3.2-1). CenterPoint has an existing 20-inch-diameter natural gas pipeline (Line JM-1) that originates near Bald Knob, Arkansas, and follows a southeasterly path to the Mississippi River, where it terminates near Helena, Arkansas. This pipeline is operating at or near capacity and does not have capacity to transport the proposed large volume of natural gas from the Fayetteville Shale production as proposed, even if additional compression was added to its system. Looping[1] CenterPoint's Line JM-1 would result in impacts similar to those of the proposed Project. A pipeline lateral from the Fayetteville Shale natural gas production area to the "CenterPoint loop" also would need to be constructed since the purpose of the proposed Project is to connect this developing gas

1 Looping is constructing a new segment, or loop, of pipeline immediately adjacent to an existing pipeline. Both ends of the loop tie into the existing pipeline.

production area to existing natural gas transportation systems, and in particular to connect it to the existing pipeline systems near Bald Knob. CenterPoint has no plans to construct a loop of Line JM-1.

None of the other existing pipeline systems near the proposed Fayetteville Lateral project area would meet the purpose of the proposed Project, unless pipelines such as the proposed Fayetteville Lateral are constructed. Any such project would likely have environmental impacts that are similar to those of the proposed Fayetteville Lateral.

*Greenville Lateral*

There are no existing pipelines that could connect Texas Gas's mainline with the existing pipelines in the Kosciusko area. In order to achieve Texas Gas's purpose and need for transfer of natural gas to markets in the southeastern United States, pipeline construction would be required if the proposed Greenville Lateral is not constructed. We found that no other interstate pipeline systems in the region could serve Texas Gas's customers without having to construct additional facilities that would result in environmental impacts similar to or greater than those of the proposed Project.

### 3.2.2 Other Proposed Pipeline Systems

*East End Expansion Project*

Ozark proposes constructing and operating the East End Expansion Project (Docket No. PF-06-34-000)[2]. The East End Expansion Project would include about 180 miles of 36-inch-diameter pipeline beginning in Conway County, Arkansas, at the proposed new 10,000-hp Wonderview Compressor Station. It would extend eastward along its existing 20-inch-diameter pipeline right-of-way for about 58.5 miles and then along its existing 12-inch-diameter pipeline right-of-way for another 6.1 miles through Faulkner and White Counties, to a point near Searcy, Arkansas. At that point, it would divert eastward from its pipeline right-of-way onto new right-of-way to the proposed new 20,000-hp Searcy Compressor Station in White County. From the proposed Searcy Compressor Station, the East End Expansion Project pipeline would continue southeastward through Woodruff, Prairie, Monroe, Lee, and Phillips Counties, Arkansas, and Coahoma, Quitman, Panola, Lafayette, and Calhoun Counties, Mississippi, to a terminus near Banner, Calhoun County, Mississippi, on new pipeline right-of-way. The East End Expansion Project also would include an 8-mile-long, 24-inch-diameter pipeline (Noark Extension) from Ozark's existing 16-inch-diameter Noark Pipeline to the proposed Wonderview Compressor Station, all in Conway County. The East End Expansion Project would transport about 1,000 MMcf/d of natural gas from the new natural gas production areas to proposed new delivery points on existing pipeline systems of Texas Gas (in Coahoma County, Mississippi), ANR (in Panola County, Mississippi), and Trunkline (in Panola County, Mississippi).

However, the proposed East End Expansion Project pipeline route would not extend to the Bald Knob, White County, Arkansas, area where connections with many of the major existing pipeline systems could be made, and where Texas Gas's anchor shipper, Southwestern, has requested delivery. Texas Gas is proposing to tie-in to NGPL (MP 64.1), MRT (MP 65.6), and Texas Eastern (MP 65.9) in the Bald Knob area; and is also proposing other tie-ins, including a tie-in to its existing pipeline system in Coahoma County, Mississippi, at MP 166.2. While the East End Expansion Project would have interconnections with other interstate pipeline systems in Mississippi, including Texas Gas's pipeline system (East End Expansion Project MP 160.0), these interconnections are about 100 miles east of Bald Knob. The two

[2] The East End Project is still in pre-filing; the NOI for it was issued on December 4, 2006. The status of this project will be updated in late 2007. The initially proposed in-service date of December 2008 is likely no longer achievable since Ozark has not yet filed its certificate application with the FERC.

proposed project pipelines would be collocated for the first 37 miles of the proposed Fayetteville Lateral, and also would be collocated with an existing Ozark pipeline right-of-way. Different in-service dates would likely prevent these two projects from being constructed simultaneously.

*Texas Gas System Alternative for Ozark's East End Expansion Project*

We evaluated increasing the capacity of the proposed Project so that it could also carry the proposed volumes of gas of the East End Expansion Project. The approximate additional facilities that would be required to provide an additional 1,000 MMcf/d of transportation capacity on the Fayetteville and Greenville Laterals would require construction of the Fayetteville Lateral and the construction of a 36-inch-diameter pipeline loop of the entire Fayetteville Lateral plus portions of the proposed East End Expansion Project west and east of the proposed termini of the Fayetteville Lateral, about 30 miles of 36-inch-diameter pipeline loop of the Greenville Lateral, installation of a new compressor station near Bald Knob, and the addition of more compression to the existing Greenville Compressor Station in Greenville, Mississippi.

Looping the entire 166.2-mile-long Fayetteville Lateral would mean that two 36-inch-diameter pipelines would be installed next to each other for their entire length. This would increase the proposed construction right-of-way width for about 166.2 miles from 100 feet to 150 feet, and would increase the permanent right-of-way width from 50 feet to 75 feet to allow for a 25-foot-wide offset between the pipelines that would be needed for safe operation should either pipeline require maintenance. Land requirements for construction along the Fayetteville Lateral route would increase by about 1,007 acres and permanent land requirements for operation would increase by about 505 acres. Plus, the segments of the East End Expansion Project that would be constructed west of the western terminus of the Fayetteville Lateral (west of MP 0.0) and east of the eastern terminus of the Fayetteville Lateral (east of MP 166.2) would also need to be constructed as would Ozark's proposed Noark Lateral so that natural gas receipts and deliveries for the Ozark shippers could occur as well. This would add about 13.7, 20, and 8 miles, respectively of pipeline construction. Assuming a 100-foot-wide construction right-of-way, about 506 and 253 acres would be added to the land requirements for construction and operation, respectively. This would bring the total land requirement for construction of this portion of the system alternative to about 3,978 acres and for operation to about 1,764 acres.

Looping about 30 miles of the Greenville Lateral also would have increased land requirements due to the wider construction and permanent rights-of-way. The construction right-of-way land requirement would increase by about 545.5 acres to about 1,898 acres, and the permanent right-of-way land requirement would increase by about 91 acres to 682 acres.

This system alternative would require[3] about 2,041 more acres for pipeline construction and about 841 more acres for operation than the proposed Project, or about 5,876 acres for construction and about 2,446 acres for operation. This system alternative also would require a new compressor station near Bald Knob. We assumed that construction and operation of the additional compressor facilities that would be needed at Texas Gas's existing Greenville Compressor Station could be accommodated within the existing footprint of this facility. Therefore, we estimated the temporary and permanent land requirements for the aboveground facilities for this system alternative to be about 50 acres, bringing the total permanent land requirement for this alternative to 2,496 acres.

[3] These land requirements do not include the permanent requirement for the aboveground facility (the proposed Kosciusco Compressor Station) or the temporary requirements for storage yards and access roads.

Ozark states in its pre-filing documentation, that the land requirements for construction and operation of the 188-mile-long East End Expansion Project would be about 3,603.8 and 1,197.9 acres, respectively. Ozark would retain a 50-foot-wide permanent right-of-way for operation along the pipeline right-of-way, and about 66 acres would be required for operation of the compressor stations.

The land requirements for construction of the 263.8-mile-long proposed Project would be 5,057.23 acres which includes about 162.5 acres for temporary access road use. Ozark has not provided any information about the temporary impact created by access road use. Thus, for comparison of the alternatives, the acreage for access roads was subtracted from the estimated land requirements for construction of the proposed Project to get 4,894.1 acres. In comparison, the combined total land requirements of the proposed Project and Ozark's East End Project would be 8,497.9 acres for construction and 3,449.2 acres for operation.

Construction of both the Fayetteville Lateral and the East End Expansion Project as separate projects would result in an increase in land disturbance over construction of a single project to meet the purpose and needs of both projects. While the reduction in land use impacts would be significant in terms of acreage, we do not believe that combining the projects is a viable option. The difficulties in coordinating the projects and achieving the objectives of all parties, including producers, shippers, and customers, would be quite considerable. The needs of the anchor shippers for both the proposed Project and East End Expansion Project vary. The need to provide specific capacities for transporting natural gas to specific locations by specific dates would preclude combining these two projects. The potential benefit of reducing short-term impacts and reducing total land requirements for operations are not sufficient to justify the cost of redesigning the projects and forcing all parties to delay meeting their objectives.

## 3.3 PIPELINE ROUTE ALTERNATIVES AND VARIATIONS

The routes of the two Project laterals were developed by Texas Gas to meet the stated purpose and need of the Project. In evaluating pipeline alternatives, we reviewed both alternative corridors and specific route variations. For the purposes of this document, we will use the term "alternatives" when discussing significantly different corridors or alignments. Also, we will use the term "variations" when discussing differences that involve smaller departures for shorter distances than "alternatives." Route alternatives generally follow a different corridor for a portion of the proposed route, and may ultimately terminate at different locations. Route variations differ from route alternatives in that they are identified to avoid or reduce construction impacts on specific, localized resources that may include cultural resource sites, residences, or site-specific terrain conditions.

During the pre-filing process, both state and federal agencies suggested route alternatives and route variations to the pipeline alignment originally proposed by Texas Gas. Based on input received from the agencies, Texas Gas integrated many of them into the pipeline routes ultimately proposed for the Project in its FERC certificate application. Furthermore, landowners who would be affected by project construction and operation were contacted by Texas Gas representatives, and some identified to Texas Gas certain pipeline alignment issues relative to their properties. Similarly, some landowners filed comments with the FERC or commented during scoping meetings about alignment issues. Texas Gas modified the pipeline route, where feasible, based on this input. We examined alternatives and variations that could reduce overall environmental impacts associated with the pipeline route and could avoid or reduce impacts on environmentally sensitive resources. Figure 3.2-1 shows the proposed Fayetteville Lateral and alternative routes; figure 3.3-1 shows the Greenville Lateral and alternative routes.

### 3.3.1 Alternatives

As part of its Project development, Texas Gas identified two significant route alternatives for the Fayetteville Lateral, Alternatives A and B (see figure 3.2-1), and one alternative for the Greenville Lateral, Alternative C (see figure 3.3-1). In addition, during the course of the pre-file process, both the USACE and ADHHS proposed route alternatives. These are presented in greater detail below.

_Fayetteville Lateral - Alternative A_

Alternative A would provide a more direct route from Cleburne County, Arkansas, to the proposed Mississippi River crossing between MP 37 and MP 143. Alternative A would pass to the southwest of Bald Knob and is very similar to Ozark's East End Project route through that portion of Arkansas. Alternative A would be about 12 miles shorter than the proposed Project. However, Alternative A would require the construction of a separate, 15-mile-long lateral (Bald Knob Lateral) in order to meet the Project purpose of connecting to the existing pipeline systems at Bald Knob. Therefore, Alternative A,

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Figure 3.2-1 Fayetteville Lateral Project Area
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Figure 3.3-1 Greenville Lateral Project Area
Pipeline Systems and Route Alternatives

with its corresponding interconnection lateral, would actually increase the overall length of the Project by about 3 miles.

Table 3.3.1-1 compares the impacts of Alternative A alone and Alternative A with the 15-mile-long lateral to Bald Knob to the corresponding segment of the Project along the Fayetteville Lateral. The data show that Alternative A would be collocated with existing pipeline rights-of-way for 21 percent of the route compared to 48 percent for the proposed Fayetteville Lateral. In addition, Alternative A would cross three more waterbodies, about 1.5 more miles of wetlands, and about 1.2 more miles of managed resource areas. A review of landforms with a high probability for containing cultural resources indicates that Alternative A could affect more cultural resources than the proposed route.

**Table 3.3.1-1**

**Comparison of Alternative A to the Corresponding Segment of the Proposed Fayetteville Lateral**

| Environmental Parameter | Potential Impacts | | |
|---|---|---|---|
| | MP 37 to MP 142 | Alternative A | Alternative A (including Bald Knob Lateral) |
| Length (mi.) | 105 | 93 | 108 |
| Waterbodies (no.) | 73 | 76 | 87 |
| Perennial (no.) | 15 | 14 | 14 |
| Intermittent (no.) | 58 | 62 | 73 |
| Wetlands (mi.) | 0.4 | 1.9 | 1.9 |
| Roads (no.) | 133 | 127 | 148 |
| Resource Management Lands (mi.) | 3.4 | 4.6 | 4.6 |
| NWR (mi.) a/ | 3.4 | 4.3 | 4.3 |
| State WMA (mi.) b/ | 0 | 0.3 | 0.3 |
| Forest (mi.) | 14.2 | 12.1 | 19.0 |
| Agriculture Land (mi.) | 82.8 | 63.8 | 69.5 |
| Cultural Resource High Probability Areas (mi.) | 26 | 28 | 32 |
| Length collocated (mi.) | 50 | 20 | 20 |
| Percentage of miles collocated | 48 | 21 | 19 |

a/ Cache River NWR - Apparent crossing distance based on GIS overview mapping.

b/ Steve N. Wilson/Raft Creek WMA - Apparent crossing distance based on GIS overview mapping.

Alternative A, including the Bald Knob Lateral, would require crossing one fewer perennial waterbody. However, it would affect more of all the other listed resources. It would cross about 1.2 more miles of resource management lands, 14 more waterbodies, 1.5 more miles of wetlands, and 15 more roads. It also would be about 3 miles longer and would, therefore, have more land requirements associated with construction and operation, about 36 mores acres for construction and about 18 more acres for operation within the permanent right-of-way. This alternative would have greater land requirements, would affect more sensitive environmental resources such as wetlands, and would require more pipeline length with less collocation. Therefore, we believe that the disadvantages of Alternative A, with or without the Bald Knob Lateral, outweigh the potential advantages, and we conclude that the proposed route is the preferred route.

*Fayetteville Lateral - Alternative B*

Alternative B would follow the existing CenterPoint pipeline and would be a relatively straight line path between MP 65 and MP 106 of the proposed route. Although it would be collocated for most of its length, Alternative B would require a crossing of the Cache River NWR that would be 3.0 miles longer than the NWR crossing under the proposed route. It also would cross more land enrolled in the NRCS's WRP (see table 3.3.1-2 and figure 3.2-1). The proposed route would be 7 miles longer than Alternative B. It would, however, cross the Cache River NWR where the refuge narrows north of the Alternative B route, making it possible to cross the Cache River NWR via HDD. The proposed route would cross seven fewer waterbodies, 5.8 fewer miles of wetlands, 2.4 fewer miles of a state WMA, and about 1.8 fewer miles of forest. The proposed route would, therefore, minimize impacts on the refuge and wetlands and would avoid all WRP tracts that Alternative B would impact.

Because Alternative B would result in greater environmental impacts on the Cache River NWR, wetlands, a WMA, forested land, and WRP tracts, we believe that the disadvantages of Alternative B outweigh potential advantages due to its shorter length, and we do not recommend the use of Alternative B.

**Table 3.3.1-2**

**Comparison of Fayetteville Lateral to Alternative B**

| Environmental Parameter | Potential Impacts | |
|---|---|---|
| | MP 65 to MP 106 | Alternative B |
| Length (mi.) | 41.0 | 33.7 |
| Waterbodies (no.) | 32 | 39 |
| Perennial (no.) | No Data | No Data |
| Intermittent (no.) | No Data | No Data |
| Wetlands (mi.) | 2.1 | 7.9 |
| Roads (no.) | 42 | 29 |
| Resource Management Lands (mi.) | 3.6 | 9.2 |
| NWR (mi.) a/ | 3.6 | 6.8 |
| State WMA (mi.) b/ | 0 | 2.4 |
| Forest (mi.) | 0.5 | 2.3 |
| Agriculture (mi.) | 37.4 | 21.8 |
| Cultural Resource High Probability Areas (mi.) | No Data | No Data |
| Length collocated (mi.) | 0.5 c/ | 33.1 c/ |
| Percentage of miles collocated | 1 | 98 |

a/ Cache River NWR - Apparent crossing distance based on GIS overview mapping.

b/ Steve N. Wilson/Raft Creek WMA - Apparent crossing distance based on GIS overview mapping.

c/ Collocated with Reliant Energy Pipeline.

*Greenville Lateral – Alternative C*

We evaluated one route alternative at the eastern end of the proposed Greenville Lateral. This 8.3-mile-long alternative would depart from the proposed Greenville Lateral near MP 87.6 and would terminate at the eastern terminus of the Greenville Lateral at MP 96.4. Although the proposed route would be about 0.4 mile longer than Alternative C (a total of 8.7 miles), it would be collocated with an existing power line right-of-way for about 4.4 miles and would require significantly less clearing of forest (see table 3.3.1-3 and figure 3.3-1). Alternative C would be collocated with a pipeline right-of-way for about 3.1 miles. It would, however, still require more forest clearing than the proposed route. The primary reason for evaluation of alternatives in this area was to develop an appropriate location for crossing the Natchez Trace Parkway.

**Table 3.3.1-3**

**Comparison of Greenville Lateral to Alternative C**

| Environmental Parameter | Potential Impacts | |
|---|---|---|
| | MP 87.6 to MP 96.4 | Alternative C |
| Length (mi.) | 8.7 | 8.3 |
| Waterbodies (no.) | 12 | 8 |
| Perennial (no. crossed) | 6 | 4 |
| Intermittent (no. crossed) | 6 | 4 |
| Wetlands (mi.) | 0.7 a/ | 0.8 |
| Roads (no.) | 9 | 8 |
| Resource Management Lands (mi.) | 0.2 | .1 |
| Natchez Trace Parkway b/ | 0.2 | 0.1 |
| Forest (mi.) | 2.2 | 4.2 |
| Agricultural (mi.) | 3.0 | 2.1 |
| Cultural Resource High Probability Areas (mi.) | No Data | No Data |
| Length collocated (mi.) | 4.4 c/ | 3.1 d/ |
| Percentage of miles collocated | 51 | 37 |

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a/ Incomplete Data Set – Not all wetlands were available.
b/ Both the proposed route and Alternative C would cross the Natchez Trace Parkway by HDD, resulting in negligible surface impacts.
c/ Collocated with existing power line right-of-way; distance scaled from aerial images; represents length of OCM installation adjacent to power line; does not include length of power line right-of-way adjacent to HDD installation.
d/ Collocated with Texas Eastern Transmission pipeline.

**Natchez Trace Parkway.** Several route variations were considered in consultation with the NPS for the crossing of the Natchez Trace Parkway near MP 92.9 of the Greenville Lateral. The NPS commented that the chosen crossing location and crossing method should avoid potentially significant impacts on the viewshed from the Natchez Trace Parkway. Issues related to construction feasibility and environmental impacts also were considered. The proposed route would cross the Natchez Trace Parkway by a 4,850-foot-long HDD. It would maximize the use of agricultural areas for the entry and exit points for the HDD crossing, follow an existing electric transmission line right-of-way, and minimize the amount of forest clearing by taking the shortest route across forested areas. Figure 3.3-1 shows the proposed route and a previously considered Alternative C.

Alternative C would require an estimated 6,000-foot-long HDD crossing of the Natchez Trace Parkway and the Yockanookany River channel, and would impact higher quality forested wetland in the Yockanookany River floodplain than the proposed route. Because the HDD route for Alternative C would be through a forested area, this alternative would require an extensive amount of forest clearing to accommodate the HDD pull string. The proposed route for crossing the Natchez Trace Parkway and the Yockanookany River channel would be shorter (about 4,850 feet) and would allow these resources to be crossed by HDD, and the HDD staging areas would be established mostly in cleared pasture.

Construction activities associated with the proposed route would not occur on NPS-managed lands. Existing trees would visually screen construction activities and the permanent right-of-way from view along the Natchez Trace Parkway and Highway 14; therefore, no significant impacts on visual resources would occur as a result of construction of the proposed route. The only activities on NPS lands would be a civil survey across the area along the path of the HDD to mark the centerline and the edges of the construction right-of-way, and the placement of two drag tracker wires for the HDD along the edges of the construction right-of-way. Although these activities may require the removal of a few low-hanging tree limbs, no significant impacts would be anticipated. The entry hole for the HDD on the west side of the crossing would be about 500 feet from the road. The exit hole for the HDD on the east side of the crossing would be almost 4,000 feet from the road and east of the Yockanookany River. Use of the HDD crossing technique would reduce impacts on the Natchez Trace Parkway, the Yockanookany River and associated wetlands, and forests compared to the use of an open-cut technique since no clearing would be required along the path of the HDD.

The proposed pipeline alignment for the Greenville Lateral across the Natchez Trace Parkway was developed in consultation with the NPS. Further, because Alternative C would result in greater environmental impacts and would involve less collocation, we believe that the disadvantages of Alternative C outweigh potential advantages, and we do not recommend the use of this alternative.

### 3.3.2 Variations Reviewed During Pre-filing

In addition to the major route alternatives identified in the project development and route selection process, numerous minor route variations for the Fayetteville and Greenville Laterals were reviewed during pre-filing and adopted into Texas Gas's proposed pipeline alignments. They were adopted to minimize or avoid potential impacts on cultural resources, residences, and various natural resources, and to improve constructability and safety during construction. Table 3.3.2-1 summarizes these variations for the Fayetteville Lateral, and table 3.3.2-2 summarizes the variations for the Greenville Lateral.

**Table 3.3.2-1**

**Route Variations Reviewed During Pre-filing: Fayetteville Lateral**

| Mileposts | | | | | |
|---|---|---|---|---|---|
| **Begin** | **End** | **County, State** | **Length (miles)** | **Land Use** | **Reason for Adoption** |
| 6.48 | 7.43 | Conway, AR | 0.95 | Forest, Right-of-Way | Avoid a pond and managed forest. |
| 6.58 | 6.78 | Conway, AR | 0.21 | Forest | Avoid a pond. |
| 7.76 | 8.85 | Faulkner, AR | 1.09 | Ag Land, Forest, Residential | Avoid a high rock bluff at the Cove Creek crossing; and avoid a newly installed well pad, gathering lines, and gravel access road. |
| 9.59 | 9.98 | Faulkner, AR | 0.39 | Right-of-Way, Ag Land, Forest | Avoid environmental features. |
| 12.55 | 13.23 | Faulkner, AR | 0.68 | Forest, Ag Land, Right-of-Way | Avoid severe side slopes and potential construction safety issues. |
| 15.10 | 16.07 | Faulkner, AR | 0.97 | Ag Land, Forest, Rural Residential | Avoid ponds, an underground storm/fruit cellar, and a residence. |
| 20.64 | 22.84 | Faulkner, AR | 2.20 | Ag Land, Forest | Avoid severe side slope and potential construction safety issues. |
| 20.64 | 22.84 | Faulkner, AR | 1.82 | Ag Land, Right-of-Way, Forest | Follow an existing pipeline corridor. |
| 20.64 | 22.84 | Faulkner, AR | 0.44 | Ag Land, Forest | Avoid severe side slope and potential construction safety issues. |
| 30.23 | 32.60 | White, AR | 2.37 | Forest, Ag Land, Existing Right-of-Way, Grassland | Avoid new well pad sites and new gathering lines. |
| 32.86 | 33.97 | White, AR | 1.12 | Forest, Right-of-Way Residential, Ag Land | Avoid a recently installed 10-inch-diameter gathering pipeline, valves, and meter station; and avoid ponds and residential areas. |
| 34.29 | 34.53 | White, AR | 0.24 | Ag Land, Right-of-Way | Avoid a recently installed 10-inch-diameter gathering pipeline and valve site (SEECO). |
| 36.27 | 36.46 | White, AR | 0.19 | Forest, Grassland | Facilitate waterbody crossing. |
| 41.53 | 42.93 | Cleburne, AR | 1.40 | Right-of-Way, Rural Residential, Forest, Ag Land | Avoid a parallel road and residences. |
| 44.88 | 46.96 | White, AR | 2.09 | Forest, Ag Land, Right-of-Way, Grassland | Avoid environmental features. |
| 44.88 | 46.96 | White, AR | 0.64 | Ag Land, Forest, Right-of-Way, Grassland | Avoid residential areas. |
| 48.50 | 49.08 | White, AR | 0.58 | Ag Land, Forest | Avoid environmental features. |
| 49.72 | 49.96 | White, AR | 0.24 | Right-of-Way, Ag Land, Forest | Avoid environmental features. |
| 50.10 | 50.17 | White, AR | 0.07 | Roadway, Ag Land, Forest | Improve road crossing. |

**Table 3.3.2-1**

**Route Variations Reviewed During Pre-filing: Fayetteville Lateral**

| Mileposts | | | | | |
|---|---|---|---|---|---|
| **Begin** | **End** | **County, State** | **Length (miles)** | **Land Use** | **Reason for Adoption** |
| 50.36 | 50.92 | White, AR | 0.56 | Ag Land, Forest | Improve road crossing and avoid a residence. |
| 52.44 | 53.07 | White, AR | 0.63 | Forest, Ag Land | Improve constructability and avoid side hill construction. |
| 53.28 | 53.53 | White, AR | 0.25 | Forest, Ag Land, Residential | Landowner requirements. |
| 54.85 | 58.19 | White, AR | 3.34 | Forest, Grassland, Ag Land, Residential | Avoid vineyards and orchards. |
| 59.40 | 59.67 | White, AR | 0.27 | Ag Land, Forest, Residential | Avoid a residence. |
| 60.23 | 60.65 | White, AR | 0.42 | Forest, Ag Land | Avoid environmental features |
| 60.81 | 63.62 | White, AR | 2.81 | Forest, Ag Land, Residential | Avoid residences and improve constructability. |
| 64.10 | 65.07 | White, AR | 0.97 | Rights-of-Way, Ag Land | Improve two road crossings and avoid a residence. |
| 66.60 | 67.55 | White, AR | 0.95 | Ag Land | Avoid environmental features. |
| 70.66 | 72.79 | Woodruff, AR | 2.13 | Ag Land | Avoid environmental features. |
| 72.79 | 74.17 | Woodruff, AR | 1.38 | Ag Land, Forest | Avoid environmental features and improve constructability of HDD. |
| 75.82 | 76.81 | Woodruff, AR | 0.99 | Ag Land | Route designed to avoid terrain features and to improve constructability. |
| 78.92 | 80.21 | Woodruff, AR | 1.29 | Ag Land, County Road, Forest | Avoid federal WRP area. |
| 80.21 | 85.63 | Woodruff, AR | 5.41 | Ag Land, Forest, Managed Forest | Minimize impacts on the Cache River. |
| 86.17 | 86.38 | Woodruff, AR | 0.21 | Ag Land | Avoid environmental features. |
| 89.06 | 89.36 | Woodruff, AR | 0.30 | Managed Forest | Minimize impact on trees. |
| 91.05 | 92.22 | Woodruff, AR | 1.17 | Ag Land, Forest | Minimize impact on forest. |
| 93.09 | 93.73 | Woodruff, AR | 0.64 | Forest, Ag Land | Avoid environmental features. |
| 94.43 | 96.61 | Woodruff, AR | 2.18 | Ag Land, Wetland | Avoid environmental features and improve wetland crossing. |
| 98.14 | 98.67 | Woodruff, AR | 0.53 | Ag Land | Avoid environmental features and improve constructability. |
| 99.86 | 100.31 | Woodruff, AR | 0.45 | Ag Land | Minimize wetland impact. |
| 102.71 | 102.91 | Woodruff, AR | 0.20 | Ag Land | Route designed to avoid environmental features |
| 111.05 | 112.11 | St. Francis, AR | 1.06 | Right-of-Way, Ag Land, Wetland | Improve waterbody crossing and constructability. |
| 116.48 | 117.71 | St. Francis & Lee, AR | 1.25 | Ag Land, Forest, Right-of-Way, Residential | Avoid buildings. |
| 119.05 | 119.40 | Lee, AR | 0.35 | Ag Land, Wetland | Improve waterbody crossing and minimize forest impact. |

**Table 3.3.2-1**

**Route Variations Reviewed During Pre-filing: Fayetteville Lateral**

| Mileposts | | | | | |
|---|---|---|---|---|---|
| **Begin** | **End** | **County, State** | **Length (miles)** | **Land Use** | **Reason for Adoption** |
| 119.05 | 119.40 | Lee, AR | 0.28 | Ag Land, Wetland, Right-of-Way | Avoid wetlands and improve waterbody crossing. |
| 120.62 | 120.88 | Lee, AR | 0.26 | Ag Land, Right-of-Way | Minimize forest impact. |
| 121.73 | 121.94 | Lee, AR | 0.21 | Ag Land | Avoid environmental features. |
| 130.38 | 131.46 | Lee, AR | 1.10 | Ag Land, Right-of-Way | Avoid environmental features and improve a waterbody crossing. |
| 135.83 | 136.22 | Lee, AR | 0.39 | Ag Land, Right-of-Way | Avoid environmental features. |
| 142.55 | 142.88 | Phillips, AR | 0.33 | Ag Land, Managed Forest, Right-of-Way | Avoid a tree farm. |
| 144.51 | 145.53 | Phillips, AR | 1.02 | Ag Land, Right-of-Way, Forest | Improve a waterbody crossing and avoid environmental features. |
| 145.90 | 146.36 | Phillips, AR | 0.46 | Forest, Ag Land, Commercial, Right-of-Way | Avoid residences and aboveground storage tanks. |
| 147.46 | 147.67 | Phillips, AR | 0.21 | Ag Land | Avoid environmental features. |
| 149.88 | 149.33 | Phillips, AR | 0.45 | Ag Land | Avoid environmental features. |
| 154.50 | 156.22 | Phillips, AR | 0.64 | Ag Land | Avoid environmental features. |
| 154.50 | 156.22 | Phillips, AR | 0.41 | Ag Land | Avoid environmental features. |
| 154.50 | 156.22 | Phillips, AR | 1.72 | Ag Land | Avoid environmental features and improve road and waterbody crossings. |
| 160.89 | 161.49 | Coahoma, MS | 0.60 | Right-of-Way, Ag Land | Avoid environmental features. |

**Table 3.3.2-2**

**Route Variations Reviewed During Pre-filing: Greenville Lateral**

| Mileposts | | | | | |
|---|---|---|---|---|---|
| **Begin** | **End** | **County, State** | **Length (miles)** | **Land Use** | **Reason for Adoption** |
| 6.54 | 7.97 | Washington, MS | 1.43 | Residential, Ag Land, Forest | Minimize impacts on an agricultural resource. |
| 8.22 | 9.73 | Washington, MS | 1.51 | Deer Creek, Ag Land | Avoid environmental feature and improve HDD constructability. |
| 10.56 | 11.61 | Washington, MS | 1.05 | Ag Land, Open water | Improve HDD alignment at Bogue Phalia. |
| 19.01 | 19.85 | Sunflower, MS | 0.84 | Ag Land | Avoid environmental feature. |
| 20.94 | 21.20 | Humphreys, MS | 0.26 | Ag Land, Drain | Improve crossing of an intermittent drain. |
| 23.41 | 23.97 | Humphreys, MS | 0.56 | Ag Land, Open water | Improve constructability at crossing of Beasley Bayou. |
| 38.48 | 40.32 | Humphreys, MS | 1.84 | Ag Land, Forest | Improve HDD constructability of west levee of Yazoo River. |
| 40.32 | 41.49 | Humphreys, MS | 1.17 | Ag Land, Open water, Forest | Improve HDD constructability at crossing of Yazoo River. |
| 41.49 | 44.82 | Humphreys, MS | 3.33 | Ag Land, Forest | Accommodate landowner concerns and minimize conflicts with WRP site. |
| 44.84 | 48.12 | Humphreys and Holmes, MS | 3.30 | Forested Wetland, Ag Land, Open water | Minimize conflicts with WRP sites and avoid environmental feature. |
| 48.85 | 49.51 | Holmes, MS | 0.66 | Ag Land | Avoid environmental feature. |
| 51.19 | 51.58 | Holmes, MS | 0.39 | Commercial, Ag Land | Improve HDD constructability at crossing of Highway 49 E and the Illinois Central Railroad. |
| 52.42 | 55.89 | Holmes, MS | 3.47 | Ag Land, Forest | Minimize impact on the Hillside NWR and environmental features. |
| 56.43 | 57.16 | Holmes, MS | 0.73 | Managed Forest, Forest, Ag Land | Avoid environmental feature. |
| 58.54 | 59.24 | Holmes, MS | 0.70 | Forest | Avoid environmental feature. |
| 59.58 | 59.89 | Holmes, MS | 0.31 | Cleared | Avoid environmental feature. |
| 61.88 | 62.00 | Holmes, MS | 0.12 | Forest, Cleared | Avoid geological feature (sinkhole). |
| 63.43 | 64.33 | Holmes, MS | 0.90 | Ag Land, I Residential | Avoid golf course and college. |
| 64.43 | 65.85 | Holmes, MS | 1.42 | Ag Land, Forest | Avoid planned subdivision. |
| 67.14 | 67.79 | Holmes, MS | 0.65 | Forest, Ag Land | Avoid abandoned cemetery. |
| 68.59 | 70.93 | Holmes, MS | 2.34 | Forest, Agriculture | Minimize impact on forest and improve constructability and access. |
| 71.33 | 71.52 | Holmes, MS | 0.19 | Forest | Avoid crossing a drain. |
| 75.20 | 78.41 | Holmes and Attala, MS | 2.94 | Ag Land, Open Land, Forest, Open water | Accommodate landowner concerns. |
| 80.21 | 81.58 | Attala, MS | 1.37 | Managed Forest, Ag Land | Accommodate landowner concerns and improve constructability. |

| Table 3.3.2-2<br>Route Variations Reviewed During Pre-filing: Greenville Lateral | | | | | |
|---|---|---|---|---|---|
| Mileposts | | | | | |
| Begin | End | County, State | Length (miles) | Land Use | Reason for Adoption |
| 82.22 | 83.61 | Attala, MS | 1.39 | Forest, Ag Land | Avoid a planned building site. |
| 92.83 | 95.14 | Attala, MS | 2.31 | Forest, Managed Forest, Ag Land | Improve constructability and minimize impact on forestland. |

### 3.3.3 Agency-Proposed Alternatives

During the pre-filing process, the USACE Memphis District requested evaluation of four route alternatives for the Fayetteville Lateral to minimize impacts on wetlands, particularly forested wetlands. The ADHHS also requested evaluation of a route alternative to avoid the Little Red River Watershed, which serves as the water supply for the City of Searcy. These route alternatives are presented in appendix B-3 and B-4 and in table 3.3.3-1.

We considered a variety of factors in evaluating these agency-proposed alternatives, including length, land requirements, and potential for reducing and minimizing impacts on natural resources, as well as considering engineering constraints.

The ADHHS D1, and USACE U1, U2, and U3 had significant disadvantages when compared to the proposed route, and all of these alternatives were longer than the corresponding segment of the proposed Project.

*ADHHS Alternative D1*

The ADHHS Alternative D1 would extend between MPs 31.0 to 64.3 of the proposed route. A map of the alternative route is in appendix B-3. Although it appears the ADHHS Alternative DI would impact less wetland and forestland, this was due in large part to the alternative route going through more developed areas. It would be within 50 feet of about 146 residences in two communities, but the proposed route would be within 50 feet of no residences. The ADHHS Alternative DI would be about 3.6 miles longer than the proposed route and would, therefore, require about 44 more acres for construction and 22 more acres for operation. It would cross about 28 more waterbodies and 16.5 more acres of agricultural land than the proposed route. The advantages of the ADHHS Alternative DI are that it would cross about 1.6 fewer acres of wetlands and 76.7 fewer acres of forestland. However, the proposed route would follow existing right-of-way along about 32 percent of it length, compared to about 5.7 percent for the alternative. To avoid impacts on this watershed, the ADHHS requested either modifications to the Fayetteville Lateral route or for Texas Gas to provide the ADHHS with its plans for constructing in the watershed for review so that ADHHS may document any potential impact on the water supply associated with planned activities. Texas Gas would be required to use BMPs and our Plan and Procedures to minimize impacts during construction and operation and to consult with the ADHHS to address any additional concerns it may have about construction in these areas (see section 4.3). Texas Gas also would implement its SPCC Plan to prevent and control any spills of hazardous materials. We believe the proposed route, with its more remote location, would have significantly less impact on residences. Its greater collocation along more existing right-of-way would minimize new impacts and land requirements. Therefore, we believe that the Project could be constructed through the Little Red River Watershed in a way that would minimize potential impacts on this resource, and conclude that the proposed route is the preferred alternative. The USACE concurs with our conclusion.

*USACE Alternative U1*

The USACE Alternative U1 would extend from about MP 122.4 to 136.0 of the proposed route. Maps of the alternative route are in appendix B-4. This route would be about 2.7 miles longer than the proposed route and would require about 32.7 more acres for construction and about 16.3 more acres for permanent right-of-way. It would not be collocated along an existing right-of-way compared to the proposed route, which would be collocated with existing right-of-way along about 86 percent of its length. The USACE Alternative U1 would be within 50 feet of 10 more residences than the proposed route and would affect about 1.7 more acres of wetlands, 23.6 more acres of agricultural land, and 3.0 more acres of forestland than the corresponding segment of the proposed route. The only advantage of this alternative over the proposed route would be that it would cross three fewer waterbodies. We believe that the USACE Alternative U1 would have greater land requirements and resource impacts than the proposed route and that the impact of the corresponding segment of the proposed route would be further minimized by its collocation along existing right-of-way for about 86 percent of its length. Therefore, we conclude that the proposed route is the preferred alternative. The USACE concurs with our conclusion.

*USACE Alternative U2*

The USACE Alternative U2 would extend from MP 110.1 to 122.3. A map of the alternative route is in appendix B-4. This route would be about 1.6 miles longer than the proposed route and would, therefore, require about 19.4 more acres for construction and about 9.7 more acres for the permanent right-of-way. It would be within about 50 feet of three residences, whereas the proposed route would not be within 50 feet of any residences. The USACE Alternative U2 would cross five fewer waterbodies and 4.1 fewer acres of wetlands. However, it would cross about 5.5 more acres of forestland and 1.8 more acres of agricultural land. The USACE Alternative U2 would require new right-of-way along its entire length, whereas the proposed route would be constructed adjacent to existing right-of-way along about 94.3 percent of its length. Since the USACE Alternative U2 would have greater impact on residences and would create a new utility corridor along its entire length, we conclude that the proposed route is the preferred alternative. The USACE concurs with our conclusion.

*USACE Alternative U3*

The USACE Alternative U3 would extend from MP 86 to 95.2. Maps of the alternative are in appendix B-4. This route would be about 0.2 mile shorter than the proposed route and would require about 2.4 fewer acres for construction and about 1.2 fewer acres for permanent right-of-way. It would be within 50 feet of a small community with three residences, whereas the proposed route would not be within 50 feet of any residences. The proposed route would cross nine more waterbodies. 0.2 more acre of wetlands, 3.4 more acres of agricultural lands, and 0.2 more acre of forestland. The proposed route was developed to accommodate a proposed HDD crossing of Bayou DeView (part of the Cache River NWR), which requires an alignment that approaches the Bayou more nearly at a right angle than does Alternative U3. Since Alternative U3 would have greater potential impacts on residential land uses and would require modification to the proposed crossing of Bayou DeView, we conclude that the proposed route is the preferred alternative. The USACE concurs with our conclusion.

*USACE Alternative U4*

USACE Alternative U4 was proposed as an alternative to the original route Texas Gas had proposed and would extend from MP 74.7 to 85.2. A map of the alternative is in appendix B-4. The intent of Alternative U4 was to minimize impacts on forests and wetlands. Texas Gas changed its earlier route to incorporate much of the intent of Alternative U4. While directly incorporating the portion of Alternative U4 east of the Cache River, Texas Gas modified its route west of the Cache River to avoid larger forested/wetland tracts. Both routes would be about the same length, and neither would follow existing right-of-way. Alternative U4 would be within 50 feet of two residences, whereas the original Fayetteville Lateral route would be within 50 feet of no residences. Alternative U4 would affect about 2.9 fewer acres of wetlands, 6.6 fewer acres of agricultural land, and 8.6 more acres of forestland compared to the original route. Alternative U4 would cross one fewer waterbody. As indicated above, Texas Gas modified the original route to significantly avoid forestlands. The proposed route also incorporates an approved crossing location of the Cache River NWR, whereas Alternative U4 would require a more northerly crossing. Since it would reduce impacts on wetlands and waterbodies and cross the Cache River and NWR at an agency-recommended location, we conclude that Texas Gas's proposed route, which incorporates the USACE intent in developing Alternative U4, is the preferred alternative. The USACE concurs with our conclusion

**Table 3.3.3-1**

**Comparison of the Agency-Proposed Route Alternatives to the Corresponding Segments of the Proposed Project**

| Environmental Parameter | Potential Impacts | |
|---|---|---|
| | Proposed Fayetteville Lateral Segment (Milepost 31.0 to 64.3) | ADHHS Alternative DI |
| Length (mi.) | 31.3 | 34.9 |
| Residences within 50 feet (no.) | 0 | 146 |
| Waterbodies (no.) | 45 | 73 |
| Number/Wetland (acres) | 7/1.6 | 0 |
| Agricultural Lands (acre) | 55.6 | 72.1 |
| Forested Lands (acre) | 207.9 | 131.2 |
| Adjacent Utility Right-of-Way (mi.) | 10.0 | 2.0 |
| **Environmental Parameter** | **Potential Impacts** | |
| | **Proposed Fayetteville Lateral Segment (Milepost 122.4 to 136.0)** | **USACE Alternative U1** |
| Length (mi.) | 13.6 | 16.3 |
| Residences within 50 feet (no.) | 1 | 11 |
| Waterbodies (no.) | 11 | 8 |
| Number/(acres) | 4/1.5 | 4/3.2 |
| Agricultural Lands (acre) | 156.5 | 180.1 |
| Forested Lands (acre) | 2.9 | 5.9 |
| Adjacent Utility Right-of-Way (mi.) | 11.7 | 0 |
| **Environmental Parameter** | **Potential Impacts** | |
| | **Proposed Fayetteville Lateral Segment (Milepost 110.1 to 122.3)** | **USACE Alternative U2** |
| Length (mi.) | 12.3 | 13.9 |
| Residences within 50 feet (no.) | 0 | 3 |
| Waterbodies (no.) | 10 | 5 |
| Number/Wetland (acres) | 8/4.6 | 2/0.5 |
| Agricultural Land (acres) | 137.6 | 139.4 |
| Forested Land (acres) | 2.2 | 7.7 |
| Adjacent Utility Right-of-Way (mi.) | 11.6 | 0 |

**Table 3.3.3-1**

**Comparison of the Agency-Proposed Route Alternatives to the Corresponding Segments of the Proposed Project**

| Environmental Parameter | Potential Impacts | |
|---|---|---|
| | **Proposed Fayetteville Lateral Segment (Milepost 86 to 95.2)** | **USACE Alternative U3** |
| Length (mi.) | 9.2 | 9.0 |
| Residences within 50 feet (no.) | 0 | 2 |
| Waterbodies (no.) | 10 | 1 |
| Number/Wetland (acres) | 4/1.2 | 0/1.4 |
| Agricultural Land (acres) | 106.9 | 103.5 |
| Forested Land (acres) | 1.5 | 1.3 |
| Adjacent Utility Right-of-Way (mi.) | 0 | 0 |
| **Environmental Parameter** | **Potential Impacts** | |
| | **Proposed Fayetteville Lateral Segment (Milepost 74.7 to 85.2)** | **USACE Alternative U4** |
| Length (mi.) | 10.6 | 10.6 |
| Residences within 50 feet (no.) | 0 | 2 |
| Waterbodies (no.) | 11 | 10 |
| Number/Wetland (acres) | 10/15.8 | 6/12.9 |
| Agricultural Land (acres) | 106.6 | 100.2 |
| Forested Land (acres) | 5.4 | 14.0 |
| Adjacent Utility Right-of-Way (mi.) | 0 | 0 |

### 3.3.4 Agency-Proposed Route Variations

Route variations differ from system or major route alternatives in that they are identified to solve or reduce construction impacts on localized, specific resources such as forested wetlands, cultural resource sites, recreational lands, residences, terrain conditions, and to accommodate landowner requests. Because route variations are identified in response to specific local concerns, they are usually the result of landowner comment, greater field engineering design, or field surveys. While route variations may be a few miles in length, most are relatively short and in general proximity to the proposed route. We have considered a variety of factors in identifying and evaluating variations, including length, land requirements, and potential for reducing and minimizing impacts on natural and cultural resources. During the pre-filing process, Texas Gas refined its proposed route based on discussions with landowners, resource managers, project engineers, and our input to avoid or minimize impacts on natural or cultural resources, reduce or eliminate engineering and constructability concerns, and/or avoid or minimize conflicts with existing land uses.

During project development, Texas Gas identified a total of 59 minor route variations to its initially planned route for the Fayetteville Lateral and 26 minor route variations to its initially planned route for the Greenville Lateral. Texas Gas incorporated these variations into the proposed routes for the Project, and these are the pipeline routes evaluated in this EIS. These minor route variations are summarized in table 3.3.4-1. We have evaluated each of these minor route variations and considered their associated environmental consequence as part of our environmental analysis of the proposed Project. We conclude that they are reasonable and that their use would be the preferred route.

In addition to the route variations listed in table 3.3.4-1, it is anticipated that minor alignment shifts would be required prior to and during construction to accommodate currently unforeseeable site-specific constraints related to engineering, landowner, and environmental concerns. All such alignment shifts would be subject to post-Certificate review and approval by the FERC.

The ADHHS suggested a route variation to minimize construction within the Brewer Lake Watershed. The ADHHS route variation would begin about 2 miles north of the western end (MP 0.0) of the Fayetteville Lateral and would join the proposed route at about MP 5.2. However, this alternative would not allow the Project access to existing gas gathering facilities. ADHHS requested either modifications to the Fayetteville Lateral route or for Texas Gas to provide planned construction methods for review so that ADHHS can document any potential impact on the water supply associated with planned activities. Texas Gas would be required to use BMPs and our Plan and Procedures to minimize impacts during construction and operation and to consult with the ADHHS to address any additional concerns it may have about construction in these areas (see section 4.3). Texas Gas would also implement its SPCC Plan to prevent and control any spills of hazardous materials. We believe the proposed route would meet the stated purpose of the Project (to develop natural gas pipeline capacity for receipt, transportation, and delivery of new natural gas supplies from the new Fayetteville Shale production area). The ADHHS's suggested route variation would not accomplish the Project's purpose without the construction of a lateral pipeline from the route variation back to the gas gathering facilities, thereby affecting resources similar to those that the variation would avoid. Further, we believe that the Project could be constructed through the Brewer Lake Watershed in a way that would minimize potential impacts on this resource. Therefore, we conclude that the proposed route is the preferred route.

During the pre-filing period, the FWS identified 22 route variations, ranging from less than 1 mile to 5 miles in length. The FWS variations were largely developed from review of aerial photographs and focused on minimizing impacts on wetlands and potentially high quality ecosystems but did not consider constructability, use of adjacent utility rights-of-way, the possibility of cultural resources, or other site-specific land use issues. Table 3.3.4-1 lists each of the variations identified by the FWS. Of these 20 variations, Texas Gas incorporated the following five, either completely or in part, into the proposed route it filed for its Certificate application: Variations 10 (MPs 89.0 to 89.3), 11 (in part, between MPs 91.1 and 91.8 only), 12 (MPs 99.6 to 100.6), 15 (MPs 119.1 to 119.4), and 16 (in part, between MPs 120.6 and 120.9 only).

**Table 3.3.4-1**

**Comparison of the Agency-Proposed Route Variations to the Corresponding Segments of the Proposed Fayetteville Lateral**

| Environmental Parameter | Potential Impacts | |
|---|---|---|
| | **MP 15.1 - 16.1** | **FWS Variation No. 1** |
| Length (mi.) | 1 | 0.8 |
| Residences within 50 feet (no.) | 0 | 0 |
| Waterbodies (no.) | 2 | 1 |
| Number/Wetlands (acres) | 0 | 1/0.1 |
| Agricultural Land (acres) | 7.1 | 2.5 |
| Forested Land (acres) | 4.6 | 2.3 |
| Adjacent Utility Right-of-Way (mi.) | 0 | 0 |
| **Environmental Parameter** | **Potential Impacts** | |
| | **MP 32.9 - 33.7** | **FWS Variation No. 2** |

**Table 3.3.4-1**

**Comparison of the Agency-Proposed Route Variations to the Corresponding Segments of the Proposed Fayetteville Lateral**

| | | |
|---|---|---|
| Length (mi.) | 0.8 | 0.8 |
| Residences within 50 feet (no.) | 0 | 0 |
| Waterbodies (no.) | 1 | 1 |
| Number/Wetlands (acres) | 0 | 0 |
| Agricultural Lands (acres) | 2.2 | 3 |
| Forested Land (acres) | 6.1 | 2.8 |
| Miles of adjacent Utility Right-of-Way | 0 | 0 |
| **Environmental Parameter** | **Potential Impacts** | |
| | **MP 42.4 - 42.9** | **FWS Variation No. 3** |
| Length (mi.) | 0.6 | 0.6 |
| Residences within 50 feet (no.) | 0 | 0 |
| Waterbodies (no.) | 1 | 1 |
| Number/Wetlands (acres) | 0 | 0 |
| Agricultural Land (acres) | 4.5 | 4.4 |
| Forested Land (acres) | 2 | 2 |
| Adjacent Utility Right-of-Way (mi.) | 0 | 0.2 |
| **Environmental Parameter** | **Potential Impacts** | |
| | **MP 46.9 - 47.6** | **FWS Variation No. 4** |
| Length (mi.) | 0.7 | 0.8 |
| Residences within 50 feet (no.) | 0 | 3 |
| Waterbodies (no.) | 1 | 1 |
| Number/Wetlands (acres) | 0 | 0 |
| Agricultural Land (acres) | 0 | 3.9 |
| Forested Land (acres) | 7.3 | 1.1 |
| Adjacent Utility Right-of-Way (mi.) | 0 | 0 |
| **Environmental Parameter** | **Potential Impacts** | |
| | **MP 55.5 - 58.2** | **FWS Variation No. 5** |
| Length (mi.) | 2.7 | 2.5 |
| Residences (no.) | 0 | 3 |
| Waterbodies (no.) | 2 | 2 |
| Number/Wetlands (acres) | 0 | 0 |
| Agricultural Land (acres) | 14.7 | 18.7 |
| Forested Land (acres) | 15.8 | 7.6 |
| Adjacent Utility Right-of-Way (mi.) | 0 | 0 |
| **Environmental Parameter** | **Potential Impacts** | |
| | **MP 59.1 - 59.4** | **FWS Variation No. 21** |
| Length (mi.) | 0.3 | 0.3 |
| Residences within 50 feet (no.) | 0 | 0 |

**Table 3.3.4-1**

**Comparison of the Agency-Proposed Route Variations to the Corresponding Segments of the Proposed Fayetteville Lateral**

| | | |
|---|---|---|
| Waterbodies (no.) | 0 | 0 |
| Number/Wetlands (acres) | 0 | 0 |
| Agricultural Land (acres) | 0 | 0 |
| Forested Land (acres) | 3.4 | 3.4 |
| Adjacent Utility Right-of-Way (mi.) | 0 | 0 |
| | **Potential Impacts** | |
| **Environmental Parameter** | **MP 63.0 - 65.1** | **FWS Variation No. 6** |
| Length (mi.) | 2.1 | 1.9 |
| Residences within 50 feet (no.) | 0 | 0 |
| Waterbodies | 2 | 2 |
| Number/Wetlands (acres) | 1/0.2 | 1/0.1 |
| Agricultural Land (acres) | 18.4 | 16.9 |
| Forested Land (acres) | 3.4 | 1.8 |
| Adjacent Utility Right-of-Way (mi.) | 0 | 0 |
| | **Potential Impacts** | |
| **Environmental Parameter** | **MP 66.6 - 68.0** | **FWS Variation No. 7** |
| Length (mi.) | 1.4 | 1.5 |
| Residences (no.) | 0 | 0 |
| Waterbodies (no.) | 4 | 3 |
| Number/Wetlands (acres) | 0/1.9 | 2/0.6 |
| Agricultural Land (acres) | 14.2 | 17.1 |
| Forested Land (acres) | 0 | 0 |
| Adjacent Utility Right-of-Way (mi.) | 0 | 0 |
| | **Potential Impacts** | |
| **Environmental Parameter** | **MP 74.9 - 76.8** | **FWS Variation No. 8** |
| Length (mi.) | 1.9 | 1.9 |
| Residences within 50 feet (no.) | 0 | 0 |
| Waterbodies (no.) | 0 | 0 |
| Number/Wetlands (acres) | 1/0.2 | 0 |
| Agricultural Land (acres) | 22.2 | 22.2 |
| Forested Land (acres) | 0 | 0 |
| Adjacent Utility Right-of-Way (mi.) | 0 | 0 |
| | **Potential Impacts** | |
| **Environmental Parameter** | **MP 86.2 - 86.8** | **FWS Variation No. 9** |
| Length (mi.) | 0.6 | 0.6 |
| Residences (no.) | 0 | 0 |
| Waterbodies (no.) | 0 | 0 |
| Number/Wetlands (acres) | 1/0.5 | 0 |

**Table 3.3.4-1**

**Comparison of the Agency-Proposed Route Variations to the Corresponding Segments of the Proposed Fayetteville Lateral**

| | | |
|---|---|---|
| Agricultural Land (acres) | 7.2 | 7.1 |
| Forested Land (acres) | 0 | 0 |
| Adjacent Utility Right-of-Way (mi.) | 0 | 0 |
| | **Potential Impacts** | |
| **Environmental Parameter** | **MP 89.0 - 89.3** | **FWS Variation No. 10** |
| Length (mi.) | 0.3 | 0.3 |
| Residences (no.) | 0 | 0 |
| Waterbodies (no.) | 0 | 0 |
| Number/Wetlands (acres) | 0 | 0 |
| Agricultural Land (acres) | 0.3 | 0.4 |
| Forested Land (acres) | 3.3 | 1.4 |
| Adjacent Utility Right-of-Way (mi.) | 0 | 0 |
| | **Potential Impacts** | |
| **Environmental Parameter** | **MP 91.1 - 95.0** | **FWS Variation No. 11** |
| Length (mi.) | 3.9 | 4.5 |
| Residences within 50 feet (no.) | 0 | 1 |
| Waterbodies (no.) | 4 | 4 |
| Number/Wetlands (acres) | 2/0.9 | 0 |
| Agricultural Land (acres) | 45.6 | 52.7 |
| Forested Land (acres) | 6.2 | 0 |
| Adjacent Utility Right-of-Way (mi.) | 0 | 0 |
| | **Potential Impacts** | |
| **Environmental Parameter** | **MP 99.6 - 100.6** | **FWS Variation No. 12** |
| Length (mi.) | 1 | 1 |
| Residences within 50 feet (no.) | 0 | 0 |
| Waterbodies (no.) | 2 | 2 |
| Number/Wetlands (acres) | 1/0.5 | 1/0.2 |
| Agricultural Land (acres) | 10.4 | 10.5 |
| Forested Land (acres) | 0.7 | 0.5 |
| Adjacent Utility Right-of-way (mi) | 0 | 0 |
| | **Potential Impacts** | |
| **Environmental Parameter** | **MP 102.7 - 102.9** | **FWS Variation No. 13** |
| Length (mi.) | 0.2 | 0.2 |
| Residences within 50 feet (no.) | 0 | 0 |
| Waterbodies (no.) | 0 | 0 |
| Number/Wetlands (acres) | 0 | 0 |
| Agricultural Land (acres) | 2.4 | 2.2 |
| Forested Land (acres) | 0 | 0 |

**Table 3.3.4-1**

**Comparison of the Agency-Proposed Route Variations to the Corresponding Segments of the Proposed Fayetteville Lateral**

| | | |
|---|---|---|
| Adjacent Utility Right-of-Way (mi.) | 0 | 0 |
| | **Potential Impacts** | |
| **Environmental Parameter** | **MP 111.0 - 113.4** | **FWS Variation No. 14** |
| Length (mi.) | 2.5 | 3 |
| Residences within 50 feet (no.) | 0 | 0 |
| Waterbodies (no.) | 2 | 4 |
| Number/Wetlands (acres) | 1/2.2 | 1/1.7 |
| Agricultural Land (acres) | 25.4 | 32.8 |
| Forested Land (acres) | 1.1 | 0 |
| Adjacent Utility Right-of-Way (mi.) | 1.1 | 0 |
| | **Potential Impacts** | |
| **Environmental Parameter** | **MP 119.1 - 119.8** | **FWS Variation No. 15** |
| Length (mi.) | 0.7 | 0.7 |
| Residences within 50 feet (no.) | 0 | 0 |
| Waterbodies (no.) | 0 | 0 |
| Number/Wetlands (acres) | 1 | 0 |
| Agricultural Land (acres) | 7.3 | 7.8 |
| Forested Land (acres) | 0 | 0 |
| Adjacent Utility Right-of-Way (mi.) | 0.2 | 0.2 |
| | **Potential Impacts** | |
| **Environmental Parameter** | **MP 120.2 - 121.9** | **FWS Variation No. 16** |
| Length (mi.) | 1.7 | 1.7 |
| Residences within 50 feet (no.) | 0 | 1 |
| Waterbodies (no.) | 0 | 0 |
| Number/Wetlands (acres) | 1/1.0 | 1/1.0 |
| Agricultural Land (acres) | 19 | 19.1 |
| Forested Land (acres) | 1.6 | 1.4 |
| Adjacent Utility Right-of-Way (mi.) | 1.3 | 0.4 |
| | **Potential Impacts** | |
| **Environmental Parameter** | **MP 127.1 - 127.7** | **FWS Variation No. 22** |
| Length (mi.) | 0.6 | 0.6 |
| Residences (no.) | 0 | 0 |
| Waterbodies (no.) | 1 | 1 |
| Number/Wetlands (acres) | 1/0.6 | 1/0.6 |
| Agricultural Land (acres) | 4.8 | 4.8 |
| Forested Land (acres) | 0.9 | 0.9 |
| Adjacent Utility Right-of-Way (mi.) | 0 | 0 |

**Table 3.3.4-1**

**Comparison of the Agency-Proposed Route Variations to the Corresponding Segments of the Proposed Fayetteville Lateral**

| Environmental Parameter | Potential Impacts | |
|---|---|---|
| | **MP 135.6 - 136.0** | **FWS Variation No. 17** |
| Length (mi.) | 0.4 | 0.5 |
| Residences within 50 feet (no.) | 0 | 0 |
| Waterbodies (no.) | 0 | 0 |
| Number/Wetlands (acres) | 1/0.8 | 0 |
| Agricultural Land (acres) | 4.2 | 5.3 |
| Forested Land (acres) | 1 | 0 |
| Adjacent Utility Right-of-Way (mi.) | 0.4 | 0 |
| **Environmental Parameter** | **Potential Impacts** | |
| | **MP 140.5 - 145.3** | **FWS Variation No. 18** |
| Length (mi.) | 4.8 | 4.9 |
| Residences within 50 feet (no.) | 0 | 0 |
| Waterbodies (no.) | 6 | 3 |
| Number/Wetlands (acres) | 8/1.3 | 0 |
| Agricultural Land (acres) | 49.1 | 57.2 |
| Forested Land (acres) | 5.1 | 0 |
| Adjacent Utility Right-of-Way (mi.) | 4.1 | 0 |
| **Environmental Parameter** | **Potential Impacts** | |
| | **MP 160.7 - 161.5** | **FWS Variation No. 19** |
| Length (mi.) | 0.8 | 0.9 |
| Residences within 50 feet (no.) | 0 | 0 |
| Waterbodies (no.) | 1 | 1 |
| Number/Wetlands (acres) | 0 | 0 |
| Agricultural Land (acres) | 8.6 | 9.3 |
| Forested Land (acres) | 0 | 0 |
| Adjacent Utility Right-of-Way (mi.) | 0.2 | 0.9 |
| **Environmental Parameter** | **Potential Impacts** | |
| | **MP 163.4 - 165.4** | **FWS Variation No. 20** |
| Length (mi.) | 2 | 2 |
| Residences within 50 feet (no.) | 0 | 0 |
| Waterbodies (no.) | 0 | 0 |
| Number/Wetlands (acres) | 0 | 0 |
| Agricultural Land (acres) | 21.8 | 22.3 |
| Forested Land (acres) | 0 | 0 |
| Adjacent Utility Right-of-Way (mi.) | 2 | 0.8 |

*FWS Variation No. 1*

FWS Variation No. 1 would extend from MP 15.1 to MP 16.1. A map showing the location of this variation is in appendix B-5. This variation would be about 0.8 mile shorter than the proposed route and would cross one fewer waterbody, 4.6 fewer acres of agricultural land, and 2.3 fewer acres of forested land. It would cross one delineated wetland, affecting about 0.1 acre of wetland. This variation was suggested to minimize forest fragmentation. However, Texas Gas states that while the proposed route along this segment of the Fayetteville Lateral would require clearing a total of about 2,000 feet of forest, most of this clearing would be along the edges of forested areas. Only about 800 feet (about 1.8 acres) of this total would be contiguous. Further, if the variation was constructed, additional land requirements would be needed for additional temporary workspaces (ATWSs) at two locations where the route variation would cross over the CenterPoint and Ozark high-pressure pipelines. Texas Gas estimates that four 50-foot by 150-foot ATWSs (about 0.7 acre) would be needed to safely construct the crossovers. Constructing pipeline crossovers is feasible, but they are usually minimized to the greatest extent practicable because of safety issues during construction and for maintenance during operation. While the proposed route would avoid crossovers, it would require about 2.3 acres of additional forest impact. This would be about 0.7 percent of the total upland forest impact required for construction of the Fayetteville Lateral portion of the Project. Since the proposed route would avoid crossovers and would make a minimal contribution to forest fragmentation, we conclude that the proposed route is the preferred alternative.

*FWS Variation No. 2*

FWS Variation No. 2 would extend from MP 32.9 to MP 33.7 of the proposed route. A map showing the location of this variation is in appendix B-5. It would be about the same length as the corresponding segment of the proposed route, and no residences would be within 50 feet of either route. The primary reason the FWS suggested this variation was to minimize forest fragmentation: FWS Variation No. 2 would require about 3.3 fewer acres of forest clearing for construction. However, the required tree clearing for the proposed route would mainly be next to the existing pipeline right-of-way and would affect forest edge areas by expanding the open area along the pipeline corridor. The exception to this would be at locations where the proposed route would deviate to the south and away from the existing right-of-way to avoid constructing parallel to a waterbody, and to avoid small wetlands and two farm ponds. Since the additional forest clearing along the proposed route would minimize impacts on waterbodies and wetlands compared with construction immediately adjacent to the existing right-of-way, we conclude that the proposed route is the preferred alternative.

*FWS Variation No. 3*

FWS Variation No. 3 would extend from MP 42.4 to MP 42.9. A map showing the location of this variation is in appendix B-5. It would be about the same length as the corresponding segment of the proposed route and no residences would be within 50 feet of either route. The primary reason the FWS suggested this variation was to minimize forest fragmentation. However, both routes would affect similar amounts of forest land. Since the variation would not significantly decrease the amount forest clearing, we conclude that the proposed route is the preferred alternative.

*FWS Variation No. 4*

FWS Variation No. 4 would extend from MP 46.9 to MP 47.6 of the proposed route. The variation would be about 0.1 mile longer than the proposed route. A map showing the location of this variation is in appendix B-5. It would be within 50 feet of three residences and would have three road crossings. The proposed route would not be within 50 feet of any residences and would require two road crossings. Both routes would cross one waterbody. The variation would affect about 3.9 acres of agricultural land, and the proposed route would not affect agricultural land. The variation would affect about 6.2 fewer acres of forest than the proposed route. Some of the forest impact is due to the alignment of the proposed route to avoid construction near residences. Since the proposed route would minimize impacts on residences, we conclude that the proposed route is the preferred alternative.

*FWS Variation No. 5*

FWS Variation No. 5 would extend from MP 55.5 to MP 58.2 of the proposed route. A map showing the location of this variation is in appendix B-5. It would be about 0.2 mile shorter than the proposed route but would be within 50 feet of three residences. The proposed route would not be near any residences. Both routes would cross two waterbodies. The FWS commented that this variation was suggested to minimize habitat impact. The proposed route would require clearing about 8.2 more acres of forest. The variation would travel a more direct path that would cross about 4 more acres of agricultural land. The proposed route was developed to avoid impacts on vineyards and residential areas. The variation would require clearing about 4 acres of vineyards. Since the proposed route would minimize impacts on residential areas and vineyards, we conclude that the proposed route is the preferred alternative.

*FWS Variation No. 21*

FWS Variation No. 21 would extend from MP 59.1 to MP 59.4 of the proposed route. A map showing the location of this variation is in appendix B-5. There does not appear to be any significant differences between the impact of constructing this variation and the proposed route. Therefore, we conclude that the proposed route is the preferred alternative.

*FWS Variation No. 6*

FWS Variation No. 6 would extend from MP 63.0 to MP 65.1 of the proposed route. A map showing the location of this variation is in appendix B-5. The variation would be about 0.2 mile shorter. No residence would be near either route, and both would cross two waterbodies. The reason for the proposed alignment along this segment of the Project is to facilitate the crossings of Gladey Creek, Old Russell Road, an existing pipeline, Highway 367, the Missouri Pacific Railroad, and U.S. Highway 67. Therefore, we conclude that the proposed route is the preferred alternative.

*FWS Variation No. 7*

FWS Variation No. 7 would extend from MP 66.6 to MP 68.0 of the proposed route. A map showing the location of this variation is in appendix B-5. The variation would be about 0.1 mile shorter than the proposed route. The FWS did not indicate why this variation was suggested. Neither route would be within 50 feet of any residence, nor would they require forest clearing for construction. There may be slightly less wetland impact (about 1.3 fewer acres), but wetland delineation has not been performed along the variation and there may be greater or lesser wetland impact than this estimate. The variation would affect about 2.9 more acres of agricultural land. Since the variation offers no significant advantage over the proposed route, we conclude that the proposed route is the preferred alternative.

*FWS Variation No. 8*

FWS Variation No. 8 would extend from MP 74.9 to MP 76.8 of the proposed route. A map showing the location of this variation is in appendix B-5. The variation would be about the same length as the corresponding segment of the proposed route. The FWS did not indicate why this variation was suggested. Neither route would be within 50 feet of any residences, nor would they require clearing of forests. Both routes would affect about the same amount of agricultural land. The proposed route would cross a small wetland within an agricultural area. Since the variation offers no significant advantage over the proposed route, we conclude that the proposed route is the preferred alternative.

*FWS Variation No. 9*

FWS Variation No. 9 would extend from MP 86.2 to MP 86.8 of the proposed route. A map showing the location of this variation is in appendix B-5. The variation would be about the same length as the corresponding segment of the proposed route. The FWS did not indicate why this variation was suggested. Neither route would be within 50 feet of any residences, nor would they require clearing of forests. Both routes would affect about the same amount of agricultural land. The proposed route would cross a small wetland within an agricultural area. Since the variation offers no significant advantage over the proposed route, we conclude that the proposed route is the preferred alternative.

*FWS Variation No. 10*

FWS Variation No. 10 would extend from MP 89.0 to MP 89.3 of the proposed route. A map showing the location of this variation is in appendix B-5. Neither route would be within 50 feet of residences, nor would they cross waterbodies or wetlands. The variation would impact about 1.9 fewer acres of forest and would require clearing fewer trees with larger diameters. Since there would be no constructability issues related to using this alternative, and since larger trees would be avoided, Texas Gas has incorporated it into its proposed route. We concur. The FWS Variation No. 10 is the preferred alternative.

*FWS Variation No. 11*

FWS Variation No. 11 would extend from MP 91.1 to MP 95.0 of the proposed route. A map showing the location of this variation is in appendix B-5. The variation would be about 0.6 mile longer than the proposed route and would require about 7.3 more acres for construction (plus additional workspace for topsoil segregation where needed) and about 3.6 more acres within the permanent right-of-way. The variation would be within 50 feet of one residence. Both routes would cross four waterbodies. The proposed route would cross about 0.9 acre of wetland. The variation would affect about 7.1 more acres of agricultural land. Texas Gas has incorporated the first 0.7 mile of this variation into its proposed route since it would avoid a forested area with forested wetland (about 1.4 acres combined). About 0.7 acre of the remaining 3.8 acres of forest along the proposed route has been cleared for agricultural use. Since use of the first 0.7 mile of the FWS Variation No. 11 would reduce impacts on forest and forested wetlands, we concur that it would be the preferred alternative and that the remaining portion of the variation would not be the preferred alternative since it would be longer, would have greater land requirements for construction and operation, and would affect a residence.

*FWS Variation No. 12*

FWS Variation No. 12 would extend from MP 99.6 to MP 100.6 of the proposed route. A map showing the location of this variation is in appendix B-5. Both routes would be about the same length and would affect similar amounts of the listed resources. However, about 0.3 acre of wetland impact would be avoided by the variation. The original alignment of the pipeline would have crossed a large wetland near MP 100. Further, the modified alignment would facilitate the crossing of U.S. Highway 49, the St. Louis Southwestern Railway, and County Road 538. Texas Gas has incorporated this variation into its proposed route. We concur that FWS Variation No. 12 is the preferred alternative.

*FWS Variation No. 13*

FWS Variation No. 13 would extend from MP 102.7 to MP 102.9 of the proposed route. A map showing the location of this variation is in appendix B-5. It essentially would follow a straighter path between these two points. However, the proposed route was developed to avoid a sensitive environmental feature. Therefore, we conclude that the proposed route is the preferred alternative.

*FWS Variation No. 14*

FWS Variation No. 14 would extend from MP 111.0 to MP 113.4 of the proposed route. A map showing the location of this variation is in appendix B-5. It would be about 0.5 mile longer than the proposed route and would require about 6.1 more acres for construction (plus additional workspace for topsoil segregation where needed) and about 3.0 more acres of permanent right-of-way. The proposed route would follow about 1.1 miles of existing utility right-of-way for about 44 percent of the pipeline route along this segment of the Project. The variation would follow no existing right-of-way. The variation would cross two more waterbodies and would require a longer HDD crossing of Big Creek and its associated wetlands, since this HDD would also include crossing I-40. Big Creek and its associated wetlands would be crossed by HDD along the proposed route, but I-40 and an exit ramp would be crossed by a separate, shorter HDD, and both HDDs would be close to the existing CenterPoint pipeline right-of-way. Since the variation offers no significant advantage over the proposed route, we conclude that the proposed route is the preferred alternative.

*FWS Variation No. 15*

FWS Variation No. 15 would extend from MP 119.1 to MP 119.8 of the proposed route. A map showing the location of this variation is in appendix B-5. Both routes would be about the same length and would affect similar amounts of the listed resources. However, the variation would avoid a wetland, thereby reducing wetland impacts. Texas Gas has incorporated this variation into its proposed route. We concur that FWS Variation No. 15 is the preferred alternative.

*FWS Variation No. 16*

The FWS Variation No. 16 would extend from MP 120.2 to MP 121.9 of the proposed route. A map showing the location of this variation is in appendix B-5. Both routes would be about the same length and would affect similar amounts of agricultural land and forest. However, the variation would be within 50 feet of one residence and would be adjacent to 0.9 fewer mile of exiting right-of-way compared to the corresponding segment of the proposed route. Between MP 120.6 and MP 120.9, the variation would minimize impact on a wetland. At this location the variation leaves the existing right-of-way and goes through an agricultural field and avoids wetland and forest before returning to again follow the right-of-way. Therefore, Texas Gas has incorporated this segment of the variance into its proposed route. The remaining portion of the variance would be near a residence and an environmental feature that the proposed route would avoid. Since use of the 0.3-mile-long segment of FWS Variation No. 16 would reduce impacts on forest and forested wetlands, we concur that it would be the preferred alternative and that the remaining portion of the variation would not be the preferred alternative.

*FWS Variation No. 22*

FWS Variation No. 22 would extend from MP 127.1 to MP 127.7 of the proposed route. A map showing the location of this variation is in appendix B-5. Both routes would have similar impacts, with one having no apparent advantages or disadvantages over the other. Therefore, we conclude that the proposed route is the preferred alternative.

*FWS Variation No. 17*

FWS Variation No. 17 would extend from MP 135.6 to MP 136.0 of the proposed route. A map showing the location of this variation is in appendix B-5. The variation would leave the proposed route, which would follow the existing CenterPoint pipeline right-of-way to avoid about 0.8 acre of wetland and 1 acre of forest, and would be about 0.1 mile longer than the proposed route. However, since the proposed route would follow the existing pipeline right-of-way through the wetland, no new corridor would be created. The variation would not follow any existing right-of-way and would affect about 0.9 more acre of agricultural land. Since the proposed route would follow the existing CenterPoint right-of-way along this segment, we conclude that the proposed route is the preferred alternative.

*FWS Variation No. 18*

FWS Variation No. 18 would extend from MP 140.5 to MP 145.3 of the proposed route. A map showing the location of this variation is in appendix B-5. The variation would be about 0.1 mile longer than the proposed route and would follow no existing rights-of-way. It would affect about 8.1 more acres of agricultural land. The proposed route would follow about 4.1 miles of the existing CenterPoint pipeline right-of-way (about 85 percent of this segment of the Project). Where the proposed route deviates from the existing right-of-way, it would avoid forest and other habitat, thereby minimizing impacts on these resources. The proposed route would impact eight small wetlands (about 1.7 acres total) that would be across or adjacent to the proposed pipeline construction right-of-way. The proposed route would affect about 5.1 more acres of forest than the variation. Since clearing a construction right-of-way along the existing cleared corridor would minimize fragmentation and resource impacts by keeping the pipelines together, we conclude that the proposed route is the preferred alternative.

*FWS Variation No. 19*

FWS Variation No. 19 would extend from MP 160.7 to MP 161.5 of the proposed route. A map showing the location of this variation is in appendix B-5. The proposed route was developed to avoid a sensitive environmental feature. Therefore, we conclude that the proposed route is the preferred alternative.

*FWS Variation No. 20*

FWS Variation No. 20 would extend from MP 163.4 to 165.4 of the proposed route. A map showing the location of this variation is in appendix B-5. Both routes would be similar in length and impact on resources. However, the proposed route would follow existing right-of-way along its entire length, whereas the variation would only follow about 0.8 mile of existing right-of-way. Therefore, we conclude that the proposed route is the preferred alternative.

## 3.4 ABOVEGROUND FACILITY ALTERNATIVES

We evaluated the proposed locations of the aboveground facilities for the Project to determine whether environmental impacts would be reduced or mitigated by the use of alternative facility sites. Our evaluation involved inspection of aerial photographs and maps, as well as site visits along the proposed pipeline corridors. The aboveground facilities for the proposed Project include one new compressor station, 29 M&R stations (see section 2.1.2), 21 MLVs, and three pig launchers and three pig receivers.

Because the locations of the M&R stations would be linked to the locations of the associated natural gas receipt and interconnect points, the search for alternatives was constrained to sites located adjacent to the intersection of the proposed Project route and the existing pipeline locations. Similarly, the location of

MLVs would be linked to the location of the proposed Project route and are largely determined by DOT regulations, which specify the maximum distance between sectionalized block valves and require that these facilities be in readily accessible areas. We did not identify any alternative sites for the proposed M&R stations, MLVs, or the pig launcher/receiver facilities that would offer a significant environmental advantage to the proposed sites.

As with the other proposed aboveground facilities, the compressor station location would be constrained to sites near the proposed Project route. Specifically, the proposed compressor station site along the proposed Project route was largely dictated by engineering and economic design standards and the purpose of the Project. Texas Gas initially evaluated compressor station locations along the proposed Greenville Lateral based on pipeline hydraulics, the distance to other pipelines, and the proximity of high-voltage lines, which would be used as a power source. Texas Gas also initially evaluated an alternative compressor station location for the Greenville Lateral at MP 30.0, near Isola, Mississippi. However, as the proposed Project has a different delivery objective from the originally conceived project. When the delivery objective changed, the alternative site at MP 30.0 was eliminated from further consideration. Based on its analysis, Texas Gas concluded that its proposed location for the Kosciusko Compressor Station would be at MP 96.4 on the Greenville Lateral in Attala County, Mississippi.

The proposed site for the Kosciusko Compressor Station would mainly occupy agricultural land, but would be sited next to an existing Texas Eastern compressor station. However, about 0.2 acre of wetland would be permanently impacted by site development. With the exception of the minimal wetland acreage identified on site, we identified no significant advantages to other adjacent parcels near the terminus of the Greenville Lateral. Since the proposed compressor station would be constructed centrally on the land parcel and not near the identified wetland resource, **we recommend that:**

- **Texas Gas evaluate an alternate compressor station configuration at the Kosciusko Compressor Station to avoid impact on the 0.2 acre of delineated wetland. Texas Gas shall file with the Secretary a revised plot plan of the compressor station showing how this wetland has been avoided prior to the end of the comment period of the draft EIS.**

Three alternative types of compressors for the Kosciusko Compressor Station on the Greenville Lateral were considered: electric-motor-driven turbines, natural-gas-fired turbines, and natural-gas-fired reciprocating engines. Texas Gas states that due to the lower reliability of electricity and the higher costs of purchasing electricity to operate this facility, the use of electric-motor-driven turbines was eliminated. We note that there is little significant difference in environmental impact in terms of air emissions between the natural-gas-fired turbines and natural-gas-fired reciprocating engines. However, the natural-gas-fired reciprocating engines have higher control capabilities and lower noise impacts. Therefore, Texas Gas proposes using two Caterpillar 3612 and two Caterpillar 3606 reciprocating engine compressors (10,650 hp total) to generate the proposed compression for the Greenville Lateral. The impacts of using these types of compressors are addressed in section 4.11.1 (Air Quality) and section 4.11.2 (Noise). We concluded that their operation would not have a significant impact on air quality and that there would be no significant adverse noise impacts due to operation. Therefore, we conclude that use of the proposed compressors would be reasonable.

# 4.0 ENVIRONMENTAL ANALYSIS

The environmental consequences of constructing and operating the proposed Project would vary in duration and significance. Four levels of impact duration were considered: temporary, short term, long term, and permanent. Temporary impacts generally occur during construction with the resource returning to preconstruction condition almost immediately afterward. Short-term impacts could continue for up to 3 years following construction. An impact was considered long term if the resource would require more than 3 years to recover. Permanent impacts could occur as a result of any activity that modifies a resource to the extent that it would not return to preconstruction conditions during the life of the Project, such as the construction of a compressor station. We considered an impact to be significant if it would result in a substantial adverse change in the physical environment.

In this section, we describe the affected environments, general construction and operational impacts, and proposed mitigations for each resource. Texas Gas, as part of its proposal, agreed to implement certain measures to reduce impacts. We evaluated Texas Gas's proposed mitigation to determine whether additional measures would be necessary to reduce impact. These additional measures appear as bulleted, boldfaced paragraphs in the text. We will recommend that these measures be included as specific conditions to authorizations that the Commission may issue to Texas Gas.

Conclusions in this Draft EIS are based on our analysis of the environmental impacts and the following assumptions:

- Texas Gas would comply with all applicable laws and regulations;
- the proposed facilities would be constructed as described in section 2.0 of this document; and
- Texas Gas would implement the mitigation measures included in the application and supplemental documents filed with the FERC.

## 4.1 GEOLOGIC RESOURCES

This section describes geologic resources associated with the proposed Project and potential geologic hazards that may be encountered as a result of implementing the Project.

### 4.1.1 Geologic Setting

The Project would cross two physiographic provinces: the Arkansas Valley section of the Ouachita physiographic province and the Mississippi Alluvial Plain and the East Gulf Coastal Plain sections of the Coastal Plains physiographic province. The contact between these provinces is delineated by the Fall Line, which is crossed by the proposed Fayetteville Lateral in White County, Arkansas, near MP 63.0. The Fall Line delineates the western extent of the Mississippi River alluvial deposits and the eastern extent of the Ouachita province.

The proposed Fayetteville Lateral west of MP 63.3 (in Conway, Faulkner, and Cleburne Counties and the western portion of White County, Arkansas) would be within the Ouachita physiographic province. Between MP 63.3 and MP 166.2 (in eastern White County and Woodruff, St. Francis, Lee, and Phillips Counties, Arkansas and Coahoma County, Mississippi) the Fayetteville Lateral would be within the Coastal Plains physiographic province. The bedrock beneath the Arkansas Valley section of the Ouachita Province consists of Pennsylvanian-age (323 to 290 million years old) sedimentary deposits comprised primarily of thick shale and sandstone deposits. The Mississippi Alluvial Plain of the Coastal Plains physiographic province contains unconsolidated and semi-consolidated Holocene-age alluvial deposits of the ancestral Mississippi River (Renken, 1998).

The proposed Greenville Lateral portion of the Project is mapped within the Mississippi Alluvial Plain and East Gulf Coastal Plain sections of the Coastal Plains physiographic province. The proposed Greenville Lateral would begin near Greenville, Mississippi, and would traverses generally east-southeast across the Mississippi Alluvial Plain to about MP 62.5 (in Washington, Sunflower, and Humphreys Counties and the western portion of Holmes County, Mississippi). where From MP 62.5 to MP 95 (in the eastern portion of Holmes County and Attala County, Mississippi), the proposed Greenville Lateral would cross the East Gulf Coast section. The Mississippi Alluvial Plain is underlain by unconsolidated and semi-consolidated Holocene-age alluvial deposits of the ancestral Mississippi River (Renken, 1998). The sediments underlying the East Gulf Coast section are described as primarily marine sedimentary deposits that dip gently toward the Gulf of Mexico (Renken, 1998).

Elevations along the proposed pipeline route range from 100 to 880 feet above mean sea level. Topography in the Project area ranges from flat to very steep, with slopes ranging from 0 to 40 percent along the pipeline route (USDA/NRCS, 2003; USDA/NRCS, 2005a).

### 4.1.2 Mineral Resources

Oil and gas well information was obtained from the AOGC and the Mississippi State Oil and Gas Board (MSOGB). About 250 oil and gas wells are within the counties that would be crossed by the proposed Fayetteville Lateral, and about 50 oil and gas wells are within the counties crossed by the proposed Greenville Lateral (AOGC, 2007; MSOGB, 2007). Ten oil and gas wells would be within 0.5 mile of the Project. Several of these gas wells are currently being developed (drilled) or were recently developed and would provide much of the gas supply transported in the Texas Gas pipeline, if approved.

About 55 miles of the westernmost portion of the proposed Fayetteville Lateral would cross Southwestern's Fayetteville Shale gas production area. Five of the six active oil and gas wells currently identified in state databases as being within 0.5 mile of the Fayetteville Lateral route were mapped in Conway County along a 6-mile-long stretch between MPs 0.9 and 6.9. Active well drilling and gathering line installation was observed during our site visits to this area. Thus, additional wells may be within 0.5 mile of the proposed Fayetteville Lateral in the future. Texas Gas has consulted with Southwestern to develop a pipeline route through the gas production area to minimize conflicts with ongoing development of this resource and to plan locations for M&R stations to interconnect with Southwestern's gathering pipelines.

Four oil and gas wells would be within about 0.5 mile of the proposed Greenville Lateral. Two of these wells would be between MP 80.9 and MP 87.6 in Attala County, Mississippi, and the remaining two wells would be between MP 45.5 and MP 46.0 in Humphreys County, Mississippi. All four wells were reported as abandoned (MSOGB, 2007).

The proposed pipeline route would not cross any sources of sand, gravel, or consolidated rock. Sand and gravel are the predominant mineral resources found in the Project area in Arkansas. This resource is developed as crushed stone from mined consolidated rock, or it is mined from unconsolidated sand and gravel deposits. The extraction of these mineral deposits is generally limited to larger cities or strategic sites with access to major transportation routes (Arkansas Geological Commission [AGC], 2001). The closest resource site is about 500 feet north of MP 56.5 along the proposed Fayetteville Lateral. Only one stone quarry, located about 0.8 mile north of MP 23.6 of the Fayetteville Lateral, would be near the Project (USGS, 2005a).

In Mississippi, no mineral recovery or processing sites were reported within 1 mile of the proposed Greenville Lateral (USGS, 2005a). According to the MDEQ, the Greenville Lateral does not cross any other economically significant mineral resources (MDEQ, 2004).

Given that few mineral resources would be in the immediate vicinity of the propose Project, and that known sites would be avoided, we believe that no significant impact on mineral resources would occur due to construction and operation of the Project.

### 4.1.3 Geologic Hazards

#### 4.1.3.1 Seismic Hazards

Seismic hazards are characterized in terms of magnitude and intensity. Magnitude measures the energy released at the source of the earthquake and is determined by measurements recorded by seismographs. Earthquake magnitude is measured using the Richter Magnitude (RM) scale. RM is a logarithmic measure of ground shaking based on data collected by seismometers. The RM scale is based on ground motion and does not take into account distance from source and structural stability of the subsurface. RM is, therefore, not a representative measure of the intensity of the seismic event at a given location.

Intensity measures the strength of shaking produced by an earthquake at a specific location. Intensity is determined from effects on people, man-made structures, and the natural environment. The intensity of a seismic event is measured using the Modified Mercalli Intensity (MMI) scale. MMI provides a measure of the intensity of ground movement felt in a given area based on damage assessments and eyewitness reports. The MMI scale ranges from an earthquake intensity value of I, in which the earthquake is not felt, to an intensity value of XII, in which damage is total, large rock masses are displaced, and objects are thrown into the air. Table 4.1.3-1 describes a range of earthquake intensities and their potential effects. Figures 4.1.3-1 and 4.1.3-2 identify the locations of seismic source zones and known earthquake epicenters within the surrounding region. Figures 4.1.3-3 and 4.1.3-4 depict the peak ground acceleration with a 10 percent probability of exceedance over a 50-year period, while figure 4.1.3-5 depicts the seismic risk zone for the Project area.

Seismic activity in the region surrounding the proposed pipeline route is closely linked to the New Madrid fault system. The New Madrid seismic zone lies within the central Mississippi Valley, extending from northeast Arkansas through southeast Missouri, western Tennessee, and western Kentucky and into southern Illinois. The center of the New Madrid seismic zone (or area in which the probability of a seismic event is greatest) is located about 90 miles generally northeast of the Project area, along the adjoining boundaries of Missouri, Arkansas, and Tennessee. Historically, that area has been the site of some of the largest earthquakes in North America. Between December 1811 and February 1812, three of the most powerful earthquakes in United States history originated in the New Madrid seismic zone. Of the three major shocks that occurred within the series, historical evidence indicates that none of the shocks originated in Arkansas or Mississippi (USGS, 2005b). Since that time, numerous intensity MMI V or greater earthquakes have been reported in Arkansas and Mississippi. The majority of these events is associated with the New Madrid fault system and did not occur in the vicinity of the proposed Fayetteville or Greenville Laterals.

**TABLE 4.1.3-1**

**Range of Earthquake Intensities**

| Intensity (MMI) | | RM Scale Equivalent |
|---|---|---|
| I | Not felt except by a very few under especially favorable conditions. | 1.0 – 3.0 |
| II | Felt by only a few persons at rest, especially on the upper floors of buildings. | 3.0 – 3.9 |
| III | Felt quite noticeably by persons indoors, especially on the upper floors of buildings. Many people do not recognize it as an earthquake. Standing automobiles may rock slightly. Vibrations are similar to the passing of a truck. Duration is estimated. | 3.0 – 3.9 |
| IV | Felt indoors by many, outdoors by few during the day. At night, some awakened. Dishes, windows, doors disturbed; walls make cracking sounds. Sensation like heavy truck striking building. Automobiles rocked noticeably. | 4.0 – 4.9 |
| V | Felt by nearly everyone; many awakened. Some dishes and windows are broken. Unstable objects are overturned. Pendulum clocks may stop. | 4.0 – 4.9 |
| VI | Felt by all, many frightened. Some heavy furniture is moved; a few instances of fallen plaster. Damage is slight. | 5.0 – 5.9 |
| VII | Damage is negligible in buildings of good design and construction, and slight to moderate in well-built ordinary structures. Considerable damage in poorly built or badly designed structures. Some chimneys are broken. | 5.0 – 5.9 |
| VIII | Damage is slight in specially designed structures; considerable damage in ordinary substantial buildings, with partial collapse. Damage is great in poorly built structures. Chimneys, factory stacks, columns, monuments, and walls fall. Heavy furniture is overturned. | 6.0 – 6.9 |
| IX | Damage is considerable in specially designed structures; well-designed frame structures are damaged. Damage is great in substantial buildings, with partial collapse. Buildings are shifted off foundations. | 6.0 - 6.9 |
| X | Some well-built wooden structures are destroyed; most masonry and frame structures are destroyed along with their foundations. Rails are bent. | 7.0 and higher |
| XI | Few, if any, (masonry) structures remain standing. Bridges are destroyed. Rails are bent greatly. | 7.0 and higher |
| XII | Damage is total. Lines of sight and level are distorted. Objects are thrown into the air. | 7.0 and higher |

Source: USGS, 2006a.

Five significant seismic events having epicenters within a 35-mile radius of the Project have been recorded since 1568 (USGS, 2005b). The intensities of these seismic events ranged from MMI III to V, or roughly equivalent to 3.8 to 5 RM. The intensities of these events and their locations relative to the nearest Project MP are summarized in table 4.1.3-2. The three most recent seismic events were reported south of the Fayetteville Lateral route between MP 0.0 and MP 23.0 and had intensities of MMI III to IV. The strongest seismic event (MMI V) was reported in 1878, with its epicenter located about 34 miles northeast of MP 83.0 of the Fayetteville Lateral. Figures 4.1.3-3 and 4.1.3-4 present the USGS seismic hazard estimate for the Fayetteville Lateral route and Greenville Lateral route, respectively. The hazard information provided by the USGS confirms that the greatest risk for significant seismic activity is associated with the New Madrid fault centered northeast of the Fayetteville Lateral route (USGS, 1997).

### 4.1.3.2 Active Faults

The Fayetteville Lateral and the Greenville Lateral would not cross any identified Quaternary-age faults (Haller et al., 2005). However, several fault zones are mapped within 100 miles of the Fayetteville Lateral. The fault zones are listed in table 4.1.3-3.

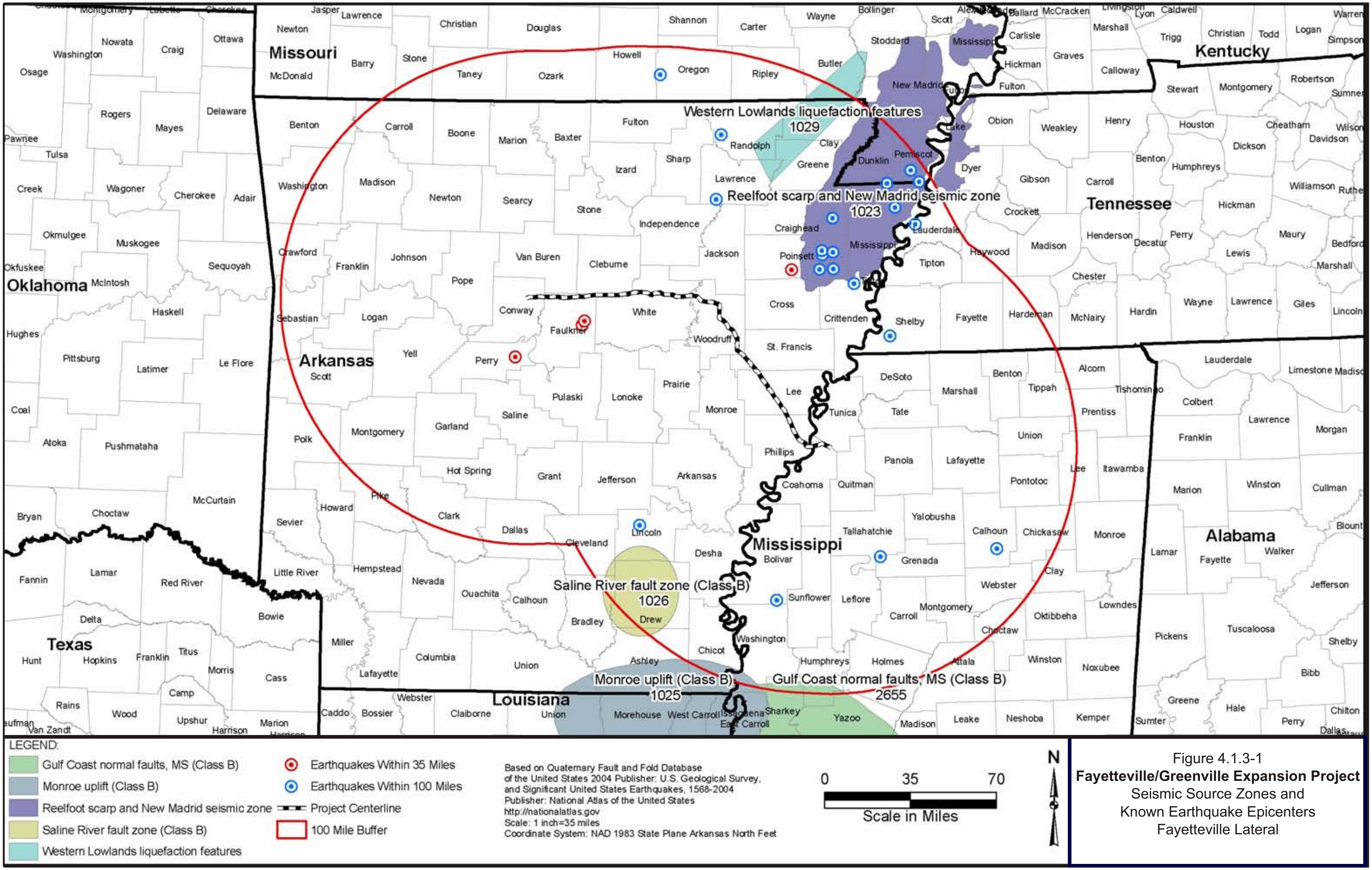
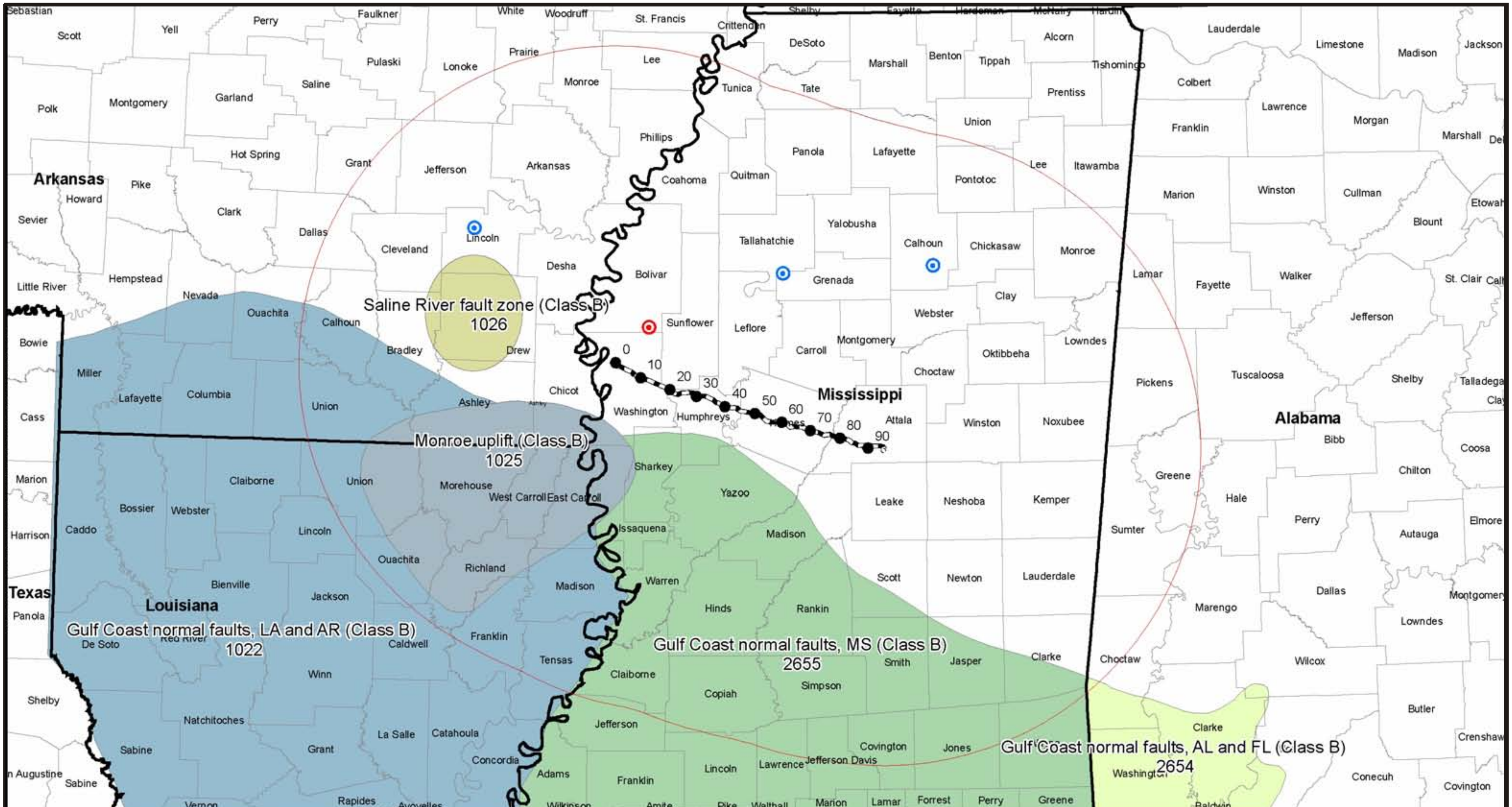



Figure 4.1.3-1
**Fayetteville/Greenville Expansion Project**
Seismic Source Zones and
Known Earthquake Epicenters
Fayetteville Lateral




LEGEND:

- Gulf Coast normal faults, AL and FL (Class B)
- Gulf Coast normal faults, LA and AR (Class B)
- Gulf Coast normal faults, MS (Class B)
- Monroe uplift (Class B)
- Saline River fault zone (Class B)
- Earthquakes Within 35 Miles
- Earthquakes Within 100 Miles
- Project Centerline
- Milepost
- 100 Mile Buffer

Based on Quaternary Fault and Fold Database
of the United States 2004 Publisher: U.S. Geological Survey,
and Significant United States Earthquakes, 1568-2004
Publisher: National Atlas of the United States
http://nationalatlas.gov
Scale: 1in=30mi
Coordinate System: NAD 1983 State Plane Mississippi West Feet

0 30 60
Scale in Miles

N

Figure 4.1.3-2
**Fayetteville/Greenville Expansion Project**
Seismic Source Zones and
Known Earthquake Epicenters
Greenville Lateral

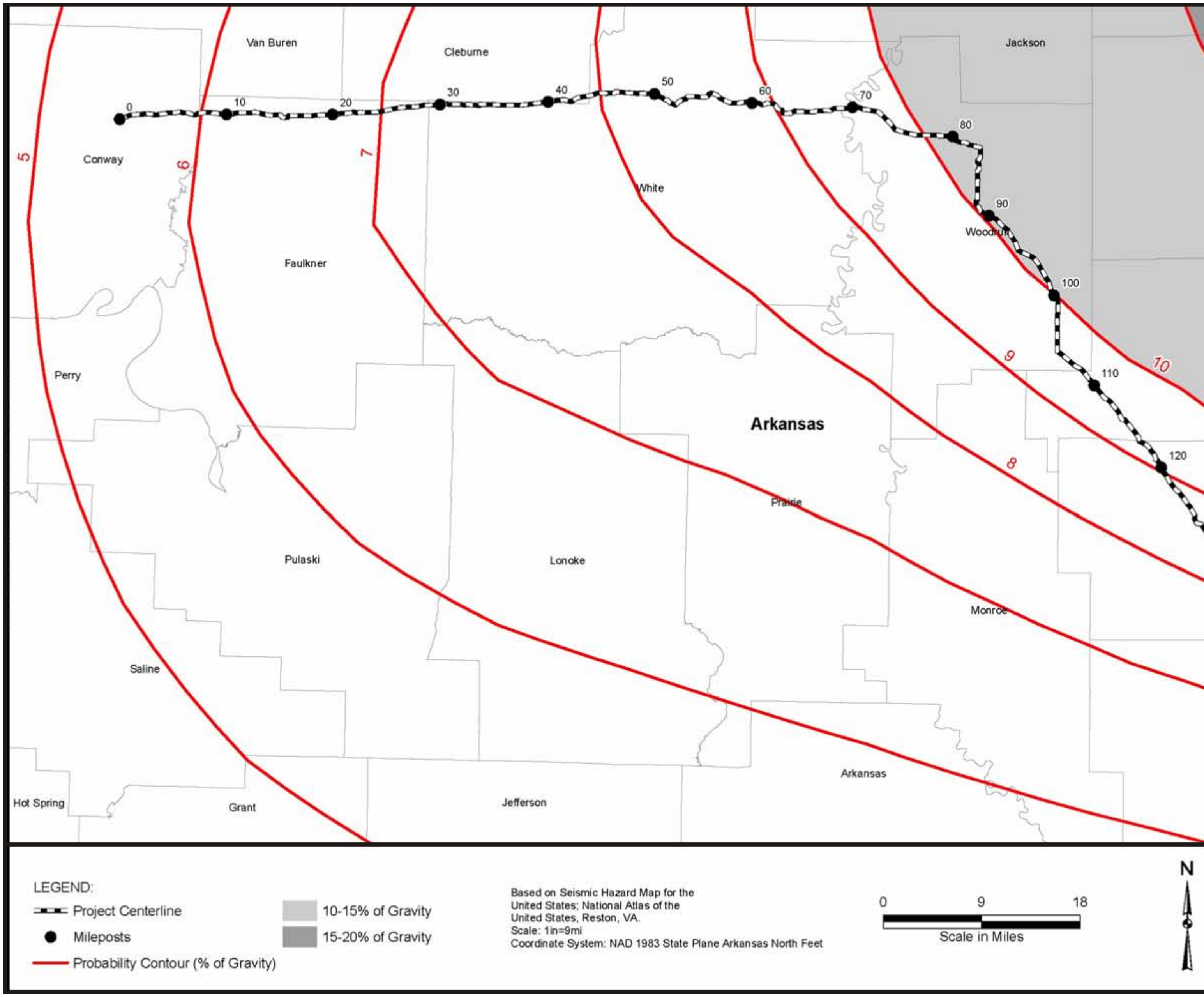



Figure 4.1.3-3
**Fayetteville/Greenville Expansion Project**
Peak Ground Acceleration with 10%
Probability of Exceedance in 50 Years
Fayetteville Lateral

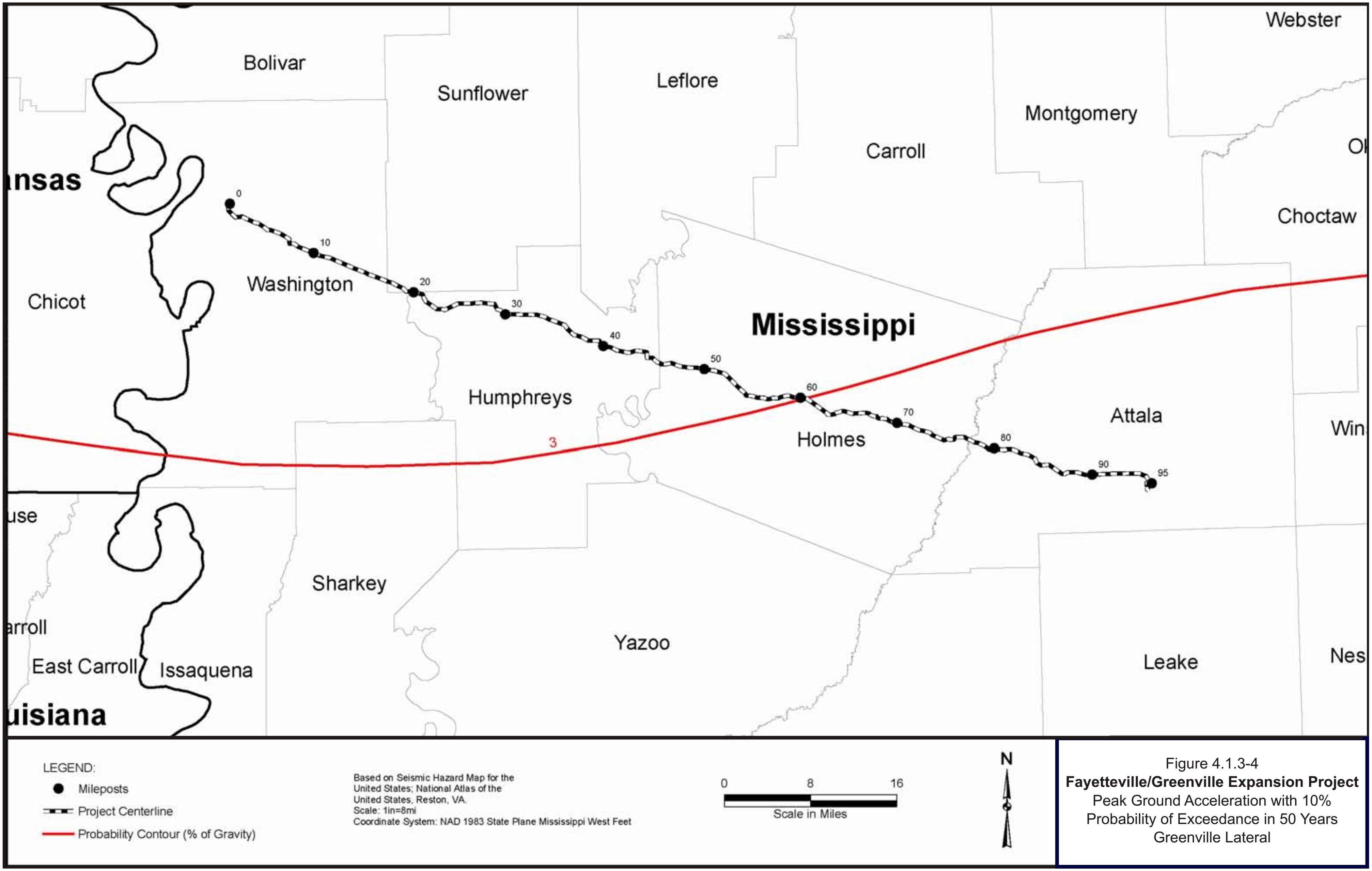
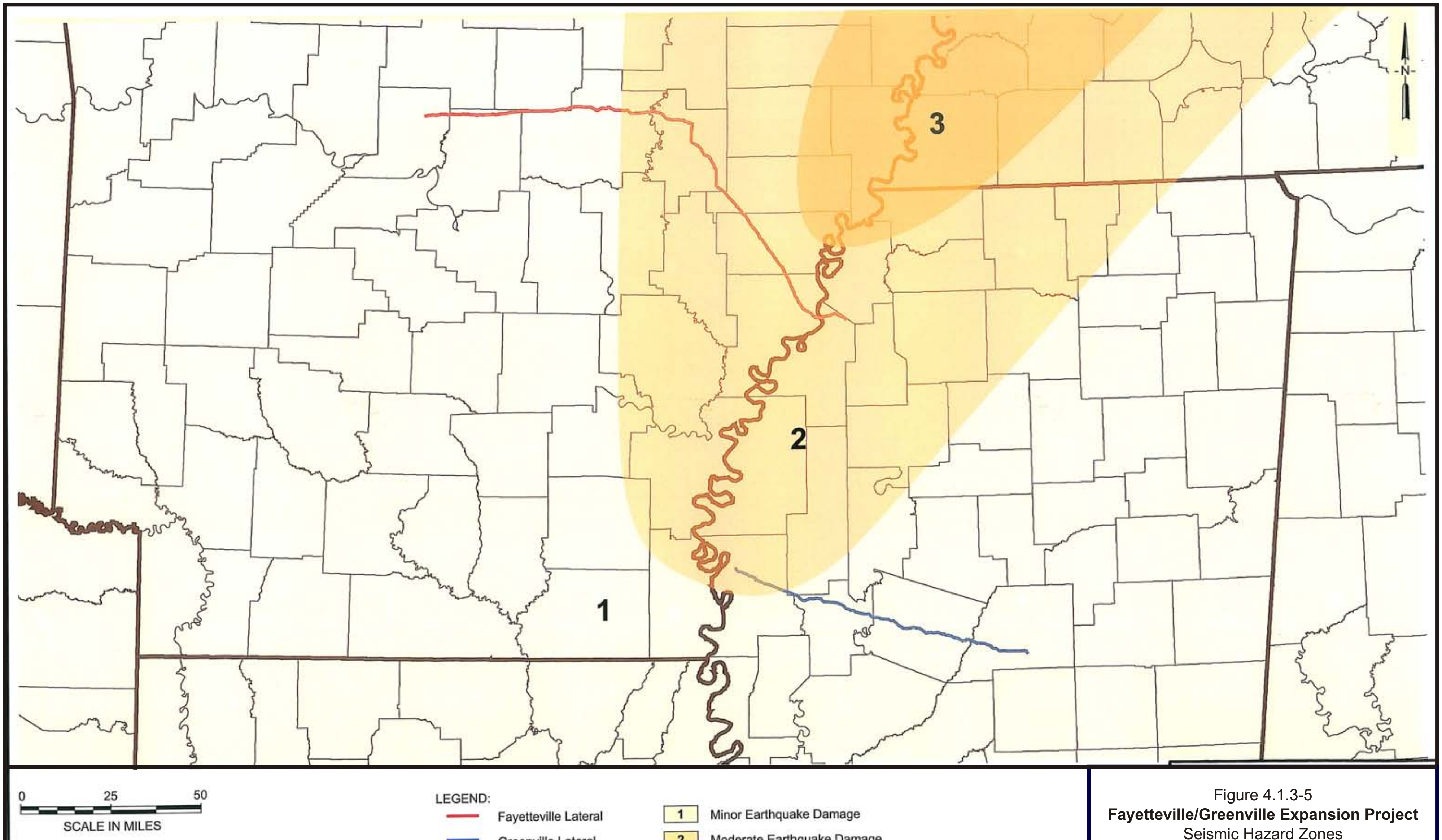



Figure 4.1.3-4
**Fayetteville/Greenville Expansion Project**
Peak Ground Acceleration with 10% Probability of Exceedance in 50 Years
Greenville Lateral




SOURCE: Stearns, Richard G. and Miller, Robert A.; Earthquake Hazards in Tennessee, State of Tennessee Department of Conservation, Division of Geology, Nashville, Tennessee, 1977, Page 2.

Figure 4.1.3-5
**Fayetteville/Greenville Expansion Project**
Seismic Hazard Zones
Greenville and Fayetteville Laterals

**TABLE 4.1.3-2**

**Earthquake Epicenters within 35 Miles of the Fayetteville Lateral and Greenville Lateral Routes**

| Date | Depth (km) | Magnitude/ Intensity (RM/MMI) | Distance from Route (miles) | Nearest MP | Epicenter Location Relative to Route |
|---|---|---|---|---|---|
| **Fayetteville Lateral** | | | | | |
| May 4, 2001 | 10 | 4.5/VI | 9.8 | 23 | South |
| January 21, 1982 | 3 | 4.5/VI | 11.4 | 21 | South |
| January 1, 1969 | 7 | 4.5/VI | 27.2 | 0 | South-southeast |
| November 19, 1878 | No Data | 4.9/VI | 33.7 | 76 | Northeast |
| **Greenville Lateral** | | | | | |
| June 4, 1967 | 6 | 4.5/VI | 15.1 | 0 | Northeast |

_________

Source: USGS, 2005b.

RM – Richter magnitude scale uses the area in which the event was felt coupled with the amplitude of the shaking to determine and assign intensity.

MMI – Modified Mercalli Intensity Scale estimates the relative intensity from I to XII of an event in a given area during an event based on physical damage and eyewitness reports of ground movement.

km = kilometer

Hazards associated with seismicity and faulting include ground-shaking, surface rupture of faults, and offsets along normal, reverse, or strike slip faults. Faulting can be especially hazardous to rigid, linear structures (e.g., pipelines) along which the ground is not moving the same distance or the in the same direction. However, well-maintained pipelines constructed using modern arc welding techniques have performed well in seismically active areas of the United States. Only large, abrupt ground displacements have caused serious impacts on such facilities. Based on the historical record and magnitude of earthquakes near the proposed Project's corridor, we believe the potential for seismicity and faulting does not represent a significant risk to the stability or safety of the proposed Project.

### 4.1.3.3 Soil Liquefaction

Liquefaction occurs in saturated soils (i.e., soils in which the space between individual particles is completely filled with water). This interstitial water exerts a pressure on the soil particles that influences how tightly the particles themselves are pressed together. Prior to an earthquake, the water pressure is relatively low. However, earthquake shaking can cause the water pressure to increase to the point where the soil particles can readily move with respect to each other. When liquefaction occurs, the strength of the soil decreases and, its ability to support foundations for buildings and bridges is reduced. Because liquefaction occurs only in saturated soil, its effects are most commonly observed in low-lying areas near bodies of water such as rivers, lakes, bays, and oceans.

**TABLE 4.1.3-3**

**Fault Zones within 100 Miles of the Fayetteville Lateral and Greenville Lateral Routes**

| Fault Zone | Distance and Direction from Proposed Route (miles) | Nearest MP | Age (ybp) | Maximum Movement Rate (mm/year) |
|---|---|---|---|---|
| **Fayetteville Lateral** | | | | |
| Reelfoot Scarp and New Madrid Seizmic Zone No. 1023 | 34/NE | 83 | < 15,000 | No Data |
| Western Lowlands Liquefaction Features No. 1029 | 54/NE | 79 | <15,000 | Insufficient Data |
| Saline River Fault Zone No. 1026 | 72/SW | 152 | <15, 000 | <0.2 |
| Monroe Uplift No. 1025 | 95/SW | 155 | <15, 000 | <0.2 |
| Gulf Coast Normal Faults, MS (Class B) No. 2655 | 95/S | 166.2 | <1,600, 000 | <0.2 |
| **Greenville Lateral** | | | | |
| Gulf Coast Normal Faults, MS No. 2655 | 10.3 | 41 | <1,600, 000 | <0.2 |
| Monroe Uplift No. 1025 | 17.4 | 9 | <15, 000 | <0.2 |
| Saline River Fault Zone No. 1026 | 31.8 | 0 | <15,000 | <0.2 |
| Gulf Coast Normal Faults Class LA and AR No. 1022 | 39.7 | 1 | <1,600, 000 | <0.2 |

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Source: Haller et al., 2005.

ybp = years before present.

mm/year = millimeters per year.

Areas with the potential for soil liquefaction include locations:

- underlain by Holocene deposits that are likely to be non-cohesive, such as alluvial, lacustrine, and shoreline deposits; and
- where the water table occurs at 10 feet or less below the surface, and where the USGS Open File Report 82-1033 (Algermissen et al., 1982) indicates a 10 percent probability that horizontal ground accelerations of 10 percent of gravity or greater would be exceeded in 50 years (referred to as the "seismic threshold").

In the vicinity of the proposed Fayetteville Lateral route, the floodplains of the Mississippi River and other rivers and major waterbodies that would be crossed are potentially underlain by Holocene deposits (Haley, 1993; Moore, 1969). In addition, the water table below portions of the Project area likely occurs at 10 feet or less below the land surface within the floodplain of the Mississippi River and other rivers within the Mississippi Alluvial Plain east of MP 63.3. The seismic threshold (horizontal ground accelerations of 10 percent or more with 10 percent probability of exceedance in 50 years) is exceeded along the Fayetteville Lateral between MP 77 and MP 99 in Woodruff County, Arkansas (USGS, 1997).

Therefore, soil liquefaction is considered a hazard in this area. Areas exceeding the threshold for soil liquefaction are identified in figure 4.1.3-3.

In the vicinity of the proposed Greenville Lateral, the floodplains of the Mississippi River and other rivers and major waterbodies that would be crossed also are potentially underlain by Holocene deposits (Moore, 1969). In addition, the water table below portions of the Project area likely occurs at 10 feet or less below the land surface within the floodplain of the Mississippi River and rivers within the Mississippi Alluvial Plain west of MP 54.5. The seismic threshold, however, is not exceeded in the vicinity of the proposed Greenville Lateral (Rukstales, 2002). Therefore, soil liquefaction does not appear to be a significant hazard in the vicinity of the proposed Greenville Lateral.

Newer pipelines exhibit elastic behavior and are significantly less vulnerable to earthquake effects, including liquefaction, differential settlement, violent shaking, and ground strain, than the older types of pipe installed 50 to 100 years ago. Buoyancy effects are probably of greatest concern in areas such as floodplains and river bottoms, where massive liquefaction could take place during a large earthquake. To minimize the buoyancy effect upon the pipeline due to liquefaction in areas of saturated soils, the pipeline would have concrete coating, concrete weights, or gravel-filled blankets. Today's pipe has greater ability to conform to ground movements resulting from vibration and slippage. Seismic wave propagation generally does not have a serious effect on welded buried pipelines in good condition. Some situations where wave propagation could lead to damage to the pipeline system include transition zones between very stiff and very soft soils, penetration points of pipes into valve boxes, and at branch-connections, pipe fittings, and valves. However, the pipeline and associated facilities would be designed and constructed in accordance with the standards specified in 49 CFR Part 192, *Minimum Federal Safety Standards for the Transportation of Natural Gas and other Gas by Pipeline,* which should adequately address pipeline design where there's potential for soil liquefaction. Given the seismic risk in the area and the methods that would be used to construct the proposed pipeline and associated facilities, we believe that soil liquefaction does not represent a significant risk to the stability or safety of the proposed Project during construction and operation of the Project.

#### 4.1.3.4 Karst Potential/Ground Subsidence

Karst features such as sinkholes, caves, and caverns can form as a result of the long-term action of groundwater on soluble carbonate rocks (e.g., limestone and dolostone). Karst features are formed when rainwater picks up carbon dioxide from the air (forming carbonic acid) and dead plant debris in the soil and then percolates through cracks dissolved in the rock. The bedrock becomes saturated with water at some level, and the rock continues to dissolve as the water moves sideways along bedding planes (horizontal cracks between rock layers) and joints (or fractures) in the rock itself. These conduits enlarge over time and move the water via a combination of gravity and hydraulic pressure, further enlarging the conduits through a combination of solution and abrasion of water on the surrounding rock. Underground mining also poses risks to engineered structures due to the potential of the overlying strata to collapse into the void formed by the extraction of minerals.

Sinkholes are reported to occur at a rate of less than one for every 100 square miles in Conway, Faulkner, Cleburne, and White Counties in Arkansas. These areas represent the highest potential for karst development along the Fayetteville and Greenville Laterals. All of theses areas are mapped west of the Fall Line within the Pennsylvanian bedrock (Renken, 1998).

Ground subsidence can affect pipelines and aboveground facilities by causing loss of support that would result in bending or rupturing of pipeline and weaken the foundation of aboveground facilities. However, the pipeline and associated facilities would be designed and constructed in accordance with the standards specified in 49 CFR Part 192, *Minimum Federal Safety Standards for the Transportation of Natural Gas* *and other Gas by Pipeline,* which should ensure the integrity of the Project facilities and minimize the potential for any pipeline failures due to ground subsidence. In addition, Texas Gas would conduct regular patrols of the pipeline right-of-way during operations to identify conditions, including areas of ground subsidence, that might affect safety or the operation of the pipeline. Based on the lack of identified karst features in proximity to the proposed Project corridor, and the specific construction and operational measures that would be adhered to by Texas Gas, we do not believe karst to represent a significant risk to the stability or safety of the proposed Project.

#### 4.1.3.5 Bedrock and Blasting

The pipelines would be installed to allow a minimum cover of 3 feet in areas of shallow bedrock. Therefore, the Project was evaluated for areas where bedrock might be encountered above a depth of 80 inches (conservatively, 3 feet of cover and a 36-inch-diameter pipe).

Figure 4.1.3-6 identifies the approximate areas where shallow bedrock may be encountered along the proposed Fayetteville Lateral; figure 4.1.3-7 presents similar information for the Greenville Lateral. Blasting may be necessary along a limited portion of the Fayetteville Lateral. Location-specific evaluations would be conducted by Texas Gas's construction contractor to identify those locations where alternatives to blasting are not feasible. Texas Gas does not anticipate needing to blast at any location along the Greenville Lateral.

About 25 percent (38.8 miles) of the proposed Fayetteville Lateral would cross areas with reported depths to bedrock of less than 80 inches (based on analysis of the state Soil Survey Geographic [SSURGO] database). The soils with reported depth to bedrock of less than 80 inches would be in Arkansas west of the Fall Line (near MP 63.3) in Conway, Faulkner, Cleburne, and White Counties. The surficial bedrock encountered between MP 0.0 and MP 45.0 is expected to be paralithic (i.e., soft); therefore, blasting should not be required. However, the surficial bedrock crossed by the proposed Fayetteville Lateral between MP 45.0 and the Fall Line at MP 63.3 may require blasting.

All blasting-related operations would comply with federal, state and local regulations and permit conditions and would be conducted by or under the direct supervision of experienced, licensed, and certified personnel. To avoid injury to personnel and damage to structures and other features such as water wells and existing pipelines, Texas Gas stipulates that the blasting contractor must furnish a site-specific blasting plan prior to any proposed blasting-related activity. These plans would identify the distance and orientation to the nearest structure (both aboveground and belowground) and the procedures to be used for storing, handling, transporting, loading, and firing explosives. These site-specific plans would be reviewed by Texas Gas and approved by company representative(s) prior to each blast. Further, if blasting is needed for construction across a waterbody, Texas Gas would a provide us with a schedule identifying when trenching or blasting would occur within each waterbody greater than 10 feet wide, or within any designated coldwater fishery, in a manner consistent with our Procedures.

Blasting for grade or trench excavation would be considered only after all other reasonable means of excavation have been evaluated and determined to be unlikely to achieve the required results. Texas Gas may specify locations (foreign line crossings, nearby structures, etc.) where consolidated rock would be removed by approved mechanical equipment (e.g., rock trenching machines, rock saws, hydraulic rams, and jack hammers) in lieu of blasting.

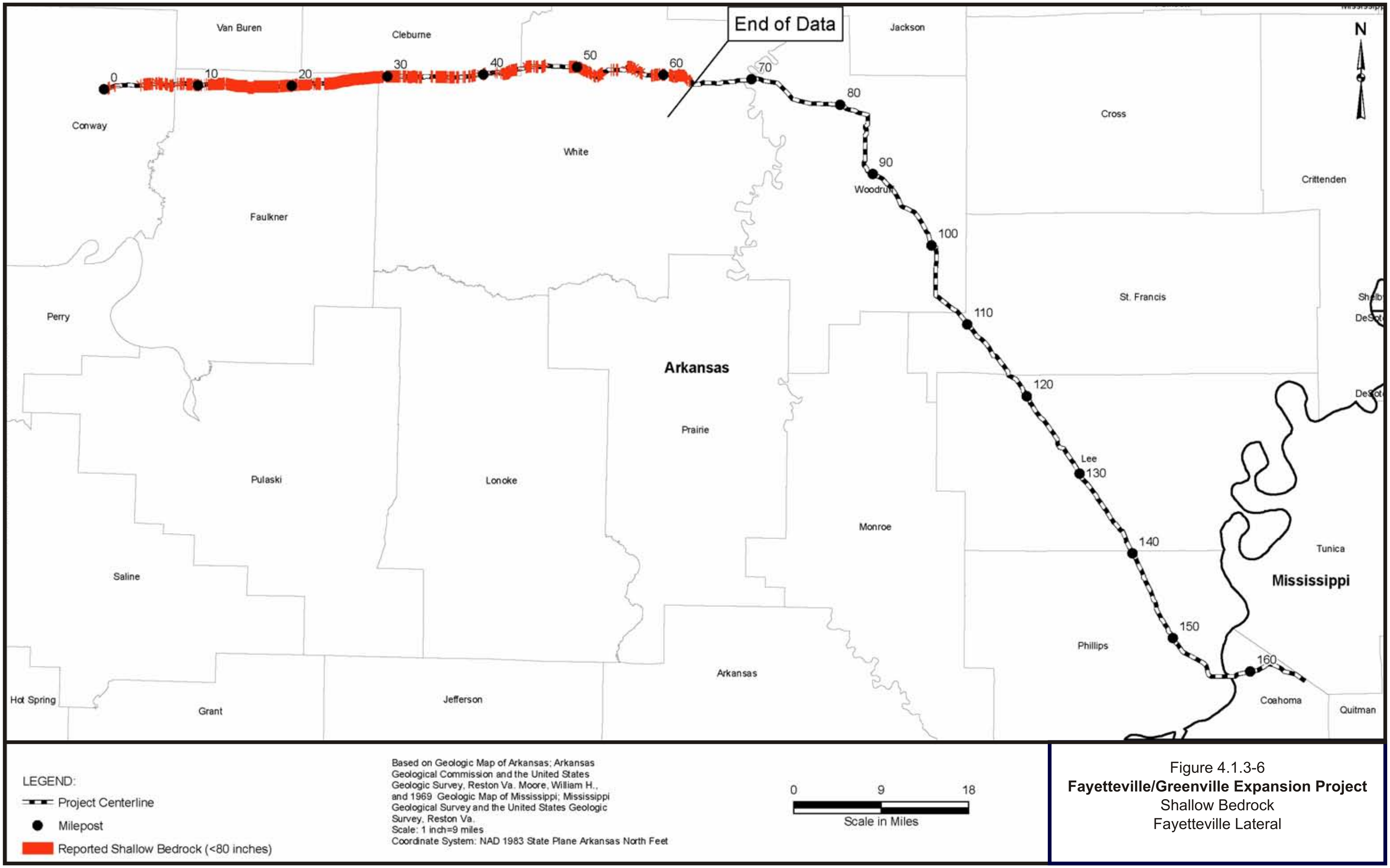


Figure 4.1.3-6
**Fayetteville/Greenville Expansion Project**
Shallow Bedrock
Fayetteville Lateral

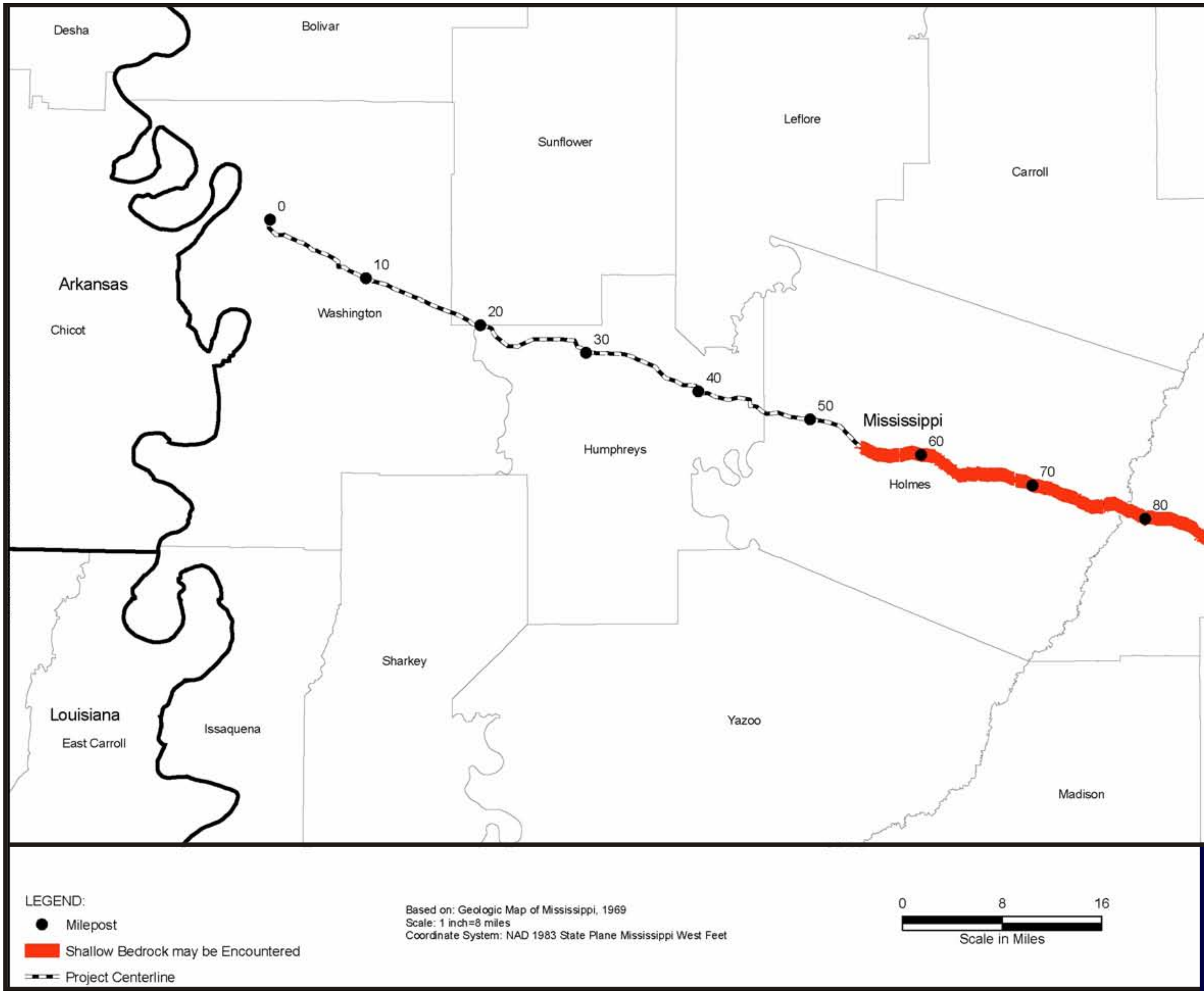


Figure 4.1.3-7
**Fayetteville/Greenville Expansion Project**
Shallow Bedrock
Greenville Lateral

Pre-construction and post-construction water well surveys would be conducted in any situation where blasting would occur within 150 feet of an existing water supply well, with landowner approval. Water wells would be tested for yield and water quality prior to beginning construction activities, and upon the conclusion of blasting and other activities that may affect well performance. Landowners would be contacted by a Texas Gas representative, and a qualified independent contractor would perform the testing. If the damage is substantiated, Texas Gas would negotiate a settlement with the landowner to have any and all damages repaired or replaced. See additional information about damaged water wells in section 4.3.1.

If blasting is required, Texas Gas would use the minimum explosive charge necessary to fracture bedrock and keep shot-rock from leaving the construction right-of-way. Where necessary, excess rock would be hauled off site, away from the right-of-way or, subject to landowner approval and applicable permit conditions, disposed of on the right-of-way.

Mitigation measures that would be employed to minimize impacts on sensitive resources and potential impacts on residences in proximity to blasting locations would be described by the blasting contractor in a site-specific blasting plan. At a minimum, blasting mats or padding would be used on all shots where necessary to prevent scattering of loose rock and to prevent damage to nearby structures and overhead utilities. The pipeline trench would be excavated by non-blasting, mechanical means where the trench is within 150 feet of a residence. Texas Gas has indicated that blasting would not be allowed within 10 feet of an existing pipeline unless an incident-specific approval is provided by Texas Gas. All existing underground utilities would be staked prior to blasting operations.

Texas Gas would require the contractor to maintain the maximum allowable vibration limit of 4 inches per second of peak particle velocity (ground motion) in the vertical, longitudinal, or horizontal directions as measured on the ground directly above any existing pipeline. For any aboveground structure, the ground motion would not exceed federal, state, or local regulations. If the measured ground motion at an existing pipeline or structure exceeds the allowable limit, blasting would be immediately stopped and Texas Gas would require the contractor to modify the blasting plan to reduce the ground motion before resuming blasting activities.

We believe that impacts due to blasting would be minimized by implementing Texas Gas's blasting specifications. Further, Texas Gas has agreed to repair, replace, or compensate landowners for damage caused by blasting.

#### 4.1.3.6 Slope Failures/Landslides

Landslides are rock, earth, or debris flows on slopes due to gravity. They can occur on any terrain given the right conditions of soil, moisture, and angle of slope. Also known as mud flows, debris flows, earth failures, slope failures, etc., they can be triggered by rains, floods, earthquakes, and other natural causes, as well as human-made causes such as grading, terrain cutting and filling, excessive development, etc. Because the factors affecting landslides can be geophysical or human-made, they can occur in developed areas, undeveloped areas, or any area where the terrain has been altered for roads, houses, utilities, or buildings. They occur in all fifty states with varying frequency, and more than half the states have rates sufficient to be classified as a significant natural hazard. Generally flat areas were selected for the locations of the proposed compressor and M&R sites; therefore, slope failure is not expected at aboveground facility locations. However, slope failures and landslides represent a potential hazard along portions of the proposed pipeline route that would traverse side slopes and rolling terrain. Factors that would increase the potential for slope failures along slopes and rolling terrain include cutting along slopes, the weight of construction equipment, and unusually high amounts of precipitation.

*Fayetteville Lateral*

The Federal Emergency Management Agency (FEMA) has made one Presidential disaster declaration that was attributed to landslides in Arkansas since 1956 (FEMA, 2006). The Arkansas disaster declaration, which included Woodruff County, was due to a severe storm event on May 7, 2004. Part of the proposed Fayetteville Lateral between MP 63.3 and MP 100.2 would cross the area included in the disaster declaration. Landslide susceptibility data evaluated for the Fayetteville Lateral route indicates high susceptibility to landslides in eastern White County and along both banks of the Mississippi River in eastern Phillips County, Arkansas, and western Coahoma County, Mississippi (Godt, 2001).

The area of potential high susceptibility in White County impacts less than 0.9 mile of the pipeline route. Texas Gas indicates that it would inspect the potentially high susceptibility area prior to construction. Care would be taken during construction to prevent undercutting unstable horizons. Implementing our Plan and Procedures would minimize the potential for slope failure and erosion. Additional mitigation measures could involve burial of the pipeline below the potential landslide depth, if feasible, and/or the use of drainage controls. Drainage control can include, but is not limited to frequent slope and ditch breakers, subsurface gravel or cobble drains, and culverts and drainage ditches to divert water away from the right-of-way.

The banks of the Mississippi River also have been identified as an area of high susceptibility to slope failure. Erosion and undercutting of stream banks and levees may result in unstable deposits that would eventually fail. However, Texas Gas would cross the Mississippi River by HDD, thereby avoiding this hazard.

Rockfalls are a potential hazard below bedrock outcroppings at or near the top of steep slopes associated with the ledge-forming sandstones of the Bloyd Shale and Prairie Grove Member of the Hale formation, which is mapped between MP 43.9 and MP 63.3 (McFarland, 1998). These outcrops may be weathered by wind or rainfall and become loosened, leading to a violent cascade downhill, often triggering a larger landslide. While the landslide potential is high, the incidence is defined as low and often represents less than 1.5 percent of the relevant mapped units (Godt, 2001). Landslides are not expected to be a significant hazard to construction and operation of the Fayetteville Lateral.

*Greenville Lateral*

The proposed Greenville Lateral would cross two areas considered prone to landslides. The first area would be between MP 0.2 and 0.6. This area is described as highly susceptible to landslides, with a low incidence. The second area is mapped between MP 56.5 and MP 67. This area is described as highly susceptible to landslides, with a moderate incidence.

Construction of the pipeline would be accomplished in accordance with our Plan, which includes measures to control runoff and erosion that would minimize the potential for slope failures. In addition, inspections before, during, and after construction would identify areas of risk, and continued monitoring along slopes would identify any significant landslide hazards before they develop. Based on the characteristics of the proposed Project area and Texas Gas's commitment to installing and monitoring appropriate erosion and sediment controls, we believe the potential impacts from slope failure and landslides would be minimized and would not be a significant hazard to construction and operation of the Greenville Lateral.

#### 4.1.3.7 Paleontological Resources

No areas of special or unusual paleontological resources were identified within the proposed Project construction workspaces or within the footprints of associated aboveground facilities. If significant paleontological resources are identified during construction Texas Gas would report findings to the AGC or the MDEQ. Based on the lack of unusual or significant paleontological resources within the Project area, we believe that construction and operation of the proposed Project would not significantly affect paleontological resources.

## 4.2 SOILS

### 4.2.1 Soil Types and Characteristics

Soils types occurring along the proposed pipeline routes are identified by milepost in table C-1 for the Fayetteville Lateral and table C-3 for the Greenville Lateral. Characteristics of soils within the construction right-of-way for the Fayetteville and Greenville laterals are described in tables C-2 and C-4, respectively. These tables are provided in appendix C.

Soil characteristics that could affect Project construction include: hydric soils, compaction potential, erosion potential, revegetation potential, rocks, and soil contamination. In addition, some soils have been designated as Prime Farmland and may be subject to special management considerations.

Soil interpretations at the broadest scale in the United States are based on Major Land Resource Areas (MLRA). MLRAs are geographically associated land resource units, usually encompassing tens of thousands of square miles, and are characterized by a particular pattern of soils, geology, climate, water resources, and land use (USDA/NRCS, 2006a).

_Fayetteville Lateral_

In Arkansas and Coahoma County, Mississippi, the Fayetteville Lateral would cross three MLRAs recognized by the NRCS: the Arkansas Valley and Ridges, Eastern Part (MLRA 118A); the Southern Mississippi Valley Alluvium (MLRA 131A); and the Southern Mississippi Valley Loess (MLRA 134).

The Arkansas Valley and Ridges, Eastern Part, is comprised mostly of Ultisols. They predominantly have a thermic[1] soil temperature regime, a udic[2] moisture regime, and their mineralogy is typically mixed or siliceous (formed from silicates). They are stony and non-stony and are medium textured. Soils on ridgetops, benches, and upper slopes are well drained, shallow and moderately deep. On the middle and lower slopes, soils are well drained and deep (USDA NRCS, 2006a).

The soils of the Southern Mississippi River Alluvium are predominantly Alfisols, Vertisols, Inceptisols, and Entisols. The soil temperature regime is thermic in the Project area and the soil moisture regime is predominantly aquic[3]. The clays typically have high shrink-swell ratios compared to other types of clay. The sand and silt mineralogy is mixed. The soils are very deep, predominantly poorly drained, and

1 The thermic temperature regime is one in which the mean annual soil temperature is 15 degrees Celsius (C) or higher but lower than 22 degrees C, and the difference between mean summer and mean winter soil temperatures is more than 6 degrees C either at a depth of 50 centimeters (cm) from the soil surface or at a densic, lithic, or paralithic contact, whichever is shallower (USDA/NRCS, 2006b).

2 The udic moisture regime is one in which the soil moisture control section is not dry in any part for as long as 90 cumulative days in normal years (USDA/NRCS, 2006b).

3 The aquic moisture regime is a reducing regime in a soil that is virtually free of dissolved oxygen because it is saturated by water (USDA/NRCS, 2006b).

predominantly loamy or clayey. Slopes are nearly level on alluvial flats and backswamps. On other landforms, such as natural levees and terraces, slopes are nearly level to gently sloping or undulating. Controlling surface water and artificially draining the wet soils are major concerns for cropland management (USDA/NRCS, 2006a).

The Fayetteville Lateral route would cross the western portion of the Southern Mississippi Valley Loess. The dominant soil orders here are Alfisols, Entisols, Inceptisols, and Ultisols. These soils are deep or very deep, are medium textured, and have a thermic soil temperature regime. The soil moisture regime is udic, and the mineralogy is mixed. On ridgetops and side slopes, gently sloping to steep, well-drained and moderately well drained soils are found. On floodplains, soils are nearly level to very gently sloping and range from well drained to poorly drained (USDA/NRCS, 2006a).

*Greenville Lateral*

The Greenville Lateral would cross three MLRAs: the Southern Mississippi Valley Alluvium (MLRA 131A), the Southern Mississippi Valley Loess (MLRA 134), and Southern Coastal Plain (MLRA 133A). MLRA 131A and MLRA 134 are described above for the Fayetteville Lateral. The Greenville Lateral route would cross the eastern portion of the Southern Mississippi Valley Loess, where the loess mantle over late Pleistocene loamy terrace material is thinner than in the western portion of this MLRA.

The soils of the Southern Coastal Plain are predominantly Ultisols, Entisols, and Inceptisols. The soils mostly have a thermic soil temperature regime and a udic or aquic soil moisture regime. The sand and silt mineralogy is siliceous, and clays typically have a low shrink-swell ratio. These soils generally are very deep, somewhat excessively to poorly drained, and loamy (USDA/NRCS, 2006a).

### 4.2.2 Potential Impacts and Mitigation

Some soil characteristics can present limitations on how a given soil can be used and may result in problems during construction or in the operation phase of a project unless specific measures are implemented to mitigate those limitations. In the case of the proposed Project, there would be no soil limitations sufficient to require relocating the Project, but they must be anticipated and steps must be taken to minimize impacts on the soil. We evaluated the soils that could affect construction and operation of the Project or could increase the potential for soil impacts. Limitations were reviewed with respect to the pipeline and aboveground facilities.

#### 4.2.2.1 Prime Farmland

Prime Farmland soils are defined by the USDA as those best suited for food, feed, forage, fiber, and oilseed crops (USDA/NRCS, 2005b). Prime farmland typically contains few or 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 (e.g., by artificial drainage). Soil map units designated as Prime Farmland do not have to be actively cultivated to receive such designation. Prime Farmland is an important resource because it provides the highest crop yield per unit of energy expended. The Prime Farmland soils encountered along the Fayetteville and Greenville Laterals are identified in appendix C, tables C-2 and C-4, respectively.

Forty-nine percent of the soil that would be affected by construction of the proposed Fayetteville Lateral would be classified as Prime Farmland, and another 19 percent is classified as Prime Farmland when adequately drained. An additional 8 percent is classified as Farmland of Statewide Importance. Thus, 76 percent of the soil along the proposed Fayetteville Lateral would be considered agriculturally important (i.e., Prime Farmland or Farmland of Statewide Importance). Sixty-seven percent of the soil that would be affected by construction of the Greenville Lateral would be classified as Prime Farmland or Prime Farmland when adequately drained.

The proposed Kosciusko Compressor Station would permanently impact up to 30.5 acres of Prime Farmland soils.

Texas Gas would implement the measures included in our Plan to minimize and mitigate any impacts on Prime Farmland soils. Virtually all impacts on Prime Farmland soils resulting from construction and operation of the proposed Project would be temporary because the proposed pipeline would be buried and disturbed areas within the construction and permanent rights-of-way would largely revert to their preconstruction uses following restoration. The footprint of aboveground facilities would permanently affect some Prime Farmlands. Operation of the Kosciusko Compressor Station would impact about 30.5 acres of Prime Farmland. In addition, about 27.5 acres of designated Prime Farmland at the proposed M&R stations, MLVs, and other minor facilities would be lost due to operation of these aboveground facilities since these areas would be converted to an industrial land use.

Farmland Conversion Impact Rating documentation would not be required for the proposed Project since it would not be completed by or with assistance from a federal agency, as specified by the Farmland Protection Policy Act. Given the prevalence of Prime Farmland soils within the affected counties, the permanent impacts on Prime Farmland soils associated with construction and operation of the proposed Project's aboveground facilities would be minimal.

During pipeline construction in agricultural areas, a maximum of the upper 12 inches of topsoil would be excavated and segregated from subsoil trench spoil. The topsoil would be returned following construction, and the construction right-of-way would be revegetated according to our Plan. In addition, Texas Gas would restore all specialty agricultural areas to their original condition. This would minimize impacts on Prime Farmland soils and specialty agricultural areas.

#### 4.2.2.2 Hydric Soils

Hydric soils are soils that are saturated, flooded, or ponded long enough during the growing seasons to develop anaerobic conditions in the upper part of the soil column. These soils under natural conditions are either saturated or inundated long enough during the growing season to support the growth and reproduction of hydrophytic vegetation (USDA/NRCS, 2005b). Soils that formed under hydric conditions in their unaltered state are still considered hydric when artificially drained or altered for such purposes as agricultural use. Hydric soils are typically poorly drained, and the presence of hydric soils is one of the criteria used for defining wetlands (USDA/NRCS, 2005b). Hydric soils may be prone to compaction and rutting. Some of these soils may include substantial non-hydric inclusions, while some non-hydric soils may include hydric inclusions. Hydric soils may indicate the presence of wetlands or agricultural drain tiles. The locations where hydric soils would be encountered along the Fayetteville and Greenville Laterals are identified in tables C-2 and C-4, respectively.

About 32 percent of the soil along the Fayetteville Lateral would be considered predominantly hydric. Hydric soils are more common in the counties along the eastern portion of the Fayetteville Lateral than in counties along the western portion of the route. About 90 percent of the soil along the Greenville Lateral route would be considered predominantly hydric or contains significant hydric inclusions. Areas where hydric soils would occur with wetland hydrology and vegetation are identified in section 4.4.

Hydric soils are prone to compaction and rutting due to extended periods of saturation and high clay content. If construction of the pipeline system occurs when these soils are saturated, heavy equipment operation would be impaired, and compaction and rutting could occur. Further, high groundwater levels that accompany hydric soils could create a buoyancy hazard for the pipeline. The pipeline would have concrete coating and other weighting methods would be used to overcome buoyancy when the pipeline is buried so that the buoyancy hazard is minimized during operation. Texas Gas also would install the pipeline in accordance with our Procedures and would restore all wetlands back to their original contours and elevations. Therefore, with implementation of these measures, we conclude that impacts on hydric soils would be minimized during construction and operation of the Project.

#### 4.2.2.3 Compaction Potential

Soils with a high potential for compaction could be adversely affected during construction activities through the repeated movement of machinery across the soil surface. Soils with poor drainage characteristics and high shrink-swell potential tend to be susceptible to compaction, particularly when wet. In addition to hydric soils, described above, some non-hydric soils may have poor internal drainage characteristics that can cause wet conditions when nearby soils are dry.

Soils with a high shrink-swell potential would underlie about 8 percent of the Fayetteville Lateral, while an additional 16 percent would have a moderate shrink-swell potential. Soils with a high shrink-swell potential would underlie about 54 percent of the Greenville Lateral, while an additional 13 percent would have a moderate shrink-swell potential.

Formation of hardpans is a potential impact associated with repeated traffic over susceptible soils. The formation of hardpans is typically limited to soils with high to very high shrink-swell potential. Formation of hardpan in Mississippi is not considered to be a significant concern in this Project due to the short construction time frame and the fact that the soils susceptible to hardpan formation are those where hardpan already occurs (Adams, 2007; Johnson, 2007). Similar conclusions can be drawn for the Arkansas portions of the Project.

Soil compaction modifies the structure and reduces the porosity and moisture-holding capacity of the soil. The degree of compaction is dependent on moisture content and soil texture. Construction equipment traveling over wet soils could disrupt soil structure, reduce pore space, increase runoff potential, and cause rutting. Compaction and rutting impacts would be more likely to occur when soils are moist or saturated.

The predominantly poorly drained clay and silt soils present along the pipeline right-of-way, especially in eastern Arkansas and Mississippi, have the potential to experience some level of soil compaction due to construction activities. Soil compaction in some saturated areas would be avoided by the use of HDD methods. In addition, board roads and/or low-ground-pressure equipment would be used for construction access where needed. In agricultural areas, Texas Gas would implement decompaction measures for severely compacted soils, such as para-plowing, deep tillage, or planting and plowing-in a green manure crop to improve soil bulk density, in accordance with our Plan. Therefore, we conclude that impacts associated with soil compaction would be minimized.

#### 4.2.2.4 Soil Erosion - Highly Erodible Soils

Soil erosion potential is affected by the soil lithology, slope, and exposure to erosion mechanisms. Soil erosion increases in inverse proportion to the effectiveness of vegetation cover, i.e., soils with denser vegetation cover are less susceptible to erosion. The removal of vegetation during construction activities, whether by direct stripping or by other mechanical means, increases erosion potential. Highly erodible soils, as classified by the NRCS, are considered very susceptible to erosion by water. Tables C-2 and C-4 identify the soils with a high potential for erosion by wind or water that would be affected by the Project.

About 53 percent of the soils along the Fayetteville Lateral would be classified as highly erodible or potentially highly erodible. About 26 percent of the soils along the Greenville Lateral would be classified as highly erodible or potentially highly erodible, with the occurrence increasing in the Southern Mississippi Valley Loess MLRA.

Erosion is a continuing natural process that can be accelerated by human disturbance. Factors that influence the degree of erosion include soil texture, structure, length and percent of slope, vegetative cover, and rainfall and 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. Clearing, grading, and equipment movement could 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.

Texas Gas has adopted our Plan and Procedures for erosion and sedimentation control during construction. For stream crossings, Texas Gas would use the waterbody crossing methods identified in our Procedures and the erosion and sediment control practices specified in the Plan. These erosion control measures include the installation of slope breakers, trench plugs, and sediment barriers such as silt fence or hay bales, the use of mulch and erosion control fabrics, temporary seeding, and right-of-way restoration within 20 days of backfilling the trench, weather conditions permitting, and revegetation. We conclude that implementation of these measures would minimize overall soil erosion resulting from construction of the Project.

#### 4.2.2.5 Revegetation Potential

Several soil characteristics can limit how quickly and successfully disturbed areas can be revegetated. Among potentially limiting characteristics are depth, texture, slope, erosion potential, soil pH, moisture holding capacity, presence of impermeable layers, and percent organic matter. While some soils within the construction corridor would be more easily revegetated than others, there would be no soils that present significant limitations to successful revegetation, assuming sound practices for establishing vegetative cover are followed.

Successful restoration and revegetation in areas that are not permanently developed by construction and operation of aboveground facilities are important to maintain ecosystem productivity and to protect the underlying soil from potential damage such as erosion. Revegetation potential may be inhibited by soil erosion, loss of soil productivity through compaction or mixing of topsoil and subsoil, damage to soil structure, loss of fertility, damage to drainage systems, and unsuitable seed selection, methods or planting conditions. To avoid these conditions, Texas Gas would return the construction right-of-way, temporary work spaces, and pipe storage and contractor yards to pre-construction contours to the extent feasible. Further, Texas Gas would use appropriate erosion controls, manage spoil to avoid topsoil mixing, conduct decompaction where needed, repair damaged drainage systems, and consult with the NRCS and landowners about appropriate seed mixes.

In cultivated areas, seeding and mulching would conform to the areas adjacent to the right-of-way unless otherwise requested in writing by the landowner. Unless requested by a landowner, no areas would be left unseeded beyond the next available seeding season. Post-construction inspections would be conducted in accordance with our Plan and Procedures to ensure that revegetation is adequate.

Soils along the proposed Project pipelines and at aboveground facilities sites are currently well vegetated, unless regularly disturbed for agricultural purposes, and none are predicted to have a low revegetation potential following construction. Texas Gas would implement the measures in the Plan and Procedures for revegetating disturbed areas following construction, in consultation with soil conservation authorities. Texas Gas also would maintain erosion control devices until revegetation is successful and would monitor disturbed areas for up to 3 years to ensure the success of revegetation. In addition, Texas Gas is coordinating with the USACE and other agencies to develop an appropriate wetland restoration plan for wetlands affected by Project construction (see section 4.4.3). We conclude that if revegetation is conducted in accordance with these measures, areas disturbed by construction would be successfully revegetated.

#### 4.2.2.6 Drainage Systems and Drainage Patterns

Heavy equipment traffic and trenching along the construction right-of-way could damage existing drainage systems or existing drainage patterns, thereby affecting farm management by causing wet, unworkable soils. Future crop production would likely be lowered if such damage is not corrected. Texas Gas would be responsible for ensuring all areas affected by construction activities are finish graded and restored as closely as practicable to preconstruction contours. If active drainage tiles, culverts, or other drainage facilities are damaged during construction, Texas Gas would replace or repair them to a condition that is equal to or better than preconstruction condition. Although damage to drainage structures and patterns would result in short-term impacts, the corrective actions that would be implemented by Texas Gas would avoid or minimize any long-term impact.

#### 4.2.2.7 Rocks

Introduction of rocks to surface soil layers would be of concern along the pipeline route in areas where shallow bedrock is encountered. Trenching and mixing of excavated materials in these areas could bring large rocks to the surface, which would adversely affect soil productivity and agricultural practices. In accordance with our Plan, Texas Gas would remove excess rock from at least the top 12 inches of soil in all rotated and permanent cropland, hayfields, pastures, residential areas, and other areas at the landowner's request. Following construction and restoration, the size, density, and distribution of rocks in all construction work areas would be similar to that in adjacent areas not affected by construction. Thus, no significant impacts are anticipated as a result of pipeline construction through areas of shallow bedrock if Texas Gas implements these mitigation measures.

#### 4.2.2.8 Soil Contamination

No areas of soil contamination were identified within proposed Project workspaces, although soil contamination could result from construction and related activities. Contamination from spills or leaks of fuels, lubricants, and coolant from construction equipment could adversely affect soils; however, the effects of such contamination would typically be minor because of the low frequency and volumes of spills and leaks. Texas Gas would implement its SPCC Plan for the pipelines and aboveground facilities (see appendix D, SPCC Plan). This plan describes cleanup procedures that would be used in the event of soil contamination resulting from spills or leaks of fuel, lubricants, coolants, or solvents. Texas Gas and its contractors would use the SPCC Plan to prevent and, if necessary, contain accidental spills of any material that may contaminate soils and to ensure that inadvertent spills of fuels, lubricants, or solvents are contained, cleaned up, and disposed of in an appropriate manner.

If contaminated or suspect soils (e.g., oil-stained soils) are identified during trenching operations, work in the area of the suspected contamination would be halted until notification is sent to appropriate authorities and the type and extent of the contamination is determined. The response action would be identified based on the type and extent of contamination; the responsible party; and local, state, and federal regulations.

Successful use of the SPCC Plan would minimize the potential for spills of contaminated materials to occur and would contain spills that might occur during construction of the Project.

## 4.3 WATER RESOURCES

### 4.3.1 Groundwater

The proposed Project would cross three aquifer systems: a surficial aquifer system, the Mississippi Embayment Aquifer System, and the Western Interior Plains confining system. The surficial aquifer system consists of the major Mississippi River Valley Alluvial Aquifer and three minor alluvial aquifers (the Arkansas River, Ouachita-Saline Rivers, and Red River aquifers). The Mississippi Embayment Aquifer system comprises six individual aquifers: the Upper Claiborne, Middle Claiborne, Lower Claiborne-Upper Wilcox, Middle Wilcox, Lower Wilcox, and McNairy-Nacatoch. The Western Interior Plains confining system in Arkansas underlies the Boston Mountains, the highest erosional plateau in northern Arkansas, and extends under coastal plain sediments. In places, the Mississippi River Valley Alluvial Aquifer directly overlies and is hydraulically interconnected with aquifers of the Mississippi Embayment Aquifer system; in such places, water moves freely between the two aquifers (USGS 1998).

About two-thirds of the proposed Fayetteville Lateral would be above the Mississippi River Valley Alluvial Aquifer. This is the primary aquifer in the surficial system, underlying about 33,000 square miles of the Mississippi River valley in Arkansas, Mississippi, and Louisiana. Alluvial aquifers of the surficial aquifer system are characterized by their ability to yield large volumes of water and by their hydraulic interconnection with the rivers and streams that cross them (USGS, 1998). Within the Mississippi River Valley Alluvial Aquifer, properly constructed private wells can commonly yield up to 500 gallons per minute, and irrigation wells can produce up to 5,000 gallons per minute. Groundwater quality within the Mississippi River valley is considered adequate for most uses; however, groundwater withdrawals are predominantly used for agriculture and aquaculture purposes.

The remaining one-third of the proposed Fayetteville Lateral would be above the Western Interior Plains confining system, which is part of a widespread, thick, geologically complex, poorly permeable, sedimentary sequence that extends eastward from the Rocky Mountains to western Missouri and northern Arkansas (USGS, 1998). Locally, however, individual geologic units or parts of units within the confining system yield as much as 19 gallons per minute to wells, and the confining system is, therefore, considered to be a minor aquifer (USGS, 1998). Groundwater quality within the Western Interior Plains confining system is deemed variable, meeting nearly all secondary drinking-water standards, but is not used as a municipal supply source.

The western half of the proposed Greenville Lateral would be above the Mississippi River Valley Alluvial Aquifer, and the eastern half would be above the Upper Claiborne, Middle Claiborne, and Lower Claiborne-Upper Wilcox aquifers of the Mississippi Embayment Aquifer system. The Mississippi Embayment Aquifer system is the most widespread system in the Arkansas, Louisiana, and Mississippi region. The Middle Claiborne Aquifer is the most extensively used aquifer of the six that comprise the Mississippi Embayment Aquifer system. Individual domestic wells in the Middle Claiborne Aquifer generally yield from 100 to 300 gallons per minute in Mississippi. Groundwater quality within this aquifer can range from less than 500 milligrams per liter dissolved solids (freshwater) to greater than 35,000 milligrams per liter dissolved solids (brine). Calcium bicarbonate and sodium bicarbonate waters dominate the exposed and shallow subsurface areas of the Middle Claiborne Aquifer (USGS, 1998).

Sole-source or principal-source aquifers are defined by the EPA as those that supply a minimum of 50 percent of the drinking water used in the area overlying the aquifer. The areas served by these aquifers may not have readily available alternative water sources. No sole-source aquifers have been designated in

Arkansas. One sole-source aquifer exists in Mississippi; however, it is not located in the vicinity of the Project. Therefore, no impacts on sole-source aquifers or principal-source are likely to occur as a result of the Project.

No public water supply wells would be within 150 feet of the proposed Fayetteville Lateral. Three public water supply wells would be within 150 feet of the proposed Greenville Lateral: one along the pipeline at MP 62.23 and two in the vicinity of proposed storage yards near MP 37 and MP 72.9. The MDEQ confirms that a confining layer of clay would prevent localized infiltration due to Project construction into the aquifer utilized for these wells. Texas Gas would clearly mark these wellheads to prevent damage to them during construction activities. There are no additional requirements for the proposed Project near these wells.

There would be 15 private supply wells within 150 feet of the construction footprint and three private wells within 150 feet of access roads along the Fayetteville Lateral. The private well closest to the construction footprint of the Fayetteville Lateral would be about 11 feet southwest of the centerline at MP 120, in Lee, Arkansas. For the proposed Greenville Lateral, 12 private wells would be within 150 feet of the construction footprint, three private wells within 150 feet of access roads, and four private wells would be within 150 feet of the storage yards. The private well closest to the construction footprint of the Greenville Lateral would be about 48 feet north of the centerline at MP 89.9, in Attala, Mississippi (see tables 4.3.1-1 and 4.3.1-2). Additional water wells within 150 of construction workspaces may be identified during easement negotiations with landowners. In addition, Texas Gas would conduct a pre- and post-pipeline construction yield tests on any active wells within 150 feet of the pipeline work area with landowner approval.

The Arkansas Department of Health and Human Services (ADHHS) identified three Wellhead Protection Areas (WHPA) within 1 mile of the proposed Fayetteville Lateral (Smith, 2007): Russell Waterworks Well No. 1, McCrory Waterworks Well No. 4, and Patterson Waterworks Well No. 1. Based on the characteristics of the WHPAs, consultations with the ADHHS, and the potential impacts to WHPAs resulting from the proposed construction activities, we believe that the proposed Project would not significantly affect the Russell, McCory, and Patterson WHPAs.

The MDEQ identified three public water supply protection areas within 150 feet of workspaces associated with the proposed Greenville Lateral. These protection areas are located at MP 51.3, MP 63.6, and MP 81.2. MDEQ requested that caution be observed in these areas to avoid damage to the wellhead, but no other restrictions were recommended (MDEQ, 2007). Therefore, we believe that construction and operation of the proposed Project would have minimal, if any, impact on these public water supply protection areas.

No springs have been identified within 150 feet of the proposed Project. However, comments received during our March 21, 2007, scoping meeting indicated the potential presence of springs along the proposed pipeline route. Concerns were expressed regarding the potential loss or impact to these springs, as they may provide a primary source of water for some landowners. The locations of springs within 150 feet of construction workspaces may be identified during easement negotiations with landowners prior to construction, and the locations of water wells may also be known with greater refinement at that time. Texas Gas would consult with the appropriate regulatory agencies and the individual landowner to minimize any impacts. Therefore, **we recommend that:**

- **Texas Gas file with the Secretary the MP locations of water wells and springs within 150 feet of construction workspaces and include their distance and direction from the construction workspace, prior to construction.**

**TABLE 4.3.1-1**

**Private Water Supply Well Locations Within 150 feet of the Proposed Fayetteville Lateral Workspaces**

| County, State | Milepost | Distance from Workspace (feet) | Direction | Total Depth of Well (feet) |
|---|---|---|---|---|
| Faulkner, AR | 18.8 | 81 | N | 110 |
| Faulkner, AR | 18.8 | 87 | N | 60 |
| Faulkner, AR | 21.2 | 146 | S | 159 |
| Faulkner, AR | 26.3 | 69 | N | 295 |
| White, AR | 44.6 | 131 | NNW | 300 |
| White, AR | 62.1 | 31 | ESE | 220 |
| Woodruff, AR | 78.7 | 40 | NE | 118 |
| Woodruff, AR | 84.6 | 140 | W | 116 |
| Woodruff, AR | 92.9 | 131 | WSW | 127 |
| Lee, AR | 120 | 28 | E | 130 |
| Lee, AR | 120 | 11 | SW | 132 |
| Lee, AR | 130 | 109 | WSW | 136 |
| Lee, AR | 137.1 | 52 | S | -- a/ |
| Phillips, AR | 140.1 | 93 | ENE | 150 |
| Phillips, AR | 145.1 | 45 | E | 120 |
| **Within 150 feet of access roads** | | | | |
| Woodruff, AR | 71 | -- b/ | NNE | 87 |
| Lee, AR | 135.6 | -- b/ | NE | 145 |
| Phillips, AR | 149.7 | -- b/ | NE | 105 |

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Source: USGS National Water Information System, 2007.

a/ Data not provided.

b/ Data originally provided represented well distance from Project centerline, However, Texas Gas determined this access road to be within 150 feet of a private water supply well.

### 4.3.1.1 Pipeline Facilities

The typical depth of the trench excavation would be shallow (about 10 feet) relative to the depth to the aquifers within the Project area (about 25 feet). A typical trench depth would be above most surficial aquifers and the completion depth of most water wells in a shallow aquifer. However, construction activities could encounter shallow alluvial aquifers and could cause minor fluctuations in groundwater levels and/or increased turbidity potentially affecting water quantity and quality. However, most alluvial aquifers exhibit rapid recharge and groundwater movement; therefore, it is likely that they would quickly re-establish equilibrium and turbidity levels would rapidly subside. Impacts to groundwater would be avoided or minimized by following BMPs when working near water wells and in areas of shallow aquifers, and by implementing Texas Gas's proposed mitigation measures as well as the mitigation measures outlined in our Plan and Procedures during construction.

**TABLE 4.3.1-2**

**Private Water Supply Well Locations Within 150 feet of the Proposed Greenville Lateral Workspaces**

| County, State | Milepost | Distance from Workspace (feet) | Direction | Total Depth of Well (feet) |
|---|---|---|---|---|
| Washington, MS | 0.57 | 145 | E | 90 |
| Washington, MS | 2.57 | 104 | NNE | 97 |
| Washington, MS | 8.3 | 145 | SW | 67 |
| Humphreys, MS | 23.1 | 92 | N | 840 |
| Humphreys, MS | 31.5 | 60 | S | 115 |
| Humphreys, MS | 31.6 | 49 | S | 116 |
| Holmes, MS | 50.9 | 124 | NE | 1,148 |
| Holmes, MS | 63.9 | 122 | SSE | 800 |
| Holmes, MS | 72.9 | 121 | S | 323 |
| Attala, MS | 78.3 | 135 | N | 674 |
| Attala, MS | 89.9 | 48 | N | 120 |
| Attala, MS | 94.4 | 68 | S | 28 |
| **Wells within 150 feet of storage yards** | | | | |
| Humphreys, MS | 35.5 | -- b/ | SSW | 120 |
| Humphreys, MS | 36.7 | -- b/ | SW | 790 |
| Holmes, MS | 51.5 | -- b/ | N | 990 |
| Holmes, MS | 72.9 | -- b/ | N | 849 |
| **Wells within 150 feet of access roads** | | | | |
| Washington, MS | 9.4 | -- b/ | NNE | 496 |
| Holmes, MS | 50.9 | -- b/ | N | 1,148 |
| Holmes, MS | 59 | -- b/ | S | 95 |

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Source: USGS National Water Information System, 2007.

a/ Data not provided

b/ Data originally provided represented well distance from Project centerline, However, Texas Gas determined this access road to be within 150 feet of a private water supply well.

In some areas with shallow groundwater, it may be necessary to dewater the trench by pumping accumulated water from the trench prior to installing the pipeline. This dewatering may result in the temporary lowering of the groundwater level near the trench. Because of the relatively small amount of water removed, the short duration of the activity, and the local discharge of the water, the groundwater levels would quickly recover when the dewatering stops. Effects from trench dewatering on groundwater would be localized and temporary. Trench dewatering would be conducted in accordance with our Plan and Procedures.

Surficial aquifers could also experience minor impacts from changes in overland water flow and recharge caused by clearing and grading of the right-of-way. The soil's ability to absorb water could be altered through near-surface compaction by heavy construction vehicles. This minor impact would be temporary and is not expected to significantly affect groundwater resources or quality since the right-of-way would be restored and revegetated following construction. Soil compaction mitigation measures would be followed according to our Plan.

Refueling of vehicles and storage of fuel, oil, and other fluids during construction could potentially result in impacts to groundwater. Spills or leaks of hazardous liquids could contaminate groundwater and affect aquifer users. Soil contamination could add pollutants to the groundwater long after the spill has occurred. This type of impact would be avoided or minimized by restricting the location of refueling and storage facilities and by requiring immediate cleanup in the event of a spill or leak. Potential impacts on groundwater would be minimized by the use of standard construction techniques and by the implementation of erosion control measures contained in our Plan and Procedures. Potential impacts associated with spills would be minimized by implementation of Texas Gas's project-specific SPCC Plan for pipeline construction.

Texas Gas would adhere to the construction practices and mitigation measures outlined in our Plan and Procedures to minimize or avoid impacts on groundwater resources. Texas Gas's SPCC Plan requires that no construction equipment, refueling or maintenance equipment, or storage of hazardous substances, chemicals, fuels, and/or lubricating oils would be permitted within 100 feet of any stream bank, wetland, sensitive plant population, and/or groundwater well. Secondary containment would be provided for all stationary fuel storage tanks, pumps, and portable fuel containers, and all tanks would be inspected by the construction contractor. Contractor employees and subcontractors would complete spill prevention and containment training and would understand response procedures, prior to the start of construction activities. Emergency equipment, response coordination, and cleanup and disposal are also outlined in the SPCC Plan. Texas Gas would implement an individual SPCC Plan at each aboveground facility that stores oil in excess of volumes identified in 40 CFR 112 to protect groundwater sources during operation.

Texas Gas states that additional data on private water wells is being compiled to identify specific locations and minimize potential impacts. Texas Gas would conduct pre- and post-construction monitoring to determine whether impacts on active wells have occurred as a result of pipeline construction. If any water well or supply system is adversely affected, Texas Gas would repair or replace affected potable water supply wells within 150 feet of the construction work area damaged by construction activities or would fairly compensate the landowner for damage to potable water supply wells that results from pipeline construction. Texas Gas may obtain temporary water supplies from a variety of sources, and would continue to supply affected landowners/tenants with a temporary water supply until the damaged water well or water supply system is repaired or replaced. We believe that implementation of Texas Gas's proposed mitigation measures and the use of BMPs near water wells would minimize impacts to water wells and that construction and operation of the Project would have minimal impact on these resources.

### 4.3.2 Surface Water

The Project would be within three major watersheds: the Arkansas-Red-White River Basin; the Lower Mississippi River Basin, and the South Atlantic-Gulf Regional Watershed. The Arkansas-Red-White River Basin encompasses about 247,000 square miles in parts of Arkansas, Colorado, Kansas, Missouri, New Mexico, Texas, Louisiana, and Okalahoma. The proposed Fayetteville Lateral would cross three minor watersheds within this basin. The Lower Mississippi River Basin extends 954 river miles from the confluence of the Ohio and Mississippi Rivers at Cairo, Illinois, to the Gulf of Mexico. The proposed Fayetteville Lateral would cross five minor watersheds and the proposed Greenville Lateral would cross four minor watersheds within this basin. The South Atlantic-Gulf Regional Watershed covers about 272,000 square miles of land. Portions of six states are located in this drainage, including North Carolina, South Carolina, Georgia, Florida, Alabama, and eastern Mississippi. The proposed Greenville Lateral would cross one minor watershed in this basin. Table 4.3.2-1 identifies these major watersheds by state, MP, and county.

**TABLE 4.3.2-1**

**Watersheds within the Proposed Project Area**

| Watershed | Approximate Mileposts | County |
|---|---|---|
| **Fayetteville Lateral** | | |
| **Arkansas** | | |
| Arkansas-Red-White River Basin | 0 to 76 | Conway, Faulkner, Cleburne, White |
| Cadron Creek | 0 to 34.5 | Conway, Faulkner, White |
| Little Red River | 34.5 to 61 | White, Cleburne |
| Upper White-Village | 61 to 76 | White |
| Lower Mississippi River Basin | 76 to 166.2 | Woodruff, St. Francis, Lee, Phillips |
| Cache River | 76 to 99 | Woodruff |
| Big River | 99 to 118 | Woodruff, St. Francis, Lee |
| L'Anguille | 118 to 125 | Lee |
| Lower White | 125 to 154.5 | Lee, Phillips |
| Lower Mississippi-Helena | 154.5 to 155.6 | Phillips |
| **Mississippi** | | |
| Lower Mississippi-Helena | 157.3 to 166.2 | Coahoma |
| **Greenville Lateral** | | |
| **Mississippi** | | |
| Lower Mississippi River Basin | 0.0 to 92.3 | Washington, Sunflower, Humphreys, Holmes, Attala |
| Deer-Steele | 0 to 10.3 | Washington |
| Big Sunflower River | 10.3 to 33.1 | Washington, Sunflower, Humphreys |
| Upper Yazoo River | 33.1 to 71 | Humphreys, Holmes, Attalla |
| Upper Big Black River | 71 to 92.3 | Holmes, Attala |
| South Atlantic-Gulf Regional Watershed | 92.3 to 96.41 | Attala |
| Upper Pearl River | 92.3 to 96.4 | Attala |

Source: USGS, 2006b.

The ADHHS also identified two public water supply watersheds (Brewer Lake and Little Red River) within 1 mile of the proposed Fayetteville Lateral route (Smith, 2007). To avoid impacts on these areas of concern, ADHHS requested either modifications to the Fayetteville Lateral route or for Texas Gas to provide planned construction methods for review so that ADHHS may document any potential impact on the water supply associated with planned activities. Route alternatives suggested by the ADHHS to avoid Little Red River and Brewer Lake Watersheds were analyzed but not selected (see section 3.3.3). However, we believe that Texas Gas should continue to consult with the ADHHS regarding construction and mitigation plans within these areas and to provide the ADHHS with an opportunity to comment on them. Therefore, **we recommend that:**

- **Texas Gas consult with the ADHHS about the construction methods that would be used to cross the Brewer Lake and Little Red River Watersheds and to file the results of that consultation, including any ADHHS-recommended modifications to those methods, with**

**the Secretary prior to construction for review and written approval of the Director of OEP.**

#### 4.3.2.1 Pipeline Facilities

The Project would cross a total of 483 waterbodies (70 perennial and 413 intermittent). The Fayetteville Lateral would cross 278 waterbodies (40 perennial and 238 intermittent), 11 of which would be classified as major crossings (i.e., greater than 100 feet wide). The Greenville Lateral would cross 203 waterbodies (29 perennial and 174 intermittent), six of which would be classified as major crossings. The Kosciusko 36-inch Tie-in Lateral would cross one perennial and one intermittent stream (see table C-5 in appendix C). Texas Gas has provided site-specific plans for major waterbody crossings and HDD crossings which illustrate how it would configure the workspaces and construction activities at the crossings.

No public water intakes would be within 3 miles downstream of any proposed waterbody crossing along the Project.

*Special Designation and Impaired Waterbodies*

Table 4.3.2-2 lists waterbodies with special designations and impairments in Arkansas and Mississippi.

The ADEQ has eight designations for water quality and designated use: Extraordinary Resource Waters, Ecologically Sensitive Waterbodies, Natural and Scenic Waterways, Primary Contact Recreation (swimmable), Secondary Contact Recreation (wadeable), Fisheries (fishable), Domestic Water Supply, and Industrial Water Supply (ADEQ, 2002). Extraordinary Resource Waters, Ecologically Sensitive Waterbodies, Natural and Scenic Waterways, and Primary Contact Recreation (swimmable) are considered worthy of the highest level of protection by the state because of their beauty, value, or beneficial use (ADEQ, 2002). The remaining designations are federally mandated.

The proposed Fayetteville Lateral would cross three Extraordinary Resource Waters: Cadron Creek, Big Creek, and Cache River; three National Rivers Inventory (NRI) waterbodies: Cadron Creek, Big Creek, and Bayou DeView; a designated trout fishery stream, Little Red River; and a designated Ecologically Sensitive Waterbody, Departee Creek. The proposed Greenville Lateral would cross Big Black River ( NRI), and Deer Creek, which is identified as an important aquatic habitat for rare species.

Waterbodies included in the NRI are considered to possess "outstandingly remarkable natural or cultural values judged to be of more than local or regional significance" (NPS, 2007). Texas Gas would cross Big Creek (MP 46.1), Bayou DeView (MP 96.0), and Big Black Creek (MP 77.7) using HDD to avoid or minimize impacts.

In addition to sensitive waterbodies, eight waterbodies in Arkansas and four waterbodies in Mississippi do not meet water quality standards associated with their designated use based on state CWA Section 303(d) lists. These waterbodies are listed in table 4.3.2-2 as impaired.

As indicated in table 4.3.2-2, eight of the waterbodies with special designations would be crossed using the HDD method to minimize potential impacts on those waterbodies. The remaining waterbodies would be crossed using an open-cut method. To ensure that impacts from sedimentation associated with an open-cut crossing are minimized, Texas Gas would implement BMPs to minimize construction impacts and would implement the mitigation measures identified in our Procedures.

**TABLE 4.3.2-2**

**Sensitive and Impaired Waterbodies**

| State/County | Waterbody Name | Approximate Beginning Milepost | Approximate Width at Crossing (feet) | Crossing Method | Impairment | Sensitive Feature |
|---|---|---|---|---|---|---|
| **Fayetteville Lateral** | | | | | | |
| **Arkansas** | | | | | | |
| Faulkner | Cadron Creek | 14 | 105 | OCM | Siltation/Turbidity | EXR, NRI, MC |
| White | Big Creek | 46.1 | 140 | HDD | Agriculture | EXR, NRI, MC |
| | Little Red River | 52.3 | 200 | HDD | Unknown, Bacteria | TFS, MC |
| | Overflow Creek | 61.9 | 13 | OCM | Agriculture, Bacteria | NA |
| | Glaise Creek | 66.6 | 30 | OCM | Agriculture | NA |
| | Departee Creek | 67.9 | 34 | OCM | Not listed | ECS (near) |
| Woodruff | Cache River | 82.4 | 140 | HDD | Agriculture, Siltation/ Turbidity | EXR, MC |
| | Bayou DeView | 96 | 250 | HDD | Agriculture, Siltation/ Turbidity | NRI, MC |
| | Caney Creek | 100.1 | 30 | OCM | Agriculture | NA |
| St. Francis | Big Creek | 111.6 | 72 | OCM | Agriculture | NA |
| **Greenville Lateral** | | | | | | |
| **Mississippi** | | | | | | |
| Washington | Deer Creek | 9.3 | 60 | HDD | Not listed | MSNHP |
| Humphreys | Yazoo River b/ | 40.5 | 395 | HDD | Nutrients, Organic Enrichment/Low DO | MC |
| Holmes | Tchula Lake b/ | 46.7 | 160 | HDD | Nutrients, Organic Enrichment/Low DO, Sediment/Siltation | MC |
| | Box Creek | 72.5 | 2 | OCM | Sediment/Siltation | NA |
| Holmes-Attala | Big Black River b/ | 77.7 | 270 | HDD | Sediment/Siltation | NRI, MC |

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Source: EPA, 2004a.

a/ Sensitive Features include those that are: listed as MC and resources that are on the NRI (NPS, 2004); are state-designated EXR, ECS, or are a TFS (APCEC, 2006); important aquatic habitats for rare species (MSNHP, 2006); and/or do not currently support designated uses.

b/ Found under Section B, of the Mississippi 2006 Section 303(D) List of Impaired Waterbodies. For these waterbodies, no current monitoring data indicates impairments exist. MDEQ will monitor these waterbodies to determine their water quality condition before removing them from Section B (MDEQ, 2006).

Key:

DO = dissolved oxygen

ECS = ecologically sensitive

EXR = extraordinary resources

HDD = horizontal directional drilling

MC = Major Crossing

MSNHP = Mississippi Natural Heritage Program

NA = Not applicable

NRI = Nationwide Rivers Inventory

OCM = open-cut method

TFS = trout fishery stream

According to the EPA's contaminated sediments database (EPA, 2004b), many waterbodies in the Mississippi Delta contain contaminated sediments. Table 4.3.2-3 identifies waterbodies with known contaminated sediments that would be crossed by the proposed Project. The proposed Fayetteville Lateral would cross six waterbodies containing sediments contaminated primarily with pesticides and heavy metals. The sediment sampling locations ranged from 2.2 miles to 37 miles from the proposed pipeline crossing locations. Seven waterbodies that would be crossed by the proposed Greenville Lateral contain sediments contaminated primarily with pesticides and heavy metals. Sampling locations within these waterbodies ranged from 100 feet to 5.5 miles from the proposed pipeline crossing. Seven of the 13 contaminated waterbodies that would be crossed by the proposed pipelines are classified as major waterbodies. Six of these major waterbodies would be crossed using HDD, thereby avoiding sediment disruption. In addition, two areas of probable concern were identified in Mississippi: the Big Sunflower watershed and the Deer-Steele watershed.

The MDEQ would require special notification and mitigations (approved by MDEQ) for waterbody crossings in waters classified as impaired. Notification/mitigation should include:

- justification of why the impacts cannot be avoided;
- proposed BMPs that would minimize the impacts on receiving sensitive waters; and
- compensatory mitigation, primarily along the same reach of stream or on another impaired stream within the same drainage basin.

The ADEQ, Water Division, does not have specific guidance for the handling of contaminated sediments.

Texas Gas would file with the Secretary copies of the permits it receives from the ADEQ and MDEQ prior to construction.

*Major Waterbody Crossings*

The proposed Fayetteville Lateral would cross eleven major waterbodies, including the Mississippi River (see table 4.3.2-4). Eight of the major waterbodies would be crossed using the HDD method. The proposed Greenville Lateral would cross six major waterbodies, all of which would be crossed by HDD. Texas Gas filed acceptable site-specific diagrams for major waterbody crossings, in accordance with our Procedures. Texas Gas indicates that consultations with state and federal agencies, for mitigation of impacts associated with these crossings, are ongoing and that additional information would be filed with FERC as Texas Gas receives it.

Texas Gas provided site-specific plans for the three major waterbody crossings that would be open cut. We concur with the proposed plans for Long Lake Bayou and Phillips Bayou.

Texas Gas states that the conventional crossing method it would use to cross Cadron Creek would minimize the potential for downstream sedimentation. It would allow it to minimize the workspace needed to complete the crossing, would confine all work activities to the temporarily dewatered area of the waterbody for only the time needed to excavate the trench, place the pipe, and replace the creek bed. If Cadron Creek is flowing at the time of the crossing, Texas Gas would cross the waterbody by using flumes to conduct and maintain the flow downstream from the disturbed area created by trench excavation across the waterbody. If this waterbody is not flowing at the time of the crossing, Texas Gas would limit the lateral extent of work activities at the crossing to a 75-foot-wide corridor within the

**TABLE 4.3.2-3**

**Known Contaminated Sediments near the Proposed Project Area**

| State/ County | Approximate Milepost | Name of Waterbody | Waterbody Classification | Crossing Method | Approximate Distance to Sampling Location a/ |
|---|---|---|---|---|---|
| **Fayetteville Lateral** | | | | | |
| **Arkansas** | | | | | |
| Woodruff | 82.09 | Cache River | Major | HDD | 19 miles downstream, 37 miles upstream |
| | 95.7 | Bayou DeView | Major | HDD | 12 miles downstream, 6 miles upstream |
| St. Francis | 111.63 | Big Creek | Intermediate | OCM | 26 miles downstream |
| Lee | 118.02 | Tributary of Larkin Creek | Minor | OCM | 2.5 miles downstream |
| | 123.34 | Tributary of Larkin Creek | Intermediate | OCM | 4 miles downstream |
| Phillips | 151.01 | Big Creek near Long Lake Bayou | Minor | OCM | 2.2 miles southwest |
| **Greenville Lateral** | | | | | |
| **Mississippi** | | | | | |
| Washington | 0.85 | Tributary to Main Canal | Minor | OCM | 3.6 miles downstream |
| | 4.92 | Canal to Black Bayou | Intermediate | OCM | 5.5 miles upstream at Fish Lake |
| | 5.2 | Black Bayou | Intermediate | OCM | 1.8 miles downstream |
| | 11.22 | Bogue Phalia | Major | HDD | 1.3 upstream and 3.5 downstream |
| Humphreys | 20.26 | Big Sunflower River | Major | HDD | 0.6 mile downstream |
| Holmes | 40.4 | Yazoo River | Major | HDD | 100 feet north |
| | 54 | Fannegusha Creek | Major | HDD | 0.5 mile upstream |

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Source: EPA, 2001.

HDD = horizontal direction drilling

OCM = open cut method

a/ Straight line distance between sampling location and the proposed pipeline crossing location.

waterbody buffer zone. For any crossing method use, Texas Gas states that it would complete the crossing as quickly as possible to minimize the time a trench is left open across the waterbody. It would use bladder dams or other low impact barriers upstream and downstream from the proposed conventional crossing if there is any flow in Cadron Creek at the time of the crossing. For Cadron Creek, Texas Gas proposes placing an ATWS within the waterbody itself. Since Cadron Creek is an ecological sensitive waterbody and listed on the NRI, **we recommend that:**

- **Texas Gas supplement its site-specific plan for crossing Cadron Creek (MP 14 on the Fayetteville Lateral) to include additional mitigation measures that would minimize and control sedimentation downstream from the proposed crossing. Texas Gas should consult**

**with the NPS and ADEQ about the crossing plan and include any NPS- or ADEQ-recommended BMPs in the plan. Also, Texas Gas should file with the Secretary the supplemented site-specific waterbody crossing plan and the results of its consultation with NPS and ADEQ prior to the end of the comment period of this Draft EIS.**

**TABLE 4.3.2-4**

**Major Waterbodies**

| State/County | Waterbody Name | Approximate Beginning Milepost | Approximate Width at Crossing (feet) | Crossing Method a/ |
|---|---|---|---|---|
| **Fayetteville Lateral** | | | | |
| **Arkansas** | | | | |
| Faulkner | Cadron Creek | 14 | 105 | OCM |
| White | Big Creek | 46.1 | 140 | HDD |
| | Little Red River | 52.3 | 200 | HDD |
| Woodruff | White River | 70.3 | 700 | HDD |
| | Taylor Bay | 73.4 | 215 | HDD |
| | Cache River | 82.4 | 140 | HDD |
| | Bayou DeView | 96 | 250 | HDD |
| | Long Lake Bayou | 153 | 210 | OCM |
| | Tributary of Long Lake Bayou | 154.6 | 500 | HDD |
| **Arkansas/Mississippi** | | | | |
| Phillips/Coahoma | Mississippi River | 157.3 | 4,000 | HDD |
| **Mississippi** | | | | |
| Coahoma | Phillips Bayou | 160.7 | 110 | OCM |
| **Greenville Lateral** | | | | |
| **Mississippi** | | | | |
| Washington | Bogue Phalia | 11.2 | 200 | HDD |
| Washington/Humphreys | Big Sunflower River | 20.3 | 250 | HDD |
| Humphreys | Yazoo River | 40.5 | 395 | HDD |
| Holmes | Tchula Lake | 46.7 | 160 | HDD |
| | Fannegusha Creek | 54.3 | 100 | HDD |
| Holmes/Attala | Big Black River | 77.7 | 270 | HDD |

HDD = horizontal directional drilling method.

OCM = open-cut method.

The proposed Project would cross 16 waterbodies by HDD. Texas Gas has not yet completed geotechnical investigations to determine if the proposed HDDs could be successfully completed. Therefore, **we recommend that:**

- **Texas Gas file reports on the geotechnical investigations for all proposed HDDs prior to the end of the draft EIS comment period.**

If an HDD is not completed successfully, Texas Gas would need to obtain permits for an alternate crossing plan from the USACE and the appropriate state agency. Therefore, **we recommend that:**

- **Texas Gas file with the Secretary a site-specific crossing plan for each waterbody if the directional drills are unsuccessful. Each site-specific plan should address how Texas Gas would seal the abandoned drill hole and should include scaled drawings identifying all areas that would be disturbed by construction. Texas Gas should file each plan concurrent with its application to the USACE for a permit to construct using this plan and the USACE permit when it is obtained. The Director of OEP must review and approve this plan in writing prior to construction of the crossing.**

Another concern with an HDD is the potential for a frac-out, which is the unintentional or inadvertent loss of drilling fluids from the HDD borehole to the ground surface at locations other than the HDD entry or exit points. Of particular concern are frac-outs into waterbodies or wetlands. Texas Gas filed a contingency plan for HDDs that includes a description of how an inadvertent release of drilling mud (a frac-out) would be contained and cleaned up. We reviewed this plan and find it acceptable.

Pipeline construction could affect surface waters in a variety of ways. Clearing and grading of waterbody banks, in-water trenching, trench dewatering, and backfilling could result in modifications to aquatic habitat, increased sedimentation and turbidity, decreased dissolved oxygen levels, increased water temperature, releases of chemical and nutrient pollutants from sediments, and accidental release of chemical contaminants such as fuels and lubricants. The greatest potential impacts for the waterbody crossings would result from suspension of sediments caused by in-water trenching and backfilling. The extent of the impact would depend on sediment loads, water velocity, and sediment particle size at the time of construction. These factors would determine the density, extent, and persistence of the sediment plume. In general, impacts on water quality are expected to be short term and localized.

To minimize construction impacts on surface waters, Texas Gas would develop and implement the mitigation measures in our Plan and Procedures, as well as the requirements in the permits issued by the USACE and state agencies. Our Procedures include provisions for ATWS setbacks, waterbody crossing duration constraints, bank stabilization requirements, maintenance of stream flow, sediment control procedures, and other erosion and sedimentation control requirements. The SPCC Plan includes specifications for hazardous materials transportation, storage and handling, spill prevention and response (see the SPCC Plan for pipeline construction in appendix D). Texas Gas would comply with federal and state agency requirements and permits when crossing waterbodies during construction of the proposed Project. Use of our Plan and Procedures and the SPCC Plan would minimize short- and long-term impacts on surface waters.

*Hydrostatic Testing*

Prior to being placed into service, the entire pipeline system would be hydrostatically tested to ensure structural integrity. The pipeline must be tested to DOT Standards, as listed in 49 CFR Part 192. Typically, a pipeline is tested in sections to reduce the amount of water needed at any one time. Smaller volumes of water are more easily managed and, generally, reduce the potential for adverse effects on the source waterbodies. Upon completion of a test section, the water may be pumped to the next test section or discharged. Water for hydrostatic testing of the pipeline system would be obtained from a variety of surface waters and municipal sources as shown in table 4.3.2-5.

In accordance with our Procedures, Texas Gas would screen intake hoses to prevent entrainment of fish, discharge hydrostatic test water at controlled discharge rates, and use appropriate energy dissipation device(s) and sediment barriers to prevent erosion, scour, suspension of sediments, or excessive stream flow. No chemicals would be added to the hydrostatic test water before or after testing. Hydrostatic test water withdrawal and discharge would be conducted in accordance with all federal and state regulations and permit requirements. The discharge water would be tested in accordance with the applicable wastewater discharge permit requirements.

**TABLE 4.3.2-5**

**Hydrostatic Test Water Requirements for the Pipeline System**

| Pipeline Facility | Water Source | Withdrawal Location a/ (MP) | Approximate Volume (gallons) | Discharge Location (MP) | Discharge Rate (gal/min) |
|---|---|---|---|---|---|
| **Fayetteville Lateral** | | | | | |
| | Cadron Creek | 13.9 | 3,879,000 | 13.9 | >4,000 |
| | Cadron Creek | 13.9 | 4,744,000 | 13.9 | >4,000 |
| | Little Red River | 52.1 | 5,888,000 | 52.0 | >4,000 |
| | Little Red River | 52.1 | 3,823,000 | 52.0 | >4,000 |
| | White River | 70.0 | 1,144,000 | 69.8 | >4,000 |
| | White River | 70.0 | 3,376,000 | 69.8 | >4,000 |
| | Farm Ponds | 88.4 | 1,814,000 | 88.4 | >4,000 |
| | Farm Ponds | 88.4 | 7,143,000 | 88.4 | >4,000 |
| | Larkin Creek | 118.9 | 1,367,000 | 118.9 | >4,000 |
| | Larkin Creek | 118.9 | 2,595,000 | 118.9 | >4,000 |
| | Lick Creek | 139.5 | 3,153,000 | 139.5 | >4,000 |
| | Lick Creek | 139.5 | 1,535,000 | 139.5 | >4,000 |
| | Mississippi River | 157.2 | 3,432,000 | 157.3 | >4,000 |
| | Mississippi River | 156.5 | 2,679,000 | 157.3 | >4,000 |
| **Greenville Lateral** | | | | | |
| | Big Sunflower River | 20.3 | 5,692,000 | 20.4 | >4,000 |
| | Big Sunflower River | 20.3 | 2,595,000 | 20.4 | >4,000 |
| | Yazoo River | 39.9 | 2,832,000 | 39.9 | >4,000 |
| | Yazoo River | 39.9 | 4,088,000 | 39.9 | >4,000 |
| | Big Black River | 77.3 | 6,390,000 | 77.4 | >4,000 |
| | Big Black River | 77.3 | 5,190,000 | 77.4 | >4,000 |

a/ Milepost reflects actual withdrawal/discharge point and is not necessarily at a waterbody crossing.

Texas Gas would withdraw test water from one waterbody that is listed as a state designated Extraordinary Resource Water (Cadron Creek), one waterbody classified as a trout fishery stream (Little

Red River), and two waterbodies listed on the NRI (Big Black River and Cadron Creek). Several waterbodies that would be used for hydrostatic testing do not meet the water quality standards associated with their designated use based on state CWA Section 303(d) lists (i.e., Cadron Creek, Little Red River, and Big Black River) or are known to have contaminated sediments (i.e., Yazoo River, Big Sunflower River, and Big Black River). Our Procedures require that state-designated exceptional value waters and waters that provide habitat for federally listed threatened or endangered species cannot be used for hydrostatic test water withdrawal or discharge unless appropriate federal, state, and/or local permitting agencies grant written permission (Procedures, section VII.C.2). The use of these waterbodies as hydrostatic testing water sources or discharges would be subject to approval pursuant to any required NPDES permit. Texas Gas would be required to obtain and comply with the requirements of permits issued by the ADEQ, Arkansas Natural Resources Commission (ANRC), and MDEQ for the withdrawal and discharge of hydrostatic test water. The ANRC and MDEQ require prior notification of such withdrawals. The ANRC may require permits for some withdrawals. The MDEQ would take into account waterbody flows at the time of withdrawal and may require Texas Gas to postpone withdrawals if flows are too low. Compliance with the requirements of our Plan and Procedures and the permitting requirements from state and local agencies would mitigate potential impacts resulting from the withdrawal and discharge of hydrostatic test water.

#### 4.3.2.2 Operational Impacts

Following completion of restoration activities and revegetation of disturbed areas as required, no further impacts on surface waters would be expected during operation of the proposed pipeline because it is not expected that any additional in-stream activities would be performed. Since the pipeline would be installed at a sufficient depth below the beds of waterbodies, exposure of the pipeline would not be expected. In the event that a pipeline anomaly (e.g., corrosion, dent, rupture) is detected during routine inspections that could require pipeline excavation or replacement within a waterbody, impacts would be expected to be the same as those described for construction. Operation of proposed aboveground facilities, including the Kosciusko Compressor Station, is not expected to affect water resources.

## 4.4 WETLANDS

Wetlands are defined by the USACE and the EPA as areas that are inundated or saturated by surface or groundwater at a frequency and duration sufficient to support, and under normal circumstances do support, a prevalence of wetland vegetation typically adapted for life in saturated soil. Wetlands generally include swamps, marshes, bogs, and similar areas (Environmental Laboratory, 1987). Wetlands perform a number of valuable functions, including flood flow attenuation, surface water management, filtration of non-point source pollutants and compounds, groundwater recharge and discharge, erosion control, and sediment and nutrient retention, as well as providing wildlife habitat and recreational opportunities.

The proposed Project would be constructed in areas that support numerous wetlands. Wetland delineations for the proposed Project were conducted in accordance with the 1987 USACE Wetland Delineation Manual (Environmental Laboratory, 1987) to identify, characterize, and survey the boundaries of wetland resources along the pipeline construction right-of-way/corridor and the areas identified for aboveground facilities, additional workspaces, and access roads. Based on the Cowardin et al. (1979) wetland classification system, three primary wetland types were identified within the Project area: palustrine emergent (PEM), palustrine forested (PFO), and palustrine scrub shrub (PSS). Wetlands identified as containing two or more classifications (i.e., PFO/PEM or PEM/PSS), were categorized into one class using the tallest vegetative component. The species that are typically found in each wetland classification present in the Project area are identified below.

*Palustrine Emergent Wetlands*

PEM wetlands are characterized by erect, rooted, herbaceous hydrophytes, excluding mosses and lichens (Cowardin et al., 1979). Wildlife typically utilizes these areas for nesting and feeding during migratory periods. Common vegetative species found in the PEM wetlands that would be traversed by the proposed Project construction right-of-way include common rush (*Juncus effusus*), broomsedge bluestem (*Andropogon virginicus*), broom sedge (*Carex scoparia*), and giant goldenrod (*Solidago gigantea*).

*Palustrine Forested Wetlands*

PFO wetlands are dominated by woody vegetation, including bottomland hardwoods, that is at least 20 feet tall (Cowardin et al., 1979). These wetlands provide a diverse assemblage of vegetation and an abundance of food and cover for wildlife. Common vegetative species typically found in PFO wetlands observed within the proposed Project construction right-of-way include swamp chestnut oak (*Quercus michauxii*), black willow (*Salix nigra*), green ash (*Fraxinus pennsylvanica*), red maple (*Acer rubrum*), tulip tree (*Liriodendron tulipifera*), river birch (*Betula nigra*), and poison ivy (*Toxicodendron radicans*).

*Palustrine Scrub-Shrub Wetlands*

PSS wetlands include all wetlands dominated by woody vegetation less than 20 feet tall (Cowardin et al., 1979). PSS wetlands are typically not as structurally diverse as forested wetlands due to the lack of trees comprising the canopy. As with PFO wetlands, PSS wetlands supply an abundance of food and cover for wildlife. Common vegetative species found in the PSS wetlands observed within the proposed Project construction right-of-way include box elder (*Acer negundo*), buttonbush (*Cephalanthus occidentalis*), groundsel tree (*Baccharis halimifolia*), black willow (*Salix nigra*), and Allegheny blackberry (*Rubus allegheniensis*).

*High-Quality, Sensitive, or Special-Status Wetlands*

Wetland Reserve Program

The proposed Project would include the crossing of wetlands managed under the NRCS's WRP along the proposed Greenville Lateral. Section 4.8 provides a detailed description of the WRP.

The proposed Greenville Lateral would cross one WRP tract, using conventional pipeline construction methods, between MP 43.0 and MP 43.3 in Humphreys County, Mississippi. The Greenville lateral would be aligned parallel and nest to a road right-of-way and would cross the WRP tract at a location that would avoid forested wetland habitats to the north and south of the proposed route and the road. Additional information about impact this WRP tract is in section 4.8.

Cache River Wildlife Refuge

The Convention on Wetlands, signed in Ramsar, Iran, in 1971, is an intergovernmental treaty that provides the framework for national action and international cooperation for the conservation and wise use of wetlands and their resources (Ramsar, 2007). Ramsar sites are wetlands that have been selected by the Convention's Contracting Parties and collectively designated as internationally important areas. The wetland systems of the Cache River and lower White Rivers, which comprise one of 17 United States wetlands on the Ramsar list of Wetlands of International Importance, represent the largest continuous expanse of bottomland hardwoods in the lower Mississippi River valley, comprising about one-third of the bottomland hardwoods in the Arkansas Delta (Arkansas MAWPT, 2007). The Cache River and Bayou De View are also part of the Big Woods complex, a 550,000-acre corridor of floodplain forest that follows the bayous and rivers that flow into the Mississippi River (TNC, 2007). The Cache River and Bayou De View would be crossed by the proposed Fayetteville Lateral.

The Cache River NWR, a wetland system associated with the Cache River in the lower Mississippi River valley, contains about 64,000 acres of wetlands. The refuge is in the 10-year floodplain of the Cache River and extends from its confluence with the White River near Clarendon, Arkansas, to Grubbs, Arkansas, an air-mile distance of about 70 miles. Habitats within the refuge include 33,000 acres of bottomland forest and associated sloughs and oxbow lakes, 4,300 acres of croplands, and 7,500 acres of reforested areas (FWS, 2007a). The Cache River system represents the last remaining fragment of the once widespread mature forested wetlands of this area (ANHC, 2007a).

During initial agency coordination for the proposed Project, the FWS recommended avoidance of the Cache River NWR and Bayou De View to the extent possible, using HDD methods to cross these waterbodies and associated bottomland forests, and following a specific route variation to minimize crossing distance. Texas Gas addressed the FWS recommendations by modifying the proposed Project route, and committing to crossing these areas by HDD. The proposed Fayetteville Lateral would cross the Cache River NWR between MP 82.0 and MP 82.8 and Bayou De View between MP 95.9 and 96.6 by HDD. Texas Gas's use of this construction technique would largely eliminate impacts to bottomland hardwood forests in the NWRs. Agricultural fields outside of the refuge boundaries would be used as ATWSs to stage HDD activities and equipment and would be used for the drill entry and exit pits. While use of HDDs would avoid significant impact to forested wetlands adjacent to the Cache River and Bayou De View, the temporary workspaces for the bore pits and pull strings would impact PEM wetlands outside the NWR. Texas Gas would minimize impacts to the greatest extent practicable to the PEM wetlands outside the NWRs by implementing the construction, mitigation, and restoration measures of our Procedures. Therefore, we believe that using HDDs to cross the NWRs would minimize and avoid most impacts to wetlands in these important resource areas.

### 4.4.1 Affected Wetlands

Construction and operation of the proposed Project would affect a total of 141.5 acres of wetlands. Of this total, 107.4 acres would be temporarily impacted during construction and allowed to revert to pre-construction conditions. About 33.9 acres would overlap with portions of the permanent right-of-way that would be maintained for operational purposes. Of those 33.9 acres, about 13.2 acres would be permanently converted from forested and scrub-shrub wetland types to wetlands with herbaceous vegetation. These impacts would occur in a 10-foot-wide herbaceous strip Texas Gas would maintain above the centerline to facilitate operation and maintenance of the pipeline. The remaining 20.7 acres of impact would be associated with the conversion from a forested community to a shrub-scrub or emergent system within two 10-foot-wide strips on either side of the centerline strip. Texas Gas has indicated that 0.2 acre would be permanently lost due to installation and operation of the permanently maintained Kosciusko Compressor Station. As indicated in section 3.4, we believe that Texas Gas can avoid permanent impacts on the wetland within the Kosciusko Compressor Station property and have requested that additional engineering design be undertaken to assess avoidance of this site.

Table C-6 in appendix C lists each wetland that would be crossed by Project construction and operation based on completed field delineation surveys conducted by Texas Gas. Table 4.4.1-1 lists construction impacts and permanent conversion of wetland type. USACE verification of the wetland delineations conducted for the Project is pending.

#### 4.4.1.1 Pipeline Facilities

The pipelines would cross a total of 12.0 miles (63,124 feet) of wetlands (see table 4.4.1-1). Each wetland, including MP, classification, crossing widths and methods, construction impacts, and conversion acreage, is listed in table C-6 of appendix C.

Impacts on wetlands associated with construction and operation of the Project would vary depending on the construction techniques used, the sensitivity of aquatic resources to disturbance, and the length of time required for wetlands temporarily impacted by construction to be restored. Impacts associated with construction of the Project would include the disturbance and removal of wetland vegetation. Following construction, temporarily disturbed wetlands would be restored and allowed to revegetate in accordance with our Procedures. Impacts associated with operation of the Project would consist of maintenance activities of the pipeline right-of-way that would permanently convert forested and scrub-shrub wetlands to herbaceous wetland and would maintain shrubs at heights of less than 15 feet, as per our Procedures.

During the pre-filing process, the FWS, USACE, and state agencies expressed concern about potential impacts on forested wetland areas that would be crossed by the proposed Project. The FWS and USACE Memphis District recommended adjustments to the proposed pipeline route alignment and ATWSs to reduce wetland impacts. The USACE recommended alignments that would bypass forested wetlands wherever possible and would instead cross farmland. Specific alternatives and variations suggested by the agencies are addressed in section 3 of this EIS. In some cases, Texas Gas modified its initial pipeline route as suggested by the agencies (see analysis in section 3.3). Due to the linear nature of pipelines and the extent of forested wetlands along linear features such as waterbodies, pipeline alignment would not be able to avoid all forested wetland areas. We believe that Texas Gas's adoption of several of the agencies' specific route modifications, in combination with crossing several waterbodies and wetlands by HDD, the use of our Procedures during construction, reducing wetland construction right-of-way widths to 75 feet, appropriate and timely restoration, and the use of the right-of-way maintenance protocol described in our Procedures during operation of the pipeline and related facilities, as well as the implementation of any specific Section 404 permit conditions, would reduce the impacts on all wetlands including forested wetlands to the greatest extent practicable.

<u>*Construction Impacts and Mitigation*</u>

Construction of the Fayetteville Lateral and Greenville Lateral and associated facilities would impact a total of 57.7 acres and 83.6 acres of wetlands, respectively, for a total of 141.3 acres. Texas Gas has indicated that an additional 0.2 acre would be permanently lost due to installation and operation of the permanently maintained Kosciusko Compressor Station. As indicated in section 3.4, we believe that Texas Gas can avoid permanent impacts on the wetland within the Kosciusko Compressor Station property and have requested that additional engineering design be undertaken to assess avoidance of this site.

Temporary impacts resulting from construction activities would occur within the pipeline construction work areas, where wetland vegetation would be cleared for equipment movement and installation of the pipeline. Additional temporary impacts associated with construction of the pipelines could include temporary changes to wetland soils and hydrology. In herbaceous wetlands, the impact on vegetation would be short term, since the herbaceous vegetation would regenerate quickly. However, failure to properly segregate soil could result in mixing of the soil layers, resulting in altered biological components of the wetland. These changes could affect the reestablishment and natural recruitment of native wetland vegetation. In addition, inadvertent compaction and rutting of soils during construction could result from the temporary stockpiling of soil and the movement of heavy machinery. This could alter the natural

**TABLE 4.4.1-1**

**Summary of Impacts to Wetland Communities**

| State<br>County | Wetland Type a/ | Number of Wetlands Crossed | Approximate Centerline length crossed (feet) b/ | Construction Impacts (acres) c/ | Permanently Converted Wetland Types in 10-foot wide Area Over Pipeline Centerline (acres) d/ | Additional Permanently Converted Wetland Types in 30-foot wide Area Over Pipeline Centerline (acres)e/ |
|---|---|---|---|---|---|---|
| **ARKANSAS** | | | | | | |
| ***Conway*** | | | | | | |
| | PEM | 1 | 51 | 0.10 | n/a | n/a |
| | PFO/PEM | 1 | 23 | <0.1 | 0.01 | 0.01 |
| ***Faulkner*** | | | | | | |
| | PEM | 18 | 1,399 | 2.40 | n/a | n/a |
| | PSS | 4 | 113 | 0.1 | 0.02 | n/a |
| | PSS/PEM | 2 | 42 | <0.1 | 0.01 | n/a |
| | PFO | 2 | 313 | 0.6 | 0.07 | 0.14 |
| ***Lee*** | | | | | | |
| | PEM | 1 | 658 | 1.20 | n/a | n/a |
| | PFO | 9 | 1,341 | 2.4 | 0.31 | 0.62 |
| | PFO/PEM | 1 | n/a | 0.1 | n/a | n/a |
| ***Phillips*** | | | | | | |
| | PEM | 2 | 71 | 0.20 | n/a | n/a |
| | PFO/PEM | 3 | 776 | 1.4 | 0.18 | 0.36 |
| | PFO | 9 | 3,334 | 5.8 | 0.77 | 1.53 |
| ***Saint Francis*** | | | | | | |
| | PEM | 1 | 162 | 0.30 | n/a | n/a |
| | PFO/PEM | 1 | 1,255 | 2.2 | 0.29 | 0.58 |
| | PFO | 1 | 751 | 1.3 | 0.17 | 0.34 |
| ***White*** | | | | | | |
| | PEM | 2 | 55 | 0.10 | n/a | n/a |
| | PSS | 3 | 984 | 1.7 | 0.23 | n/a |

**TABLE 4.4.1-1**

**Summary of Impacts to Wetland Communities**

| State County | Wetland Type a/ | Number of Wetlands Crossed | Approximate Centerline length crossed (feet) b/ | Construction Impacts (acres) c/ | Permanently Converted Wetland Types in 10-foot wide Area Over Pipeline Centerline (acres) d/ | Additional Permanently Converted Wetland Types in 30-foot wide Area Over Pipeline Centerline (acres)e/ |
|---|---|---|---|---|---|---|
| | PFO/PSS | 1 | 9 | <0.1 | 0.002 | 0.004 |
| | PFO/PEM | 2 | 60 | 0.1 | 0.01 | 0.03 |
| | PFO | 9 | 1,570 | 2.7 | 0.36 | 0.72 |
| ***Woodruff*** | | | | | | |
| | PEM | 14 | 2,515 | 4.20 | n/a | n/a |
| | PSS/PEM | 8 | 3,597 | 5.8 | 0.83 | n/a |
| | PFO/PEM | 10 | 1,586 | 4.3 | 0.36 | 0.73 |
| | PFO | 11 | 1,727 | 3.2 | 0.40 | 0.79 |
| | **Total Arkansas** | **116** | **22,392** | **40.2** | **4.01** | **5.85** |
| **MISSISSIPPI** | | | | | | |
| ***Attala*** | | | | | | |
| | PEM | 1 | 37 | 0.10 | n/a | n/a |
| | PSS | 2 | n/a | 0.1 | n/a | n/a |
| | PSS/PEM | 3 | 680 | 2.3 | 0.16 | n/a |
| | PFO/PEM | 1 | 69 | 0.2 | 0.02 | 0.03 |
| | PFO/PSS | 4 | 3,637 | 8.7 | 0.83 | 1.67 |
| | PFO/PSS/PEM | 3 | 712 | 1.1 | 0.16 | 0.33 |
| | PFO | 18 | 4,311 | 10.1 | 0.99 | 1.98 |
| ***Coahoma*** | | | | | | |
| | PFO | 16 | 5,520 | 17.5 | 1.27 | 2.53 |
| ***Holmes*** | | | | | | |
| | PEM | 1 | n/a | <0.1 | n/a | n/a |
| | PSS | 2 | 419 | 0.5 | 0.10 | n/a |
| | PSS/PEM | 13 | 6,230 | 15.5 | 1.43 | n/a |
| | PFO/PEM | 6 | 5,930 | 13.5 | 1.36 | 2.72 |

**TABLE 4.4.1-1**

**Summary of Impacts to Wetland Communities**

| State County | Wetland Type a/ | Number of Wetlands Crossed | Approximate Centerline length crossed (feet) b/ | Construction Impacts (acres) c/ | Permanently Converted Wetland Types in 10-foot wide Area Over Pipeline Centerline (acres) d/ | Additional Permanently Converted Wetland Types in 30-foot wide Area Over Pipeline Centerline (acres)e/ |
|---|---|---|---|---|---|---|
| | PFO/PSS | 4 | 553 | 1.3 | 0.13 | 0.25 |
| | PFO | 16 | 1,825 | 3.7 | 0.42 | 0.84 |
| ***Humphreys*** | | | | | | |
| | PEM | 5 | 700 | 1.50 | n/a | n/a |
| | PSS/PEM | 4 | 90 | 0.3 | 0.02 | n/a |
| | PFO/PEM | 2 | 0 | 0.0 | n/a | n/a |
| | PFO | 14 | 9,685 | 24.3 | 2.22 | 4.45 |
| ***Sunflower*** | | | | | | |
| | PEM | 2 | 37 | 0.00 | n/a | n/a |
| ***Washington*** | | | | | | |
| | PEM | 2 | 65 | 0.10 | n/a | n/a |
| | PSS/PEM | 2 | 232 | 0.5 | 0.05 | n/a |
| | **Total Mississippi** | **121** | **40,732** | **101.1** | **9.16** | **14.81** |
| | **TOTAL Project** | **237** | **63,124** | **141.5** | **13.17** | **20.66** |

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Notes: These totals were calculated using data provided by Texas Gas in their Resource Report 2 - Water Use and Quality and the PCN Attachment B. Variances in totals are due to fractional acreages, designated as <0.1 in the original data set.

a/ Cowardin Classification (Cowardin, et. al., 1979): PEM – palustrine emergent, PSS – palustrine scrub-shrub, PFO – palustrine forested

b/ n/a – wetland did not cross proposed Project centerline and, after critical review, it was determined that impacts are largely within temporary workspaces.

c/ Temporary construction impacts were determined using a 75-foot-wide corridor centered on the pipeline, plus the areas occupied by access roads and additional temporary workspaces.

d/ Reflects width of centered right-of-way that may be maintained in a herbaceous state to facilitate periodic pipeline corrosion leak surveys. Centerline length crossed was multiplied by 10 feet to obtain area of impact.

e/ Reflects acreage of permanent right-of-way where trees greater than 15 feet in height may be selectively cut and removed from the permanent right-of-way. Represents 2 10-foot wide strips on either side of the 10-foot wide centerline area. Centerline length crossed was multiplied by 20 feet to obtain area of impact.

hydrologic patterns of the wetlands, inhibit seed germination, and increase seedling mortality. Altered surface drainage patterns and hydrology could increase the potential for siltation, and increased turbidity may result from construction and trenching activities. Construction clearing activities and disturbance of wetland vegetation could temporarily affect the wetland's capacity to buffer flood flows or control erosion. Construction activities also have the potential to diminish the recreational and aesthetic value of wetlands. However, these functional changes would not be considered a permanent loss of wetlands. Construction activities also would result in both short- and long-term loss of wildlife habitat and habitat quality. See section 4.6 for a description of wildlife impacts. Implementation of our Procedures, as well as other mitigation measures specified in other federal and state permits, would minimize these potential impacts.

Effects to wetlands would vary depending on wetland type. Due to the relatively long period required for PFO wetlands to regenerate, up to 30 years or more, impacts on these wetland types would be long-term to permanent. Impacts on PSS wetlands would be mostly short term, as regeneration would likely occur within two to four years. PEM wetlands, which can regenerate more rapidly, would typically be affected only temporarily, as they may become reestablished in one or two growing seasons.

To minimize construction impacts on wetlands, Texas Gas would develop and implement the measures in our Procedures, as well as the requirements in the permits issued by the USACE and state agencies. In addition, Texas Gas would comply with the requirements contained in state-issued NPDES permits and it's SPCC Plan. Our Procedures include provisions for ATWS setbacks, wetland crossing duration constraints, limitation on pulling tree stumps and grading activities directly over the trenchline, segregation of topsoil, sediment control procedures, trench dewatering, restoration, and maintenance requirements. The SPCC Plan includes specifications for hazardous materials transportation, storage and handling, spill prevention and response (see Texas Gas's SPCC Plan for pipeline construction in appendix D). Use of our Procedures and the SPCC Plan would minimize short- and long-term impacts on wetlands.

Texas Gas would use the minimum construction equipment necessary within wetlands for clearing and grading, trench excavation and backfilling, pipe fabrication and installation, and restoration activities. Construction methods for wetland crossings would include conventional open-ditch lay, open-ditch push/float lay, and HDD methods. Saturated areas may require use of the open-ditch push/float method to minimize wetland disturbance. Site-specific conditions at the time of construction would determine method selection. Texas Gas also would minimize impacts on wetlands by implementing the measures identified in our Procedures. These measures would include, but are not limited to, the following:

- limiting tree stump removal and grading to the area directly over the pipeline, unless it is determined that safety-related construction constraints require grading or removal of tree stumps from under the working side of the construction right-of-way;

- stripping and segregating topsoil from the area directly over the trench line to a maximum depth of 12 inches in unsaturated soils;

- using sediment barriers to prevent sediment flow into a wetland;

- dewatering trenches in a way that does not cause sedimentation in a wetland;

- implementing its SPCC Plan to avoid refueling and fuel storage incidents within the vicinity of a wetland;

- restoring preconstruction contours and vegetation; and

- monitoring the success of revegetation.

In addition to these measures, the USACE requires that all appropriate and practicable actions be taken to avoid or minimize impacts, pursuant to its Section 404(b)(1) guidelines, which restrict discharges of dredged or fill material where a less environmentally damaging and more practicable alternative exists. All proposed wetland crossings would be subject to review by the USACE to ensure that potential wetland impacts are fully identified and that appropriate wetland restoration and mitigation measures are implemented. Texas Gas would comply with all conditions of the Section 404 authorizations that may be issued by the USACE.

*Operation Impacts and Mitigation*

Operation of the Fayetteville Lateral and Greenville Lateral would permanently affect a total of 13.2 acres and 20.7 acres of wetlands, respectively. Table 4.4.1-2 identifies permanent conversion impacts by wetland type for the Fayetteville Lateral and Greenville Lateral.

In PFO wetlands, trees would be cleared from the construction work areas. Following construction, our Procedures specify that vegetation maintenance would not be conducted over the full width of the permanent right-of-way in wetlands. During operation, Texas Gas would maintain a 10-foot-wide herbaceous strip centered over the pipeline to facilitate periodic pipeline corrosion/leak surveys. In addition, trees that are within 15 feet of the pipeline and greater than 15 feet in height may be cut and removed. These measures would reduce the amount of PFO wetlands that would be permanently affected by pipeline construction since an additional 20 feet of the 50-foot-wide permanent pipeline easement would be allowed to revegetate naturally after construction. Maintenance activities would not significantly affect PEM wetlands since they would recover soon following periodic mowing. Functions associated with these wetland types would be altered where PFO or PSS wetlands within the maintained portion of the permanent pipeline right-of-way are permanently converted to an herbaceous state. However, these areas would still be wetlands since wetland hydrology would be maintained or reestablished after construction.

Any specific mitigation requirements for the conversion of forested and scrub-shrub wetlands would be established during the USACE Section 404 permitting process. We believe that the use of our Procedures during the construction of the proposed Project, and implementation of specific conditions set forth in any Section 404 permits that would be issued for the Project, would minimize impacts to wetlands to the greatest extent practicable.

*Aboveground Facilities*

About 0.2 acres of forested wetlands would be permanently impacted during construction and operation of the Kosciusko Compressor Station on the Greenville Lateral. The area for the proposed Kosciusko Compressor Station would be permanently cleared and graded, thus 0.2 acres of wetlands within the facility boundary would be permanently lost. As indicated in section 3.4, we believe that Texas Gas can avoid permanent impacts to the 0.2 acres of forested wetlands within the Kosciusko Compressor Station property. We are recommending that Texas Gas modify it site plan to avoid this wetland.

**TABLE 4.4.1-2**

**Summary of Wetland Impacts to Forested and Scrub-shrub Communities**

**within the Maintained Permanent Right-of-Way**

| Location | Wetland Type a/ | Permanently Converted Wetland Types in 10-foot wide Area Over Pipeline Centerline (acres) b/ | Additional Permanently Converted Wetland Types in 30-foot wide Area Over Pipeline Centerline (acres) c/, d/ |
|---|---|---|---|
| **Fayetteville Lateral** | | | |
| | PSS/PEM | 0.84 | n/a |
| | PSS | 0.25 | n/a |
| | PFO/PEM | 0.85 | 1.70 |
| | PFO/PSS | 0.002 | 0.004 |
| | PFO | 3.35 | 6.68 |
| | *Subtotal Fayetteville Lateral* | *5.29* | *8.39* |
| **Greenville Lateral** | | | |
| | PSS/PEM | 1.66 | n/a |
| | PSS | 0.10 | n/a |
| | PFO/PEM | 1.38 | 2.75 |
| | PFO/PSS | 0.96 | 1.92 |
| | PFO/PSS/PEM | 0.16 | 0.33 |
| | PFO | 3.63 | 7.27 |
| | *Subtotal Greenville Lateral* | *7.89* | *12.27* |
| **TOTAL Project** | | **13.17** | **20.66** |

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Notes: These totals were calculated using data provided by Texas Gas in their Resource Report 2 - Water Use and Quality and the PCN Attachment B. Variances in totals are due to fractional acreages, designated as <0.1 in the original data set.

a/ Cowardin Classification (et. al., 1979): PEM – palustrine emergent, PSS – palustrine scrub-shrub, PFO – palustrine forested

b/ Reflects width of centered right-of-way that may be maintained in a herbaceous state to facilitate periodic pipeline corrosion leak surveys. Centerline length crossed was multiplied by 10 feet to obtain area impacted.

c/ Reflects acreage of permanent right-of-way where trees greater than 15 feet in height may be selectively cut and removed from the permanent right-of-way. Centerline length crossed was multiplied by 20 feet to obtain area impacted.

d/ n/a – No conversion of wetland type.

*Additional Temporary Workspaces*

Texas Gas proposes using ATWS in wetlands at certain locations. Table 4.4.1-3 identifies these locations, their purpose, and the acreage that would be impacted during construction. Acreage impacts identified in this table are included in the temporary construction impacts for the Project, provided in table 4.4.1-1 and table C-6 in appendix C. About 10.7 acres of wetlands would be temporarily affected by these ATWS. Affected wetlands would experience short- to long-term functional changes due to clearing activities for equipment movement but would subsequently be allowed to revert to preconstruction conditions. Our Procedures require that ATWS be located at least 50 feet away from wetland boundaries.

Texas Gas identified and provided justification for 34 locations where ATWS would come within 50 feet of a wetland boundary.

In compliance with our Procedures, Texas Gas should file site-specific plans for use of each of the ATWS in wetlands. Therefore, **we recommend that:**

- **Prior to construction, Texas Gas file with the Secretary for review and written approval by the Director of OEP, a site-specific construction plan for each ATWS with a less than 50-foot setback from wetland boundaries (except where adjacent upland consists of actively cultivated or rotated cropland or other disturbed land) and a site-specific explanation of the conditions that will not permit a 50-foot setback.**

**TABLE 4.4.1-3**

**Wetlands Impacted by Additional Temporary Workspaces**

| Location | Activity | Nearest Milepost | Cowardin Classification a/ | Temporary Impacts (acres) b/ |
|---|---|---|---|---|
| **Fayetteville Lateral** | | | | |
| Arkansas | | | | |
| *Woodruff* | Truck turnaround and fabrication area | 82.2 | PFO/PEM | 0.3 |
| *Woodruff* | Pull string | 83.1 | PFO/PEM | 1.0 |
| *Woodruff* | P.I. and fabrication area | 83.1 | PFO/PEM | 0.1 |
| *Woodruff* | Truck turnaround, P.I., fabrication area, and access | 96 | PEM/PSS | 0.3 |
| *Woodruff* | Drag section | 96.5 | PEM/PSS | 0.1 |
| *Woodruff* | P.I. and road crossing | 96.5 | PEM/PSS | 0.1 |
| *Phillips* | Truck turnaround | 156.7 | PFO | 0.5 |
| Mississippi | | | | |
| *Coahoma* | Hydrostatic test area | 156.8 | PFO | 0.5 |
| *Coahoma* | Hydrostatic test area | 157.6 | PFO | 0.6 |
| *Coahoma* | Truck turnaround | 157.7 | PFO | 0.5 |
| *Coahoma* | P.I. and fabrication area | 158.1 | PFO | 0.5 |
| *Coahoma* | Pull string | 158.2 | PFO | <0.1 |
| *Coahoma* | P.I. and access | 158.2 | PFO | 0.3 |
| *Coahoma* | Pull string | 158.2 | PFO | 2.1 |
| *Coahoma* | P.I. and access | 158.2 | PFO | <0.1 |
| *Coahoma* | Pull string | 158.2 | PFO | 0.7 |
| *Coahoma* | P.I. and fabrication area | 158.4 | PFO | 0.3 |
| *Coahoma* | Truck turnaround and access | 158.5 | PFO | 1.0 |
| | | **Subtotal: Fayetteville Lateral** | | **9.0** |
| **Greenville Lateral** | | | | |
| Mississippi | | | | |
| *Humphreys* | Temporary workspace and access road | 40.6 | PEM/PSS | <0.1 |
| *Humphreys* | Pull string | 44.3 | PFO | 0.2 |
| *Humphreys* | Fabrication area | 44.9 | PFO | 0.1 |
| *Humphreys* | Access road and fabrication area | 45.5 | PFO | 0.1 |

**TABLE 4.4.1-3**

**Wetlands Impacted by Additional Temporary Workspaces**

| Location | Activity | Nearest Milepost | Cowardin Classification a/ | Temporary Impacts (acres) b/ |
|---|---|---|---|---|
| *Humphreys* | Waterbody crossing and fabrication area | 46.1 | PFO | 0.2 |
| *Holmes* | Road crossing and fabrication area | 55.1 | PFO | <0.1 |
| *Holmes* | Road crossing and fabrication area | 59.1 | PFO | <0.1 |
| *Holmes* | Waterbody crossing and fabrication area | 59.6 | PEM/PSS | 0.1 |
| *Holmes* | Road crossing and fabrication area | 59.9 | PEM/PSS | 0.1 |
| *Holmes* | Road crossing and fabrication area | 60.4 | PEM/PSS | <0.1 |
| *Holmes* | Pipeline crossing and fabrication area | 60.6 | PEM/PSS | 0.1 |
| *Holmes* | Pipeline crossing and fabrication area | 60.6 | PEM/PSS | 0.2 |
| *Holmes* | Access road and fabrication area | 77.2 | PFO/PEM | 0.1 |
| *Holmes* | Pull string | 77.2 | PFO/PEM | <0.1 |
| *Holmes* | Truck turnaround and access | 77.5 | PFO/PEM | 0.4 |
| *Attala* | Access road and fabrication area | 78.1 | PFO | <0.1 |
| | | **Subtotal: Greenville Lateral** | | **1.7** |
| | | | **Project Total:** | **10.7** |

Notes: These totals were calculated using data provided by Texas Gas in their Resource Report 2 - Water Use and Quality and the PCN Attachment B. Variances in totals are due to fractional acreages, designated as <0.1 in the original data set.

P.I. – Point of Inflection

a/ Cowardin Classification (Cowardin et al., 1979): PEM – palustrine emergent, PSS – palustrine scrub-shrub, PFO – palustrine forested.

b/ Impact acreage is also accounted for in Table 4.4.1-1.

*Access Roads*

Access roads would temporarily impact about 0.8 acre of wetlands (see table 4.4.1-4). These acreage impacts are included in the temporary construction impacts for the Project provided in table 4.4.1-1 and table C-6 in appendix C. No permanent impacts on wetlands are anticipated as a result of the use or modification of existing access roads.

Based on our review of Texas Gas's proposal, we believe that these access road modifications would be reasonable. Texas Gas would implement any additional requirements regarding these temporary access road improvements in wetlands that may be imposed by the USACE.

*Contractor/Pipe Yards*

Use of the proposed contractor/pipe yards would not impact any wetlands.

**TABLE 4.4.1-4**

**Wetlands Impacted by Access Roads**

| Location | Access Road | Nearest Milepost | Cowardin Classification a/ | Temporary Impacts (acres) |
|---|---|---|---|---|
| **Fayetteville Lateral** | | | | |
| Arkansas | | | | |
| *Woodruff* | 64 | 96 | PSS/PEM | <0.1 |
| *Lee* | 27 | 119.1 | PFO | <0.1 |
| *Phillips* | 52A | 156.6 | PFO | <0.1 |
| Mississippi | | | | |
| *Coahoma* | 41 | 158.4 | PFO | 0.1 |
| *Coahoma* | 41B | 158.4 | PFO | 0.5 |
| *Coahoma* | 41A | 158.6 | PFO | <0.1 |
| | | | **Subtotal: Fayetteville Lateral** | **0.6** |
| **Greenville Lateral** | | | | |
| Mississippi | | | | |
| *Humphreys* | AR-15 | 40.1 | PFO | <0.1 |
| *Humphreys* | AR-18 | 44.3 | PFO | <0.1 |
| *Humphreys* | AR-19 | 45.5 | PFO | 0.1 |
| *Holmes* | AR-38 | 59.6 | PEM/PSS | <0.1 |
| *Holmes* | AR-40 | 60.5 | PEM/PSS | <0.1 |
| *Holmes* | AR-60 | 77.2 | PFO/PSS | 0.1 |
| *Attala* | AR-61 | 78.1 | PFO | <0.1 |
| | | | **Subtotal: Greenville Lateral** | **0.2** |
| | | | **Project Total:** | **0.8** |

Notes: These totals were calculated using data provided by Texas Gas in their Resource Report 2 - Water Use and Quality and the PCN Attachment B. Variances in totals are due to fractional acreages, designated as <0.1 in the original data set.

a/ Cowardin Classification (Cowardin et. al. 1979): PEM – palustrine emergent, PSS – palustrine scrub-shrub, PFO – palustrine forested.

### 4.4.2 Wetland Restoration and Compensatory Mitigation

The requirements for wetland restoration measures identified in our Procedures include, but are not limited to, the following:

- consultation with appropriate land management or state agencies to develop a project-specific restoration plan that includes measure for reestablishing herbaceous and woody species;
- prohibition on the use of herbicides or pesticides within 100 feet of a wetland, except as allowed by the appropriate agencies; and
- monitoring of the success of wetland revegetation annually for the first three years after construction or until wetland revegetation is considered successful.

Texas Gas would complete wetland permitting, including development of measures of compensatory mitigation for all wetland impacts, in consultation with the USACE Little Rock, Memphis, and Vicksburg Districts. Texas Gas is proposing to compensate for wetland impacts through purchase of wetland mitigation bank credits. Mitigation banking is an approved alternative to on site mitigation and often provides for greater likelihood of success in replacement of wetland function and long-term management of restored wetland areas.

Texas Gas would comply with the conditions contained in the permit issued by the USACE and in the water quality certification permits issued by ADEQ and MDEQ.

Further, Texas Gas indicates that it would provide compensation for permanent wetland impacts including all impacts on forested wetlands in all construction work areas, including temporary construction work areas. A total of 33.9 acres of permanent forested and scrub-shrub conversion impacts would occur due to the permanently maintained right-of-way. A total of 0.2 acre of potentially permanently impacted forested wetlands has been identified; however, additional engineering design to avoid this site has been requested. Mitigation for these wetland impacts would be at a mitigation ratio as determined by the USACE. Because the final wetland Mitigation Plan has not yet been finalized, **we recommend that:**

- **Prior to construction, Texas Gas file with the Secretary a copy of the Section 404/10 permit issued by the USACE, and the finalized wetland Mitigation Plan developed in consultation with the USACE.**

Texas Gas would implement the construction, restoration, and maintenance measures described in our Procedures for project construction and operation. The Project pipeline routes have been developed in consultation with the USACE and would avoid wetlands where practicable. Wetland impacts would be minimized by using HDDs to cross several larger wetlands and associated waterbody crossings since wetlands within the path of the HDD would be avoided. Therefore, we believe that the proposed Project's impact on wetlands have been minimized to the greatest extent practicable. The USACE will require compensation for permanent wetland impacts as mitigation.

## 4.5 VEGETATION

### 4.5.1 Habitat/Community Types

There would be nine distinct vegetation habitat/community types in the Project area:

- hardwood upland forest;
- pine-hardwood upland forest;
- pine plantation;
- palustrine forested wetland;
- palustrine scrub/shrub wetland;
- palustrine emergent wetland;
- agricultural;
- upland pasture; and
- open water.

Of these, open water is characterized by a lack of vegetation, and agricultural and upland pastures by uniform vegetation. Therefore, these habitat/community types are not addressed in this section. The predominant vegetation community in the Project area is agriculture (66 percent), which is addressed in section 4.8.1.

#### 4.5.1.1 Typical Habitat/Community Types in the Project Area

Upland Forest

Upland forest communities in the vicinity of the proposed Project consist of both cold-deciduous, broad-leaved forest and needle-leaved evergreen trees. Upland forests comprise about 15 percent of the Project area.

*Hardwood Upland Forest*

The hardwood upland forest community is generally found throughout the Project area. The main cover type is oak-hickory, where common species include post oak (*Quercus stellata*), bur oak (*Quercus macrocarpa*), northern red oak (*Quercus rubra*), black oak (*Quercus velutina*), white oak *(Quercus alba*), mockernut hickory (*Carya tomentosa*), and pignut hickory (*Carya glabra*). Common understory species include American beautyberry (*Callicarpa americana*), American hornbeam (*Carpinus caroliniana*), and dogwood species (*Cornus* spp.). Other hardwood upland communities include beech-maple, rich cove, and sandpond forests. The federally listed endangered pondberry is known to occur in sandpond communities.

*Pine-Hardwood Upland Forest*

The pine-hardwood upland forest habitat is found in less anthropologically disturbed areas where the forests are allowed to vegetate naturally and mature without much management, leading to the mix of hardwoods and pine. This habitat type is more common along the western and eastern portions of the Project area. Overstory species in pine-hardwood upland forest are similar to pine upland forest and include loblolly pine (*Pinus taeda*), white oak (*Quercus alba*), southern red oak (*Quercus falcata*), American beech (*Fagus grandifolia*), black gum (*Nyssa sylvatica*), southern magnolia (*Magnolia grandiflora*), sweet gum (*Liquidambar styraciflua*), and species of elm (*Ulmus* spp.). The understory is composed of species such as American beautyberry (*Callicarpa americana*), American hornbeam (*Carpinus caroliniana*), supple jack (*Berchemia scandens*), Virginia creeper (*Parthenocissus quinquefolia*), wax myrtle (*Myrica cerifera*), greenbrier (*Smilax* spp.), dogwood species (*Cornus* spp.), and yaupon (*Ilex vomitoria*).

*Pine Plantation*

Managed forests and pine plantations are scattered throughout the Project area. These communities, which are dominated by pine, are managed for commercial production and undergo periodic silvicultural maintenance.

Wetlands

*Palustrine Forested Wetlands*

Palustrine forested wetlands are the most common wetland type crossed by the proposed Project. These wetland communities contain bottomland hardwood wetlands, southern floodplain forests, forested canebreaks, and cypress-tupelo swamps. The vegetation varies widely among the various wetland types, but all are dominated by woody vegetation and usually have hydric soils and wetland hydrology. Vegetation found in this habitat includes bald cypress (*Taxodium distichum*), water tupelo (*Nyssa aquatica*), Nuttall oak (*Quercus nuttalii*), water hickory (*Carya aquatica*), and overup oak (*Quercus lyrata*). These wetlands can vary from the semi-permanently flooded cypress tupelo swamp to the never inundated mixed pine-hardwood wetlands.

*Palustrine Scrub-shrub Wetlands*

The palustrine scrub-shrub wetland community is similar vegetatively to scrub-shrub upland habitat but exists where there are hydric soils and wetland hydrology. Vegetation found in this habitat consists of species such as marsh elder (*Iva annua*), water oak (*Quercus nigra*), red maple (*Acer rubrum*), wax myrtle (*Myrica cerifera*), eastern baccharis (*Baccharis halimifolia*), and various sedges (*Carex* spp.) and rushes (*Juncus* spp.).

*Palustrine Emergent Wetlands*

Palustrine emergent wetlands are found throughout the Project area. This community can also be found in fields that have lain fallow for a few years and have hydric soils and wetland hydrology. The main requirement of this habitat type is a lack of woody vegetation. These marshes typically includes species such as spikerushes, soft stem rush (*Juncus effusus*), green flatsedge (*Cyperus virens*), bushy bluestem (*Andropogon glomeratus*), swamp smartweed (*Polygonum hydropiperoides*), and maiden cane (*Panicum hemitomon*).

Wetlands are described in more detail in section 4.4.

#### 4.5.1.2 Pipeline Facilities

Fayetteville Lateral

Construction of the proposed Fayetteville Lateral (including construction work areas, access roads, pipe yards, and aboveground facilities) would involve the temporary clearing and disturbance of about 3,082.4 acres of land, including 2,197.7 acres of agricultural land, 432.5 acres of upland and managed forest, and 452.2 acres of other land and water. The primary wetland vegetative community that would be affected by construction would be mixed palustrine forested/emergent wetlands (see section 4.4).

Greenville Lateral

Construction of the proposed Greenville Lateral pipeline system (including construction work areas, access roads, pipe yards, and aboveground facilities) would involve the temporary clearing and disturbance of about 1,956.3 acres of land, including 1,020.9 acres of agricultural land, 303.7 acres of upland and managed forest, and 631.7 acres of other land and open water. The primary wetland vegetative community that would be affected by construction would be mixed palustrine forested/emergent wetlands (see section 4.4).

*Kosciusko 36-inch and Kosciusko 20-inch Tie-in Laterals*

Construction of the Kosciusko 36-inch and Kosciusko 20-inch Tie-in Laterals would involve the temporary clearing and disturbance of about 12.3 acres and 6.2 acres of land, respectively. About 4.2 acres of agricultural land and 5.6 acres of forest would be affected by construction of the Kosciusko 36-inch Tie-in Lateral; the remaining 2.5 acres of land affected during construction of the pipeline would consist of other land and water. Construction of the Kosciusko 20-inch Tie-in Lateral would involve temporary clearing and disturbance of 5.6 acres of forest and 0.6 acre of other land. Agricultural land would not be affected by construction of the Kosciusko 20-inch Tie-in Lateral.

The primary impact of the proposed Project on vegetation communities would be the removal of vegetation along the proposed pipeline routes, at aboveground facilities, and at ATWSs. Cutting or removal of vegetation for Project construction could lead to increased soil erosion, associated sedimentation and turbidity in streams and wetlands, an increase in invasive or exotic plant species, and a reduction in wildlife habitat. Clearing and construction activities along the proposed pipeline right-of-way and associated facilities could result in soil compaction. The use of heavy machinery could damage riparian vegetation adjacent to sensitive waterbodies, thereby potentially reducing water quality in those waterbodies.

The permanent right-of-way would be maintained in an herbaceous state following construction. There would be no long-term impacts on areas with existing herbaceous cover types following restoration. Long-term vegetation impacts would occur in forested wetlands and upland forests along the pipeline right-of-way where vegetation types would be converted to open land with herbaceous vegetation. Routine vegetation maintenance clearing would occur within the existing permanent right-of-way no more than once every 3 years. However, to facilitate leak and corrosion surveys in wetlands, a corridor no more than 10 feet wide centered on the pipeline(s) may be maintained by mowing or a similar means on an annual basis, and trees within 15 feet of the pipeline that are greater than 15 feet in height may be cut and removed from the permanent right-of-way.

Permanent impacts also would occur at the proposed aboveground facilities, where existing vegetation types would be converted to industrial land. The existing vegetation that would be the most affected by construction and operation of these facilities would be agricultural, however, some impacts to upland forested also would occur.

To minimize Project-related effects on vegetative communities, Texas Gas would implement our Plan and Procedures. Implementation of our Plan and Procedures would aid vegetative restoration and prevent or minimize sedimentation and turbidity in streams and wetlands. Following construction, all construction work areas would be restored, seeded with conservation grasses, legumes, native plant species or other standard erosion control/cover species, where required, and generally allowed to revegetate to pre-construction conditions in accordance with our Plan. The FWS recommends that native or non-persistent annual species be used to revegetate works areas. Texas Gas has indicated that it would consult with local conservation authorities.

Project impacts on vegetative communities would vary depending upon disturbance duration, magnitude, and vegetation cover type. As described above, long-term and permanent impacts on forested habitat would result from construction and operation of the Project. Texas Gas cooperated with federal and state agencies to align the pipeline in a manner that avoids or minimizes forested habitat impacts, either through facility siting or use of measures such as HDD to cross forested habitat. In addition, Texas Gas collocated the proposed pipeline along existing pipeline rights-of-ways to minimize forest fragmentation. Furthermore, Texas Gas would minimize impacts on forested areas through implementation of the mitigation measures in our Plan and Procedures. Impacts on other vegetation communities such as agriculture, pasture, and open land would be considered minimal and limited primarily to the construction phase. Based on Texas Gas's proposed measures to minimize impacts on forested areas, the relatively minor impacts on agricultural areas, pastures, and open lands, and the implementation of our Plan and Procedures and our recommendations, we believe that impacts on vegetation communities would be minimized.

### 4.5.2 Vegetative Communities of Special Concern

The NRCS, ANHC, Mississippi Museum of Natural History, and FWS identified several sensitive communities that could potentially be impacted by the Project. Specifically, these communities include the following:

- WRP land;
- bluff habitat adjacent to Cadron Creek;
- wetland corridors along Cache River and Bayou De View;
- wooded depressional habitat;
- bald cypress swamps; and
- bottomland hardwoods.

*Wetland Reserve Program Lands*

The WRP is a voluntary program administered by the NRCS that allows landowners to receive financial incentives to restore, protect, and enhance wetlands in exchange for retiring marginal land from agriculture. Texas Gas has identified one WRP that would be crossed by the Project along the proposed Greenville Lateral between MP 43 and MP 45, in Humphrey's County, Mississippi. Impacts on WRP lands and mitigation are addressed in section 4.8 of this EIS.

*Bluff Habitat Adjacent to Cadron Creek*

Cadron Creek is listed on the NRI and the Arkansas Registry of Natural and Scenic Rivers, and is listed by the ADEQ as an Extraordinary Resource Water. The ANHC noted that two species of state concern may occur on the bluffs along Cadron Creek: the Arkansas alumroot (*Heuchera villosa var. arkansana*) and mock orange (*Philadelphus hirsutus*). Texas Gas did not identify either of these species during field surveys; nonetheless, ANHC recommended that Texas Gas avoid areas where these species are known to occur. Texas Gas has determined that it would not be feasible to cross Cadron Creek using HDD methods and has proposed crossing Cadron Creek using open-cut crossing methods. Texas Gas would implement measures in our Plan and Procedures to minimize impacts associated with this crossing and would continue to coordinate with the ANHC to develop measures to avoid or minimize potential impacts on this habitat, and we have recommended additional consultation with the NPS regarding the development of additional mitigation measures for this crossing since Cadron Creek is NRI listed. Texas Gas also would implement any specific conditions associated with the USACE Section 404 permit and the state 401 Water Quality Certification if, in fact, these permits are issued for the Project. Further information about Cadron Creek is in section 4.3, and impacts on sensitive species are addressed in section 4.7.

*Cache River and Bayou De View Wetlands*

The wetlands associated with the Cache River and Bayou De View have been identified as wetlands of international importance by the Ramsar Convention and as the most important wintering area for mallards by the North American Waterfowl Management Plan. The ivory billed woodpecker (*Campephilus principalis*) was identified within the Bayou De View portion of the Cache River NWR. The Cache River basin contains a variety of wetland communities, including some of the most intact and least disturbed bottomland hardwood forests in the Mississippi Valley Region. Texas Gas proposes to use HDDs to cross the Cache River, Bayou De View, and associated forested wetlands. We believe that Texas Gas's use of HDDs to avoid impacts to the waterbodies and adjacent forested wetlands, and the use of our Procedures would minimize impacts to these resources.

*Wooded Depressional Habitats*

ANHC expressed concern over potential impacts on wooded depressional habitats that may support pondberry (*Lindera melissifolia*), a federally listed plant species. The FWS in Mississippi also requested that surveys of wooded depressional habitat be completed. Texas Gas conducted surveys of the pipeline corridor between November 2006 and May 2007 and did not identify any pondberry species within the Project area. Impacts on pondberry habitat are further addressed in section 4.7.

*Bald Cypress Swamp*

The proposed Project would cross bald cypress swamp habitat in Woodruff County, Arkansas, and Phillips, Humphreys, and Attala Counties, Mississippi. The Mississippi Natural Heritage Program (MSNHP) identified bald cypress swamps as a vegetation community of special concern in Mississippi. Bald cypress swamps are found around oxbow lakes and along abandoned stream channels and contain a variety of mixtures and densities of bald cypress, black gum, water tupelo, and other hardwood trees. Silver and red maple, persimmon, green ash, ironwood, and water oak are occasional associates. Bald cypress/gum swamps are considered vulnerable in Mississippi due to historic widespread declines and recent losses caused by a wide range of developments that create additional isolation and fragmentation (MDWFP, 2005).

*Bottomland Hardwood Forest*

The FWS is concerned about potential Project impacts on bottomland hardwood habitats. Bottomland hardwood forests are a type of wetland community comprised of both hardwood and softwood species that are found along the floodplains of rivers and streams. Only 20 percent to 25 percent of the bottomland hardwood forests that occurred across Arkansas prior to European settlement remain today (ANHC, 2007b). Potential natural vegetation types in these areas include the southern floodplain forest with bottomland forest and woodland components. These forests are predominantly overcup oak, water hickory, nuttal oak, willow oak, red maple, green ash, elm, and sweet gum. The riparian forests adjacent to the Mississippi River include black willow, cottonwood, river birch, and sycamore. Bald cypress and water tupelo are found in the wettest sites. Bottomland hardwoods occur throughout the Project area. The largest tracts are crossed by the Project in Phillips and Woodruff Counties in Arkansas, and Coahoma, Humphreys, Holmes, and Attala Counties in Mississippi. The White and Cache Rivers along the Fayetteville Lateral contain some of the most intact and least disturbed bottomland hardwood forests in the Mississippi Valley Region. Texas Gas proposes to use HDD to traverse large tracts of bottomland hardwood forested habitat that would be crossed by the Project.

*Impacts and Mitigation*

Construction impacts described in section 4.5.1.2 are applicable to vegetation communities of special concern, depending on the vegetation present. During the pre-filing period, the FWS, ANHC, and MSNHP commented that construction activities that fragment or destroy certain vegetative communities could adversely impact a number of threatened or endangered species. Impacts on threatened and endangered species are in section 4.7. Based on our review, the alignment of the proposed Project was developed, to the extent possible, to minimize impacts on high-quality habitats, conservation areas, or other designated sensitive vegetative communities. Texas Gas has collocated the proposed pipeline with existing utility rights-of-way wherever possible in order to minimize forest fragmentation and avoid creating new corridors through forested habitat or other sensitive communities. Where these areas cannot be avoided, Texas Gas has consulted with the appropriate resource agencies to determine both suitable crossing locations and crossing methods. Texas Gas would restore sensitive areas crossed by the Project to the extent practicable in accordance with our Plan and Procedures and any other mitigation measures required by permitting agencies. Texas Gas would continue to work with the applicable state and federal agencies to develop measures to avoid or minimize potential impacts on riparian areas, forested wetlands, and other vegetative communities that may provide habitat for federally or state-listed threatened or endangered species or species of special concern in Arkansas and Mississippi.

### 4.5.3 Noxious Weeds and Other Invasive Plants

Invasive species can out-compete and displace native plant species, which can alter the appearance, composition, and habitat value of affected areas. Cogon grass (*Imperata cylindrica*), water hyacinth (*Eichhornia crassipes*), and Johnson grass (*Sorghum halepense*) are some of the invasive species that could occur within the Project area.

In order to minimize the impacts of exotic and invasive species, Texas Gas would implement our Plan, which includes measures to reduce erosion such as topsoil stripping and specific vegetation restoration measures. Soils imported to agricultural and residential areas would be certified as free of noxious weeds and soil pests, and only weed-free straw or hay would be used to construct sediment control devices or used as mulch applications.

Texas Gas has also developed an Exotic and Invasive Species Control Plan (see appendix E). The plan identifies the following management measures to minimize introduction and/or spread of these species:

- pressure washing of all construction equipment before first entering the construction area, all water and material captured from pressuring washing would be contained and properly disposed to prevent dispersal of potential seeds or plant parts;
- monitoring and selective spot treatment/eradication of any exotic or invasive species encountered during construction;
- implementing construction techniques along the pipeline route that minimize the time that bare soil is exposed;
- segregating topsoil and restoring the segregated topsoil to its original location; and
- seeding exposed areas within a short time to minimize potential for exotic or invasive species to become established.

The temporary removal of vegetation may result in increased opportunities for invasive and exotic species to establish themselves in Project rights-of-way and extra workspaces. Adherence to the Exotic and Invasive Species Control Plan, in conjunction with consultations with local, state, and federal agencies, would minimize the potential for the introduction or establishment of nuisance and exotic species within the Project area. Re-establishment of vegetation in all disturbed areas soon after backfilling the trench and final grading would minimize the opportunities for invasive species to become established. Texas Gas states it would implement our Plan during construction and operation of the Project. The Plan requires that final grading, topsoil replacement, and installation of permanent erosion control structures within 20 days after backfilling the trench (10 days in residential areas). Grading the construction right-of-way would restore pre-construction contours and leave the soil in the proper condition for planting/seeding, and Texas Gas would seed disturbed construction workspaces with an appropriate seed mix.

## 4.6 WILDLIFE AND AQUATIC RESOURCES

This section provides a description of the wildlife and aquatic resources in the Project area. Potential impacts on these resources from construction and operation of the Project are described, and proposed or additional mitigation measures needed to eliminate or minimize adverse impacts are identified. Threatened and endangered species that may occur within the proposed Project area are described in section 4.7.

### 4.6.1 Wildlife Resources

Wildlife species that may be found within the Project area are typical of the Eastern Temperate Forest Eco-region (EPA, 2007). This region is described as having a moderate and mildly humid climate; dense and diverse forest cover; high human density; and diverse populations of mammal, birds, fish, reptiles, and amphibians. Based on vegetative characteristics, the Project area can be divided into the following five basic wildlife habitat/community types:

- palustrine wetland
- pasture
- upland forest/scrub-shrub
- open water/riparian

Since each wildlife habitat/community type supports a distinct collection of wildlife species, analysis of habitat types, rather than individual species, is provided to meaningfully describe Project-related impacts on wildlife resources. An overview of each Project area habitat type that would be impacted is provided below.

#### 4.6.1.1 Wildlife Habitats in the Project Area

*Palustrine Wetlands*

Palustrine wetlands, which include emergent, scrub-shrub, and forested habitat, provide foraging, breeding, migratory, and wintering habitat for a variety of terrestrial and aquatic wildlife. Small emergent areas contain less than 0.5 foot of water during the spring and provide habitat for several species of amphibians and invertebrates. This habitat supports a species diversity comprised of species such as ringed salamander (*Ambystoma annulatum)*, wood frog (*Rana sylvatica)*, ornate box turtle (*Terrapenne ornate ornate)*, northern crawfish frog (*Rana areolata circulosa*), four-toed salamander *(Hemidactylium scutatum)*, northern pintail *(Arnas acuta),* king rail *(Rallus elegans),* northern harrier *(Circus Cyaneus),* southeastern shrew (*Sorex longirostris)*, and swamp rabbit *(Sylvilagus aquaticus)* (Anderson, 2006; AGFC, 2007).

*Pasture*

Upland pasture habitat in the Project area provides foraging area and/or cover for a variety of species. Based on the presence of habitat and their regional occurrence, these species may include Henslow's sparrow (*Ammodramus henslowii*), Le Conte's sparrow (*Ammodramus leconteii*), northern bobwhite *(Colinus virginianus)*, red milkweed beetle (*Tetraopes tetraopthalmus)*, prairie mole cricket *(Gryllotalpa major)*, southern prairie skink *(Eumeces septentrionalis),* Texas horned lizard (*Phrynosoma cornutum*), prairie vole (*Microtus ochrogaster)* striped skunk *(Mephitis mephitis)*, and eastern cottontail *(Sylvilagus floridanus)* (Anderson, 2006; AGFC, 2007).

*Upland Forest/Scrub-Shrub*

Upland forest/scrub-shrub habitat types provide refuge for a variety of wildlife. Based on the presence of habitat and their regional occurrence, these species may include spring peeper *(Pseudacris crucifer)*, bell's vireo *(Vireo bellii),* eastern wood pewee *(Contopus virens)*, wood thrush *(Hylocichla mustelina),* black-and-white warbler *(Mniotilta varia),* red-headed woodpecker *(Melanerpes erythrocephalus)*, barn owl *(Tyto alba)*, eastern chipmunk *(Tamias striatus)*, southern flying squirrel *(Glaucomys volans)*, woodland vole *(Microtus pinetorum)*, and American woodcock *(Scolopax minor)* (AGFC, 2007).

*Open Water/Riparian*

Open water/riparian areas are valuable resources and provide habitat for numerous species. Riparian habit is generally defined as the aquatic and terrestrial habitat adjacent to streams, lakes, estuaries, or other waterways. Riparian areas help stabilize stream banks, improve water quality, reduce flooding and sedimentation, and enhance wildlife habitat. In the Project area, open water and associated riparian areas potentially support numerous species, including great blue heron *(Ardea herodias)*, mallards *(Anas platyrhynchos),* northern shoveler (*Anas clypeata)*, white ibis *(Eudocimus albus)*, and beaver *(Castor Canadensis)*. Aquatic species associated with open water habitat are described in more detail in section 4.6.2. The location of riparian habitat crossed by the proposed pipelines is identified in table C-9 in appendix C.

### 4.6.1.2 Impacts and Mitigation

Initial clearing and construction activities would result in the disruption of wildlife habitat comprised of palustrine wetland, upland forest/shrub-scrub, cropland and pasture, and open water/riparian habitat. Smaller, less-mobile wildlife species could experience direct mortality during clearing and grading activities. Other wildlife species would likely leave the Project area when construction begins and relocate into similar nearby habitats. Stress related to increased levels of competition could cause disruption of breeding cycles of some wildlife species, lower reproductive success, and reduced survival.

The primary impact of construction and operation of the Project on wildlife would be the temporary alteration of habitat in temporary construction work areas. There also would be permanent loss of habitat in areas where aboveground facilities would be built, and permanent impacts also would occur where forested uplands and wetlands are cleared. Following construction of the pipeline system, all construction work areas would be restored to preconstruction contours and revegetated. Areas within the permanent right-of-way would be maintained in herbaceous vegetation in accordance with our Plan and Procedures. Long-term or permanent impacts would be limited to the conversion of upland and wetland forested areas to open grassy areas for the new permanent right-of-way.

Operation of the pipeline system would result in the conversion of 381.7 acres of upland and wetlands forests to open herbaceous habitat. This herbaceous habitat would be of less value to wildlife species that prefer forested habitats, but would provide new habitat for those species preferring herbaceous habitats. In particular, prairie bird species, small mammals, amphibians, and reptiles would be able to utilize these restored areas, since they would provide scrub-shrub and grassland habitats. Other negative impacts resulting from construction and operation of the Project (e.g., noise) are expected to be minimal.

Although temporary and permanent impacts on food, cover, and water sources may occur, the species known to occur in the Project area are not dependent on habitats that would be affected by construction for the overall fitness or reproductive viability of the populations as a whole. Many of the mammal, bird, reptile, and amphibian species can adapt to changing habitat conditions and have the ability to temporarily expand or shift their home ranges to find alternative sources of food, water, and shelter until the construction work area habitats become reestablished. The permanent pipeline right-of-way would be maintained in an herbaceous state. In wetlands, the right-of-way would be allowed to revegetate naturally to preconstruction conditions, except in forested wetlands where a 10-foot-wide corridor centered on the pipeline may be maintained in an herbaceous state to facilitate periodic pipeline corrosion/leak surveys. In addition, trees within 15 feet of the center of the pipeline that are greater than 15 feet in height may be selectively cut and removed from the permanent right-of-way in forested wetlands (see section 4.4).

### 4.6.1.3 Migratory Birds and Colonial Nesting Waterbirds

*Migratory Birds*

The Migratory Bird Treaty Act regulates the taking of and impacts on migratory birds, including their nests. Texas Gas identified more than 200 migratory bird species that could potentially occur along the proposed Project route. Migratory birds would be expected to occur at least as transients in the proposed Project area throughout most of the year.

Migratory birds follow broad routes called "flyways" between breeding grounds in Canada and the U.S. and wintering grounds in Central and South America. The Project would be within the Mississippi Flyway, which extends from Alaska and central Canada to Patagonia, South America. Through the U.S., this flyway generally follows the Mississippi River. About 40 percent of all North American migrating waterfowl and shorebirds use this route. Texas Gas would minimize impacts on migratory birds by utilizing HDD methods to cross the Mississippi River and other waterbodies and associated wetlands, thereby minimizing impacts on habitats used by migrating birds.

The wetland system associated with the Cache and Lower White rivers was designated as a Wetland of International Importance under the Ramsar Convention on Wetlands, especially for its waterfowl habitat. This wetland system is known to support up to 10,000 Canada geese (*Branta canadensis*), about 100 bald eagles (*Heliaetus leucocephalus*), and hundreds of wood storks *(Mycteria Americana)*. These wetlands are considered the most important wintering area for mallards in North America, with an average of 306,000 individuals. Thousands of southbound Mississippi kites (*Ictinia mississippiensis)*, and hundreds of red-tailed hawks (*Buteo jamaicensus*), red-shouldered hawks (*Buteo lineatus*), and broad-winged hawks (*Buteo platypterus*) migrate through the region per day during migration. A variety of migratory songbirds breed here, including: Acadian flycatcher (*Empidonax virescens*), wood thrush, prothonotary warbler (*Protonotaria citrea*), hooded warbler (*Wilsonia citrina*), and cerulean warbler (*Dendroica cerulean*) (Audubon 2007). In addition, the wetlands along the Cache River and Bayou De View may represent habitat for the federally listed as endangered ivory billed woodpecker, believed to have been extinct for more than 60 years. Texas Gas would minimize impacts on migratory birds by utilizing HDD methods to cross the Cache River, Bayou De View, and their associated wetlands. We believe that Texas Gas's use of HDD methods and use of our Procedures would minimize potential impacts within these ecosystems and, therefore, on migratory birds.

Since some construction along the Project right-of-way would likely occur during the breeding season, migratory birds would be affected. Following construction, a corridor (with associated edge habitat) would be maintained in an herbaceous state for the life of the Project. Although some migratory birds may benefit from the creation and maintenance of edge habitat, other species would be adversely affected. Nonetheless, population-level impacts would not be expected, since migratory birds that occur along the pipeline route would likely opt for more suitable habitat. Further, creation of new right-of-way corridors through forested areas, and particularly forest wetland areas, would be minimized compared to conventional pipeline construction methods by the use of HDDs to cross them.

*Colonial Nesting Waterbirds*

Colonial nesting waterbirds include a variety of bird species that obtain all or most of their food from aquatic and wetland environments and gather in large colonies, or rookeries, during their respective nesting seasons (FWS 2002). Colonial nesting waterbirds concentrate in these rookeries on sandbars and islands within or along the riparian areas, or along major waterways such as the Mississippi River. Texas Gas would cross the Mississippi River using HDD methods. A primary advantage to using HDD is that it avoids disturbance of the streambed, stream banks, sandbars, and adjacent upland areas in the immediate vicinity of the waterbody crossing.

No documented rookeries were identified within 0.5 mile of the Project. A wading bird rookery occurs in the Hillside NWR at a distance greater than 1 mile from the proposed Greenville Lateral. Texas Gas would cross the Hillside NWR by HDD, thereby minimizing disturbance of this resource. Operation of the Project would have no effect on this rookery since the NWR would be crossed by HDD, and typical right-of-way maintenance activities such as periodic mowing would not be required. If rookeries are observed along any portion of the Project during construction, Texas Gas would consult with appropriate state and federal agencies to ensure that appropriate measures are implemented to prevent adverse impacts on the species utilizing these areas. Therefore, we conclude that the Project would have no effect on documented rookeries.

#### 4.6.1.4 Managed Wildlife Areas

As previously described, the majority of the Project area consists of agricultural lands. The Project would also traverse two federally protected areas, the Cache River NWR in Woodruff County, Arkansas, and the Hillside NWR in Holmes County, Mississippi.

The proposed Fayetteville Lateral would cross the Cache River NWR between MP 82.0 and MP 82.8, and the Bayou De View portion of the NWR between MP 95.9 and MP 96.6. The NWR, which encompasses an area totaling 64,000 acres, supports large concentrations of wintering waterfowl. It is comprised largely of bottomland forests and associated sloughs and oxbows, as well as cropland and reforested areas. The NWR is recognized as a Wetland of International Importance by the Ramsar Convention and the most important wintering area of mallards by the North American Waterfowl Management Plan (FWS, 2007).

The proposed Greenville Lateral would cross the northern tip of the Hillside NWR between MP 54.1 and MP 55.9, in Holmes County. The Hillside NWR occupies about 15,572 acres and provides important stopover and nesting habitat for over 200 species of neotropical migratory birds. The refuge is home to large numbers of wintering waterfowl, at times often exceeding 125,000 birds. A wading bird rookery provides nesting and roosting habitat for several species of marsh and wading birds, including white ibis; cattle egrets (*Bubulcus ibis*); great blue, little blue (*Egretta caerulea*), and green-backed herons (*Butorides striatus)*; and yellow-crowned night herons (*Nyctanassa violacea*). The rookery is located more than 1 mile from the Project area (Loveall, 2007).

We have consulted with both the Mississippi and Arkansas Field and Refuge Offices of the FWS about construction impacts in the NWRs. The NWRs would be crossed by HDD. The HDD exit and entry pits would be on private land adjacent to the NWRs. The crossing of these resource areas by HDD would minimize direct construction and operation impacts, resulting in minimal, if any, impacts on existing vegetation, soils, and wildlife. Construction-related dust and noise would be limited to several days during the HDD process and would have a minimal effect on refuge activities. Texas Gas would implement any additional recommendations of the FWS to minimize construction impacts and would comply with all permit conditions it would obtain. Operation of the Project would have no effect on the NWR since it would be crossed by HDD, and typical right-of-way maintenance activities such as periodic mowing would not be required. In the event that the HDD attempt fails, Texas Gas would be required to consult with appropriate state and federal agencies prior to implementing an alternative crossing method.

Use of the HDD method to cross the Cache River and Hillside NWRs and implementation of any additional mitigation recommended by the FWS would minimize impacts on the NWR due to construction and operation of the Project.

### 4.6.2 Aquatic Resources

The 262.6-mile-long Project would cross 483 waterbodies within three major watersheds, including the Arkansas-Red-White River Basin, Lower Mississippi Regional Watershed, and South Atlantic-Gulf Regional Watershed. The Fayetteville Lateral would cross 278 waterbodies, including 40 perennial and 238 intermittent waterbodies. The Greenville Lateral would cross 203 waterbodies, including 29 perennial and 174 intermittent waterbodies. The Kosciusko 36-inch Tie-in Lateral would cross one perennial and one intermittent waterbody. The Kosciusko 20-inch Tie-in Lateral would not cross any waterbodies. The ADEQ and MDEQ have developed their own regulatory systems for evaluating, classifying, and monitoring their surface waters.

The following sections provide an overview of the aquatic resources found within the Project area and potential impacts on these resources. Any federally or state-listed threatened or endangered aquatic species are addressed in section 4.7.

#### 4.6.2.1 Freshwater Fish and Invertebrates

Commonly occurring species of fish and invertebrates in waterbodies that would be crossed by the proposed Project are typical of species found in waterbodies in Arkansas and Mississippi. Representative fish species include largemouth bass (*Micropterus salmoides*), bluegill (*Lepomis macrochirus*), Alabama shad (*Alosa alabama*), alligator gar (*Atractosteus spatula*), and common carp (*Cyprinus carpio*). Representative mussel species in the Project area include the deertoe (*Truncilla truncata*), elktoe (*Alasmidonta marginata*), rainbow (*Villosa iris*), and wartyback (*Quadrala nodulata*).

Habitat requirements, life history characteristics, and abundance and diversity of aquatic species in freshwater rivers and streams reflect a range of habitat features, from water depth, water flow, water quality characteristics, abundance of prey, and presence of physical structure such as woody debris and submerged aquatic vegetation. Many of the fresh waterbodies that would be crossed by the proposed Project are ditches with only ephemeral water. This temporary nature reduces the value of the ditches as aquatic habitat, as they can be occupied only for a portion of the year. However, the flushing of the ditches during fluctuating water levels can release organic detritus and small invertebrate prey into perennial waterbodies. Areas of ephemeral surface water also can function as nursery areas for larvae and juveniles, where restricted access or shallow water levels may reduce the presence of predatory fish. Conversely, the larger perennial waterbodies provide a more consistent year-round habitat, which allows for a robust food web that includes large predatory piscivores as well as bottom feeders. In general, the rivers and streams that would be crossed by the proposed Project are typical of those found in Arkansas and Mississippi.

Arkansas and Mississippi do not classify waterbodies as either warm-water or cold-water systems. Both states have developed regulatory systems for classifying surface waters through assignment of beneficial use designations. The Arkansas "Fisheries" designation does include a classification for trout water. Waterbodies designated as "trout water" may be *de facto* cold-water fisheries. Waterbodies without this designation may be viewed as warm-water fisheries. Therefore, Texas Gas states the construction timing window identified in our Procedures for cold-water fisheries (June 1 through September 30) would be implemented for waters classified as "trout water," and the construction timing window identified in our Procedures for warm-water fisheries (June 1 through November 30) would be implemented for all other waterbodies.

The Arkansas Pollution Control and Ecology Commission (APCEC) defines fisheries of special concern as important fisheries of exceptional recreational or commercial value, or as those that provide habitat for special status species, i.e., threatened, endangered, or sensitive species (APCEC, 2006). Extraordinary Resource Waters are waters with a beneficial use that is a combination of the chemical, physical, and biological characteristics of the waterbody and its watershed and which is characterized by scenic beauty, aesthetics, scientific values, broad scope recreation potential, and intangible social values. Ecologically Sensitive Waterbodies are those waterbodies with segments known to provide habitat within the existing range of threatened, endangered, or endemic species of aquatic or semi-aquatic life forms. APCEC also defines trout waters as water suitable for the growth and survival of trout.

The proposed Fayetteville Lateral would cross several waterbodies designated as Extraordinary Resource Waters, including Big Creek in White County, Cadron Creek in Faulkner County, and the Cache River in Woodruff County. Cadron Creek also is listed on the State Registry of Natural and Scenic Rivers. Cadron Creek, Big Creek, and Bayou De View also are listed on the NRI. Waterbodies on the NRI are believed to possess one or more outstandingly remarkable (natural or cultural) values judged to be of more than local or regional significance. Departee Creek in White County is designated as an Ecologically Sensitive Waterbody because it supports the flat floater mussel. Texas Gas would cross Big Creek, Cache River and Bayou DeView using HDD methods, thereby minimizing potential impacts on these waterbodies. Cadron Creek and Departee Creek would be crossed using conventional open-cut methods. The ANHC expressed concern regarding the open-cut crossing of the Cadron Creek and recommended that BMPs be implemented to minimize waterbody and adjacent riparian habitat impacts. Texas Gas would minimize impacts by implementing our Procedures and would continue to coordinate with appropriate agencies about impacts to these waterbody crossings.

About 50 miles of the Little Red River, from just below Greers Ferry Dam to the Town of Searcy, Arkansas, is designated as a Trout Water. The Little Red River is one of the most popular fishing and floating streams in Arkansas. The proposed Fayetteville Lateral would cross the Little Red River about 41 miles downstream of the Greers Ferry Dam. Texas Gas would construct the pipeline across the Little Red River by HDD, thereby minimizing potential impacts on this fishery.

Several waterbodies that would be crossed by the Fayetteville Lateral also support species of special concern. Glaise Creek, at MP 66.2 in White County, supports the taillight shiner (*Notropis maculates*), and the White River, crossed at MP 70 in White County, is known to support the hickorynut mussel (*Obovaria olivaria*) The White River would be crossed by HDD, thereby minimizing potential impacts on this fishery. Texas Gas would cross Glaise Creek using open-cut methods and would implement the mitigation measures of our Procedures, including the construction timing window, to avoid impacts on fish during spawning.

In Mississippi, waterbodies are classified by uses. All of the waterbodies that would be crossed by the proposed Project are classified as Fish and Wildlife. A regulatory program that designates fisheries of special concern does not currently exist in Mississippi; however, the MDWFP indicates that several waterbodies support species of special concern, including Deer Creek and Bogue Phalia in Washington County and Big Sunflower River in Washington and Humphreys Counties. Perennial waterbodies in Coahoma County may contain potential habitat for the fat pocketbook, an endangered mussel species. Streams within the Big Black River, Yazoo, and Mississippi Alluvial Plain drainages also have been identified in Mississippi's Comprehensive Wildlife Conservation Strategy as supporting species of greatest conservation need, including the blue sucker and paddlefish (MDWFP, 2005). Texas Gas would cross Deer Creek, Bogue Phalia, Big Sunflower River, and Big Black River by HDD, thereby minimizing potential impacts on these waterbodies. Perennial waterbodies within the Big Black River, Yazoo, and Mississippi alluvial plain drainages would be crossed using conventional open-cut methods.

Open-cut crossing of waterbodies would be conducted in accordance with our Procedures, and Texas Gas would implement the mitigation measures of our Procedures, including the construction timing windows for cold-water and warm-water fisheries. Texas Gas would implement any additional conditions or requirements associated with the USACE Section 404 permit and the state 401 Water Quality Certification that may be issued for the Project. Texas Gas indicates that it would continue to coordinate with the appropriate agencies about crossing Cadron Creek and would notify us about any additional agency recommendations or requirements.

#### 4.6.2.2 Commercial and Recreational Fisheries

The Mississippi River supports the most economically significant commercial fisheries in the Project area. Commercial fishing in the Lower Mississippi River corridor includes both marine and freshwater fisheries. The proposed Project would cross the river 300 river miles upstream of the Gulf of Mexico and thus would not impact marine fisheries. The most important freshwater species harvested from the Mississippi River include crayfish, catfish, buffalo, and gar (IEC, 2004). Texas Gas proposes to cross the Mississippi River by HDD, thereby minimizing any potential impacts on the associated fisheries.

Although not commercial fishing in the traditional sense, Arkansas and Mississippi both support large aquaculture industries. The primary fish species produced is catfish. Aquaculture “crops” are raised in man-made earthen ponds that typically rely on groundwater as their primary source of water (Stone and Sheldon, 2006). Although catfish ponds are present in the proposed Project area, Texas Gas indicates that it has developed its pipeline route to avoid impacting any catfish ponds.

Commonly occurring recreational fish species found in waterbodies crossed by the Project include: largemouth bass, catfish, crappie, and bream. The Little Red River, the only designated trout fishery crossed by the Project, is considered a premier-class trout fishery in Arkansas. Recreational fish species occurring in the Little Red River include rainbow, brown, and cutthroat trout (Arkansas Department of Parks and Tourism, 2007). Texas Gas would cross the Little Red River by HDD, thereby avoiding impacts on this trout fishery. In addition, Texas Gas would implement measures in our Procedures to minimize impacts on recreational fisheries.

#### 4.6.2.3 Construction Impacts on Aquatic Resources

Construction of the pipeline system would result in the temporary alteration of open water and temporary disturbance of palustrine wetland habitats (see sections 4.3.3 and 4.4). The use of access roads and extra workspaces and pipe storage yards would not result in permanent fill or alteration of waterbodies and associated aquatic habitats. However, the use of some access roads and possibly some pipe yards may result in temporary disturbance of wetland areas. Operation of the Kosciusko Compressor Station, as currently proposed, would result in the permanent loss of some wetlands. The surface water features along the proposed pipelines range from narrow man-made ditches to lakes and major rivers. This corresponds to a broad range of habitats and species inhabiting those waterbodies.

The Project would cross a total of 70 perennial waterbodies. Pipeline construction and restoration activities within and adjacent to these waterbodies would be conducted in accordance with our Plan and Procedures to minimize impacts on fisheries, their habitat, and other aquatic organisms. Texas Gas’s proposed waterbody crossings are listed in table C-5 of appendix C. Depending on the construction method used, direct impacts on aquatic habitat and species would either be avoided (e.g., by use of an HDD to cross the resource) or would occur in localized areas. Waterbody crossings would be accomplished using open-cut or HDD methods. The use of the open-cut crossing method would result in several temporary effects on aquatic resources, including plankton, aquatic vegetation, amphibians, fish, and aquatic invertebrates such as mussels. Impacts on water quality and associated aquatic habitats would include sedimentation, turbidity, altered water temperatures and dissolved oxygen levels, and possible introduction of contaminants, if present, all of which can affect the ability of aquatic life to survive and reproduce. Impacts also would include the physical disturbance or destruction of in-stream habitat due to trenching and removal of riparian vegetation. Construction activities also would result in blockage of fish migration, interruption of spawning activities, as well as entrainment of fishes or reduced stream flows during withdrawals for hydrostatic testing.

Pipeline construction using open-cut methods would result in sedimentation and turbidity in surface waters and aquatic habitats. Benthic macroinvertebrates, which typically provide a key food source for fishes, may be buried under accumulated sediments along with fish nesting sites containing eggs or larvae. However, waterbodies within the Project area tend to have relatively low gradients; and water flow velocities tend to be low, indicating that suspended sediments within these waterbodies would be transported only over short distances. Some of these impacts would be lessened or avoided by using appropriate sediment and erosion controls during construction, minimizing the clearing of riparian vegetation, and restoring riparian and wetland areas.

Clearing overhanging vegetation in riparian and adjacent wetland areas and removal of undercut banks, logs, and other streamside features that provide cover for fish would result in decreased shading, increased water temperatures, and displacement of fish from disturbed areas. However, streamside clearing would be localized and would occur within the construction right-of-way. Overall, these impacts would be minor, as they would affect a relatively small length of a much longer, linear, stream feature.

The open-cut method also would affect fish by blocking migration pathways and interrupting spawning activities. Our Procedures require that, in waterbodies with cold-water fisheries, in-stream work be completed between June 1 through September 30, and in warm-water fisheries, in-stream work be completed between June 1 and November 30. Although construction disturbances would temporarily displace fish or hinder migrations in waterbodies, we anticipate that these affects would be localized, temporary, and generally minor.

To avoid direct impacts on aquatic habitat, Texas Gas would cross 17 waterbodies by HDD. The HDD method (see section 2.5.1) is considered a preferred method for crossing sensitive habitats because stream bottom disruption and subsequent impacts on aquatic habitats along that portion of the pipeline route would be eliminated or minimized. Texas Gas has developed an HDD Plan that describes the procedures that would be implemented to monitor, contain, and clean up any potential releases of drilling fluids during HDD operations. In addition, Texas Gas has developed an HDD Contingency Plan in the event that HDD fails. Any modifications to the crossing method would be reviewed and approved by the appropriate federal and state resource agencies prior to Texas Gas implementing the modification. Given these protective measures, we believe that the use of HDDs at the proposed locations would minimize impacts on aquatic habitats and species.

Pollutants could be introduced into waterbodies and aquatic habitats by the disturbance of contaminated soils or sediments, accidental spills, and inadvertent release of drilling fluids during HDD operations. Pollutants could affect fish and other aquatic life through acute or chronic toxicity, and sub-lethal effects could affect reproduction, growth, and recruitment. In addition, pollutants could be introduced during the discharge of hydrostatic test waters if any chemicals are added to the test water during this procedure. However, Texas Gas has stated that it would not use chemicals during hydrostatic testing of the proposed Project. Texas Gas would implement its SPCC Plan to prevent and contain spills of contaminating materials that might occur during construction of the Project, and it would comply with our Procedures to structure its operations in a manner that reduces the risk of spills or the accidental exposure of fuels or hazardous materials to waterbodies or wetlands. The disturbance and resuspension of contaminated soils and sediments would result in adverse impacts on water quality and in-stream habitat. Texas Gas would coordinate crossings of waterbodies with known contaminated sediments with the ADEQ and MDEQ (see section 4.3.2). Given these conditions and protective measures, the risks to water quality and aquatic species from contaminated sediments, accidental spills, and inadvertent releases of drilling fluids is low.

Entrainment of fish and other aquatic organisms could occur during withdrawal of hydrostatic test water from the source waterbodies listed in table 4.3.2-5. Texas Gas would prevent or limit impacts from hydrostatic testing by implementing the measures in our Procedures. These measures include screening to limit entrainment of fishes and maintenance of adequate flow rates to protect aquatic life during withdrawals for hydrostatic testing.

While the majority of impacts of pipeline construction on fish and other aquatic organisms would be expected to be localized and short term, longer-term impacts could occur if habitat is permanently altered. We believe that successful implementation of the construction methods and mitigation measures proposed by Texas Gas and identified in our Procedures would minimize impacts on aquatic resources during construction of the Project.

#### 4.6.2.4 Post-Construction and Operational Impacts on Aquatic Resources

Post-construction and operational impacts of the pipeline on aquatic resources would be minimal. Restoration of the vegetation within the construction work areas would minimize potential impacts from erosion on waterbodies. Minimal impact on fisheries is expected from maintenance mowing or manual removal of woody vegetation in the vicinity of the pipeline right-of-way because maintenance activities would be performed in accordance with our Plan and Procedures. These require that vegetation maintenance adjacent to waterbodies be limited so that a riparian strip at least 25 feet wide, as measured from the waterbody's mean high water mark, would be allowed to permanently revegetate with native plant species across the entire construction right-of-way. However, to facilitate periodic pipeline corrosion/leak surveys, a corridor centered on the pipeline and up to 10 feet wide may be maintained in a herbaceous state, and trees that are located within 15 feet of the pipeline that are greater than 15 feet in height may be cut and removed from the permanent right-of-way. Adherence to our Plan and Procedures would allow for the continued re-growth of vegetation along the edges of the waterbodies, thus minimizing long-term effects on the fisheries. We believe that if the maintenance activities described in our Plan and Procedures are implemented and if riparian areas are successfully revegetated, then operation of the Project would have minimal impact on aquatic resources.

## 4.7 THREATENED, ENDANGERED, AND OTHER SPECIAL STATUS SPECIES

Federal agencies are required by Section 7 of the ESA (Title 19 USC Part 1536(c)), as amended (1978, 1979, and 1982), to ensure that any actions authorized, funded, or carried out by the agency do not jeopardize the continued existence of a federal-listed endangered or threatened species, or result in the destruction or adverse modification of the designated critical habitat of a federal-listed species. A federal "endangered" species is one that is in danger of extinction throughout all or a significant portion of its range. A "threatened" species is one that is likely to become endangered in the foreseeable future. Candidate species are plants and animals for which the USFWS has sufficient information on their biological status and threats to propose them as endangered or threatened under the ESA, but for which development of a proposed listing regulation is precluded by other higher priority listing activities. Candidate species receive no statutory protection under the ESA.

As the lead action agency for the proposed Project, the FERC is required to consult with the USFWS to determine whether federal-listed endangered or threatened species or designated critical habitat are found in the vicinity of the proposed Project, and to determine the proposed action's potential effects on those species or critical habitats. For actions involving major construction activities with the potential to affect listed species or designated critical habitat, the federal agency must prepare a BA for those species that may be affected. The action agency must submit its BA to the USFWS and, if it is determined that the action may adversely affect a listed species, the federal agency must submit a request for formal consultation to comply with Section 7 of the ESA. In response, the USFWS would issue a Biological Opinion (BO) as to whether or not the federal action would likely jeopardize the continued existence of a listed species, or result in the destruction or adverse modification of designated critical habitat.

Texas Gas informally consulted with the FWS to determine if federal-listed endangered, threatened, or candidate species; and Arkansas and Mississippi state listed threatened, endangered, special concern or sensitive species could potentially occur in the proposed Project area. The species identified during these consultations are listed on table 4.7-1 and described in the following sections.

**TABLE 4.7-1**

**Federally Listed Endangered or Threatened Species Potentially Occurring in the Project Area**

| Common Name (Scientific Name) | Status | Preferred Habitat/ Potential Use of the Project Area | Determination |
|---|---|---|---|
| **Mammals** | | | |
| Louisiana black bear (*Ursas americanus luteolus*) | E<br>MS - SC | Bottomland hardwood and floodplain forests along the Mississippi River and in the southern part of Mississippi. | Not likely to adversely affect |
| **Birds** | | | |
| interior least tern (*Sterna antillarum athalassos*) | E<br>AR- SC<br>MS- SC | Sand and gravel bars within wide, unobstructed river channels, or open flats along shorelines of lakes and reservoirs. | Not likely to adversely affect |
| ivory billed woodpecker (*Campephilus principalis*) | E | Thick hardwood swamps and pine forest with large amounts of dead and decaying trees. Rediscovered in 2004 in the Big Woods of Arkansas within the Bayou De View Management Area. Last observed about 11 miles south of the Project. | Not likely to adversely affect |
| wood stork (*Mycertia Americana*) | E<br>MS- SC | Freshwater wetlands, including ponds, bayheads, flooded pastures, oxbow lakes, and ditches. Nest in bald cypress trees in swamps. Recent U.S. breeding is restricted to Florida, Georgia, and South Carolina. Potential to occur in counties bordering the Mississippi River. | Not likely to adversely affect |
| **Mussels** | | | |
| fat pocketbook (*Potamilus capax*) | E | Clean loose sand and gravel in medium to small waterbodies. Mississippi: Coahoma County. Arkansas: St. Francis, Lee, and Phillips Counties. Perennial waterbodies. | Not likely to adversely affect |
| scaleshell (*Leptodea leptodon*) | E | Occurs in medium to larger rivers with low to medium gradients. Primarily inhibits stable riffles and runs with gravel or mud substrate and moderate current velocity. Arkansas: Perennial waterbodies in St. Francis, Lee, and Phillips Counties. | Not likely to adversely affect |
| speckled.pocketbook (*Lampsilis streckeri*) | E | Course to muddy sand in depths up to 1.3 feet. It has been found only in well-oxygenated water with a constant flow. Arkansas: Perennial waterbodies in Cleburne County. | Not likely to adversely affect |
| pink mucket (*Lampsilis abrupta*) | E | Found in mud and sand and in shallow riffles and shoals swept free of silt in major rivers and tributaries. Arkansas: Perennial waterbodies in Woodruff County. | Not likely to adversely affect |
| **Insects** | | | |

**TABLE 4.7-1**

**Federally Listed Endangered or Threatened Species Potentially Occurring in the Project Area**

| Common Name (Scientific Name) | Status | Preferred Habitat/ Potential Use of the Project Area | Determination |
|---|---|---|---|
| American burying beetle (*Nicrophorus americanus*) | E | Lives in a variety of habitat, with a slight preference for grasslands and open understory oak hickory forests. Carrion specialists, they need carrion the size of a dove or chipmunk to in order to reproduce. Carrion availability may be the greatest factor in determining where the species can survive. Arkansas: Cleburne County. | Not likely to adversely affect |
| **Fish** | | | |
| pallid sturgeon (*Scaphrhynchus albus*) | E | Adapted for living close to the bottom of large, silty rivers with swift currents. Preferred habitat is made up of sand flats and gravel bars. Known to occur in the Mississippi River. | Not likely to adversely affect |
| **Plants** | | | |
| pondberry (*Lindera melisifolia*) | E | Poorly drained swampy depressions associated with small sand dunes. These depressions are typically underwater (up to 12 inches) during the spring but are very dry by autumn. Overstory vegetation is typically a closed canopy of mature bottomland hardwoods. | Not likely to adversely affect |

__________

Key:

T = Threatened

E = Endangered

SC = Special Concern

### 4.7.1 Federally Listed Threatened and Endangered Species

Based on consultation with the FWS and a review of existing records, we have identified 12 federally listed threatened or endangered species potentially occurring in the vicinity of the proposed Project. A description of these species, their preferred habitats and potential for occurrence, and our assessment of potential impacts on them resulting from construction and operation of the proposed Project is provided below.

#### 4.7.1.1 Mammals

*Louisiana Black Bear (Ursus americanus luteolus)*

The federally threatened Louisiana black bear is one of 16 subspecies of the American black bear (*U. americanus*). A habitat generalist, it often overwinters in hollow cypress trees in or along sloughs, lakes, and riverbanks in bottomland habitat. These bears are mobile, opportunistic, largely herbivorous omnivores that exploit a variety of foods. Their movements closely track the distribution and abundance of foods, particularly mast. Habitat requirements include hard and soft mast, escape cover, denning sites, corridor habitats, and some freedom from disturbance by humans (FWS, 1995).

The Louisiana black bear's habitat consists primarily of bottomland hardwood timber found in river basin habitats. The primary threats to this species are continued loss of bottomland hardwoods and fragmentation of remaining forested tracts. Changes in land use and conversion of virgin forest for farming combined to bring about the decline of the Louisiana black bear. The Louisiana black bear is now primarily restricted to the Tensas and Atchafalaya River Basins in Louisiana; however, these bears make long-range movements and not uncommonly occur in adjacent Mississippi. It is unknown whether breeding numbers exist outside of Louisiana.

The Louisiana black bear occurs primarily in bottomland hardwood and floodplain forest along the Mississippi River and in the southern part of Mississippi. According to the FWS, the species is known to occur in Humphrey, Holmes, and Attala Counties, Mississippi (FWS, 2006a). In addition, the MDFWP reports that the bear may occur in Washington, Sunflower, and Coahoma Counties, Mississippi (MDFWP, 2006).

Adverse impacts on the Louisiana black bear can result from activities that fragment forest corridors or remove denning trees. Denning trees are defined as bald cypress (*Taxodium distichum*) and tupelo gum (*Nyssa* sp.) with visible cavities, having a diameter at breast height of 36 inches or greater, and occurring in or along rivers, lakes, streams, bayous, sloughs, or other waterbodies. In a letter dated April 12, 2007, the FWS recommended that Texas Gas avoid cutting or removing actual or candidate denning trees for black bears.

Louisiana black bears were not observed during the field surveys, and no candidate or actual denning trees were identified during biological surveys completed along the proposed Project route. To identify actual or candidate denning trees within the construction corridors, Texas Gas would continue visual surveys using environmental inspectors trained to recognize such trees. In accordance with FWS recommendations, Texas Gas would avoid cutting of actual or candidate denning trees during construction. If actual or candidate denning trees are discovered within the construction corridor at locations where impacts appear unavoidable, Texas Gas would initiate further consultation with the FWS to determine an acceptable resolution. Therefore, we have determined that construction and operation of the proposed Project would not adversely affect the Louisiana black bear or its critical habitat.

#### 4.7.1.2 Birds

*Interior Least Tern (Sterna antillarum athalassos)*

The endangered interior least tern migrates up the Mississippi River and nests directly on sandbars in and associated with the river. The birds may nest together, forming colonies (FWS, 2006b). The primary threat to the interior least tern has been the loss of habitat from dam construction and river channelization. The breeding season of the interior least tern lasts from May through August, with the peak of the nesting season usually occurring from mid-June to mid-July. No rookeries were identified during the initial survey of the proposed pipeline route.

In accordance with FWS recommendations, Texas Gas would cross the Mississippi River by HDD, thereby minimizing disturbance of the streambed, stream banks, sandbars, or upland areas in the immediate vicinity of the crossing. Based on the Interior Least Tern's habitat requirements, surveys conducted by Texas Gas, and the use of HDD methods to cross the Mississippi River, we have determined that construction and operation of the proposed Project would not likely adversely affect interior least terns or its critical habitat.

*Ivory-billed Woodpecker (Campephilus principalis)*

The ivory-billed woodpecker (IBWO) was rediscovered within the "Big Woods" of Arkansas in 2004. Until that time, the IBWO was thought to be extinct, as the last confirmed sighting was in 1944. The potential range for the IBWO in Arkansas includes contiguous forested habitats in parts of Arkansas, Desha, Jefferson, Lincoln, Monroe, Phillips, Prairie, and Woodruff Counties. Within these counties, the IBWO potential range is further defined as the mostly contiguous forest of the lower White River floodplain, encompassing the Cache River and White River NWRs, the AGFC's Dagmar and Wattensaw WMAs, and adjacent contiguous forested private lands. The perimeter of the IBWO potential range generally follows the edge of large contiguous forests but also includes forested corridors extending outward from the edge of core contiguous forest until the width decreases to less than 0.25 mile for a distance of more than 0.25.

Texas Gas states that, based on the lack of evidence that this species is present or has recently inhabited the Bayou De View area, and the fact that the proposed Project would be 11 miles north of the northernmost boundary of the Bayou De View Managed Access Area, the potential for IBWO habitat appears remote. In a letter dated May 2, 2007, the FWS recommended that Texas Gas avoid water quality degradation and habitat disturbance by boring under the Cache River, Bayou De View, and their associated wetlands. Texas Gas would cross these sensitive habitats by HDD, thereby avoiding impacts on potential IBWO habitat. In the event that HDD fails, Texas Gas would re-initiate consultation with the appropriate agencies to determine an acceptable alternative crossing method and develop appropriate mitigation, if necessary. Based on the information above, we have determined that construction and operation of the proposed Project would not likely adversely affect the IBWO or its critical habitat.

*Wood Stork (Mycteria americana)*

The FWS lists the wood stork as endangered in Florida, Georgia, Alabama, and South Carolina; however, wood storks are known to move northward after breeding, as far as Arkansas and Tennessee in the Mississippi Valley.

No wood stork or wading bird rookeries were observed during field surveys; however, the MDWFP reported that wood storks have been observed in Mississippi counties bordering the Mississippi River (e.g., Coahoma County) and that nesting usually occurs in bald cypress swamps. Coahoma County may be on the periphery of the wood stork's range. Based on wood stork habitat requirements, surveys conducted by Texas Gas, the absence of wood stork sightings, and the lack of suitable habitat, we have determined that construction and operation of the proposed Project would not likely adversely affect the wood stork or its critical habitat.

#### 4.7.1.3 Fish

*Pallid Sturgeon (Scaphrynchus albus)*

The endangered pallid sturgeon, one of the largest fish inhabiting the Mississippi River, requires large, turbid, free-flowing riverine habitats. Like other sturgeon, the pallid's mouth is toothless and positioned under the snout for sucking small fish and other food items from the river bottom. Modification of the pallid sturgeon's habitat by human activity has blocked fish movement, destroyed or altered spawning areas, reduced food sources or ability to obtain food, altered water temperatures, reduced turbidity, and have contributed to the species population decline (FWS, 1993).

Texas Gas would cross the Mississippi River using HDD methods. Based on habitat requirements for the pallid sturgeon, and use of HDD to cross the Mississippi River, we have determined that construction and operation of the Project would not likely adversely affect the pallid sturgeon or its critical habitat.

#### 4.7.1.4 Mussels

*Fat Pocketbook Pearly Mussel (Potamilus capax)*

The fat pocketbook pearly mussel is listed as federally endangered and is known to occur in the large perennial waterbodies of Arkansas and Mississippi. This mussel inhabits areas with a mixture of sand, silt, and clay substrates, solitarily or in groups with other species. Channel maintenance activities and impoundments are the greatest threats to the survival of this species (FWS, 2007c).

*Scaleshell Mussel (Leptodea leptodon)*

Listed as federally endangered, the scaleshell mussel is known to occur in medium to large rivers with low to medium gradients in Arkansas and Mississippi. The scaleshell is a ridged and elongated mussel with a yellow-green or brown shell and faint green rays. This mussel inhabits gravel or mud substrates in stable riffles or runs with a moderate water current velocity. High water quality is essential to this species' survival. Spread of the invasive zebra mussel (*Dreissena polymorpha*), non-point source pollution, and reservoir construction are factors known to contribute to the decline of the scaleshell population (FWS, 2007c).

*Speckled Pocketbook Mussel (Lampsilis streckeri)*

Listed as federally endangered, the speckled pocketbook mussel is known to occur in perennial waterbodies in Arkansas. The speckled pocketbook is a medium-sized mussel with a yellow-brown shell, v-shaped spots, and chain-like rays. This mussel is known to inhabit coarse to muddy sand substrates in consistent flowing water with high dissolved oxygen contents. In 2003, the only known remaining population existed in the Middle Fork of the Little Red River. As recently as 2005, however, populations were found to have persisted in all forks of the Little Red River. Gravel mining, cattle grazing, non-point source pollution, and production of natural gas using river water are factors believed to be contributing to the decline of the speckled pocketbook population (FWS, 2007c).

*Pink Mucket (Lampsilis abrupta)*

Listed as federally endangered, the pink mucket mussel is known to occur in perennial waterbodies in Arkansas. The pink mucket is a medium-sized mussel with a yellow-green shell and green rays. This species is known to inhabit sand and gravel substrates in high-velocity currents, but it also has been found in mud and sand substrates in slow-moving waters. Prior to becoming endangered, populations of this mussel were known to exist in 25 rivers and tributaries in the Midwest and Southeast U.S. Threats to this species include habitat modifications such as impoundments, channelization, and dredging, as well as commercial harvesting (FWS, 2007c).

All waterbodies in Mississippi and six waterbodies in Arkansas that provide potential habitat for mussel species would be crossed by HDD. Impacts on mussel species in these waterbodies would be avoided. In the event that HDD operations fail, Texas Gas would coordinate alternative crossings methods with the appropriate state and federal agencies.

In accordance with recommendations from the FWS and AGFC, Texas Gas conducted mussel surveys in 12 specific Arkansas waterbodies that it proposes to cross using conventional open-cut methods. These waterbodies include: Cove Creek (MP 7.9), Batesville Creek (MP 12.8), Cadron Creek (MP 14), Piney Creek (MP 29.7), Jones Creek (MP 32), Graham Branch (MP 32.9), Brier Creek (MP 48.1), Chinquapin Creek (MP 58.9), Glaise Creek (MP 66.5), East Flat Fork Creek (MP 107.7), Big Creek (MP 111.6), and Long Lake Bayou (MP 153). The surveys were conducted by a qualified malacologist in September

2007. The surveys extended about 100 feet upstream and 300 feet downstream of each pipeline crossing. No threatened or endangered mussel species were identified during the surveys. Texas Gas states that the final report of findings will be filed with the FERC and the appropriate agencies.

Pipeline construction and restoration activities within and adjacent to these waterbodies would be conducted in accordance with our Plan and Procedures to minimize impacts on mussels and their habitat. Based on the information above, we believe that construction and operation of the proposed Project would not likely adversely affect the fat pocketbook pearly mussel, scaleshell mussel, speckled pocketbook mussel, or pink mucket mussel or their critical habitat. However, after review of the pending mussel survey report, we will make a determination about project impact on these species.

#### 4.7.1.5 Insects

*American Burying Beetle (Nicrophorus americanus)*

The endangered burying beetle was recorded historically from at least 150 counties in 35 states in the eastern and central U.S., as well as along the southern fringes of Ontario, Quebec, and Nova Scotia in Canada. Considering the broad geographic range formerly occupied by the American burying beetle, it is unlikely that vegetation or soil type were historically limiting. Today, the American burying beetle seems to be restricted to areas largely undisturbed by human activities. Carrion availability (appropriate in size as well as numbers) may be more important than the type of vegetation or soil structure in determining where these beetles occur; however, specific habitat requirements are unknown (FWS, 2007d).

The FWS reports that the American burying beetle is known to occur in counties west of the Project area. ANHC's online database indicates that this species is known historically from Cleburne County, Arkansas, and is ranked as a species of special concern in Cleburne County by the ANHC. However, the last known siting in Cleburne County was in 1969. No evidence of the American burying beetle was identified during field surveys. Based on this information, we have determined that construction and operation of the proposed Project would not likely adversely affect the American burying beetle or its critical habitat.

#### 4.7.1.6 Plants

*Pondberry (Lindera melissifolia)*

The endangered pondberry is a deciduous aromatic shrub that grows about 6 feet tall and is known to occur in seasonally flooded wetlands, sandy sinks, pond margins, and swampy depressions. It is known to occur in the Yazoo delta region of Mississippi and in Clay, Woodruff, Lawrence, and Jackson Counties in Arkansas. The FWS and ANHC recommend that a visual survey for pondberry be conducted in potential habitat throughout the Project area. The FWS stated that if pondberry is found in any seasonally flooded wetlands that would be impacted by the proposed Project, further consultation with the FWS would be required.

Texas Gas did not observe any occurrences of pondberry during Project field surveys. In addition, as part of construction, Texas Gas would employ trained environmental inspectors to conduct visual surveys of potential pondberry habitat within the construction corridor. If pondberry are encountered within the construction corridor, Texas Gas would initiate further consultation with us and the FWS and ANHC. The ANHC concurs with Texas Gas's statement that no pondberry was discovered during field surveys; however, it recommend that Texas Gas avoid potential pondberry habitat (i.e., sandpond forest and wooded depressional habitat) wherever possible (Osborne, 2007). Texas Gas states that it would attempt to minimize the number of crossings in these sensitive areas and would consult with appropriate land management agencies to determine suitable crossing methods. We have determined that construction and operation of the Project would not likely adversely affect pondberry or its critical habitat. However, to address the ANHC's recommendations that Texas Gas avoid impacts on pondberry habitat, **we recommend that:**

- **Prior to the end of the draft EIS comment period, Texas Gas file with the Secretary a table that identifies the milepost locations of potential pondberry habitat within or immediately adjacent to construction workspaces and explain how it would implement the ANHC's recommendations to avoid suitable pondberry habitat (i.e., sandpond forest and wooded depressional habitat) at each location. Texas Gas should file an update of its consultation with the FWS and ANHC about the pondberry.**

### 4.7.2 Candidate for Federal Listing

*Yellow Cheek Darter (Etheostoma moorei)*

The yellow cheek darter is a candidate species for possible listing as endangered or threatened under the ESA. This species is endemic to and in decline in the Little Red River. Although candidate species are not given the protection of the ESA, federal agencies encourage avoidance to minimize impacts on candidate species to potentially prevent the need to list the species. Conservation agreements that protect, restore, and manage candidate species are highly encouraged (FWS, 2007e). Texas Gas would cross the Little Red River by HDD, so impacts on the waterbody and the yellow cheek darter would be avoided or minimized. Therefore, we have determined that construction and operation of the proposed Project would not affect the yellow cheek darter or its critical habitat.

### 4.7.3 Federally Managed Species

*Bald Eagle (Haliaeetus leucocephalus)*

The bald eagle was recently delisted from the federal threatened and endangered species list. However the Bald eagle is still protected by the Bald and Golden Eagle Protection Act and the Migratory Bird Treaty Act. The bald eagle also is listed as a state species of special concern in Faulkner and Cleburne Counties, Arkansas, and Coahoma County, Mississippi. Bald eagles are associated with riparian habitat along coasts, rivers, and lakes. They are opportunistic foragers, and their diet varies based upon the prey species available.

Bald eagles could potentially nest, migrate, and roost throughout the Project area. Arkansas is considered a favorite wintering ground for bald eagles, whose arrival generally coincides with that of migrating waterfowl in late October and peaks in January and February. Bald eagles also are known to nest in Arkansas from December through January.

Along the proposed Fayetteville Lateral route, Texas Gas observed a mature bald eagle perched in a large, isolated snag about 2.2 miles east of the Bayou De View crossing near MP 95.9; an immature bald eagle was observed hunting over a rice field about 1.9 miles southwest of MP 99; and a pair of mature bald eagles was observed at a nest in a snag located about 100 feet south of an existing unimproved road that may be used as a temporary access road during pipeline construction; however, the section of the road that would be used for access is about 0.9 mile south of the observed nest. No bald eagles or nesting sites were observed during the initial surveys in the vicinity of the proposed Greenville Lateral route.

The FWS Arkansas Field Office recommends that it be consulted prior to performing any construction activities within 660 feet of Bald Eagle nest trees. Furthermore, Texas Gas should implement the

National Bald Eagle Management Guidelines (Bald Eagle Guidelines) (FWS, 2007b) to protect bald eagles. The FWS Mississippi Field Office recommends that further consultation with the Service may be required for any construction activities within 1,500 feet of a bald eagle nest during the nesting season. No nesting sites have been observed within 1,500 feet of the construction areas. However, to avoid or minimize potential impacts on bald eagles, Texas Gas would conduct visual surveys for nests within 1,500 feet of the construction corridor. If bald eagle nests are encountered within 1,500 feet of the construction corridor during construction activities, and Texas Gas would follow the FWS recommendations for avoiding disturbance associated with construction of linear utilities as described in the Bald Eagle Guidelines. With implementation of the protective measures identified above, we believe that construction and operation of the proposed Project would not likely adversely affect the bald eagle or its critical habitat.

### 4.7.4 State-Listed Threatened and Endangered Species

State-listed threatened and endangered species that are also federally listed are addressed above. The remaining state-listed species are addressed below. Texas Gas states that state-listed species were not identified during its field surveys.

_Arkansas State Listed Species_

**Small-Headed Pipewort** (***Eriocaulon koernickianum***). State-listed as endangered, small-headed pipewort is known to occur in 11 counties in Arkansas, including Conway County, which would be crossed by the proposed Project (NatureServe, 2007). The small-headed pipewort is intolerant of shade and can be found in or near permanently moist to wet seepage areas (particularly upland sandstone glade seeps), bogs, and prairie stream banks. The small-headed pipewort was not observed during Project field surveys.

**Alabama Snow Wreath (*Neviusia alabamensis*).** State-listed as endangered, Alabama snow wreath is a deciduous species that typically grows in large clumps up to 1 to 2 meters in height. The Alabama snow wreath can be distinguished by its thicket-forming growth habit under an open to completely closed forest canopy. The Alabama snow wreath inhabits forested bluffs, talus slopes, and stream banks on blocky limestone boulders and along limestone-bedded intermittent streams below the sandstone caprock on the Cumberland plateau. Texas Gas reports that the Alabama snow wreath was not observed during field surveys.

**Arkansas Alumroot (*Heuchera villosa* var. *arkansana*).** State-listed as endangered, Arkansas alumroot is endemic to Arkansas and is known to exist from the Ozark and Ouachita Mountains in north-central to northwestern Arkansas. Arkansas alumroot inhabits bluffs, cliffs, and rocky woods, generally on sandstone (ANHC, 2007c). Texas Gas states that the Arkansas alumroot was not observed during field surveys.

**Mock Orange (*Philadelphus hirsutus*).** State-listed as endangered, mock orange is a deciduous shrub that grows to about 6 feet in height. Mock orange occurs along streams and on bluffs, cliffs, and rocky banks. It grows along limestone ledges and in piles of sandstone or quartzite rocks. Mock orange is found in eight Arkansas counties, but the Project would pass through only two of these counties, Cleburne and Faulkner (ANHC, 2007c). Mock orange was not observed during field surveys.

**Water Parsnip (*Sium suave*).** State-listed as endangered, water parsnip is a hardy perennial that grows to about 6 feet tall. Water parsnip is found in shallow water along pond and lake edges, or in other wet areas such as swamps and roadside ditches. Water parsnip is found in four Arkansas counties, and the Project would cross one, Cleburne (ANHC, 2007c). Water parsnip was not observed during field surveys.

**Corkwood (*Leitneria floridana*).** State-listed as endangered, corkwood can be found only in Arkansas, Florida, Georgia, Missouri, and Texas. Corkwood is a tree-like shrub that can grow up to about 20 feet tall. Corkwood prefers low, moist, or poorly drained areas with sandy or silty soils in full or partial sun. It is extremely flood tolerant and can survive in complete inundation for long spells. Corkwood typically inhabits freshwater swamps, wetland thickets, pond habitats, brackish tidal streams, and brackish marshes. Corkwood was not observed during field surveys.

*Mississippi State-Listed Species*

**Ironcolor Shiner (*Notropis chalybaeus*).** State-listed as endangered in Mississippi, the ironcolor shiner is found primarily in lowland waterbodies where their reaches are characterized by either abundant aquatic vegetation, open swamp habitat, and/or areas draining densely canopied woods. The ironcolor shiner is known to occur in Tchula Lake in Holmes County, Mississippi. Texas Gas would cross Tchula Lake by HDD, thus avoiding impact on this species.

**Rabbitsfoot (*Quadrula cylindrical cylindrical*).** State-listed as endangered, the rabbitsfoot inhabits medium to larger rivers in gravel or mixed sand and gravel substrates. It is known to occur in the Big Black and Sunflower Rivers in Mississippi (NatureServe, 2007). Texas Gas would cross the Big Black and Sunflower Rivers by HDD, thus avoiding impact on this species.

**Alabama Hickorynut (*Obovaria unicolor*).** State-listed as endangered, Alabama hickorynut is most commonly found in moderately flowing waters in sand/gravel substrates, but it also can be found in almost any habitat type. The Alabama hickorynut is endemic to small streams leading to the Gulf of Mexico; it is restricted to large streams in the Mobile Basin and has been extirpated from most of its historical range by impoundment and channelization of large stream habitat and/or declining water quality (NatureServe, 2007). Based on the current distribution of this species, the Project would not affect the Alabama hickory nut.

**Pyramid Pigtoe (*Pleurobema rubum*).** State-listed as endangered, pyramid pigtoe inhabits large rivers but may occur in medium-sized lotic environments. Pyramid pigtoe can be found in the Big Black River, Big Sunflower River, and Yazoo River drainages of Mississippi. Texas Gas would cross the Big Black, Big Sunflower, and Yazoo Rivers by HDD, thus avoiding impact on this species.

**Scarlet Woodbine (*Schisandra glabra*).** State-listed as endangered, scarlet woodbine is a woody vine with small crimson flowers and is found in rich woods and ravine slopes. Scarlet woodbine occurs in the Atlantic and Gulf coastal plains from Arkansas east to North Carolina, south to northern Florida, and west to Louisiana. Major threats come from competition from non-native invasive species (e.g., Japanese honeysuckle [*Lonicera japonica*]), land-use conversion, habitat fragmentation, and forest management practices (NatureServe, 2007). Scarlet woodbine was not observed during field surveys.

Texas Gas states that it would continue to consult with state agencies to determine whether additional surveys are warranted for any species and, if required, develop mitigation measures to avoid or minimize potential impacts on these species.

### 4.7.5 Conclusions and Recommendations

A variety of measures have been proposed by Texas Gas that would minimize environmental impacts on federally and state-listed species, including using HDDs to cross sensitive waterbodies, and forested wetlands, and implementing the construction methods and mitigation measures described in our Plan and Procedures. These measures would reduce the loss of vegetated habitats, minimize water quality impacts, and lessen delays in restoration of areas temporarily disturbed during construction. While beneficial to general wildlife, fisheries, and vegetation in the area, these measures would also benefit listed species with potential to occur in the vicinity of the Project. Based on the information provided to date, we believe that, the Project is not likely to adversely affect threatened or endangered species or their critical habitat.

In a letter dated July 27, 2007, the FWS Mississippi Field Office stated that the Project was not likely to adversely affect federally listed species in Mississippi, and that unless there are changes in the scope or location of the proposed Project, or if federally listed species are discovered during construction, no further consultation with the Mississippi Field Office is required. However, if the proposed Project has not been initiated within one year of the letter, follow-up consultation should be made with the FWS.

We have not completed consultation with the FWS in Arkansas. Therefore, **we recommend that:**

- **Texas Gas not begin construction activities until:**

  **a. the FERC completes any necessary consultations with the FWS; and**

  **b. Texas Gas receives written notification from the Director of OEP that construction and/or implementation of conservation measures may begin.**

  **If construction of the pipeline system has not begun within 1 year from the date of FERC approval of the Project, Texas Gas should consult with the appropriate offices of the FWS to update the species list and to verify that previous consultations and determinations of effect are still current. Documentation of these consultations, and additional surveys and survey reports, if required, and FWS comments on the survey and its conclusions, should be filed with the Secretary prior to beginning construction.**

## 4.8 LAND USE, RECREATION, AND VISUAL RESOURCES

In this section we further quantify the land requirements for construction and operation of the proposed Project, describe current land use types, and evaluate the significance of Project-related impacts on those lands, as well as to specially designated areas, transportation corridors, visually sensitive areas, and hazardous waste sites.

### 4.8.1 General Land Use Types

The route of the Project would cross nine general land use types: agricultural land, upland forest, managed forest, wetlands, open water, open land, right-of-way, commercial/industrial, and residential. Table 4.8.1-1 summarizes the miles of land use types that would be traversed by the Project in each county.

Construction of the proposed Project would temporarily disturb a total of about 5,057.2 acres of land. This includes the 3,199.6 acres for construction of the proposed pipeline facilities, 113.5 acres for construction of aboveground facilities, 635.0 acres of ATWS, 946.6 acres for pipe and contractor storage yards, and 162.5 acres for access roads. Of this total, about 1,731.2 acres would be permanently maintained for the pipeline right-of-way and aboveground facilities.

#### 4.8.1.1 Pipeline Rights-of-Way

Construction of the Project pipelines would impact a total of about 3,199.6 acres. About 1,602.6 acres of the land disturbed for construction would be retained by Texas Gas as permanent pipeline right-of-way to operate the pipelines, and about 1,597.0 acres would be affected only temporarily during construction and would be restored or allowed to return to pre-construction use and land cover. A detailed breakdown of the land use impacts associated with construction and operation of the pipelines is presented in table 4.8.1-2. Impacts associated with ATWS, aboveground facilities, pipe storage and contractor yards, and access roads are described in sections 4.8.1.3 through 4.8.1.6, respectively

Both the Fayetteville Lateral and the Greenville Lateral would be installed using a nominal 100-foot-wide construction right-of-way. In wetland areas, Texas Gas would reduce the right-of-way to 75 feet, in compliance with our Procedures. Following construction, a permanent 50-foot-wide right-of-way would be maintained for operation in upland areas and a 30-foot-wide corridor would be maintained through wetlands. In addition to the temporary construction right-of-way, additional temporary workspace areas would be required at road and railroad crossings, waterbody crossings, and in areas with steep side slopes or other difficult terrain, as well as in areas needed for topsoil segregation, truck turn-arounds, hydrostatic test water withdrawal and discharge locations, pipeline crossovers, tie-ins, staging and fabrication areas, and at foreign utility crossings (see section 4.8.1.3).

The Fayetteville Lateral would cross about 112.7 miles of agricultural land, 29.5 miles of upland forest land, 10.1 miles of open land, 6.5 miles of wetlands, 3.4 miles of managed forest land, 2.2 miles of existing right-of-way land, 1.7 miles of open water, 0.1 mile of commercial/industrial land, and 0.1 mile of residential land. The Greenville Lateral would cross about 56.1 miles of agricultural land, about 18.3 miles of upland forest land, 9.3 miles of open land, 7.8 miles of wetlands, 1.9 miles of right-of-way land, 1.5 miles of open water, 1.3 miles of managed forest land, and 0.2 mile of residential land use. The proposed Kosciusko 36-inch Tie-in Lateral would cross about 0.3 mile each of agriculture and upland forest land, and about 0.1 mile of open and right-of-way land uses. The proposed Kosciusko 20-inch Tie-in Lateral would cross about 0.3 mile of upland forest and 0.1 mile of right-of-way land uses.

All lands used for construction activities would be restored to preconstruction contours and revegetated. Land along the permanent right-of-way may return to previous land use where that land use does not conflict with operation of the pipeline.

*Agricultural Land*

Agricultural land would be the land use most impacted by construction and operation of the Project pipelines. A total of about 2,046.6 acres of agricultural land would be disturbed by construction of all Project pipelines. Of this total, about 1,027.9 acres would be within the permanent pipeline right-of-way Project-wide. Along the Fayetteville Lateral, about 1,363.3 acres of agricultural land would be disturbed during construction and about 682.1 acres would be within the permanent pipeline right-of-way. For the Greenville Latera, about 679.3 acres of agricultural land would be disturbed during construction

**TABLE 4.8.1-1**

**Summary of Land Uses Crossed by the Proposed Project (in miles)**

| County, State | Agriculture | Upland Forest | Managed Forest | Wetlands | Open Water | Open Land | Right-of-way | Commercial/ Industrial | Residential | Total |
|---|---|---|---|---|---|---|---|---|---|---|
| **Fayetteville Lateral** | | | | | | | | | | |
| Conway, AR | 1.6 | 3.0 | 0.3 | 0.0 | 0.1 | 2.5 | 0.0 | 0.0 | 0.0 | 7.5 |
| Faulkner, AR | 10.2 | 7.2 | 0.5 | 0.4 | 0.1 | 2.4 | 0.5 | 0.1 | 0.0 | 21.4 |
| Cleburne, AR | 2.0 | 2.3 | 0.1 | 0.0 | 0.0 | 0.4 | 0.0 | 0.0 | 0.0 | 4.8 |
| White, AR | 15.7 | 14.8 | 2.1 | 0.5 | 0.2 | 2.6 | 0.4 | 0 | 0.1 | 36.4 |
| Woodruff, AR | 32.7 | 0.7 | 0.0 | 2.8 | 0.3 | 1.4 | 0.4 | 0.0 | 0.0 | 38.3 |
| St. Francis, AR | 7.3 | 0.1 | 0.0 | 0.4 | 0.0 | 0.2 | 0.2 | 0.0 | 0.0 | 8.2 |
| Lee, AR | 21.8 | 0.4 | 0.0 | 0.4 | 0.1 | 0.1 | 0.3 | 0.0 | 0.0 | 23.1 |
| Phillips, AR | 14.3 | 0.9 | 0.4 | 0.9 | 0.8 | 0.3 | 0.2 | 0.0 | 0.0 | 17.8 |
| Coahoma, MS | 7.1 | 0.1 | 0.0 | 1.0 | 0.1 | 0.2 | 0.1 | 0.0 | 0.0 | 8.6 |
| **Total** | **112.7** | **29.5** | **3.4** | **6.5** | **1.7** | **10.1** | **2.2** | **0.1** | **0.1** | **166.2** |
| **Greenville Lateral** | | | | | | | | | | |
| Washington, MS | 16.6 | 0.2 | 0 | 0.1 | 0.1 | 0.3 | 0.3 | 0 | 0 | 17.6 |
| Sunflower, MS | 2.7 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2.7 |
| Humphreys, MS | 21.4 | 0.7 | 0 | 2.3 | 0.9 | 0.1 | 0.3 | 0 | 0 | 25.7 |
| Holmes, MS | 12.1 | 10.5 | 0.9 | 2.9 | 0.3 | 4.3 | 0.5 | 0 | 0.2 | 31.7 |
| Attala, MS | 3.3 | 6.9 | 0.4 | 2.5 | 0.2 | 4.6 | 0.8 | 0 | 0 | 18.7 |
| **Total** | **56.1** | **18.3** | **1.3** | **7.8** | **1.5** | **9.3** | **1.9** | **0** | **0.2** | **96.4** |
| **Kosciusko 36-Inch Tie-in Lateral** | | | | | | | | | | |
| Attala, MS | 0.3 | 0.3 | 0 | 0 | 0 | 0.1 | 0.1 | 0 | 0 | 0.8 |
| **Kosciusko/ 20-Inch Tie-in Lateral** | | | | | | | | | | |
| Attala, MS | 0 | 0.3 | 0 | 0 | 0 | 0 | 0.1 | 0 | 0 | 0.4 |
| **Project Total** | **169.1** | **48.4** | **4.7** | **14.3** | **3.2** | **19.5** | **4.3** | **0.1** | **0.3** | **263.8** |

**TABLE 4.8.1-2**

**Summary of Land Use Impacts Associated with Construction and Operation of the Proposed Pipelines (in acres)**

| County, State | Agriculture | | Upland Forest | | Managed Forest | | Wetlands | | Open Water | | Open Land | | Right-of-Way | | Commercial/ Industrial | | Residential | | Total | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Const | Oper | Const | Oper | Const | Oper | Const | Oper | Const | Oper | Const | Oper | Const | Oper | Const | Oper | Const | Oper | Const | Oper |
| **Fayetteville Lateral** | | | | | | | | | | | | | | | | | | | | |
| Conway, AR | 20.5 | 10.0 | 35.5 | 18.2 | 3.1 | 1.5 | 0.2 | 0.1 | 1.0 | 0.5 | 31.4 | 15.5 | 0.4 | 0.2 | 0.0 | 0.0 | 0.0 | 0.0 | 92.1 | 46.0 |
| Faulkner, AR | 121.4 | 61.3 | 79.8 | 43.0 | 5.8 | 3.2 | 4.3 | 3.5 | 2.2 | 1.0 | 28.2 | 14.2 | 16.4 | 3.4 | 1.0 | 0.5 | 0.0 | 0.0 | 259.1 | 130.1 |
| White, AR | 188.7 | 94.6 | 179.4 | 89.5 | 25.3 | 12.6 | 6.8 | 3.3 | 2.6 | 1.8 | 31.7 | 16.4 | 6.9 | 2.8 | 0.0 | 0.0 | 0.8 | 0.4 | 442.2 | 221.4 |
| Cleburne, AR | 23.8 | 11.9 | 27.3 | 14.4 | 0.6 | 0.3 | 0.0 | 0.0 | 0.2 | 0.1 | 4.9 | 2.4 | 0.2 | 0.1 | 0.0 | 0.0 | 0.0 | 0.0 | 57.0 | 29.2 |
| Woodruff, AR | 397.6 | 197.8 | 8.5 | 4.8 | 0.0 | 0.0 | 33.9 | 16.9 | 3.7 | 2.6 | 17.2 | 8.6 | 4.4 | 2.2 | 0.0 | 0.0 | 0.0 | 0.0 | 465.3 | 232.9 |
| St. Francis, AR | 89.0 | 45.1 | 0.8 | 0.4 | 0.0 | 0.0 | 5.0 | 2.5 | 0.2 | 0.1 | 2.0 | 1.0 | 2.3 | 1.1 | 0.0 | 0.0 | 0.0 | 0.0 | 99.3 | 50.2 |
| Lee, AR | 263.7 | 132.0 | 4.6 | 2.3 | 0.0 | 0.0 | 4.9 | 2.3 | 1.2 | 0.6 | 0.8 | 0.4 | 3.1 | 1.6 | 0.0 | 0.0 | 0.4 | 0.2 | 278.7 | 139.4 |
| Phillips, AR | 172.8 | 86.5 | 10.5 | 5.2 | 4.7 | 2.4 | 11.1 | 5.5 | 9.7 | 4.9 | 3.9 | 2.0 | 3.1 | 1.4 | 0.0 | 0.0 | 0.0 | 0.0 | 215.8 | 107.9 |
| Coahoma, MS | 85.8 | 42.9 | 1.1 | 0.6 | 0.0 | 0.0 | 12.6 | 6.3 | 0.7 | 0.3 | 2.6 | 1.3 | 1.2 | 0.6 | 0.0 | 0.0 | 0.0 | 0.0 | 104.0 | 52.0 |
| **Total** | **1,363.3** | **682.1** | **347.5** | **178.4** | **39.5** | **20.0** | **78.8** | **40.4** | **21.5** | **11.9** | **122.7** | **61.8** | **38.0** | **13.4** | **1.0** | **0.5** | **1.2** | **0.6** | **2,013.5** | **1,009.1** |
| **Greenville Lateral** | | | | | | | | | | | | | | | | | | | | |
| Washington, MS | 203.6 | 101.4 | 2.4 | 1.2 | 0.0 | 0.0 | 0.7 | 0.4 | 0.8 | 0.6 | 3.6 | 1.8 | 3.2 | 1.6 | 0.2 | 0.0 | 0.0 | 0.0 | 214.5 | 107.0 |
| Sunflower, MS | 32.2 | 16.1 | 0.0 | 0.0 | 0.0 | 0.0 | 0.1 | 0.0 | 0.2 | 0.1 | 0.0 | 0.0 | 0.1 | 0.1 | 0.0 | 0.0 | 0.0 | 0.0 | 32.6 | 16.3 |
| Humphreys, MS | 258.7 | 130.4 | 7.9 | 4.0 | 0.0 | 0.0 | 28.7 | 13.8 | 10.6 | 5.3 | 1.8 | 0.8 | 5.0 | 2.0 | 0.0 | 0.0 | 0.0 | 0.0 | 312.7 | 156.3 |
| Holmes, MS | 143.8 | 75.2 | 129.8 | 62.5 | 10.7 | 5.3 | 34.9 | 17.7 | 3.0 | 1.5 | 51.8 | 25.9 | 8.4 | 3.0 | 0.0 | 0.0 | 1.8 | 0.9 | 384.2 | 192.0 |
| Attala, MS | 41.0 | 20.7 | 83.4 | 41.7 | 5.2 | 2.6 | 29.8 | 14.8 | 3.0 | 1.2 | 53.4 | 27.8 | 11.6 | 5.8 | 0.0 | 0.0 | 0.0 | 0.0 | 227.4 | 114.6 |
| **Total** | **679.3** | **343.8** | **223.5** | **109.4** | **15.9** | **7.9** | **94.2** | **46.7** | **17.6** | **8.7** | **110.6** | **56.3** | **28.3** | **12.5** | **0.2** | **0.0** | **1.8** | **0.9** | **1,171.4** | **586.2** |

**TABLE 4.8.1-2**

**Summary of Land Use Impacts Associated with Construction and Operation of the Proposed Pipelines (in acres)**

| | Agriculture | | Upland Forest | | Managed Forest | | Wetlands | | Open Water | | Open Land | | Right-of-Way | | Commercial/ Industrial | | Residential | | Total | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Kosciusko 36-Inch Tie-in Lateral** | | | | | | | | | | | | | | | | | | | | |
| Attala, MS | 4.0 | 2.0 | 3.3 | 1.7 | 0.4 | 0.2 | 0.0 | 0.0 | 0.3 | 0.2 | 0.4 | 0.3 | 1.4 | 0.5 | 0.0 | 0.0 | 0.0 | 0.0 | 9.8 | 4.9 |
| **Kosciusko 20-Inch Tie-in Lateral** | | | | | | | | | | | | | | | | | | | | |
| Attala, MS | 0.0 | 0.0 | 4.3 | 2.1 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.6 | 0.3 | 0.0 | 0.0 | 0.0 | 0.0 | 4.9 | 2.4 |
| **Project Total** | 2046.6 | 1027.9 | 578.6 | 291.6 | 55.8 | 28.1 | 173.0 | 87.1 | 39.4 | 20.8 | 233.7 | 118.4 | 67.7 | 26.7 | 1.2 | 0.5 | 3.0 | 1.5 | 3,199.6 | 1,602.6 |

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Note: 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.

and about 343.8 acres would be within the permanent right-of-way. Construction of the Kosciusko 36-inch Tie-in Lateral would affect about 4.0 acres of agricultural land during construction and about 2.0 acres would be within the permanent right-of-way. No agricultural land would be affect by construction or operation of the Kosciusko 20-inch Tie-in Lateral.

The primary impact on agricultural land would be the temporary loss of crops within the work area, and possibly immediately adjacent areas, since this land would be taken out of production for one growing season. In addition, construction-related activities could damage or interrupt irrigation. If the flow of irrigation water is disrupted for a prolonged period, crops outside the Project right-of-way could be damaged and crop yields reduced. Following construction, most agricultural land uses would continue within the permanent right-of-way. The only locations where this would change would be at the proposed aboveground facility sites where land use would change to industrial. Because the right-of-way could be used for crop production following construction, any loss of production would be a short-term impact.

About 99 acres of the agricultural land that would be crossed by the Project is characterized as pivot-irrigated crop land. The pivot-irrigated crop land occurs in the four counties listed below for the Fayetteville Lateral and the three counties listed for the Greenville Lateral . Also included are the approximate temporary and permanent impacts on pivot-irrigated crop land:

*Fayetteville Lateral Route*

- Woodruff County, 19 acres;
- Lee County, 3 acres;
- Phillips County, 9 acres; and
- Coahoma County, 9 acres;

*Greenville Lateral Route*

- Washington County, 31 acres;
- Sunflower County, 7 acres; and
- Humphreys County, 21 acres.

Pivot irrigation involves the use of a central pivot in the irrigation of crops, often creating a circular pattern in crops when viewed from above. During construction of the pipelines, the presence of large piles of topsoil, an open trench, and construction equipment, etc., would likely make the movement of a pivot irrigation system across the pipeline corridor problematic. Texas Gas would need to coordinate closely with landowners to ensure that crop irrigation continues by another means if pivot irrigation is not feasible during the construction period. Following construction of the pipeline, there would be no permanent impacts on any pivot irrigation systems.

Texas Gas states it would be committed to implementing the mitigation measures in our Plan, and any other applicable management plans in order to minimize potential impacts of construction on agricultural lands and future crop production. Texas Gas would segregate topsoil in lands with annually cultivated or rotated crops, in hayfields, and at the landowner’s request. Texas Gas would implement its agriculture compensation program for impacts resulting from construction and operation of the proposed Project, including compensating landowners for anticipated crop losses resulting from construction and operation of the Project. The compensation would be offered prior to construction. Based on the mitigation measures that Texas Gas would implement as part of construction and operation of the proposed Project, we believe that impacts on agricultural lands would not be significant.

**Conservation Reserve Program.** Established by Congress in 1985, the Farm Service Agency's (FSA's) CRP is a voluntary program for agricultural landowners. The program provides eligible farmers and ranchers both technical and financial assistance to conserve and protect soil, water, and related natural resources on their land. It also provides these individuals guidance and assistance in complying with federal and state environmental laws, thereby enabling environmental enhancement. The CRP encourages farmers to convert highly erodible cropland or other environmentally sensitive acreage to vegetative cover such as tame or native grasses, wildlife plantings, trees, filter strips, or riparian buffers. Participating lands exhibit reduced soil erosion, improved water quality, and enhanced wildlife habitats. These areas are afforded special consideration to avoid any breaches in the landowners' contracts.

It is expected that disturbances to CRP lands would be temporary during construction because they would be restored as soon after final grading as possible to encourage rapid revegetation of herbaceous plant cover and discourage the invasion of weed species. Operation of the Project would not change this land use. The species selected for revegetation could be determined in consultation with the landowner/tenant; however, local agency recommendations would also be taken into consideration.

*Special Crops/Orchards*

Table 4.8.1-3 lists the special crops (e.g., rice, cotton, sorghum) and orchards (e.g., fruit trees, nut trees) that would be affected by construction and operation of the Project. About 210.6 acres of special crops/orchards would be affected by construction of the Fayetteville Lateral, and 91.2 of these acres would be within the permanent pipeline right-of-way. Along the Greenville Lateral, about 90.5 acres of special crops would be affected by construction, and about 45.1 of these acres would be within the permanent right-of-way. There would be no impacts on orchards along the Greenville Lateral. In addition, there would be no impact on special crops or orchards along the Kosciusko 36-inch Tie-in Lateral or the Kosciusko 20-inch Tie-in Lateral. Compensation for temporary and permanent crop losses would be determined during Texas Gas's easement negotiations with affected landowners/tenants.

About 105.1 acres of land used for rice farming would be affected by Project construction, and 48.9 acres would be within the permanent right-of-way. However, we expect that pre-construction land uses would be reestablished following construction, minimizing long-term impacts. As indicated above in table 4.8.1-3, rice farming occurs along the Fayetteville Lateral in St. Francis, White, Lee, and Phillips Counties and along the Greenville Lateral in Washington and Holmes Counties. Table 4.8.1-3 indicates the milepost, temporary workspace acreage impacts, and acreage of rice crops that would be within the permanent right-of-way. Due to the micro-leveling farming practices associated with rice farming, Texas Gas states that construction through rice fields would begin with notification and discussions with landowners prior to construction activities. Construction activities would be planned to occur at a time that would minimize impacts on special agricultural practices, which typically include flooding of the fields. Texas Gas anticipates requesting that these landowners refrain from flooding fields crossed by the proposed route to allow sufficient time for the fields to dry and therefore allow conventional construction methods to be used. In order to ensure that appropriate mitigation measures are in place to protect rice fields during and after construction, **we recommend that:**

- **Prior to construction, Texas Gas shall develop site-specific crossing plans in consultation with the landowner for each identified rice field impacted by construction and file them with the prior to the end of the draft EIS comment period**.

**TABLE 4.8.1-3**

**Special Crops Crossed by Temporary and Permanent Rights-of-Way**

| County | Begin Milepost | End Milepost | Special Land Use | Specialty Crop | Temporary Workspace Acreage | Acreage within Permanent Right-of-Way |
|---|---|---|---|---|---|---|
| **Fayetteville Lateral Route** | | | | | | |
| Faulkner | 12.2 | 12.5 | Managed Forest | Fruit Tree | 3.1 | 1.6 |
| Faulkner | 15.9 | 16.3 | Managed Forest | Fruit Tree | 5.2 | 2.2 |
| Faulkner | 17.1 | 17.3 | Managed Forest | Nut Tree | 2.2 | 2.2 |
| Faulkner | 17.1 | 17.3 | Managed Forest | Nut Tree | 2.2 | 1.1 |
| White | 36.4 | 37.1 | Managed Forest | Fruit Tree | 10.5 | 4.6 |
| White | 54 | 54.2 | Managed Forest | Fruit Tree | 2.9 | 1.4 |
| White | 60.2 | 60.3 | Special | Cotton | 1.3 | 0.5 |
| White | 64.6 | 65 | Special | Cotton | 4.6 | 0.9 |
| White | 66 | 66.3 | Special | Cotton | 4.7 | 1.4 |
| White | 66.5 | 66.5 | Special | Cotton | 0.8 | 0.3 |
| White | 68 | 68.2 | Special | Rice | 4.1 | 1.7 |
| Woodruff | 71.3 | 72.4 | Special | Sorghum | 15.2 | 7 |
| Woodruff | 75.9 | 76.3 | Special | Sorghum | 5 | 2.4 |
| Woodruff | 77.5 | 77.7 | Special | Sorghum | 3.1 | 1.5 |
| Woodruff | 78.7 | 79 | Special | Sorghum | 3.3 | 1.5 |
| Woodruff | 85.2 | 85.5 | Special | Sorghum | 5.3 | 1.4 |
| Woodruff | 86.2 | 87.6 | Special | Sorghum | 20.8 | 8.7 |
| Woodruff | 87.8 | 87.9 | Special | Sorghum | 1.5 | 0.8 |
| Woodruff | 90.4 | 90.7 | Special | Cotton | 3.5 | 1.6 |
| Woodruff | 92.4 | 93 | Special | Cotton | 8.1 | 3.6 |
| Woodruff | 93.5 | 95.3 | Special | Cotton/Sorghum | 25.8 | 10.7 |
| Woodruff | 98.1 | 98.78 | Special | Cotton/Sorghum | 8.6 | 3.6 |
| Woodruff | 106.7 | 106.9 | Special | Cotton | 1.8 | 0.8 |
| St. Francis | 109.3 | 109.7 | Special | Sorghum | 4.5 | 2.1 |
| St. Francis | 109.9 | 111.6 | Special | Rice | 24.7 | 10.4 |
| St. Francis | 113.7 | 113.9 | Special | Cotton | 2.5 | 1 |
| Lee | 119.5 | 119.8 | Special | Cotton | 3.8 | 1.8 |
| Lee | 120.3 | 120.5 | Special | Rice | 3.1 | 1.4 |
| Lee | 121.2 | 121.3 | Special | Rice | 1.1 | 0.5 |
| Lee | 137.6 | 137.9 | Special | Rice | 4.1 | 1.9 |
| Lee | 138.2 | 138.5 | Special | Rice | 3.7 | 1.5 |
| Phillips | 145.9 | 146.3 | Managed Forest | Fruit Tree | 4.5 | 2.3 |
| Phillips | 149.5 | 150.6 | Special | Rice | 15 | 6.8 |
| | | | | **Total** | **210.6** | **91.2** |
| **Greenville Lateral Route** | | | | | | |
| Washington | 4.2 | 4.7 | Special | Rice | 6.1 | 3 |

**TABLE 4.8.1-3**

**Special Crops Crossed by Temporary and Permanent Rights-of-Way**

| County | Begin Milepost | End Milepost | Special Land Use | Specialty Crop | Temporary Workspace Acreage | Acreage within Permanent Right-of-Way |
|---|---|---|---|---|---|---|
| Washington | 9 | 9.2 | Special | Cotton | 3.5 | 1.7 |
| Washington | 9.3 | 10.4 | Special | Cotton | 13.5 | 6.7 |
| Humphries | 25.6 | 25.9 | Special | Cotton | 4.6 | 2.3 |
| Humphries | 31.2 | 31.4 | Special | Cotton | 2.3 | 1.1 |
| Humphries | 34.3 | 34.7 | Special | Cotton | 5.9 | 2.9 |
| Holmes | 46.7 | 50.2 | Special | Rice | 43.2 | 21.7 |
| Holmes | 51.4 | 52.4 | Special | Cotton | 11.4 | 5.7 |
| | | | | **Total** | **90.5** | **45.1** |
| | | | | **Project Total** | **301.1** | **136.3** |

About 30.6 acres of orchards would be affected by Project construction, and 15.4 acres would be within the permanent right-of-way. Table 4.8.1-3 identifies where fruit and nut tree orchards would occur along the Fayetteville Lateral in Faulkner, White, and Phillips Counties, Arkansas. There are no orchards along the Greenville Lateral. The primary impact of construction on orchards would be the temporary removal of trees from the construction right-of-way. Following construction, trees would be allowed outside of a 30-foot-wide permanent corridor centered over the pipeline. After final construction cleanup, orchards would be restored in accordance with our Plan and landowner requests.

Following construction, disturbed special crop and special land use areas would be returned to preconstruction conditions to the extent feasible. Texas Gas would conduct bi-annual monitoring of special crops and special land use areas for two years to determine the success of restoration. If successful restoration does not occur, landowners would be compensated for losses.

*Forest Land*

**Upland Forest.** Upland forest includes mixed hardwood and evergreen forests. A total of about 578.6 acres of upland forest land would be disturbed by construction of all Project pipelines. Of this total, about 291.6 acres would be maintained as permanent pipeline right-of-way. About 347.5 acres of upland forest land would be disturbed during construction, and about 178.4 acres would be maintained permanently as open land within the Fayetteville Lateral 50-foot-wide permanent pipeline right-of-way. About 223.5 acres of upland forest land would be disturbed during construction of the Greenville Lateral, and about 109.4 acres would be maintained as open land within the 50-foot-wide permanent right-of-way. Construction of the Kosciusko 36-inch Tie-in Lateral would affect about 3.3 acres during construction, and about 1.7 acres would be maintained as open land within the 50-foot-wide permanent right-of-way. Construction of the Kosciusko 20-inch Tie-in Lateral would affect about 4.3 acres of upland forest, and about 2.1 acres would be maintained as open land within the 50-foot-wide permanent right-of-way.

The primary impact of construction on forest land by the Project would be the removal of trees and shrubs from the 100-foot-wide construction right-of-way. Following construction, trees and shrubs would be allowed to regenerate within the areas that would not be retained as part of the 50-foot-wide permanent right-of-way. After final construction cleanup, the temporary workspaces would be restored in accordance with applicable permit requirements, our Plan, and landowner requests.

Pipeline construction results in long-term to permanent impacts on forest land use. The impact on forest land use within the permanent 50-foot-wide right-of-way would be the permanent change to open land. Outside of the 50-foot-wide permanent right-of-way, the construction right-of-way would revegate naturally. The rate of forest reestablishment would depend upon the type of vegetation, length of growing season, and natural fertility of the soils. Early successional species would be anticipated to begin colonizing the right-of-way within a few years of construction, followed gradually by the establishment of later successional species. Re-growth to the sapling/young tree stage could take 15 to 30 years, while re-growth of forests to mature conditions could take from 50 to 100 years, depending upon the species. Texas Gas would compensate landowners for loss of timber in accordance with negotiated easement agreements.

The proposed Project would not involve crossing any old growth forests or sugar maple stands.

**Managed Forest.** Managed forest includes forests planted primarily for timber harvest and fruit/nut tree orchards. A total of about 55.8 acres of managed forest land would be disturbed by construction of all Project pipelines. Of this total, about 28.1 acres would be maintained as permanent pipeline right-of-way. About 39.5 acres of managed forest land would be disturbed during construction, and about 20.0 acres would be maintained as permanent pipeline right-of-way of the Fayetteville Lateral. About 15.9 acres of managed forest land would be disturbed during construction of the Greenville Lateral, and about 7.9 acres would be maintained as permanent right-of-way. Construction of the Kosciusko 36-inch Tie-in Lateral would affect about 0.4 acre during construction, and about 0.2 acre would be maintained as permanent right-of-way. Construction of the Kosciusko 20-inch Tie-in Lateral would not affect any managed forest. Orchards traversed by the Project are described in more detail below with special land use areas.

Similar to upland forests, pipeline construction results in long-term to permanent impacts on managed forest land use. Except in areas that would be retained as part of the 50-foot-wide permanent right-of-way, the construction right-of-way would revegate naturally. Since regrowth of forests could take over 20 years, the impact would be long-term to permanent. The impact on forest land use within the permanent 50-foot-wide right-of-way would be the permanent change to open land. Texas Gas would compensate landowners for loss of timber or orchard crops in accordance with negotiated easement agreements.

*Wetlands and Open Water*

Impacts on open water and wetlands are addressed in sections 4.3 and 4.4, respectively.

**Wetland Reserve Program.** The WRP is a voluntary NRCS program that provides technical and financial assistance to eligible landowners to address wetland, wildlife habitat, soil, water, and related natural resource concerns on private lands in an environmentally beneficial and cost-effective manner. The program provides an opportunity for landowners to receive financial incentives to restore, protect, and enhance wetlands in exchange for retiring marginal land from agriculture. Under the WRP program, the U.S. government holds an easement (30 years or permanent). The proposed pipeline routes were sited to avoid most WRP lands. However, as indicated in section 4.4, one WRP tract would be traversed by the Greenville Lateral between MP 43.0 and 43.3 in Humphreys County, Mississippi.

Where the pipeline would traverse the WRP tract, the pipeline route avoids a number of forested wetlands and has been sited to specifically avoid a sensitive environmental resource. The pipeline would parallel the south side of an existing road (Mathena Brake Road) within the boundaries of the WRP. The portion of the WRP tract that would be crossed by the proposed pipeline route would not impact wetlands. High-quality forested wetlands within the WRP tract and associated with Mathena Brake are on the north side of Mathena Brake Road. Forested wetland habitat also has been identified south of the proposed pipeline route within the WRP tract. Impacts from proposed alignment of the pipeline across the WRP tract would be minimized by avoiding wetland habitat as much as possible, paralleling Mathena Brake Road, and avoiding fragmentation of WRP lands. We believe that the proposed pipeline route would minimize potential environmental impacts. Based on our consultation with NRCS, the route as proposed by Texas Gas would be acceptable (Bozeman, 2007).

Impacts on WRP lands would largely be temporary in nature. Following construction, the right-of-way would be restored to preconstruction conditions, or better. Texas Gas would select specific native species for revegetation of the WRP tract in consultation with the landowner/tenant and NRCS.

In order to cross the WRP tract, Texas Gas would be required to obtain a subordination of the U.S. government easement prior to construction. The subordination would be dependent on the development of a restoration plan satisfactory to NRCS. Therefore, **we recommend that:**

- **Prior to construction, Texas Gas file with the Secretary the site-specific restoration plan for construction and restoration of the WRP tract crossed between MP 43.0 and 43.3 of the Greenville Lateral developed in consultation with the NRCS.**

*Open Land*

Open land includes non-forested rangeland, pastureland, non-agricultural fields, prairie, and open land in the early stages of succession. A total of about 233.7 acres of open land would be disturbed by construction of all Project pipelines. Of this total, about 118.4 acres would be maintained as permanent pipeline right-of-way. About 122.7 acres of open land would be disturbed during construction, and about 61.8 acres would be maintained as permanent pipeline right-of-way of the Fayetteville Lateral. About 110.6 acres of open land would be disturbed during construction of the Greenville Lateral, and about 56.3 acres would be maintained as permanent right-of-way. Construction of the Kosciusko 36-inch Tie-in Lateral would affect about 0.4 acre during construction, and about 0.3 acre would be maintained as permanent right-of-way. Construction of the Kosciusko 20-inch Tie-in Lateral would not affect any open land use.

Open land could be temporarily disturbed during grading, trenching, and backfilling. The primary impact on open land during construction would be the loss of grazing capacity for the duration of the construction period and until grasses and herbs could reestablish the following year. After final construction cleanup, these areas would be reseeded in accordance with Texas Gas's project-specific mitigation plans, agency requirements associated with applicable permits, and landowner recommendations. The majority of grassland uses would continue within the permanent right-of-way. Because the right-of-way could be used for grazing following construction, any loss of grazing capacity would be limited to a short-term construction impact.

*Rights-of-Way*

Right-of-way land uses include roads, railroads, and utility corridors (e.g., pipelines and powerlines) perpendicularly crossed by or collocated along the proposed pipelines. A total of about 68.3 acres of right-of-way land would be disturbed by construction of all Project pipelines. Of this total, about 26.7 acres would be maintained as permanent Project right-of-way. About 38.0 acres of right-of-way land would be disturbed during construction, and about 13.4 acres would be maintained as permanent Project right-of-way of the Fayetteville Lateral. About 68.3 acres of right-of-way land would be disturbed during construction of the Greenville Lateral, and about 12.5 acres would be maintained as permanent right-of-way. Construction of the Kosciusko 36-inch Tie-in Lateral would affect about 1.4 acres during construction, and about 0.5 acre would be maintained as permanent Project right-of-way. Construction of the Kosciusko 20-inch Tie-in Lateral would affect about 0.6 acre of right-of-way land, and about 0.3 acre would be maintained within the permanent Project right-of-way. Right-of-way land could be temporarily disturbed during grading, trenching, drilling, and backfilling. Texas Gas would obtain any required permits for crossing roads or working within road rights-of-way and would coordinate with the owners/operators of the utilities to address any issues about working in proximity to their facilities. Following final construction cleanup, these areas would be returned to preconstruction conditions, where feasible, and agency requirements associated with applicable permits would be adhered to. Impacts on this land use would be short-term and temporary.

*Commercial/Industrial*

Commercial/industrial land includes utility stations, manufacturing and industrial plants, landfills, mines, quarries, and commercial retail facilities. About 1.2 acres of commercial/industrial land would be affected by Project construction. About 1.0 acre of industrial land in Faulkner County, Arkansas, would be affected by construction of the Fayetteville Lateral, and about 0.5 acre would be affected by its operation. About 0.2 acre of commercial/industrial land would be affected by construction of the Greenville Lateral in Washington County, Mississippi; no commercial land would be affected by its operation. No commercial/industrial land would be affected by construction or operation of the Kosciusko 36-inch Tie-in Lateral or the Kosciusko 20-inch Tie-in Lateral. Commercial/industrial structures within 50 feet of construction workspaces are listed by milepost in table 4.8.1-4.

Potential impacts on commercial/industrial land uses would include minor traffic flow interruptions and short-term use restrictions associated with the construction right-of-way. However, Texas Gas states that it would reduce construction activities along public roads during peak traffic times. Construction of the proposed Project may have some temporary impacts on commercial/industrial land use, but operation of the Project is not anticipated to have any impact on commercial/industrial land use.

*Residential*

A total of about 3.0 acres of residential land would be disturbed by construction of all Project pipelines. Of this total, about 1.5 acres of residential land would be within the permanent right-of-way. Along the Fayetteville Lateral, about 1.2 acres of residential land would be disturbed during construction, and about 0.6 acre would be within the permanent right-of-way. Along the Greenville Lateral, about 1.8 acres of residential land would be disturbed during construction and about 0.9 acre would be within the permanent right-of-way. Construction of the Kosciusko 36-inch Tie-in Lateral and Kosciusko 20-inch Tie-in Lateral would not affect any residential land. Residential structures within 50 feet of construction workspaces are listed in table 4.8.1-5. Twenty-two residences would be within 50 feet and 12 residences would be within 25 feet of the proposed construction right-of-way.

| TABLE 4.8.1-4<br>Commercial/Industrial Structures within 50 Feet of Construction Workspaces | | | |
|---|---|---|---|
| **County** | **Milepost** | **Approximate Distance (feet) from Construction Workspaces** | **Approximate Direction from Pipeline Corridor** |
| **Fayetteville Lateral** | | | |
| | -- | -- | -- |
| **Greenville Lateral** | | | |
| Washington, MS | 7.2 | 0 | East |
| Holmes, MS | 51.4 | 41 | Southwest |
| Holmes, MS | 55.1 | 0 | Northeast |
| Holmes, MS | 55.2 | 36 | Northeast |
| Holmes, MS | 64.1 | 2 | North |
| Holmes, MS | 64.2 | 47 | North |
| Holmes, MS | 75.5 | 20 | Northwest |
| Attala, MS | 78.7 | 21 | Northeast |
| Attala, MS | 83.4 | 0 | North |
| Attala, MS | 92.1 | 10 | South |
| Washington, MS | 7.2 | 0 | East |
| Holmes, MS | 51.4 | 41 | Southwest |
| Holmes, MS | 55.1 | 0 | Northeast |
| **Kosciusko 36-Inch Tie-in Lateral** | | | |
| Attala, MS | - - | - - | - - |
| **Kosciusko/Southern Natural 20-Inch Tie-in Lateral** | | | |
| Attala, MS | 1.2 | 29 | East |

Temporary construction impacts on residential areas can include inconveniences caused by some increased construction-related traffic on local roads, noise and dust generated by construction equipment, the presence of on-site construction personnel, and trenching through roads or driveways; ground disturbance of lawns; removal of trees, landscaped shrubs, or other vegetative screening between residences and/or adjacent rights-of-way; potential damage to existing septic systems or wells; and removal of aboveground structures such as sheds or trailers from within the right-of-way. These impacts would be greatest where construction equipment is operating near homes but would diminish quickly once construction activities move away.

Texas Gas also would install and maintain construction fencing at the edge of the construction work area for a distance of 100 feet on either side of the residence and at a minimum maintain this fencing throughout the open trench phases of the pipe installation, as well as maintain a buffer of vegetation, leaving mature trees and landscaping within the edge of the construction work areas, where practicable and feasible. In addition, Texas Gas would restore all work areas following construction in accordance with our Plan.

**TABLE 4.8.1-5**

**Residential Structures within 50 Feet of Construction Workspaces**

| County | Milepost | Approximate Distance from Construction Workspaces (feet) | Approximate Direction from Pipeline Corridor |
|---|---|---|---|
| **Fayetteville Lateral** | | | |
| Conway, AR | 2.6 | 46 | South |
| Conway, AR | 2.6-2.7 | 37 | South |
| Conway, AR | 3.4-3.5 | 34 | South |
| Faulkner, AR | 10.3 | 20 | South |
| Faulkner, AR | 26.4 | 35 | South |
| White, AR | 34.7 | 0 | South |
| White, AR | 38.9 | 33 | South |
| White, AR | 38.9 | 7 | South |
| White, AR | 39.2 | 27 | South |
| Cleburne, AR | 41.2 | 32 | South |
| Cleburne, AR | 41.3 | 20 | North |
| White, AR | 46.9 | 23 | South |
| White, AR | 49.8-49.9 | 3 | North |
| White, AR | 49.8-49.9 | 45 | South |
| White, AR | 54.4 | 39 | North |
| White, AR | 57 | 39 | Southwest |
| White, AR | 62.1-62.2 | 20 | East |
| White, AR | 62.2-62.3 | 15 | Southwest |
| Coahoma, MS | 163.9 | 16 | South |
| **Greenville Lateral** | | | |
| Holmes, MS | 55.1 | 0 | Northeast |
| Holmes, MS | 63.6 | 15 | Northeast |
| Holmes, MS | 65.0 | 34 | South |
| Holmes, MS | 55.1 | 0 | Northeast |
| **Kosciusko 36-Inch Tie-in Lateral** | | | |
| Attala, MS | -- | - - | N/A |
| **Kosciusko/Southern Natural 20-Inch Tie-in Lateral** | | | |
| Attala, MS | -- | -- | N/A |

Texas Gas would provide site-specific construction details on its construction alignment sheets that would be included with Texas Gas's Project Implementation Plan that would be filed prior to construction. In addition, Texas Gas would provide each landowner with a copy of the site-specific construction plan and obtain an address and or telephone number for construction notification purposes. However, to better address possible issues related to construction on these residential properties**, we recommend that:**

- **Texas Gas file site-specific plans for the residential properties listed on table 4.8.1-5 of the draft EIS prior to the end of the comment period for the draft EIS.**

With Texas Gas's implementation of the measures described above, impacts on residences would be minimized.

### 4.8.1.2 Use of Existing Rights-of-Way

Fayetteville Lateral

The proposed Fayetteville Lateral would parallel existing pipeline and utility corridors, including an existing Texas Gas right-of-way, for about 90.5 miles, or 54 percent, of its 166.2-mile length. The locations where existing rights-of-way would be used are listed in table 4.8.1-6.

Greenville Lateral

The Greenville Lateral would utilize primarily new right-of-way for most its entire length. Five isolated, short collocations totaling about 6.4 miles would be used, as identified in table 4.8.1-6.

Kosciusko Tie-in Laterals

The *Kosciusko* 36-inch *Tie-In L*ateral and the Kosciusko 20-inch *Tie-in L*ateral would utilize new right-of-way for the entire length of each lateral.

### 4.8.1.3 Additional Temporary Work Spaces

In addition to the land required for the construction right-of-way, ATWS of various sizes would be required for equipment staging at road and railroad crossings, wetland and waterbody crossings, and in areas with steep side slopes or other difficult terrain, as well as areas used for topsoil segregation, truck turn-arounds, hydrostatic test water withdrawal and discharge locations, crossovers, tie-ins, staging and fabrication areas, at foreign utility crossings, and wherever special construction techniques would be required. Construction of the proposed pipelines would require about 635.0 acres of ATWS, mainly affecting 494.5 acres of agricultural and 92.7 acres of forest (both managed and upland forest) land uses. The proposed ATWSs would be used only during construction of the Project. Once construction is complete, these areas would be returned to preconstruction conditions to the extent feasible. In forested areas, temporary workspaces would revegetate naturally, but since regrowth of forests could take over 20 years, the impact would be long-term to permanent. Table C-7 of appendix C lists the location and existing land use of each proposed ATWS.

**TABLE 4.8.1-6**

**Summary of Collocated Rights-of-Way**

| State | County | Name | Begin MP | End MP | Length of Right-of-Way Collocations (miles) |
|---|---|---|---|---|---|
| **Fayetteville Lateral** | | | | | |
| AR | Conway | Ozark Pipeline right-of-way | 0.5 | 6.5 | 6.0 |
| AR | Conway | Ozark Pipeline right-of-way | 7.4 | 7.8 | 0.4 |
| AR | Faulkner | Ozark Pipeline right-of-way | 7.8 | 7.8 | 0.0 |
| AR | Faulkner | CenterPoint Pipeline right-of-way | 7.8 | 8.7 | 0.9 |
| AR | Faulkner | Ozark Pipeline right-of-way | 8.7 | 9.2 | 0.5 |

**TABLE 4.8.1-6**

**Summary of Collocated Rights-of-Way**

| State | County | Name | Begin MP | End MP | Length of Right-of-Way Collocations (miles) |
|---|---|---|---|---|---|
| AR | Faulkner | Desoto Gas Pipeline right-of-way | 9.2 | 9.7 | 0.5 |
| AR | Faulkner | Ozark Pipeline right-of-way | 9.8 | 10.9 | 1.1 |
| AR | Faulkner | Desoto Gas Pipeline right-of-way | 10.9 | 11.4 | 0.5 |
| AR | Faulkner | Ozark Pipeline right-of-way | 11.4 | 12.6 | 1.2 |
| AR | Faulkner | CenterPoint Pipeline right-of-way | 12.6 | 13.2 | 0.6 |
| AR | Faulkner | Ozark Pipeline right-of-way | 13.2 | 15.1 | 1.9 |
| AR | Faulkner | Desoto Gas Pipeline right-of-way | 15.6 | 16.1 | 0.5 |
| AR | Faulkner | Ozark Pipeline right-of-way | 16.1 | 16.4 | 0.3 |
| AR | Faulkner | CenterPoint Pipeline right-of-way | 16.4 | 19.7 | 3.3 |
| AR | Faulkner | Ozark Pipeline right-of-way | 19.7 | 20.1 | 0.4 |
| AR | Faulkner | CenterPoint Pipeline right-of-way | 20.1 | 21.8 | 1.7 |
| AR | Faulkner | CenterPoint Pipeline right-of-way | 22.3 | 22.8 | 0.5 |
| AR | Faulkner | Ozark Pipeline right-of-way | 22.8 | 23.6 | 0.8 |
| AR | Faulkner | Desoto Gas Pipeline right-of-way | 23.6 | 23.7 | 0.1 |
| AR | Faulkner | CenterPoint Pipeline right-of-way | 23.7 | 29.2 | 5.5 |
| AR | White | CenterPoint Pipeline right-of-way | 29.2 | 30.3 | 1.1 |
| AR | White | Desoto Gas Pipeline right-of-way | 30.3 | 32.4 | 2.1 |
| AR | White | CenterPoint Pipeline right-of-way | 33.9 | 34.3 | 0.4 |
| AR | White | Desoto Gas Pipeline right-of-way | 34.3 | 34.5 | 0.2 |
| AR | White | CenterPoint Pipeline right-of-way | 34.5 | 41.1 | 6.6 |
| AR | Cleburne | CenterPoint Pipeline right-of-way | 41.1 | 41.5 | 0.4 |
| AR | Cleburne | CenterPoint Pipeline right-of-way | 43.0 | 44.2 | 1.2 |
| AR | White | CenterPoint Pipeline right-of-way | 44.2 | 45.0 | 0.8 |
| AR | White | Road right-of-way | 49.1 | 49.7 | 0.6 |
| AR | White | Road right-of-way | 50.0 | 50.1 | 0.1 |
| AR | Woodruff | Road right-of-way | 76.9 | 80.2 | 3.3 |
| AR | Woodruff | CenterPoint Pipeline right-of-way | 105.5 | 108.0 | 2.5 |
| AR | St. Francis | CenterPoint Pipeline right-of-way | 108.0 | 111.1 | 3.1 |
| AR | St. Francis | CenterPoint Pipeline right-of-way | 112.0 | 112.2 | 0.2 |
| AR | St. Francis | CenterPoint Pipeline right-of-way | 112.7 | 113.4 | 0.7 |
| AR | St. Francis | CenterPoint Pipeline right-of-way | 114.5 | 116.4 | 1.9 |
| AR | Lee | CenterPoint Pipeline right-of-way | 117.7 | 119.0 | 1.3 |
| AR | Lee | CenterPoint Pipeline right-of-way | 119.4 | 120.6 | 1.2 |
| AR | Lee | CenterPoint Pipeline right-of-way | 120.9 | 125.6 | 4.7 |
| AR | Lee | CenterPoint Pipeline right-of-way | 126.8 | 130.4 | 3.6 |
| AR | Lee | CenterPoint Pipeline right-of-way | 130.8 | 135.8 | 5.0 |
| AR | Lee | CenterPoint Pipeline right-of-way | 136.2 | 138.4 | 2.2 |

**TABLE 4.8.1-6**

**Summary of Collocated Rights-of-Way**

| State | County | Name | Begin MP | End MP | Length of Right-of-Way Collocations (miles) |
|---|---|---|---|---|---|
| AR | Lee | CenterPoint Pipeline right-of-way | 138.6 | 139.2 | 0.6 |
| AR | Phillips | CenterPoint Pipeline right-of-way | 139.2 | 142.5 | 3.3 |
| AR | Phillips | CenterPoint Pipeline right-of-way | 142.9 | 144.5 | 1.6 |
| AR | Phillips | CenterPoint Pipeline right-of-way | 145.5 | 145.9 | 0.4 |
| AR | Phillips | CenterPoint Pipeline right-of-way | 146.4 | 148.9 | 2.5 |
| AR | Phillips | CenterPoint Pipeline right-of-way | 149.3 | 154.5 | 5.2 |
| AR | Phillips | Texas Gas Pipeline right-of-way | 156.7 | 157.7 | 1.0 |
| MS | Coahoma | Texas Gas Pipeline right-of-way | 157.7 | 160.9 | 3.2 |
| MS | Coahoma | Texas Gas Pipeline right-of-way | 161.7 | 163.3 | 1.6 |
| MS | Coahoma | Texas Gas Pipeline right-of-way | 165.0 | 166.2 | 1.2 |
| | | | | **Subtotal:** | **90.5** |
| **Greenville Lateral** | | | | | |
| MS | Washington | Texas Gas Pipeline right-of-way | 0.0 | 0.4 | 0.4 |
| MS | Humphreys | County Road 55 right-of-way | 22.9 | 23.4 | 0.5 |
| MS | Humphreys | Road right-of-way (Name Unknown) | 28.0 | 28.4 | 0.4 |
| MS | Humphreys | Methena Road right-of-way | 43.0 | 43.3 | 0.3 |
| MS | Attala | Illinois Central Railroad right-of-way | 85.3 | 85.8 | 0.5 |
| MS | Attala | Electric Transmission Line | 88.1 | 92.4 | 4.3 |
| | | | | **Subtotal:** | **6.4** |
| **Kosciusko 36-inch Tie-in Lateral** | | | | | |
| MS | Attala | NA | 0.0 | 0.8 | 0 |
| **Kosciusko 20-inch Tie-in Lateral** | | | | | |
| MS | Attala | NA | 0.0 | 0.4 | 0 |
| | | | | **Total** | **96.9** |

#### 4.8.1.4 Aboveground Facilities

Texas Gas's proposed aboveground facilities would include one new compressor station, 29 M&R stations, 29 interconnects (tie-ins), 21 MLVs, and six pig launchers/receivers. Table 2.1.2-1 lists the type and location of all proposed aboveground facilities. The size of M&R stations would vary from 0.9 acre to 2.6 acres. The size of each MLV and launcher/receiver would be less than 0.1 acre.

Table 4.8.1-7 identifies land uses that would be affected by construction and operation of aboveground facilities. The principal land use that would be impacted by construction and operation of the compressor station and M&R stations would be agricultural land (80.6 acres). As indicated in table 4.8.1-7, other land uses that would be impacted by the aboveground facilities include upland forest (15.5 acres), open land (5.3 acres), and right-of-way (5.2 acres). Operation of the aboveground facilities would permanently convert the preconstruction land use to industrial land use.

#### 4.8.1.5 Pipe Storage and Contractor Yards

A total of 43 contractor and pipe storage yards, totaling about 946.6 acres, would be used temporarily during Project construction. The contractor and pipe storage yards would be used to set up offices, stockpile pipe, fabricate weights, and concrete-coat joints, as necessary. Table 4.8.1-8 lists the proposed pipe storage and contractor yards. As indicated in table 4.8.1-8 the principal land uses that would be impacted by construction and operation of the pipe storage and contractor yards would be agricultural land and, to a lesser extent, industrial and open land. These yards would be temporarily impacted during construction and restored to preconstruction conditions, or better, following the completion of construction.

#### 4.8.1.6 Access Roads

Texas Gas's use of access roads would affect about 162.5 acres of land. Of this total, about 15.1 acres would be maintained for operation of the Project. To the extent practicable, Texas Gas would use existing roads to provide access for construction, operation, and maintenance of the proposed pipeline. Roads that are paved or graveled would likely not require modification for this purpose. Routine road maintenance such as grading could be required to maintain dirt roads. Table C-8 in appendix C lists the proposed access roads and any anticipated modifications that may be required to make the roadways serviceable. Texas Gas would use existing roads to provide access for construction, operation, and maintenance of the Project facilities. Significant amounts of new land would not be necessary, and minimal existing land uses would be altered to accommodate access.

#### 4.8.1.7 Pipeline Easements

Land use impacts associated with installation of the pipeline include disturbance of existing land uses within construction work areas along the pipeline corridor during construction as well as creation of a new permanent right-of-way for operation and maintenance of the facilities. Texas Gas would obtain an easement from landowners to construct and operate the pipeline and associated facilities. The easement would give the company the right to construct, operate, and maintain the pipeline and establish a permanent right-of-way. In return, the company would compensate the landowner for use of the land. Easement agreements between the company and the landowner typically specify compensation for loss of use during construction, loss of non-renewable or other resources, and allowable uses and restrictions on the permanent right-of-way after construction. These terms can include restrictions on the construction of aboveground structures, including house additions, garages, patios, pools, and any other object not easily removable from the right-of-way, and the planting and cultivating of trees and orchards. The areas used as temporary construction right-of-way and temporary extra workspaces would be allowed to revert to pre-construction uses with no restrictions. The acquisition of an easement is a negotiable process that would be carried out between Texas Gas and individual landowners. The details and content of these agreements are beyond the scope of this EIS.

### 4.8.2 Planned Residential and Commercial/Industrial Developments

Along the proposed Fayetteville Lateral, no planned developments have been filed with local planning boards within 0.25 mile of the Project corridor within Conway County (Gibson, 2007), Faulkner County (Scroggin, 2007), Woodruff County (Simmons, 2007), or Lee County (Keasler, 2007) in Arkansas, or Coahoma County (Stubbs, 2007) in Mississippi. In northern White County, near MP 55.9, a proposed 8-inch-diameter water line is currently under construction; however, this Project should be completed well before Texas Gas constructs the proposed pipeline. No other planned developments were identified in White or Cleburne Counties (Hargan, 2007). Along the proposed Greenville Lateral, no planned developments have been filed with local planning boards within 0.25 mile of the Project corridor in

**TABLE 4.8.1-7**

**Summary of Land Use Impacts Associated with Construction and Operation of Aboveground Facilities (in acres)**

| County, State | Agriculture | | Upland Forest | | Managed Forest | | Wetlands | | Open Water | | Open Land | | Right-of-Way | | Commercial/ Industrial | | Residential | | Total | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Const | Oper | Const | Oper | Const | Oper | Const | Oper | Const | Oper | Const | Oper | Const | Oper | Const | Oper | Const | Oper | Const | Oper |
| **Fayetteville Lateral** | | | | | | | | | | | | | | | | | | | | |
| Conway, AR | 1.2 | 1.2 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.2 | 0.2 | 1.9 | 1.9 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 3.3 | 3.3 |
| Faulkner, AR | 3.9 | 3.9 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 2.5 | 2.5 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 6.4 | 6.4 |
| White, AR | 15.4 | 15.4 | 2.0 | 2.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.9 | 0.9 | 0.1 | 0.1 | 0.0 | 0.0 | 0.0 | 0.0 | 18.4 | 18.4 |
| Cleburne, AR | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Woodruff, AR | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| St. Francis, AR | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Lee, AR | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Phillips, AR | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Coahoma, MS | 1.7 | 1.7 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.1 | 0.1 | 0.0 | 0.0 | 0.0 | 0.0 | 1.8 | 1.8 |
| **Total** | **22.2** | **22.2** | **2.0** | **2.0** | **0.0** | **0.0** | **0.0** | **0.0** | **0.2** | **0.2** | **5.3** | **5.3** | **0.2** | **0.2** | **0.0** | **0.0** | **0.0** | **0.0** | **29.9** | **29.9** |
| **Greenville Lateral** | | | | | | | | | | | | | | | | | | | | |
| Washington, MS | 8.7 | 8.7 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.3 | 0.3 | 0.0 | 0.0 | 0.0 | 0.0 | 9.0 | 9.0 |
| Sunflower, MS | 0.1 | 0.1 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.1 | 0.1 |
| Humphreys, MS | 2.5 | 2.5 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.1 | 0.1 | 0.0 | 0.0 | 0.5 | 0.5 | 3.1 | 3.1 |
| Holmes, MS | 0.2 | 0.2 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.1 | 0.1 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.3 | 0.3 |
| Attala, MS | 46.9 | 46.9 | 15.5 | 15.5 | 0.0 | 0.0 | 0.2 | 0.2 | 0.0 | 0.0 | 0.5 | 0.5 | 4.8 | 4.8 | 0.0 | 0.0 | 0.0 | 0.0 | 67.9 | 67.9 |
| **Total** | **58.4** | **58.4** | **15.5** | **15.5** | **0.0** | **0.0** | **0.2** | **0.2** | **0.0** | **0.0** | **0.6** | **0.6** | **5.2** | **5.2** | **0.0** | **0.0** | **0.5** | **0.5** | **80.4** | **80.4** |
| **Kosciusko 36-Inch Tie-in Lateral** | | | | | | | | | | | | | | | | | | | | |
| Attala, MS | 0.0 | 0.0 | 1.5 | 1.5 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.4 | 0.4 | 0.0 | 0.0 | 0.0 | 0.0 | 1.9 | 1.9 |

**TABLE 4.8.1-7**

**Summary of Land Use Impacts Associated with Construction and Operation of Aboveground Facilities (in acres)**

| County, State | Agriculture | | Upland Forest | | Managed Forest | | Wetlands | | Open Water | | Open Land | | Right-of-Way | | Commercial/ Industrial | | Residential | | Total | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Const | Oper | Const | Oper | Const | Oper | Const | Oper | Const | Oper | Const | Oper | Const | Oper | Const | Oper | Const | Oper | Const | Oper |
| **Kosciusko 20-Inch Tie-in Lateral** | | | | | | | | | | | | | | | | | | | | |
| Attala, MS | 0.0 | 0.0 | 1.3 | 1.3 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 1.3 | 1.3 |
| **Project Total** | 80.6 | 80.6 | 20.3 | 20.3 | 0.0 | 0.0 | 0.2 | 0.2 | 0.2 | 0.2 | 5.9 | 5.9 | 5.8 | 5.8 | 0.0 | 0.0 | 0.5 | 0.5 | 113.5 | 113.5 |

Note: 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. In addition, about 4 acres of construction impacts are within the construction ROW for the proposed pipeline route and are also included in the impact calculations identified in Table 4.8.1-2.

**TABLE 4.8.1-8**

**Pipe Yards and Contractor Yards Used for Construction**

| County, State | Pipe Yard Number | Milepost | Size (acres) | Land Use |
|---|---|---|---|---|
| **Fayetteville Lateral** | | | | |
| Conway, AR | 1 | 5.6 | 13.4 | Open |
| Faulkner ,AR | 4 | 15.4 | 23.5 | Agricultural |
| Cleburne, AR | 5 | 22.8 | 41.2 | Agricultural |
| Faulkner, AR | 5 | 22.8 | 8.1 | Agricultural |
| Faulkner, AR | 6 | 29.1 | 11.4 | Agricultural |
| White, AR | 6 | 29.2 | 11.2 | Agricultural |
| White, AR | 18 | 50.2 | 1.5 | Open |
| White, AR | 18 | 50.3 | 22.6 | Open |
| White, AR | 17 | 50.4 | 11.4 | Agricultural |
| White, AR | 17 | 50.5 | 4.1 | Agricultural |
| White, AR | 9 | 57.2 | 18.5 | Agricultural |
| White, AR | 16 | 65.4 | 24.4 | Agricultural |
| White, AR | 16 | 65.4 | 2.9 | Agricultural |
| White, AR | 10 | 65.6 | 24.9 | Agricultural |
| Woodruff, AR | 11 | 88.1 | 34.2 | Agricultural |
| St. Francis, AR | 12 | 111.6 | 45.9 | Agricultural |
| Lee, AR | 13B | 127.7 | 79.4 | Agricultural |
| Lee, AR | 13B | 127.9 | 0.5 | Agricultural |
| Lee, AR | 13B | 128.0 | 0.4 | Agricultural |
| Lee, AR | 13C | 128. | 0.5 | Agricultural |
| Lee, AR | 13C | 128.0 | 0.5 | Agricultural |
| Lee, AR | 13C | 128.1 | 0.5 | Agricultural |
| Lee, AR | 13C | 128.2 | 62.2 | Agricultural |
| Phillips, AR | 14 | 151.3 | 0.1 | Agricultural |
| Phillips, AR | 14 | 151.3 | 26.9 | Agricultural |
| Phillips, AR | 14 | 151.3 | 0.2 | Right-of-Way |
| Coahoma, MS | 15 | 159.1 | 21.4 | Agricultural |
| **Sub Total** | | | **491.8** | |
| **Greenville Lateral** | | | | |
| Washington, MS | 1 | 0.1 | 48.8 | Open |
| Washington, MS | 2 | 8.9 | 5.2 | Open |
| Washington, MS | 3 | 10.5 | 12.8 | Agriculture |
| Humphries, MS | 4 | 20.4 | 14.8 | Open |
| Humphries, MS | 5 | 29.4 | 20.6 | Agriculture/Open |
| Humphries, MS | 6 | 29.3 | 4.8 | Open |
| Humphries, MS | 7 | 29.6 | 28.0 | Open |

| TABLE 4.8.1-8<br>Pipe Yards and Contractor Yards Used for Construction | | | | |
|---|---|---|---|---|
| **County, State** | **Pipe Yard Number** | **Milepost** | **Size (acres)** | **Land Use** |
| Humphries, MS | 8 | 35.4 | 109.0 | Industrial |
| Holmes, MS | 10 | 51.4 | 17.9 | Agriculture |
| Holmes, MS | 11 | 52.0 | 7.9 | Industrial |
| Holmes, MS | 12 | 73.0 | 28.7 | Industrial |
| Holmes, MS | 14 | 73.0 | 63.3 | Open |
| Holmes, MS | 15 | 54.8 | 93.0 | Agriculture/Open |
| **Sub Total** | | | **454.8** | |
| **Kosciusko 36-Inch Tie-in Lateral** | | | | |
| Attala, MS | None | - - | - - | - - |
| **Kosciusko 20-Inch Tie-in Lateral** | | | | |
| Attala, MS | None | - - | - - | - - |
| **Project Total** | | | **946.6** | |

Washington County (Hart, 2007) or Attala County (Taylor, 2007) in Mississippi. Local planning boards in St. Francis and Phillips Counties, Arkansas, along the Fayetteville Lateral, and in Sunflower, Humphreys, and Holmes Counties, Mississippi, along the Greenville Lateral, have not commented about planned developments. The Project in these counties would pass through mainly agricultural land, and we anticipate that this land use would not change in the near future. Therefore, we believe that construction and operation of the proposed Project would not have any impact on planned residential or commercial development.

### 4.8.3 Recreation and Special Land Uses

Recreation and special land uses generally include federal, state, and county/city parks and forests; conservation lands; wildlife habitat management areas; hunter management areas; natural landmarks; scenic byways; designated trails; recreational rivers; and campgrounds. Major and sensitive waterbodies are addressed in section 4.3; unique, sensitive, or significant wildlife habitats are addressed in section 4.7; and historic or culturally significant areas are addressed in section 4.10.

The Project would not cross any federally or state-designated Wild and Scenic Rivers, national landmarks, trails, campgrounds, or public parks and forests. However, the Project would cross three waterbodies in Arkansas (Cadron Creek, Big Creek, and Bayou De View) and one waterbody in Mississippi (the Big Black River) that are listed on the NRI as having outstandingly remarkable values (ORVs), which potentially qualifies them for National Wild and Scenic River designation, and several recreational and special land use areas in Arkansas. The locations of these areas are indicated on figure 4.8.3-1.

*Fayetteville Lateral*

The proposed Fayetteville Lateral would be near one recreational area and would cross four special land use areas.

**Woodruff County Fairgrounds.** The Woodruff County Fairgrounds is in McCrory, Arkansas, and would be within 0.25 mile of the Fayetteville Lateral, east of the pipeline between approximate MP 85.9 and MP 86.2. The fairgrounds is on Hwy 64B between McCrory and Patterson. The Three County Fair occurs annually in the second week of September at the fairgrounds. This event draws less than 3,000 people annually (Bradford, 2007). Other activities that occur at the fairgrounds during the year include activities associated with the Woodruff County Agricultural Extension, the annual Agricultural Expo, local 4H activities, and other similar community events. Because the permanent right-of-way would not cross any portion of the fairgrounds and because the events that occur throughout the year do not result in large volumes of people or traffic accessing the fairgrounds, there would be no impact on this resource from construction and operation of the Project.

**Cache River NWR.** The proposed Fayetteville Lateral would cross the Cache River NWR between MP 82.0 and MP 82.8, and the Bayou De View portion of the NWR between MP 95.9 and MP 96.6. The Cache River NWR contains a variety of wetland communities, including some of the most intact and least disturbed bottomland hardwood forests in the Mississippi valley region. These unique and valuable wetlands are protected by the Ramsar Convention as “Wetlands of International Importance” (FWS, 2007a). At present, the NWR encompasses over 56,000 acres in non-contiguous tracts in Jackson, Woodruff, Monroe, and Prairie Counties, Arkansas. Recreational activities in the NWR include year-round boating and fishing, hunting, wildlife viewing, and photography (FWS, 2007a).

To minimize impacts on the Cache River NWR, Texas Gas would cross this resource by HDD. The HDD exit hole would be on private land at MP 82.3, the HDD entry hole would be on private land at MP 83.0, and the length of the HDD would be about 4,118 feet. The Project would cross under the Cache River at MP 82.7 and would avoid direct impact on the waterbody. Similarly, the Bayou De View element of the Cache River NWR would be crossed by HDD. The HDD exit hole would be on private land at MP 95.6, the HDD entry hole would be on private land at MP 96.2, and the length of the HDD would be about 2,376 feet. The Project would cross under Bayou De View at MP 95.9, avoiding direct impact on the waterbody. The proposed HDD crossings of the Cache River NWR would avoid impact on the NWR that otherwise would result from clearing a construction right-of-way through forest, forested wetland, and other habitat and would avoid disturbance of the Cache River and Bayou De View. Impacts on about 7.1 acres[4] of land along the Cache River HDD and impacts on about 4.1 acres along the Bayou De View HDD path would be avoided. Therefore, construction and operation of the Project would have minimal impact on the Cache River NWR.

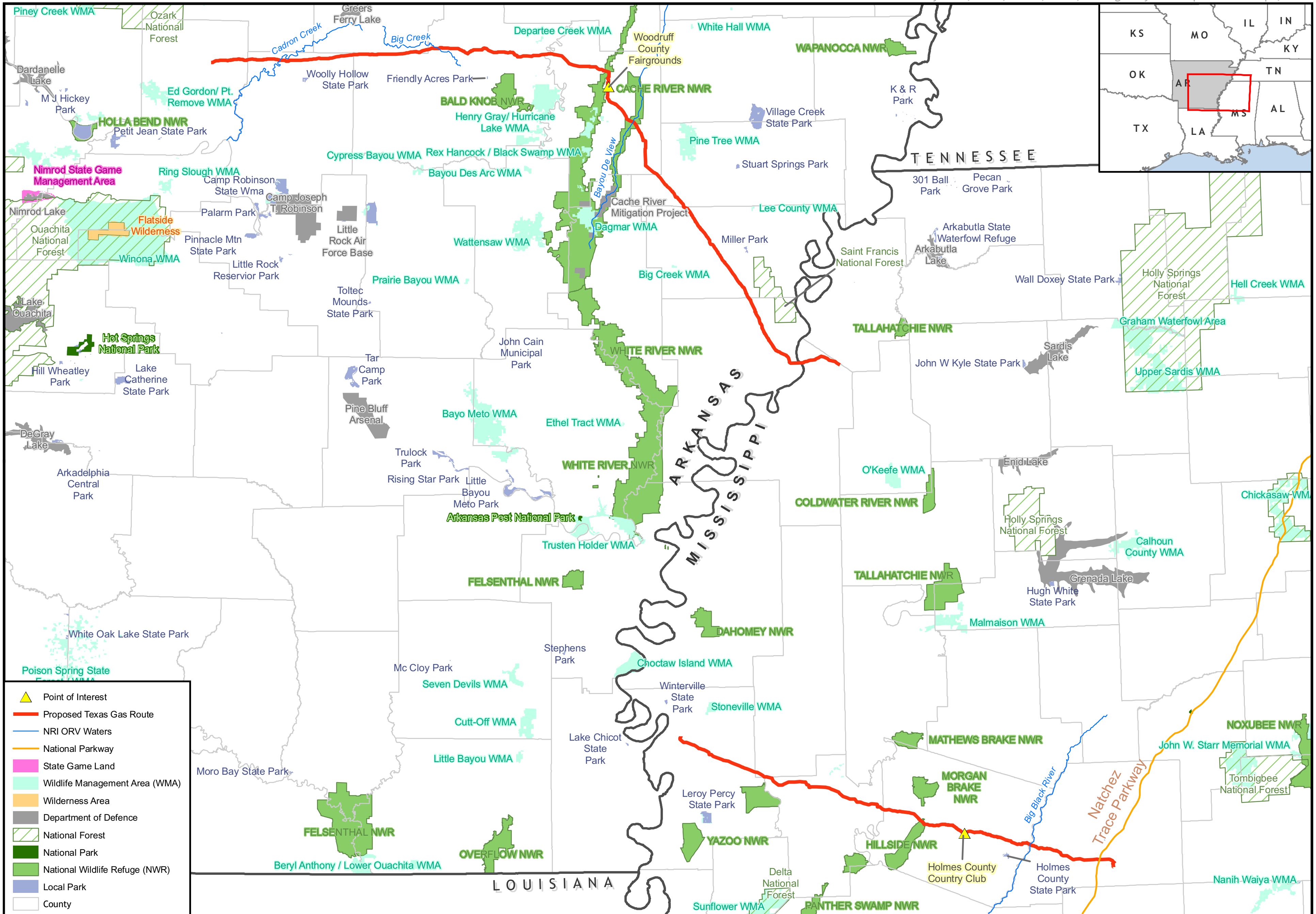
**NRI Waters.** The NRI is a listing of more than 3,400 free-flowing river segments in the United States that are believed to possess one or more natural or cultural ORV judged to be of more than local or regional significance. For a waterbody to be listed in the NRI, it must exhibit at least one of nine ORVs related to scenery, recreation, geology, fish, wildlife, prehistory, history, culture, and “other values,” which may include hydrology, paleontology, and botany resources.

Bayou De View flows through Monroe and Woodruff Counties, Arkansas, and would be crossed by the Fayetteville Lateral between MP 95.9 and MP 96. It is eligible for NRI listing because of these ORVs: scenery, recreation, fish, wildlife, and other values that exist within the river. Big Creek flows through Cleburne, White, and Independence Counties, Arkansas, and would be crossed by the Fayetteville Lateral at MP 46. It is eligible for NRI listing because of these ORVs: scenery, recreation, and geology. Cadron Creek flows through Conway, Van Buren, Faulkner, and Cleburne Counties, Arkansas, and would be crossed by the Fayetteville Lateral between MP 13.9 and MP 14. It is eligible for NRI listing because of these ORVs: scenery, recreation, geology, fish, and wildlife.

4 Assuming a nominal 75-foot-wide construction right-of-way.

\\BUFSDL4\GIS\Buffalo\Texas_Gas\Maps\MXD\Special_Landuses.mxd 9/13/2007

Source:
ESRI, 2007; Texas Gas, 2007; PennWell MapSearch, 2000; US FWS, 2001;
National Wilderness Preservation System, 2005; FGDC, 2005; AR Highway & Transportation Dept, 2006




N

0 12.5 25 Miles

Figure 4.8.3-1
Managed Land and Special Land Use Areas
in the Project Area

Bayou De View and Big Creek would be crossed by HDD, thereby avoiding impacts on their ORVs. Cadron Creek would be crossed by open-cut at a location where the Fayetteville Lateral would be collocated with an existing Ozark pipeline. Collocation would result in a wider pipeline corridor at the Cadron Creek crossing, but it would not result in a new pipeline corridor; therefore, new impacts on this waterbody would be minimized by using this crossing location. Texas Gas would comply with the right-of-way maintenance measures in our Procedures, which limit vegetation maintenance adjacent to waterbodies to allow a riparian strip at least 25 feet wide, as measured from the waterbody's mean high water mark, to permanently revegetate with native plant species across the entire construction right-of-way. We have recommended that Texas Gas coordinate with NPS and ADEQ to further minimize impacts related to construction across this waterbody. Texas Gas would implement any additional requirements the NPS and ADEQ may have to address this issue. Therefore, impacts related to construction and operation of the Fayetteville Lateral across NRI waters would be minimized to the greatest extent practicable.

*Greenville Lateral*

The proposed Greenville Lateral would cross three recreation and special land use areas. No recreation or special interest areas would be within 0.25 mile of the proposed Kosciusko Compressor Station site at MP 96.4.

**Holmes County Country Club.** Holmes County Country Club would be crossed by the Greenville Lateral between MP 63.4 and 63.5. The Holmes County Country Club management anticipates that no facilities at the property would be impacted by the Greenville Lateral. Therefore, construction and operation of the Project would have minimal impact on recreational activities at the Holmes County Country Club.

**Hillside NWR.** The proposed Greenville Lateral would cross the northern tip of the Hillside NWR between MP 54.1 and MP 55.9, in Holmes County. The NWR, which was named for its unique 15,572-acre location along the base of bluffs in Holmes County, provides stop-over and nesting habitat to thousands of migratory birds. The NWR was created when lands associated with a USACE flood control project were transferred to the FWS in 1975. To avoid impacts on Hillside NWR, Texas Gas would cross the NWR by HDD. The HDD exit hole would be on private land at MP 54.6, the HDD entry hole would be on private land at MP 54.0, and the length of the HDD would be about 3,326 feet. The Greenville Lateral would cross under Fannegusha Creek (MP 54.2), which flows through the NWR. The proposed HDD crossing of the Hillside NWR would avoid impacts on about 7.6 acres of land in the NWR that otherwise would result from clearing a construction right-of-way through forest, forested wetland, and other habitat. Therefore, construction and operation of the Project would have minimal impact on the Hillside NWR.

**Natchez Trace Parkway.** The Natchez Trace Parkway (the Parkway) is a 444-mile parkway system that connects southern portions of the Mississippi River valley, northern Alabama, and central Tennessee. Recreational opportunities associated with the parkway include scenic driving, hiking, biking, horseback riding, and camping. The proposed Greenville Lateral would cross the Natchez Trace Parkway from MP 92.8 to MP 93.0 in Attala County, Mississippi. Several alternatives were evaluated to cross the Natchez Trace Parkway, and a preferred crossing was chosen in consultation with the NPS where no developed recreational or service features were identified within 0.25 mile of the pipeline corridor. Figure 4.8.3-1 shows the proposed Greenville Lateral route relative to the Natchez Trace Parkway. Appendix F presents a detailed assessment of the Natchez Trace Parkway.

Texas Gas would use an HDD to cross the Natchez Trace Parkway to minimize and avoid direct construction impacts due to disturbance of vegetation and soil. Use of an HDD to cross the Natchez Trace Parkway would not create a new utility corridor and would not widen an existing corridor, thereby minimizing the visual impact of Project construction in this area. Construction-related dust and noise, which would be limited to a period of several days during the HDD process, would have minimal effect on recreational activities or traffic along the Natchez Trace Parkway. Texas Gas would work with the NPS on the timing of construction and other ways to minimize construction impacts

One of the primary concerns in crossing public areas is the impact that pipeline construction and operation can have on recreational activities. Disruption and noise during construction could be a nuisance to hikers, hunters, fishermen, sightseers, and campers, and could cause disturbance to wildlife, especially in protected management areas. Since pipeline construction is generally scheduled for summer, when recreational activities are typically at their peak, this impact would be unavoidable. Since the Parkway would be crossed by HDD, construction noise would be centered around the activities at the HDD entry and exit hole workspaces and would be short-term. Operation of the Project would have no effect on the Natchez Trace Parkway since there would be no surface maintenance of the permanent right-of-way at the road crossing along the path of the HDD.

**NRI Waters.** Big Black River would be crossed by the proposed Greenville Lateral between MP 77.7 and 77.8. This river flows through Claiborn, Warren, Hinds, Yazoo, Madison, Holmes, Attala, Carroll, and Montgomery Counties, Mississippi, and is eligible for NRI listing because it possesses ORVs related to scenery, recreation, fish, wildlife, history, and culture.

Big Black River would be crossed by HDD, thereby avoiding impacts on its ORVs. Therefore, impacts related to construction and operation of the Greenville Lateral across NRI waters would be minimized to the greatest extent practicable.

*Kosciusko Tie-in Laterals*

The Kosciusko 36-inch Tie-in Lateral and Kosciusko 20-inch Tie-In Lateral would not cross any recreational or special land use areas.

### 4.8.4 Visual Resources

*Pipeline Right-of- Way*

Visual impacts associated with the construction right-of-way and ATWS would include the removal of existing vegetation and exposure of bare soils, as well as tracks resulting from the use of heavy equipment to perform earthwork and grading activities, trenching, blasting, rock formation alteration or removal, and machinery and tool storage used during construction. Other visual impacts could result from the removal of large individual trees that have intrinsic aesthetic value; the removal or alteration of vegetation that could provide a visual barrier; or landscape changes. Visual impacts would be greatest where the Project would parallel or cross roads, trails, or prominent observation points, and where the pipeline right-of-way would be obvious to passing motorists or recreational users. The greatest potential visual impact would result from the removal of large specimen trees, which would take much longer than other vegetation types to regenerate and would be prevented from re-establishing on the permanently maintained 50-foot-wide right-of-way. Topographic alterations such as side hill cuts, which could be necessary for construction, would be re-contoured and re-vegetated during right-of-way restoration. The visibility of such alterations would diminish over time as the affected areas are restored and begin to blend in with the surrounding landscape.

To minimize construction impacts on visual resources, the Project would be collocated adjacent to existing rights-of-way where feasible. This alignment would minimize impacts on visual sightlines and intrinsic value by minimizing the creation of new corridors. In areas where right-of-way collocation is not feasible for engineering and/or construction reasons, Texas Gas would align the Project to avoid aesthetic features, including large, mature trees, to the extent practicable. Further, much of the area where new pipeline corridors are proposed would be in agricultural or open land use areas, so minimal tree clearing would be needed for pipeline construction. Clearing trees to create utility corridors has a long-term to permanent impact on visual resources due to this alteration of the landscape. Therefore, construction and operation of the proposed Project pipeline facilities would have minimal impact on visual resources.

*Aboveground Facilities*

Texas Gas would construct 19 M&R stations, 11 MLVs, two pig launchers, and two pig receivers along the proposed Fayetteville Lateral. In addition, Texas Gas would construct one new compressor station (at MP 96.4), 10 M&R stations, 10 MLVs, one pig launcher, and one pig receiver along the proposed Greenville Lateral. These aboveground structures would be permanent and remain in operation throughout the life of the pipelines.

The impacts on visual resources resulting from construction and operation of the M&R stations, MLVs, and launcher and receiver assemblies would be minimal due to the small size of each facility. M&R stations would range in size from about 0.9 acre up to 2.6 acres. Each MLV and each launcher/receiver would be less than 0.1 acre in size. Landscaping would be added where feasible around the new M&R stations, MLVs, and launcher and receiver assemblies to further help these facilities blend in to the surrounding landscape.

The Kosciusko Compressor Station would be at the eastern end of the Greenville Lateral, and would impact about 65 acres during operation. The compressor station would be surrounded primarily by forest and agricultural land and would be adjacent to an existing Texas Eastern compressor station. Visual impacts associated with this facility would not be considered substantial due to the topography of the area, which consists of vegetated rolling hills, which provide natural screening. Construction of the facility would have limited visual effects on off-site resources or land uses, as only a limited number of potential viewers would have a direct line of sight of the facility and would notice the change in land use from forest and agricultural land to developed land due to its remote location. Landscaping around the new compressor station would further help diminish its presence and would be implemented as feasible. Therefore, construction and operation of the proposed aboveground facilities would have a permanent impact on visual resources, but this impact would be minimized by vegetative screening, topography, and remote location.

### 4.8.5 Hazardous Waste

*Fayetteville Lateral*

Review of published federal and state databases identified one Resource Conservation and Recovery Act (RCRA) small quantity generator (SQG) north of MP 128 and one underground storage tank (UST) north of MP 58, about 1,500 feet and 900 feet, respectively, from the proposed Fayetteville Lateral corridor. No violations have been reported for either site. Therefore, we believe that the potential for contamination from these sites to impact the Project is low.

*Greenville Lateral*

The Greenville Lateral would be connected to the upstream end of the Greenville Compressor Station at MP 0.0. Texas Gas's existing mainline pipeline system at the Greenville Compressor Station is currently identified as regulated for PCBs. However, previous monitoring of pipeline fluids at this compressor station indicated PCB concentrations were less than 10 parts per million (ppm) for twelve consecutive quarterly monitoring events and never exceeded the EPA standard of 50 ppm. The Greenville Compressor Station would be downstream of the proposed Greenville Lateral tie-in. Therefore, we do not believe PCB contamination to pose a significant risk at this location for the proposed Project.

The existing Texas Eastern Kosciusko Compressor Station, a former National Priorities List (NPL) site, would be near the terminus of the Greenville Lateral and Texas Gas's proposed Kosciusko Compressor Station. While PCB contamination has been identified at Texas Eastern's facility, it would be down gradient from Texas Gas's proposed compressor station. Therefore, we do not believe that PCB contamination to pose a significant risk at this location for the proposed Project.

*Kosciusko 36-inch and 20-inch Tie-in Laterals*

The Kosciusko 36-inch Tie-in Lateral would cross Little Conehoma Creek, which was previously remediated for PCBs by Texas Eastern. The site was removed from the NPL in 1998, but it is still under state jurisdiction. Files reviewed at the MDEQ indicated that sediments in the creek had been remediated to less than 1 mg/kg PCBs, while soils along stream banks had been remediated to less than 5 mg/kg. Texas Gas sampled surface soil, stream sediment, and subsurface soil to characterize the current distribution of PCBs in the area of the Little Conehoma Creek crossing. All PCB concentrations were less than 1 mg/kg. Based on available information, we do not believe that PCB levels in Little Cohoma Creek are significant. In the event that petroleum-stained soil was identified during excavation in the vicinity of Little Conehoma Creek, it would be segregated, properly characterized for disposal, and managed appropriately in accordance with all applicable regulations and handling protocols. Since Texas Gas would have appropriately trained environmental inspectors on site during construction to implement these protocols if they are needed, and since Texas Eastern completed site remediation, we conclude that possible PBC contamination would not be a significant risk at this location for the propose Project.

## 4.9 SOCIOECONOMICS

Several potential socioeconomic effects may result from construction and operation of the proposed Project. Some of these potential effects are related to the number of local and non-local workers who would work on the construction-phase of the Project, payrolls and local expenditures, and impacts on population, public services, and housing during the construction period. Other potential effects related to construction include increased traffic or disruption of normal traffic patterns in the Project vicinity and increased expenditures for construction materials by Texas Gas. Potential economic impacts associated with operation of the Project include increased property tax revenue, increased job opportunities and income, and ongoing local expenditures by the operating company.

### 4.9.1 Region of Influence

The Fayetteville Lateral would cross eight counties in Arkansas (Conway, Faulkner, Cleburne, White, Woodruff, St. Francis, Lee, and Phillips) and Coahoma County in Mississippi. The Greenville Lateral would cross five counties in Mississippi (Washington, Sunflower, Humphreys, Holmes, and Attala). The proposed compressor station and tie-in laterals also are located in Attala County. For the purposes of our socioeconomic analysis, we define these counties as the region of influence for the proposed Project.

### 4.9.2 Population

Table 4.9.2-1 provides a summary of the population characteristics for the counties that would be affected by the proposed Project.

**TABLE 4.9.2-1**

**Population Summary for Counties Crossed by the Proposed Project**

| County, State | 2000 Population a/ | 2000 Population Density (persons/square mile) b/ | 2006 Population Estimate c/ |
|---|---|---|---|
| **Fayetteville Lateral** | | | |
| Cleburne, AR | 24,046 | 43.5 | 25,485 |
| Conway, AR | 20,336 | 36.6 | 20,694 |
| Faulkner, AR | 86,014 | 132.9 | 100,685 |
| Lee, AR | 12,580 | 20.9 | 11,379 |
| Phillips, AR | 26,445 | 38.2 | 23,331 |
| St. Francis, AR | 29,329 | 46.3 | 27,535 |
| White, AR | 67,165 | 65.0 | 72,560 |
| Woodruff, AR | 8,741 | 14.9 | 7,905 |
| Coahoma, MS | 30,622 | 55.3 | 28,420 |
| **Fayetteville Lateral Total** | **305,278** | **50.4** | **317,994** |
| **Greenville Lateral** | | | |
| Attala, MS | 19,661 | 26.7 | 19,644 |
| Holmes, MS | 21,609 | 28.6 | 20,866 |
| Humphreys, MS | 11,206 | 48.5 | 10,393 |
| Sunflower, MS | 34,369 | 49.5 | 31,833 |
| Washington, MS | 62,977 | 87 | 58,007 |
| **Greenville Lateral Total** | **149,822** | **48.1** | **140,743** |

Sources:

a/ U.S. Census Bureau, 2000a.

b/ U.S. Census Bureau, 2000b.

c/ U.S. Census Bureau, 2007.

The counties along the proposed Fayetteville Lateral had a total estimated population of 317,994 for the year 2006 (U.S. Census Bureau, 2007). This represents an increase of 12,716, or 4.17 percent, since the year 2000. Faulkner County is the most densely populated county affected by the proposed Fayetteville Lateral, with a population density of nearly 133 people per square mile in the year 2000, more than double that of Arkansas as a whole (51.3 people per square mile). The city of Searcy in Faulkner County, and the city of Conway in White County are the largest population centers in the Fayetteville Lateral region of influence. However, the proposed Fayetteville Lateral route is located away from both the cities of Searcy and Conway. The other counties along the proposed Fayetteville Lateral are comprised of scattered small towns and agricultural communities.

The counties that would be crossed by the proposed Greenville Lateral had an estimated population of 140,743 in 2006 (U.S. Census Bureau, 2007). This represents a decrease of 9,079, or 6.06 percent, since the year 2000. Washington County is the most densely populated county crossed by the proposed Greenville Lateral, with a population density of 87 people per square mile in the year 2000, which is slightly greater than the state average of 60.6 people per square mile. The City of Greenville, in Washington County, is the largest population center in the Greenville Lateral region of influence.

The population within the region of influence would increase temporarily during construction, which would occur between June 2008 and January 2009. The peak construction workforce would be 1,800 workers, of which an estimated 90 (5 percent) would be hired locally. Construction of the pipeline and its associated facilities would be conducted simultaneously using several spreads and require varied labor skills. The Fayetteville Lateral would be constructed in four spreads, with a peak employment of 225 workers in each spread, and another spread involving 450 workers would construct the Mississippi River crossing; the Greenville Lateral would be constructed in two spreads, with a peak employment of 225 workers in each spread. These workers would be distributed along the length of the proposed Project route and throughout the region of influence, minimizing the potential population-level and demographic effects on any individual county. In addition, given the short duration estimated for construction of the pipeline facilities (June 2008 to January 2009), it is unlikely that workers would relocate to the Project area with their families. Based on the construction workforce data presented, the only population impact that would result from the Project would be a minor, temporary population increase confined to the period of construction.

Following construction of the Project, Texas Gas would add about four full-time positions to maintain and operate the new pipeline and aboveground facilities. These positions would be filled by hiring either current local residents or non-local personnel. This small increase in permanent residents would not have an adverse impact on the overall population of the area.

### 4.9.3 Employment and Economy

The civilian labor force within the 14-county region of influence of the Project totaled 194,990 persons for the years 2006/2007. Current economic and employment conditions in the counties along the Project are presented in table 4.9.3-1.

The major employment sectors along both routes include manufacturing, educational, health and social services. The average unemployment rate for the Fayetteville Lateral region of influence (10.7 percent) is almost double the 2006/2007 Arkansas average of 5.8 percent. The average unemployment rate along the Greenville Lateral (11.5 percent) is also higher than the Mississippi state average of 7.0 percent.

Texas Gas expects to use a predominately non-local workforce for construction of both laterals. Because of the specialized nature of gas pipeline construction, construction personnel would be hired by one or more gas pipeline contractors. Most of the personnel would be part of the contractors' regular crews and hired from outside the Project area. It is anticipated that only about 5 percent of the construction workforce would be hired from within the Project area, comprising about 471 worker-months. There may be increased local economic activity in the hospitality and transportation sectors due to construction activity. The relatively high unemployment rate in both Project areas suggests that any employment in these sectors could be accommodated from within the existing employed workforce. The local jobs and any indirect employment from the Project would represent a temporary and minimal increase in employment opportunities within the region of influence.

**TABLE 4.9.3-1**

**Economic and Employment Conditions**

| County, State | 2000 Per Capita Income (U.S. dollars) a/ | 2000 Civilian Labor Force (persons) b/ | 2006/2007 Civilian Labor Force (persons) c/ | 2000 Unemployment Rate (percent) d/ | 20006/2007 Unemployment Rate (percent) c/, e/ | 2000 Major Employment by Industry (percent) f/ |
|---|---|---|---|---|---|---|
| **Fayetteville Lateral** | | | | | | |
| Cleburne, AR | $17,250 | 10,237 | 11,375 | 4.9 | 6.1 | Manufacturing (22.3) |
| Conway, AR | $16,056 | 9,154 | 9,750 | 6.6 | 5.2 | Manufacturing (20.7) |
| Faulkner, AR | $17,988 | 45,556 | 52,075 | 6.7 | 4.6 | Educational, health and social services (22.6) |
| Lee, AR | $10,983 | 4,133 | 3,375 | 13.2 | 10.9 | Educational, health and social services (22.3) |
| Phillips, AR | $12,288 | 10,062 | 8,700 | 11.3 | 9.9 | Educational, health and social services (23.9) |
| St. Francis, AR | $12,483 | 11,201 | 10,625 | 11.3 | 9.6 | Educational, health and social services (18.4) |
| White, AR | $15,890 | 32,836 | 32,250 | 11.3 | 7.7 | Educational, health and social services (20.3) |
| Woodruff, AR | $13,269 | 3,775 | 3,450 | 8.0 | 13.2 | Educational, health and social services (18.9) |
| Coahoma, MS | $12,558 | 11,257 | 11,600 | 10.1 | 11.6 | Educational, health and social services (23.2) |
| **Fayetteville Lateral Total County** | **$11,342** | **138,211** | **143,200** | **12.81** | **10.71** | **N/A** |
| **Greenville Lateral** | | | | | | |
| Attala, MS | $13,782 | 13,782 | 7,230 | 7.0 | 8.6 | Manufacturing (21.2) |
| Holmes, MS | $10,683 | 7,599 | 7,080 | 17.3 | 12.8 | Manufacturing (24.6) |
| Humphreys, MS | $10,926 | 4,126 | 4,020 | 11.4 | 13.5 | Manufacturing (22.3) |
| Sunflower, MS | $11,365 | 11,899 | 11,070 | 12.8 | 12.4 | Educational, health and social services (21.7) |
| Washington, MS | $13,430 | 25,765 | 22,390 | 11.9 | 11 | Manufacturing (19.2) |
| **Greenville Lateral Total County** | **$12,419** | **63,171** | **51,790** | **12.2** | **11.5** | **N/A** |

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Sources:

a/ U.S. Census Bureau, 2000c.

b/ U.S. Census Bureau, 2000d.

c/ U.S. Census Bureau, 2000e.

d/ U.S. Department of Labor, n.d.

e/ ADWS, 2007.

f/ MDES, 2006.

During the operations phase, it is estimated that four permanent employees would be hired to maintain the pipeline right-of-way and the compressor and M&R stations. Two of these employees would be employed in Arkansas and two would be employed in Mississippi. These employees would be hired from either the existing local workforce or from outside the area. Because of the short duration of the construction period and the small staff hired to maintain the pipeline, no permanent decrease in the unemployment rate would be expected as a result of the Project.

Construction of the Project would increase economic activity within the region of influence through the sum of three effects: (1) the direct effect, i.e., the hiring of local construction workers and purchases of goods and services from local businesses; (2) the indirect effect, i.e., the additional demands for goods and services, such as replacing inventory from the firms that sell goods and services directly to the Project; and (3) the induced effect, i.e., the spending of disposable income by the construction workers at local businesses, which in turn order new inventory from their suppliers. The resulting total, temporary increase in economic activity resulting from the sum of these three effects would provide a positive economic impact for the region.

### 4.9.4 Local Taxes and Government Revenue

Tax revenues from several sources would accrue to state and local governments during construction and operation of the Project. During construction, tax revenue would accrue due to sales taxes on local purchases and, in the case of Mississippi, to a state contractor's tax. Once the Project is completed, property taxes would be assessed based on the value of the pipeline and related facilities.

#### 4.9.4.1 Sales and Use Taxes

Purchases of non-labor goods and services within the region during construction of the pipeline and related facilities would generate a significant amount of tax revenue in both Arkansas and Mississippi. The total amount of sales and use taxes generated during construction would depend on the specific types of non-labor goods purchased but would typically be associated with the purchase of vehicle and construction equipment, fuel, and other miscellaneous expenditures Texas Gas estimates that the Project would generate for state and local governments a total of $1,723,000 from local purchases: $912,000 in Arkansas and $811,000 in Mississippi. In addition, while not included in this total, non-local workers would be assumed to spend part of their payroll income for local temporary lodging and food, which would generate, by induced effect, additional local sales tax revenue.

#### 4.9.4.2 Special Contractor Tax

The State of Mississippi levies a 3.5 percent tax on the value of all major construction projects during the first year of construction. Based on the estimated $322 million cost of the proposed Greenville Lateral plus the cost of the portion of the proposed Fayetteville Lateral that would be located in Coahoma County, Mississippi, this tax would provide a payment of $12.2 million to the State of Mississippi.

#### 4.9.4.3 Property Tax Revenues

Construction and operation of the Project would generate additional revenues for the governmental entities with tax jurisdiction over the facilities associated with the Project (see table 4.9.4-1). Based on a total assessed value of $828,379,000 for both the Fayetteville and Greenville Laterals and their associated facilities, the Project would generate about $8,175,000 in property tax revenue per year. It is estimated that about $2,510,576 per year in Arkansas and $5,663,951 per year in Mississippi would be paid in property taxes to the counties located along the pipeline routes. This calculation assumes that the annual

**TABLE 4.9.4-1**

**Estimated Property Tax Revenues**

| County | Percentage of Route (percent) | Estimated Right-of-Way Value in County | Estimated M&R Value in County | Estimated Compressor Value in County | Total Value In County | Total Annual Property Tax Revenue |
|---|---|---|---|---|---|---|
| **Fayetteville Lateral** | | | | | | |
| Cleburne, AR | 1.4 | $6,706,000 | | -- | $6,706,000 | $ 35,046 |
| Conway, AR | 4.7 | $22,782,000 | $3,081,000 | -- | $25,863,000 | $ 135,160 |
| Faulkner, AR | 12.9 | $62,608,000 | $6,161,000 | -- | $68,769,000 | $ 359,387 |
| Lee, AR | 13.7 | $66,473,000 | | -- | $66,473,000 | $ 347,388 |
| Phillips, AR | 11.1 | $54,204,000 | | -- | $54,204,000 | $ 283,270 |
| St. Francis, AR | 5.2 | $25,096,000 | | -- | $25,096,000 | $ 131,152 |
| White, AR | 22.9 | $111,658,000 | $9,242,000 | -- | $120,900,000 | $ 631,823 |
| Woodruff, AR | 23.1 | $112,390,000 | | -- | $112,390,000 | $ 587,350 |
| Coahoma, MS | 5.1 | $24,715,000 | $1,027,000 | -- | $25,742,000 | $ 418,951 |
| **Fayetteville Lateral Total County** | **100.0** | **$486,631,600** | **$19,511,000** | **--** | **$506,143,000** | **$2,929,527** |
| **Greenville Lateral** | | | | | | |
| Attala, MS | 20.4 | $55,379,294 | $5,296,000 | $37,388,000 | $98,063,000 | $1,596,000 |
| Holmes, MS | 32.4 | $87,938,980 | | -- | $87,939,000 | $1,431,000 |
| Humphreys, MS | 26.4 | $71,798,281 | $ 2,648,000 | -- | $74,446,000 | $1,212,000 |
| Sunflower, MS | 2.9 | $7,792,061 | | -- | $7,792,000 | $ 127,000 |
| Washington, MS | 17.9 | $48,700,384 | $5,296,000 | | $53,996,000 | $ 879,000 |
| **Greenville Lateral Total County** | **100.0** | **$271,609,000** | **$13,239,110** | **$37,388,000** | **$322,236,000** | **$5,245,000** |
| **Arkansas Total** | **--** | **$461,916,600** | **$18,484,000** | **--** | **$480,401,000** | **$2,510,576** |
| **Mississippi Total** | **--** | **$296,324,000** | **$14,266,110** | **$37,388,000** | **$347,978,000** | **$5,663,951** |
| **Total** | | **$758,241,000** | **32,750,000** | **$37,388,000** | **$828,379,000** | **$8,175,000** |

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Source: Texas Gas, 2007.

tax revenues produced by the pipeline system would depend on the assessed value and the tax rates in the jurisdictions crossed by the pipelines.

#### 4.9.4.4 Impacts on Government Revenues

During construction of the Project, public services, including police services, emergency medical services, and permitting and inspections, would be required from local government entities. In addition, there may be incurred costs due to uncompensated damages to local and state roads and highways and energy costs associated with traffic delays due to construction activities. Given the length of the Project and the number of affected local governments, the incremental cost to provide these additional public service and transportation infrastructure requirements cannot be easily quantified. Local government revenues associated with construction and operation of the Project, including the direct, indirect, and induced economic impacts from workforce wages, sales, and use taxes; special contractor taxes; and property taxes would generate a projected $1.7 million in sales taxes, and $12.2 million from Mississippi's Special Contractor's Tax. In addition, it is estimated that the Project would generate about $8.1 million in property taxes per year for the municipalities located along the Project route. While a definite expense cannot be estimated for the costs incurred by local governments for providing the services needed to facilitate the Project, it is assumed that those costs are less than the revenues that would be generated by local governments as a result of the Project.

### 4.9.5 Housing

Table 4.9.5-1 presents housing statistics for the counties along the proposed Project route. There were 127,367 housing units in the Fayetteville Lateral area in 2000, of which almost 12 percent were vacant. There were 55,935 housing units in the Greenville Lateral area in 2000, of which almost 10 percent were vacant.

In addition table 4.9.5-2 describes the temporary housing conditions in the counties that would be crossed by the proposed Project. Based on the most current data, there are 44 hotel/motels within the nine counties along the proposed Fayetteville Lateral. The majority of these are in the larger cities and towns along the western portion of the Fayetteville Lateral (cities of Conway and Searcy). The rest are in Mariana, Forrest City, and West Helena along the eastern portion of the pipeline route. There are only a limited number of hotel/motel rooms available in Attala, Sunflower, and Washington Counties, Mississippi (12 hotels/motels) along the proposed Greenville Lateral. The cities of Winona and Greenwood (Carroll County), which are about 25 to 30 miles north of the Greenville Lateral, have 12 additional hotels/motels.

Construction and operation of the proposed Project would not be expected to have significant direct or indirect impacts on housing stocks. Housing impacts would vary from community to community, depending on the number of non-local workers that temporarily reside in each community, the duration of their stay, and the size of the community. Although these factors are too indeterminate and variable to accurately predict the magnitude of impact, the effects would be short term and, therefore, are not expected to be significant.

**TABLE 4.9.5-1**

**Existing Housing Conditions in Affected Counties (2000)**

| State, County | Total Housing Units a/ | Occupied Housing Units b/ | Vacant Housing Units c/ | Homeowner Vacancy Rate (percent) d,e,f/ |
|---|---|---|---|---|
| **Fayetteville Lateral** | | | | |
| Cleburne, AR | 13,732 | 10,190 | 3,542 | 3.1 |
| Conway, AR | 9,028 | 7,967 | 1,061 | 1.9 |
| Faulkner, AR | 34,546 | 31,882 | 2,664 | 2.6 |
| Lee, AR | 4,768 | 4,182 | 586 | 2.4 |
| Phillips, AR | 10,859 | 9,711 | 1,148 | 2.9 |
| St. Francis, AR | 11,242 | 10,043 | 1,199 | 2.1 |
| White, AR | 27,613 | 25,148 | 2,465 | 2.8 |
| Woodruff, AR | 4,089 | 3,531 | 558 | 2.1 |
| Coahoma, MS | 11,490 | 10,553 | 937 | 1.8 |
| **Fayetteville Lateral Total** | **127,367** | **113,207** | **14,160** | **2.4** |
| **Greenville Lateral** | | | | |
| Attala, MS | 8,639 | 7,567 | 1,072 | 1.7 |
| Holmes, MS | 8,439 | 7,314 | 1,125 | 1.5 |
| Humphreys, MS | 4,138 | 3,765 | 373 | 0.7 |
| Sunflower, MS | 10,338 | 9,637 | 701 | 1.6 |
| Washington, MS | 24,381 | 22,158 | 2,223 | 1.6 |
| **Greenville Lateral Total** | **55,935** | **50,441** | **5,494** | **1.4** |

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Sources:

a/ U.S. Census Bureau. 2000f.

b/ U.S. Census Bureau. 2000g.

c/ U.S. Census Bureau. 2000h.

d/ U.S. Census Bureau. 2000i.

e/ U.S. Census Bureau. 2000j.

f/ U.S. Census Bureau. n.d. (1)

**TABLE 4.9.5-2**

**Existing Temporary Housing Conditions in Affected Counties**

| State, County | Rental Vacancy Rate (percent) a,b,c/ | Hotel/Motels d,e/ | Vacant Housing Units for Rent f/ | Mobile Home Spaces g/ |
|---|---|---|---|---|
| **Fayetteville Expansion Lateral** | | | | |
| Cleburne, AR | 10.4 | 8 | 2,169 | 232 |
| Conway, AR | 10.0 | 3 | 1,544 | 1,757 |
| Faulkner, AR | 8.7 | 10 | 956 | 5,795 |
| Lee, AR | 11.1 | 3 | 190 | 698 |
| Phillips, AR | 10.5 | 9 | 498 | 1,049 |
| St. Francis, AR | 11.2 | 8 | 464 | 1,733 |
| White, AR | 9.7 | 8 | 731 | 5,405 |
| Woodruff, AR | 7.4 | 1 | 98 | 500 |
| Coahoma, MS | 4.9 | 2 | 231 | 996 |
| **Fayetteville Lateral Total** | **9.9** | **44** | **6,150** | **12,760** |
| **Greenville Lateral** | | | | |
| Attala, MS | 6.6 | 3 | 120 | 1,698 |
| Holmes, MS | 3.5 | NA | 71 | 2,265 |
| Humphreys, MS | 6 | NA | 92 | 514 |
| Sunflower | 5.2 | 4 | 203 | 751 |
| Washington, MS | 8.1 | 5 | 794 | 2,102 |
| Arkansas | 9.6 | NA | 33,740 | 174,831 |
| Mississippi | 9.2 | NA | 29,486 | 192,749 |
| **Greenville Lateral Total** | **6.8** | **12** | **1,280** | **7,330** |

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Sources:

a/ U.S. Census Bureau, 2000k.

b/ U.S. Census Bureau, 2000l.

c/ U.S. Census Bureau, n.d. (2)

d/ Hotels Travel, 2007.

e/ Google Maps, 2007.

f/ U.S. Census Bureau. 2000m.

g/ U.S. Census Bureau. 2000n.

Because the workforce for the Project would be largely comprised of non-local contract workers and the work would be completed in less than a year, worker housing would likely consist of existing temporary housing facilities. With most workers likely returning to their out-of-area homes on weekends and holidays, the housing demand would likely focus on motels. Some contract construction workers use travel trailers and thus would require camp sites or trailer park spaces. Workers who would be employed for several months might use rental housing, but given the fairly short duration of construction, this would involve a limited number of units.

No other known major construction projects or major tourist events that might compete for temporary housing units would occur within the Project area during the anticipated July 2008 to March 2009 construction period. At present, it is reasonable to assume that the housing facilities available near the Project would be able to accommodate the expected workforce. No long-term impacts on local housing would be anticipated once the Project is completed and operational.

### 4.9.6 Public Services

The Project areas of both the Fayetteville and Greenville laterals have well-developed infrastructures capable of providing health, schooling, police, fire, and emergency services. Table 4.9.6-1 identifies the number of full-time police, fire, and medical departments or facilities in each of the Project areas. Since the Project would not result in an increase in local populations or any subsequent growth in school-aged populations, educational services have not been included in the examination of public services.

**TABLE 4.9.6-1**

**Existing Public Services and Facilities in Affected Counties**

| State/County | Police/Sheriff Departments a/ | Fire Departments a/ | Medical Facilities a, b, c/ |
|---|---|---|---|
| **Fayetteville Expansion Lateral** | | | |
| Cleburne, AR | 3 | 7 | 1 |
| Conway, AR | 2 | 9 | 1 |
| Faulkner, AR | 4 | 14 | 2 |
| Lee, AR | 2 | 3 | 0 |
| Phillips, AR | 5 | 8 | 2 |
| St. Francis, AR | 3 | 4 | 1 |
| White, AR | 7 | 19 | 2 |
| Woodruff, AR | 4 | 3 | 0 |
| Coahoma, MS | 4 | 2 | 2 |
| **Fayetteville Lateral Total** | **34** | **69** | **11** |
| **Greenville Expansion Lateral** | | | |
| Attala, MS | 3 | 3 | 1 |
| Holmes, MS | 8 | 0 | 1 |
| Humphreys, MS | 4 | 1 | 1 |
| Sunflower, MS | 8 | 2 | 2 |
| Washington ,MS | 6 | 5 | 2 |
| **Greenville Lateral Total** | **29** | **11** | **7** |

Source:

a/ Capitol Impact, 2007.

b/ Mississippi Hospital Association, 2007.

c/ Arkansas Hospital Association, 2007.

Minor temporary impacts on public services and facilities would likely occur during construction, but not during operation, of the proposed Project. The majority of the Project area is lightly populated and relies on nearby population centers for public services and infrastructure. However, the entire area is covered by emergency "911" service. The cities of Clarksdale, Helena, Forrest City, Searcy, Heber Springs, Conway, Greenville, Winona, Greenwood, Yazoo City, and Louisville are all within about 20 to 30 miles of the proposed Project area and have a wide array of public services and infrastructure. Texas Gas would work directly with local law enforcement, fire departments, and emergency medical services to coordinate effective emergency response. Further, under 49 CFR 192.615, Texas Gas would be required to establish an Emergency Response Plan that includes procedures to minimize the hazards in a natural gas pipeline emergency.

Because the non-local workforce would be small relative to the current population of the area, construction of the Project would result in only minor temporary, or no impact to local community facilities and services such as police, fire, medical, and waste disposal services. Local communities have adequate infrastructure and community services to meet the needs of the small increase of non-local workers that would be required for the Project. Other construction-related demands on local agencies could include increased enforcement activities associated with issuing permits for vehicle load and width limits, local police assistance during construction to facilitate traffic flow, and emergency medical services to treat injuries resulting from construction accidents.

We conclude that construction and operation of the proposed Project would not result in significant impacts on local public services in the Project area.

### 4.9.7 Transportation/Traffic Impacts

Short-term impacts on roads, highways, and railroads are anticipated during construction, but not operation, of the proposed Project. Most roads and railroads would be crossed by boring beneath them. Boring typically requires additional temporary workspace areas on both sides of the crossing for excavating bore pits while the road or railroad remains in operation. Therefore, little or no disruption of traffic would be expected at road or railroad crossings that are crossed using boring methods.

Smaller or unpaved rural roads may be open-cut where permitted by local authorities or landowners. The open-cut crossing method might require temporary closure of a road and establishment of detours. If no reasonable detour is feasible, at least one lane of a road would be kept open to traffic, except for brief periods when it is essential to close the road to install the pipe. Texas Gas would avoid road closings during peak traffic hours. Open-cut crossings of roads would typically be completed in 1 to 2 days.

To maintain safe conditions, Texas Gas would direct its construction contractors to comply with vehicle weight and width restrictions and to remove soil that is left on road surfaces by the crossing of construction equipment. In addition, when it is necessary for equipment to move across paved roads, mats or other appropriate measures would be used to prevent damage to the road surface. Contractors would employ flagmen at high-traffic roadway crossings. At all road crossings, appropriate construction notification signage would be displayed. In limited instances, detours or obstructions in traffic flow due to the presence of large vehicles or construction of pipeline road crossings may require short-term assistance from local police. Significant project-related demands on local police workloads would not be expected.

The movement of construction equipment and materials from contractor and pipe storage yards to the construction work area would result in an additional short-term impact on the transportation network. Several construction-related trips would be made each day (to and from the job site) on each spread. This level of traffic would remain fairly constant throughout the construction period, and would typically occur at early morning and evening hours.

Road congestion caused by construction workers commuting to the job site could be significant during the peak months of Project construction. This could result in significant congestion if each of the several hundred workers used a personal vehicle to travel to the work site and if most of this travel took place during peak traffic hours. However, pipeline construction work would be scheduled to take advantage of daylight hours; therefore, most workers would commute to and from the sites during off-peak hours. This impact also could be limited because temporary workers would be concentrated in the relatively few nearby population centers offering temporary lodgings. Construction workers often carpool from these centers to the job site, greatly reducing the peak traffic impacts. Furthermore, workers would be distributed along the length of the construction spread, which would tend to reduce the impact on traffic at any one location. Therefore, the Project should not add significantly to road congestion.

Minimal traffic would be associated with operation and maintenance of the right-of-way, compressor station, and auxiliary facilities associated with the Fayetteville and Greenville laterals, since only a limited number of permanent workers would be employed during the operational phase. Therefore, the Project would not have any measurable impacts on road congestion during operation.

### 4.9.8 Property Values

Individuals frequently comment about project impacts on property values. These concerns generally center on four topics: devaluation of property if encumbered with a pipeline easement; identification of the party responsible for property taxes within a pipeline easement; Project effects on landowner insurance premiums; and the potential for reduced property values associated with lost timber and agricultural production.

The impact that a project may have on the value of any land parcel depends on many factors, including the size of the parcel, the parcel's current value and land use, and the value of other nearby properties. Subjective valuation is generally not considered in appraisals, but this is not to say that the Project would not affect resale values. Potential purchasers may make a decision based on landowner insurance premiums; and the potential for reduced property values associated with lost timber and agricultural production.

Landowners are responsible for all property taxes levied against parcels and this responsibility would be independent of the existence of any Project-related pipeline easement. However, if a landowner felt that the proposed Project, should it be constructed, reduced the value of their property, he or she would appeal the assessment and subsequent property taxation to the local property taxation agency. If the parcel were reappraised, the landowner would then be responsible for property taxes based upon an appraisal that directly incorporated the easement.

As described in section 4.8, construction and operation of the proposed Project would result in a temporary loss of timber and agricultural productivity and a permanent conversion of some lands used for forestry operations to maintained right-of-way. Texas Gas would compensate landowners at fair market value for any adverse impacts on property values resulting from the Project, and during easement negotiations, compensation for any loss of current or future agricultural and timber production would be considered.

## 4.10 CULTURAL RESOURCES

Section 106 of the NHPA, as amended, requires the FERC to take into account the effect of its undertakings (including the issuance of certificates) on properties listed, or eligible for listing, in the NRHP and to afford the ACHP an opportunity to comment on the undertaking. Texas Gas, as a non-federal party, is assisting the FERC in meeting its obligations under Section 106 and the implementing regulations in 36 CFR 800 by preparing the necessary information, analyses, and recommendations.

Construction and operation of the proposed Project could potentially affect historic properties (i.e., cultural resources listed, or eligible for listing, in the NRHP). These historic properties could include prehistoric or historic archaeological sites, districts, building, structures, and objects, as well as locations with traditional value to Native Americans or other groups. Such historic properties generally must possess integrity of location, design, setting, materials, workmanship, feeling, and association, and must meet one or more of the criteria specified in Title 36 CFR 60.4.

### 4.10.1 Cultural Resource Surveys

Texas Gas performed Phase I cultural resource investigations for the Fayetteville and Greenville Laterals. For archaeological resources, a 300-foot-wide corridor was surveyed for the pipelines. In addition, compressor stations, access roads, temporary workspaces, and pipe storage and contractor yards were surveyed. For architectural resources, areas adjacent to and within the line-of-sight of the 300-foot-wide corridor for the pipelines and the construction/operation footprints for related facilities were surveyed. Two pipe storage yards remain to be surveyed for the Fayetteville Lateral in Arkansas. The Phase I cultural resources investigations also included geomorphologic surveys. The reports for these surveys were provided to the FERC and the Arkansas and Mississippi State Historic Preservation Offices (SHPOs). Texas Gas also prepared an HDD Contingency Plan for Cultural Resources for sites that would be avoided by the HDD method.

In Arkansas, 185 cultural resources were identified along the Fayetteville Lateral, including 110 archaeological sites and 75 historic architectural resources (including one cemetery—historic architectural resource 38) (Haag and Bergman 2007). Of these, 38 were recommended as potentially eligible for the NRHP (36 archaeological sites and historic architectural resources 46 and 71), and 147 were recommended as not eligible for the NRHP (74 archaeological sites and 73 historic architectural resources). Of the 38 potentially NRHP-eligible cultural resources, 37 would be avoided by realignments, deviations, or through the use of HDD crossing methods; seven of these 37 cultural resources would be further protected by placing site boundaries on construction mapping, placing orange protective fencing around site boundaries, and monitoring by an Environmental Inspector during work activities. In addition, the cemetery would be avoided by a realignment and is currently approximately 1,300 feet from the proposed pipeline centerline. One archaeological site, Site 20E-1, cannot be avoided, and Phase II NRHP-eligibility testing was recommended for this site. Texas Gas is currently conducting Phase II testing at Site 20E-1. Once testing is completed, Texas Gas would file a report with the Arkansas SHPO and the FERC.

Although no buried cultural resources were identified during the geomorphologic survey of the Fayetteville Lateral corridor, a total of 87 areas with the potential to contain buried cultural resources were identified; 46 of these are located along the proposed pipeline alignment. Texas Gas would conduct archaeological monitoring during work activities in these sensitive areas.

In a letter dated August 21, 2007, the Arkansas SHPO commented on the Phase I survey report for the Arkansas portion of the Fayetteville Lateral. The SHPO requested additional information and revisions to the report and agreed with the recommendations that architectural resources 46 and 71 were eligible for inclusion in the NRHP; however, the SHPO also indicated that architectural resources 38 (the above-mentioned cemetery) and 39 were eligible for inclusion in the NRHP. The SHPO recommended that these four architectural resources be avoided and protected during Project implementation. Texas Gas has not yet provided a revised report or addressed the SHPO's comments regarding avoidance and protection of the four historic architectural resources.

In Mississippi, 201 cultural resources were identified along the Fayetteville and Greenville Laterals, including 180 archaeological resources and 21 historic architectural resources (Goodwin and Bergman, 2007). On the Fayetteville Lateral, 20 archaeological resources and three historic architectural resources were identified, with two of the archaeological resources recommended as potentially NRHP-eligible. On the Greenville Lateral, of 178 cultural resources, 21 were listed, eligible for listing, or recommended as potentially eligible for the NRHP (16 archaeological sites, one cemetery [22Ho1188], and four historic architectural resources, including the Natchez Trace, a potentially NRHP-eligible historic property administered by the NPS that is in the process of being nominated to the NRHP); one was undetermined (22Ho1189, a historic cemetery); and 156 were recommended as not eligible for the NRHP (144 archaeological sites and 12 historic architectural resources, including two cemeteries). All of the 23 NRHP-listed, -eligible, or potentially eligible cultural resources (including the Natchez Trace and 22Ho1188) and the one undetermined cemetery would be avoided by realignments, deviations, or the use of HDD crossing methods; seven of these 24 cultural resources would be further protected by placing site boundaries on construction mapping, placing orange protective fencing around site boundaries, and monitoring by an Environmental Inspector during work activities. In addition, the two cemeteries recommended as not eligible for the NRHP would be avoided. The NPS has reviewed the Phase I survey report and found it meets their requirements, and it has approved the HDD crossing of the Natchez Trace Parkway historic property. We are currently awaiting the SHPO's comments on the Phase I survey report.

Although no buried cultural resources were identified during the geomorphologic survey of the Greenville Lateral corridor, a total of 115 areas with the potential to contain buried cultural resources were identified; 72 of these are located along the proposed pipeline alignment. Texas Gas would conduct archaeological monitoring during work activities in these sensitive areas.

Texas Gas consulted the Mississippi SHPO regarding the work at the existing Greenville Compressor Station. Texas Gas has not yet provided the SHPO's comments.

### 4.10.2 Unanticipated Discoveries Plan

Texas Gas prepared a Plan for the Unanticipated Discovery of Historic Properties and Human Remains during construction. We requested revisions to the plan, and Texas Gas has provided a revised plan.

### 4.10.3 Native American Consultation

Texas Gas contacted the Alabama-Quassarte Tribal Town (Creek Nation of Indians), the Absentee Shawnee Tribe, the Caddo Nation, the Cherokee Nation of Oklahoma, the Choctaw Nation of Oklahoma, the Delaware Nation, the Eastern Shawnee Tribe of Oklahoma, the Kialegee Tribal Town, the Mississippi Band of Choctaw Indians, and the Muscogee (Creek) Nation of Oklahoma (letters dated November 10, 2006) to request their consultation on the proposed undertaking and to elicit any concerns about the proposed Project in Arkansas. Follow-up contact with each tribe was conducted on April 30, 2007. The following responses have been received to date: the Alabama-Quassarte Tribal Town (Creek Nation of Indians) indicated that they will not be providing comments on the Project; the Absentee Shawnee Tribe of Oklahoma indicated that they will not be providing comments on the Project as it is not located in counties of interest to the Absentee Shawnee Tribe; the Cherokee Nation of Oklahoma requested a copy of the notification of the Project with a list of Arkansas Project area counties (they have no interest in the Mississippi portion of the Project); the Choctaw Nation of Oklahoma requested a copy of the notification of the Project, indicated they have an interest in projects in Arkansas and Mississippi, and requested a copy of the Phase I cultural resource investigation report when it is completed; the Delaware Nation is researching their files for the notification of the Project; the Eastern Shawnee Tribe of Oklahoma indicated they would be providing a response; and the Kialegee Tribal Town indicated that they received notification of the Project, although they did not provide a response.

Texas Gas also contacted the Mississippi Band of Choctaw Indians, the Jena Band of Choctaw Indians, the Quapaw Tribe of Oklahoma, the Tunica-Biloxi Tribe of Louisiana, the Chickasaw Nation, the Seminole Nation of Oklahoma, the Shawnee Tribe of Oklahoma, the Thlopthlocco Tribal Town, the United Keetoowah Band of Cherokee Indians in Oklahoma, and the Wichita and Affiliated Tribes (letters dated November 10, 2006) to request their consultation on the proposed undertaking and to elicit any concerns about the proposed Project in Mississippi. Follow-up contact with each tribe was conducted on April 30, 2007. The following responses have been received to date: the Chickasaw Nation requested an additional copy of the notification; the Jena Band of the Choctaw Indians requested a copy of the notification of the Project; the Shawnee Tribe of Oklahoma requested a copy of the notification of the Project, provided tribal consultation procedures, and requested a copy of the SHPO review letter for both the Fayetteville and Greenville Laterals, the cultural resources investigation report, and a fee to cover the consultation process; the Thlopthlocco Tribal Town requested a copy of the notification of the Project; the United Keetoowah Band of Cherokee Indians in Oklahoma provided “no interest” and “no objection” responses, but also requested to be contacted if any remains, artifacts, or other items are inadvertently discovered; and the Wichita and Affiliated Tribes indicated no interest in the Project occurring in Arkansas and Mississippi.

### 4.10.4 Compliance with the NHPA

The Arkansas SHPO has requested additional information and revisions to the Phase I survey report for Arkansas; the Mississippi SHPO has not yet commented on the Phase I survey report or the Greenville Compressor Station in Mississippi. In addition, two pipe storage yards in Arkansas remain to be surveyed. Consequently, we have not completed the process of complying with Section 106 of the NHPA. When additional information is provided and the surveys are completed, the FERC, in consultation with the Arkansas and Mississippi SHPOs, the NPS (for the Natchez Trace Parkway historic property), and other consulting parties, as appropriate, will determine whether construction of the proposed Project would affect any properties listed, or eligible for listing, in the NRHP. If a property would be adversely affected, mitigation would be proposed.

To ensure that the FERC’s responsibilities under the NHPA and its implementing regulations are met, **we recommend that:**

- **Texas Gas defer construction_of the pipelines, compressor stations, meter stations, and use of all staging, storage, and temporary work areas and new or to-be-improved access roads until:**

  a. **Texas Gas addresses the Arkansas SHPO’s comments on the Arkansas Phase I survey report, including addressing the SHPO’s comments regarding avoidance and protection of historic architectural resources 38, 39, 46 and 71, and files a revised Phase I report and the Arkansas SHPO’s comments on the report;**
  b. **Texas Gas files a Phase II NRHP-eligibility testing report for Site 20E-1 in Arkansas and the SHPO’s comments on the report;**

c. **Texas Gas files the Mississippi SHPO's comments on the Mississippi Phase I survey report;**
d. **Texas Gas files the Mississippi SHPO's comments on the existing Greenville Compressor Station;**
e. **Texas Gas files a Phase I survey report for the two pipe storage yards on the Fayetteville Lateral in Arkansas, any newly identified areas requiring survey, and the SHPOs' comments on the report(s);**
f. **Texas Gas provides interested Native American tribes with any requested information;**
g. **the ACHP is afforded an opportunity to comment if historic properties would be adversely affected;**
h. **Texas Gas files any required treatment/mitigation plans and the SHPO's and NPS', as appropriate, comments on the plans; and**
i. **the Director of OEP reviews and approves all reports and plans and notifies Texas Gas in writing that it may proceed with treatment/mitigation or construction.**

**All material 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: "CONTAINS PRIVILEGED INFORMATION—DO NOT RELEASE."**

## 4.11 AIR QUALITY AND NOISE

### 4.11.1 Air Quality

Air quality would be affected by construction and operation of the proposed Project. Though air emissions would be generated by operation of equipment during construction of the pipeline and aboveground facilities proposed by Texas Gas, most air emissions associated with the proposed Project would result from the long-term operation of the proposed compressor station.

Texas Gas proposes to construct the Kosciusko Compressor Station in Attala County, Mississippi. At the station, Texas Gas would install two Caterpillar G3612 natural-gas-fired reciprocating engines, each rated at 3,550 brake horsepower (bhp), two Caterpillar G3606 natural-gas-fired reciprocating engines, each rated at 1,775 bhp, one 500 bhp emergency generator, one fuel gas heater, and five storage tanks.

#### 4.11.1.1 Existing Air Quality

The proposed Project would be constructed in portions of Conway, Faulkner, Cleburne, White, Woodruff, St. Francis, Lee, and Phillips Counties, Arkansas, and Coahoma, Greenville, Washington, Sunflower, Humphreys, Holmes, and Attala Counties, Mississippi. These counties are characterized by temperate and subtropical climates, with hot and humid summers. The area typically receives ample precipitation throughout the year, with an average annual precipitation of 55.95 inches. The Project area has average annual temperatures of 60 to 54 degrees Fahrenheit.

Mississippi is frequently subjected to severe weather, and tropical cyclones (hurricanes) are not unusual for the Project area. According to the National Oceanographic and Atmospheric Administration (NOAA) Storm Events Database, numerous tornados, hurricanes, and tropical storms have occurred in the Project area.

The Clean Air Act (CAA) designates six pollutants as criteria pollutants for which the National Ambient Air Quality Standards (NAAQS) are promulgated. The NAAQS for sulfur dioxide ($SO_2$), nitrogen dioxide ($NO_2$), particulate matter (PM) with an aerodynamic diameter less than 10 microns ($PM_{10}$) or with an aerodynamic diameter less than 2.5 microns ($PM_{2.5}$), carbon monoxide (CO), ozone ($O_3$), and lead (Pb) were set to protect human health (primary standards) and human welfare (secondary standards). State air quality standards cannot be less stringent than the NAAQS. The NAAQS are codified in 40 CFR Part 50 and are summarized in table 4.11.1-1.

**TABLE 4.11.1-1**

**National Ambient Air Quality Standards**

| Pollutant | Averaging Period | Primary NAAQS µg/m$^3$ (ppm) | Secondary NAAQS µg/m$^3$ (ppm) |
|---|---|---|---|
| $NO_2$ | Annual a/ | 100 (0.053) | 100 (0.053) |
| $SO_2$ | Annual a/ | 80 (0.03) | None |
| | 24-hour b/ | 365 (0.14) | None |
| | 3-hour b/ | None | 1,300 (0.5) |
| $PM_{10}$ | 24-hour c/ | 150 | None |
| $PM_{2.5}$ | Annual d/ | 15 | 15 |
| | 24-hour e/ | 35 | 35 |
| CO | 8-hour b/ | 10,000 (9) | 10,000 (9) |
| | 1-hour b/ | 40,000 (35) | 40,000 (35) |
| $O_3$ | 8-hour f/ | 157 (0.8) | 157 (0.8) |
| Pb | Quarterly a/ | 1.5 | 1.5 |

a/ Not to be exceeded.

b/ Not to be exceeded more than once per year.

c/ Not to be exceeded more than once per year on average over 3 years.

d/ To attain this standard, the 3-year average of the weighted annual mean $PM_{2.5}$ concentrations from single or multiple community-oriented monitors must not exceed 15.0 µg/m$^3$.

e/ To attain this standard, the 3-year average of the 98$^{th}$ percentile of 24-hour concentrations at each population-oriented monitor within an area must not exceed 35 µg/m$^3$ (effective December 17, 2006).

f/ To attain this standard, the 3-year average of the fourth-highest daily maximum 8-hour average ozone concentrations measured at each monitor within an area over each year must not exceed 0.08 ppm.

The NAAQS are used in conjunction with ambient monitoring data to determine whether air quality is better than the standards, known as attainment, or worse than the standards, known as nonattainment. Nonattainment areas are required to prepare air quality plans that include strategies for achieving attainment. The control strategy may include stationary source measures, mobile source measures, and transportation control measures. Newly constructed sources of air pollutant emissions may be required to install expensive air pollution controls.

*Air Quality Control Regions and Attainment Status*

Air quality control regions (AQCRs) are areas established for air quality planning purposes in which implementation plans describe how ambient air quality standards will be achieved and maintained. AQCRs were established by the EPA and local agencies, in accordance with Section 107 of the CAA, as a means to implement the CAA and comply with the NAAQS through State Implementation Plans. The AQCRs are intra- and interstate regions such as large metropolitan areas where improvement of the air quality in one portion of the AQCR requires emission reductions throughout the AQCR. Each AQCR, or a portion thereof, is designated based on compliance with the NAAQS. AQCR designations fall under three categories as follows: "attainment" (areas in compliance with the NAAQS); "nonattainment" (areas not in compliance with the NAAQS); or "unclassified", which refers to areas with insufficient data to make a determination. The counties in which the proposed Project would be located are designated as "attainment" or "unclassified" for all criteria pollutants.

*Air Quality Monitoring*

The EPA and state and local agencies have established a network of ambient air quality monitoring stations to measure and track the background concentrations of the criteria pollutants across the United States. To characterize the background air quality in the regions surrounding the proposed compressor station, data from a number of existing representative air quality monitoring stations were obtained. These monitoring stations are located near the proposed compressor station site and provide information on regional ambient air quality conditions. For some criteria pollutants, ambient air quality monitoring data in the vicinity of the proposed compressor stations were not available; therefore, the best available data were used to represent the air quality at those stations. A summary of the regional background air quality concentrations for the compressor station is presented in table 4.11.1-2.

#### 4.11.1.2 Regulatory Requirements

*Federal Regulations*

The CAA, 42 USC 7401 et seq., amended in 1977 and 1990 and codified at 40 CFR Parts 50-99, are the basic federal statutes and regulations governing air pollution. The provisions of the CAA that are potentially relevant to the proposed Project include the following:

- New Source Review (NSR)/Prevention of Significant Deterioration (PSD),
- New Source Performance Standards (NSPS),
- National Emission Standards for Hazardous Air Pollutants (NESHAP),
- Title V operating permits, and
- General Conformity.

New Source Review/Prevention of Significant Deterioration

NSR refers to the preconstruction permitting programs under Parts C and D of the CAA that must be satisfied before construction can begin on new major sources or major modifications are made to existing major sources located in attainment or unclassified areas. This review may include a PSD review. This review process is intended to keep new air emission sources from causing existing air quality to deteriorate beyond acceptable levels codified in the federal regulations. For sources located in nonattainment areas, the Nonattainment New Source Review (NNSR) program is implemented for the pollutants for which the area is classified as nonattainment. The proposed Project would be located in attainment areas. Consequently, NNSR is not applicable to the proposed Project.

**TABLE 4.11.1-2**

**Existing Ambient Air Quality Data**

| Pollutant | Monitoring Site | Site ID | Year | Averaging Period | Concentration $\mu g/m^3$ (ppm) |
|---|---|---|---|---|---|
| $PM_{2.5}$ | Jackson, MS | 280490010 | 2004 | 24-hour | 31 |
| | | | | Annual | 12.2 |
| | | | 2005 | 24-hour | 48 |
| | | | | Annual | 13.1 |
| | | | 2006 | 24-hour | 29 |
| | | | | Annual | 12.1 |
| $PM_{10}$ | Tupelo, MS | 280810005 | 2004 | 24-hour | 32 |
| | | | | Annual | 18 |
| | Pascagoula, MS | 280590006 | 2005 | 24-hour | 31 |
| | | | | Annual | 18 |
| | | | 2006 | 24-hour | 70 |
| | | | | Annual | 23 |
| SO2 | Jackson, MS | 280490018 | 2004 | 3-hour | (0.028) |
| | | | | 24-hour | (0.006) |
| | | | | Annual | (0.001) |
| | | | 2005 | 3-hour | (0.016) |
| | | | | 24-hour | (0.006) |
| | | | | Annual | (0.001) |
| | Pascagoula, MS | 280590006 | 2006 | 3-hour | (0.037) |
| | | | | 24-hour | (0.012) |
| | | | | Annual | (0.002) |
| O3 | Jackson, MS | 280490010 | 2004 | 1-hour | (0.081) |
| | | | | 8-hour | (0.072) |
| | | | 2005 | 1-hour | (0.088) |
| | | | | 8-hour | (0.079) |
| | | | 2006 | 1-hour | (0.097) |
| | | | | 8-hour | (0.085) |
| NO2 | 480 Mill Pond Road near Slayden, MS | 280930001 | 2004 | Annual | (0.002) |
| | | | 2005 | Annual | (0.004) |
| | Pascagoula, MS | 280590006 | 2006 | Annual | (0.007) |
| CO | Jackson, MS | 280490018 | 2004 | 1-hour | (4.6) |
| | | | | 8-hour | (3.0) |
| | | | 2005 | 1-hour | (3.6) |
| | | | | 8-hour | (3.3) |
| | Little Rock, AR | | 2006 | 1-hour | (3.1) |
| | | | | 8-hour | (2.6) |

The PSD regulations apply to proposed new major sources or major modifications to existing major sources located in an attainment area. The PSD regulations (40 CFR 52.21) define a "major source" as any source type belonging to a list of named source categories that emit or have the potential to emit (PTE) 100 tons per year (tpy) or more of any regulated criteria pollutant. A major source under PSD also can be defined as any source not on the list of named source categories with the potential to emit criteria pollutants in amounts equal to or greater than 250 tpy. Modifications to existing major sources have lower emission thresholds, called "significant emission increases;" amounts over these thresholds trigger PSD review. The proposed Project would not include facilities or operations included on the list of named source categories to which the 100-tpy trigger applies. In addition, the proposed Project would not include any existing major sources under the PSD program; therefore, the proposed new Kosciusko Compressor Station is subject to the 250-tpy threshold.

The PSD review evaluates existing ambient air quality and the potential impacts of the proposed source on ambient air quality (noting in particular whether the source would contribute to any violation of the NAAQS) and reviews the best available control technology (BACT) in order to minimize emissions. The PSD regulations contain restrictions on the degree of ambient air quality deterioration that would be allowed. These increments for criteria pollutants are based on the PSD review classification of the area.

The new Kosciusko Compressor Station would not exceed emissions of 250 tpy of any criteria pollutant (see table 4.11.1-3). Therefore, PSD permitting is not applicable to the proposed Project.

*Air Quality Control Regions and PSD*

AQCRs are categorized as Class I, Class II, or Class III. Class I areas are designated specifically as pristine natural areas or areas of natural significance and have the lowest increment of permissible deterioration, which essentially precludes development near these areas. Class III designations, intended for heavily industrialized zones, can be made only on request and must meet all requirements outlined in 40 CFR 51.166. The remainder of the United States is classified as Class II. Class II areas are designed to allow moderate, controlled growth. The proposed Project would be located in a Class II area. No Class I areas are located within 62 miles of the proposed compressor station location.

New Source Performance Standards

The NSPS, codified in 40 CFR 60, establish requirements for new, modified, or reconstructed units in specific source categories. NSPS requirements include emission limits, monitoring, reporting, and record keeping. The following NSPS requirements were identified as potentially applicable to the specified sources at the compressor station.

Subpart Kb of 40 CFR 60, Standards of Performance for Volatile Organic Liquid Storage Vessels, lists affected emission sources as storage vessels containing volatile organic liquids. Regulatory applicability is dependent on the construction date, size, and vapor pressure of the storage vessel and its contents. Subpart Kb applies to new tanks, unless otherwise exempted, that have a storage capacity between 75 cubic meters ($m^{3)}$ (19,813 gallons) and 151 $m^3$ (39,890 gallons) and contain volatile organic compounds (VOCs) with a maximum true vapor pressure greater than or equal to 15.0 kilopascals (kPa). Subpart Kb also applies to tanks that have a storage capacity greater than or equal to 151 $m^3$ and contain VOCs with a maximum true vapor pressure greater than or equal to 3.5 kPa. The proposed compressor station would be equipped with tanks with capacities of 4,200 gallons or less, which is below the regulated capacity. Therefore, the proposed Project would not be subject to NSPS Subpart Kb standards.

**TABLE 4.11.1-3**

**Compressor Station Operation Emission Source Information**

| Emission Unit | Rating | Units | Operating Hours | Annual Potential Emissions (tpy) | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | | $NO_X$ | CO | VOCs | $SO_2$ | $PM_{10}$ /$PM_{2.5}$ | Formaldehyde | Total HAPs |
| Engine No. 1 G3606 | 1,775 | bhp | 8,760 | 12.00 | 2.57 | 1.85 | 0.031 | 0.53 | 0.69 | 1.68 |
| Engine No. 2 G3606 | 1,775 | bhp | 8,760 | 12.00 | 2.57 | 1.85 | 0.031 | 0.53 | 0.69 | 1.68 |
| Engine No. 3 G3612 | 3,550 | bhp | 8,760 | 24.00 | 5.14 | 3.70 | 0.062 | 1.05 | 1.37 | 3.36 |
| Engine No. 4 G3612 | 3,550 | bhp | 8,760 | 24.00 | 5.14 | 3.70 | 0.062 | 1.05 | 1.37 | 3.36 |
| Emergency Generator | 500 | bhp | 500 | 0.55 | 0.47 | 0.12 | 5.9E-04 | 0.01 | 0.053 | 0.072 |
| Fuel Gas Heater | 1 | MMBtu/hr | 8,760 | 0.43 | 0.36 | 0.024 | 0.003 | 0.033 | 3.2E-04 | 3.5-E-04 |
| Tank TK01 | 4,200 | gallons | 8,760 | — | — | 0.013 | — | — | — | — |
| Tank TK02 | 4,200 | gallons | 8,760 | — | — | 3.9E-10 | — | — | — | — |
| Tank TK03 | 2,100 | gallons | 8,760 | — | — | 1.3E-10 | — | — | — | — |
| Tank TK04 | 2,100 | gallons | 8,760 | — | — | 1.3E-09 | — | — | — | — |
| Tank TK05 | 4,200 | gallons | 8,760 | — | — | 3.9E-10 | — | — | — | — |
| **Total** | | | | **72.98** | **16.25** | **11.26** | **0.19** | **3.20** | **4.17** | **10.15** |

On June 12, 2006, the EPA proposed a new NSPS (40 CFR 60 Subpart JJJJ) for stationary spark ignition (SI) internal combustion engines. The proposed compressor stations contain natural-gas-fired compressor engines and/or emergency generators that may be potentially subject to 40 CFR 60 Subpart JJJJ. The proposed standard for stationary SI engines applies to all new, modified, and reconstructed stationary SI engines regardless of size. The pollutants to be regulated by the proposed NSPS for stationary SI engines are $NO_X$, CO, and non-methane hydrocarbons (NMHC). Texas Gas has indicated it would fully comply with the requirements in the proposed Sub JJJJ NSPS.

National Emission Standards for Hazardous Air Pollutants

The NESHAP, codified in 40 CFR Parts 61 and 63, regulates hazardous air pollutant (HAP) emissions. Part 61 was promulgated prior to the 1990 Clean Air Act Amendments (CAAA) and regulates only eight types of hazardous substances (asbestos, benzene, beryllium, coke oven emissions, inorganic arsenic, mercury, radionuclides, and vinyl chloride).

The 1990 CAA established a list of 189 HAPs, resulting in the promulgation of Part 63. Part 63, also known as the Maximum Achievable Control Technology (MACT) standards, regulates HAP emissions from major sources of HAP emissions and specific source categories that emit HAPs. Part 63 defines a major source of HAPs as any source that has the potential to emit 10-tpy of any single HAP or 25 tpy of HAPs in aggregate. MACT standards are intended to reduce emissions of air toxics or HAPs through installation of control equipment rather than enforcement of risk-based emission limits.

The reciprocating engines would potentially be subject to 40 CFR Part 63 Subpart ZZZZ if the station is a major source of HAPs or if the engine rating is greater than 500 hp, regardless of the size. In addition, all area sources would be subject to Subpart ZZZZ, regardless of the engine size. The proposed units would meet the requirements of this subpart.

Title V Operating Permits

The Title V permit program, as described in 40 CFR 70, requires sources of air emissions with criteria pollutant emissions that reach or exceed major source levels to obtain federal operating permits. These permits list all applicable air regulations and include a compliance demonstration for each applicable requirement. The major source threshold level in attainment areas is 100 tpy of $NO_X$, $SO_2$, CO, $PM_{10}$, $PM_{2.5}$, and VOC. None of the criteria pollutants would be emitted at the 100-tpy level at the Kosciusko Compressor Station; therefore, Title V permits would not be required.

General Conformity

40 CFR parts 51 and 93 define the requirements for determining conformity for federal actions to state or federal implementation plans. A conformity analysis is required for each criteria pollutant where the total of direct and indirect emissions in a nonattainment or maintenance area caused by a federal action would equal or exceed any of the rates specified in the applicable implementation plan. The proposed Project would not be located in any nonattainment areas; therefore, the general conformity requirements do not apply to the proposed Project.

*State Regulations*

In addition to the federal regulations described above, the compressor station also would be subject to certain state air quality regulations. Subject to EPA approval, the MDEQ manages the statewide air permitting, compliance, and enforcement programs. These regulations may apply to new or existing sources. The Kosciusko Compressor Station would be authorized under MDEQ's construction and operating permit. The following Mississippi Air Pollution Control regulations were evaluated for their applicability.

APC-S-1 Air Emission Regulations for the Prevention, Abatement, and Control of Air Contaminants

APC-S-1 includes specifications for specific pollutants, hazardous air pollutants, certain specific sources of pollutants, notification of emission events, and stack heights. Section 3 contains criteria for sources of particulate matter, including opacity limitation, open burning prohibition, and nuisance prohibition. Section 4 contains criteria for $SO_2$ emissions. APC-S-1 also incorporates by reference the federal NSPS program. The compressor station's MDEQ permit would require compliance with all applicable federal and state air regulations.

APC-S-2 Permit Regulation for the Construction and/or Operations of Air Emissions Equipment

APC-S-2 contains the requirements for obtaining permits prior to constructing new equipment and for obtaining state permits to operate, including public notice and participation requirements. The Project would obtain the required permits prior to commencing construction.

APC-S-3 Prevention of Air Pollution Emergency Episodes

APC-S-3 defines air pollution alerts, warnings, and emergencies and establishes requirements for operators of certain sources to prepare plans for responding to these three levels of air pollution episodes. The Project would prepare an Emission Control Action Program in accordance with Section 4.

APC-S-4 Ambient Air Quality Standards

APC-S-4 incorporates, by reference, the Primary and Secondary NAAQS, 40 CFR Part 50. In addition, it states that no odorous substances shall be released into the ambient air in concentrations that could adversely affect human health and well-being, affect plant or animal life, or interfere with the use or enjoyment of property.

APC-S-5 Prevention of the Significant Deterioration (PSD) of Air Quality

APC-S-5 incorporates, by reference, the PSD of Air Quality Program, 40 CFR 52.21. The Project would not be a PSD source.

APC-S-6 Air Emissions Operating Permit Regulations for the Purposes of Title V of the Clean Air Act

APC-S-6 defines the requirements for Title V permits, including major source categories and levels, permit applications, issuance, fees, and insignificant activities. The Project is not subject to Title V.

APC-S-8 Air Toxics Regulations

APC-S-8 regulates, on a case-by-case basis, MACT applicable to facilities affected by the requirements of Section 112(g) of the CAA, Subpart B of 40 CFR Part 63. The Project would not be a major source of HAPs and would not be subject to this regulation.

#### 4.11.1.3 Air Quality Impacts and Mitigation

*Construction Emissions*

Construction of the pipeline and access roads would generate air emissions during grading, trenching, backfilling, and operation of construction vehicles along unpaved areas. The proposed Project would use existing roads to the extent practicable. Some roads used for access would be improved during construction by widening or adding drain pipes, gravel, or grading; and some new roads and road extensions would be constructed. Some roads would remain after construction to provide permanent access to the pipeline for maintenance purposes. These activities could generate dust and particulate emissions from earth-moving activities and construction equipment engine exhaust.

Construction of the compressor station would be performed with mobile equipment similar to that typically used for pipeline and road construction. Construction would be expected to cause a minor and temporary impact on local ambient air quality as a result of fugitive dust and combustion emissions generated by construction equipment. Criteria pollutant emissions during operation of the fossil-fueled construction equipment would occur from combustion products resulting from the use of gasoline and diesel fuels, primarily $NO_2$, CO, VOCs, $PM_{10}$, small amounts of $SO_2$, and small amounts of HAPs (e.g., formaldehyde, benzene, toluene, and xylene) produced by the construction equipment engines. Pipeline construction would be a constantly moving process, and impacts would occur only in the vicinity of active construction in the pipeline corridor. Construction of the Kosciusko Compressor Station would likely take a few months, with impacts occurring only in the vicinity of the compressor station site. Table 4.11.1-4 lists the estimated emissions from construction equipment activities for the compressor station. Impacts from construction equipment would be temporary and would be expected to result in an insignificant impact on air quality.

Texas Gas would employ proven construction practices to control fugitive dust emissions during construction. All areas disturbed by construction would be stabilized; therefore, fugitive dust emissions during construction would be minor and of short duration. Dust suppression activities (e.g., watering) would be used as necessary to minimize these potential impacts. Should open burning occur during construction, requirements of contractors would include: on-site equipment to prevent the spread of fire, a specified level of attention required by contractor personnel during burning, acquisition of all required permits, and compliance with all state and local regulations, including APC-S-1, Section 3.7.

*Operations Emissions*

The four natural-gas-fired reciprocating internal combustion engines used to provide the necessary gas compression, which are assumed to operate 8,760 hours at 100 percent load, would be equipped with state-of-the-art $NO_X$ low-emission combustion (LEC) control technology integral to their design. These engines also would be equipped with oxidation catalyst systems to reduce emissions of CO, NMHC, and hazardous air pollutants such as formaldehyde.

**TABLE 4.11.1-4**

**Compressor Station Construction Emission Source Information**

| Emission Source | Annual Potential Emissions (tpy) | | | | | |
|---|---|---|---|---|---|---|
| | $NO_X$ | CO | $SO_2$ | $PM_{10}$ /$PM_{2.5}$ | VOC | Total HAPs |
| E-1 100-ton Crane | 0.133 | 0.029 | 0.009 | 0.009 | 0.011 | 1.14E-04 |
| E-2, 20-ton Cherry Picker | 0.316 | 0.068 | 0.021 | 0.022 | 0.025 | 2.71E-04 |
| E-3 20-ton Cherry Picker | 0.316 | 0.068 | 0.021 | 0.022 | 0.025 | 2.71E-04 |
| E-4 330 Backhoe | 0.316 | 0.068 | 0.021 | 0.022 | 0.025 | 2.71E-04 |
| E-5 330 Backhoe | 0.316 | 0.068 | 0.021 | 0.022 | 0.025 | 2.71E-04 |
| E-6 330 Backhoe | 0.316 | 0.068 | 0.021 | 0.022 | 0.025 | 2.71E-04 |
| E-7 D6 Bulldozer | 0.215 | 0.046 | 0.014 | 0.015 | 0.017 | 1.84E-04 |
| E-8 D6 Bulldozer | 0.215 | 0.046 | 0.014 | 0.015 | 0.017 | 1.84E-04 |
| E-9 D6 Bulldozer | 0.215 | 0.046 | 0.014 | 0.015 | 0.017 | 1.84E-04 |
| E-10 D6 Bulldozer | 0.215 | 0.046 | 0.014 | 0.015 | 0.017 | 1.84E-04 |
| E-11 Side Boom | 0.186 | 0.040 | 0.012 | 0.013 | 0.015 | 1.59E-4 |
| E-12 Side Boom | 0.186 | 0.040 | 0.012 | 0.013 | 0.015 | 1.59E-4 |
| E-13 Forklift | 0.253 | 0.055 | 0.017 | 0.018 | 0.020 | 2.17E-04 |
| E-14 Generator | 0.298 | 0.064 | 0.020 | 0.021 | 0.024 | 2.55E-04 |
| E-15 Welding Rig | 0.093 | 0.020 | 0.006 | 0.007 | 0.007 | 7.96E-05 |
| E-20 Welding Rig | 0.093 | 0.020 | 0.006 | 0.007 | 0.007 | 7.96E-05 |
| Painting | — | — | — | 0.054 | — | 0.023 |
| Open Burning | 0.28 | 9.8 | — | 1.19 | 1.33 | — |
| **Fugitive Dust** | — | — | — | **1.35** | — | — |
| **Total** | **3.96** | **10.59** | **0.24** | **2.85** | **1.62** | **0.03** |

Each compressor station would include an emergency shut down (ESD) system, pursuant to DOT requirements. Activation of the ESD system would vent the piping (expel the natural gas) to the atmosphere in case of an emergency. The ESD would be used only in the event of an emergency. Compressor unit blowdowns would occur as needed to relieve pressure when a unit is taken offline. Natural gas blowdowns are not part of routine operation.

Table 4.11.1-3 lists the anticipated emissions of criteria pollutants and HAPs from the operation of the compressor station. Texas Gas modeled the proposed emission sources at the compressor station using the SCREEN3 model, which is the EPA-approved model for most screening-level analyses. The SCREEN3 dispersion model (version 96043) is used to estimate pollutant concentrations in simple and complex terrain. It also can estimate the near-field effect of building downwash on stack emissions for both cavity and wake regions surrounding a facility. Results of the modeling analysis are presented in Table 4.11.1-5. When the maximum impacts for each emission source at the facility are conservatively assumed to occur at the same location, the total facility impact is below the NAAQS. Actual impacts would be expected to be significantly lower, since SCREEN3 is a conservative model, worst-case meteorological conditions were used, and the maximum impact for each source could be expected to occur at different locations.

**TABLE 4.11.1-5**

**Project Impacts**

| | Engine No. 1 G3606 Impact (μg/m$^3$) | Engine No. 2 G3606 Impact (μg/m$^3$) | Engine No. 3 G3612 Impact (μg/m$^3$) | Engine No. 4 G3612 Impact (μg/m$^3$) | Emergency Generator Impact (μg/m$^3$) | Fuel Gas Heater Impact (μg/m$^3$) | Total Facility Impact (μg/m$^3$) | EPA NAAQS Standard (μg/m$^3$) |
|---|---|---|---|---|---|---|---|---|
| Maximum Impact using 1 gm/sec emission rate | 417.2 | 417.2 | 157.3 | 157.3 | 2395 | 938.5 | Not applicable | Not applicable |
| **$NO_2$** | | | | | | | | |
| Annual maximum using proposed Project emission rates | 11.52 | 11.52 | 8.69 | 8.69 | 53.11 | 0.93 | 96.63 | 100 |
| **CO** | | | | | | | | |
| 1-hour maximum using proposed Project emission rates | 31.01 | 31.01 | 23.28 | 23.28 | 564.31 | 9.70 | 682.59 | 40000 |
| 8-hour maximum using proposed Project emission rates | 21.71 | 21.71 | 16.30 | 16.30 | 395.01 | 6.788 | 477.8 | 10000 |

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a/ 8-hour and annual impacts calculated using scaling factors of 0.7 and 0.08, respectively, per EPA guidance (EPA, 1992). Screening Procedures for Estimating the Air Quality Impact of Stationary Sources, Revised, October 1992, EPA-454/R-92-019. U.S. Environmental Protection Agency, Research Triangle Park, NC).

### 4.11.2 Noise

Noise would affect the local environment during both construction and operation of the proposed Project. At any location, both the magnitude and frequency of ambient noise may vary considerably over the course of the day and throughout the week due, in part, to changing weather conditions and the effects of seasonal vegetative cover. Two measures used by federal agencies to relate the time-varying quality of environmental noise to its known effect on people are the 24-hour equivalent sound level ($L_{eq(24)}$) and the day-night sound level ($L_{dn}$). The $L_{eq(24)}$ 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 $L_{eq(24)}$ with 10 decibels on the A-weighted scale (dBA) added to sound levels between the hours of 10 P.M. and 7 A.M. to account for people's greater sensitivity to sound during nighttime hours. The A-weighted scale is used because human hearing is less sensitive to low and high frequencies than mid-range frequencies. People's threshold for perception of a change in noise level is considered to be 3 dBA.

#### 4.11.2.1 Regulatory Requirements

In 1974, the EPA published its *Information on Levels of Environmental Noise Requisite to Protect Public Health and Welfare with an Adequate Margin of Safety* (EPA 1974). This document provides information for state and local governments to use in developing their own ambient noise standards. The EPA has determined that an $L_{dn}$ of 55 dBA protects the public from indoor and outdoor activity noise interference. We have adopted this criterion and used it to evaluate the potential noise impact from operation of the compressor facilities.

No applicable state, county, or local noise regulations were identified for the project area.

### 4.11.2.2 Existing Noise Levels

Impacts are determined at receptors known as noise-sensitive areas (NSAs). NSAs include residences, schools and day-care facilities, hospitals, long-term care facilities, places of worship, libraries, and parks and recreational areas (e.g., wilderness areas) valued specifically for their solitude and tranquility.

The Kosciusko Compressor Station would be located in Attala County, Mississippi. Three NSAs were identified within a 1-mile radius of the proposed Kosciusko Compressor Station site. Texas Gas conducted an ambient noise monitoring survey on March 13 and March 14, 2007 at the three NSA locations to establish baseline noise levels in the area. Existing noise sources in the area during the day included the existing Texas Eastern compressor station, local traffic, birds and insects, barking dogs, and rustling leaves. $L_{dn}$ noise levels were calculated for each of the two noise monitoring days using the short-term noise measurements. The $L_{dn}$ levels at each location are summarized in table 4.11.2-1 and were used as the baseline noise levels for this analysis.

**TABLE 4.11.2-1**

**Ambient Existing Noise at NSAs**

| NSA | Distance to Station (feet) | Existing Noise Level (dBA) | | |
|---|---|---|---|---|
| | | $L_{eq}$ (day) | $L_{eq}$ (night) | $L_{dn}$ |
| NSA3-1 | 1,800 | 50 | 44 | 52 |
| NSA3-2 | 3,300 | 48 | 42 | 50 |
| NSA3-3 | 4,350 | 46 | 33 | 45 |

### 4.11.2.3 General Impacts and Mitigation

**Construction Noise**

Construction of the proposed Project is expected to be typical of other pipeline projects in terms of schedule, equipment used, and types of activities. Construction would increase sound levels in the vicinity of proposed Project activities, and the sound levels would vary during the construction period, depending on the construction phase. Pipeline construction generally would proceed at rates ranging from several hundred feet to 1 mile per day. However, due to the assembly-line method of construction, construction activities in any one area could last from several weeks to several months on an intermittent basis. Construction-related noise at the compressor station would be concentrated in the vicinity of the construction activity. Construction equipment would be operated on an as-needed basis during those periods and would be maintained to manufacturers' specifications to minimize noise impacts.

Nighttime noise levels would normally be unaffected because most pipeline construction would take place only during daylight hours. The possible exceptions would be at the HDD sites (e.g., at the crossings of waterbodies and highways). At HDD locations, drilling equipment may operate on a 24-hour-per-day basis. In addition to the EPA's 55 dBA standard, noise level changes are categorized as follows: a 3-dBA increase is considered noticeable, a 6-dBA increase is considered clearly noticeable, and a 9-dBA increase is considered significantly noticeable. An acoustical assessment was prepared for all NSAs within 1 mile of HDD locations to determine existing sound levels at each site and the projected levels from HDD activity. Since it is not known at this time precisely what type or model of HDD would be used, as a conservative measure for this analysis, future noise levels were based upon use of a Ditch Witch JT8020 Mach 1 Directional Drill (constructed by the Charles Machine Works, Inc.). This HDD rig is the largest and most powerful offered by this leading manufacturer and would be appropriate for a project of this scale.

The results of the noise prediction for the proposed HDD drill sites indicate that, of the 21 unique HDD drill sites, nine had potential NSAs within a 0.5-mile screening distance. The closest receptor to a planned HDD site is 600 feet. Of the nine potential NSAs, two had predicted noise levels that would exceed 55 dBA $L_{dn}$ (HDD sites 23 and 25). Potential impacts at these two sites are shown in table 4.11.2-2. Twenty-four hour drilling operations is usually reserved for long drill distances, typically those over 2,000 feet in length. Locations with shorter drill lengths would probably not require nighttime operations and, therefore, would have a lower $L_{dn}$ value. The two NSA locations with predicted levels above 55 dBA $L_{dn}$ would have drill lengths less than 1,500 feet and may not require 24-hour drilling. However, because construction activities associated with HDDs have the potential for significant short-term noise level impacts, **we recommend that**

- **For the HDD locations listed in table 4.11.2-2 with projected noise levels above 55 dBA $L_{dn}$ at the closest NSA, Texas Gas file noise mitigation plans with the Secretary for review and approval by the Director of OEP, prior to construction. The noise mitigation plan should include either a commitment to daytime drilling only or provide mitigation measures to reduce noise levels at the NSAs.**

**Table 4.11.2-2**

**Projected Noise Impact at NSAs for HDD Sites 23 and 25**

| HDD Site | Ambient Noise Levels ($L_{dn}$) | Noise Levels due to HDD Activity ($L_{dn}$) | Total Projected Noise Level ($L_{dn}$) | Increase over Ambient (dBA) |
|---|---|---|---|---|
| 23 | 50.7 | 60 | 60.5 | 9.8 |
| 25 | 53.3 | 65 | 65.3 | 12.0 |

*Operational Noise*

During operation of the proposed Project, potential noise impacts would be limited to the vicinity of the new compressor station. Principal noise sources would include the air inlet, exhaust, and casing of the turbines. Secondary noise sources would include yard piping and valves. Noise from the relief valves, blowdown stacks, and emergency electrical generation equipment would be infrequent.

The compressor station would include design measures to minimize sound generation. Silencers or mufflers would be installed on the exhausts, and silencers would be installed on the air intakes. The walls of the compressor building would be comprised of acoustical panels.

Texas Gas calculated the expected increases in noise levels associated with operation of the compressor station based on the proposed total power rating for the Kosciusko Compressor Station (10,650 hp) and the distance to the NSAs. The projected operational noise levels, as determined by Texas Gas are presented in table 4.11.2-3.

**TABLE 4.11.2-3**

**Noise Quality Analysis, Kosciusko Compressor Station**

| NSA | Distance to Station (feet) | Existing Noise Level (dBA) | | | Future Noise Level (dBA) | | |
|---|---|---|---|---|---|---|---|
| | | $L_{eq}$ (day) | $L_{eq}$ (night) | $L_{dn}$ | Additional $L_{dn}$ | Total $L_{dn}$ | Increase |
| NSA3-1 | 1,800 | 50 | 44 | 52 | 39 | 52 | 0 |
| NSA3-2 | 3,300 | 48 | 42 | 50 | 25 | 50 | 0 |
| NSA3-3 | 4,350 | 46 | 33 | 45 | 22 | 45 | 0 |

In summary, the calculated noise levels anticipated from operation of the compressor station would be below the FERC level of 55 dBA $L_{dn}$ at all of the nearby NSA locations, and there would be no increase over existing $L_{dn}$ levels. However, to ensure that noise levels from operation of the Kosciusko Compressor Station would not adversely impact surrounding areas, **we recommend that**

- **Texas Gas make all reasonable efforts to ensure its predicted noise levels from the Kosciusko Compressor Station are not exceeded at nearby NSAs and file with the Secretary noise surveys showing this no later than 60 days after placing the Kosciusko Compressor Station in service. However, if the noise attributable to operation of the Kosciusko Compressor Station at full load exceeds an $L_{dn}$ of 55 dBA at any nearby NSAs, Texas Gas shall file a report on what changes are needed and shall install additional noise controls to meet the level within 1 year of the in-service date. Texas Gas shall confirm compliance with this requirement by filing a second noise survey with the Secretary no later than 60 days after it installs the additional noise controls.**

## 4.12 CUMULATIVE IMPACTS

Cumulative impact results when impacts associated with a proposed project are superimposed on, or added to, impacts associated with past, present, or reasonably foreseeable future projects within the area affected by the proposed project. Although the individual impacts of the separate projects may be minor, the effects from the projects taken together could be significant.

The purpose of this cumulative impact analysis is to identify and describe cumulative impacts that would potentially result from implementation of the proposed Project. This cumulative impact analysis generally follows the methodology set forth in relevant guidance (CEQ, 1997; EPA, 1999). Under these guidelines, inclusion of other projects within the analysis is based on identifying commonalities of impacts from other projects to potential impacts that would result from the proposed Project. For an action to be included in the cumulative impacts analysis, it must:

- impact a resource area potentially affected by the proposed Project;
- cause this impact within all, or part of, the proposed Project area; or
- cause this impact within all, or part of, the time span for the potential impact from the proposed Project.

For the purposes of this cumulative impact analysis, we consider the Project area to be the counties traversed by the proposed Project. The effects of more distant projects are not assessed because their impact would be localized in their project areas and would not contribute significantly to the cumulative impact in the proposed Project area.

The actions considered in this cumulative impact analysis may vary from the proposed Project in nature, magnitude, and duration. The actions included in this analysis are based on likelihood of completion, and only projects with either ongoing impacts or that are "reasonably foreseeable" future actions were evaluated. The anticipated cumulative impacts of the proposed Project and other actions are presented below.

This section describes the estimated impact associated with the Project and one other proposed interstate natural gas pipeline project and the overall impact that could be expected to accumulate if both projects were constructed. More distant proposed or recently approved interstate natural gas pipeline projects are not assessed because their impact would generally be localized elsewhere and, therefore, would not contribute significantly to cumulative impacts in the immediate Project area.

Table 4.12-1 lists ongoing or reasonably foreseeable future projects or activities that may also contribute to cumulative impacts on resources that would be affected by construction and operation of the proposed Project.

### 4.12.1 Planned Pipeline Projects in the Vicinity of the Project Area

Cumulative impacts in this section are limited to the Fayetteville Lateral since no other natural gas projects have been identified in proximity to the Greenville Lateral.

We are aware of only one other interstate pipeline project that has been proposed for construction in the vicinity of the Fayetteville Lateral, Ozark's East End Expansion Project (Docket No. PF06-34-000). The East End Expansion Project is in the pre-filing stage and is being evaluated by the FERC, but it has not yet been approved.

The East End Expansion Project would include about 180 miles of 36-inch-diameter pipeline beginning in Conway County, Arkansas, at the proposed new 10,000-hp Wonderview Compressor Station and extending along Ozark's existing 20-inch-diameter pipeline right-of-way for about 58.5 miles. It would then extend eastward along its existing 12-inch-diameter pipeline right-of-way for another 6.1 miles through Faulkner and White Counties, to a point near Searcy, Arkansas. At that point it would divert eastward from the existing pipeline right-of-way onto new right-of-way to the proposed new 20,000-hp Searcy Compressor Station in White County. From the proposed Searcy Compressor Station, the East End Expansion Project pipeline would continue southeastward through Woodruff, Prairie, Monroe, Lee, and Phillips Counties, Arkansas, and Coahoma, Quitman, Panola, Lafayette, and Calhoun Counties, Mississippi, to a terminus near Banner, Calhoun County, Mississippi, on new pipeline right-of-way. The East End Expansion Project also would include an 8-mile-long, 24-inch-diameter pipeline (Noark Extension) extending from Ozark's existing 16-inch-diameter Noark Pipeline to the proposed Wonderview Compressor Station, all in Conway County. The East End Expansion Project would transport about 1.0 bcf/d of natural gas from new natural gas production areas to proposed new delivery points on existing pipeline systems of Texas Gas (in Coahoma County, Mississippi), ANR (in Panola County, Mississippi), and Trunkline (in Panola County, Mississippi).

**TABLE 4.12-1**

**Existing or Proposed Activities or Projects in the Vicinity of the Fayetteville/Greenville Expansion Project**

| Activity/Project | Description | Primary Environmental Impact | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | Water Resources | Wetlands | Wildlife/Vegetation | Recreation | Socioeconomics | Land Use | Transportation | Air Quality/Noise | |
| **Proposed Action** | | | | | | | | | | |
| Texas Gas Fayetteville/Greenville Expansion Project, CP07-417-000 | Construction of the **Fayetteville Lateral**: about 166.2 miles of 36-inch-diameter pipeline in Faulkner, Cleburne, White, Woodruff, St. Francis, Lee, and Phillips Counties, Arkansas, and Coahoma County, Mississippi; and the **Greenville Lateral**: about 96.4 miles of 36-inch-diameter pipeline in Washington, Sunflower, Humphreys, Holmes, and Attala Counties, Mississippi; about 0.8 mile of 36-inch-diameter tie-in pipeline and 0.4-mile of 20-inch-diameter tie-in pipeline in Attala County; and a 10,650-hp compressor station near Kosciusko in Attala County. Total length of pipeline would be 263.8 miles. Anticipated time frame for construction is 8 months, from June 2008 to January 2009. | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| **Reasonably Foreseeable Future Projects or Activities** | | | | | | | | | | |
| Ozark East End Expansion Project, PF06-34-000 | Construction of about 180 miles of 36-inch-diameter gas pipeline in Conway, Faulkner, White, Woodruff, Prairie, Monroe, St. Francis, Lee, and Phillips Counties, Arkansas, and Coahoma, Quitman, and Panola Counties, Mississippi; 8 miles of 24-inch-diameter pipeline (Noark Extension) in Conway County; the 20,000-hp Searcy Compressor Station in White County; the 10,000-hp Wonderview Compressor Station in Conway County. Anticipated time frame for construction has not been determined. | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | |
| **Present Projects or Activities** | | | | | | | | | | |
| Agriculture: row crops and livestock/poultry | Growing cotton, soybeans, rice, small grains; raising beef cattle and poultry | ✓ | | | | ✓ | ✓ | ✓ | ✓ | |
| Gas Exploration | Ongoing Fayetteville Shale production. Well drilling; and gathering pipeline, gas treatment, and compression facilities construction (as needed) and operation. | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | |

The Fayetteville Lateral and the East End Expansion Project pipeline would be collocated for the first 37 miles of the proposed Fayetteville Lateral. Different in-service dates would likely prevent these two projects from being constructed simultaneously.

Figure 4.12.1-1 shows the general location of the East End Expansion Project and the Fayetteville/Greenville Expansion Project, as well as the locations of other pending or recently approved interstate natural gas pipeline projects in the Arkansas-Mississippi-Louisiana region. We note that expansions of natural gas transmission systems are proposed in Texas, Louisiana, and southern Mississippi. For informational purposes, these proposed pipelines are presented on figure 4.12.1-1; however, since these projects are well removed from the Project area considered in this EIS, they would not contribute to the cumulative impacts for the proposed Project; therefore, no further information is provided about them.

### 4.12.2 Other Projects and Activities

The Fayetteville Lateral would transport natural gas supplies from the developing Fayetteville Shale production area. Southwestern and other producers are currently developing the Fayetteville Shale in northern Arkansas, primarily in Cleburne, Conway, Faulkner, Independence, Johnson, St. Francis, Prairie, Van Buren, White, and Woodruff Counties. In August 2004, Southwestern announced that its wholly owned subsidiary, SEECO, Inc., had successfully drilled test wells targeting the Fayetteville Shale and had commercially produced gas from the shale. As of May 1, 2006, SEECO had drilled a total of 148 wells in 18 pilot areas in seven separate counties. SEECO has established production from two other gas-bearing formations (the Moorefield and Chattanooga Shales) that lie geologically beneath the Fayetteville Shale production area. Gas-gathering pipelines, gas treatment, and compressor facilities have been constructed to transport and process the gas produced from this production area to the existing interstate pipeline systems. Wells are actively being drilled, and gas-gathering pipelines to connect the new production are being constructed as needed. Well drilling and construction and operation of gathering facilities are not under FERC jurisdiction. The AOGC has jurisdiction over gas production facilities in Arkansas. Potential well drilling and gathering line construction would result in temporary and minor impacts during construction but should be conducted in a manner that avoids or minimizes impacts on wetlands, waterbodies, species of concern, and other sensitive resources pursuant to the requirements of the AOGC.

Possible new gas production or gathering facilities might be constructed near the proposed Project in these same counties since the Project would cross about 55 miles of the Fayetteville Shale production area. Table 2.1-2 lists the 14 interconnects the proposed Project would have with the Southwestern system in Conway, Faulkner, and White Counties. Texas Gas has consulted with Southwestern to develop a pipeline route through the gas production area to minimize conflicts with ongoing development of this resource and to plan locations for M&R stations to interconnect with Southwestern's gathering pipelines.

Construction of facilities related to gas production and gathering would have impacts similar to those identified for the proposed Project. However, gathering pipelines generally are smaller in diameter than the 36-inch-diameter of the proposed pipeline; therefore, a narrower construction right-of-way would be required for their construction. Use of appropriate erosion and sediment controls would minimize off-site impacts on undisturbed areas and waterbodies and wetlands. State regulatory review and issuance of necessary permits and approvals would reduce or avoid significant environmental impacts. Specific information about where and when future gathering facilities might be constructed is not available. Therefore, these activities are not included in the cumulative impact analysis provided in this section.

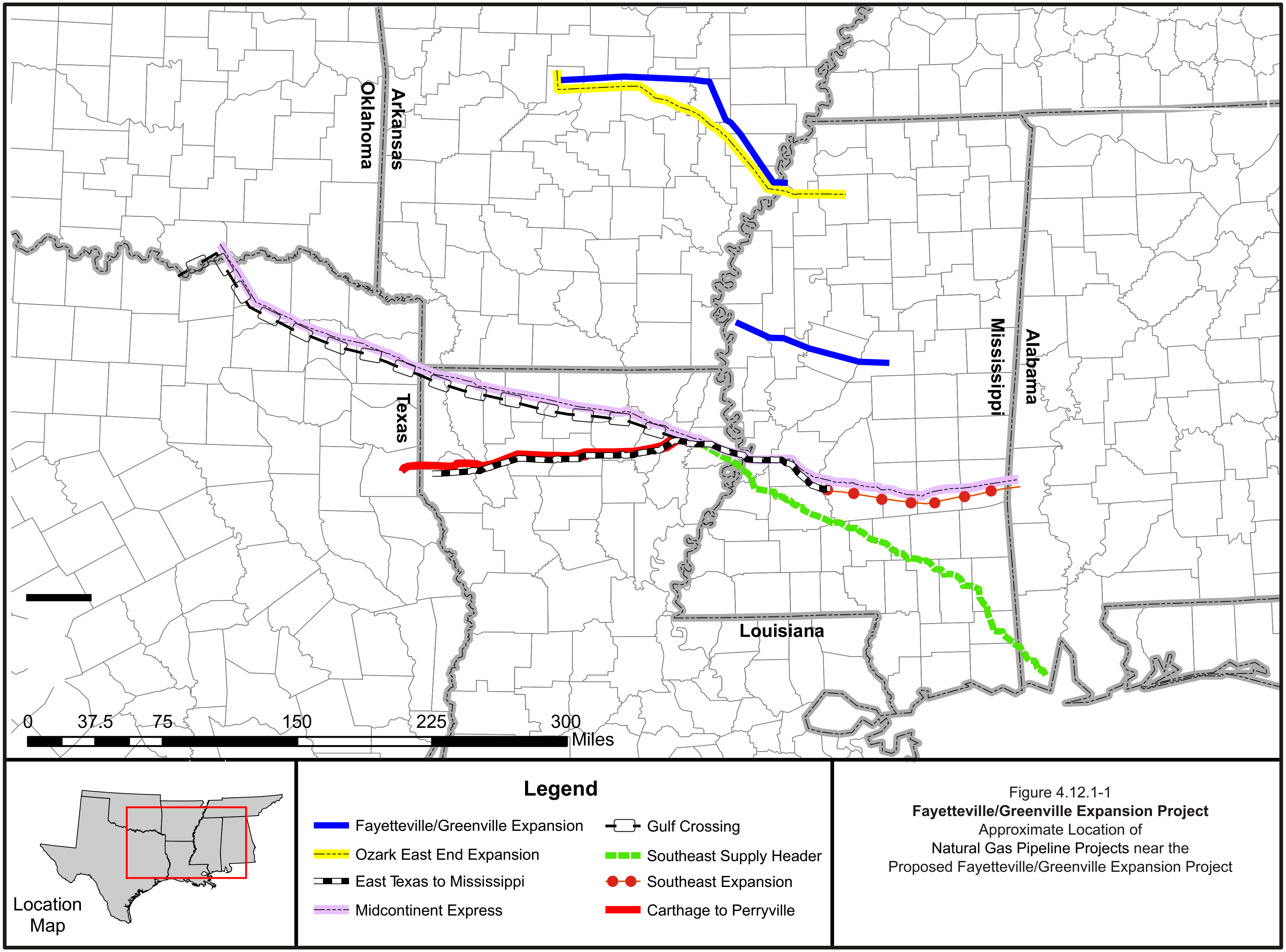


Figure 4.12.1-1
**Fayetteville/Greenville Expansion Project**
Approximate Location of
Natural Gas Pipeline Projects near the
Proposed Fayetteville/Greenville Expansion Project

Agricultural activities (mainly related to planting and harvesting crops) occur throughout most of the Project area along both the Fayetteville and Greenville Laterals (see section 4.8). The removal of vegetation (crops) from fields and soil disturbance may result in erosion and sedimentation that may be considered as a cumulative impact with the Project. Agricultural activities can contribute to cumulative impacts on water resources, land use, socioeconomics, and air quality. Impacts from agricultural activities would generally be localized and temporary and, therefore, would not contribute significantly to cumulative impacts in the immediate Project area. As such, agricultural activities are not included in the cumulative impact analysis provided in this section.

### 4.12.3 Potential Cumulative Impacts of the Proposed Action

Cumulative impacts would be greatest where the proposed Project and other projects or activities would be adjacent to or in proximity to each other. The East End Expansion Project would be adjacent or in proximity to the proposed Project in Conway, Faulkner, and White Counties, Arkansas, between MP 0.0 and about MP 37 of the Fayetteville Lateral. Construction schedules also would affect the extent and duration of cumulative impacts. Projects located adjacent to each other, which are constructed at the same time, may have greater short-term impacts but similar long-term impacts. Since the schedule for the East End Expansion Project has not been updated, it is not certain to what extent timing would affect impacts on any resource along this segment of the Project. However, we assume that Ozark's East End Expansion Project would begin construction later than Texas Gas's proposed Project (if both are approved by the FERC) since Ozark has not yet filed a certificate application for it with the FERC. The planning process has not been completed for Ozark's East End Expansion Project. Therefore, much of the description about the cumulative impacts in this section will be of a general and conditional nature.

#### 4.12.3.1 Geology and Soils

<u>Geology</u>

The impacts of the Fayetteville Lateral and the East End Expansion Project on geological resources are not considered to be significant. Mineral resources are not present in large quantities and known sites would likely be avoided. Both projects would cross areas of active natural gas exploration and development related to production of the Fayetteville Shale natural gas reserves. Texas Gas proposes interconnections with Southwestern's existing gas gathering system to transport this production to markets east of the production area. Ozark may plan similar interconnections, but, at this time, this is not known since Ozark's project is still in development. Communication and coordination with the natural gas producers concerning their plans for new wells and gathering pipelines would minimize conflicts with natural gas production. Therefore, we conclude that the cumulative impact of both projects on mineral resources and gas production would not be significant.

In the areas where the projects would be collocated, risk due to geologic hazard would be similar: no significant seismic, subsidence, or landslide risk. The lack of unusual or significant paleontological resources results in a low risk of significant impacts by the proposed projects on such resources. Although bedrock near the surface will require blasting in areas of the Fayetteville Lateral and the East End Expansion Project, impacts due to blasting would be minimized by implementing appropriate blasting specifications. Therefore, we conclude that the cumulative impact of both projects related to geologic risk and blasting would not be significant.

<u>Soils</u>

Both projects would disturb soils during construction. Texas Gas and Ozark would implement the mitigation measures described in our Plan and Procedures to control erosion and sedimentation, to minimize impacts to soils, and to restore construction workspaces. These measures include topsoil segregation and decompaction in appropriate areas, rock removal, consultation with landowners and local soil resource agencies about seeding, and monitoring the success of revegetation. Texas Gas and Ozark would be responsible for ensuring all areas affected by construction activities were finish graded and restored as closely as practicable to preconstruction contours. If active drainage tiles, culverts, or other drainage facilities are damaged during construction, Texas Gas and Ozark would replace or repair them to a condition that is equal to or better than preconstruction condition. Although damage to drainage structures and patterns would result in short-term impacts, the corrective actions that would be implemented by Texas Gas and Ozark would avoid or minimize any long-term impact. Further, both Texas Gas and Ozark would repair any damaged irrigation systems.

At this time, about 37 miles of the Fayetteville Lateral (from MP 0.0 to MP 37) and Ozark's East End Project would be collocated along existing pipeline right-of-way. If both projects are approved, Ozark's project would likely be constructed about a year after Texas Gas's project. It's construction would re-disturb some of the restored Fayetteville Lateral construction right-of-way. This would extend the time that soils and land uses would be affected in this area by about a year. Since the remaining 129 miles of the Fayetteville Lateral would not be collocated with the remaining 143 miles of the East End Expansion Project, re-disturbance of the restored construction right-of-way would not be an issue in those areas. However, since both project sponsors would implement our Plan and Procedures and any additional mitigation we may recommend, impacts on soils would be minimized and cumulative impacts on soils would not be significant.

Contamination from spills or leaks of fuels, lubricants, and coolant from construction equipment could adversely affect soils; however, the effects of such contamination would typically be minor and widely dispersed because of the low frequency and volumes of spills and leaks. Texas Gas and Ozark would implement their SPCC Plans for the pipelines and aboveground facilities (see appendix D, Texas Gas's SPCC Plan). Successful use of the SPCC Plans would minimize the potential for spills of contaminated materials to occur and would contain spills that might occur during construction of each project; therefore, the cumulative impact would not be considered significant.

#### 4.12.3.2 Water Resources and Wetlands

Construction of the proposed Fayetteville Lateral would result in 278 waterbody crossings. For eight of the 11 major waterbody crossings, Texas Gas would use HDD methods (see table 4.3.2-4) to avoid and minimize direct impacts on waterbodies and riparian vegetation, including associated wetlands, at these crossings. Any inadvertent release of drilling fluids (frac-out) or accidental fuel and chemical spills would be greatly reduced by implementation of Texas Gas's HDD Plan and SPCC Plan. The East End Expansion Project would traverse a total of 721 waterbodies, of which 25 are defined as major waterbodies. Four of the 25 waterbodies would be crossed using HDD methods. Both Texas Gas and Ozark would use our Plan and Procedures to construct, operate, and maintain their projects.

Because the two projects would be within the same major watersheds (in the areas where they would be collocated), and because both projects would likely involve direct and indirect waterbody impacts, the projects would, in combination, result in some cumulative impacts on waterbodies. These temporary impacts could include runoff from construction areas, temporary and localized increases in turbidity and sedimentation associated with in-water construction, and withdrawal and discharge of waters for hydrostatic testing of pipeline segments. These impacts would be greater if construction of both projects were to occur within the same time frame. However, if approved, Ozark's project likely would not begin construction in 2008, the year Texas Gas plans to begin construction. As described in section 4.3, impacts due to construction of the proposed Project would be relatively minor and would be further minimized by the use of HDDs to cross most of the major waterbodies and implementation of our Plan and Procedures and our recommendations; therefore, we believe that cumulative impacts on waterbodies would be minimized and cumulative impacts would not be significant.

Construction and operation of the projects would result in both short-term and long-term impacts on waterbodies and wetlands. Short-term impacts such as soil and sediment disturbance would dissipate over a period of weeks, while longer-term impacts such as the regrowth of forested wetlands within the temporary construction right-of-way would persist for months or years. The primary impacts on wetlands and waterbodies during operation of the proposed projects would be associated with the routine right-of-way maintenance. All maintenance would comply with our Plan and Procedures but would continue throughout the life of the projects.

If approved and constructed, the proposed Fayetteville Lateral and the East End Expansion Project would impact wetlands. Construction of the proposed Fayette Lateral and associated facilities would affect about 57.7 acres of wetlands, including about 33.5 acres of PFO wetlands (see table 4.4.1-1). Construction of the proposed East End Expansion Project would affect a total of about 108.2 acres of wetlands, of which about 74.6 acres would be PFO wetlands. Impacts to wetlands would be minimized by implementing the appropriate mitigation measures in our Procedures which reduces the construction right-of-way width to 75 feet and which reduces the maintained corridor through wetlands to 30 feet centered over the pipeline. The narrowed maintenance corridor allows for the restoration of more wetland area. However, impacts to PFO wetlands would be permanent within the maintained right-of-way since PFO wetlands would be converted to PEM or PSS wetlands; but, they would still retain wetland function since wetland hydrology would be reestablished.

Elements of both projects with the potential to affect wetlands and waterbodies would be subject to review and approval under Sections 401 and 404 of the CWA. Discharges to wetlands and other surface waters associated with construction and operation would require review, approval, and mitigation, if necessary, under state storm water discharge programs. All permanent or long-term impacts on wetlands and waterbodies would be appropriately mitigated to offset anticipated adverse impacts, as determined by the USACE. Texas Gas will be required by the USACE to develop a wetland compensation plan for these impacts and would likely require Ozark to develop a similar plan. Since wetland impacts would be minimized by the use of appropriate mitigation measures and the USACE will require compensation for long-term and permanent wetland impacts, we conclude that the cumulative impacts on wetland would not be significant.

#### 4.12.3.3 Vegetation and Wildlife

Construction of the proposed Fayetteville Lateral and the East End Expansion Project would cause a cumulative impact on native vegetation and associated wildlife. These cumulative impacts would be most significant if the projects were constructed at or near the same time and within proximity of one another. Either circumstance would increase the direct impact acreages and would lengthen the recovery time for the affected vegetative communities, particularly if construction of the East End Expansion Project follows construction of the proposed Project. It is possible that previously disturbed and restored construction workspaces would be disturbed again by the subsequent construction of the East End Expansion Project along the 37-mile-long segment where these projects would be collocated.

Cumulative impacts within a region, such as lost acreage of forestland, are additive. Furthermore, many wildlife species depend on mature contiguous tracts of forest to sustain their migratory and reproductive cycles. These species include dozens of migratory songbirds and terrestrial mammals that are not migratory but that require large tracts of forest to support their home ranges. The impacts of fragmentation can be immediate and significant because population levels for many such species are low and on the decline. The proposed Fayetteville Lateral and associated facilities, if approved, would mainly affect agricultural land (about 112.7 miles, or 2,197.7 acres) during construction. Impacts on native vegetative communities during construction would affect 29.5 miles (389.4 acres) of upland forest and 4.3 miles (43.1 acres) of managed forest. The East End Expansion Project would impact about 17.0 miles (275.4 acres) of upland forest and 3.0 (66.4 acres) miles of managed forest.

The extent and duration of the cumulative impact on wildlife habitats associated with construction of the two projects would be minimized by using existing maintained rights-of-way and other disturbed areas as much as possible. The proposed Project pipeline route would be collocated with or parallel to the existing Ozark and CenterPoint rights-of-way where possible (about 90 miles, or about 54 percent of the proposed route), thereby minimizing impacts on undisturbed vegetation. About 76 percent of the proposed Fayetteville Lateral would traverse agricultural, industrial, and open lands and pastures and other areas that would typically experience rapid revegetation after construction is completed, and only 18 percent of the proposed Fayetteville Lateral route would traverse upland forest. Texas Gas and Ozark would implement the mitigation measures outlined in our Plan and Procedures to encourage the regrowth of native vegetation and discourage the spread of exotic or noxious plants. The East End Expansion Project would be collocated for about 33 percent of its proposed route, and only 10 percent of the East End Expansion Project would traverse upland forest or managed forest. We believe that since forest impact would be minimized along both project routes by collocation along existing rights-of-way and by developing pipeline routes that would mainly cross agricultural and more open land use types, cumulative impacts on vegetation and wildlife have been minimized and would not be significant.

Both projects have the potential to impact federally or state-listed threatened and endangered species and/or special status species. As described in section 4.7, we believe that the proposed Project would not significantly affect federally listed species. We and the project sponsors have consulted with the federal and state resource agencies concerning the need to implement specific conservation and mitigation measures to protect threatened, endangered, and other special-status species. To the extent possible, Texas Gas has integrated agency recommendations by conducting appropriate surveys to identify and locate listed species and their potential habitat and to develop project locations that would minimize/avoid impacts to these species or their habitats as needed. Consequently, we believe that the cumulative impacts on vegetation and wildlife resources would not be significant.

#### 4.12.3.4 Land Use, Recreation, and Visual Resources

Construction of the proposed Project and other reasonably foreseeable projects would result in temporary and permanent changes in land use within the Project area. The proposed Fayetteville Lateral and associated facilities would affect a total of about 3,082.4 acres of land during construction. The proposed East End Expansion Project would impact 2,472.0 acres of land during construction. As indicated in section 4.12.3.3, about 72 percent of these impacts would be on agricultural lands for the Fayetteville Lateral. Less than 1 percent of both projects would impact commercial, industrial, or residential lands. Unlike highway transportation projects, which would permanently convert thousands of acres of land to paved impervious surfaces, much of the land use affected during construction of these projects would be restored and allowed to revert to preconstruction uses and conditions once pipeline installation is complete. Because non-woody vegetation would be expected to return to preconstruction conditions over the short term, impacts on acreage classified as agriculture, pastures, and open land would be minor and short term. Long-term impacts on cleared forestlands located outside the permanently maintained rights-of-way would take many years to return to preconstruction conditions, with recovery time dependent on the types and ages of the trees removed. However, given the prevalence of these land uses and cover types within the affected counties, we believe that cumulative impacts on land use would not be significant.

#### 4.12.3.5 Air Quality and Noise

Air quality would be affected by construction and operation of the proposed Project and other reasonably foreseeable future projects. Construction of these projects would temporarily impact air quality by generating emissions from operation of fossil-fuel-powered construction equipment and fugitive dust from land clearing, grading, excavation, concrete work, and vehicle traffic on paved and unpaved roads. While Ozark has identified two future compressor stations associated with the East End Expansion Project, the Fayetteville Lateral has no compression associated with it; therefore, no cumulative operational air impacts would occur. Because construction-related activities would be temporary and localized in nature, they would be unlikely to contribute significantly to cumulative air quality impacts.

Potential noise impacts associated with the proposed Project and other reasonable foreseeable projects would occur during construction and operation. Because of the linear nature of these projects, construction-related noise impacts would tend to be of short duration in a given area. Furthermore, because most construction activities would be limited to daylight hours, construction-related noise impacts would generally not occur at night. The projects could cause minor temporary impacts at NSAs near HDD sites. As indicated in section 4.11, we have recommended that Texas Gas develop site-specific mitigation plans if potential noise impacts are identified in conjunction with the identified HDD sites. While Ozark has identified two future compressor stations associated with the East End Expansion Project, the Fayetteville Lateral has no compression associated with it; therefore, no cumulative operational noise impacts would occur.

### 4.12.4 Conclusions

If the proposed Project and the East End Expansion Project are certificated, the effects of their construction could overlap in time from the years 2008 through 2010. In addition, the type of project, construction methods, and impacts would be similar. Any identified significant but unavoidable impacts on sensitive resources resulting from construction or operation of the proposed Project or the East End Expansion Project would be mitigated. Mitigation generally leads to avoidance or minimization of cumulative impacts. The environmental impacts associated with the proposed Project and the East End Expansion Project would be minimized by careful project alignment, utilization of HDD techniques to avoid and minimize impacts on some sensitive resources such as waterbodies and wetlands, and implementation of appropriate mitigation measures. Consequently, only a small cumulative effect is anticipated when the impacts of the proposed Project are added to reasonably foreseeable future projects in the area.

## 4.13 RELIABILITY AND SAFETY

### 4.13.1 Pipeline Facilities

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 asphyxiant, posing only a slight inhalation hazard. It is lighter than air and, therefore, tends to disperse upwards into the atmosphere rather than concentrating at ground level. Methane has an auto-ignition temperature of 1,000º Fahrenheit and is flammable at concentrations between 5.0 percent and 15.0 percent in air.

Unconfined mixtures of methane in air are not explosive. Methane's lighter-than-air condition does not allow it to concentrate, but at a flammable concentration within an enclosed space and in the presence of an ignition source, it can cause explosion. The specific gravity of methane is 0.55, so it is buoyant at atmospheric temperatures.

#### 4.13.1.1 Pipeline Safety Standards

The DOT is mandated to provide pipeline safety under Title 49, U.S.C. Chapter 601. The Pipeline and Hazardous Materials Safety Administration, Office of Pipeline Safety (PHMSA, OPS), administers the national regulatory program to ensure the safe transportation of natural gas and other hazardous materials by pipeline. It develops safety regulations and other approaches to risk management that ensure safety in the design, construction, testing, operation, maintenance, and emergency response of pipeline facilities. Many of the regulations are written as performance standards, which set the level of safety to be attained and allow the pipeline operator to use various technologies to achieve safety. The PHMSA ensures that people and the environment are protected from the risk of pipeline incidents. This work is shared with state agency partners and others at the federal, state, and local level. Section 5(a) of the Natural Gas Pipeline Safety Act provides for a state agency to assume all aspects of the safety program for intrastate facilities by adopting and enforcing the federal standards, while Section 5(b) permits a state agency that does not qualify under Section 5(a) to perform certain inspection and monitoring functions. A state may also act as DOT's agent to inspect interstate facilities within its boundaries; however, the DOT is responsible for enforcement action. The majority of the states have either 5(a) certifications or 5(b) agreements, while nine states act as interstate agents.

The DOT pipeline standards are published in 49 CFR Parts 190-199; Part 192 specifically addresses natural gas pipeline safety issues.

Under a Memorandum of Understanding on Natural Gas Transportation Facilities (Memorandum) dated January 15, 1993, between the DOT and the FERC, the DOT has the exclusive authority to promulgate federal safety standards used in the transportation of natural gas. Section 157.14(a)(9)(vi) of the FERC's regulations require that an applicant certify that it will design, install, inspect, test, construct, operate, replace, and maintain the facility for which a certificate is requested in accordance with federal safety standards and plans for maintenance and inspection, or shall certify that it has been granted a waiver of the requirements of the safety standards by the DOT in accordance with Section 3(e) of the Natural Gas Pipeline Safety Act. The FERC accepts this certification and does not impose additional safety standards other than the DOT standards. If the FERC becomes aware of an existing or potential safety problem, there is a provision in the Memorandum to promptly alert DOT. The Memorandum also provides for referring complaints and inquiries made by state and local governments and the general public involving safety matters related to pipelines under the Commission's jurisdiction.

The FERC also participates as a member of the DOT's Technical Pipeline Safety Standards Committee, which determines whether proposed safety regulations are reasonable, feasible, and practicable.

The pipeline and aboveground facilities associated with the proposed 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. Part 192 specifies material selection and qualification, minimum design requirements, and protection from internal, external, and atmospheric corrosion.

Part 192 also defines area classifications, based on population density in the vicinity of the pipeline, and specifies more rigorous safety requirements for populated areas. The class location unit is an area that extends 220 yards on either side of the centerline of any continuous 1-mile length of pipeline. The four area classifications are defined as follows:

| | |
|---|---|
| Class 1 | Location with 10 or fewer buildings intended for human occupancy. |
| Class 2 | Location with more than 10 but less than 46 buildings intended for human occupancy. |
| Class 3 | Location with 46 or more buildings intended for human occupancy or where the pipeline lies within 100 yards of any building, or small well-defined outside area occupied by 20 or more people on at least 5 days a week for 10 weeks in any 12-month period. |
| Class 4 | Location where buildings with four or more stories above ground are prevalent. |

Class locations representing more populated areas require higher safety factors in pipeline design, testing, and operation. Pipelines constructed on land in Class 1 locations must be installed with a minimum depth of cover of 30 inches in normal soil and 18 inches in consolidated rock. Class 2, 3, and 4 locations, as well as drainage ditches of public roads and railroad crossings, require a minimum cover of 36 inches in normal soil and 24 inches in consolidated rock.

Class locations also specify the maximum distance to a sectionalizing block valve (i.e., 10.0 miles in Class 1, 7.5 miles in Class 2, 4.0 miles in Class 3, and 2.5 miles in Class 4). Pipe wall thickness and pipeline design pressures, hydrostatic test pressures, maximum allowable operating pressure, inspection and testing of welds, and frequency of pipeline patrols and leak surveys also must conform to higher standards in more populated areas.

Class locations along the proposed Project route have been determined in accordance with the DOT Minimum Federal Safety Standards in 49 CFR Part 192 for the pipe classifications along the Project. Class locations for the Fayetteville Lateral and Greenville Lateral are listed by milepost in table 4.13.1-1. The 0.8-mile Kosciusko 36-inch Tie-in Lateral and the 0.4-mile Kosciusko/Southern Natural 20-inch Tie-in Lateral are located entirely in a Class 1 area. No portions of the pipeline routes would be in Class 4 areas.

If a subsequent increase in population density adjacent to the right-of-way indicates a change in class location for the pipeline, Texas Gas would be required to reduce the maximum allowable operating pressure or replace the segment with pipe of sufficient grade and wall thickness, if required, to comply with the DOT code of regulations for the new class location.

In 2002, Congress passed an act to strengthen the nation's pipeline safety laws. The Pipeline Safety Improvement Act of 2002 (HR 3609) was passed by Congress on November 15, 2002, and signed into law by the President in December 2002. No later than December 17, 2004, gas transmission operators were required to develop and follow a written integrity management program that contains all the elements described in section 192.911 and addresses the risks on each covered transmission pipeline segment. Specifically, the law establishes an integrity management program that applies to all high consequence areas (HCAs). The DOT (68 Federal Register 69778, 69 FR 18228, and 69 FR 29903) defines HCAs as they relate to the different class zones, potential impact circles, or areas containing an identified site as defined in section 192.903 of the DOT regulations.

**TABLE 4.13.1-1**

**Class Locations by Milepost**

| Feature | Class 1 | | Class 1 Length | Class 2 | | Class 2 Length | Class 3 | | Class 3 Length |
|---|---|---|---|---|---|---|---|---|---|
| **Fayetteville Lateral** | | | | | | | | | |
| | **From** | **To** | | **From** | **To** | | **From** | **To** | |
| Class 1 | 0.0 | 46.5 | 46.5 | | | | | | |
| Class 2 – Residential | | | | 46.5 | 47.6 | 1.1 | | | |
| Class 1 | 47.6 | 61.0 | 13.4 | | | | | | |
| Class 2 – Residential | | | | 61.0 | 63.1 | 2.1 | | | |
| Class 1 | 63.1 | 145.9 | 82.8 | | | | | | |
| Class 2 - Residential | | | | 145.9 | 146.6 | 0.7 | | | |
| Class 1 | 146.6 | 166.2 | 19.6 | | | | | | |
| **Total Class 1, Fayetteville Lateral** | | | **162.3** | | | | | | |
| **Total Class 2, Fayetteville Lateral** | | | | | | **3.9** | | | |
| **Total Class 3, Fayetteville Lateral** | | | | | | | | | **0.00** |
| **Greenville Lateral** | | | | | | | | | |
| Class 1 | 0.0 | 0.1 | 0.1 | | | | | | |
| Class 3 - Apartment Complex | | | | | | | 0.1 | 0.4 | 0.3 |
| Class 1 | 0.4 | 63.3 | 62.9 | | | | | | |
| Class 2 - Population Density | | | | 63.3 | 65.2 | 1.9 | | | |
| Class 1 | 65.2 | 78.1 | 12.9 | | | | | | |
| Class 2 - Population Density | | | | 78.1 | 79.1 | 1.0 | | | |
| Class 1 | 79.1 | 82.4 | 3.3 | | | | | | |
| Class 2 - Population Density | | | | 82.4 | 83.6 | 1.2 | | | |
| Class 1 | 83.6 | 94.7 | 11.1 | | | | | | |
| Class 2 - Population Density | | | | 94.7 | 95.0 | 0.3 | | | |
| Class 1 | 95.0 | 96.4 | 1.4 | | | | | | |
| **Total Class 1, Greenville Lateral** | | | **91.7** | | | | | | |
| **Total Class 2, Greenville Lateral** | | | | | | **4.4** | | | |
| **Total Class 3, Greenville Lateral** | | | | | | | | | **0.3** |

OPS published a series of rules from August 6, 2002, to May 26, 2004 (69 FR 29903), that defines HCAs where a gas pipeline accident could do considerable harm to people and their property and requires an integrity management program to minimize the potential for an accident. This definition satisfies, in part, the Congressional mandate in 49 U.S.C. 60109 for OPS to prescribe standards that establish criteria for identifying each gas pipeline facility in a high-density population area.

The HCAs may be defined in one of two ways. In the first method, an HCA includes:

- current Class 3 and 4 locations,
- any area in Class 1 or 2 where the potential impact radius[5] is greater than 660 feet and there are 20 or more buildings intended for human occupancy within the potential impact circle[6], or
- any area in Class 1 or 2 where the potential impact circle includes an identified site.[7]

In the second method, an HCA includes any area within a potential impact circle that contains:

- 20 or more buildings intended for human occupancy, or
- an identified site.

Once a pipeline operator has determined the HCAs along its pipeline, it must apply the elements of its integrity management program to those segments of the pipeline within HCAs. The DOT regulations specify the requirements for the integrity management plan at § 192.911.

HCAs for the proposed Project have been determined in accordance with the DOT Minimum Federal Safety Standards in 49 CFR Part 192 for the pipe classifications along the proposed route, and are summarized in table 4.13.1-2. No HCAs were identified along the proposed 0.8-mile Kosciusko 36-inch Tie-in Lateral or the 0.4-mile Kosciusko 20-inch Tie-in Lateral.

The pipeline integrity management rule for HCAs requires inspection of the entire pipeline in HCAs every 7 years.

Part 192 prescribes the minimum standards for operating and maintaining pipeline facilities, including the requirement to establish a written plan governing these activities. Under Section 192.615, each pipeline operator also must establish an emergency plan that includes procedures to minimize the hazards in a natural gas pipeline emergency. Key elements of the plan include procedures for:

- receiving, identifying, and classifying emergency events, gas leakage, fires, explosions, and natural disasters;
- establishing and maintaining communications with local fire, police, and public officials, and coordinating emergency response;
- emergency shutdown of system and safe restoration of service;
- making personnel, equipment, tools, and materials available at the scene of an emergency; and

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5 The potential impact radius is calculated as the product of 0.69 and the square root of the maximum allowable operating pressure of the pipeline in psi multiplied by the pipeline diameter in inches.

6 The potential impact circle is a circle of radius equal to the potential impact radius.

7 An identified site is an outside area or open structure that is occupied by 20 or more persons on at least 50 days in any 12-month period; a building that is occupied by 20 or more persons on at least 5 days a week for any 10 weeks in any 12-month period; or a facility that is occupied by persons who are confined, are of impaired mobility, or would be difficult to evacuate.

- protecting people first and then property, and making them safe from actual or potential hazards.

**TABLE 4.13.1-2**

**High Consequence Areas**

| HCA | Begin Milepost | End Milepost | Length (miles) | Description |
|---|---|---|---|---|
| **Fayetteville Lateral** | | | | |
| No HCAs on Fayetteville Lateral | | | | |
| | **Total HCA Fayetteville Lateral** | | **0.0** | |
| **Greenville Lateral** | | | | |
| HCA | 0.0 | 0.4 | 0.4 | Apartment Complex |
| HCA | 64.0 | 64.5 | 0.5 | Church Complex |
| HCA | 73.1 | 73.6 | 0.5 | Church Camp |
| HCA | 76.4 | 76.5 | 0.1 | Manufacturing Building |
| | **Total HCA Greenville Lateral** | | **1.5** | |

Part 192 requires that each operator must establish and maintain liaison with appropriate fire, police, and public officials to learn the resources and responsibilities of each organization that may respond to a natural gas pipeline emergency, and to coordinate mutual assistance. The operator also must 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. Texas Gas would provide the appropriate training to local emergency service personnel before the pipeline is placed in service. No additional specialized local fire protection equipment would be required to handle pipeline emergencies.

### 4.13.1.2 Pipeline Accident Data

Starting February 9, 1970, 49 CFR Part 191 required all operators of transmission and gathering systems to notify the DOT of any reportable incident and to submit a report on form F7100.2 within 20 days. Reportable incidents are defined as any leaks that:

- caused a death or personal injury requiring hospitalization;
- required taking any segment of transmission line out of service;
- resulted in gas ignition;
- caused estimated damage to the property of the operator, or others, or both, of a total of $5,000 or more;
- required immediate repair on a transmission line;
- occurred while testing with gas or another medium; or
- in the judgment of the operator was significant, even though it did not meet the above criteria.

The DOT changed reporting requirements after June 1984 to reduce the amount of data collected. Since that date, operators must report only incidents that involve property damage of more than $50,000, injury, death, release of gas, or that are otherwise considered significant by the operator. Table 4.13.1-3 presents a summary of incident data for the 1970 to 1984 period, as well as more recent incident data for 1986 through 2003, recognizing the difference in reporting requirements. The 14.5-year period from 1970 through June 1984, which provides a larger data set and more basic report information than subsequent years, has been subject to detailed analysis (Jones et al., 1986), as described in the following sections.

**TABLE 4.13.1-3**

**Natural Gas Service Incidents by Cause**

| | **Incidents per 1,000 miles of Pipeline (percentage)** | |
|---|---|---|
| **Cause** | **1970-1984** | **1986-2005** |
| Outside force | 0.70 (53.8) | 0.10 (38.4) |
| Corrosion | 0.22 (16.9 | 0.06 (23.1) |
| Construction or material defect | 0.27 (20.8) | 0.04 (15.4) |
| Other | 0.11 (8.5) | 0.06 (23.1) |
| **Total** | **1.30** | **0.26** |

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Source: Jones et al. (1986); USDOT, OPS http//ops.dot.gov/stats.htm (2006)

During the 14.5-year period, 5,862 service incidents were reported over the more than 300,000 total miles of natural gas transmission and gathering systems nationwide. Service incidents, defined as failures that occur during pipeline operation, remained fairly constant over this period, with no clear upward or downward trend in annual totals. In addition, 2,013 test failures were reported. Correction of test failures removed defects from the pipeline before operation.

Additional insight into the nature of service incidents may be found by examining the primary factors that caused the failures. Table 4.13.1-3 provides a percentage distribution of the causal factors as well as the annual frequency of each factor per 1,000 miles of pipeline in service. The pipelines included in the data set in table 4.13.1-3 vary widely in terms of age, pipe diameter, and level of corrosion control. Each variable influences the incident frequency that may be expected for a specific segment of pipeline.

The dominant incident cause is outside forces, constituting 53.8 percent of all service incidents in the 1970–1984 period and 38.4 percent in the 1986–2003 period. Outside forces incidents result from the encroachment of mechanical equipment such as bulldozers and backhoes; earth movements due to soil settlement, washouts, or geologic hazards; weather effects such as winds, storms, and thermal strains; and willful damage. Table 4.13.1-4 shows that human error in equipment usage was responsible for about 75 percent of outside forces incidents. Since April 1982, operators have been required to participate in "One Call" public utility programs in populated areas to minimize unauthorized excavation activities in the vicinity of pipelines. The "One Call" program is a service used by public utilities and some private sector companies (e.g., oil pipelines and cable television) to provide preconstruction information to contractors or other maintenance workers regarding the underground location of pipes, cables, and culverts. The 1986 through 2003 data show that the portion of incidents caused by outside forces has decreased to 38.4 percent.

The frequency of service incidents is strongly dependent on pipeline age. While pipelines installed since 1950 exhibit a fairly constant level of service incident frequency, pipelines installed before that time have a significantly higher rate, partially due to corrosion. Older pipelines have a higher frequency of corrosion incidents, since corrosion is a time-dependent process. Further, new pipe generally uses more advanced coatings and cathodic protection to reduce corrosion potential.

**TABLE 4.13.1-4**

**Outside Forces Incidents by Cause (1970-1984)**

| Cause | Percent |
|---|---|
| Equipment operated by outside party | 67.1 |
| Equipment operated by or for operator | 7.3 |
| Earth movement | 13.3 |
| Weather | 10.8 |
| Other | 1.5 |

Older pipelines have a higher frequency of outside forces incidents partly because their location may be less well known and less well marked than newer lines. In addition, the older pipelines contain a disproportionate number of smaller diameter pipelines, which have a greater rate of outside forces incidents. Small diameter pipelines are more easily crushed or broken by mechanical equipment or earth movements.

Table 4.13.1-5 clearly demonstrates the effectiveness of corrosion control in reducing the incidence of failures caused by external corrosion. The use of both an external protective coating and a cathodic protection system, required on all pipelines installed after July 1971, significantly reduces the rate of failure compared to unprotected or partially protected pipe. The data shows that bare, cathodically protected pipe actually has a higher corrosion rate than unprotected pipe. This anomaly reflects the retrofitting of cathodic protection to actively corroding spots on pipes.

**TABLE 4.13.1-5**

**External Corrosion by Level of Control (1970-1984)**

| Corrosion Control | Incidents per 1,000 miles per Year |
|---|---|
| None-bare pipe | 0.42 |
| Cathodic protection only | 0.97 |
| Coated only | 0.40 |
| Coated and cathodic protection | 0.11 |

### 4.13.2 Impact on Public Safety

The service incident data summarized in table 4.13.1-3 include pipeline failures of all magnitudes with widely varying consequences. About two-thirds of the incidents were classified as leaks, and the remaining third classified as ruptures, implying a more serious failure.

Table 4.13.2-1 presents the average annual fatalities that occurred on natural gas transmission and gathering lines from 1970 to 2003. Fatalities between 1970 and June 1984 have been separated into employees and non-employees, to better identify a fatality rate experienced by the general public. Of the total 5.0 nationwide average, fatalities among the public averaged 2.6 per year over this period. The simplified reporting requirements in effect after June 1984 do not differentiate between employees and non-employees. However, the data show that the total annual average for the period 1984 through 2003 decreased to 3.8 fatalities per year. Subtracting two major offshore incidents in 1989, which do not reflect the risk to the onshore public, yields a total annual rate of 2.9 fatalities per year for this period.

**TABLE 4.13.2-1**

**Annual Average Fatalities - Natural Gas Transmission and Gathering Systems a,b/**

| Year | Employees | Non-employees | Total |
|---|---|---|---|
| 1970-June 1984 | 2.4 | 2.6 | 5.0 |
| 1984-2006 | | | 3.2 |
| 1984-2006 | | | 2.6 |

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a/ 1970 through June 1984 - American Gas Association, 1986.

b/ DOT Pipeline and Hazardous Materials Safety Administration. Office of Pipeline Safety (OPS).

c/ Employee/non-employee breakdown not available after June 1984.

d/ Without 18 offshore fatalities occurring in 1989 (11 fatalities resulted from a fishing vessel striking an offshore pipeline and 7 fatalities resulted from explosion on an offshore production platform).

The nationwide totals of accidental fatalities from various man-made and natural hazards are listed in Table 4.13.2-2 in order to provide a relative measure of the industry-wide safety of natural gas pipelines. Direct comparisons between accident categories should be made cautiously, however, because individual exposures to hazards are not uniform among all categories. Nevertheless, the average of 2.6 public fatalities per year is relatively small considering the more than 300,000 miles of transmission and gathering lines in service nationwide. Furthermore, the fatality rate is about two orders of magnitude (100 times) lower than the fatalities from natural hazards such as lightning, tornados, floods, earthquakes, etc.

The available data show that natural gas pipelines continue to be a safe, reliable means of energy transportation. Based on about 300,000 miles in service, the rate of public fatalities for the nationwide mix of transmission and gathering lines in service is 0.01 per year per about 1,000 miles of pipeline. Using this rate, the proposed Project might result in a public fatality every 380 years. This would represent a slight increase in risk to the nearby public.

**TABLE 4.13.2-2**

**Nationwide Accidental Deaths a/**

| Type of Accident | Fatalities |
|---|---|
| All accidents | 90,523 |
| Motor vehicles | 43,649 |
| Falls | 14,985 |
| Drowning | 3,488 |
| Poisoning | 9,510 |
| Fires and burns | 3,791 |
| Suffocation by ingested object | 3,206 |
| Tornado, flood, earthquake, etc. | 181 |
| (1984-93 average) | |
| All liquid and gas pipelines | 27 |
| (1978-87 average) b/ | |
| Gas transmission and gathering lines | 2.6 |
| Non-employees only (1970-84 average) c/ | |

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a/ All data, unless otherwise noted, reflects 1996 statistics from the U.S. Department of Commerce, Bureau of the Census, Statistical Abstract of the U.S. 118th edition.

b/ U.S. Department of Transportation, Annual Report on Pipeline Safety - Calendar Year 1987.

c/ American Gas Association, 1986.

# 5.0 CONCLUSIONS AND RECOMMENDATIONS

## 5.1 SUMMARY OF THE STAFF'S ENVIRONMENTAL ANALYSIS

We have determined that construction and operation of the proposed Texas Gas Fayetteville/Greenville Expansion Project would result in limited adverse environmental impacts based on information provided by Texas Gas and information developed from data requests; our field investigations; literature research; alternatives analysis; comments from federal, state, and local agencies; and input from public groups and individual citizens.

As part of our review, we developed measures to avoid, minimize, or mitigate environmental impacts resulting from construction and operation of the proposed Project. We are, therefore, recommending that our mitigation measures be attached as conditions to any authorization issued by the Commission. A summary of the anticipated Project impacts and our conclusions are provided below by resource. We believe that if the proposed Project is constructed and operated in accordance with applicable laws and regulations, Texas Gas's proposed mitigation, and our additional recommended mitigation measures, it would be an environmentally acceptable action.

### Geology

Construction and operation of the proposed Project would have minimal impact on geologic resources. About 55 miles of the westernmost portion of the proposed Fayetteville Lateral would cross Southwestern's Fayetteville Shale gas production area, and 10 active wells would be within 0.5 mile of the Project. Active well drilling and gathering line installation was observed during our site visits to this area. Therefore, additional wells may be within 0.5 mile of the proposed Fayetteville Lateral in the future. Texas Gas has consulted with Southwestern to develop a pipeline route through the gas production area to minimize conflicts with ongoing development of this resource and to plan locations for M&R stations to interconnect with Southwestern's gathering pipelines.

Construction and operation of the proposed Project is not likely to adversely affect development of oil and gas in the area. Operation of the Project could assist in developing this resource since the purpose of the Project is to provide pipeline capacity to transport the new natural gas supplies being developed from the Fayetteville Shale gas production area.

The Project would cross an area of relatively low seismic risk, and the potential for damage to the pipeline from earthquake or soil liquefaction hazard would be minimal. There are no areas prone to landslides or sinkhole development along any of the proposed pipeline routes or at any proposed aboveground facility site. Geologic risk associated with construction and operation of the Project would not be significant. Blasting may be required along portions of the Fayetteville Lateral but would not be required for construction of the Greenville Lateral. Blasting for grade or trench excavation would be considered only after all other reasonable means of excavation have been evaluated and determined to be unlikely to achieve the required results. Texas Gas may specify locations (foreign line crossings, nearby structures, etc.) where consolidated rock would be removed by approved mechanical equipment (e.g., rock trenching machines, rock saws, hydraulic rams, and jack hammers) in lieu of blasting. All blasting activities would comply with federal, state and local regulations and permit conditions and would be conducted by or under the direct supervision of experienced, licensed, and certified personnel. If blasting is required, Texas Gas would use the minimum explosive charge necessary to fracture bedrock and keep shot-rock from leaving the construction right-of-way in accordance with its blasting specifications (see section 4.1.3.5). Where necessary, excess rock would be hauled off site, away from the right-of-way or, subject to landowner approval and applicable permit conditions, disposed of on the right-of-way. We believe that impacts due to blasting would be minimized by implementing Texas Gas's blasting specifications, and further, Texas Gas has agreed to repair, replace, or compensate landowners for damage caused by blasting.

No areas of special or unusual paleontological resources were identified within the proposed Project construction workspaces or within the footprints of associated aboveground facilities. If significant paleontological resources are identified during construction, Texas Gas would report findings to the Arkansas Geologic Commission or the MDEQ. Based on the lack of unusual or significant paleontological resources within the Project area, we believe that construction and operation of the proposed Project would not significantly affect paleontological resources.

**Soils**

Construction activities such as clearing, grading, trenching, and backfilling, as well as the movement of equipment along the construction right-of-way, may result in adverse impacts on soil resources. These impacts would include soil mixing, compaction, and erosion by water and wind. To minimize mixing of topsoil and subsoil during pipeline construction in agricultural areas, and residential areas where requested, a maximum of the upper 12 inches of topsoil would be excavated and segregated from subsoil trench spoil. The topsoil would be returned during right-of-way restoration. Texas Gas would implement decompaction measures such as para-plowing, deep tillage, or planting and plowing-in a green manure crop to improve soil bulk density for severely compacted soils. Appropriate erosion control measures, including the installation of slope breakers and sediment barriers such as silt fence or hay bales, the use of mulch and erosion control fabrics, and the restoration of the right-of-way within 20 days of backfilling the trench, weather conditions permitting, would be used to minimize and control erosion. If active drainage tiles, culverts, or other drainage facilities are damaged during construction, Texas Gas would replace or repair them to a condition that is equal to or better than preconstruction condition. No areas of soil contamination were identified within the construction footprint of the Project area.

About 32 percent of the soil along the Fayetteville Lateral and about 90 percent of the soil along the Greenville Lateral are considered hydric. Areas where hydric soils would occur with wetland hydrology and vegetation are identified in section 4.4. Hydric soils are prone to compaction and rutting due to extended periods of saturation and high clay content. If construction occurs when these soils are saturated, heavy equipment operation would be impaired and compaction and rutting could occur. Texas Gas would decompact soils during restoration to alleviate compaction. High groundwater levels that accompany hydric soils could create a buoyancy hazard for the pipeline. The pipeline would have concrete coating and would be weighted to overcome buoyancy when the pipeline is buried so that the buoyancy hazard would be minimized during operation. Texas Gas also would install the pipeline and restore the right-of-way in accordance with our Plan and Procedures; therefore, we conclude that impacts on hydric soils would be minimized during construction and operation of the Project.

**Water Resources**

*Groundwater*

Construction of the pipeline and aboveground facilities could affect groundwater in several ways. Clearing, grading, trenching, and soil stockpiling activities could temporarily alter overland flow and groundwater recharge. Near-surface soil compaction caused by the operation of heavy construction equipment could reduce the soil's ability to absorb water, which could increase surface runoff and the potential for ponding and could alter aquifer recharge. However, these impacts would be localized and temporary. Upon completion of construction, Texas Gas would restore the ground surface as closely as practicable to original contours, conduct decompaction where appropriate, and revegetate the right-of-way to restore preconstruction overland flow and recharge patterns.

Unconfined aquifers and shallow groundwater areas could be vulnerable to contamination caused by inadvertent surface spills of hazardous materials used during construction. Texas Gas has developed its SPCC Plan (appendix D), which conforms to section IV.A of our Procedures, to address preventive and mitigative measures to avoid or minimize the potential for hazardous material spills during construction. We have reviewed the SPCC Plan and find that it adequately addresses the storage and transfer of hazardous materials and the response to be taken in the event of a spill.

No public water supply wells would be within 150 feet of the Fayetteville Lateral. Three public water supply wells would be within 150 feet of the Greenville Lateral workspaces. The MDEQ has no specific requirements for construction near these wells other than a request that caution be observed to avoid damage to the wellheads. Texas Gas would clearly mark the wellheads to prevent damage during construction activities. Texas Gas also would use BMPs and implement the procedures of its SPCC Plan if any spill of hazardous materials occurs during construction.

The ADHHS identified three WHPAs and water supply watersheds (Brewer Lake and Little Red River watersheds) within 1 mile of the proposed Fayetteville Lateral. The ADHHS suggested a route variation and alternative, respectively, to move the Fayetteville Lateral out of these watersheds or for Texas Gas to provide the ADHHS with its plan for constructing through the watersheds so that ADHHS may document any potential impact on the water supply. We analyzed the route variation and alternative suggested by the ADHHS but concluded that the corresponding segments of the proposed route were the preferred alternatives (see section 3.3.3). We are, however, recommending that Texas Gas consult with the ADHHS about the construction methods it would use to cross the Brewer Lake and Little Red River watersheds so that any additional mitigation measures to protect these resources could be identified prior to construction.

Fifteen private water supply wells would be within 150 feet of construction workspaces, and three private wells would be within 150 feet of access roads along the Fayetteville Lateral. For the proposed Greenville Lateral, 12 private wells would be within 150 feet of the construction footprint, three private wells would be within 150 feet of access roads, and four private wells would be within 150 feet of storage yards. Texas Gas would conduct pre- and post-construction yield and water quality tests on water wells within 150 feet of construction workspaces, with landowner permission, and would repair any water supply systems damaged by construction activities. Texas Gas would provide a temporary source of water if water supplies are disrupted until repairs are made.

No workspaces would be within 150 feet of springs. However, they may be identified during easement negotiations with landowners prior to construction, and the locations of water wells may also be known with greater refinement at that time. Therefore, we are recommending that Texas Gas update the locations of water wells and springs within 150 feet of construction workspaces prior to construction.

If Texas Gas uses BMPs during Project construction and operation, implements the mitigation measures in our Plan and Procedures and in its SPCC Plan, then impacts on groundwater resources would be minimized to the greatest extent practicable.

*Surface Water*

The Fayetteville and Greenville Laterals and the Kosciusko 36-inch Tie-in Lateral would cross a total of 70 perennial and 413 intermittent waterbodies. No waterbodies would be crossed by the Kosciusko 20-

inch Tie-in Lateral. No potable water intakes would be within 3 miles downstream of any proposed waterbody crossing. The Project pipelines would cross 13 waterbodies that may contain contaminated sediments, six by the Fayetteville Lateral and seven on the Greenville Lateral. Of these waterbodies, seven would be crossed by HDD methods, thereby avoiding sediment disruption. The remaining six waterbodies would be crossed by conventional open-cut methods. The ADEQ and MDEQ would require Texas Gas to coordinate with them about crossing these waterbodies and would require appropriate construction, notification, and mitigation procedures in any permits they issue for the Project. Texas Gas would file these permits with the FERC when they are received.

The proposed pipelines would cross nine ecologically unique or significant waterbodies, seven in Arkansas and two in Mississippi. In addition, the proposed pipelines would cross 12 waterbodies that do not meet water quality standards associated with their designated uses, eight in Arkansas and four in Mississippi. Eight of these waterbodies would be crossed by HDD, which would minimize the potential for impact on the ecologically significant or unique waterbodies and would minimize the potential for further degradation of water quality in waterbodies that have suspected impairment. The remaining waterbodies would be crossed using an open-cut method. The ADEQ and MDEQ have recommended no additional mitigation measures. We are recommending additional mitigation be developed for crossing Cadron Creek (see below).

The proposed pipelines would cross four waterbodies listed on the NRI: Big Creek (MP 46.1), Cadron Creek (MP 14) and Bayou De View (MP 96.0) on the Fayetteville Lateral; and Big Black River (MP 77.7) along the Greenville Lateral. With the exception of Cadron Creek, Texas Gas proposes to cross these waterbodies by HDD. We believe use of the HDD method to cross these NRI-listed waterbodies would minimize impacts to the greatest extent practicable. We are recommending that Texas Gas consult with the NPS and ADEQ about its proposed site-specific crossing plan for crossing Cadron Creek by open-cut and to file a supplemental site-specific plan with additional mitigation measures that would minimize and control sedimentation downstream from the proposed crossing for review and inclusion in the final EIS.

The proposed pipelines would cross 17 major waterbodies, including the Mississippi River. Of these waterbodies, 14 would be crossed by HDD. The remaining waterbodies would be crossed using open-cut methods. Texas Gas has not yet completed geotechnical investigations to determine if the proposed HDDs could be successfully completed. Therefore, we are recommending that Texas Gas file the reports for these investigations prior to the end of the draft EIS comment period. If an HDD is not completed successfully, Texas Gas would need to obtain permits for an alternate crossing plan from the USACE and the appropriate state agency. Therefore, we are recommending that if any of the HDDs are unsuccessful, Texas Gas should file with the Secretary a site-specific alternative crossing plan for each waterbody where the planned HDD could not be completed. Texas Gas would implement its proposed HDD Contingency Plan to minimize impacts in the event that HDD attempts fail. We reviewed this plan and find it acceptable.

Texas Gas would hydrostatically test its pipeline prior to operation in compliance with DOT regulations. No chemicals would be added to the water during testing. Texas Gas has identified 12 waterbodies as potential hydrostatic test water source and discharge locations. Some of these waterbodies are identified as ecologically significant (Big Black River and Cadron Creek), a trout fishery stream (Little Red River), as not meeting water quality standards (Cadron Creek, Little Red River, and Big Black River), or are known to have contaminated sediments (Yazoo River, Big Sunflower River, and Big Black River). Our Procedures require that state-designated exceptional value waters and waters that provide habitat for federally listed threatened or endangered species cannot be used for hydrostatic test water withdrawal or discharge unless appropriate federal, state, and/or local permitting agencies grant written permission (Procedures, section VII.C.2). The use of these waterbodies as hydrostatic testing water sources or discharges would be subject to approval pursuant to any required NPDES permit. Texas Gas would be required to obtain and comply with the requirements of permits issued by the ADEQ, ANRC, and MDEQ for the withdrawal and discharge of hydrostatic test water. Compliance with the requirements of our Plan and Procedures and the permitting requirements from state and local agencies would mitigate potential impacts resulting from the withdrawal and discharge of hydrostatic test water.

We believe that impacts due to construction and operation of the Project on surface water resources would be minimized by implementation of BMPs and our Procedures.

**Wetlands**

Construction and operation of the proposed Project would affect a total of 141.5 acres of wetlands, of which 107.4 acres would be temporarily impacted during construction and allowed to revert to pre-construction conditions. The remaining 33.9 acres would be permanently altered to some degree within the maintained permanent right-of-way. Of those 33.9 acres, about 13.2 acres would be permanently converted from forested and scrub-shrub wetland types to wetlands with herbaceous vegetation. These impacts would occur in a 10-foot-wide herbaceous strip Texas Gas would maintain above the centerline to facilitate operation and maintenance of the pipeline. The remaining 20.7 acres of impact would be associated with the conversion from a forested community to a shrub-scrub or emergent system within two 10-foot-wide strips on either side of the centerline strip. Texas Gas has indicated that 0.2 acre would be permanently lost due to the installation and operation of the permanently maintained Kosciusko Compressor Station; however, we are recommending that Texas Gas evaluate an alternative compressor station configuration to avoid impact on the 0.2-acre of wetland. Of the remaining acreage, about 13.2 acres would be permanently converted from forested and scrub-shrub wetlands to herbaceous vegetation since Texas Gas would maintain a 10-foot-wide herbaceous strip above the centerline to facilitate operation and maintenance of the pipeline. The remaining 20.7 acres of impact would be associated with the conversion from a forested community to a shrub-scrub or emergent system within 15 feet of either side of the pipeline centerline.

Texas Gas would use BMPs and the measures identified in our Procedures and in any permit that may be issued by other agencies to minimize impacts on wetlands during construction and operation of the Project. All wetlands in temporary construction workspaces would be allowed to revegetate and return to preconstruction conditions. Within the 50-foot-wide permanent right-of-way, maintenance activity would be limited to annual mowing along a 10-foot-wide strip centered over the pipeline and to selective cutting of vegetation that is more than 15 feet tall within a 30-foot-wide strip centered over the pipeline centerline. This would allow an additional 20 feet of wetland restoration to occur, thereby further minimizing permanent impacts on wetlands.

Texas Gas proposes using ATWSs in wetlands at certain locations, affecting about 10.7 acres of wetlands. Our Procedures require that an ATWS be located at least 50 feet away from wetland boundaries, and the proposed ATWSs would not have a 50-foot setback. In compliance with our Procedures, Texas Gas must file site-specific plans for use of each of the ATWSs in wetlands. We are recommending that, prior to construction, Texas Gas file a site-specific construction plan for each ATWS with a less than 50-foot setback from wetland boundaries (except where adjacent upland consists of actively cultivated or rotated cropland or other disturbed land) and a site-specific explanation of the conditions that will not permit a 50-foot setback.

The USACE will verify the potential wetland impacts due to Project construction as part of its permitting process. Texas Gas would provide compensation for any permanent loss of wetland resulting from construction and operation of the proposed Project, as well as long-term conversion of forested wetlands to non-forested conditions. Texas Gas would develop compensatory mitigation for all wetland impacts, in consultation with the USACE Little Rock, Memphis, and Vicksburg Districts. Texas Gas is proposing to compensate for wetland impacts through purchase of wetland mitigation bank credits, but specific compensation would be finalized during the course of the USACE Section 404 permitting for the proposed Project, if approved. Mitigation for these wetland impacts would be at a mitigation ratio as determined by the USACE. We have recommended that Texas Gas file the final wetland Mitigation Plan it develops with the USACE prior to construction.

Texas Gas would implement the construction, restoration, and maintenance measures described in our Procedures for Project construction and operation. The Project pipeline routes have been developed in consultation with us and the USACE and would avoid wetlands to the greatest extent practicable. Wetland impacts would be further minimized by using HDDs to cross several larger wetlands and associated waterbodies since wetlands within the path of the HDD would be avoided. Therefore, we believe that the proposed Project would have minimal impact on wetlands.

**Vegetation**

Project impacts on vegetative communities would vary depending upon disturbance duration, magnitude, and vegetation cover type. Most of the affected land would be in actively cultivated agricultural land (3,222.8 acres), which is regularly disturbed. The other primary vegetative types include upland forest (688.0 acres) and managed forest (59.4 acres). The remaining affected land would be in other land and open water (1,087 acres). The primary wetland community impacted would be palustrine forested/emergent (see above for a summary of wetland impacts). Long-term to permanent impacts would occur on forested habitat due to construction and operation. Although temporarily disturbed forested areas would be allowed to revegetate, it may take over 20 years for this type of vegetation to recover, depending on the age of the cleared trees. Following construction, all construction work areas would be restored, seeded with conservation grasses, legumes, native plant species or other standard erosion control/cover species, where required, and generally allowed to revegetate to preconstruction conditions in accordance with our Plan. The FWS recommends that native or non-persistent annual species be used to revegetate works areas. We are recommending that Texas Gas consult with the NRCS or other local soil conservation authorities regarding seeding and revegetation practices for the proposed Project and to file any agency-recommendations about this issue. The permanent right-of-way would be maintained in an herbaceous state following construction. In areas other than those with active cultivation, the permanent right-of-way would be maintained by mowing or vegetative clearing in accordance with our Plan and Procedures. There would be no long-term impacts in areas with existing herbaceous cover types following restoration. However, about 340 acres of upland forest and about 33.9 acres of forested wetlands would be permanently converted from forest land to an herbaceous cover.

The wetlands associated with the Cache River and Bayou De View have been identified as wetlands of international importance by the Ramsar Convention and as the most important wintering area for mallards by the North American Waterfowl Management Plan. The ivory billed woodpecker (*Campephilus principalis*) was identified within the Bayou De View portion of the Cache River NWR. The Cache River basin contains a variety of wetland communities, including some of the most intact and least disturbed bottomland hardwood forests in the Mississippi Valley Region. The White River area also contains bottomland hardwood forests. Texas Gas proposes to use HDDs to cross the White and Cache Rivers and Bayou De View and their associated forested wetlands. We believe that Texas Gas's use of HDDs to avoid impacts on these waterbodies and adjacent forested wetlands and their use of our Procedures would minimize impacts on these vegetative resources.

The temporary removal of vegetation may result in increased opportunities for invasive and exotic species to establish themselves in Project rights-of-way and extra workspaces. Adherence to Texas Gas's proposed Exotic and Invasive Species Control Plan, in conjunction with consultations with local, state, and federal agencies, would minimize the potential for introduction or establishment of nuisance and exotic species within the Project area. Reestablishment of vegetation in all disturbed areas soon after backfilling the trench and final grading would minimize the opportunities for invasive species to become established. We believe that Texas Gas's use of its Exotic and Invasive Species Control Plan would minimize the spread of noxious weeds and invasive plants.

**Wildlife and Aquatic Resources**

*Wildlife*

Direct impacts of construction on wildlife would include displacement of wildlife from the right-of-way and direct mortality of some individuals. The cutting, clearing, and/or removal of existing vegetation would involve temporary alteration and permanent loss of habitat. In general, these effects are not expected to have a significant impact on wildlife populations because all of the habitats that would be affected are relatively abundant elsewhere in the proposed Project area, and about 64 percent of the land use that would be affected by the Project is already disturbed by agriculture. Furthermore, Texas Gas's implementation of our Plan and Procedures and use of seed mixes prescribed by the local NRCS offices or the appropriate land management agency would improve the potential for successful revegetation of the right-of-way after construction. Habitat loss in agricultural land and pasture would not have a significant effect on wildlife in the area because of the abundance of these types of habitat in the vicinity of the proposed Project and the limited value of these habitat types to wildlife.

The permanent pipeline right-of-way would be revegetated after construction has been completed. Although temporary and permanent impacts on food, cover, and water sources may occur, none of the species identified within the Project area are specialized in such a way that construction of a pipeline would inhibit the overall fitness or reproductive viability of the populations as a whole. Many of the mammal, bird, reptile, and amphibian species are adaptive to changing habitat conditions and have the capability of temporarily expanding or shifting their home ranges to find alternative sources of food, water, and shelter until the right-of-way habitats become reestablished.

The Project would be within the Mississippi flyway and the eastern edge of the Central flyway in Texas for migratory birds. Texas Gas would minimize impacts on migratory birds and their habitats by crossing the Mississippi River, White River, Cache River, Bayou De View, and their associated riparian habitats by HDD.

The Project corridor includes areas of emergent marsh and riparian habitat that could provide habitat for colonial nesting waterbirds. However, no documented rookeries would be within 0.5 mile of the Project. Given the abundant adjacent areas that can provide alternative habitat, we conclude that there would be minimal impact on colonial nesting waterbirds.

The proposed Pipeline would cross two NWRs: the Cache River NWR in Woodruff County, Arkansas, and Hillside NWR in Holmes County, Mississippi. Texas Gas proposes to cross under the NWRs by HDD, thereby avoiding impacts on these resources. In the event that the HDD attempt fails, Texas Gas would be required to consult with appropriate state and federal agencies prior to implementing an alternative crossing method.

*Aquatic Resources*

The proposed Project would cross 70 perennial waterbodies. Potential impacts on aquatic resources from Project construction and operation include those associated with and pipeline construction across waterbodies and through wetlands. Waterbody crossings would be accomplished using open-cut or HDD methods. Impacts on fisheries resources resulting from open-cut pipeline construction activities at waterbody crossings can include sedimentation and turbidity, alteration or removal of in-stream and stream bank fish cover, introduction of water pollutants, and entrainment of small organisms during hydrostatic testing. Generally, pipeline construction through waterbodies results in temporary impacts, and there are no long-term effects on water temperature, pH, dissolved oxygen, benthic invertebrate populations, or fish populations. The open-cut method would also affect fish by blocking migration pathways and interrupting spawning activities. Our Procedures require that, in waterbodies with cold-water fisheries, in-stream work be completed between June 1 through September 30; and in waterbodies with warm-water fisheries, in-stream work be completed between June 1 and November 30. Although construction disturbances would temporarily displace fish or hinder migrations in waterbodies, we anticipate that these affects would be localized, temporary, and generally minor.

Overall impacts on the fishery resources in the Project area generally would be minimal and short-term. Pipeline construction and restoration activities within and adjacent to waterbodies would be conducted in accordance with our Plan and Procedures to minimize impacts on fisheries, their habitat, and other aquatic organisms. In addition, Texas Gas would implement additional protective measures as may be required by state and federal agencies as part of their permitting processes.

Direct spills of petroleum or other toxic products into waterbodies during construction and facility operation could be harmful to aquatic organisms, depending on the type, quantity, and concentration of the spill. To reduce the potential for direct surface water contamination, Texas Gas would implement the procedures in its SPCC Plan, including restrictions on refueling equipment and storing fuel and other potentially toxic materials at least 100 feet from waterbodies during construction.

Post-construction or operational impacts of the pipeline would be minimal. Restoration of the vegetation along the pipeline construction work areas would minimize erosion potential relative to waterbodies. Minimal impact on fisheries would be expected from maintenance mowing or manual removal of woody vegetation since maintenance activities would be conducted in accordance with our Plan and Procedures.

**Threatened and Endangered Species**

Based on the presence of habitat and historical records of occurrence, 12 federally listed endangered and threatened species potentially occur within the proposed Project area. These include: one mammal (Louisiana black bear), four bird species (bald eagle, interior least tern, ivory-billed woodpecker, and woodstork), one fish species (pallid sturgeon), four mussel species (fat pocketbook, pink mucket, scaleshell, and speckled pocketbook), one insect (American burying beetle), and one plant species (pondberry). In addition, one candidate fish species was identified: the yellow cheek darter. A number of state-listed plant and mussel species also were identified within the vicinity of the Project area.

The FWS and AGFC recommended that a survey for the listed mussel species be conducted in 12 specific Arkansas waterbodies that would be crossed by the open–cut method. Texas Gas completed this survey in October 2007; however, they have not yet provided the report about the survey to the FERC or the FWS. Texas Gas has indicated, however, that none of the federally listed mussel species were found.

No federally or state listed species were observed during field surveys of the Project area. The FWS and ANHC have expressed concern regarding impacts on habitat of the pondberry, and the ANHC has recommended avoiding its potential habitat. We are recommending that Texas Gas identify the milepost locations of potential pondberry habitat within or immediately adjacent to construction workspaces and explain how it would implement the ANHC's recommendations to avoid suitable pondberry habitat (i.e., sandpond forest and wooded depressional habitat) at each location. We believe that, except for the federally listed mussel species, the Project is not likely to adversely affect federally listed threatened or endangered species. A determination on the federally listed mussel species would be made only after review of Texas Gas's pending mussel survey report. We are recommending that Texas Gas not begin construction activities until our consultation with the FWS about impacts on federally listed threatened or endangered species is concluded.

**Land Use, Recreation, and Visual Resources**

Construction of the Project would disturb about 5,057.2 acres of land, including about 3,199.6 acres during construction of the proposed pipeline facilities, 113.5 acres during construction of aboveground facilities, 635.0 acres for ATWS, 946.6 acres for pipe and contractor storage yards, and 162.5 acres for access roads. About 1,731.2 acres would be required for the permanent pipeline right-of-way and aboveground facilities. Agricultural land would be the primary land use affected by construction (3,222.8 acres) and operation (1,108.5 acres) of the Project. Upland and managed forest land use would have the next greatest impact (747.4 acres during construction, 340 acres during operation). Open land use types include non-forested rangeland, pastureland, non-agricultural fields, prairie, and open land in the early stages of succession. Upland forest impact would be followed by open land use (437.4 acres during construction, 124.3 acres during operation). About 174.8 acres of commercial/industrial land use would be impacted by the Project, of which about 0.5 acre would be required for the permanent pipeline right-of-way. The remaining land use affected includes other land and open water (474.8 acres during construction, 157.9 acres during operation). Texas Gas would obtain an easement from landowners to construct and operate the pipeline and associated facilities.

The primary impact on agricultural land would be the loss of crops within the work area, and possibly immediately adjacent areas, since this land would be taken out of production for one growing season. In addition, construction-related activities could damage or interrupt irrigation. If the flow of irrigation water is disrupted for a prolonged period, crops outside the Project right-of-way could be damaged and crop yields reduced. Following construction, the majority of agricultural land uses would continue within the permanent right-of-way. Because the right-of-way could be used for crop production following construction, any loss of production would be a short-term impact. About 99 acres of the agricultural land that would be crossed by the Project has pivot-irrigation. During construction of the pipelines, the presence of large piles of topsoil, an open trench, and construction equipment, etc., would likely make the movement of a pivot irrigation system across the pipeline corridor problematic. Texas Gas plans to coordinate closely with landowners about the feasibility of pivot irrigation during the construction period. Following construction of the pipeline, there would be no permanent impacts on any pivot irrigation systems.

Texas Gas would segregate topsoil in lands with annually cultivated or rotated crops, in hayfields, and at the landowner's request. Texas Gas would implement its agriculture compensation program for impacts resulting from construction and operation of the proposed Project, including compensating landowners for anticipated crop losses. Based on the mitigation measures that Texas Gas would implement as part of construction and operation of the proposed Project, we believe that impacts on agricultural lands would not be significant along the proposed permanent pipeline right-of-way. However, where aboveground facilities such as the proposed Kosciusko Compressor Station, are sited on agricultural land, the land use would be permanently changed from agricultural to developed (industrial) land. In addition, some activities within the permanent right-of-way, such as planting of trees and shrubs, would be prohibited.

The primary impact of construction on forestland by the Project would be the removal of trees and shrubs from the 100-foot-wide construction right-of-way. Following construction, trees and shrubs would be allowed to regenerate within the areas that would not be retained as part of the 50-foot-wide permanent right-of-way. After final construction cleanup, the temporary workspaces would be restored in accordance with our Plan, agency requirements associated with applicable permits, and landowner requests. The impact on forest land use within the permanent 50-foot-wide right-of-way would be the permanent change to open land. Texas Gas would compensate landowners for loss of timber in accordance with negotiated easement agreements.

Pipeline construction results in long-term to permanent impacts on managed forest land use. Temporary workspaces would revegetate naturally, but since regrowth of forests could take over 20 years, the impact would be long-term to permanent. The impact on managed forest land use within the permanent 50-foot-wide right-of-way would be the permanent change to open land. Texas Gas would compensate landowners for loss of timber in accordance with negotiated easement agreements.

Texas Gas identified the locations of special crops (e.g., rice, cotton, sorghum) and orchards (e.g., fruit trees, nut trees) that would be crossed by the Project. About 270.5 acres of special crops would be affected by Project construction, with 120.9 acres occurring within the permanent rights-of-way. About 30.6 acres of orchards would be affected by Project construction, with 15.4 acres occurring within the permanent rights-of-way. Texas Gas would compensate landowners for the loss of orchard crops. Since rice fields would need precision leveling during restoration to restore productivity, we are recommending that, prior to construction, Texas Gas develop site-specific crossing plans in consultation with the landowner for each identified rice field impacted by construction.

The proposed Project would cross one tract of land enrolled in the WRP. Coordination with the NRCS is ongoing about crossing this area. The NRCS states that Texas Gas would be required to obtain a subordination of NRSC's easement for this tract prior to construction. We are recommending that Texas Gas complete consultation with the NRCS and develop a site-specific restoration plan for the affected WRP land prior to construction. Based on our consultation with NRCS, the proposed route through the WRP tract would be acceptable.

Affected land uses include roads, railroads, and utility corridors (e.g., pipelines and powerlines) perpendicularly crossed by or collocated along the proposed pipelines. These areas could be temporarily disturbed during grading, trenching, drilling, and backfilling. Texas Gas would obtain any required permits for crossing roads or working within road rights-of-way, and would coordinate with the owners/operators of the utilities to address any issues about working in proximity to their facilities. Following final construction cleanup, these areas would be returned to preconstruction conditions, where feasible, and agency requirements associated with applicable permits would be adhered to. Impacts on this land use would be short-term and temporary.

Twenty-two residences have been identified within 50 feet of the proposed pipeline construction work areas. Of these, 12 would be within 25 feet of proposed construction workspaces. Texas Gas states that it would file site-specific plans for all residences within 50 feet of construction workspaces prior to construction. However, we are recommending that Texas Gas file these site-specific plans prior to the end of the draft EIS comment period. Texas Gas also would install and maintain construction fencing at the edge of the construction work area for a distance of 100 feet on either side of the residence and, at a minimum, maintain this fencing throughout the open trench phases of pipe installation, as well as maintain a buffer of vegetation, leaving mature trees and landscaping within the edge of the construction work areas, where practicable and feasible. In addition, Texas Gas would restore all work areas following construction in accordance with our Plan. To ensure that all landowner concerns are identified and resolved during construction, we are recommending that Texas Gas develop a complaint resolution procedure.

Construction of the proposed Project would have some short-term impacts on industrial land use, but operation of the Project is not anticipated to have any significant impact on this land use.

The proposed Fayetteville Lateral would cross the Cache River NWR between MP 82.0 and MP 82.8, and the Bayou De View portion of the NWR between MP 95.9 and MP 96.6. To minimize impacts on the Cache River NWR, Texas Gas would cross this resource by HDD. The proposed Greenville Lateral would cross the northern tip of the Hillside NWR between MP 54.1 and MP 55.9, in Holmes County. To avoid impacts on Hillside NWR, Texas Gas would cross the NWR by HDD. The Natchez Trace Parkway is a 444-mile parkway system that connects southern portions of the Mississippi River valley, northern Alabama, and central Tennessee. Recreational opportunities associated with the parkway include scenic driving, hiking, biking, horseback riding, and camping. The proposed Greenville Lateral would cross the Natchez Trace Parkway from MP 92.8 to MP 93.0 in Attala County, Mississippi. To minimize impacts, Texas Gas consulted with the NPS to develop an appropriate crossing location and method. Impacts to the Natchez Trace Parkway would be minimized by crossing it by HDD. The NRI-eligible Big Black River would be crossed by the proposed Greenville Lateral near MP 77.7. It possesses ORVs related to scenery, recreation, fish, wildlife, history, and culture. Big Black River would be crossed by HDD, thereby avoiding impacts on its ORVs.

Visual impacts would result from the removal of existing vegetation along construction workspaces and by the construction of the permanent aboveground facilities. Visual impacts would be greatest where the Project right-of-way would parallel or cross roads, trails, or prominent observation points, and where the pipeline right-of-way would be obvious to passing motorists or recreational users. Visual impact on the Natchez Trace Parkway would be minimized by crossing this historic feature by HDD. Topographic alterations such as side hill cuts, which could be necessary for construction, would be re-contoured and re-vegetated during right-of-way restoration. The visibility of such alterations would diminish over time as the affected areas are restored and begin to blend in with the surrounding landscape. The primary Project components that could have a visual impact on the surrounding areas would be the aboveground facilities. However, existing topography and vegetation would conceal them in most instances, and landscaping would be added where feasible around the new M&R stations, MLVs, and launcher and receiver assemblies to further help these facilities blend into the surrounding landscape. Therefore, construction and operation of the proposed aboveground facilities would have a permanent impact on visual resources, but this impact would be minimized by vegetative screening, topography, and remote location.

The Kosciusko 36-inch Tie-in Lateral would cross Little Conehoma Creek, which was previously remediated for PCBs by Texas Eastern. Based on available information, we do not believe that PCB levels in Little Cohoma Creek are significant. If petroleum-stained soil is identified during excavation near Little Conehoma Creek, it would be segregated, properly characterized for disposal, and managed appropriately in accordance with all applicable regulations and handling protocols.

**Socioeconomics**

Construction and operation of the Project would result in short- and long-term socioeconomic impacts. The construction workforce for the pipeline is expected to average 1,800 workers over a 9-month period. About 95 percent of the workforce would be comprised of non-local workers migrating into the Project area. The temporary influx of the construction workforce would cause a short-term increase in population but should not have any adverse impact on housing or public services.

Temporary and permanent fiscal benefits would result from construction and operation of the Project in the form of additional tax revenues paid to local jurisdictions. Texas Gas would employ four full-time workers to maintain and operate the Project.

**Cultural Resources**

Texas Gas consulted with the Arkansas and Mississippi SHPOs and performed cultural resource investigations for areas that would be potentially affected by construction and operation of the Project.

In Arkansas, surveys to date for the Fayetteville Lateral have identified 110 archaeological sites and 75 historic architectural resources. Of these, 36 archaeological sites and 2 architectural resources have been recommended as potentially eligible for the NRHP. Thirty-seven of these would be avoided by deviations, realignments, or HDD, and one is currently undergoing additional testing. The Arkansas SHPO has requested additional information.

In Mississippi, surveys to date for the Fayetteville and Greenville Laterals have identified 180 archaeological sites and 21 historic architectural resources. Of these, 18 archaeological sites and 5 architectural resources are or have been recommended as potentially eligible for the NRHP, and one architectural resource is undetermined. All of these would be avoided by deviations, realignments, or HDD. We are currently awaiting the Mississippi SHPO's comments.

Some surveys are outstanding and the consultation process for the Project is not yet complete. Therefore, we are recommending that construction not be authorized until the required studies have been completed and we have received the SHPOs' comments on such studies.

Texas Gas prepared a Plan for the Unanticipated Discovery of Historic Properties and Human Remains during Construction for the Project, to be used in the event that any unanticipated historic properties (consisting of prehistoric or historic archaeological resources) or human remains are encountered during construction of the proposed Project.

**Air Quality and Noise**

Air emissions resulting from construction of the Project would not significantly affect air quality in the region. Air pollutant emissions from the operation of vehicles and the generation of fugitive dust during construction activities are expected to be minor and temporary. Texas Gas would maintain vehicles so that emissions are minimized and would minimize fugitive dust by the use of dust suppression techniques such as watering.

No impacts to air quality would result from the operation of the pipeline facilities. Emissions associated with the operation of the Kosciusko Compressor Station would be below the NAAQS.

Noise would be generated during construction of the pipeline and aboveground facilities. Construction activities in any one area could last from several weeks to several months on an intermittent, as-needed basis. While individuals in the immediate vicinity of the construction activities would experience an increase in noise, this effect would be temporary and local. Nighttime noise is not expected to increase during construction because most construction activities would be limited to daytime hours. Noise levels associated with HDD activities could potentially exceed 55 dBA at the closest NSAs. Therefore, we are recommending that Texas Gas develop specific mitigation plans if HDD activities result in exceedances of 55 dBA at the nearest NSAs. Permanent noise impact would result from operation of the proposed Kosciusko Compressor Station. Calculated noise levels anticipated from operation of the Kosciusko Compressor Station would be below 55 dBA. No adverse, long-term impacts would, therefore, be anticipated. However, to ensure that noise levels from operation of the Kosciusko Compressor Station do not adversely impact the surrounding area, we are recommending that Texas Gas make all reasonable efforts to ensure its predicted noise levels are not exceeded at nearby NSAs.

**Cumulative Impacts**

In addition to Texas Gas's proposed pipeline project, one other major project has been proposed for construction in the vicinity of the Fayetteville Lateral, Ozark's East End Expansion Project. This project is being reviewed in the pre-filing process and no certificate application has been filed with the FERC. Cumulative impacts would be greatest where the proposed Project and the East End Expansion Project would be adjacent or in proximity to each other in Conway, Faulkner, and White Counties, Arkansas. If the proposed Project and the East End Expansion Project are both approved, the effects of their construction could overlap in time from the years 2008 through 2010.

Although each of the unrelated projects would result in temporary and minor effects during construction, each project would be designed to avoid or minimize impacts on wetlands, waterbodies, species of concern, and other sensitive resources. In addition, any identified significant but unavoidable impacts on sensitive resources resulting from these projects would be mitigated. Mitigation generally leads to avoidance or minimization of cumulative impacts. Therefore, we consider the cumulative impacts of these two projects currently under our review to have been, or would be, minimized. The environmental impacts associated with the proposed Project and the East End Expansion Project would be minimized by careful project routing, utilization of HDD techniques to avoid and minimize impacts on some sensitive resources, and implementation of appropriate mitigation measures. Consequently, only a small cumulative effect is anticipated when the impacts of the proposed Project are added to reasonably foreseeable future projects in the area.

**Reliability and Safety**

The pipeline and aboveground facilities associated with the proposed Project would 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. Part 192 specifies material selection and qualification, minimum design requirements, and protection from internal, external, and atmospheric corrosion. Therefore, we believe that the proposed Project would be operated safely.

**Alternatives Considered**

We evaluated the No-Action or Postponed-Action alternatives, the effects of energy conservation, system alternatives, route alternatives, route variations, aboveground facility site alternatives, and aboveground facility alternative configurations. We also considered the potential impacts on environmental resources and land uses in our alternatives analysis and evaluated alternatives that would avoid or minimize impacts on environmental resources such as forests, wetlands, and waterbodies.

Selection of the No-Action Alternative would not meet the purpose and need of the proposed Project. While the No-Action Alternative would eliminate the environmental impacts identified in this EIS, Texas Gas's customers would be denied access to the new natural gas transportation capacity that would be created by construction and operation of the proposed Project. Other gas transportation projects would still be required to meet the demand for natural gas and to transport the new Fayetteville Shale production. If other natural gas facilities are approved and constructed, each project would result in its own set of specific impacts that could be greater than, equal to, or less than those associated with the current proposal. The use of alternative energy sources is infeasible because solar, wind, hydroelectric, and other energy sources such as geothermal or fuel cells are either not physically or commercially available in the market region or have not been developed to the point where they would be viable substitutes for natural gas. In addition, the purpose of the proposed Project is to transport new supplies of natural gas being produced from the Fayetteville Shale production area to market areas by constructing new pipeline capacity in this capacity-constrained area; thus, the use of alternative energy sources would not meet the Project's purpose. A delay in approval (Postponed-Action Alternative) would only defer any construction-related environmental impacts to the future.

Our analysis of system alternatives included an examination of existing and proposed natural gas systems that currently or would eventually serve the markets targeted by the proposed Project, and considered whether those systems would meet the proposed Project's need and purpose while offering an environmental advantage over the proposed Project. None of the additional existing pipeline systems in the Project area are located in the appropriate area to meet the purpose and need of the proposed Project, unless major laterals and aboveground facilities similar to those proposed in this Project are constructed. Construction and operation of these alternative facilities would have environmental impacts similar to those identified and analyzed for the proposed Project. We did not identify any existing pipeline system or proposed pipeline system whose expansion would be environmentally preferable to the proposed facilities. Therefore, we eliminated other pipeline system alternatives from further consideration.

In evaluating pipeline alternatives, we reviewed both alternative corridors and specific route variations. These alternatives were evaluated during the pre-filing period and were critical to development of the Project as it was ultimately filed with the FERC in Texas Gas's certificate application. As part of its Project development and route selection process, Texas Gas identified two significant route alternatives to the Fayetteville Lateral, Alternatives A and B, and one alternative to the Greenville Lateral, Alternative C.

Prior to and during pre-filing, Texas Gas identified 59 minor route variations to the initially planned route for the Fayetteville Lateral and 26 route variations to the initially planned route for the Greenville Lateral through consultation with affected landowners and subsequent field surveys. These were incorporated into the proposed Project that was evaluated in this EIS. The advantages of these variations include lower potential impacts on the environment, cultural resources, and residences; lower cost; and improved safety conditions during construction.

Consultation with federal (USACE and FWS) and state (ADHHS) resource agencies resulted in analysis of five route alternatives and 23 route variations. These were suggested to evaluate their potential to minimize impacts on various resources, but primarily forests and wetlands. One of the route alternatives (USACE Alternative 4 [in part]) and five of the route variations (FWS Variations 10, 11 [in part], 12, 15, and 16 [in part]) were incorporated by Texas Gas into its proposed Project. The others were not selected for various reasons, including the proposed route followed existing utility corridors more closely, avoided residential areas, avoided cultural resources, avoided side hill construction, or improved constructability at waterbody/road/railroad crossings. We concur that use of this route alternative and five route variations would be preferred routes. The USACE and FWS agree with our assessment of these alternatives. The ADHHS suggested a route alternative and variation that would move the Fayetteville Lateral out of the Little Red River and Brewer Lake watersheds, respectively. It also commented that, if its suggested route alternative and variation were not used, Texas Gas should provide the ADHHS with its plans for construction methods for review and to consult with it regarding construction within the Little Red River and Brewer Lake watersheds. We are not recommending these alternatives since they would be longer and would impact many more residential areas compared to the proposed route. We are, however, recommending that Texas Gas continue to consult with the ADHHS to address any additional concerns it may have about construction in these areas.

We looked at alternative sites for M&R stations, MLVs, and pig launchers/receivers. The locations of many of these facilities would be determined by the locations of the interconnections with other pipelines and DOT regulations. No comments were filed about the locations of aboveground facilities. We concluded that alternative sites offered no environmental advantages and we eliminated them from further consideration.

The Kosciusko Compressor Station would be located on largely agricultural land, although 0.2 acre of wetland would be permanently impacted by site development. With the exception of the minimal wetland acreage identified on site, we identified no significant advantages to other adjacent parcels near the terminus of the proposed Greenville Lateral. We are, however, recommending that Texas Gas evaluate an alternative compressor station configuration to avoid permanent wetland impacts.

## 5.2 FERC STAFF'S RECOMMENDED MITIGATION

If the Commission issues a Certificate for the proposed Project, we recommend that the Commission's Order include the following specific conditions. We believe that these measures would further mitigate the environmental impacts associated with construction and operation of the proposed Project:

1. Texas Gas shall follow the construction procedures and mitigation measures described in its application, supplemental filings (including responses to staff information requests), and as identified in the EIS, unless modified by the Order. Texas Gas 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 has delegated authority to 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 to the Commission's Order; and

    b. the design and implementation of any additional measures deemed necessary (including stop work authority) to ensure continued compliance with the intent of the environmental conditions as well as the avoidance or mitigation of adverse environmental impact resulting from project construction and operation.

3. **Prior to any construction,** Texas Gas 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 EIS, as supplemented by filed alignment sheets, and shall include all of the staff's recommended facility locations. **As soon as they are available and before the start of construction,** Texas Gas 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 this Order or site-specific clearances must be written and must reference locations designated on these alignment maps/sheets.

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

5. Texas Gas 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, and 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 **prior to construction** in or near that area.

   This requirement does not apply to route variations required herein or minor field realignments per landowner needs and requirements that 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 acceptance of the Certificate** and **prior to the start of construction, Texas Gas shall file** an initial Implementation Plan with the Secretary for review and written approval by the Director of OEP describing how Texas Gas will implement the mitigation measures required by the Order. Texas Gas must file revisions to the plan as schedules change. The plan shall identify:

   a. how Texas Gas 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 on-site construction and inspection personnel;

b. the number of EIs assigned per spread and how the company will ensure that sufficient personnel are available to implement the environmental mitigation;

c. company personnel, including EIs and contractors, who will receive copies of the appropriate material;

d. the training and instructions Texas Gas will give to all personnel involved with construction and restoration (initial and refresher training as the Project progresses and personnel change), with the opportunity for OEP staff to participate in the training session(s);

e. the company personnel (if known) and specific portion of Texas Gas's organization having responsibility for compliance;

f. the procedures (including use of contract penalties) Texas Gas will follow if noncompliance occurs; and

g. for each discrete facility, a Gantt or Program Evaluation and Review Technique (PERT) chart (or similar project scheduling diagram), and dates for:

(1) the completion of all required surveys and reports;

(2) the mitigation training of on-site personnel;

(3) the start of construction; and

(4) the start and completion of restoration.

7. Texas Gas shall employ one or more EIs 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 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 this 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. Texas Gas shall file updated status reports with the Secretary on a **weekly** basis **until all construction-related activities, including restoration, are complete for each phase of the Project.** On request, these status reports will also be provided to other federal and state agencies with permitting responsibilities. Status reports shall include:

   a. the current construction status of each spread, work planned for the following reporting period, and any schedule changes for stream crossings or work in other environmentally sensitive areas;

   b. 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);

   c. a description of corrective actions implemented in response to all instances of noncompliance, and their cost;

   d. the effectiveness of all corrective actions implemented;

   e. a description of any landowner/resident complaints that may relate to compliance with the requirements of the Order, and the measures taken to satisfy their concerns; and

   f. copies of any correspondence received by Texas Gas from other federal, state, or local permitting agencies concerning instances of noncompliance, and Texas Gas's response.

9. Texas Gas must receive written authorization from the Director of OEP **before commencing service** on each pipeline segment. Such authorization will only be granted following a determination that rehabilitation and restoration of the project area is proceeding satisfactorily. (page 2-12)

10. **Within 30 days of placing the certificated facilities in service,** Texas Gas 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 certificate conditions Texas Gas 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.

11. Texas Gas shall develop and implement an environmental complaint resolution procedure. The procedure shall provide landowners with clear and simple directions for identifying and resolving their environmental mitigation problems/concerns during construction of the Project and restoration of the right-of-way. **Prior to construction,** Texas Gas shall mail the complaint procedures to each landowner whose property would be crossed by the Project.

    a. In its letter to affected landowners, Texas Gas shall:

(1) provide a local contact that the landowners should call first with their concerns; the letter should indicate how soon a landowner should expect a response;

(2) instruct the landowners that, if they are not satisfied with the response, they should call Texas Gas's Hotline; the letter should indicate how soon to expect a response; and

(3) instruct the landowners that, if they are still not satisfied with the response from Texas Gas's Hotline, they should contact the Commission's Enforcement Hotline at (888) 889-8030, or at hotline@ferc.gov.

b. In addition, Texas Gas shall include in its weekly status report a copy of a table that contains the following information for each problem/concern:

(1) the date of the call;

(2) the identification number from the certificated alignment sheets of the affected property and an approximate MP;

(3) the description of the problem/concern; and

(4) an explanation of how and when the problem was resolved, will be resolved, or why it has not been resolved. (page 2-15)

12. Texas Gas shall evaluate an alternate compressor station configuration at the Kosciusko Compressor Station to avoid impact on the 0.2 acre of delineated wetland. Texas Gas shall file with the Secretary a revised plot plan of the compressor station showing how this wetland has been avoided **prior to the end of the comment period of the draft EIS.** (page 3-33)

13. Texas Gas shall file with the Secretary the MP locations of water wells and springs within 150 feet of construction workspaces and include their distance and direction from the construction workspace, **prior to construction**. (page 4-25)

14. Texas Gas shall consult with the ADHHS about the construction methods that would be used to cross the Brewer Lake and Little Red River Watersheds and shall file the results of that consultation, including any ADHHS-recommended modifications to those methods, with the Secretary, **prior to construction,** for review and written approval of the Director of OEP. (4-29)

15. Texas Gas shall supplement its site-specific plan for crossing Cadron Creek (MP 14 on the Fayetteville Lateral) to include additional mitigation measures that will minimize and control sedimentation downstream from the proposed crossing. Texas Gas shall consult with the NPS and ADEQ about the crossing plan and include any NPS- or ADEQ-recommended BMPs in the plan. Texas Gas also shall file with the Secretary the supplemented site-specific waterbody crossing plan and the results of its consultation with NPS and ADEQ **prior to the end of the comment period of this Draft EIS.** (page 4-33)

16. Texas Gas shall file reports on the geotechnical investigations for all proposed HDDs **prior to the end of the draft EIS comment period.** (page 4-34)

17. Texas Gas shall file with the Secretary a site-specific crossing plan for each waterbody if the directional drills are unsuccessful. Each site-specific plan shall address how Texas Gas would seal the abandoned drill hole and shall include scaled drawings identifying all areas that would be disturbed by construction. Texas Gas shall file each plan concurrent with its application to the USACE for a permit to construct using this plan and the USACE permit when it is obtained. The Director of OEP must review and approve this plan in writing **prior to construction of the crossing.** (page 4-35)

18. **Prior to construction**, Texas Gas shall file with the Secretary for review and written approval by the Director of OEP a site-specific construction plan for each ATWS with a less than 50-foot setback from wetland boundaries (except where adjacent upland consists of actively cultivated or rotated cropland or other disturbed land) and a site-specific explanation of the conditions that will not permit a 50-foot setback. (page 4-47)

19. **Prior to construction**, Texas Gas shall file with the Secretary a copy of the Section 404/10 permit issued by the USACE and the finalized wetland Mitigation Plan developed in consultation with the USACE. (page 4-50)

20. **Prior to the end of the draft EIS comment period**, Texas Gas shall file with the Secretary a table that identifies the milepost locations of potential pondberry habitat within or immediately adjacent to construction workspaces and explain how it will implement the ANHC's recommendations to avoid suitable pondberry habitat (i.e., sandpond forest and wooded depressional habitat) at each location. Texas Gas shall also file an update of its consultation with the FWS and ANHC about the pondberry. (page 4-72)

21. Texas Gas shall **not** begin construction activities **until**:

    a. the FERC completes any necessary consultations with the FWS; and

    b. Texas Gas receives written notification from the Director of OEP that construction and/or implementation of conservation measures may begin.

    If construction of the pipeline system has not begun within 1 year from the date of FERC approval of the Project, Texas Gas shall consult with the appropriate offices of the FWS to update the species list and to verify that previous consultations and determinations of effect are still current. Documentation of these consultations, and additional surveys and survey reports, if required, and FWS comments on the survey and its conclusions, shall be filed with the Secretary **prior to beginning construction**. (page 4-75)

22. Texas Gas shall develop site-specific crossing plans in consultation with the landowner for each identified rice field impacted by construction and file them with the **prior to the end of the draft EIS comment period**. (page 4-81)

23. **Prior to construction**, Texas Gas shall file with the Secretary the site-specific restoration plan for construction and restoration of the WRP tract crossed between MP 43.0 and 43.3 of the Greenville Lateral developed in consultation with the NRCS. (page 4-85)

24. Texas Gas file site-specific plans for the residential properties listed on table 4.8.1-5 of the draft EIS **prior to the end of the comment period for the draft EIS**. (page 4-88)

25. Texas Gas shall defer construction of the pipeline, compressor station, meter stations, and use of all staging, storage and temporary work areas and new or to-be improved access roads **until:**

    a. Texas Gas addresses the Arkansas SHPO's comments on the Arkansas Phase I survey report, including addressing the SHPO's comments regarding avoidance and protection of historic architectural resources 38, 39, 46 and 71, and files a revised Phase I report and the Arkansas SHPO's comments on the report;

    b. Texas Gas files a Phase II NRHP-eligibility testing report for Site 20E-1 in Arkansas and the SHPO's comments on the report;

    c. Texas Gas files the Mississippi SHPO's comments on the Mississippi Phase I survey report;

    d. Texas Gas files the Mississippi SHPO's comments on the existing Greenville Compressor Station;

    e. Texas Gas files a Phase I survey report for the two pipe storage yards on the Fayetteville Lateral in Arkansas, any newly identified areas requiring survey, and the SHPO's comments on the report(s);

    f. Texas Gas provides interested Native American tribes with any requested information;

    g. the ACHP is afforded an opportunity to comment if historic properties would be adversely affected;

    h. Texas Gas files any required treatment/mitigation plans and the SHPO's and NPS', as appropriate, comments on the plans; and

    i. the Director of OEP reviews and approves all reports and plans and notifies Texas Gas in writing that it may proceed with treatment/mitigation or construction. (page 4-117)

    All material 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: **"CONTAINS PRIVILEGED INFORMATION—DO NOT RELEASE."**

26. For the HDD locations listed in table 4.11.2-2 with projected noise levels above 55 dBA $L_{dn}$ at the closest NSA, Texas Gas shall file noise mitigation plans with the Secretary for review and written approval by the Director of OEP, **prior to construction**. The noise

mitigation plan shall include either a commitment to daytime drilling only or provide mitigation measures to reduce noise levels at the NSAs. (page 4-129)

27. Texas Gas shall make all reasonable efforts to ensure its predicted noise levels from the Kosciusko Compressor Station are not exceeded at nearby NSAs and file with the Secretary noise surveys showing this **no later than 60 days** after placing the Kosciusko Compressor Station in service. However, if the noise attributable to operation of the Kosciusko Compressor Station at full load exceeds an $L_{dn}$ of 55 dBA at any nearby NSAs, Texas Gas shall file a report on what changes are needed and shall install additional noise controls to meet the level **within 1 year** of the in-service date. Texas Gas shall confirm compliance with this requirement by filing a second noise survey with the Secretary **no later than 60 days** after it installs the additional noise controls. (page 4-130)

# APPENDIX A
# DISTRIBUTION LIST

# DEIS DISTRIBUTION LIST

## Federal Government Agencies

Army Corps of Engineers (USACE)
- Michael Miller, Vickburg District
- Joyce Perser, Little Rock District
- Reginald Wuornos, Memphis District

Department of Agriculture (USDA)
- Natural Resource Conservation Service (NRCS)
  - Jim Caudle, Assistant State Conservationist, Arkansas
  - Al Garner, Assistant State Conservationist, State WRP Coordinator, Mississippi
  - Matthew Judy, Ecologist, Environmental Compliance Specialist, Fort Worth, Texas
  - Peter Nimrod, Chief Engineer, Mississippi
  - Kalven L. Trice, State Conservationist, Arkansas
  - Homer L. Wilkes, State Conservationist, Mississippi

Department of Interior (DOI)
- National Park Service (NPS)
  - Natchez Trace Parkway
    - Stennis Young, Superintendent
- U.S. Fish & Wildlife Service (USFWS)
  - Bald Knob National Wildlife Refuge
    - Robert Alexander, Refuge Manager
  - Cache River National Wildlife Refuge
    - Keith Weaver, Project Leader, Central Arkansas Refuges
  - Hillside National Wildlife Refuge
    - Landon Loveall, Refuge Manager

Arkansas Ecological Services Field Office
    - Jennifer Ballard, Section 7 Consultant
    - Margaret Harney, Team Leader Federal Projects
  - Mississippi Ecological Services Field Office
    - David Felder, Biologist

Environmental Protection Agency (EPA)
- Alan Drake, Region 4
- Keith Goff, Region 4
- Richard Greene, Region 6 Administrator
- David Neleigh, Region 6, Chief, Air Permits Section
- J.I. Palmer, Region 4 Administrator

**Federal Representatives and Senators**

**Arkansas**

Rep. Marion Berry (1st District)
Rep. Vic Snyder (2nd District)
Dexter Pearson, District Aide

Sen. Blanche L. Lincoln
Sen. Mark Pryor

**Mississippi**

Rep. Bennie Thompson (2nd District)

Sen. Thad Cochran
Sen. Trent Lott

**State Representatives and Senators**

**Arkansas**

Rep. Nancy Duffy Blount
Rep. Jerry R. Brown
Rep. Leroy Dangeau
Rep. David Dunn
Rep. Clark Hall
Rep. Eddie Hawkins
Rep. Mark Pate
Rep. Lance Reynolds
Rep. Bill H. Stovall, III
Rep. Arnell Willis

Sen. Gilbert Baker
Sen. Jack Critcher
Sen. Jack B. Crumbly
Sen. Steve Higginbothom
Sen. Bob Johnson
Sen. Jim Luker
Sen. Hank Wilkins, IV

**Mississippi**

Rep. Willie L. Bailey
Rep. Clara Henderson Burnett
Rep. Bryant W. Clark
Rep. Chuck Espy
Rep. John W. Hines
Rep. Bobby B. Howell
Rep. Robert E. Huddleston

Rep. John M. Mayo
Rep. Ferr Smith
Rep. Sara R. Thomas

Sen. Gary Jackson
Sen. Robert Jackson
Sen. David Jordan
Sen. Johnnie E. Walls, Jr.

**State Government Agencies**

**Arkansas**

Arkansas Department of Environmental Quality
  Public Outreach and Assistance Division
    Kelly Robinson, Environmental Program Manager
Arkansas Department of Transportation
  Joe Barnett, District Engineer
  Frank Russenberger, District Engineer
  Lyndal Waits, District Engineer
  Ray Woodruff, District Engineer
Arkansas Forestry Commission
  John Shannon, State Forester
Arkansas Game and Fish Commission (AGFC)
  Loren Hitchcock, Deputy Director
  Bob Leonard
Arkansas Geologic Commission
  Bekki White, Director
Arkansas Historic Preservation Program
  George McCluskey
Arkansas Levee District
  Twig Satterfield, President
Arkansas National Heritage Program
  Cindy Osborne
Arkansas Natural Resources Commission
  Michael Borengasser
  Ken Brazil, P.E., Engineer Supervisor
  J. Randy Young, P.E., Executive Director
Arkansas Oil and Gas Commission
  Lawrence Bengal, Director
Arkansas Pollution Control and Ecology Commission
  Thomas Schueck, Chair
Arkansas Waterways Commission
  Keith Garrison, Executive Director

**Mississippi**

Mississippi Department of Archives and History

Pamela Epworth
Mississippi Department of Environmental Quality
Environmental Permits Division
Thomas Kelly
Office of Land and Water
Lisa May-McKenzie
Office of Pollution Control
Mississippi Department of Health
Mississippi Department of Transportation
Jimmy Dickerson, District Engineer
Walter Lyons, District Engineer
Dub Wilson, ROW Engineer
Wade Yates, ROW Engineer
Mississippi Forestry Commission
Charlie Morgan, State Forester
Mississippi Levee Board
Peter Nimrod, Chief Engineer
Mississippi Natural Heritage Commission
Matthew Hicks
Mississippi Public Service Commission
Robert G. Waites, Executive Director
Mississippi Soil & Water Conservation Commission
Don Underwood, Executive Director

**<u>Local Government Agencies</u>**

**Arkansas**

Cleburne County Office of Emergency Services
Tony Porter
Cleburne County Road Department
Hank Mercer
City of Elaine
Poindexter Fiser, Mayor
Lee County Judge
Jim Keasler
City of Lexa
David Frensley, Mayor
City of McCrory
Doyle Fowler, Mayor
Phillips County
Don Gentry, Judge
Town of Rosebud
Joe McBroom, Mayor
St. Francis Arkansas Levee District
Robert Rash
St. Francis County

Craig Jones, Assessor
City of Searcy
Belinda LaForce, Mayor
White County
Michael Lincoln, Judge
Bob Parish, Judge
White County Quorum Court
George “Bud” Osborn
Woodruff County
Beryl Simmons, Judge

**Mississippi**
Attala County
Christian Gardner, Engineer
Troy Hodges, County Supervisor
Sheriff
City of Belzoni
Wardell Walton, Mayor
Coahoma County
David Evans, Engineer
Coahoma County
Katherine Furr, County Supervisor
Andrew Thompson, Jr., Sheriff
Holmes County Economic Development Authority
Holmes County
Wayne Morrison, Engineer
Willie March, Sheriff
Humphreys County
Wayne Holloway, Sheriff
Wayne Morrison, Engineer
Richard Stevens, County Supervisor
Sunflower County
Ron Cassada, County Engineer
Sunflower County
James Haywood, Sheriff
Washington County
Milton Gaston, Sheriff
Marcus Hooker, County Engineer
Alfred Rankins, Sr., County Supervisor
Yazoo-Mississippi Delta Levee District

**Libraries**

**Arkansas**
Cleburne County Library
Conway County Library

Forrest City Public Library
Lee County Public Library
Phillips County Library
West Helena Public Library
White County Public/Searcy City Library
Woodruff County Library

**Mississippi**

Attala County Library
Faulkner-Van Buren Regional Library (Clarksdale)
Henry M. Seymour Library (Belzoni)
Isola Public Library
Leland Public Library
Lexington Public Library
William Alexander Percy Memorial Library (Greenville)

**<u>Media</u>**

**Arkansas**

Forrest City Times-Herald
Heber Springs Sun-Times
Helena Daily World
Log Cabin Democrat
Searcy Daily Citizen

**Mississippi**

Delta Democrat Times (Greenville)

**<u>Native American Tribes</u>**

Absentee Shawnee Tribe
Larry Nuckolls, Governor
Alabama-Quassarte Tribal Town
Tarpie Yargee
Caddo Nation
LaRue Parker, Chairperson
Cherokee Nation of Oklahoma
Chad Smith, Principal Chief
Chickasaw Nation
Bill Anoatubby, Governor
Choctaw Nation of Oklahoma
Greg Pyle, Chief
Delaware Nation
Edgar L. French, Chief
Eastern Shawnee Tribe of Oklahoma
Charles Enyart, Chief

Jena Band of the Choctaw Indians
    Christine Norris, Principal Chief
Kialegee Tribal Town
    Gary Bucktrot, Town King
Mississippi Band of Choctaw Indians
    Phillip Martin, Chief
Muscogee Creek Nation of Oklahoma
    A.D. Ellis, Principal Chief
Quapaw Tribe of Oklahoma
    John Berrey, Tribal Chairperson
Seminole Nation of Oklahoma
    Pare Bowlegs, THPO
Shawnee Tribe of Oklahoma
    Ron Sparkman, Tribal Chairman
Thlopthlocco Tribal Town
    George Scott, Town King
Tunica-Biloxi Tribe of Louisiana
    Earl J. Barbry, Sr., Tribal Chairman
United Keetoowah Band of Cherokee Indians in Oklahoma
    George Wickliffe, Chief
Wichita and Affiliated Tribes
    Gary McAdams, President

**Organizations**

**Arkansas**
    Arkansas Audubon Society
    Arkansas Sierra Club
        Glen Hooks, Associate Regional Representative
    Bald Knob Chamber of Commerce
    Conway Chamber of Commerce
    Forrest City Area Chamber of Commerce
    Greenbrier Chamber of Commerce
        Dr. Joe Crain, Director
    Heber Springs Chamber of Commerce
    Helena County Chamber of Commerce
    Marianna Chamber of Commerce
    Phillips County Chamber of Commerce
    Rosebud School District
        Jeff Williams
    Searcy Chamber of Commerce
    Walnut Ridge Chamber of Commerce

**Mississippi**
    Belzoni Chamber of Commerce
    Clarksdale-Coahoma County Chamber of Commerce

Greenville Chamber of Commerce
Holmes County Chamber of Commerce
    Jean Carson
Indianola Chamber of Commerce
Jackson Audubon Society
Kosciusko Chamber of Commerce
Lexington Chamber of Commerce

**Landowners**

**Arkansas**

Betty Allen
Sandra T. Booker
Frankie Carl Brogdon
Ruby Cassey
Esther Carter
Gary Childers
Kenneth Wayne Cook
Sylvia Davis
Mountain Top Water Systems
    Nancy Duren
Roger D. & Delores M. Ellington
Donald & Barbara Foster
Larry Frealy
David & Tammy Gerrard
Pat F.L. Hambrick
Jesse D. & Irene R. Herron
Donald & Mary Hutchison
Randall Jackson
Seneca Jacobs
Marilyn Jones
Fletcher E. & Elizabeth F. Lewis
Reggie Lindsey
Harry & Kathy Mackay
Dennis W. Murray
Monhall Communications, Inc.
    Joe Peacock
Roger & Robyn Pratt
Fred E. & Julia Reed
Timothy H. Roach
Jon Kent & Ruby Roetzel
Rufus Comer Farms
Robert Shaver
Shelly Skinner
K. Grant & Jennifer E. Slane
Ransom Smith

Betty Turner-Jackson
Charles Van Winkle
Dennis J. Widner
Catherine Wilson
Jonathon Windley
Joye Wright

**Mississippi**

Mark P. Atwood
Jim Blaine
Claire J. Cooper Burchfield
Lazy C Ranch
    Joe & Harriet Cheek
Jessie M. & Lucille Crosby
Bill Davis
Robert Davis
Marianne Dempsey
Frankie Farmer
George A. Hayes
Elsie Wilsford Heaton
Thelma Culpeper Life Estate
    Lynda Irby
Eddie & Ida Mae Jordan
Samuel Lewis
Vonda Mayfield
Dudley B. Milton
Walter & Sylvia Montgomery
Bobbie J. Moore
Wayne Colby Moore, Sr., et ux
Flora O. Pilgram
Roberts Farms, Inc.
Greta Sue Shumaker-Temple
Richard D. Still
Carl J. & Tony H. Walbert
Percy L. & Glenda Washington

**Other States (AL, CA, GA, IL, TN and TX)**

Circle J Farms of Lee County, LLC
    John Byrd
Chartie Manning
Thomas McGrady, Jr.
William Nikolis
Norman Richards
Gene Thomas & Pauline Smith
Tijuana McKnight Thomas
Gary H. & Aimee Woolverton

# APPENDIX B

# PROPOSED FACILITIES AND ALTERNATIVES MAPS

# DRAFT ENVIRONMENTAL IMPACT STATEMENT FOR THE PROPOSED FAYETTEVILLE/GREENVILLE EXPANSION PROJECT

Docket Nos. CP07-417-000
PF07-2-000

## Appendix B
## Proposed Facilities and Alternatives Maps

B-1: Fayetteville Lateral Pipeline Facilities Locations
Pages 1 through 34

B-2: Greeneville Lateral Pipeline Facilities Locations
Pages 1 through 17

B-3: Fayetteville Lateral Pipeline
Agency-Proposed Route Alternatives
Pages 1 and 2

B-4: Fayetteville Lateral Pipeline
Agency-Proposed Route Alternatives
Pages 1 through 4

B-5: Fayetteville Lateral Pipeline
Agency-Proposed Route Variations
Pages 1 through 9

# APPENDIX C

# TABLES OF POTENTIALLY AFFECTED RESOURCES

# APPENDIX C-1

# FAYETTEVILLE LATERAL SOIL MAP UNITS BY MILEPOST

**Table C-1 Fayetteville Lateral Soil Map Units by Milepost**

| Starting Milepost | Ending Milepost | Map Unit Symbol | Soil Map Unit |
|---|---|---|---|
| 0 | | 16 | Linker fine sandy loam, 3 to 8 percent slopes |
| 0.1 | | 17 | Linker fine sandy loam, 8 to 12 percent slopes |
| 0.2 | 0.3 | 16 | Linker fine sandy loam, 3 to 8 percent slopes |
| 0.4 | 0.5 | 23 | Mountainburg gravelly fine sandy loam, 8 to 12 percent slopes |
| 0.6 | 1.1 | 17 | Linker fine sandy loam, 8 to 12 percent slopes |
| 1.2 | | 24 | Mountainburg stony fine sandy loam, 12 to 40 percent slopes |
| 1.3 | | 17 | Linker fine sandy loam, 8 to 12 percent slopes |
| 1.4 | 2 | 16 | Linker fine sandy loam, 3 to 8 percent slopes |
| 2.1 | 2.3 | 17 | Linker fine sandy loam, 8 to 12 percent slopes |
| 2.4 | 2.5 | 13 | Leadvale silt loam, 1 to 3 percent slopes |
| 2.6 | 2.8 | 16 | Linker fine sandy loam, 3 to 8 percent slopes |
| 2.9 | | 14 | Leadvale silt loam, 3 to 8 percent slopes |
| 3 | 3.9 | 16 | Linker fine sandy loam, 3 to 8 percent slopes |
| 4 | | 38 | Water |
| 4.1 | | 16 | Linker fine sandy loam, 3 to 8 percent slopes |
| 4.2 | 4.8 | 24 | Mountainburg stony fine sandy loam, 12 to 40 percent slopes |
| 4.9 | | 16 | Linker fine sandy loam, 3 to 8 percent slopes |
| 5 | 5.1 | 24 | Mountainburg stony fine sandy loam, 12 to 40 percent slopes |
| 5.2 | | 9 | Enders gravelly fine sandy loam, 8 to 12 percent slopes |
| 5.3 | 5.4 | 16 | Linker fine sandy loam, 3 to 8 percent slopes |
| 5.5 | 5.7 | 23 | Mountainburg gravelly fine sandy loam, 8 to 12 percent slopes |
| 5.8 | | 22 | Mountainburg gravelly fine sandy loam, 3 to 8 percent slopes |
| 5.9 | 6.1 | 24 | Mountainburg stony fine sandy loam, 12 to 40 percent slopes |
| 6.2 | 6.3 | 17 | Linker fine sandy loam, 8 to 12 percent slopes |
| 6.4 | 6.6 | 23 | Mountainburg gravelly fine sandy loam, 8 to 12 percent slopes |
| 6.7 | 6.8 | 17 | Linker fine sandy loam, 8 to 12 percent slopes |
| 6.9 | | 23 | Mountainburg gravelly fine sandy loam, 8 to 12 percent slopes |
| 7 | 7.3 | 24 | Mountainburg stony fine sandy loam, 12 to 40 percent slopes |
| 7.4 | 7.5 | 16 | Linker fine sandy loam, 3 to 8 percent slopes |
| 7.6 | 7.7 | 3 | Enders gravelly fine sandy loam, 3 to 8 percent slopes |
| 7.8 | | 20 | Mountainburg very stony fine sandy loam, 12 to 40 percent slopes |
| 7.9 | | 2 | Amy soils, frequently flooded |
| 8 | | 31 | Spadra fine sandy loam, 1 to 3 percent slopes |
| 8.1 | 8.2 | 17 | Mountainburg gravelly fine sandy loam, 3 to 8 percent slopes |
| 8.3 | | 23 | Ouachita silt loam, occasionally flooded |
| 8.4 | 8.5 | 10 | Linker fine sandy loam, 1 to 3 percent slopes |
| 8.6 | | 3 | Enders gravelly fine sandy loam, 3 to 8 percent slopes |
| 8.7 | | 23 | Ouachita silt loam, occasionally flooded |
| 8.8 | 8.9 | 11 | Linker fine sandy loam, 3 to 8 percent slopes |
| 9 | 9.1 | 20 | Mountainburg very stony fine sandy loam, 12 to 40 percent slopes |
| 9.2 | | 3 | Enders gravelly fine sandy loam, 3 to 8 percent slopes |
| 9.3 | | 20 | Mountainburg very stony fine sandy loam, 12 to 40 percent slopes |
| 9.4 | 9.5 | 3 | Enders gravelly fine sandy loam, 3 to 8 percent slopes |
| 9.6 | | 20 | Mountainburg very stony fine sandy loam, 12 to 40 percent slopes |
| 9.7 | 10 | 17 | Mountainburg gravelly fine sandy loam, 3 to 8 percent slopes |
| 10.1 | 10.2 | 3 | Enders gravelly fine sandy loam, 3 to 8 percent slopes |
| 10.3 | | 11 | Linker fine sandy loam, 3 to 8 percent slopes |
| 10.4 | 11 | 3 | Enders gravelly fine sandy loam, 3 to 8 percent slopes |
| 11.1 | 11.5 | 20 | Mountainburg very stony fine sandy loam, 12 to 40 percent slopes |
| 11.6 | 11.7 | 11 | Linker fine sandy loam, 3 to 8 percent slopes |
| 11.8 | 11.9 | 20 | Mountainburg very stony fine sandy loam, 12 to 40 percent slopes |
| 12 | 12.2 | 17 | Mountainburg gravelly fine sandy loam, 3 to 8 percent slopes |
| 12.3 | | 20 | Mountainburg very stony fine sandy loam, 12 to 40 percent slopes |

**Table C-1 Fayetteville Lateral Soil Map Units by Milepost**

| Starting Milepost | Ending Milepost | Map Unit Symbol | Soil Map Unit |
|---|---|---|---|
| 12.4 | 12.7 | 11 | Linker fine sandy loam, 3 to 8 percent slopes |
| 12.8 | 12.9 | 31 | Spadra fine sandy loam, 1 to 3 percent slopes |
| 13 | | 19 | Mountainburg very stony fine sandy loam, 8 to 12 percent slopes |
| 13.1 | 13.4 | 20 | Mountainburg very stony fine sandy loam, 12 to 40 percent slopes |
| 13.5 | 13.8 | 17 | Mountainburg gravelly fine sandy loam, 3 to 8 percent slopes |
| 13.9 | | 20 | Mountainburg very stony fine sandy loam, 12 to 40 percent slopes |
| 14 | 14.7 | 17 | Mountainburg gravelly fine sandy loam, 3 to 8 percent slopes |
| 14.8 | 14.9 | 20 | Mountainburg very stony fine sandy loam, 12 to 40 percent slopes |
| 15 | 15.2 | 11 | Linker fine sandy loam, 3 to 8 percent slopes |
| 15.3 | | 20 | Mountainburg very stony fine sandy loam, 12 to 40 percent slopes |
| 15.4 | | 11 | Linker fine sandy loam, 3 to 8 percent slopes |
| 15.5 | 15.6 | 20 | Mountainburg very stony fine sandy loam, 12 to 40 percent slopes |
| 15.7 | | 17 | Mountainburg gravelly fine sandy loam, 3 to 8 percent slopes |
| 15.8 | 16.4 | 11 | Linker fine sandy loam, 3 to 8 percent slopes |
| 16.5 | | 17 | Mountainburg gravelly fine sandy loam, 3 to 8 percent slopes |
| 16.6 | 17 | 11 | Linker fine sandy loam, 3 to 8 percent slopes |
| 17.1 | | 35 | Water |
| 17.2 | | 11 | Linker fine sandy loam, 3 to 8 percent slopes |
| 17.3 | 17.5 | 18 | Mountainburg gravelly fine sandy loam, 8 to 12 percent slopes |
| 17.6 | | 20 | Mountainburg very stony fine sandy loam, 12 to 40 percent slopes |
| 17.7 | 17.8 | 17 | Mountainburg gravelly fine sandy loam, 3 to 8 percent slopes |
| 17.9 | | 20 | Mountainburg very stony fine sandy loam, 12 to 40 percent slopes |
| 18 | 18.1 | 18 | Mountainburg gravelly fine sandy loam, 8 to 12 percent slopes |
| 18.2 | 18.5 | 17 | Mountainburg gravelly fine sandy loam, 3 to 8 percent slopes |
| 18.6 | | 20 | Mountainburg very stony fine sandy loam, 12 to 40 percent slopes |
| 18.7 | | 8 | Leadvale silt loam, 1 to 3 percent slopes |
| 18.8 | 19 | 18 | Mountainburg gravelly fine sandy loam, 8 to 12 percent slopes |
| 19.1 | 19.4 | 17 | Mountainburg gravelly fine sandy loam, 3 to 8 percent slopes |
| 19.5 | 19.9 | 18 | Mountainburg gravelly fine sandy loam, 8 to 12 percent slopes |
| 20 | 20.1 | 11 | Linker fine sandy loam, 3 to 8 percent slopes |
| 20.2 | | 8 | Leadvale silt loam, 1 to 3 percent slopes |
| 20.3 | 20.5 | 11 | Linker fine sandy loam, 3 to 8 percent slopes |
| 20.6 | | 8 | Leadvale silt loam, 1 to 3 percent slopes |
| 20.7 | 21.4 | 11 | Linker fine sandy loam, 3 to 8 percent slopes |
| 21.5 | 21.6 | 10 | Linker fine sandy loam, 1 to 3 percent slopes |
| 21.7 | 21.9 | 20 | Mountainburg very stony fine sandy loam, 12 to 40 percent slopes |
| 22 | | 11 | Linker fine sandy loam, 3 to 8 percent slopes |
| 22.1 | 22.2 | 32 | Taft silt loam, 0 to 2 percent slopes |
| 22.3 | | 11 | Linker fine sandy loam, 3 to 8 percent slopes |
| 22.4 | | 8 | Leadvale silt loam, 1 to 3 percent slopes |
| 22.5 | | 11 | Linker fine sandy loam, 3 to 8 percent slopes |
| 22.6 | 22.7 | 12 | Linker fine sandy loam, 8 to 12 percent slopes |
| 22.8 | 23 | 11 | Linker fine sandy loam, 3 to 8 percent slopes |
| 23.1 | 23.2 | 31 | Spadra fine sandy loam, 1 to 3 percent slopes |
| 23.3 | | 8 | Leadvale silt loam, 1 to 3 percent slopes |
| 23.4 | | 31 | Spadra fine sandy loam, 1 to 3 percent slopes |
| 23.5 | 24.2 | 11 | Linker fine sandy loam, 3 to 8 percent slopes |
| 24.3 | 24.5 | 19 | Mountainburg very stony fine sandy loam, 8 to 12 percent slopes |
| 24.6 | 24.8 | 11 | Linker fine sandy loam, 3 to 8 percent slopes |
| 24.9 | 25 | 19 | Mountainburg very stony fine sandy loam, 8 to 12 percent slopes |
| 25.1 | 25.7 | 11 | Linker fine sandy loam, 3 to 8 percent slopes |
| 25.8 | 26 | 18 | Mountainburg gravelly fine sandy loam, 8 to 12 percent slopes |
| 26.1 | 26.3 | 11 | Linker fine sandy loam, 3 to 8 percent slopes |

**Table C-1 Fayetteville Lateral Soil Map Units by Milepost**

| Starting Milepost | Ending Milepost | Map Unit Symbol | Soil Map Unit |
|---|---|---|---|
| 26.4 | | 19 | Mountainburg very stony fine sandy loam, 8 to 12 percent slopes |
| 26.5 | 26.6 | 11 | Linker fine sandy loam, 3 to 8 percent slopes |
| 26.7 | | 17 | Mountainburg gravelly fine sandy loam, 3 to 8 percent slopes |
| 26.8 | | 20 | Mountainburg very stony fine sandy loam, 12 to 40 percent slopes |
| 26.9 | 27.1 | 17 | Mountainburg gravelly fine sandy loam, 3 to 8 percent slopes |
| 27.2 | 27.3 | 20 | Mountainburg very stony fine sandy loam, 12 to 40 percent slopes |
| 27.4 | | 11 | Linker fine sandy loam, 3 to 8 percent slopes |
| 27.5 | 27.6 | 20 | Mountainburg very stony fine sandy loam, 12 to 40 percent slopes |
| 27.7 | | 11 | Linker fine sandy loam, 3 to 8 percent slopes |
| 27.8 | | 17 | Mountainburg gravelly fine sandy loam, 3 to 8 percent slopes |
| 27.9 | 28.5 | 11 | Linker fine sandy loam, 3 to 8 percent slopes |
| 28.6 | 28.7 | 17 | Mountainburg gravelly fine sandy loam, 3 to 8 percent slopes |
| 28.8 | 29 | 19 | Mountainburg very stony fine sandy loam, 8 to 12 percent slopes |
| 29.1 | 29.5 | 33 | Steprock-Linker Complex, 3 To 8 Percent Slopes |
| 29.6 | 29.7 | 32 | Steprock-Enders Complex, 12 To 30 Percent Slopes |
| 29.8 | | 34 | Steprock-Mountainburg Complex, 8 To 12 Percent Slopes |
| 29.9 | 30 | 19 | Linker Fine Sandy Loam, 3 To 8 Percent Slopes |
| 30.1 | 30.2 | 34 | Steprock-Mountainburg Complex, 8 To 12 Percent Slopes |
| 30.3 | 30.4 | 19 | Linker Fine Sandy Loam, 3 To 8 Percent Slopes |
| 30.5 | | 34 | Steprock-Mountainburg Complex, 8 To 12 Percent Slopes |
| 30.6 | | 19 | Linker Fine Sandy Loam, 3 To 8 Percent Slopes |
| 30.7 | | 34 | Steprock-Mountainburg Complex, 8 To 12 Percent Slopes |
| 30.8 | 30.9 | 19 | Linker Fine Sandy Loam, 3 To 8 Percent Slopes |
| 31 | 31.1 | 33 | Steprock-Linker Complex, 3 To 8 Percent Slopes |
| 31.2 | | 34 | Steprock-Mountainburg Complex, 8 To 12 Percent Slopes |
| 31.3 | 31.5 | 32 | Steprock-Enders Complex, 12 To 30 Percent Slopes |
| 31.6 | | 19 | Linker Fine Sandy Loam, 3 To 8 Percent Slopes |
| 31.7 | 31.8 | 33 | Steprock-Linker Complex, 3 To 8 Percent Slopes |
| 31.9 | | 11 | Enders-Steprock Complex, 12 To 30 Percent Slopes |
| 32 | | 32 | Steprock-Enders Complex, 12 To 30 Percent Slopes |
| 32.1 | 32.7 | 33 | Steprock-Linker Complex, 3 To 8 Percent Slopes |
| 32.8 | 33.1 | 34 | Steprock-Mountainburg Complex, 8 To 12 Percent Slopes |
| 33.2 | | 24 | Nauvoo Fine Sandy Loam, 3 To 8 Percent Slopes |
| 33.3 | | 34 | Steprock-Mountainburg Complex, 8 To 12 Percent Slopes |
| 33.4 | 33.5 | 20 | Linker Gravelly Fine Sandy Loam, 3 To 8 Percent Slopes |
| 33.6 | 34.5 | 24 | Nauvoo Fine Sandy Loam, 3 To 8 Percent Slopes |
| 34.6 | 34.7 | 33 | Steprock-Linker Complex, 3 To 8 Percent Slopes |
| 34.8 | 35 | 24 | Nauvoo Fine Sandy Loam, 3 To 8 Percent Slopes |
| 35.1 | | 34 | Steprock-Mountainburg Complex, 8 To 12 Percent Slopes |
| 35.2 | 35.3 | 33 | Steprock-Linker Complex, 3 To 8 Percent Slopes |
| 35.4 | 35.5 | 34 | Steprock-Mountainburg Complex, 8 To 12 Percent Slopes |
| 35.6 | 36 | 33 | Steprock-Linker Complex, 3 To 8 Percent Slopes |
| 36.1 | | 34 | Steprock-Mountainburg Complex, 8 To 12 Percent Slopes |
| 36.2 | 36.4 | 32 | Steprock-Enders Complex, 12 To 30 Percent Slopes |
| 36.5 | 36.9 | 33 | Steprock-Linker Complex, 3 To 8 Percent Slopes |
| 37 | | 11 | Enders-Steprock Complex, 12 To 30 Percent Slopes |
| 37.1 | 37.4 | 33 | Steprock-Linker Complex, 3 To 8 Percent Slopes |
| 37.5 | | 24 | Nauvoo Fine Sandy Loam, 3 To 8 Percent Slopes |
| 37.6 | | 11 | Enders-Steprock Complex, 12 To 30 Percent Slopes |
| 37.7 | 37.9 | 24 | Nauvoo Fine Sandy Loam, 3 To 8 Percent Slopes |
| 38 | | 34 | Steprock-Mountainburg Complex, 8 To 12 Percent Slopes |
| 38.1 | | 30 | Sidon Loam, 3 To 8 Percent Slopes |
| 38.2 | 38.3 | 18 | Leadvale Silt Loam, 3 To 8 Percent Slopes |

**Table C-1 Fayetteville Lateral Soil Map Units by Milepost**

| Starting Milepost | Ending Milepost | Map Unit Symbol | Soil Map Unit |
|---|---|---|---|
| 38.4 | 38.6 | 20 | Linker Gravelly Fine Sandy Loam, 3 To 8 Percent Slopes |
| 38.7 | | W | Water |
| 38.8 | | 34 | Steprock-Mountainburg Complex, 8 To 12 Percent Slopes |
| 38.9 | | 20 | Linker Gravelly Fine Sandy Loam, 3 To 8 Percent Slopes |
| 39 | 39.1 | 34 | Steprock-Mountainburg Complex, 8 To 12 Percent Slopes |
| 39.2 | | 18 | Leadvale Silt Loam, 3 To 8 Percent Slopes |
| 39.3 | 39.5 | 25 | Sidon fine sandy loam, 3 to 8 percent slopes |
| 39.6 | 39.9 | 10 | Enders-Steprock complex, 20 to 40 percent slopes |
| 40 | | 18 | Linker-Mountainburg complex, 3 to 8 percent slopes |
| 40.1 | | 32 | Steprock-Mountainburg-Rock outcrop complex, 40 to 60 percent slopes |
| 40.2 | 40.9 | 9 | Enders-Steprock complex, 8 to 20 percent slopes |
| 41 | | 18 | Linker-Mountainburg complex, 3 to 8 percent slopes |
| 41.1 | 41.3 | 9 | Enders-Steprock complex, 8 to 20 percent slopes |
| 41.4 | | 18 | Linker-Mountainburg complex, 3 to 8 percent slopes |
| 41.5 | 41.6 | 9 | Enders-Steprock complex, 8 to 20 percent slopes |
| 41.7 | | 10 | Enders-Steprock complex, 20 to 40 percent slopes |
| 41.8 | | 16 | Linker gravelly fine sandy loam, 3 to 8 percent slopes |
| 41.9 | | 10 | Enders-Steprock complex, 20 to 40 percent slopes |
| 42 | 42.1 | 18 | Linker-Mountainburg complex, 3 to 8 percent slopes |
| 42.2 | | 19 | Linker-Mountainburg complex, 8 to 20 percent slopes |
| 42.3 | | 16 | Linker gravelly fine sandy loam, 3 to 8 percent slopes |
| 42.4 | 42.7 | 18 | Linker-Mountainburg complex, 3 to 8 percent slopes |
| 42.8 | 42.9 | 33 | Steprock-Nella-Mountainburg complex, 20 to 40 percent slopes |
| 43 | 43.1 | 19 | Linker-Mountainburg complex, 8 to 20 percent slopes |
| 43.2 | | 31 | Steprock-Mountainburg complex, 8 to 20 percent slopes |
| 43.3 | | 19 | Linker-Mountainburg complex, 8 to 20 percent slopes |
| 43.4 | | 18 | Linker-Mountainburg complex, 3 to 8 percent slopes |
| 43.5 | | 33 | Steprock-Nella-Mountainburg complex, 20 to 40 percent slopes |
| 43.6 | | 19 | Linker-Mountainburg complex, 8 to 20 percent slopes |
| 43.7 | 44 | 21 | Nauvoo fine sandy loam, 3 to 8 percent slopes |
| 44.1 | 44.3 | 24 | Nauvoo Fine Sandy Loam, 3 To 8 Percent Slopes |
| 44.4 | | 11 | Enders-Steprock Complex, 12 To 30 Percent Slopes |
| 44.5 | | 34 | Steprock-Mountainburg Complex, 8 To 12 Percent Slopes |
| 44.6 | 45.1 | 19 | Linker Fine Sandy Loam, 3 To 8 Percent Slopes |
| 45.2 | | 35 | Taft Silt Loam, 0 To 2 Percent Slopes |
| 45.3 | | 2 | Barling Silt Loam, Occasionally Flooded |
| 45.4 | | 19 | Linker Fine Sandy Loam, 3 To 8 Percent Slopes |
| 45.5 | | 17 | Leadvale Silt Loam, 1 To 3 Percent Slopes |
| 45.6 | 45.8 | 20 | Linker Gravelly Fine Sandy Loam, 3 To 8 Percent Slopes |
| 45.9 | 46.1 | 2 | Barling Silt Loam, Occasionally Flooded |
| 46.2 | | 11 | Enders-Steprock Complex, 12 To 30 Percent Slopes |
| 46.3 | 46.6 | 19 | Linker Fine Sandy Loam, 3 To 8 Percent Slopes |
| 46.7 | | 11 | Enders-Steprock Complex, 12 To 30 Percent Slopes |
| 46.8 | | 18 | Leadvale Silt Loam, 3 To 8 Percent Slopes |
| 46.9 | 47 | 10 | Enders Stony Fine Sandy Loam, 3 To 12 Percent Slopes |
| 47.1 | | 18 | Leadvale Silt Loam, 3 To 8 Percent Slopes |
| 47.2 | 47.9 | 17 | Leadvale Silt Loam, 1 To 3 Percent Slopes |
| 48 | 48.1 | 13 | Guthrie Silt Loam, 0 To 1 Percent Slopes |
| 48.2 | 48.4 | 17 | Leadvale Silt Loam, 1 To 3 Percent Slopes |
| 48.5 | 48.6 | 2 | Barling Silt Loam, Occasionally Flooded |
| 48.7 | 49.1 | 17 | Leadvale Silt Loam, 1 To 3 Percent Slopes |
| 49.2 | 49.3 | 20 | Linker Gravelly Fine Sandy Loam, 3 To 8 Percent Slopes |
| 49.4 | 49.7 | 19 | Linker Fine Sandy Loam, 3 To 8 Percent Slopes |

### Table C-1 Fayetteville Lateral Soil Map Units by Milepost

| Starting Milepost | Ending Milepost | Map Unit Symbol | Soil Map Unit |
|---|---|---|---|
| 49.8 | | 8 | Enders Fine Sandy Loam, 3 To 8 Percent Slopes |
| 49.9 | | 19 | Linker Fine Sandy Loam, 3 To 8 Percent Slopes |
| 50 | 50.1 | 10 | Enders Stony Fine Sandy Loam, 3 To 12 Percent Slopes |
| 50.2 | 50.4 | 19 | Linker Fine Sandy Loam, 3 To 8 Percent Slopes |
| 50.5 | 51.2 | 20 | Linker Gravelly Fine Sandy Loam, 3 To 8 Percent Slopes |
| 51.3 | | 11 | Enders-Steprock Complex, 12 To 30 Percent Slopes |
| 51.4 | 51.7 | 20 | Linker Gravelly Fine Sandy Loam, 3 To 8 Percent Slopes |
| 51.8 | 51.9 | 11 | Enders-Steprock Complex, 12 To 30 Percent Slopes |
| 52 | | 20 | Linker Gravelly Fine Sandy Loam, 3 To 8 Percent Slopes |
| 52.1 | | 11 | Enders-Steprock Complex, 12 To 30 Percent Slopes |
| 52.2 | | 27 | Rexor Silt Loam, Occasionally Flooded |
| 52.3 | 52.4 | 32 | Steprock-Enders Complex, 12 To 30 Percent Slopes |
| 52.5 | 53 | 34 | Steprock-Mountainburg Complex, 8 To 12 Percent Slopes |
| 53.1 | 54 | 29 | Sidon Loam, 1 To 3 Percent Slopes |
| 54.1 | | 19 | Linker Fine Sandy Loam, 3 To 8 Percent Slopes |
| 54.2 | | 29 | Sidon Loam, 1 To 3 Percent Slopes |
| 54.3 | 54.4 | 19 | Linker Fine Sandy Loam, 3 To 8 Percent Slopes |
| 54.5 | 54.6 | 29 | Sidon Loam, 1 To 3 Percent Slopes |
| 54.7 | | 19 | Linker Fine Sandy Loam, 3 To 8 Percent Slopes |
| 54.8 | 55.4 | 29 | Sidon Loam, 1 To 3 Percent Slopes |
| 55.5 | | 30 | Sidon Loam, 3 To 8 Percent Slopes |
| 55.6 | 55.8 | 29 | Sidon Loam, 1 To 3 Percent Slopes |
| 55.9 | 56.3 | 19 | Linker Fine Sandy Loam, 3 To 8 Percent Slopes |
| 56.4 | | 23 | Mountainburg Stony Fine Sandy Loam, 3 To 12 Percent Slopes |
| 56.5 | | 11 | Enders-Steprock Complex, 12 To 30 Percent Slopes |
| 56.6 | | 34 | Steprock-Mountainburg Complex, 8 To 12 Percent Slopes |
| 56.7 | | 19 | Linker Fine Sandy Loam, 3 To 8 Percent Slopes |
| 56.8 | | 34 | Steprock-Mountainburg Complex, 8 To 12 Percent Slopes |
| 56.9 | 57 | 19 | Linker Fine Sandy Loam, 3 To 8 Percent Slopes |
| 57.1 | 57.4 | 29 | Sidon Loam, 1 To 3 Percent Slopes |
| 57.5 | 57.6 | 19 | Linker Fine Sandy Loam, 3 To 8 Percent Slopes |
| 57.7 | 58.2 | 1 | Allen Fine Sandy Loam, 3 To 8 Percent Slopes |
| 58.3 | | 2 | Barling Silt Loam, Occasionally Flooded |
| 58.4 | | 1 | Allen Fine Sandy Loam, 3 To 8 Percent Slopes |
| 58.5 | 58.6 | 30 | Sidon Loam, 3 To 8 Percent Slopes |
| 58.7 | 58.8 | 34 | Steprock-Mountainburg Complex, 8 To 12 Percent Slopes |
| 58.9 | | 2 | Barling Silt Loam, Occasionally Flooded |
| 59 | 59.1 | 19 | Linker Fine Sandy Loam, 3 To 8 Percent Slopes |
| 59.2 | | 23 | Mountainburg Stony Fine Sandy Loam, 3 To 12 Percent Slopes |
| 59.3 | | 19 | Linker Fine Sandy Loam, 3 To 8 Percent Slopes |
| 59.4 | | 23 | Mountainburg Stony Fine Sandy Loam, 3 To 12 Percent Slopes |
| 59.5 | | 34 | Steprock-Mountainburg Complex, 8 To 12 Percent Slopes |
| 59.6 | | 1 | Allen Fine Sandy Loam, 3 To 8 Percent Slopes |
| 59.7 | | 2 | Barling Silt Loam, Occasionally Flooded |
| 59.8 | 59.9 | 34 | Steprock-Mountainburg Complex, 8 To 12 Percent Slopes |
| 60 | | 20 | Linker Gravelly Fine Sandy Loam, 3 To 8 Percent Slopes |
| 60.1 | | 34 | Steprock-Mountainburg Complex, 8 To 12 Percent Slopes |
| 60.2 | 60.3 | 2 | Barling Silt Loam, Occasionally Flooded |
| 60.4 | | 17 | Leadvale Silt Loam, 1 To 3 Percent Slopes |
| 60.5 | | 2 | Barling Silt Loam, Occasionally Flooded |
| 60.6 | 60.7 | 23 | Mountainburg Stony Fine Sandy Loam, 3 To 12 Percent Slopes |
| 60.8 | | 19 | Linker Fine Sandy Loam, 3 To 8 Percent Slopes |
| 60.9 | | 23 | Mountainburg Stony Fine Sandy Loam, 3 To 12 Percent Slopes |

**Table C-1  Fayetteville Lateral Soil Map Units by Milepost**

| Starting Milepost | Ending Milepost | Map Unit Symbol | Soil Map Unit |
|---|---|---|---|
| 61 | | 19 | Linker Fine Sandy Loam, 3 To 8 Percent Slopes |
| 61.1 | | 30 | Sidon Loam, 3 To 8 Percent Slopes |
| 61.2 | | 23 | Mountainburg Stony Fine Sandy Loam, 3 To 12 Percent Slopes |
| 61.3 | 61.4 | 19 | Linker Fine Sandy Loam, 3 To 8 Percent Slopes |
| 61.5 | | 23 | Mountainburg Stony Fine Sandy Loam, 3 To 12 Percent Slopes |
| 61.6 | 61.7 | 20 | Linker Gravelly Fine Sandy Loam, 3 To 8 Percent Slopes |
| 61.8 | 62 | 23 | Mountainburg Stony Fine Sandy Loam, 3 To 12 Percent Slopes |
| 62.1 | 62.2 | 20 | Linker Gravelly Fine Sandy Loam, 3 To 8 Percent Slopes |
| 62.3 | 62.6 | 19 | Linker Fine Sandy Loam, 3 To 8 Percent Slopes |
| 62.7 | | 20 | Linker Gravelly Fine Sandy Loam, 3 To 8 Percent Slopes |
| 62.8 | 63 | 32 | Steprock-Enders Complex, 12 To 30 Percent Slopes |
| 63.1 | | 19 | Linker Fine Sandy Loam, 3 To 8 Percent Slopes |
| 63.2 | 63.4 | 11 | Enders-Steprock Complex, 12 To 30 Percent Slopes |
| 63.5 | | 8 | Enders Fine Sandy Loam, 3 To 8 Percent Slopes |
| 63.6 | | 17 | Leadvale Silt Loam, 1 To 3 Percent Slopes |
| 63.7 | | 8 | Enders Fine Sandy Loam, 3 To 8 Percent Slopes |
| 63.8 | 63.9 | 17 | Leadvale Silt Loam, 1 To 3 Percent Slopes |
| 64 | 64.2 | 5 | Calloway Silt Loam, 0 To 1 Percent Slopes |
| 64.3 | 64.4 | 4 | Calhoun Silt Loam, 0 To 1 Percent Slopes |
| 64.5 | | 5 | Calloway Silt Loam, 0 To 1 Percent Slopes |
| 64.6 | 64.7 | 4 | Calhoun Silt Loam, 0 To 1 Percent Slopes |
| 64.8 | | 5 | Calloway Silt Loam, 0 To 1 Percent Slopes |
| 64.9 | | 4 | Calhoun Silt Loam, 0 To 1 Percent Slopes |
| 65 | 65.4 | 5 | Calloway Silt Loam, 0 To 1 Percent Slopes |
| 65.5 | 66 | 4 | Calhoun Silt Loam, 0 To 1 Percent Slopes |
| 66.1 | | 5 | Calloway Silt Loam, 0 To 1 Percent Slopes |
| 66.2 | | 21 | Loring Silt Loam, 1 To 3 Percent Slopes |
| 66.3 | 66.5 | 26 | Oaklimeter Silt Loam, Frequently Flooded |
| 66.6 | | 5 | Calloway Silt Loam, 0 To 1 Percent Slopes |
| 66.7 | | 4 | Calhoun Silt Loam, 0 To 1 Percent Slopes |
| 66.8 | | 5 | Calloway Silt Loam, 0 To 1 Percent Slopes |
| 66.9 | 67.4 | 4 | Calhoun Silt Loam, 0 To 1 Percent Slopes |
| 67.5 | 67.8 | 5 | Calloway Silt Loam, 0 To 1 Percent Slopes |
| 68.2 | 69.5 | 16 | Kobel Silty Clay, Frequently Flooded |
| 69.6 | 70 | 6 | Commerce Silty Clay Loam, Frequently Flooded |
| 70.1 | | 28 | Robinsonville Fine Sandy Loam, Frequently Flooded |
| 70.2 | 70.3 | W | Water |
| 70.4 | | TbB | Taylorbay silt loam, 0 to 3 percent slopes, frequently flooded |
| 70.5 | 71 | YpB | Yancopin silty clay loam, 0 to 3 percent slopes, frequently flooded |
| 71.1 | | KlA | Kobel silty clay loam, 0 to 1 percent slopes, frequently flooded |
| 71.2 | | TpB | Tipp silty clay loam, 0 to 3 percent slopes, frequently flooded |
| 71.3 | 71.5 | YpB | Yancopin silty clay loam, 0 to 3 percent slopes, frequently flooded |
| 71.6 | 71.7 | KlA | Kobel silty clay loam, 0 to 1 percent slopes, frequently flooded |
| 71.8 | 72.1 | YpB | Yancopin silty clay loam, 0 to 3 percent slopes, frequently flooded |
| 72.2 | | KlA | Kobel silty clay loam, 0 to 1 percent slopes, frequently flooded |
| 72.3 | 72.4 | YpB | Yancopin silty clay loam, 0 to 3 percent slopes, frequently flooded |
| 72.5 | 72.6 | KlA | Kobel silty clay loam, 0 to 1 percent slopes, frequently flooded |
| 72.7 | | YpB | Yancopin silty clay loam, 0 to 3 percent slopes, frequently flooded |
| 72.8 | 73.4 | KlA | Kobel silty clay loam, 0 to 1 percent slopes, frequently flooded |
| 73.5 | 73.9 | BuC | Bulltown loamy fine sand, 1 to 8 percent slopes |
| 74 | | TrA | Tuckerman loam, 0 to 1 percent slopes, frequently flooded |
| 74.1 | | BuC | Bulltown loamy fine sand, 1 to 8 percent slopes |
| 74.2 | | WvB | Wiville fine sandy loam, 1 to 3 percent slopes |

**Table C-1 Fayetteville Lateral Soil Map Units by Milepost**

| Starting Milepost | Ending Milepost | Map Unit Symbol | Soil Map Unit |
|---|---|---|---|
| 74.3 | | BuC | Bulltown loamy fine sand, 1 to 8 percent slopes |
| 74.4 | | DbB | Dubbs silt loam, 1 to 3 percent slopes |
| 74.5 | | KoA | Kobel silty clay loam, 0 to 1 percent slopes, ponded |
| 74.6 | | McA | McCrory fine sandy loam, 0 to 1 percent slopes |
| 74.7 | | AsB | Askew fine sandy loam, 1 to 3 percent slopes |
| 74.8 | | McA | McCrory fine sandy loam, 0 to 1 percent slopes |
| 74.9 | | DuA | Dundee silt loam, 0 to 1 percent slopes |
| 75 | | WvA | Wiville fine sandy loam, 0 to 1 percent slopes |
| 75.1 | | BuC | Bulltown loamy fine sand, 1 to 8 percent slopes |
| 75.2 | 75.3 | WvB | Wiville fine sandy loam, 1 to 3 percent slopes |
| 75.4 | 75.5 | BuC | Bulltown loamy fine sand, 1 to 8 percent slopes |
| 75.6 | | WvA | Wiville fine sandy loam, 0 to 1 percent slopes |
| 75.7 | | BuC | Bulltown loamy fine sand, 1 to 8 percent slopes |
| 75.8 | 75.9 | WvA | Wiville fine sandy loam, 0 to 1 percent slopes |
| 76 | 76.2 | OvA | Overcup silt loam, 0 to 1 percent slopes |
| 76.3 | | DuA | Dundee silt loam, 0 to 1 percent slopes |
| 76.4 | 76.6 | WvB | Wiville fine sandy loam, 1 to 3 percent slopes |
| 76.7 | | DuA | Dundee silt loam, 0 to 1 percent slopes |
| 76.8 | 76.9 | OvA | Overcup silt loam, 0 to 1 percent slopes |
| 77 | 77.6 | JpA | Jackport silty clay loam, 0 to 1 percent slopes |
| 77.7 | | OvA | Overcup silt loam, 0 to 1 percent slopes |
| 77.8 | 78.1 | GuB | Grubbs silt loam, 1 to 3 percent slopes |
| 78.2 | | BsA | Teksob loam, 0 to 1 percent slopes |
| 78.3 | | BsB | Teksob loam, 1 to 3 percent slopes |
| 78.4 | | DuA | Dundee silt loam, 0 to 1 percent slopes |
| 78.5 | | AsB | Askew fine sandy loam, 1 to 3 percent slopes |
| 78.6 | | AmA | Amagon silt loam, 0 to 1 percent slopes |
| 78.7 | | DuA | Dundee silt loam, 0 to 1 percent slopes |
| 78.8 | | AmA | Amagon silt loam, 0 to 1 percent slopes |
| 78.9 | 79 | DuA | Dundee silt loam, 0 to 1 percent slopes |
| 79.1 | 79.2 | AmA | Amagon silt loam, 0 to 1 percent slopes |
| 79.3 | | DuA | Dundee silt loam, 0 to 1 percent slopes |
| 79.4 | | McA | McCrory fine sandy loam, 0 to 1 percent slopes |
| 79.5 | 79.6 | WvB | Wiville fine sandy loam, 1 to 3 percent slopes |
| 79.7 | | BuC | Bulltown loamy fine sand, 1 to 8 percent slopes |
| 79.8 | | TrA | Tuckerman loam, 0 to 1 percent slopes, frequently flooded |
| 79.9 | 80 | McA | McCrory fine sandy loam, 0 to 1 percent slopes |
| 80.1 | | TrA | Tuckerman loam, 0 to 1 percent slopes, frequently flooded |
| 80.2 | 80.3 | BsA | Teksob loam, 0 to 1 percent slopes |
| 80.4 | 80.5 | DuA | Dundee silt loam, 0 to 1 percent slopes |
| 80.6 | | DbB | Dubbs silt loam, 1 to 3 percent slopes |
| 80.7 | | DbA | Dubbs silt loam, 0 to 1 percent slopes |
| 80.8 | 81 | OvA | Overcup silt loam, 0 to 1 percent slopes |
| 81.1 | 81.2 | DbB | Dubbs silt loam, 1 to 3 percent slopes |
| 81.3 | | OvA | Overcup silt loam, 0 to 1 percent slopes |
| 81.4 | 81.5 | DbB | Dubbs silt loam, 1 to 3 percent slopes |
| 81.6 | | DbC | Dubbs silt loam, 3 to 8 percent slopes |
| 81.7 | | AsB | Askew fine sandy loam, 1 to 3 percent slopes |
| 81.8 | | DbC | Dubbs silt loam, 3 to 8 percent slopes |
| 81.9 | | TrA | Tuckerman loam, 0 to 1 percent slopes, frequently flooded |
| 82 | | BsC | Teksob loam, 3 to 8 percent slopes |
| 82.1 | | TrA | Tuckerman loam, 0 to 1 percent slopes, frequently flooded |
| 82.2 | | AsB | Askew fine sandy loam, 1 to 3 percent slopes |

**Table C-1  Fayetteville Lateral Soil Map Units by Milepost**

| Starting Milepost | Ending Milepost | Map Unit Symbol | Soil Map Unit |
|---|---|---|---|
| 82.3 | 82.6 | TuA | Tuckerman silty clay loam, 0 to 1 percent slopes, frequently flooded |
| 82.7 | | W | Water |
| 82.8 | 82.9 | TuA | Tuckerman silty clay loam, 0 to 1 percent slopes, frequently flooded |
| 83 | 83.1 | AsB | Askew fine sandy loam, 1 to 3 percent slopes |
| 83.2 | 83.5 | TrA | Tuckerman loam, 0 to 1 percent slopes, frequently flooded |
| 83.6 | | AsB | Askew fine sandy loam, 1 to 3 percent slopes |
| 83.7 | | FbA | Foley-Bonn complex, 0 to 1 percent slopes |
| 83.8 | | AsB | Askew fine sandy loam, 1 to 3 percent slopes |
| 83.9 | | TrA | Tuckerman loam, 0 to 1 percent slopes, frequently flooded |
| 84 | | BsB | Teksob loam, 1 to 3 percent slopes |
| 84.1 | 84.4 | TrA | Tuckerman loam, 0 to 1 percent slopes, frequently flooded |
| 84.5 | 85 | BsC | Teksob loam, 3 to 8 percent slopes |
| 85.1 | 85.4 | DbB | Dubbs silt loam, 1 to 3 percent slopes |
| 85.5 | 85.6 | McA | McCrory fine sandy loam, 0 to 1 percent slopes |
| 85.7 | 85.8 | FbA | Foley-Bonn complex, 0 to 1 percent slopes |
| 85.9 | | McA | McCrory fine sandy loam, 0 to 1 percent slopes |
| 86 | | FbA | Foley-Bonn complex, 0 to 1 percent slopes |
| 86.1 | 86.3 | BsB | Teksob loam, 1 to 3 percent slopes |
| 86.4 | 86.6 | FbA | Foley-Bonn complex, 0 to 1 percent slopes |
| 86.7 | | DuA | Dundee silt loam, 0 to 1 percent slopes |
| 86.8 | | BsC | Teksob loam, 3 to 8 percent slopes |
| 86.9 | | BsB | Teksob loam, 1 to 3 percent slopes |
| 87 | | McA | McCrory fine sandy loam, 0 to 1 percent slopes |
| 87.1 | 87.2 | BsB | Teksob loam, 1 to 3 percent slopes |
| 87.3 | | FbA | Foley-Bonn complex, 0 to 1 percent slopes |
| 87.4 | 87.5 | BuC | Bulltown loamy fine sand, 1 to 8 percent slopes |
| 87.6 | | FbA | Foley-Bonn complex, 0 to 1 percent slopes |
| 87.7 | | LfA | Lafe silt loam, 0 to 1 percent slopes |
| 87.8 | | AsB | Askew fine sandy loam, 1 to 3 percent slopes |
| 87.9 | | BsA | Teksob loam, 0 to 1 percent slopes |
| 88 | | BsB | Teksob loam, 1 to 3 percent slopes |
| 88.1 | | McA | McCrory fine sandy loam, 0 to 1 percent slopes |
| 88.2 | 88.3 | BsC | Teksob loam, 3 to 8 percent slopes |
| 88.4 | | AmA | Amagon silt loam, 0 to 1 percent slopes |
| 88.5 | | LfA | Lafe silt loam, 0 to 1 percent slopes |
| 88.6 | | AmA | Amagon silt loam, 0 to 1 percent slopes |
| 88.7 | | BsB | Teksob loam, 1 to 3 percent slopes |
| 88.8 | 89 | GuC | Grubbs silt loam, 3 to 8 percent slopes, eroded |
| 89.1 | | GuB | Grubbs silt loam, 1 to 3 percent slopes |
| 89.2 | 89.5 | GuC | Grubbs silt loam, 3 to 8 percent slopes, eroded |
| 89.6 | 89.7 | JpA | Jackport silty clay loam, 0 to 1 percent slopes |
| 89.8 | 90 | OvA | Overcup silt loam, 0 to 1 percent slopes |
| 90.1 | 90.2 | DbB | Dubbs silt loam, 1 to 3 percent slopes |
| 90.3 | | AsB | Askew fine sandy loam, 1 to 3 percent slopes |
| 90.4 | | TrA | Tuckerman loam, 0 to 1 percent slopes, frequently flooded |
| 90.5 | | AsB | Askew fine sandy loam, 1 to 3 percent slopes |
| 90.6 | 90.7 | AmA | Amagon silt loam, 0 to 1 percent slopes |
| 90.8 | 90.9 | DbB | Dubbs silt loam, 1 to 3 percent slopes |
| 91 | | DuA | Dundee silt loam, 0 to 1 percent slopes |
| 91.1 | 91.2 | AsB | Askew fine sandy loam, 1 to 3 percent slopes |
| 91.3 | 91.6 | GuB | Grubbs silt loam, 1 to 3 percent slopes |
| 91.7 | | JpA | Jackport silty clay loam, 0 to 1 percent slopes |
| 91.8 | 92 | OvA | Overcup silt loam, 0 to 1 percent slopes |

**Table C-1 Fayetteville Lateral Soil Map Units by Milepost**

| Starting Milepost | Ending Milepost | Map Unit Symbol | Soil Map Unit |
|---|---|---|---|
| 92.1 | | JpA | Jackport silty clay loam, 0 to 1 percent slopes |
| 92.2 | | OvA | Overcup silt loam, 0 to 1 percent slopes |
| 92.3 | 92.5 | JpA | Jackport silty clay loam, 0 to 1 percent slopes |
| 92.6 | | OvA | Overcup silt loam, 0 to 1 percent slopes |
| 92.7 | | JpA | Jackport silty clay loam, 0 to 1 percent slopes |
| 92.8 | 93 | OvA | Overcup silt loam, 0 to 1 percent slopes |
| 93.1 | | GuC | Grubbs silt loam, 3 to 8 percent slopes, eroded |
| 93.2 | 93.3 | TrA | Tuckerman loam, 0 to 1 percent slopes, frequently flooded |
| 93.4 | | WvB | Wiville fine sandy loam, 1 to 3 percent slopes |
| 93.5 | 93.6 | AsB | Askew fine sandy loam, 1 to 3 percent slopes |
| 93.7 | | TrA | Tuckerman loam, 0 to 1 percent slopes, frequently flooded |
| 93.8 | | McA | McCrory fine sandy loam, 0 to 1 percent slopes |
| 93.9 | 94 | TrA | Tuckerman loam, 0 to 1 percent slopes, frequently flooded |
| 94.1 | 94.2 | DuA | Dundee silt loam, 0 to 1 percent slopes |
| 94.3 | | DbA | Dubbs silt loam, 0 to 1 percent slopes |
| 94.4 | | DbB | Dubbs silt loam, 1 to 3 percent slopes |
| 94.5 | 94.6 | DbA | Dubbs silt loam, 0 to 1 percent slopes |
| 94.7 | | DbB | Dubbs silt loam, 1 to 3 percent slopes |
| 94.8 | | BsB | Teksob loam, 1 to 3 percent slopes |
| 94.9 | 95 | BsA | Teksob loam, 0 to 1 percent slopes |
| 95.1 | | BsC | Teksob loam, 3 to 8 percent slopes |
| 95.2 | | FdA | Forestdale silty clay loam, 0 to 1 percent slopes, frequently flooded |
| 95.3 | | AsB | Askew fine sandy loam, 1 to 3 percent slopes |
| 95.4 | | TuA | Tuckerman silty clay loam, 0 to 1 percent slopes, frequently flooded |
| 95.5 | | AsB | Askew fine sandy loam, 1 to 3 percent slopes |
| 95.6 | 95.9 | TuA | Tuckerman silty clay loam, 0 to 1 percent slopes, frequently flooded |
| 96 | 96.1 | BsB | Teksob loam, 1 to 3 percent slopes |
| 96.2 | 96.4 | TrA | Tuckerman loam, 0 to 1 percent slopes, frequently flooded |
| 96.5 | 97 | FbA | Foley-Bonn complex, 0 to 1 percent slopes |
| 97.1 | 97.2 | DbA | Dubbs silt loam, 0 to 1 percent slopes |
| 97.3 | | FbA | Foley-Bonn complex, 0 to 1 percent slopes |
| 97.4 | | DbA | Dubbs silt loam, 0 to 1 percent slopes |
| 97.5 | | DuA | Dundee silt loam, 0 to 1 percent slopes |
| 97.6 | 98 | DbA | Dubbs silt loam, 0 to 1 percent slopes |
| 98.1 | | FbA | Foley-Bonn complex, 0 to 1 percent slopes |
| 98.2 | | DbB | Dubbs silt loam, 1 to 3 percent slopes |
| 98.3 | | FbA | Foley-Bonn complex, 0 to 1 percent slopes |
| 98.4 | | AmA | Amagon silt loam, 0 to 1 percent slopes |
| 98.5 | | GuB | Grubbs silt loam, 1 to 3 percent slopes |
| 98.6 | 99.1 | OvA | Overcup silt loam, 0 to 1 percent slopes |
| 99.2 | 99.3 | JpA | Jackport silty clay loam, 0 to 1 percent slopes |
| 99.4 | 99.9 | OvA | Overcup silt loam, 0 to 1 percent slopes |
| 100 | 100.1 | TcA | Tichnor silt loam, 0 to 1 percent slopes, frequently flooded |
| 100.2 | | GrC | Grenada silt loam, 3 to 8 percent slopes, eroded |
| 100.3 | 100.4 | ClA | Calloway silt loam, 0 to 1 percent slopes |
| 100.5 | | GuB | Grubbs silt loam, 1 to 3 percent slopes |
| 100.6 | | CaA | Calhoun silt loam, 0 to 1 percent slopes |
| 100.7 | 100.8 | GuB | Grubbs silt loam, 1 to 3 percent slopes |
| 100.9 | 101 | HmA | Hillemann silt loam, 0 to 1 percent slopes |
| 101 | | HmA | Hillemann silt loam, 0 to 1 percent slopes |
| 101.1 | | GuB | Grubbs silt loam, 1 to 3 percent slopes |
| 101.2 | | HmA | Hillemann silt loam, 0 to 1 percent slopes |
| 101.3 | 101.4 | GuB | Grubbs silt loam, 1 to 3 percent slopes |

**Table C-1  Fayetteville Lateral Soil Map Units by Milepost**

| Starting Milepost | Ending Milepost | Map Unit Symbol | Soil Map Unit |
|---|---|---|---|
| 101.5 | 101.7 | CaA | Calhoun silt loam, 0 to 1 percent slopes |
| 101.8 | | ClB | Calloway silt loam, 1 to 3 percent slopes |
| 101.9 | 102 | CaA | Calhoun silt loam, 0 to 1 percent slopes |
| 102.1 | | GrB | Grenada silt loam, 1 to 3 percent slopes |
| 102.2 | 102.5 | HeA | Henry silt loam, 0 to 1 percent slopes |
| 102.6 | 102.7 | GrB | Grenada silt loam, 1 to 3 percent slopes |
| 102.8 | 102.9 | ClB | Calloway silt loam, 1 to 3 percent slopes |
| 103 | | ClA | Calloway silt loam, 0 to 1 percent slopes |
| 103.1 | | HeA | Henry silt loam, 0 to 1 percent slopes |
| 103.2 | | ClB | Calloway silt loam, 1 to 3 percent slopes |
| 103.3 | 104 | HeA | Henry silt loam, 0 to 1 percent slopes |
| 104.1 | | ClB | Calloway silt loam, 1 to 3 percent slopes |
| 104.2 | | HeA | Henry silt loam, 0 to 1 percent slopes |
| 104.3 | 104.4 | TcA | Tichnor silt loam, 0 to 1 percent slopes, frequently flooded |
| 104.5 | | HeA | Henry silt loam, 0 to 1 percent slopes |
| 104.6 | | TcA | Tichnor silt loam, 0 to 1 percent slopes, frequently flooded |
| 104.7 | | ClA | Calloway silt loam, 0 to 1 percent slopes |
| 104.8 | | GuB | Grubbs silt loam, 1 to 3 percent slopes |
| 104.9 | | CaA | Calhoun silt loam, 0 to 1 percent slopes |
| 105 | 105.4 | GuB | Grubbs silt loam, 1 to 3 percent slopes |
| 105.5 | | HmA | Hillemann silt loam, 0 to 1 percent slopes |
| 105.6 | | GuB | Grubbs silt loam, 1 to 3 percent slopes |
| 105.7 | | CaA | Calhoun silt loam, 0 to 1 percent slopes |
| 105.8 | 105.9 | GuB | Grubbs silt loam, 1 to 3 percent slopes |
| 106 | 106.1 | HmA | Hillemann silt loam, 0 to 1 percent slopes |
| 106.2 | 106.3 | GuB | Grubbs silt loam, 1 to 3 percent slopes |
| 106.4 | | TcA | Tichnor silt loam, 0 to 1 percent slopes, frequently flooded |
| 106.5 | | GuB | Grubbs silt loam, 1 to 3 percent slopes |
| 106.6 | | HmA | Hillemann silt loam, 0 to 1 percent slopes |
| 106.7 | 106.8 | GuB | Grubbs silt loam, 1 to 3 percent slopes |
| 106.9 | 107.1 | CaA | Calhoun silt loam, 0 to 1 percent slopes |
| 107.2 | 107.3 | GuB | Grubbs silt loam, 1 to 3 percent slopes |
| 107.4 | 107.5 | HmA | Hillemann silt loam, 0 to 1 percent slopes |
| 107.6 | 107.7 | TcA | Tichnor silt loam, 0 to 1 percent slopes, frequently flooded |
| 107.8 | 107.9 | GuB | Grubbs silt loam, 1 to 3 percent slopes |
| 108 | 108.1 | HmA | Hillemann silt loam, 0 to 1 percent slopes |
| 108.2 | 108.4 | GuB | Grubbs silt loam, 1 to 3 percent slopes |
| 108.5 | 110.5 | HmA | Hillemann Silt Loam, 0 To 1 Percent Slopes |
| 110.6 | 111.2 | He | Henry Silt Loam |
| 111.3 | | CwA | Crowley Silt Loam, 0 To 1 Percent Slopes |
| 111.4 | 111.6 | He | Henry Silt Loam |
| 111.7 | 111.8 | Za | Zachary Silt Loam |
| 111.9 | 112.1 | He | Henry Silt Loam |
| 112.2 | | ClB | Calloway Silt Loam, 1 To 3 Percent Slopes |
| 112.3 | 112.7 | CwA | Crowley Silt Loam, 0 To 1 Percent Slopes |
| 112.8 | | ClB | Calloway Silt Loam, 1 To 3 Percent Slopes |
| 112.9 | 113 | CwB | Crowley Silt Loam, 1 To 3 Percent Slopes |
| 113.1 | | He | Henry Silt Loam |
| 113.2 | 113.3 | ClA | Calloway Silt Loam, 0 To 1 Percent Slopes |
| 113.4 | | He | Henry Silt Loam |
| 113.5 | 113.6 | CwB | Crowley Silt Loam, 1 To 3 Percent Slopes |
| 113.7 | | CwA | Crowley Silt Loam, 0 To 1 Percent Slopes |
| 113.8 | 114 | Za | Zachary Silt Loam |

**Table C-1 Fayetteville Lateral Soil Map Units by Milepost**

| Starting Milepost | Ending Milepost | Map Unit Symbol | Soil Map Unit |
|---|---|---|---|
| 114.1 | | LgC2 | Loring Silt Loam, 3 To 8 Percent Slopes, Eroded |
| 114.2 | | ClA | Calloway Silt Loam, 0 To 1 Percent Slopes |
| 114.3 | | ClB | Calloway Silt Loam, 1 To 3 Percent Slopes |
| 114.4 | 114.7 | ClA | Calloway Silt Loam, 0 To 1 Percent Slopes |
| 114.8 | | LgB | Loring Silt Loam, 1 To 3 Percent Slopes |
| 114.9 | 115 | He | Henry Silt Loam |
| 115.1 | | ClB | Calloway Silt Loam, 1 To 3 Percent Slopes |
| 115.2 | | He | Henry Silt Loam |
| 115.3 | | ClA | Calloway Silt Loam, 0 To 1 Percent Slopes |
| 115.4 | | He | Henry Silt Loam |
| 115.5 | | LgB2 | Loring Silt Loam, 1 To 3 Percent Slopes Eroded |
| 115.6 | | He | Henry Silt Loam |
| 115.7 | | ClA | Calloway Silt Loam, 0 To 1 Percent Slopes |
| 115.8 | | He | Henry Silt Loam |
| 115.9 | | ClA | Calloway Silt Loam, 0 To 1 Percent Slopes |
| 116 | 116.1 | LgB2 | Loring Silt Loam, 1 To 3 Percent Slopes Eroded |
| 116.2 | 116.4 | He | Henry Silt Loam |
| 116.5 | 116.6 | LgB | Loring Silt Loam, 1 To 3 Percent Slopes |
| 116.7 | 116.8 | He | Henry Silt Loam |
| 116.9 | 117 | LoB | Loring Silt Loam, 1 To 3 Percent Slopes |
| 117.1 | 117.3 | He | Henry Silt Loam |
| 117.4 | 117.6 | LoB | Loring Silt Loam, 1 To 3 Percent Slopes |
| 117.7 | 118 | GrB | Grenada Silt Loam, 1 To 3 Percent Slopes |
| 118.1 | | LoB | Loring Silt Loam, 1 To 3 Percent Slopes |
| 118.2 | 118.4 | GrB | Grenada Silt Loam, 1 To 3 Percent Slopes |
| 118.5 | 119.1 | He | Henry Silt Loam |
| 119.2 | 119.3 | LoC2 | Loring Silt Loam, 3 To 8 Percent Slopes, Eroded |
| 119.4 | | GrB | Grenada Silt Loam, 1 To 3 Percent Slopes |
| 119.5 | 119.6 | He | Henry Silt Loam |
| 119.7 | 119.9 | Ca | Calhoun Silt Loam |
| 120 | | He | Henry Silt Loam |
| 120.1 | | Ca | Calhoun Silt Loam |
| 120.2 | 120.5 | He | Henry Silt Loam |
| 120.6 | | CbA | Calloway Silt Loam, 0 To 1 Percent Slopes |
| 120.7 | | He | Henry Silt Loam |
| 120.8 | 120.9 | GrB | Grenada Silt Loam, 1 To 3 Percent Slopes |
| 121 | 121.3 | He | Henry Silt Loam |
| 121.4 | | GrB | Grenada Silt Loam, 1 To 3 Percent Slopes |
| 121.5 | 121.7 | He | Henry Silt Loam |
| 121.8 | | CbB | Calloway Silt Loam, 1 To 3 Percent Slopes |
| 121.9 | 122.1 | CbA | Calloway Silt Loam, 0 To 1 Percent Slopes |
| 122.2 | 122.3 | Ca | Calhoun Silt Loam |
| 122.4 | | GrB | Grenada Silt Loam, 1 To 3 Percent Slopes |
| 122.5 | 122.7 | LoB | Loring Silt Loam, 1 To 3 Percent Slopes |
| 122.8 | 123.8 | Ca | Calhoun Silt Loam |
| 123.9 | | LoB | Loring Silt Loam, 1 To 3 Percent Slopes |
| 124 | 124.1 | He | Henry Silt Loam |
| 124.2 | | MeB | Memphis Silt Loam, 1 To 3 Percent Slopes |
| 124.3 | | GrB | Grenada Silt Loam, 1 To 3 Percent Slopes |
| 124.4 | 124.6 | He | Henry Silt Loam |
| 124.7 | 124.9 | LoB | Loring Silt Loam, 1 To 3 Percent Slopes |
| 125 | | CbA | Calloway Silt Loam, 0 To 1 Percent Slopes |
| 125.1 | | LoB | Loring Silt Loam, 1 To 3 Percent Slopes |

**Table C-1 Fayetteville Lateral Soil Map Units by Milepost**

| Starting Milepost | Ending Milepost | Map Unit Symbol | Soil Map Unit |
|---|---|---|---|
| 125.2 | 125.3 | He | Henry Silt Loam |
| 125.4 | | LoB | Loring Silt Loam, 1 To 3 Percent Slopes |
| 125.5 | | CbA | Calloway Silt Loam, 0 To 1 Percent Slopes |
| 125.6 | 125.7 | LoB | Loring Silt Loam, 1 To 3 Percent Slopes |
| 125.8 | 126 | CbB | Calloway Silt Loam, 1 To 3 Percent Slopes |
| 126.1 | 126.3 | He | Henry Silt Loam |
| 126.4 | | LoB | Loring Silt Loam, 1 To 3 Percent Slopes |
| 126.5 | | He | Henry Silt Loam |
| 126.6 | 127.1 | LoB | Loring Silt Loam, 1 To 3 Percent Slopes |
| 127.2 | | CbA | Calloway Silt Loam, 0 To 1 Percent Slopes |
| 127.3 | 127.6 | He | Henry Silt Loam |
| 127.7 | 128 | CbA | Calloway Silt Loam, 0 To 1 Percent Slopes |
| 128.1 | | MeB | Memphis Silt Loam, 1 To 3 Percent Slopes |
| 128.2 | 128.4 | LoB | Loring Silt Loam, 1 To 3 Percent Slopes |
| 128.5 | 128.6 | CbA | Calloway Silt Loam, 0 To 1 Percent Slopes |
| 128.7 | | He | Henry Silt Loam |
| 128.8 | | CbA | Calloway Silt Loam, 0 To 1 Percent Slopes |
| 128.9 | | He | Henry Silt Loam |
| 129 | 129.1 | CbA | Calloway Silt Loam, 0 To 1 Percent Slopes |
| 129.2 | 129.4 | LoB | Loring Silt Loam, 1 To 3 Percent Slopes |
| 129.5 | 129.7 | He | Henry Silt Loam |
| 129.8 | 130.2 | CbA | Calloway Silt Loam, 0 To 1 Percent Slopes |
| 130.3 | | Za | Zachary Soils, Frequently Flooded |
| 130.4 | 130.6 | CbA | Calloway Silt Loam, 0 To 1 Percent Slopes |
| 130.7 | 130.8 | Za | Zachary Soils, Frequently Flooded |
| 130.9 | | Fa | Falaya Silt Loam, Occasionally Flooded |
| 131 | 131.3 | Ma | Marvell Fine Sandy Loam |
| 131.4 | | LoB | Loring Silt Loam, 1 To 3 Percent Slopes |
| 131.5 | | Ma | Marvell Fine Sandy Loam |
| 131.6 | | LoB | Loring Silt Loam, 1 To 3 Percent Slopes |
| 131.7 | 132.1 | Ma | Marvell Fine Sandy Loam |
| 132.2 | 132.3 | La | Lagrange Fine Sandy Loam |
| 132.4 | 132.6 | LoB | Loring Silt Loam, 1 To 3 Percent Slopes |
| 132.7 | 132.8 | He | Henry Silt Loam |
| 132.9 | | Ma | Marvell Fine Sandy Loam |
| 133 | 133.1 | He | Henry Silt Loam |
| 133.2 | 133.4 | Ma | Marvell Fine Sandy Loam |
| 133.5 | 133.8 | LoB | Loring Silt Loam, 1 To 3 Percent Slopes |
| 133.9 | 134.1 | Ma | Marvell Fine Sandy Loam |
| 134.2 | 134.4 | He | Henry Silt Loam |
| 134.5 | 134.7 | Ma | Marvell Fine Sandy Loam |
| 134.8 | | He | Henry Silt Loam |
| 134.9 | 135.6 | Ma | Marvell Fine Sandy Loam |
| 135.7 | | Je | Jeanerette Silt Loam |
| 135.8 | 135.9 | Ma | Marvell Fine Sandy Loam |
| 136 | 136.1 | LoB | Loring Silt Loam, 1 To 3 Percent Slopes |
| 136.2 | 136.3 | Ca | Calhoun Silt Loam |
| 136.4 | 136.5 | LoB | Loring Silt Loam, 1 To 3 Percent Slopes |
| 136.6 | | Ca | Calhoun Silt Loam |
| 136.7 | | LoB | Loring Silt Loam, 1 To 3 Percent Slopes |
| 136.8 | 136.9 | CbA | Calloway Silt Loam, 0 To 1 Percent Slopes |
| 137 | 137.2 | LoB | Loring Silt Loam, 1 To 3 Percent Slopes |
| 137.3 | 137.5 | CbA | Calloway Silt Loam, 0 To 1 Percent Slopes |

**Table C-1 Fayetteville Lateral Soil Map Units by Milepost**

| Starting Milepost | Ending Milepost | Map Unit Symbol | Soil Map Unit |
|---|---|---|---|
| 137.6 | | Ca | Calhoun Silt Loam |
| 137.7 | | CbA | Calloway Silt Loam, 0 To 1 Percent Slopes |
| 137.8 | 138 | He | Henry Silt Loam |
| 138.1 | 138.3 | CbA | Calloway Silt Loam, 0 To 1 Percent Slopes |
| 138.4 | 138.6 | Fo | Foley-Bonn Complex |
| 138.7 | 138.9 | LoB | Loring Silt Loam, 1 To 3 Percent Slopes |
| 139 | | Ca | Calhoun Silt Loam |
| 139.1 | 139.3 | CbA | Calloway Silt Loam, 0 To 1 Percent Slopes |
| 139.4 | | Za | Zachary Soils, Frequently Flooded |
| 139.5 | 139.7 | Je | Jeanerette Silt Loam |
| 139.8 | 140 | CbB | Calloway Silt Loam, 1 To 3 Percent Slopes |
| 140.1 | 140.2 | He | Henry Silt Loam |
| 140.3 | | GrB | Grenada Silt Loam, 1 To 3 Percent Slopes |
| 140.4 | 140.7 | He | Henry Silt Loam |
| 140.8 | 140.9 | Fo | Foley Silt Loam |
| 141 | | He | Henry Silt Loam |
| 141.1 | 141.2 | Fo | Foley Silt Loam |
| 141.3 | | He | Henry Silt Loam |
| 141.4 | | Fo | Foley Silt Loam |
| 141.5 | | CbB | Calloway Silt Loam, 1 To 3 Percent Slopes |
| 141.6 | 141.7 | He | Henry Silt Loam |
| 141.8 | | GrB | Grenada Silt Loam, 1 To 3 Percent Slopes |
| 141.9 | 142.3 | He | Henry Silt Loam |
| 142.4 | 142.6 | CbB | Calloway Silt Loam, 1 To 3 Percent Slopes |
| 142.7 | | He | Henry Silt Loam |
| 142.8 | 143 | CbB | Calloway Silt Loam, 1 To 3 Percent Slopes |
| 143.1 | 143.2 | He | Henry Silt Loam |
| 143.3 | | CbB | Calloway Silt Loam, 1 To 3 Percent Slopes |
| 143.4 | | He | Henry Silt Loam |
| 143.5 | | CbB | Calloway Silt Loam, 1 To 3 Percent Slopes |
| 143.6 | | He | Henry Silt Loam |
| 143.7 | 143.8 | CbB | Calloway Silt Loam, 1 To 3 Percent Slopes |
| 143.9 | | He | Henry Silt Loam |
| 144 | | CbB | Calloway Silt Loam, 1 To 3 Percent Slopes |
| 144.1 | | He | Henry Silt Loam |
| 144.2 | 144.3 | CbB | Calloway Silt Loam, 1 To 3 Percent Slopes |
| 144.4 | | LoB | Loring Silt Loam, 1 To 3 Percent Slopes |
| 144.5 | | CbB | Calloway Silt Loam, 1 To 3 Percent Slopes |
| 144.6 | 144.7 | Fa | Falaya Silt Loam |
| 144.8 | 144.9 | CbB | Calloway Silt Loam, 1 To 3 Percent Slopes |
| 145 | | Fa | Falaya Silt Loam |
| 145.1 | 145.3 | CbB | Calloway Silt Loam, 1 To 3 Percent Slopes |
| 145.4 | | He | Henry Silt Loam |
| 145.5 | | CbB | Calloway Silt Loam, 1 To 3 Percent Slopes |
| 145.6 | 146.2 | He | Henry Silt Loam |
| 146.3 | | LoB | Loring Silt Loam, 1 To 3 Percent Slopes |
| 146.4 | 146.5 | MeB | Memphis Silt Loam, 1 To 3 Percent Slopes |
| 146.6 | 146.7 | LoB | Loring Silt Loam, 1 To 3 Percent Slopes |
| 146.8 | | MeB | Memphis Silt Loam, 1 To 3 Percent Slopes |
| 146.9 | | MeC2 | Memphis Silt Loam, 3 To 8 Percent Slopes, Eroded |
| 147 | | Fa | Falaya Silt Loam |
| 147.1 | 147.4 | Je | Jeanerette Silt Loam |
| 147.5 | 147.6 | Fo | Foley Silt Loam |

## Table C-1 Fayetteville Lateral Soil Map Units by Milepost

| Starting Milepost | Ending Milepost | Map Unit Symbol | Soil Map Unit |
|---|---|---|---|
| 147.7 | 148.8 | Je | Jeanerette Silt Loam |
| 148.9 | | Du | Dundee Silt Loam |
| 149 | | Je | Jeanerette Silt Loam |
| 149.1 | 149.3 | Fo | Foley Silt Loam |
| 149.4 | 149.8 | Je | Jeanerette Silt Loam |
| 149.9 | | Co | Convent Silt Loam |
| 150 | 150.4 | Je | Jeanerette Silt Loam |
| 150.5 | 151.3 | Sh | Sharkey Silty Clay |
| 151.4 | | NeU | Newellton Silty Clay, Gently Undulating |
| 151.5 | | Sh | Sharkey Silty Clay |
| 151.6 | | NeU | Newellton Silty Clay, Gently Undulating |
| 151.7 | 152 | Sh | Sharkey Silty Clay |
| 152.1 | 152.2 | Tn | Tunica Silty Clay |
| 152.3 | | Ne | Newellton Silty Clay |
| 152.4 | 152.9 | Cm | Commerce Silt Loam |
| 153 | | W | Water |
| 153.1 | | Cm | Commerce Silt Loam |
| 153.2 | 153.5 | Ne | Newellton Silty Clay |
| 153.6 | 153.7 | Sh | Sharkey Silty Clay |
| 153.8 | 154.3 | Cm | Commerce Silt Loam |
| 154.4 | | Sh | Sharkey Silty Clay |
| 154.5 | 156.3 | Ro | Robinsonville Fine Sandy Loam |
| 156.4 | | Ff | Fluvaquents, Frequently Flooded |
| 156.5 | 156.8 | Nf | Newellton Soils, Frequently Flooded |
| 156.9 | | Cr | Crevasse Soils, Frequently Flooded |
| 157 | 157.2 | W | Water |
| 157.5 | 157.8 | MSW | Water |
| 157.9 | 160.7 | MS001 | Commerce-Robinsonville-Crevasse |
| 160.8 | 166.2 | MS029 | Dundee-Forestdale-Dubbs |

*Note: Rounding to nearest 0.1 mile may result in multiple identification mileposts.*

*Map units are presented in order of occurrence along route centerline.*

*Source: U.S. Department of Agriculture, SSURGO database*

# APPENDIX C-2

# SOIL CHARACTERISTICS FOR EACH SOIL MAP UNIT CROSSED BY THE PROPOSED FAYETTEVILLE LATERAL

**TABLE C-2 Soil Characteristics for Each Soil Map Unit Crossed by the Proposed Fayetteville Lateral**

| County | Soil Series | Map Unit Description | Percent of Route by Series | Hydric | Prime Farmland | Erodibility | Drainage | Topographic Setting | Slope % | Shrink-Swell Potential |
|---|---|---|---|---|---|---|---|---|---|---|
| White | Allen | Allen fine sandy loam, 3 to 8 percent slopes | 0.18% | No | All areas are Prime Farmland | Potentially highly erodible land | Well drained | hillside | 5.0 | Low |
| Phillips, Woodruff | Amagon | Amagon silt loam, 0 to 1 percent slopes | 1.33% | Yes | Prime Farmland if drained | Not highly erodible land | Poorly drained | stream terrace | 0.5 | Moderate |
| Faulkner | Amy | Amy soils, frequently flooded | 0.16% | Yes | Not Prime Farmland | Not highly erodible land | Poorly drained | flood plain | 0.5 | Low |
| Woodruff | Askew | Askew fine sandy loam, 1 to 3 percent slopes | 1.42% | Yes | All areas are Prime Farmland | Not highly erodible land | | depressions | 0.0 | Moderate |
| White | Barling | Barling silt loam, occasionally flooded | 1.45% | No | All areas are Prime Farmland | Not highly erodible land | Moderately well drained | flood plain | 0.5 | Low |
| Woodruff | Bulltown | Bulltown loamy fine sand, 1 to 8 percent slopes | 2.43% | Yes | Farmland of Statewide Importance | Not highly erodible land | | depressions | 0.0 | Low |
| Lee, While, Woodruff | Calhoun | Calhoun silt loam | 3.61% | Yes | Prime Farmland if drained | Not highly erodible land | Poorly drained | stream terrace | 0.5 | Moderate |
| Lee, St. Francis, White, Woodruff | Calloway | Calloway silt loam, 0 to 1 percent slopes | 8.66% | No | All areas are Prime Farmland | Not highly erodible land | Somewhat poorly drained | stream terrace | 0.5 | Low |
| Lee, Phillips, St. Francis, Woodruff | | Calloway silt loam, 1 to 3 percent slopes | | No | All areas are Prime Farmland | Potentially highly erodible land | Somewhat poorly drained | terraces | 2.0 | Low |
| Phillips | Commerce | Commerce silt loam | 0.47% | No | All areas are Prime Farmland | Not highly erodible land | Somewhat poorly drained | natural levee | 0.5 | Moderate |
| Phillips | Convent | Convent silt loam | 0.18% | No | All areas are Prime Farmland | Not highly erodible land | Somewhat poorly drained | natural levee | 0.5 | Low |

| County | Soil Series | Map Unit Description | Percent of Route by Series | Hydric | Prime Farmland | Erodibility | Drainage | Topographic Setting | Slope % | Shrink-Swell Potential |
|---|---|---|---|---|---|---|---|---|---|---|
| Phillips | Crevasse | Crevasse soils, frequently flooded | 0.07% | No | Not Prime Farmland | Not highly erodible land | Excessively drained | flood plain | 1.0 | Low |
| St. Francis | Crowley | Crowley silt loam, 0 to 1 percent slopes | 0.24% | No | Prime Farmland if drained | Not highly erodible land | Somewhat poorly drained | stream terrace | 0.5 | High |
| St. Francis | | Crowley silt loam, 1 to 3 percent slopes | | No | Prime Farmland if drained | Potentially highly erodible land | Somewhat poorly drained | stream terrace | 2.0 | High |
| Woodruff | Dubbs | Dubbs silt loam, 0 to 1 percent slopes | 2.70% | No | All areas are Prime Farmland | Not highly erodible land | Well drained | natural levees, stream terraces | 0.5 | Moderate |
| Woodruff | | Dubbs silt loam, 1 to 3 percent slopes | | Yes | All areas are Prime Farmland | Potentially highly erodible land | | depressions | 0.0 | Moderate |
| Woodruff | | Dubbs silt loam, 3 to 8 percent slopes | | No | Farmland of Statewide Importance | Potentially highly erodible land | Well drained | natural levees, stream terraces | 5.0 | Moderate |
| Phillips, Woodruff | Dundee | Dundee silt loam, 0 to 1 percent slopes | 0.98% | No | All areas are Prime Farmland | Not highly erodible land | Somewhat poorly drained | natural levee | 0.5 | Moderate |
| White | Enders | Enders fine sandy loam, 3 to 8 percent slopes | 2.91% | Yes | All areas are Prime Farmland | Not highly erodible land | | depressions | 0.0 | Low |
| Faulkner | | Enders gravelly fine sandy loam, 3 to 8 percent slopes | | No | Not Prime Farmland | Highly erodible land | Well drained | ridge | 5.0 | Low |
| Conway | | Enders gravelly fine sandy loam, 8 to 12 percent slopes | | No | Not Prime Farmland | Potentially highly erodible land | Well drained | hill | 5.0 | Low |
| White | | Enders stony fine sandy loam, 3 to 12 percent slopes | | No | Not Prime Farmland | Highly erodible land | Well drained | ridge | 10.0 | Low |
| Cleburne | | Enders-Steprock complex, 8 to 20 percent slopes | | No | Not Prime Farmland | Highly erodible land | Well drained | hillside | 8.0 | Low |
| White | | Enders-Steprock Complex, 12 to 30 percent slopes | | No | Not Prime Farmland | Highly erodible land | Well drained | hillside | 21.0 | Low |

| County | Soil Series | Map Unit Description | Percent of Route by Series | Hydric | Prime Farmland | Erodibility | Drainage | Topographic Setting | Slope % | Shrink-Swell Potential |
|---|---|---|---|---|---|---|---|---|---|---|
| Cleburne | | Enders-Steprock complex, 20 to 40 percent slopes | | No | Not Prime Farmland | Highly erodible land | Well drained | hillsides or mountainsides, ridges | 30.0 | Low |
| Phillips | Falaya | Falaya silt loam | 0.25% | No | All areas are Prime Farmland | Not highly erodible land | Somewhat poorly drained | flood plain | 0.5 | Low |
| Lee | | Falaya silt loam, occasionally flooded | | No | All areas are Prime Farmland | Not highly erodible land | Somewhat poorly drained | drainageway | 0.5 | Low |
| Phillips | Fluvaquent s | Fluvaquents, frequently flooded | 0.03% | Unrank ed | Not Prime Farmland | Not highly erodible land | | | 0.0 | Low |
| Phillips | Foley | Foley silt loam | 1.73% | Yes | Not Prime Farmland | Not highly erodible land | Poorly drained | stream terrace | 0.5 | Moderate |
| Lee, Woodruff | | Foley-Bonn complex, 0 to 1 percent slopes | | Yes | Not Prime Farmland | Not highly erodible land | Poorly drained | stream terrace | 0.5 | Moderate |
| Lee, Phillips, Woodruff | Grenada | Grenada silt loam, 1 to 3 percent slopes | 1.57% | Yes | All areas are Prime Farmland | Potentially highly erodible land | | depressions | 0.0 | Low |
| Woodruff | | Grenada silt loam, 3 to 8 percent slopes, eroded | | No | Farmland of Statewide Importance | Highly erodible land | Moderately well drained | terraces | 5.0 | Low |
| Woodruff | Grubbs | Grubbs silt loam, 1 to 3 percent slopes | 2.36% | Yes | All areas are Prime Farmland | Potentially highly erodible land | | depressions | 0.0 | High |
| Woodruff | | Grubbs silt loam, 3 to 8 percent slopes, eroded | | No | Farmland of Statewide Importance | Highly erodible land | Moderately well drained | terraces, escarpments | 5.0 | High |
| White | Guthrie | Guthrie silt loam, 0 to 1 percent slopes | 0.15% | Yes | Prime Farmland if drained | Not highly erodible land | Poorly drained | depression | 0.5 | Low |
| Lee, Phillips, St. Francis, Woodruff | Henry | Henry silt loam | 7.28% | Yes | Prime Farmland if drained | Not highly erodible land | Poorly drained | terraces | 0.5 | Low |
| Woodruff | Hillemann | Hillemann silt loam, 0 to 1 percent slopes | 1.22% | No | Farmland of Statewide Importance | Not highly erodible land | Somewhat poorly drained | terraces | 0.5 | Moderate |

| County | Soil Series | Map Unit Description | Percent of Route by Series | Hydric | Prime Farmland | Erodibility | Drainage | Topographic Setting | Slope % | Shrink-Swell Potential |
|---|---|---|---|---|---|---|---|---|---|---|
| Woodruff | Jackport | Jackport silty clay loam, 0 to 1 percent slopes | 0.94% | Yes | Prime Farmland if drained | Not highly erodible land | Poorly drained | terraces | 0.5 | Very high |
| Lee | Jeanerette | Jeanerette silt loam | 0.97% | No | All areas are Prime Farmland | Not highly erodible land | Somewhat poorly drained | stream terrace | 0.5 | Low |
| Woodruff | Kobel | Kobel silty clay loam, 0 to 1 percent slopes, frequently flooded | 0.83% | Yes | Prime Farmland if drained and either protected from flooding or not frequently flooded during the growing season | Not highly erodible land | Poorly drained | flood plains, backswamps | 0.5 | Very high |
| Woodruff | | Kobel silty clay loam, 0 to 1 percent slopes, ponded | | Yes | Not Prime Farmland | Not highly erodible land | Very poorly drained | oxbows, backswamps | 0.5 | Very high |
| White | | Kobel silty clan, frequently flooded | | Yes | Not Prime Farmland | Not highly erodible land | Poorly drained | backswamp | 0.5 | Very high |
| Woodruff | Lafe | Lafe silt loam, 0 to 1 percent slopes | 0.04% | No | Not Prime Farmland | Highly erodible land | Somewhat poorly drained | terraces | 0.5 | Moderate |
| Lee | Lagrange | LaGrange fine sandy loam | 0.33% | Yes | All areas are Prime Farmland | Not highly erodible land | Poorly drained | alluvial flat | 0.5 | Moderate |
| Conway, Faulkner, White | Leadvale | Leadvale silt loam, 1 to 3 percent slopes | 5.14% | No | All areas are Prime Farmland | Potentially highly erodible land | Moderately well drained | valley floor | 2.0 | Low |
| Cleburne, Conway, White | | Leadvale silt loam, 3 to 8 percent slopes | | No | Not Prime Farmland | Highly erodible land | Moderately well drained | valley floor | 5.0 | Low |
| Faulkner | Linker | Linker fine sandy loam, 1 to 3 percent slopes | 10.68% | No | All areas are Prime Farmland | Potentially highly erodible land | Well drained | hillside | 5.0 | Low |
| Cleburne, Conway, Faulkner, While | | Linker fine sandy loam, 3 to 8 percent slopes | | No | All areas are Prime Farmland | Highly erodible land | Well drained | ridge | 5.0 | Low |

| County | Soil Series | Map Unit Description | Percent of Route by Series | Hydric | Prime Farmland | Erodibility | Drainage | Topographic Setting | Slope % | Shrink-Swell Potential |
|---|---|---|---|---|---|---|---|---|---|---|
| Conway, Faulkner, White | | Linker fine sandy loam, 8 to 12 percent slopes | | No | Not Prime Farmland | Highly erodible land | Well drained | mountain slope | 10.0 | Low |
| Cleburne, While | | Linker gravelly fine sandy loam, 3 to 8 percent slopes | | No | All areas are Prime Farmland | Potentially highly erodible land | Well drained | hillsides, benches, ridges | 5.0 | Low |
| Cleburne | | Linker-Mountainburg complex, 3 to 8 percent slopes | | No | Not Prime Farmland | Potentially highly erodible land | Well drained | hillsides, benches, ridges, ledges | 5.0 | Low |
| Cleburne | | Linker-Mountainburg complex, 8 to 20 percent slopes | | No | Not Prime Farmland | Highly erodible land | Well drained | benches, hillsides, ledges, ridges | 10.0 | Low |
| Lee, Phillips, St. Francis, White | Loring | Loring silt loam, 1 to 3 percent slopes | 5.53% | No | All areas are Prime Farmland | Potentially highly erodible land | Moderately well drained | loess hill | 2.0 | Low |
| St. Francis | | Loring silt loam, 1 to 3 percent slopes, eroded | | No | All areas are Prime Farmland | Potentially highly erodible land | Moderately well drained | terrace | 2.0 | Low |
| White | | Loring silt loam, 3 to 8 percent slopes | | No | Not Prime Farmland | Highly erodible land | Moderately well drained | terrace | 5.0 | Low |
| St. Francis, Lee | | Loring silt loam, 3 to 8 percent slopes, eroded | | No | Not Prime Farmland | Highly erodible land | Moderately well drained | loess hill | 5.0 | Low |
| Lee | Marvell | Marvell fine sandy loam | 1.26% | No | All areas are Prime Farmland | Not highly erodible land | Well drained | stream terrace | 0.5 | Low |
| Woodruff | McCrory | McCrory fine sandy loam, 0 to 1 percent slopes | 1.73% | Yes | Farmland of statewide importance | Not highly erodible land | | depressions | 0.0 | Low |
| Lee, Phillips | Memphis | Memphis silt loam, 1 to 3 percent slopes | 0.56% | No | All areas are Prime Farmland | Potentially highly erodible land | Well drained | loess hill | 2.0 | Low |
| Phillips | | Memphis silt loam, 1 to 3 percent slopes, eroded | | No | Not Prime Farmland | Potentially highly erodible land | Well drained | loess hill | 5.0 | Low |

| County | Soil Series | Map Unit Description | Percent of Route by Series | Hydric | Prime Farmland | Erodibility | Drainage | Topographic Setting | Slope % | Shrink-Swell Potential |
|---|---|---|---|---|---|---|---|---|---|---|
| Conway, Faulkner | Mountainburg | Mountainburg gravelly fine sandy loam, 3 to 8 percent slopes | 6.92% | No | Not Prime Farmland | Highly erodible land | Well drained | ridge | 5.0 | Low |
| Faulkner | | Mountainburg stony fine sandy loam, 3 to 12 percent slopes | | No | Not Prime Farmland | Highly erodible land | Well drained | hill | 10.0 | Low |
| Conway, Faulkner | | Mountainburg gravelly fine sandy loam, 8 to 12 percent slopes | | No | Not Prime Farmland | Highly erodible land | Well drained | ridge | 26.0 | Low |
| Faulkner | | Mountainburg very stony fine sandy loam, 8 to 12 percent slopes | | No | Not Prime Farmland | Highly erodible land | Well drained | ridge | 8.0 | Low |
| Conway | | Mountainburg stony fine sandy loam, 12 to 40 percent slopes | | No | Not Prime Farmland | Highly erodible land | Well drained | bench, hill, ledge | 26.0 | Low |
| Faulkner | | Mountainburg very stony fine sandy loam, 12 to 40 percent slopes | | No | Not Prime Farmland | Highly erodible land | Well drained | hill | 10.0 | Low |
| Cleburne, White | Nauvoo | Nauvoo fine sandy loam, 3 to 8 percent slopes | 0.39% | No | All areas are Prime Farmland | Potentially highly erodible land | Well drained | ridge | 5.0 | Low |
| Phillips | Newellton | Newellton silty clay | 1.70% | No | All areas are Prime Farmland | Not highly erodible land | Somewhat poorly drained | slackwater | 0.5 | High |
| Phillips | | Newellton silty clay, gently undulating | | No | All areas are Prime Farmland | Not highly erodible land | Somewhat poorly drained | slackwater | 1.0 | High |
| Phillips | | Newellton soils, frequently flooded | | No | Not Prime Farmland | Not highly erodible land | Somewhat poorly drained | slackwater | 0.5 | High |
| White | Oaklimeter | Oaklimeter silt loam, frequently flooded | 0.06% | No | Not Prime Farmland | Not highly erodible land | Moderately well drained | flood plain | 0.5 | Low |

| County | Soil Series | Map Unit Description | Percent of Route by Series | Hydric | Prime Farmland | Erodibility | Drainage | Topographic Setting | Slope % | Shrink-Swell Potential |
|---|---|---|---|---|---|---|---|---|---|---|
| Faulkner | Ouachita | Ouachita silt loam, occasionally flooded | 0.11% | No | All areas are Prime Farmland | Not highly erodible land | Well drained | flood plain, natural levee | 0.5 | Low |
| Woodruff | Overcup | Overcup silt loam, 0 to 1 percent slopes | 1.36% | Yes | Prime Farmland if drained | Not highly erodible land | Poorly drained | terraces | 0.5 | Very high |
| Woodruff | Patterson | Patterson fine sandy loam, 0 to 2 percent slopes | 0.02% | No | All areas are Prime Farmland | Not highly erodible land | Somewhat poorly drained | terraces, depressions | 0.5 | Low |
| White | Rexor | Rexor silt loam, occasionally flooded | 0.01% | No | All areas are Prime Farmland | Not highly erodible land | Well drained | flood plain | 0.5 | Moderate |
| Phillips | Robinsonville | Robinsonville fine sandy loam | 0.10% | No | All areas are Prime Farmland | Not highly erodible land | Well drained | natural levee | 0.5 | Low |
| White | | Robinsonville fine sandy loam, frequently flooded | | No | Not Prime Farmland | Not highly erodible land | Well drained | flood plain | 0.5 | Low |
| Phillips | Sharkey | Sharkey silty clay | 0.40% | Yes | Prime Farmland if drained | Not highly erodible land | Poorly drained | backswamp | 0.5 | High |
| White | Sidon | Sidon loam, 1 to 3 percent slopes | 1.78% | No | All areas are Prime Farmland | Potentially highly erodible land | Moderately well drained | ridge | 2.0 | Low |
| Cleburne, White | | Sidon fine sandy loam, 3 to 8 percent slopes | | No | Not Prime Farmland | Highly erodible land | Moderately well drained | ridge | 5.0 | Low |
| Faulkner | Spadra | Spadra fine sandy loam, 1 to 3 percent slopes | 0.41% | No | All areas are Prime Farmland | Not highly erodible land | Well drained | stream terrace | 2.0 | Low |
| White | Steprock | Steprock-Enders Complex, 12 to 30 percent slopes | 6.67% | No | Not Prime Farmland | Highly erodible land | Well drained | hillslope | 21.0 | Low |
| White | | Steprock-Linker Complex, 3 to 8 percent slopes | | No | Not Prime Farmland | Potentially highly erodible land | Well drained | hillslope | 5.0 | Low |
| White | | Steprock-Mountainburg | | No | Not Prime Farmland | Highly erodible land | Well drained | hillside | 10.0 | Low |

| County | Soil Series | Map Unit Description | Percent of Route by Series | Hydric | Prime Farmland | Erodibility | Drainage | Topographic Setting | Slope % | Shrink-Swell Potential |
|---|---|---|---|---|---|---|---|---|---|---|
| | | Complex, 8 to 12 percent slopes | | | | | | | | |
| Cleburne | | Steprock-Mountainburg complex, 8 to 20 percent slopes | | No | Not Prime Farmland | Highly erodible land | Well drained | hillsides, ridges | 14.0 | Low |
| Cleburne | | Steprock-Mountainburg-Rock outcrop complex, 40 to 60 percent slopes | | No | Not Prime Farmland | Highly erodible land | Well drained | hillsides or mountainsides, ridges | 50.0 | Low |
| Cleburne | | Steprock-Nella-Mountainburg complex, 20 to 40 percent slopes | | No | Not Prime Farmland | Highly erodible land | Well drained | hillsides or mountainsides, ridges | 30.0 | Low |
| Conway, Faulkner, White | Taft | Taft silt loam, 0 to 2 percent slopes | 1.00% | No | All areas are Prime Farmland | Not highly erodible land | Somewhat poorly drained | depression | 1.0 | Low |
| Woodruff | Taylorbay | Taylorbay silt loam, 0 to 3 percent slopes, frequently flooded | 0.12% | Yes | Prime Farmland if protected from flooding or not frequently flooded during the growing season | Not highly erodible land | Well drained | flood plains | 1.0 | Moderate |
| Woodruff | Teksob | Teksob loam, 0 to 1 percent slopes | 2.90% | No | All areas are Prime Farmland | Not highly erodible land | Well drained | terraces | 0.5 | Low |
| Woodruff | | Teksob loam, 1 to 3 percent slopes | | No | All areas are Prime Farmland | Not highly erodible land | Well drained | terraces | 2.0 | Low |
| Woodruff | | Teksob loam, 3 to 8 percent slopes | | No | All areas are Prime Farmland | Potentially highly erodible land | Well drained | terraces | 5.0 | Low |

| County | Soil Series | Map Unit Description | Percent of Route by Series | Hydric | Prime Farmland | Erodibility | Drainage | Topographic Setting | Slope % | Shrink-Swell Potential |
|---|---|---|---|---|---|---|---|---|---|---|
| Woodruff | Tichnor | Tichnor silt loam, 0 to 1 percent slopes, frequently flooded | 0.75% | Yes | Prime Farmland if drained and either protected from flooding or not frequently flooded during the growing season | Not highly erodible land | Poorly drained | flood plains | 0.5 | Moderate |
| Woodruff | Tipp | Tipp silty clay loam, 0 to 3 percent slopes, frequently flooded | 0.03% | Yes | Prime Farmland if protected from flooding or not frequently flooded during the growing season | Not highly erodible land | Well drained | flood plains | 1.0 | Moderate |
| Woodruff | Tuckerman | Tuckerman loam, 0 to 1 percent slopes, frequently flooded | 1.90% | Yes | Farmland of Statewide Importance | Not highly erodible land | Poorly drained | flood plains, stream terraces | 0.5 | Low |
| Woodruff | Tuckerman | Tuckerman silty clay loam, 0 to 1 percent slopes, frequently flooded | | Yes | Farmland of Statewide Importance | Not highly erodible land | Poorly drained | flood plains, stream terraces | 0.5 | Low |
| Phillips | Tunica | Tunica silty clay | 0.01% | No | Prime Farmland if drained | Not highly erodible land | Poorly drained | backswamp | 0.5 | |
| Woodruff | Wiville | Wiville fine sandy loam, 0 to 1 percent slopes | 1.08% | No | All areas are Prime Farmland | Not highly erodible land | Well drained | dunes | 0.5 | Low |
| Woodruff | | Wiville fine sandy loam, 1 to 3 percent slopes | | No | All areas are Prime Farmland | Not highly erodible land | Well drained | dunes | 2.0 | Low |
| Woodruff | Yancopin | Yancopin silty clay loam, 0 to 3 percent slopes, frequently flooded | 1.06% | No | Prime Farmland if protected from flooding or not frequently flooded during the growing season | Not highly erodible land | Somewhat poorly drained | flood plains | 1.0 | Moderate |

| County | Soil Series | Map Unit Description | Percent of Route by Series | Hydric | Prime Farmland | Erodibility | Drainage | Topographic Setting | Slope % | Shrink-Swell Potential |
|---|---|---|---|---|---|---|---|---|---|---|
| St. Francis | Zachary | Zachary silt loam | 0.18% | Yes | Not Prime Farmland | Not highly erodible land | Poorly drained | flood plain | 0.5 | Low |
| Lee | Za | Zachary soils, frequently flooded | | Yes | Not Prime Farmland | Not highly erodible land | Poorly drained | flood plain | 0.5 | Low |

# APPENDIX C-3

# SOIL ASSOCIATIONS BY MILEPOST, GREENVILLE LATERAL

**Table C-3 Soil Associations by Milepost, Greenville Lateral**

| Begin MP | End MP | SOIL NAME |
|---|---|---|
| 0 | 1.1 | Smithdale-Sweatman-Providence |
| 0 | 1.5 | Sharkey clay, nearly level phase |
| 0 | 6.9 | Sharkey-Tunica-Dundee |
| 1.6 | | Tunica clay, nearly level phase |
| 1.7 | 3.3 | Sharkey clay, nearly level phase |
| 3.4 | 3.5 | Sharkey clay, level phase |
| 3.6 | | Sharkey clay, nearly level phase |
| 3.7 | 4.4 | Sharkey clay, level phase |
| 4.5 | | Sharkey clay, nearly level phase |
| 4.6 | 4.8 | Sharkey clay, level phase |
| 4.9 | 5.7 | Sharkey clay, nearly level phase |
| 5.8 | 6.1 | Sharkey clay, level phase |
| 6.2 | | Dowling clay (Sharkey) |
| 6.3 | | Sharkey clay, level phase |
| 6.4 | | Dowling clay (Sharkey) |
| 6.5 | | Sharkey silty clay loam, nearly level phase |
| 6.6 | | Sharkey clay, nearly level phase |
| 6.7 | | Dowling clay (Sharkey) |
| 6.8 | 7 | Sharkey clay, level phase |
| 7 | 10.6 | Dundee-Askew-Sharkey |
| 7.1 | | Sharkey silty clay loam, nearly level phase |
| 7.2 | | Dundee silty clay loam, nearly level phase |
| 7.3 | 7.6 | Tunica clay, nearly level phase |
| 7.7 | | Dundee silty clay loam, nearly level phase |
| 7.8 | | Dundee very fine sandy loam, nearly level phase |
| 7.9 | 8.2 | Bosket very fine sandy loam, nearly level phase (askew) |
| 8.3 | 8.6 | Dundee very fine sandy loam, nearly level phase |
| 8.7 | | Forestdale silty clay, nearly level phase |
| 8.8 | 8.9 | Sharkey clay, nearly level phase |
| 9 | 9.1 | Dundee silty clay loam, nearly level phase |
| 9.2 | | Dundee very fine sandy loam, nearly level phase |
| 9.3 | 9.8 | Bosket very fine sandy loam, nearly level phase (askew) |
| 9.9 | 10.3 | Dundee very fine sandy loam, nearly level phase |
| 10.4 | 10.5 | Sharkey silty clay loam, nearly level phase |
| 10.6 | 11.4 | Sharkey clay, nearly level phase |
| 10.7 | 11.1 | Sharkey-Tunica-Dundee |
| 11.2 | 16.6 | Forestdale-Dundee-Sharkey |
| 11.5 | 11.7 | Forestdale silty clay, nearly level phase |
| 11.8 | | Dowling clay (Sharkey) |
| 11.9 | 12 | Forestdale silty clay, nearly level phase |
| 12.1 | | Forestdale silty clay, gently sloping phase |
| 12.2 | | Dowling clay (Sharkey) |
| 12.3 | | Forestdale silty clay, nearly level phase |

**Table C-3 Soil Associations by Milepost, Greenville Lateral**

| Begin MP | End MP | SOIL NAME |
|---|---|---|
| 12.4 | | Dowling clay (Sharkey) |
| 12.5 | 12.9 | Forestdale silty clay, nearly level phase |
| 13 | | Dowling clay (Sharkey) |
| 13.1 | 13.2 | Forestdale silty clay, gently sloping phase |
| 13.3 | 14.1 | Forestdale silty clay, nearly level phase |
| 14.2 | | Dowling clay (Sharkey) |
| 14.3 | 14.5 | Forestdale silty clay, nearly level phase |
| 14.6 | | Dowling soils (Sharkey) |
| 14.7 | | Forestdale silty clay loam, nearly level phase |
| 14.8 | | Forestdale silty clay, nearly level phase |
| 14.9 | 16.5 | Forestdale silty clay loam, nearly level phase |
| 16.6 | | Forestdale silty clay loam, gently sloping phase |
| 16.7 | | Dowling clay (Sharkey) |
| 16.7 | 23.1 | Alligator-Sharkey-Forestdale |
| 16.8 | | Forestdale silty clay loam, nearly level phase |
| 16.9 | 17.1 | Dowling clay (Sharkey) |
| 17.2 | 17.3 | Alligator clay, nearly level phase |
| 20.1 | 20.2 | Alligator clay, gently sloping phase |
| 20.3 | | Water |
| 23.2 | 26.2 | Forestdale-Dundee-Sharkey |
| 26.3 | 27.8 | Alligator-Sharkey-Forestdale |
| 27.9 | 29.6 | Forestdale-Dundee-Sharkey |
| 29.7 | 29.8 | Alligator-Sharkey-Forestdale |
| 29.9 | 35.7 | Forestdale-Dundee-Sharkey |
| 35.8 | 40.9 | Alligator-Sharkey-Forestdale |
| 41 | 43.8 | Forestdale-Dundee-Sharkey |
| 43.9 | 47.2 | Alligator-Sharkey-Forestdale |
| 47.3 | | Dundee-Forestdale-Dubbs |
| 47.4 | 48.9 | Alligator-Sharkey-Forestdale |
| 49 | 51.6 | Dundee-Forestdale-Dubbs |
| 51.7 | 61.6 | Morganfield-Adler-Convent |
| 61.7 | 62.4 | Memphis-Natchez-Collins |
| 62.5 | 65 | Memphis-Loring-Collins |
| 65.1 | 66.4 | Morganfield-Adler-Convent |
| 66.5 | 66.7 | Memphis-Loring-Collins |
| 66.8 | 67.9 | Morganfield-Adler-Convent |
| 68 | 68.1 | Memphis-Loring-Collins |
| 68.2 | 68.4 | Morganfield-Adler-Convent |
| 68.5 | 70.1 | Memphis-Loring-Collins |
| 70.2 | 75.4 | Smithdale-Providence-Collins |
| 75.5 | 76.6 | Grenada-Calloway-Gillsburg |
| 76.7 | 78.5 | Arkabutla-Chenneby-Stough |
| 78.6 | 80.3 | Smithdale-Sweatman-Providence |
| 80.4 | 81.6 | Providence-Smithdale-Saffell |
| 81.7 | 82.1 | Smithdale-Sweatman-Providence |

**Table C-3 Soil Associations by Milepost, Greenville Lateral**

| Begin MP | End MP | SOIL NAME |
|---|---|---|
| 82.2 | 84.5 | Providence-Smithdale-Saffell |
| 84.6 | 85.2 | Ariel-Gillsburg-Oaklimeter |
| 85.3 | 85.4 | Smithdale-Sweatman-Providence |
| 85.5 | 86 | Ariel-Gillsburg-Oaklimeter |
| 86.1 | | Smithdale-Sweatman-Providence |
| 86.2 | 86.5 | Ariel-Gillsburg-Oaklimeter |
| 86.6 | 88.1 | Smithdale-Sweatman-Providence |
| 88.2 | 88.7 | Ariel-Gillsburg-Oaklimeter |
| 88.8 | 89 | Smithdale-Providence-Collins |
| 89.1 | 89.4 | Ariel-Gillsburg-Oaklimeter |
| 89.5 | 92.9 | Smithdale-Providence-Collins |
| 93 | 93.7 | Ariel-Gillsburg-Oaklimeter |
| 93.8 | 96.3 | Smithdale-Sweatman-Providence |

# APPENDIX C-4

# GREENVILLE LATERAL SOIL MAP UNITS AND CHARACTERISTICS

## Table C-4 Greenville Lateral Soil Map Units and Characteristics

| County | Dominant Series | Map Unit Description | Drainage | Farmland | Hydric Soil | Erodibility | Shrink-Swell Potential | Percent of Route |
|---|---|---|---|---|---|---|---|---|
| Holmes | Adler | Adler silt loam, occasionally flooded | Poorly drained | Prime farmland | Hydric Soil | Not highly erodible land | | 2.84% |
| Holmes, Humphreys, Sunflower, Washington | Alligator | Alligator clay, level phase | Poorly drained | Prime farmland | Hydric Soil | Not highly erodible land | Very high | 14.89% |
| | | Alligator clay, frequently flooded | Poorly drained | | Hydric Soil | Not highly erodible land | | |
| | | Alligator silty clay loam, occasionally flooded | Poorly drained | Prime farmland | Hydric Soil | Not highly erodible land | | |
| | | Alligator silty clay, occasionally flooded | Poorly drained | Prime farmland | Hydric Soil | Not highly erodible land | | |
| | | Alligator clay, nearly level phase | Poorly drained | Prime farmland | Hydric Soil | Not highly erodible land | | |
| | | Alligator clay, gently sloping phase | Poorly drained | Prime farmland | Hydric Soil | Potentially highly erodible land | | |
| | | Alligator clay, nearly level overflow phase | Poorly drained | | Hydric Soil | Not highly erodible land | | |
| | | Alligator silty clay, nearly level phase | Poorly drained | Prime farmland | Hydric Soil | Not highly erodible land | | |
| | | Alligator silty clay loam, nearly level overflow phase | Poorly drained | | Hydric Soil | Not highly erodible land | | |
| | | Alligator silty clay, gently sloping phase | Poorly drained | Prime farmland | Hydric Soil | Potentially highly erodible land | | |
| | | Alligator-Dowling clays, overflow phase | Poorly drained | | Hydric Soil | Potentially highly erodible land | | |
| | | Alligator, Dowling, and Forestdale soils, overflow phase | Poorly drained | | Hydric Soil | Potentially highly erodible land | | |
| Holmes | Ariel | Ariel silt loam, occasionally flooded | Poorly drained | Prime farmland | Hydric Soil | | | 0.30% |
| Washington | Bosket | Bosket very fine sandy loam, nearly level phase (askew) | Moderately well drained | Prime farmland | Partially hydric | Not highly erodible land | Low | 1.07% |
| Holmes | Bruno | Bruno sandy loam, frequently flooded | Somewhat poorly drained | | Hydric Soil | Not highly erodible land | | 0.61% |
| | | Bruno sandy loam, occasionally flooded | Somewhat poorly | | Hydric Soil | Not highly erodible land | | |

## Table C-4  Greenville Lateral Soil Map Units and Characteristics

| County | Dominant Series | Map Unit Description | Drainage | Farmland | Hydric Soil | Erodibility | Shrink-Swell Potential | Percent of Route |
|---|---|---|---|---|---|---|---|---|
| | | | drained | | | | | |
| Attala | Calhoun | Calhoun silt loam | Somewhat poorly drained | Prime farmland, if drained | Hydric Soil | Not highly erodible land | Low | 0.11% |
| Holmes | Calloway | Calloway silt loam | Moderately well drained | | | Not highly erodible land | | 0.30% |
| Holmes | Chenneby | Chenneby silt loam, frequently flooded | | | Hydric Soil | | | 0.20% |
| Holmes | Deerfield | Deerfield-Bonn complex | | | Hydric Soil | | | 0.10% |
| Holmes, Humphreys, Sunflower, Washington | Dowling | Dowling clay (sharkey) | Very poorly drained | | Partially hydric | Not highly erodible land | Very high | 4.16% |
| | | Dowling clay, overflow phase | Very poorly drained | | Partially hydric | Not highly erodible land | | |
| | | Dowling soils (sharkey) | Very poorly drained | | Partially hydric | Not highly erodible land | | |
| | | Dowling soils, overflow phase | Very poorly drained | | Partially hydric | Not highly erodible land | | |
| Holmes | Dubbs | Dubbs silt loam | Moderately well drained | Prime farmland | | | | 2.53% |
| | | Dubbs silt loam | Moderately well drained | Prime farmland | | | | |
| Humphreys | Dubbs | Dubbs very fine sandy loam | Well drained | Prime farmland | Partially hydric | Not highly erodible land | | 0.28% |
| Holmes, Humphreys, Sunflower, Washington | Dundee | Dundee silty clay loam, nearly level phase | Somewhat poorly drained | Prime farmland | Partially hydric | Not highly erodible land | High | 4.92% |
| | | Dundee silty clay loam, nearly level shallow phase | Somewhat poorly drained | Prime farmland | Partially hydric | Not highly erodible land | | |
| | | Dundee silty clay loam, gently sloping phase | Somewhat poorly drained | Prime farmland | Partially hydric | Not highly erodible land | | |

## Table C-4  Greenville Lateral Soil Map Units and Characteristics

| County | Dominant Series | Map Unit Description | Drainage | Farmland | Hydric Soil | Erodibility | Shrink-Swell Potential | Percent of Route |
|---|---|---|---|---|---|---|---|---|
| | | Dundee silt loam, gently sloping phase | Somewhat poorly drained | Prime farmland | Partially hydric | Not highly erodible land | | |
| | | Dundee very fine sandy loam, nearly level phase | Somewhat poorly drained | Prime farmland | Partially hydric | Not highly erodible land | High | |
| Holmes | Falaya | Falaya silt loam, occasionally flooded | | Prime farmland | Hydric Soil | | | 0.10% |
| Holmes | Fausse | Fausse clay, depressional | Poorly drained | | | | | 0.20% |
| Humphreys, Sunflower, Washington | Forestdale | Forestdale silty clay, nearly level phase | Poorly drained | Prime farmland | Partially hydric | Not highly erodible land | | 17.84% |
| | | Forestdale silty clay, gently sloping phase | Poorly drained | Prime farmland | Partially hydric | Potentially highly erodible land | | |
| | | Forestdale silty clay loam, level phase | Poorly drained | Prime farmland | Partially hydric | Not highly erodible land | | |
| | | Forestdale silty clay loam, nearly level phase | Poorly drained | Prime farmland | Partially hydric | Not highly erodible land | | |
| | | Forestdale silty clay loam, nearly level overflow phase | Poorly drained | Prime farmland | Partially hydric | Not highly erodible land | | |
| | | Forestdale silty clay loam, nearly level shallow phase | Poorly drained | Prime farmland | Partially hydric | Not highly erodible land | | |
| | | Forestdale silty clay loam, gently sloping phase | Poorly drained | Prime farmland | Partially hydric | Not highly erodible land | | |
| | | Forestdale silty clay loam, gently sloping overflow phase | Poorly drained | Prime farmland | Partially hydric | Not highly erodible land | | |
| | | Forestdale silt loam, nearly level phase | Poorly drained | Prime farmland | Partially hydric | Not highly erodible land | | |
| | | Forestdale silt loam, nearly level overflow phase | Poorly drained | Prime farmland | Partially hydric | Not highly erodible land | | |
| | | Forestdale silt loam, nearly level moderately shallow phase | Poorly drained | Prime farmland | Partially hydric | Not highly erodible land | | |
| | | Forestdale silt loam, gently sloping phase | Poorly drained | Prime farmland | Partially hydric | Not highly erodible land | | |
| | | Forestdale very fine sandy loam, nearly level phase | Poorly drained | Prime farmland | Partially hydric | Not highly erodible land | | |

## Table C-4 Greenville Lateral Soil Map Units and Characteristics

| County | Dominant Series | Map Unit Description | Drainage | Farmland | Hydric Soil | Erodibility | Shrink-Swell Potential | Percent of Route |
|---|---|---|---|---|---|---|---|---|
| Attala | Gillsburg | Gillsburg silt loam, occasionally flooded | | Prime farmland | Hydric Soil | | Moderate | 1.21% |
| Holmes | Memphis | Gullied Land-Memphis complex | | | Hydric Soil | Severely eroded | | 0.30% |
| Humphreys | Iberia | Iberia clay | Poorly drained | | Hydric Soil | Not highly erodible land | High | 0.37% |
| Attala | Kinston | Kinston loam, occasionally flooded | | | Hydric Soil | | Moderate | 1.35% |
| Attala | Kirksville | Kirksville loam, occasionally flooded | | Prime farmland | Hydric Soil | | Moderate | 2.06% |
| Holmes | Loring | Loring silt loam, 2 to 5% slopes | | | | | | 1.72% |
| | | Loring silt loam, 5 to 8% slopes, eroded | | | Hydric Soil | Eroded | | |
| | | Loring silt loam, 5 to 8% slopes, severely eroded | | | Hydric Soil | Severely eroded | | |
| | | Loring silt loam, 8 to 12% slopes, eroded | | | Hydric Soil | Eroded | | |
| | | Loring silt loam, 8 to 12% slopes, severely eroded | | | Hydric Soil | Severely eroded | | |
| Attala | Mantachie | Mantachie loam, occasionally flooded | | Prime farmland | Hydric Soil | | Moderate | 0.83% |
| | | Mantachie loam, frequently flooded | | | Hydric Soil | | | |
| Holmes | Memphis | Memphis Natchez association | | | Hydric Soil | | | 9.07% |
| | | Memphis silt loam, 0 to 2% slope | | Prime farmland | Hydric Soil | | | |
| | | Memphis silt loam, 12 to 40% slope, severely eroded | | | Hydric Soil | Severely eroded | | |
| | | Memphis silt loam, 2 to 5% slope | | Prime farmland | Hydric Soil | | | |
| | | Memphis silt loam, 5 to 8% slope, eroded | | | Hydric Soil | Eroded | | |
| | | Memphis silt loam, 8 to 12% slope, eroded | | | Hydric Soil | Eroded | | |
| | | Memphis silt loam, 8 to 12% slope, severely eroded | | | Hydric Soil | Severely eroded | | |
| Holmes | Morganfield | Morganfield silt loam, occasionally flooded | | Prime farmland | Hydric Soil | | | 7.30% |

## Table C-4 Greenville Lateral Soil Map Units and Characteristics

| County | Dominant Series | Map Unit Description | Drainage | Farmland | Hydric Soil | Erodibility | Shrink-Swell Potential | Percent of Route |
|---|---|---|---|---|---|---|---|---|
| Attala, Holmes | Oaklimiter | Oaklimiter silt loam, occasionally flooded | | Prime farmland | Hydric Soil | | Low | 2.52% |
| Attala | Providence | Providence silt loam, 2 to 5 percent slopes, eroded | | Prime farmland | | Highly erodible land | Low | 6.99% |
| | | Providence silt loam, 8 to 12 percent slopes, eroded | | | Partially hydric | Highly erodible land | | |
| | | Providence silt loam, 5 to 8 percent slopes, eroded | | | Partially hydric | Highly erodible land | | |
| Holmes | Rosebloom | Rosebloom silt loam, depressional | | | Hydric Soil | | | 0.41% |
| Washington | Sharkey | Sharkey clay, level phase | Poorly drained | Prime farmland | Hydric Soil | Not highly erodible land | Very high | 7.82% |
| | | Sharkey clay, nearly level phase | Poorly drained | Prime farmland | Hydric Soil | Not highly erodible land | | |
| | | Sharkey clay, gently sloping phase | Poorly drained | Prime farmland | Hydric Soil | Potentially highly erodible land | | |
| | | Sharkey silty clay loam, nearly level phase | Poorly drained | Prime farmland | Hydric Soil | Not highly erodible land | | |
| Attala, Holmes | Smithdale | Smithdale fine sandy loam, 8 to 15 percent slopes | | | Partially hydric | Highly erodible land | Low | 3.29% |
| | | Smithdale fine sandy loam, 15 to 40 percent slopes | | | Partially hydric | Highly erodible land | | |
| | | Smithdale-Providence association | | | Hydric Soil | | | 2.13% |
| Attala | Sweatman | Sweatman loam, 8 to 12 percent slopes, eroded | | | Partially hydric | Highly erodible land | Moderate | 0.24% |
| Holmes | Tensas | Tensas silty clay loam | | Prime farmland | Hydric Soil | | | 0.10% |
| Attala | Tippah | Tippah silt loam, 2 to 5 percent slopes, eroded | | Prime farmland | | Highly erodible land | Low | 0.44% |
| | | Tippah silt loam, 8 to 12 percent slopes, eroded | | | Partially hydric | Highly erodible land | | |
| Washington | Tunica | Tunica clay, nearly level phase | Poorly drained | Prime farmland | | Not highly erodible land | Very HIgh | 0.51% |
| Attala | Chenneby | Chenneby-Rosebloom complex, Yockanookany River bottoms | | | Hydric Soil | | Very high | 0.86% |

# APPENDIX C-5

# WATERBODIES WITHIN THE CONSTRUCTION CORRIDOR OF THE PROPOSED PIPELINE ROUTE

## Table C-5 Waterbodies Within the Construction Corridor of the Proposed Pipeline Route

| County | Approximate Milepost at Crossing a/ | Field ID | Waterbody Name and Type b,c/ | Size and Estimated Width of Stream Crossing d/ | Crossing Method e/ | State Water Classification f/ and/or Environmental Sensitivity g/ |
|---|---|---|---|---|---|---|
| **Fayetteville Lateral** | | | | | | |
| **Arkansas** | | | | | | |
| Conway | 0.2 | SRM001 | Tributary to Cypress Creek (Intermittent) | Minor-7 ft | OCM | SC, DIA, SF |
| Conway | 0.3 | SRM002 | Tributary to Cypress Creek (Intermittent) | Minor-7 ft | OCM | SC, DIA, SF |
| Conway | 1.3 | SRM003 | Tributary to Cypress Creek (Intermittent) | Minor- 3 ft | OCM | SC, DIA, SF |
| Conway | 1.8 | SRM004 | Tributary to Cypress Creek (Intermittent) | Minor- 2 ft | OCM | SC, DIA, SF |
| Conway | 2.1 | srm005 | Tributary to Cypress Creek (Intermittent) | Minor- 3 ft | OCM | SC, DIA, SF |
| Conway | 2.1 | srm006 | Tributary to Cypress Creek (Intermittent) | Minor- 2 ft | OCM | SC, DIA, SF |
| Conway | 2.1 | srm006 | Tributary to Cypress Creek (Intermittent) | Minor- 2 ft | OCM | SC, DIA, SF |
| Conway | 2.1 | srm006 | Tributary to Cypress Creek (Intermittent) | Minor- 2 ft | OCM | SC, DIA, SF |
| Conway | 2.1 | srm007 | Tributary to Cypress Creek (Intermittent) | Minor- 5 ft | OCM | SC, DIA, SF |
| Conway | 2.5 | srm008 | Cypress Creek (Intermittent) | Minor- 7 ft | OCM | SC, DIA, SF |
| Conway | 3.6 | srm009 | Tributary to Cypress Creek (Intermittent) | Minor- 3 ft | OCM | SC, DIA, SF |
| Conway | 5.0 | srm012 | Tributary to Cedar Creek (Intermittent) | Minor- 5 ft | OCM | SC, DIA, SF |
| Conway | 5.0 | srm012 | Tributary to Cedar Creek (Intermittent) | Minor- 5 ft | OCM | SC, DIA, SF |
| Conway | 5.5 | srm015 | Tributary to Hog Branch (Intermittent) | Minor- 7 ft | OCM | SC, DIA, SF |
| Conway | 5.7 | srm016 | Hog Branch (Intermittent) | Intermediate- 13 ft | OCM | SC, DIA, SF |
| Conway | 5.8 | srm017 | Tributary to Hog Branch (Intermittent) | Intermediate- 23 ft | OCM | SC, DIA, SF |
| Faulkner | 7.9 | srm014 | Cove Creek (Perennial) | Intermediate- 49 ft | OCM | SC, DIA, PF |
| Faulkner | 9.3 | SCL 002 | Tributary to Cove Creek (Intermittent) | Minor- 1 ft | OCM | SC, DIA, SF |
| Faulkner | 9.6 | SCL 005 | Tributary to Cove Creek (Intermittent) | Minor- 3 ft | OCM | SC, DIA, SF |
| Faulkner | 9.9 | SCL 007 | Tributary to Cove Creek (Intermittent) | Minor- 1 ft | OCM | SC, DIA, SF |
| Faulkner | 10.0 | SCL 009 | Tributary to Cove Creek (Intermittent) | Minor- 8 ft | OCM | SC, DIA, SF |
| Faulkner | 10.9 | SCL 013 | Tributary to Batesville Creek (Intermittent) | Minor- 3 ft | OCM | SC, DIA, SF |
| Faulkner | 11.0 | SCL 013 | Tributary to Batesville Creek (Intermittent) | Minor- 3 ft | OCM | SC, DIA, SF |
| Faulkner | 11.0 | SCL 013 | Tributary to Batesville Creek (Intermittent) | Minor- 3 ft | OCM | SC, DIA, SF |
| Faulkner | 11.0 | SCL 014 | Tributary to Batesville Creek (Intermittent) | Minor- 3 ft | OCM | SC, DIA, SF |
| Faulkner | 11.0 | SCL 013 | Tributary to Batesville Creek (Intermittent) | Minor- 3 ft | OCM | SC, DIA, SF |
| Faulkner | 11.0 | SCL 013 | Tributary to Batesville Creek (Intermittent) | Minor- 3 ft | OCM | SC, DIA, SF |
| Faulkner | 11.0 | SCL 011 | Tributary to Batesville Creek (Intermittent) | Minor- 2 ft | OCM | SC, DIA, SF |

**Table C-5 Waterbodies Within the Construction Corridor of the Proposed Pipeline Route**

| County | Approximate Milepost at Crossing a/ | Field ID | Waterbody Name and Type b,c/ | Size and Estimated Width of Stream Crossing d/ | Crossing Method e/ | State Water Classification f/ and/or Environmental Sensitivity g/ |
|---|---|---|---|---|---|---|
| Faulkner | 11.0 | SCL 011 | Tributary to Batesville Creek (Intermittent) | Minor- 2 ft | OCM | SC, DIA, SF |
| Faulkner | 11.0 | SCL 011 | Tributary to Batesville Creek (Intermittent) | Minor- 2 ft | OCM | SC, DIA, SF |
| Faulkner | 11.2 | SCL 016 | Tributary to Batesville Creek (Intermittent) | Minor- 7 ft | OCM | SC, DIA, SF |
| Faulkner | 11.4 | SCL 020 | Tributary to Batesville Creek (Intermittent) | Minor- 3 ft | OCM | SC, DIA, SF |
| Faulkner | 11.9 | SCL 029 | Tributary to Batesville Creek (Intermittent) | Minor- 3 ft | OCM | SC, DIA, SF |
| Faulkner | 12.3 | SCL 032 | Tributary to Batesville Creek (Intermittent) | Minor- 2 ft | OCM | SC, DIA, SF |
| Faulkner | 12.6 | SCL 037 | Tributary to Batesville Creek (Perennial) | Minor- 8 ft | OCM | SC, DIA, SF |
| Faulkner | 12.8 | SCL 038 | Batesville Creek (Perennial) | Minor- 8 ft | OCM | SC, DIA, SF |
| Faulkner | 12.9 | DLS S1 | Tributary to Batesville Creek (Perennial) | Minor- 6 ft | OCM | SC, DIA, SF |
| Faulkner | 13.1 | SCL 042 | Tributary to Batesville Creek (Intermittent) | Minor- 3 ft | OCM | SC, DIA, SF |
| Faulkner | 13.8 | SCL 052 | Tributary to Cadron Creek (Intermittent) | Minor- 3 ft | OCM | SC, DIA, SF |
| Faulkner | 13.8 | SCL 052 | Tributary to Cadron Creek (Intermittent) | Minor- 3 ft | OCM | SC, DIA, SF |
| Faulkner | 13.8 | SCL 052 | Tributary to Cadron Creek (Intermittent) | Minor- 3 ft | OCM | SC, DIA, SF |
| Faulkner | 14.0 | SCL 053 | Cadron Creek (Perennial) | Major- 105 ft | OCM | PC, SC, DIA, PF |
| Faulkner | 14.4 | SCL 058 | Tributary to Wolf Branch (Intermittent) | Minor- 3 ft | OCM | SC, DIA, SF |
| Faulkner | 14.6 | SCL 059 | Tributary to Wolf Branch (Intermittent) | Minor- 2 ft | OCM | SC, DIA, SF |
| Faulkner | 14.8 | SCL 061 | Wolf Branch of Cadron Creek (Intermittent) | Intermediate- 10 ft | OCM | SC, DIA, SF |
| Faulkner | 15.3 | SCL 066 | Tributary to Wolf Branch (Intermittent) | Minor- 6 ft | OCM | SC, DIA, SF |
| Faulkner | 15.6 | SCL 068 | Tributary to Wolf Branch (Intermittent) | Minor 4 ft | OCM | SC, DIA, SF |
| Faulkner | 15.8 | SCL 070 | Tributary to Wolf Branch (Intermittent) | Minor- 2 ft | OCM | SC, DIA, SF |
| Faulkner | 16.0 | SCL 072 | Tributary to Wolf Branch (Intermittent) | Minor- 1 ft | OCM | SC, DIA, SF |
| Faulkner | 16.5 | SCL 077 | Tributary to Cadron Creek (Intermittent) | Minor- 2 ft | OCM | SC, DIA, SF |
| Faulkner | 17.6 | SCL 086 | Tributary to Stillhouse Branch (Intermittent) | Minor- 3 ft | OCM | SC, DIA, SF |
| Faulkner | 17.6 | SCL 087 | Tributary to Stillhouse Branch (Intermittent) | Minor- 1 ft | OCM | SC, DIA, SF |
| Faulkner | 17.7 | SCL 091 | Tributary to Stillhouse Branch (Intermittent) | Minor- 1 ft | OCM | SC, DIA, SF |
| Faulkner | 17.8 | SCL 092 | Tributary to Stillhouse Branch (Intermittent) | Minor- 4 ft | OCM | SC, DIA, SF |
| Faulkner | 17.9 | SCL 093 | Stillhouse Branch (Perennial) | Minor- 3 ft | OCM | SC, DIA, SF |
| Faulkner | 17.9 | SCL 094 | Tributary to Stillhouse Branch (Intermittent) | Minor- 1 ft | OCM | SC, DIA, SF |
| Faulkner | 18.0 | SCL 094 | Tributary to Stillhouse Branch (Intermittent) | Minor- 1 ft | OCM | SC, DIA, SF |
| Faulkner | 18.0 | SCL 094 | Tributary to Stillhouse Branch (Intermittent) | Minor- 1 ft | OCM | SC, DIA, SF |
| Faulkner | 18.5 | SCL 099 | Tributary to Stillhouse Branch (Intermittent) | Minor- 2 ft | OCM | SC, DIA, SF |

**Table C-5 Waterbodies Within the Construction Corridor of the Proposed Pipeline Route**

| County | Approximate Milepost at Crossing a/ | Field ID | Waterbody Name and Type b,c/ | Size and Estimated Width of Stream Crossing d/ | Crossing Method e/ | State Water Classification f/ and/or Environmental Sensitivity g/ |
|---|---|---|---|---|---|---|
| Faulkner | 18.7 | SCL 100 | Tributary to Stillhouse Branch (Intermittent) | Minor- 4 ft | OCM | SC, DIA, SF |
| Faulkner | 19.1 | SCL 103 | Tributary to Stillhouse Branch (Intermittent) | Minor- 2 ft | OCM | SC, DIA, SF |
| Faulkner | 19.6 | SCL 106 | Tributary to King Branch (Intermittent) | Minor- 2 ft | OCM | SC, DIA, SF |
| Faulkner | 20.2 | SCL 111 | King Branch (Perennial) | Minor- 4 ft | OCM | SC, DIA, PF |
| Faulkner | 20.6 | SCL 119 | Tributary to King Branch (Intermittent) | Minor- 1 ft | OCM | SC, DIA, SF |
| Faulkner | 20.7 | SCL 118 | Tributary to King Branch (Intermittent) | Minor-1 ft | OCM | SC, DIA, SF |
| Faulkner | 20.9 | SCL 120 | Tributary to King Branch (Intermittent) | Minor- 4 ft | OCM | SC, DIA, SF |
| Faulkner | 21.3 | DLS ditch | Tributary to King Branch (Intermittent) | Minor- 1 ft | OCM | SC, DIA, SF |
| Faulkner | 21.3 | DLS ditch 2 | Tributary to King Branch (Intermittent) | Minor- 1 ft | OCM | SC, DIA, SF |
| Faulkner | 22.1 | tdh ditch | Tributary to Nichols Creek (Intermittent) | Minor- 1ft | OCM | SC, DIA, SF |
| Faulkner | 22.1 | tdh ditch | Tributary to Nichols Creek (Intermittent) | Minor- 1ft | OCM | SC, DIA, SF |
| Faulkner | 23.1 | SCL 132 | Tributary to Mortar Creek (Intermittent) | Minor- 5 ft | OCM | SC, DIA, SF |
| Faulkner | 23.2 | SCL 139 | Tributary to Mortar Creek (Intermittent) | Intermediate- 12 ft | OCM | SC, DIA, SF |
| Faulkner | 23.3 | SCL 140 | Mortar Creek (Perennial) | Intermediate- 30 ft | OCM | SC, DIA, PF |
| Faulkner | 24.3 | SCL 145 | Tributary to Buck Branch (Intermittent) | Minor- 3 ft | OCM | SC, DIA, SF |
| Faulkner | 24.6 | SCL 147 | Tributary to Buck Branch (Intermittent) | Minor- 4 ft | OCM | SC, DIA, SF |
| Faulkner | 24.9 | SCL 149 | Tributary to Buck Branch (Intermittent) | Minor- 2 ft | OCM | SC, DIA, SF |
| Faulkner | 26.3 | SCL 153 | Tributary to Clear Creek (Intermittent) | Minor-3 ft | OCM | SC, DIA, SF |
| Faulkner | 26.3 | SCL 155 | Tributary to Clear Creek (Intermittent) | Minor- 2 ft | OCM | SC, DIA, SF |
| Faulkner | 26.9 | SCL 161 | Tributary to Clear Creek (Intermittent) | Minor- 3 ft | OCM | SC, DIA, SF |
| Faulkner | 27.2 | SCL 165 | Tributary to Clear Creek (Intermittent) | Intermediate- 10 ft | OCM | SC, DIA, SF |
| Faulkner | 27.6 | SCL 167 | Tributary to Brier Branch (Intermittent) | Minor- 6 ft | OCM | SC, DIA, SF |
| Faulkner | 27.8 | SCL 169 | Tributary to Brier Branch (Intermittent) | Minor- 2 ft | OCM | SC, DIA, SF |
| Faulkner | 27.8 | SCL 171 | Tributary to Brier Branch (Intermittent) | Minor- 2 ft | OCM | SC, DIA, SF |
| Faulkner | 28.2 | SCL 173 | Tributary to Strain Branch (Intermittent) | Minor- 3 ft | OCM | SC, DIA, PF |
| Faulkner | 28.2 | SCL 173east | Tributary to Strain Branch (Intermittent) | Minor- 3ft | OCM | SC, DIA, PF |
| Faulkner | 28.5 | SCL 174 | Tributary to East Fork of Cadron Creek (Perennial) | Minor- 3 ft | OCM | SC, DIA, SF |
| Faulkner | 28.9 | SCL 175 | Tributary to East Fork of Cadron Creek (Intermit) | Minor- 3 ft | OCM | SC, DIA, SF |
| White | 29.6 | SCL 179 | Tributary to Piney Creek (Intermittent) | Minor- 1 ft | OCM | SC, DIA, SF |
| White | 29.7 | SCL 180 | Piney Creek (Perennial) | Intermediate- 15 ft | OCM | SC, DIA, PF |
| White | 30.2 | SCL 181 | Blakey Branch (Intermittent) | Minor- 4 ft | OCM | SC, DIA, PF |

**Table C-5 Waterbodies Within the Construction Corridor of the Proposed Pipeline Route**

| County | Approximate Milepost at Crossing a/ | Field ID | Waterbody Name and Type b,c/ | Size and Estimated Width of Stream Crossing d/ | Crossing Method e/ | State Water Classification f/ and/or Environmental Sensitivity g/ |
|---|---|---|---|---|---|---|
| White | 30.5 | SCL 183 | Tributary to East Fork of Cadron Creek (Intermit) | Minor- 1 ft | OCM | SC, DIA, SF |
| White | 30.7 | SCL 185 | Tributary to East Fork of Cadron Creek (Intermit) | Minor- 1 ft | OCM | SC, DIA, SF |
| White | 31.3 | SCL 186 | Tributary to Jones Creek (Intermittent) | Minor- 2 ft | OCM | SC, DIA, SF |
| White | 32.0 | SCL 191 | Jones Creek (Perennial) | Intermediate- 20 ft | OCM | SC, DIA, SF |
| White | 32.0 | SCL 191 | Jones Creek (Perennial) | Intermediate- 20 ft | OCM | SC, DIA, SF |
| White | 32.4 | SCL 194 | Tributary to Graham Branch (Intermittent) | Minor- 2 ft | OCM | SC, DIA, SF |
| White | 32.8 | SCL 196 | Tributary to Graham Branch (Intermittent) | Minor- 1 ft | OCM | SC, DIA, SF |
| White | 32.9 | SCL 199 | Graham Branch (Perennial) | Minor- 9 ft | OCM | SC, DIA, PF |
| White | 33.0 | TDH S2 | Tributary to Graham Branch (Perennial) | Minor- 9 ft | OCM | SC, DIA, PF |
| White | 34.3 | SCL 212 | Tributary to Graham Branch (Intermittent) | Minor- 1 ft | OCM | SC, DIA, SF |
| White | 34.5 | SCL 214 | Tributary to Graham Branch (Intermittent) | Minor- 1 ft | OCM | SC, DIA, SF |
| White | 34.6 | SCL 215 | Tributary to Graham Branch (Intermittent) | Minor- 6 ft | OCM | SC, DIA, SF |
| White | 35.1 | SCL 216 | Tributary to Brush Creek (Intermittent) | Minor- 1 ft | OCM | SC, DIA, SF |
| White | 35.4 | SCL 217 | Tributary to Brush Creek (Intermittent) | Minor- 1 ft | OCM | SC, DIA, SF |
| White | 35.4 | SCL 218 | Tributary to Brush Creek (Intermittent) | Minor- 1 ft | OCM | SC, DIA, SF |
| White | 35.5 | SCL 220 | Tributary to Brush Creek (Intermittent) | Minor- 1 ft | OCM | SC, DIA, SF |
| White | 36.1 | SCL 225 | Big Hollow Tributary (Intermittent) | Minor- 1 ft | OCM | SC, DIA, SF |
| White | 36.4 | SCL 227 | Big Hollow Creek (Intermittent) | Intermediate- 15 ft | OCM | SC, DIA, PF |
| White | 37.2 | SCL 230 | Hyde Branch (Intermittent) | Minor- 1 ft | OCM | SC, DIA, PF |
| White | 37.2 | SCL 230 | Hyde Branch (Intermittent) | Minor- 1 ft | OCM | SC, DIA, PF |
| White | 37.2 | SCL 230 | Hyde Branch (Intermittent) | Minor- 1 ft | OCM | SC, DIA, PF |
| White | 37.6 | SCL 232 | Chaney Branch (Intermittent) | Minor- 2 ft | OCM | SC, DIA, PF |
| White | 38.1 | SCL 234 | Tributary to Chaney Branch (Intermittent) | Minor- 1 ft | OCM | SC, DIA, SF |
| White | 39.2 | SCL 243 | Mill Branch (Intermittent) | Minor- 4 ft | OCM | SC, DIA, PF |
| White | 39.3 | SCL 244 | Tributary to Mill Branch (Intermittent) | Minor- 1 ft | OCM | SC, DIA, SF |
| White | 39.3 | SCL 244 | Tributary to Mill Branch (Intermittent) | Minor- 1 ft | OCM | SC, DIA, SF |
| White | 39.8 | SCL 246 | Tributary to Mill Branch (Intermittent) | Minor- 1 ft | OCM | SC, DIA, SF |
| Cleburne | 42.8 | SCL 267 | Tributary to Little Creek (Intermittent) | Minor- 2 ft | OCM | SC, DIA, SF |
| Cleburne | 42.8 | SCL 258 | Tributary to Little Creek (Intermittent) | Minor- 1 ft | OCM | SC, DIA, SF |
| Cleburne | 43.0 | SCL 260 | Tributary to Little Creek (Intermittent) | Minor- 2 ft | OCM | SC, DIA, SF |
| Cleburne | 43.5 | SCL 263 | Tributary to Big Creek (Intermittent) | Minor- 2 ft | OCM | SC, DIA, SF |

**Table C-5 Waterbodies Within the Construction Corridor of the Proposed Pipeline Route**

| County | Approximate Milepost at Crossing a/ | Field ID | Waterbody Name and Type b,c/ | Size and Estimated Width of Stream Crossing d/ | Crossing Method e/ | State Water Classification f/ and/or Environmental Sensitivity g/ |
|---|---|---|---|---|---|---|
| Cleburne | 43.5 | SCL 264 | Tributary to Big Creek (Intermittent) | Minor- 1 ft | OCM | SC, DIA, SF |
| White | 45.1 | SCL 276 | Tributary to Big Creek (Intermittent) | Minor- 5 ft | OCM | SC, DIA, SF |
| White | 45.3 | acer int st | Tributary to Big Creek (Intermittent) | Minor- 1ft | OCM | SC, DIA, SF |
| White | 46.1 | TDH S7 | Big Creek (Perennial) | Major- 140 ft | HDD | PC, SC, DIA, PF |
| White | 47.2 | srm041 | Tributary to Big Creek (Intermittent) | Minor- 6 ft | OCM | SC, DIA, PF |
| White | 48.1 | srm039 | Brier Creek (Perennial) | Intermediate- 16 ft | OCM | SC, DIA, PF |
| White | 48.5 | srm037 | Owl Creek (Intermittent) | Intermediate- 16 ft | OCM | SC, DIA, PF |
| White | 48.8 | tdh ar s3 | Tributary to Owl Creek (Perennial) | Minor- 1 ft | OCM | SC, DIA, PF |
| White | 50.0 | srm036 | Tributary to Big Creek (Intermittent) | Minor- 3 ft | OCM | SC, DIA, PF |
| White | 52.3 | srm040 | Little Red River (Perennial) | Major- 200 ft | HDD | PC, SC, DIA, PF, FT |
| White | 54.5 | srm035 | Tributary to Owl Creek (Perennial) | Minor- 3 ft | OCM | SC, DIA, SF |
| White | 55.1 | srm035a | Tributary to Owl Creek (Intermittent) | Minor- 3 ft | OCM | SC, DIA, SF |
| White | 56.6 | srm034 | Onion Creek (Perennial) | Intermediate- 15 ft | OCM | SC, DIA, PF |
| White | 58.9 | srm031 | Chinquapin Creek (Perennial) | Intermediate- 12 ft | OCM | SC, DIA, PF |
| White | 59.4 | srm030 | Tributary to Lake Bald Knob (Intermittent) | Minor- 8 ft | OCM | SC, DIA, SF |
| White | 59.8 | srm029 | Tributary to Overflow Creek (Intermittent) | Intermediate- 10 ft | OCM | SC, DIA, SF |
| White | 60.3 | srm028 | Tributary to Overflow Creek (Intermittent) | Intermediate- 35 ft | OCM | SC, DIA, SF |
| White | 60.5 | srm027 | Tributary to Overflow Creek (Intermittent) | Minor- 5 ft | OCM | SC, DIA, SF |
| White | 61.0 | srm026 | Tributary to Overflow Creek (Perennial) | Minor- 5 ft | OCM | SC, DIA, SF |
| White | 61.8 | srm033 | Overflow Creek (Perennial) | Intermediate- 13 ft | OCM | PC, SC, DIA, PF |
| White | 62.4 | srm032 | Big Mingo Creek (Perennial) | Intermediate- 10 ft | OCM | SC, DIA, PF |
| White | 63.2 | tdh int st | Tributary to Big Mingo Creek (Intermittent) | Minor- 1 ft | OCM | SC, DIA, SF |
| White | 63.7 | srm021 | Gladey Creek (Intermittent) | Minor-3 ft | OCM | SC, DIA, PF |
| White | 64.3 | srm020 | Tributary to Gladey Creek (Intermittent) | Intermediate- 13 ft | OCM | SC, DIA, SF |
| White | 65.2 | srm019w | Tributary to Little Mingo Creek (Intermittent) | Minor- 7 ft | OCM | SC, DIA, SF |
| White | 65.5 | srm018w | Tributary to Little Mingo Creek (Intermittent) | Minor- 7 ft | OCM | SC, DIA, SF |
| White | 65.7 | srm017w | Tributary to Little Mingo Creek (Intermittent) | Minor- 7 ft | OCM | SC, DIA, SF |
| White | 66.5 | srm016w | Glaise Creek (Perennial) | Intermediate- 30 ft | OCM | PC, SC, DIA, PF |
| White | 67.2 | tdh int st | Tributary to Glaise Creek (Intermittent) | Minor- 3 ft | OCM | SC, DIA, SF |
| White | 67.4 | tdh int st | Tributary to Glaise Creek (Intermittent) | Minor- 3 ft | OCM | SC, DIA, SF |
| White | 67.9 | TDH S3 | Departee Creek (Perennial) | Intermediate- 50 ft | OCM | ESW, SC, DIA, PF |

**Table C-5 Waterbodies Within the Construction Corridor of the Proposed Pipeline Route**

| County | Approximate Milepost at Crossing a/ | Field ID | Waterbody Name and Type b,c/ | Size and Estimated Width of Stream Crossing d/ | Crossing Method e/ | State Water Classification f/ and/or Environmental Sensitivity g/ |
|---|---|---|---|---|---|---|
| White | 69.5 | tdh int st | Tributary to White River (Intermittent) | Minor- 3 ft | OCM | SC, DIA, SF |
| Woodruff | 70.3 | White R. | White River (Perennial) | Major- 700 ft | HDD | PC, SC, DIA, PF |
| Woodruff | 71.3 | ag ditch | Tributary to Bear Slough (Intermittent) | Minor- 3 ft | OCM | SC, DIA, SF |
| Woodruff | 71.5 | TDH S5 | Bear Slough (Perennial) | Intermediate- 50 ft | OCM | PC, SC, DIA, PF |
| Woodruff | 71.9 | ag ditch | Tributary to Bear Slough (Intermittent) | Minor- 3 ft | OCM | SC, DIA, SF |
| Woodruff | 72.4 | C. to Tayl | Canal to Taylor Bay (Intermittent) | Intermediate- 40 ft | OCM | SC, DIA, SF |
| Woodruff | 72.8 | ag ditch | Tributary to Taylor Bay (Intermittent) | Minor- 3ft | OCM | SC, DIA, SF |
| Woodruff | 72.9 | ag ditch | Tributary to Taylor Bay (Intermittent) | Minor- 3ft | OCM | SC, DIA, SF |
| Woodruff | 73.4 | TDH S4 | Taylor Bay (Perennial) | Major-215 ft | HDD | PC, SC, DIA, PF |
| Woodruff | 75.9 | JAV-S28 | Tributary to Cypress Brake (Intermittent) | Minor- 6 ft | OCM | SC, DIA, SF |
| Woodruff | 77.1 | JAV-S27 | Tributary to Maple Creek (Intermittent) | Minor- 3 ft | OCM | SC, DIA, SF |
| Woodruff | 77.5 | JAV-S26 | Tributary to Maple Creek (Intermittent) | Minor- 3 ft | OCM | SC, DIA, SF |
| Woodruff | 78.6 | JAV-S25 | Tributary to Maple Creek (Intermittent) | Minor- 2 ft | OCM | SC, DIA, SF |
| Woodruff | 79.9 | TDH S1 | Canal to Maple Creek (Intermittent) | Minor- 8 ft | OCM | SC, DIA, SF |
| Woodruff | 80.0 | JAV-S23 | Tributary to Maple Creek (Intermittent) | Minor- 2 ft | OCM | SC, DIA, SF |
| Woodruff | 81.9 | JAV-S29 | Tributary to Cache River (Intermittent) | Minor- 3 ft | OCM | SC, DIA, SF |
| Woodruff | 82.4 | Cache Rive | Cache River (Perennial) | Major-140 ft | HDD | ERW, CDES, PC, SC, DIA, PF |
| Woodruff | 83.1 | JAV-S35 | Tributary to Cache River (Intermittent) | Minor- 2 ft | OCM | SC, DIA, SF |
| Woodruff | 83.5 | JAV-S36 | Tributary to Cache River (Intermittent) | Minor- 5 ft | OCM | SC, DIA, SF |
| Woodruff | 85.9 | JAV-S32 | Tributary to Cache River (Intermittent) | Minor- 9 ft | OCM | SC, DIA, SF |
| Woodruff | 85.9 | JAV-S33 | Tributary to Cache River (Intermittent) | Minor- 9 ft | OCM | SC, DIA, SF |
| Woodruff | 86.1 | JAV-S34 | Tributary to Cache River (Intermittent) | Minor- 5 ft | OCM | SC, DIA, SF |
| Woodruff | 87.6 | JAV-S31 | Tributary to Mill Ditch (Intermittent) | Minor- 2 ft | OCM | SC, DIA, SF |
| Woodruff | 88.3 | JAV-S30 | Mill Ditch (Intermittent) | Intermediate- 15 ft | OCM | SC, DIA, PF |
| Woodruff | 90.4 | tdh int st | Tributary to Miller Branch (Intermittent) | Minor- 2 ft | OCM | SC, DIA, SF |
| Woodruff | 91.7 | ag ditch | Tributary to Buffalo Creek (Intermittent) | Minor- 2 ft | OCM | SC, DIA, SF |
| Woodruff | 91.7 | ditch | Tributary to Buffalo Creek (Intermittent) | Minor- 2 ft | OCM | SC, DIA, SF |
| Woodruff | 92.1 | JAV-S20 | Tributary to Buffalo Creek (Intermittent) | Minor- 2 ft | OCM | SC, DIA, SF |
| Woodruff | 92.4 | JAV-S19 | Tributary to Buffalo Creek (Intermittent) | Minor- 2 ft | OCM | SC, DIA, SF |
| Woodruff | 92.4 | JAV-S18 | Tributary to Buffalo Creek (Intermittent) | Minor- 2 ft | OCM | SC, DIA, SF |

**Table C-5 Waterbodies Within the Construction Corridor of the Proposed Pipeline Route**

| County | Approximate Milepost at Crossing a/ | Field ID | Waterbody Name and Type b,c/ | Size and Estimated Width of Stream Crossing d/ | Crossing Method e/ | State Water Classification f/ and/or Environmental Sensitivity g/ |
|---|---|---|---|---|---|---|
| Woodruff | 93.0 | JAV-S17 | Tributary to Buffalo Creek (Intermittent) | Minor- 3 ft | OCM | SC, DIA, SF |
| Woodruff | 93.0 | JAV-S16 | Tributary to Buffalo Creek (Intermittent) | Minor- 5 ft | OCM | SC, DIA, SF |
| Woodruff | 93.3 | JAV-S11 | Tributary to Buffalo Creek (Intermittent) | Minor- 5 ft | OCM | SC, DIA, SF |
| Woodruff | 93.4 | JAV-S12 | Tributary to Buffalo Creek (Intermittent) | Minor- 2 ft | OCM | SC, DIA, SF |
| Woodruff | 93.5 | JAV-S13 | Tributary to Buffalo Creek (Intermittent) | Minor- 2 ft | OCM | SC, DIA, SF |
| Woodruff | 93.7 | JAV-S14 | Tributary to Buffalo Creek (Intermittent) | Minor- 3 ft | OCM | SC, DIA, SF |
| Woodruff | 94.0 | JAV-S15 | Tributary to Buffalo Creek (Intermittent) | Minor- 9 ft | OCM | SC, DIA, SF |
| Woodruff | 95.2 | ag ditch | Tributary to Bayou de View (Intermittent) | Minor- 2 ft | OCM | SC, DIA, SF |
| Woodruff | 96.0 | Bayou de V | Bayou de View (Perennial) | Major- 250 ft | HDD | CDES, PC, SC, DIA, PF |
| Woodruff | 96.0 | ag ditch | Tributary to Bayou de View (Intermittent) | Minor- 2 ft | OCM | SC, DIA, SF |
| Woodruff | 96.7 | JAV-S6 | Tributary to Bayou de View (Intermittent) | Minor- 3 ft | OCM | SC, DIA, SF |
| Woodruff | 97.0 | JAV-S7 | Tributary to Bayou de View (Intermittent) | Minor- 9 ft | OCM | SC, DIA, SF |
| Woodruff | 97.3 | JAV-S8 | Tributary to Bayou de View (Intermittent) | Minor- 2 ft | OCM | SC, DIA, SF |
| Woodruff | 98.4 | JAV-S1 | Tributary to Upper Seibert Lake (Intermittent) | Minor- 2 ft | OCM | SC, DIA, SF |
| Woodruff | 98.4 | ag ditch | Tributary to Bayou de View (Intermittent) | Minor- 2 ft | OCM | SC, DIA, SF |
| Woodruff | 99.7 | JAV-S3 | Tributary to Caney Creek (Intermittent) | Minor- 2 ft | OCM | SC, DIA, SF |
| Woodruff | 99.8 | JAV-S4 | Tributary to Caney Creek (Intermittent) | Minor- 3 ft | OCM | SC, DIA, SF |
| Woodruff | 100.1 | JAV-S5 | Caney Creek (Intermittent) | Intermediate- 30 ft | OCM | SC, DIA, SF |
| Woodruff | 101.7 | ag ditch | Tributary to East Flat Fork Creek (Intermittent) | Minor- 2 ft | OCM | SC, DIA, SF |
| Woodruff | 102.2 | tdhs1 | Tributary to East Flat Fork Creek (Intermittent) | Intermediate - 16 ft | OCM | SC, DIA, SF |
| Woodruff | 103.5 | ag ditch | Tributary to East Flat Fork Creek (Intermittent) | Minor- 2 ft | OCM | SC, DIA, SF |
| Woodruff | 104.3 | tdhs2 | Tributary to East Flat Fork Creek (Intermittent) | Minor- 2 ft | OCM | SC, DIA, SF |
| Woodruff | 104.6 | ag ditch | Tributary to East Flat Fork Creek (Intermittent) | Minor- 2 ft | OCM | SC, DIA, SF |
| Woodruff | 107.7 | jr-s2 | East Flat Fork Creek (Perennial) | Intermediate- 20 ft | OCM | SC, DIA, SF |
| St. Francis | 109.7 | ag ditch | Tributary to Big Creek (Intermittent) | Minor- 2 ft | OCM | SC, DIA, SF |
| St. Francis | 109.9 | ag ditch | Tributary to Big Creek (Intermittent) | Minor- 2 ft | OCM | SC, DIA, SF |
| St. Francis | 109.9 | ag ditch | Tributary to Big Creek (Intermittent) | Minor- 2 ft | OCM | SC, DIA, SF |
| St. Francis | 110.7 | ag ditch | Tributary to Big Creek (Intermittent) | Minor- 2 ft | OCM | SC, DIA, SF |
| St. Francis | 111.2 | ag ditch | Tributary to Big Creek (Intermittent) | Minor- 2 ft | OCM | SC, DIA, SF |
| St. Francis | 111.6 | Big C 2 | Big Creek (Perennial) | Major- 115 ft | OCM | PC, SC, DIA, PF |

**Table C-5 Waterbodies Within the Construction Corridor of the Proposed Pipeline Route**

| County | Approximate Milepost at Crossing a/ | Field ID | Waterbody Name and Type b,c/ | Size and Estimated Width of Stream Crossing d/ | Crossing Method e/ | State Water Classification f/ and/or Environmental Sensitivity g/ |
|---|---|---|---|---|---|---|
| St. Francis | 112.2 | DLS agditch | Tributary to Big Creek (Intermittent) | Minor- 2 ft | OCM | SC, DIA, SF |
| St. Francis | 113.9 | jr-s1 | Hog Tusk Creek (Perennial) | Intermediate- 15 ft | OCM | SC, DIA, PF |
| Lee | 118.2 | jo intSTRM | Tributary to Larkin Creek (Intermittent) | Minor- 2 ft | OCM | SC, DIA, SF |
| Lee | 119.1 | No Name #2 | Tributary to Larkin Creek (Intermittent) | Minor- 1 ft | OCM | SC, DIA, SF |
| Lee | 120.4 | jo agditch | Tributary to Larkin Creek (Intermittent) | Minor- 1 ft | OCM | SC, DIA, SF |
| Lee | 120.5 | jo agditch | Tributary to Larkin Creek (Intermittent) | Minor- 3 ft | OCM | SC, DIA, SF |
| Lee | 121.3 | ag ditch | Tributary to Larkin Creek (Intermittent) | Minor- 1 ft | OCM | SC, DIA, SF |
| Lee | 123.6 | jr-s3 | Tributary to Larkin Creek (Intermittent) | Intermediate- 15 ft | OCM | SC, DIA, SF |
| Lee | 125.2 | ag ditch | Tributary to Larkin Creek (Intermittent) | Minor- 1 ft | OCM | SC, DIA, SF |
| Lee | 129.0 | jo agditch | Tributary to Big Cypress Creek (Intermittent) | Minor- 3 ft | OCM | SC, DIA, SF |
| Lee | 130.1 | jo agditch | Tributary to Big Cypress Creek (Intermittent) | Minor- 3 ft | OCM | SC, DIA, SF |
| Lee | 130.3 | jo S01 | Tributary to Big Cypress Creek (Intermittent) | Intermediate- 13 ft | OCM | SC, DIA, SF |
| Lee | 130.4 | jo wwc | Tributary to Big Cypress Creek (Intermittent) | Minor- 2 ft | OCM | SC, DIA, SF |
| Lee | 130.8 | tdh S02 | Big Cypress Creek (Perennial) | Minor- 8 ft | OCM | SC, DIA, PF |
| Lee | 131.1 | tdh agditc | Tributary to Big Cypress Creek (Intermittent) | Minor- 2 ft | OCM | SC, DIA, SF |
| Lee | 133.0 | tdh agditc | Tributary to Big Cypress Creek (Intermittent) | Minor- 2 ft | OCM | SC, DIA, SF |
| Lee | 134.1 | tds ditch | Tributary to Big Cypress Creek (Intermittent) | Minor- 1 ft | OCM | SC, DIA, SF |
| Lee | 136.7 | jo/tds wwc | Tributary to Caney Creek (Intermittent) | Minor -2 ft | OCM | SC, DIA, SF |
| Lee | 137.3 | jo/tdh wwc | Tributary to Big Cypress (Intermittent) | Minor- 2 ft | OCM | SC, DIA, SF |
| Lee | 137.3 | jo/tdh wwc | Tributary to Big Cypress (Intermittent) | Minor- 2 ft | OCM | SC, DIA, SF |
| Phillips | 139.7 | tdh S03 | Lick Creek (Perennial) | Intermediate- 50 ft | OCM | SC, DIA, SF |
| Phillips | 140.2 | tdh rrditc | Tributary to Lick Creek (Intermittent) | Minor- 2 ft | OCM | SC, DIA, SF |
| Phillips | 140.8 | tdh int st | Tributary to Lick Creek (Intermittent) | Minor- 3 ft | OCM | SC, DIA, SF |
| Phillips | 140.8 | tdh int st | Tributary to Lick Creek (Intermittent) | Minor- 3 ft | OCM | SC, DIA, SF |
| Phillips | 141.2 | tdh wwc | Tributary to Lick Creek (Intermittent) | Minor- 2 ft | OCM | SC, DIA, SF |
| Phillips | 143.7 | jo agditch | Tributary to Lick Creek (Intermittent) | Minor- 2 ft | OCM | SC, DIA, SF |
| Phillips | 144.7 | jo S03 | Crooked Creek (Intermittent) | Intermediate- 50 ft | OCM | SC, DIA, PF |
| Phillips | 144.7 | jo wwc | Tributary to Crooked Creek (Intermittent) | Minor- 2 ft | OCM | SC, DIA, SF |
| Phillips | 144.7 | jo wwc | Tributary to Crooked Creek (Intermittent) | Minor- 2 ft | OCM | SC, DIA, SF |
| Phillips | 144.7 | jo wwc | Tributary to Crooked Creek (Intermittent) | Minor- 2 ft | OCM | SC, DIA, SF |
| Phillips | 146.0 | jo wwc | Tributary to Lick Creek (Intermittent) | Minor- 2 ft | OCM | SC, DIA, SF |

**Table C-5  Waterbodies Within the Construction Corridor of the Proposed Pipeline Route**

| County | Approximate Milepost at Crossing a/ | Field ID | Waterbody Name and Type b,c/ | Size and Estimated Width of Stream Crossing d/ | Crossing Method e/ | State Water Classification f/ and/or Environmental Sensitivity g/ |
|---|---|---|---|---|---|---|
| Phillips | 146.4 | jo INT st | Tributary to Lick Creek (Intermittent) | Minor- 5 ft | OCM | SC, DIA, SF |
| Phillips | 147.8 | jo agditch | Tributary to Hurricane Ditch (Intermittent) | Minor- 2 ft | OCM | SC, DIA, SF |
| Phillips | 147.8 | jo agditch | Tributary to Hurricane Ditch (Intermittent) | Minor- 2 ft | OCM | SC, DIA, SF |
| Phillips | 147.8 | jo agditch | Tributary to Hurricane Ditch (Intermittent) | Minor- 2 ft | OCM | SC, DIA, SF |
| Phillips | 147.8 | jo agditch | Tributary to Hurricane Ditch (Intermittent) | Minor- 2 ft | OCM | SC, DIA, SF |
| Phillips | 148.0 | jo agditch | Tributary to Hurricane Ditch (Intermittent) | Minor- 2 ft | OCM | SC, DIA, SF |
| Phillips | 148.2 | jo agditch | Tributary to Hurricane Ditch (Intermittent) | Minor- 2 ft | OCM | SC, DIA, SF |
| Phillips | 149.1 | jo agditch | Tributary to Beaver Bayou (Intermittent) | Minor- 2 ft | OCM | SC, DIA, SF |
| Phillips | 149.5 | jo S04 | Tributary to Beaver Bayou (Intermittent) | Intermediate- 10 ft | OCM | SC, DIA, PF |
| Phillips | 149.6 | jo agditch | Beaver Bayou (Intermittent) | Minor- 2 ft | OCM | SC, DIA, SF |
| Phillips | 150.0 | jo agditch | Tributary to Beaver Bayou (Intermittent) | Minor- 2 ft | OCM | SC, DIA, SF |
| Phillips | 150.0 | jo agditch | Tributary to Beaver Bayou (Intermittent) | Minor- 2 ft | OCM | SC, DIA, SF |
| Phillips | 150.6 | jo agditch | Tributary to Beaver Bayou (Intermittent) | Minor- 2 ft | OCM | SC, DIA, SF |
| Phillips | 150.7 | jo agditch | Tributary to Beaver Bayou (Intermittent) | Minor- 2 ft | OCM | SC, DIA, SF |
| Phillips | 150.7 | jo wwc | Tributary to Beaver Bayou (Intermittent) | Minor- 2 ft | OCM | SC, DIA, SF |
| Phillips | 151.2 | jo wwc | Tributary to Beaver Bayou (Intermittent) | Minor- 2 ft | OCM | SC, DIA, SF |
| Phillips | 151.3 | jo INT st | Tributary to Chaney Creek (Intermittent) | Minor- 5 ft | OCM | SC, DIA, SF |
| Phillips | 151.5 | jo S05 | Tributary to Long Lake Bayou (Intermittent) | Minor- 8 ft | OCM | SC, DIA, SF |
| Phillips | 151.6 | jo agditch | Tributary to Long Lake Bayou (Intermittent) | Minor- 2 ft | OCM | SC, DIA, SF |
| Phillips | 153.0 | Long L. | Long Lake Bayou (Perennial) | Major- 210 ft | OCM | PC, SC, DIA, SF |
| Phillips | 153.7 | jo agditch | Tributary to Long Lake Bayou (Intermittent) | Minor- 2 ft | OCM | SC, DIA, SF |
| Phillips | 153.9 | jo wwc | Tributary to Long Lake Bayou (Intermittent) | Minor- 2 ft | OCM | SC, DIA, SF |
| Phillips | 154.0 | jo agditch | Tributary to Long Lake Bayou (Intermittent) | Minor- 2 ft | OCM | SC, DIA, SF |
| Phillips | 154.4 | int st | Tributary to Long Lake (Perennial) | Minor- 2 ft | OCM | SC, DIA, SF |
| Phillips | 154.6 | jo agditch | Tributary to Long Lake Bayou (Intermittent) | Major 500 ft | OCM | SC, DIA, SF |
| Phillips | 154.9 | jo wwc | Tributary to Mississippi River (Intermittent) | Minor- 2 ft | OCM | SC, DIA, SF |
| Phillips | 155.2 | DLS ditch | Tributary to Mississippi River (Intermittent) | Minor- 2 ft | OCM | SC, DIA, SF |
| Phillips | 155.2 | DLS ditch | Tributary to Mississippi River (Intermittent) | Minor- 2 ft | OCM | SC, DIA, SF |
| Phillips | 155.4 | DLS ditch | Tributary to Mississippi River (Intermittent) | Minor- 2 ft | OCM | SC, DIA, SF |
| Phillips | 155.5 | DLS ditch | Tributary to Mississippi River (Intermittent) | Minor- 2 ft | OCM | SC, DIA, SF |
| Phillips | 157.3 | Miss River | Mississippi River (Perennial) | Major- 4000 ft | HDD | PC, SC, DIA / FW |

**Table C-5 Waterbodies Within the Construction Corridor of the Proposed Pipeline Route**

| County | Approximate Milepost at Crossing a/ | Field ID | Waterbody Name and Type b,c/ | Size and Estimated Width of Stream Crossing d/ | Crossing Method e/ | State Water Classification f/ and/or Environmental Sensitivity g/ |
|---|---|---|---|---|---|---|
| **Mississippi** | | | | | | |
| Coahoma | 160.0 | tdh int st | Rowen Bayou (Intermittent) | Minor- 2 ft | OCM | FW |
| Coahoma | 160.5 | tdh agditc | Tributary to Moon Lake (Intermittent) | Minor- 2 ft | OCM | FW |
| Coahoma | 160.7 | tdh Strm | Phillips Bayou (Perennial) | Major- 110 ft | OCM | FW |
| Coahoma | 161.9 | tdh agditc | Tributary to Muddy Bayou (Intermittent) | Minor- 2 ft | OCM | FW |
| **Greenville Lateral** | | | | | | |
| Washington | 0.8 | ML-D1 | Tributary to Main Canal (Intermittent) | Minor- 3 ft | OCM | FW |
| Washington | 2.1 | ML-D2 | Canal to Swiftwater Bayou (Intermittent) | Minor- 3 ft | OCM | FW |
| Washington | 3.3 | ML-D3 | Canal to Swiftwater Bayou (Intermittent) | Minor- 3 ft | OCM | FW |
| Washington | 3.4 | ML-D4 | Canal to Jackson Bayou (Intermittent) | Minor- 3 ft | OCM | FW |
| Washington | 3.7 | ML-D5 | Canal to Widow Bayou (Intermittent) | Minor-3 ft | OCM | FW |
| Washington | 3.9 | ag ditch | Tributary to Black Bayou (Intermittent) | Minor- 3 ft | OCM | FW |
| Washington | 4.7 | ML-D6 | Canal to Widow Bayou (Intermittent) | Minor- 3 ft | OCM | FW |
| Washington | 4.9 | ML-D7 | Canal to Black Bayou (Intermittent) | Intermediate- 26 ft | OCM | FW |
| Washington | 5.2 | B. Bayou | Black Bayou (Perennial) | Intermediate- 60 ft | OCM | FW |
| Washington | 5.3 | B. Bayou | Black Bayou (Perennial) | Intermediate 35 ft | OCM | FW |
| Washington | 5.5 | B. Bayou | Black Bayou (Perennial) | Intermediate 90 ft | OCM | FW |
| Washington | 6.0 | ML-D9B | Canal to Black Bayou (Intermittent) | Minor- 9 ft | OCM | FW |
| Washington | 6.2 | ML-D11 | Canal to Black Bayou (Intermittent) | Minor- 9 ft | OCM | FW |
| Washington | 6.4 | ag ditch | Tributary to Black Bayou (Intermittent) | Minor- 3 ft | OCM | FW |
| Washington | 6.7 | ag ditch | Tributary to Black Bayou (Intermittent) | Minor- 3 ft | OCM | FW |
| Washington | 7.1 | ML-D12 | Canal to Black Bayou (Perennial) | Minor- 9 ft | OCM | FW |
| Washington | 9.3 | ML-D13 | Deer Creek (Perennial) | Intermediate – 60 ft | HDD | FW |
| Washington | 11.2 | ML-D15 | Bogue Phalia (Perennial) | Major- 125 ft | HDD | FW |
| Washington | 11.9 | ML-D17 | Tributary to Bogue Phalia (Intermittent) | Minor- 9 ft | OCM | FW |
| Washington | 14.7 | Canal to B. Phalia | Canal to Bogue Phalia (Intermittent) | Minor- 9 ft | OCM | FW |
| Washington | 16.9 | Trib. of Sixmile | Tributary to Sixmile Bayou (Intermittent) | Minor- 9 ft | OCM | FW |
| Sunflower | 17.8 | ML-D18 | East Sixmile Bayou (Intermittent) | Intermediate- 33 ft | OCM | FW |
| Sunflower | 18.3 | ML-D19 | Canal to Bogue Phalia (Intermittent) | Minor- 9 ft | OCM | FW |

**Table C-5 Waterbodies Within the Construction Corridor of the Proposed Pipeline Route**

| County | Approximate Milepost at Crossing a/ | Field ID | Waterbody Name and Type b,c/ | Size and Estimated Width of Stream Crossing d/ | Crossing Method e/ | State Water Classification f/ and/or Environmental Sensitivity g/ |
|---|---|---|---|---|---|---|
| Sunflower | 18.6 | ML-D20 | Cypress Slough (Intermittent) | Minor- 9 ft | OCM | FW |
| Washington | 19.4 | tdh ditch 2 | Tributary to Melton Lake (Intermittent) | Minor- 3 ft | OCM | FW |
| Washington | 19.4 | tdh ditch 3 | Tributary to Melton Lake (Intermittent) | Minor- 3 ft | OCM | FW |
| Washington-Humphreys | 20.3 | ML-D21 | Big Sunflower River (Perennial) | Major- 250 ft | HDD | FW |
| Humphreys | 20.9 | ML-D22 | Tributary to Big Sunflower River (Intermittent) | Minor- 9 ft | OCM | FW |
| Humphreys | 21.1 | ML-D23 | Canal to Big Sunflower River (Perennial) | Minor- 9 ft | OCM | FW |
| Humphreys | 23.6 | ML-S8 | Beasley Bayou (Perennial) | Intermediate- 98 ft | OCM | FW |
| Humphreys | 25.3 | ML-D24 | Canal to Big Sunflower River (Intermittent) | Minor- 9 ft | OCM | FW |
| Humphreys | 26.1 | ML-S10 | Beasley Bayou (Perennial) | Intermediate 50 ft | OCM | FW |
| Humphreys | 26.7 | ML-D25A | Tributary to Jackson Bayou (Intermittent) | Minor- 9 ft | OCM | FW |
| Humphreys | 26.9 | ML-D25B | Tributary to Jackson Bayou (Intermittent) | Minor- 9 ft | OCM | FW |
| Humphreys | 27.3 | Jackson B | Jackson Bayou (Intermittent) | Minor- 9 ft | OCM | FW |
| Humphreys | 27.6 | ML-D26 | Tributary to Jackson Bayou (Intermittent) | Minor- 9 ft | OCM | FW |
| Humphreys | 27.9 | ML-D27 | Tributary to Jackson Bayou (Intermittent) | Minor- 9 ft | OCM | FW |
| Humphreys | 29.4 | ML-D28 | Canal to Jackson Bayou (Intermittent) | Minor- 9 ft | OCM | FW |
| Humphreys | 29.5 | ML-D29 | Canal to Jackson Bayou (Intermittent) | Minor- 9 ft | OCM | FW |
| Humphreys | 31.3 | jr int12 | Little Jackson Bayou (Intermittent) | Intermediate- 25 ft | OCM | FW |
| Humphreys | 31.5 | J-D1 | Canal to Cold Lake (Intermittent) | Minor- 9 ft | OCM | FW |
| Humphreys | 31.8 | J-D2 | Canal to Cold Lake (Intermittent) | Minor- 9 ft | OCM | FW |
| Humphreys | 33.1 | J-D3 | Canal to Wasp Lake (Intermittent) | Minor- 9 ft | OCM | FW |
| Humphreys | 34.0 | J-D5 | Tributary to Wasp Lake (Intermittent) | Minor- 9 ft | OCM | FW |
| Humphreys | 34.3 | J-D6 | Canal to Wasp Lake (Intermittent) | Minor- 9 ft | OCM | FW |
| Humphreys | 34.8 | J-D7 | Tributary to Wasp Lake (Intermittent) | Minor- 9 ft | OCM | FW |
| Humphreys | 34.9 | J-D8 | Canal to Wasp Lake (Intermittent) | Minor- 9 ft | OCM | FW |
| Humphreys | 35.2 | J-D9 | Canal to Wasp Lake (Intermittent) | Minor- 9 ft | OCM | FW |
| Humphreys | 35.4 | J-D9 | Canal to Wasp Lake (Intermittent) | Minor- 9 ft | OCM | FW |
| Humphreys | 35.6 | jr int13 | Fish Bayou (Intermittent) | Minor- 9 ft | OCM | FW |
| Humphreys | 36.2 | J-D10 | Canal to Fish Bayou (Intermittent) | Minor- 5 ft | OCM | FW |
| Humphreys | 36.4 | J-D11 | Canal to Fish Bayou (Intermittent) | Minor- 5 ft | OCM | FW |
| Humphreys | 36.5 | J-D12 | Canal to Fish Bayou (Intermittent) | Minor- 5 ft | OCM | FW |

**Table C-5 Waterbodies Within the Construction Corridor of the Proposed Pipeline Route**

| County | Approximate Milepost at Crossing a/ | Field ID | Waterbody Name and Type b,c/ | Size and Estimated Width of Stream Crossing d/ | Crossing Method e/ | State Water Classification f/ and/or Environmental Sensitivity g/ |
|---|---|---|---|---|---|---|
| Humphreys | 36.7 | J-D13 | Canal to Fish Bayou (Intermittent) | Minor- 5 ft | OCM | FW |
| Humphreys | 37.0 | J-D15 | Canal to Fish Bayou (Intermittent) | Minor- 5 ft | OCM | FW |
| Humphreys | 37.2 | J-D17 | Canal to Fish Bayou (Intermittent) | Minor- 5 ft | OCM | FW |
| Humphreys | 39.6 | J-D19 | Canal to Yazoo River (Intermittent) | Minor- 5 ft | OCM | FW |
| Humphreys | 40.5 | Yazoo | Yazoo River (Perennial) | Major- 395 ft | HDD | FW |
| Humphreys | 41.1 | ag ditch | Tributary to Toney Brake (Intermittent) | Minor- 5 ft | OCM | FW |
| Humphreys | 41.4 | J-D21 | Tributary to Toney Brake (Intermittent) | Minor- 5 ft | OCM | FW |
| Humphreys | 41.7 | J-D22 | Tributary to Toney Brake (Intermittent) | Minor- 5 ft | OCM | FW |
| Humphreys | 42.6 | J-D23 | Canal to Mathena Brake (Intermittent) | Minor- 5 ft | OCM | FW |
| Holmes | 46.7 | Tchula | Tchula Lake | Major- 160 ft | HDD | FW |
| Holmes | 49.5 | J-D29 | Canal to Tchula Lake (Intermittent) | Minor- 5 ft | OCM | FW |
| Holmes | 49.8 | J-D30 | Canal to Tchula Lake (Intermittent) | Minor- 5 ft | OCM | FW |
| Holmes | 50.2 | J-D31 | Canal to Tchula Lake (Intermittent) | Minor- 5 ft | OCM | FW |
| Holmes | 50.5 | J-D32 | Canal to Tchula Lake (Intermittent) | Minor- 5 ft | OCM | FW |
| Holmes | 51.3 | tdh ms ditch | Tributary to Old Fannegusha Creek (Intermittent) | Minor- 3 ft | OCM | FW |
| Holmes | 51.5 | tdh ms ag ditch | Tributary to Old Fannegusha Creek (Intermittent) | Minor- 3 ft | OCM | FW |
| Holmes | 51.8 | tdh ms ag ditch | Tributary to Old Fannegusha Creek (Intermittent) | Minor- 3 ft | OCM | FW |
| Holmes | 54.3 | Fannegusha | Fannegusha Creek (Perennial) | Major-100 ft | HDD | FW |
| Holmes | 54.5 | tdh ms ag ditch | Tributary to Fannegusha Creek (Intermittent) | Minor- 3ft | OCM | FW |
| Holmes | 54.8 | tdh ms int stream | Tributary to Blissdale Swamp (Intermittent) | Minor- 3ft | OCM | FW |
| Holmes | 55.8 | J-D43 | Tributary to Black Creek (Intermittent) | Minor- 9 ft | OCM | FW |
| Holmes | 56.3 | int st | Tributary to Black Creek (Intermittent) | Minor- 2 ft | OCM | FW |
| Holmes | 57.1 | kp int5 | Tributary to Black Creek (Intermittent) | Minor- 2 ft | OCM | FW |
| Holmes | 57.9 | JS1 | Tributary of Black Creek (Perennial) | Minor- 9 ft | OCM | FW |
| Holmes | 57.9 | wwc2 | Tributary to Black Creek (Intermittent) | Minor- 2 ft | OCM | FW |
| Holmes | 58.0 | wwc1 | Tributary to Black Creek (Intermittent) | Minor- 2 ft | OCM | FW |
| Holmes | 58.3 | J-D44 | Tributary to Black Creek (Intermittent) | Minor- 9 ft | OCM | FW |
| Holmes | 58.5 | J-D45 | Tributary to Black Creek (Intermittent) | Minor- 9 ft | OCM | FW |
| Holmes | 58.5 | J-D46 | Tributary to Black Creek (Intermittent) | Minor- 9 ft | OCM | FW |
| Holmes | 58.6 | J-D47 | Tributary to Black Creek (Intermittent) | Minor- 9 ft | OCM | FW |

**Table C-5 Waterbodies Within the Construction Corridor of the Proposed Pipeline Route**

| County | Approximate Milepost at Crossing a/ | Field ID | Waterbody Name and Type b,c/ | Size and Estimated Width of Stream Crossing d/ | Crossing Method e/ | State Water Classification f/ and/or Environmental Sensitivity g/ |
|---|---|---|---|---|---|---|
| Holmes | 58.9 | J-D48 | Tributary to Black Creek (Intermittent) | Minor- 9 ft | OCM | FW |
| Holmes | 58.9 | J-D50 | Tributary to Black Creek (Intermittent) | Minor- 9 ft | OCM | FW |
| Holmes | 59.6 | J-D51 | Tributary to Black Creek (Intermittent) | Minor- 9 ft | OCM | FW |
| Holmes | 60.1 | J-D53 | Tributary to Black Creek (Intermittent) | Minor- 9 ft | OCM | FW |
| Holmes | 60.5 | JS2 | Tributary of Black Creek (Perennial) | Intermediate- 13 ft | OCM | FW |
| Holmes | 60.6 | JWWC-4 | Tributary to Black Creek (Intermittent) | Minor- 2 ft | OCM | FW |
| Holmes | 60.9 | JS3 | Tributary of Black Creek (Perennial) | Intermediate- 10 ft | OCM | FW |
| Holmes | 61.1 | JS11 | Tributary to Black Creek (Intermittent) | Intermediate- 10 ft | OCM | FW |
| Holmes | 61.2 | JS6 | Black Creek (Perennial) | Intermediate- 58 ft | OCM | FW |
| Holmes | 61.7 | JWWC-11 | Tributary to Black Creek (Intermittent) | Minor- 2 ft | OCM | FW |
| Holmes | 61.8 | JWWC-10 | Tributary to Black Creek (Intermittent) | Minor- 2 ft | OCM | FW |
| Holmes | 61.9 | WWC-9 | Tributary to Black Creek (Intermittent) | Minor- 2 ft | OCM | FW |
| Holmes | 62.0 | JS5 | Tributary of Black Creek (Intermittent) | Intermediate- 23 ft | OCM | FW |
| Holmes | 62.3 | JS4 | Tributary to Black Creek (Intermittent) | Intermediate- 13 ft | OCM | FW |
| Holmes | 62.8 | WWC5 | Tributary to Black Creek (Intermittent) | Minor- 2 ft | OCM | FW |
| Holmes | 62.9 | WWC4 | Tributary to Black Creek (Intermittent) | Minor- 2 ft | OCM | FW |
| Holmes | 63.4 | JWWC-12 | Tributary to Black Creek (Intermittent) | Minor- 2 ft | OCM | FW |
| Holmes | 63.7 | int st | Tributary to Black Creek (Intermittent) | Minor- 2 ft | OCM | FW |
| Holmes | 63.8 | jr s1 | Tributary to Black Creek (Intermittent) | Minor- 6ft | OCM | FW |
| Holmes | 64.5 | ditch-1 | Tributary to Black Creek (Intermittent) | Minor- 2 ft | OCM | FW |
| Holmes | 65.2 | JS7 | Gourdvine Creek (Perennial) | Intermediate- 50 ft | OCM | FW |
| Holmes | 66.0 | WWC15 | Tributary to Tarrey Creek (Intermittent) | Minor- 2 ft | OCM | FW |
| Holmes | 66.3 | JWWC-27 | Tributary to Tarrey Creek (Intermittent) | Minor- 2 ft | OCM | FW |
| Holmes | 66.4 | JWWC-26 | Tributary to Tarrey Creek (Intermittent) | Minor- 2 ft | OCM | FW |
| Holmes | 66.4 | WWC25 | Tributary to Tarrey Creek (Intermittent) | Minor- 2 ft | OCM | FW |
| Holmes | 66.5 | JS9 | Tributary to Tarrey Creek (Intermittent) | Minor- 7 ft | OCM | FW |
| Holmes | 66.6 | JWWC-24 | Tributary to Tarrey Creek (Intermittent) | Minor- 2 ft | OCM | FW |
| Holmes | 66.7 | JWWC-23 | Tributary to Tarrey Creek (Intermittent) | Minor- 2 ft | OCM | FW |
| Holmes | 66.8 | JWWC-21 | Tributary to Tarrey Creek (Intermittent) | Minor- 2 ft | OCM | FW |
| Holmes | 66.8 | JWWC-22 | Tributary to Tarrey Creek (Intermittent) | Minor- 2 ft | OCM | FW |
| Holmes | 67.0 | JS8 | Tributary to Tarrey Creek (Intermittent) | Intermediate- 16 ft | OCM | FW |

## Table C-5 Waterbodies Within the Construction Corridor of the Proposed Pipeline Route

| County | Approximate Milepost at Crossing a/ | Field ID | Waterbody Name and Type b,c/ | Size and Estimated Width of Stream Crossing d/ | Crossing Method e/ | State Water Classification f/ and/or Environmental Sensitivity g/ |
|---|---|---|---|---|---|---|
| Holmes | 67.1 | JS8 | Tributary to Tarrey Creek (Intermittent) | Intermediate- 16 ft | OCM | FW |
| Holmes | 67.4 | tdh ms int stream | Tributary to Tarrey Creek (Intermittent) | Minor- 2 ft | OCM | FW |
| Holmes | 67.5 | tdh ms int stream | Tributary to Tarrey Creek (Intermittent) | Minor- 2 ft | OCM | FW |
| Holmes | 67.6 | JWWC-35 | Tributary to Tarrey Creek (Intermittent) | Minor- 2 ft | OCM | FW |
| Holmes | 67.6 | JWWC-36 | Tributary to Tarrey Creek (Intermittent) | Minor- 2 ft | OCM | FW |
| Holmes | 67.7 | tdh ms int stream | Tributary to Tarrey Creek (Intermittent) | Minor- 2 ft | OCM | FW |
| Holmes | 68.0 | WWC34 | Tributary to Tarrey Creek (Intermittent) | Minor- 2 ft | OCM | FW |
| Holmes | 68.3 | JS10 | Tributary to Tarrey Creek (Intermittent) | Intermediate- 16 ft | OCM | FW |
| Holmes | 68.6 | JWWC32 | Tributary to Tarrey Creek (Intermittent) | Minor- 2 ft | OCM | FW |
| Holmes | 68.7 | JWWC31 | Tributary to Tarrey Creek (Intermittent) | Minor- 2 ft | OCM | FW |
| Holmes | 68.9 | jr s2 | Tributary to Tarrey Creek (Intermittent) | Minor- 9 ft | OCM | FW |
| Holmes | 69.3 | jr s3 | Tarrey Creek (Perennial) | Minor- 9 ft | OCM | FW |
| Holmes | 70.8 | jr int4 | Tributary to Long Creek (Intermittent) | Minor- 5 ft | OCM | FW |
| Holmes | 70.9 | Trib. to Tarrey | Tributary to Tarrey Creek (Intermittent) | Minor- 5 ft | OCM | FW |
| Holmes | 71.1 | strm9b | Tributary to Tarrey Creek (Intermittent) | Minor- 5 ft | OCM | FW |
| Holmes | 71.2 | strm9a | Tributary to Tarrey Creek (Intermittent) | Minor- 5 ft | OCM | FW |
| Holmes | 71.4 | tdh-wwc13 | Tributary to Tarrey Creek (Intermittent) | Minor- 2 ft | OCM | FW |
| Holmes | 71.7 | tdh stream 3 | Tributary to Box Creek (Intermittent) | Intermediate- 15 ft | OCM | FW |
| Holmes | 71.8 | tdhditch2 | Tributary to Box Creek (Intermittent) | Minor- 1 ft | OCM | FW |
| Holmes | 71.9 | tdh wwc 12 | Tributary to Box Creek (Intermittent) | Minor- 2 ft | OCM | FW |
| Holmes | 72.0 | tdhwwc11 | Tributary to Box Creek (Intermittent) | Minor- 2 ft | OCM | FW |
| Holmes | 72.5 | tdh wwc 10 | Box Creek (Intermittent) | Minor- 2 ft | OCM | FW |
| Holmes | 72.9 | tdh wwc9 | Tributary to Box Creek (Intermittent) | Minor- 2 ft | OCM | FW |
| Holmes | 73.2 | tdh wwc8 | Tributary to Big Black River (Intermittent) | Minor- 2 ft | OCM | FW |
| Holmes | 73.3 | tdh-wwc8 | Tributary to Big Black River (Intermittent) | Minor- 2 ft | OCM | FW |
| Holmes | 73.4 | strm7 | Tributary to Big Black River (Intermittent) | Minor- 5 ft | OCM | FW |
| Holmes | 73.8 | tdh stream 2 | Tributary to Big Black River (Intermittent) | Minor- 5 ft | OCM | FW |
| Holmes | 73.9 | tdh-stream 1 | Tributary to Big Black River (Intermittent) | Minor- 9 ft | OCM | FW |
| Holmes | 73.9 | tdhwwc 7 | Tributary to Big Black River (Intermittent) | Minor- 2 ft | OCM | FW |

**Table C-5 Waterbodies Within the Construction Corridor of the Proposed Pipeline Route**

| County | Approximate Milepost at Crossing a/ | Field ID | Waterbody Name and Type b,c/ | Size and Estimated Width of Stream Crossing d/ | Crossing Method e/ | State Water Classification f/ and/or Environmental Sensitivity g/ |
|---|---|---|---|---|---|---|
| Holmes | 74.0 | tdh int 5 | Tributary to Big Black River (Intermittent) | Minor- 5 ft | OCM | FW |
| Holmes | 74.3 | tdh wwc6 | Tributary to Big Black River (Intermittent) | Minor- 2 ft | OCM | FW |
| Holmes | 74.7 | tdh stream 1 | Tributary to Big Black River (Intermittent) | Minor- 9 ft | OCM | FW |
| Holmes | 75.0 | tdh int stream 4 | Tributary to Big Black River (Intermittent) | Minor- 5 ft | OCM | FW |
| Holmes | 75.5 | jr int6 | Tributary to Big Black River (Intermittent) | Minor- 9 ft | OCM | FW |
| Holmes | 76.1 | tdh int st | Tributary to Big Black River (Intermittent) | Minor- 2 ft | OCM | FW |
| Holmes | 76.2 | Trib. 2 Big Black | Tributary to Big Black River (Intermittent) | Minor- 9 ft | OCM | FW |
| Holmes | 77.7 | Big Black | Big Black River (Perennial) | Major- 270 ft | HDD | FW |
| Holmes | 77.9 | tdh ms s1 | Tributary to Big Black River (Perennial) | Minor- 9ft | OCM | FW |
| Attala | 78.4 | tdh wwc 15 | Tributary to Big Black River (Intermittent) | Minor- 2 ft | OCM | FW |
| Attala | 78.5 | tdh wwc 14 | Tributary to Big Black River (Intermittent) | Minor- 2 ft | OCM | FW |
| Attala | 78.9 | tdh wwc 4 | Tributary to Big Black River (Intermittent) | Minor- 2 ft | OCM | FW |
| Attala | 79.1 | tdh int stream 3 | Tributary to Big Black River (Intermittent) | Minor- 5 ft | OCM | FW |
| Attala | 79.2 | tdh int stream 2 | Tributary to Big Black River (Intermittent) | Minor- 5 ft | OCM | FW |
| Attala | 79.3 | tdh int stream 2 | Tributary to Big Black River (Intermittent) | Minor- 5 ft | OCM | FW |
| Attala | 79.5 | tdh wwc3 | Tributary to Big Black River (Intermittent) | Minor- 2 ft | OCM | FW |
| Attala | 80.1 | tdh wwc2 | Tributary to Long Creek (Intermittent) | Minor- 2 ft | OCM | FW |
| Attala | 80.3 | tdh ditch 1 | Tributary to Long Creek (Intermittent) | Minor- 1 ft | OCM | FW |
| Attala | 80.7 | tdh int stream 1' | Tributary to Long Creek (Intermittent) | Minor- 5 ft | OCM | FW |
| Attala | 80.8 | tdh wwc1 | Tributary to Long Creek (Intermittent) | Minor- 2 ft | OCM | FW |
| Attala | 82.4 | KWWC-41 | Tributary to Long Creek (Intermittent) | Minor- 2 ft | OCM | FW |
| Attala | 82.4 | KWWC-42 | Tributary to Long Creek (Intermittent) | Minor- 2 ft | OCM | FW |
| Attala | 82.5 | KWWC-40 | Tributary to Long Creek (Intermittent) | Minor- 2 ft | OCM | FW |
| Attala | 82.6 | KWWC-38 | Tributary to Long Creek (Intermittent) | Minor- 2 ft | OCM | FW |
| Attala | 82.6 | KWWC-39 | Tributary to Long Creek (Intermittent) | Minor- 2 ft | OCM | FW |
| Attala | 82.8 | KWWC-37 | Tributary to Long Creek (Intermittent) | Minor- 2 ft | OCM | FW |

Table C-5 Waterbodies Within the Construction Corridor of the Proposed Pipeline Route

| County | Approximate Milepost at Crossing a/ | Field ID | Waterbody Name and Type b,c/ | Size and Estimated Width of Stream Crossing d/ | Crossing Method e/ | State Water Classification f/ and/or Environmental Sensitivity g/ |
|---|---|---|---|---|---|---|
| Attala | 83.0 | KWWC-36 | Tributary to Long Creek (Intermittent) | Minor- 2 ft | OCM | FW |
| Attala | 83.6 | KWWC-35 | Tributary to Long Creek (Intermittent) | Minor-2 ft | OCM | FW |
| Attala | 83.7 | KS7 | Tributary to Long Creek (Intermittent) | Minor- 5 ft | OCM | FW |
| Attala | 83.8 | KS7 | Tributary to Long Creek (Intermittent) | Minor- 5 ft | OCM | FW |
| Attala | 83.9 | KS7 | Tributary to Long Creek (Intermittent) | Minor- 5 ft | OCM | FW |
| Attala | 84.0 | KWWC-31 | Tributary to Long Creek (Intermittent) | Minor- 2 ft | OCM | FW |
| Attala | 84.0 | KWWC-32 | Tributary to Long Creek (Intermittent) | Minor- 2 ft | OCM | FW |
| Attala | 84.0 | KWWC-33 | Tributary to Long Creek (Intermittent) | Minor- 2 ft | OCM | FW |
| Attala | 84.6 | Kditch10 | Tributary to Long Creek (Intermittent) | Minor- 1 ft | OCM | FW |
| Attala | 84.8 | Kditch9 | Tributary to Long Creek (Intermittent) | Minor- 1 ft | OCM | FW |
| Attala | 84.9 | KS6 Station 1 | Long Creek (Perennial) | Intermediate- 30 ft | OCM | FW |
| Attala | 85.2 | KWWC-29 | Tributary to Long Creek (Intermittent) | Minor- 2 ft | OCM | FW |
| Attala | 85.7 | KS6 Station 2 | Long Creek (Perennial) | Intermediate- 50 ft | OCM | FW |
| Attala | 85.9 | Kditch8 | Tributary to Long Creek (Intermittent) | Minor- 1 ft | OCM | FW |
| Attala | 86.3 | KS5 | Long Creek (Perennial) | Intermediate- 43 ft | OCM | FW |
| Attala | 86.9 | KWWC-30 | Tributary to Long Creek (Intermittent) | Minor- 2 ft | OCM | FW |
| Attala | 87.3 | KS4 | Tributary to Long Creek (Intermittent) | Minor- 5 ft | OCM | FW |
| Attala | 87.8 | jr int7 | Tributary to Long Creek (Intermittent) | Minor- 5 ft | OCM | FW |
| Attala | 87.8 | jr s4 | Long Creek (Perennial) | Minor- 9 ft | OCM | FW |
| Attala | 87.9 | jr s5 | Tributary to Long Creek (Perennial) | Intermediate- 12 ft | OCM | FW |
| Attala | 88.3 | jr int9 | Tributary to Long Creek (Intermittent) | Minor- 5 ft | OCM | FW |
| Attala | 88.7 | jr int10 | Tributary to Long Creek (Intermittent) | Minor- 5 ft | OCM | FW |
| Attala | 89.1 | jr s6 | Tributary to Long Creek (Perennial) | Minor- 9 ft | OCM | FW |
| Attala | 90.1 | jrint1 | Tributary to Long Creek (Intermittent) | Minor- 2 ft | OCM | FW |
| Attala | 90.1 | Trib. 4 Long C | Tributary to Long Creek (Intermittent) | Minor- 5 ft | OCM | FW |
| Attala | 90.6 | ditch | Tributary to Long Creek (Intermittent) | Minor- 2 ft | OCM | FW |
| Attala | 91.3 | jrint2 | Tributary to Long Creek (Intermittent) | Minor- 2 ft | OCM | FW |
| Attala | 91.8 | jrint3 | Tributary to Long Creek (Intermittent) | Minor- 2 ft | OCM | FW |
| Attala | 92.7 | jrint4 | Tributary to Yockanookany River (Intermittent) | Minor- 5 ft | OCM | FW |
| Attala | 93.1 | jrs7 | Yockanookany River (Perennial) | Intermediate- 50 ft | HDD | FW |
| Attala | 93.7 | tdh ms int s1 | Tributary to Yockanookany River (Intermittent) | Minor- 5 ft | OCM | FW |

**Table C-5 Waterbodies Within the Construction Corridor of the Proposed Pipeline Route**

| County | Approximate Milepost at Crossing a/ | Field ID | Waterbody Name and Type b,c/ | Size and Estimated Width of Stream Crossing d/ | Crossing Method e/ | State Water Classification f/ and/or Environmental Sensitivity g/ |
|---|---|---|---|---|---|---|
| Attala | 95.0 | int st | Tributary to Conehoma Creek (Intermittent) | Minor- 5 ft | OCM | FW |
| Attala | 95.1 | Conehoma | Conehoma Creek (Perennial) | Intermediate- 20 ft | OCM | FW |
| Attala | 96.0 | kp int1 | Tributary to Conehoma Creek (Intermittent) | Minor- 5 ft | OCM | FW |
| **Kosciusko 36" Pipeline** | | | | | | |
| Attala | 0.3 | kp int1 | Tributary to Conehoma Creek (Intermittent) | Minor- 5 ft | OCM | FW |
| Attala | 0.7 | Little Cone. Creek | Little Conehoma Creek (Perennial) | Intermediate- 20 ft | OCM | FW |
| **Kosciusko/Southern Natural 20" Pipeline** | | | | | | |
| n/a | n/a | n/a | n/a | n/a | n/a | n/a |

*a/ Milepost based on desktop analysis of proposed pipeline route.*

*b/ Intermittent and Perennial designations determined by site reconnaissance and USGS name.*

*c/ Perennial waterbodies in St. Francis, Lee, and Phillips counties and Coahoma County, Mississippi may contain potential habitat for the fat pocketbook; perennial waterbodies in St. Francis, Lee, and Phillips counties, Arkansas may contain potential habitat for the scaleshell; perennial waterbodies in Cleburne County, Arkansas may contain potential habitat for speckled pocketbook; perennial waterbodies in Woodruff County, Arkansas may contain potential habitat for the pink mucket; large waterbodies in St. Francis County, Arkansas may contain potential habitat for the pallid sturgeon.*

*d/ Minor stream is less than 10 feet wide, Intermediate streams are between 10 and 99 feet, and Major are over 100 feet.*

*e/ HDD = horizontal directional drill, OCM = open cut method*

*f/ Arkansas State Water Quality Classifications (found within project area) –Extraordinary Resource Waters (ERW), Ecologically Sensitive Waterbodies (ESW), Channel-altered Delta Eco-region Streams (CDES), Primary Contact Recreation (PC), Secondary Contact Recreation (SC), Domestic, Industrial, and Agricultural Water Supplies (DIA), Trout Fisheries (FT), Seasonal Fishery (SF), Perennial Fishery (PF)*

*Mississippi State Water Quality Classifications – Fish and Wildlife (FW), Shellfish Harvesting (SH), Recreation (R), Ephemeral Stream (ES), Public Water Supply (PWS)*

*g/ Environmental Sensitivity = Extraordinary Resource Water (ERW), Nationwide Rivers Inventory (NRI), Trout Fisheries Stream (TFS)*

# APPENDIX C-6

# WETLANDS IDENTIFIED WITHIN THE CONSTRUCTION CORRIDOR OF THE PROPOSED PROJECT

| Table C-6 Wetlands Identified Within the Construction Corridor of the Proposed Project | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| County | GPS-Field ID | Approximate Start Milepost | Approximate Centerline length crossed (feet)[1] | Wetland Type[2] | Crossing Method[3] | Construction Impacts (acres)[4] | Permanently Converted Wetland Types in 10-foot wide Area Over Pipeline Centerline[5] | Permanently Converted Wetland Types in 30-foot wide area over Pipeline Centerline[6] |
| **Fayetteville Lateral** | | | | | | | | |
| ***Arkansas*** | | | | | | | | |
| Faulkner | WET 112 | 20.1 | 282 | PFO | OCM | 0.5 | 0.06 | 0.13 |
| Faulkner | WET 138 | 23.1 | 31 | PFO | OCM | 0.1 | 0.01 | 0.01 |
| White | WET 222 | 35.5 | 20 | PFO | OCM | <0.1 | 0.00 | 0.01 |
| White | wrm012 | 47.8 | 839 | PFO | OCM | 1.5 | 0.19 | 0.39 |
| White | wrm007 | 65.4 | 229 | PFO | OCM | 0.4 | 0.05 | 0.11 |
| White | wrm006 | 65.6 | n/a | PFO | OCM | <0.1 | n/a | n/a |
| White | wrm004 | 66.4 | 195 | PFO | OCM | 0.3 | 0.04 | 0.09 |
| White | wrm003 | 66.5 | 107 | PFO | OCM | 0.2 | 0.02 | 0.05 |
| White | th w11 | 67 | 77 | PFO | OCM | 0.1 | 0.02 | 0.04 |
| White | th w6 | 67.9 | 103 | PFO | OCM | 0.2 | 0.02 | 0.05 |
| White | th w5 | 70.1 | 156 | PFO | HDD | ** | ** | ** |
| Woodruff | th w9 | 71.4 | 75 | PFO | OCM | 0.1 | 0.02 | 0.03 |
| Woodruff | tdh ar w2 | 73.3 | 19 | PFO | OCM | 0.2 | 0.00 | 0.01 |
| Woodruff | th w7 | 73.4 | 405 | PFO | HDD | ** | ** | ** |
| Woodruff | th w8 | 74.4 | 1,100 | PFO | OCM | 1.9 | 0.25 | 0.51 |
| Woodruff | th w2.1 | 82.4 | 2,453 | PFO | HDD | ** | ** | ** |
| Woodruff | th w2.2 | 82.9 | 450 | PFO | HDD | ** | ** | ** |
| Woodruff | JAV-W38 | 83.9 | 232 | PFO | OCM | 0.3 | 0.05 | 0.11 |
| Woodruff | JAV-W31 | 84 | 42 | PFO | OCM | 0.2 | 0.01 | 0.02 |
| Woodruff | tdh bdv w2 | 95.5 | 1,911 | PFO | HDD | ** | ** | ** |
| Woodruff | tdh bdv w3 | 95.9 | 83 | PFO | HDD | ** | ** | ** |
| Woodruff | tdh ar w3 | 100.1 | 259 | PFO | OCM | 0.5 | 0.06 | 0.12 |
| Saint Francis | jr-w4a | 116.1 | 751 | PFO | OCM | 1.3 | 0.17 | 0.34 |
| Lee | jr-w2c | 116.7 | n/a | PFO | OCM | <0.1 | n/a | n/a |
| Lee | jr-w3 | 117 | 41 | PFO | OCM | 0.1 | 0.01 | 0.02 |
| Lee | jr-w1 | 117.4 | n/a | PFO | OCM | 0.1 | n/a | n/a |
| Lee | jo W03* | 119.1 | n/a | PFO | OCM | <0.1 | n/a | n/a |
| Lee | jo W02 | 120 | 427 | PFO | OCM | 0.7 | 0.10 | 0.20 |
| Lee | tdhw1 | 124.3 | 28 | PFO | OCM | <0.1 | 0.01 | 0.01 |
| Lee | tdhw4 | 126.8 | 151 | PFO | OCM | 0.3 | 0.03 | 0.07 |
| Lee | tdhw5 | 127.5 | 352 | PFO | OCM | 0.6 | 0.08 | 0.16 |
| Lee | jo/tdh W05 | 135.6 | 342 | PFO | OCM | 0.6 | 0.08 | 0.16 |

**Table C-6 Wetlands Identified Within the Construction Corridor of the Proposed Project**

| County | GPS-Field ID | Approximate Start Milepost | Approximate Centerline length crossed (feet)[1] | Wetland Type[2] | Crossing Method[3] | Construction Impacts (acres)[4] | Permanently Converted Wetland Types in 10-foot wide Area Over Pipeline Centerline[5] | Permanently Converted Wetland Types in 30-foot wide area over Pipeline Centerline[6] |
|---|---|---|---|---|---|---|---|---|
| Phillips | jo/tdh W07 | 141.1 | 35 | PFO | OCM | <0.1 | 0.01 | 0.02 |
| Phillips | jo W07 | 143.4 | 30 | PFO | OCM | 0.1 | 0.01 | 0.01 |
| Phillips | jo W06 | 143.5 | 121 | PFO | OCM | 0.2 | 0.03 | 0.06 |
| Phillips | jo W08 | 151.4 | 415 | PFO | OCM | 0.7 | 0.10 | 0.19 |
| Phillips | jo W09 | 152.9 | 204 | PFO | OCM | <0.1 | 0.05 | 0.09 |
| Phillips | jo W10 | 154.3 | 518 | PFO | HDD | ** | ** | ** |
| Phillips | jo W11 | 156.4 | 2,529 | PFO | OCM | 4.3 | 0.58 | 1.16 |
| Phillips | jo W11* | 156.6 | n/a | PFO | OCM | <0.1 | n/a | n/a |
| Phillips | jo W11* | 156.6 | n/a | PFO | OCM | 0.5 | n/a | n/a |
| ***Subtotal - PFO Wetlands*** | | | ***9,036*** | | | ***16*** | ***2.07*** | ***4.15*** |
| White | wrm011 | 48.1 | 9 | PFO/PSS | OCM | <0.1 | 0.00 | 0.00 |
| ***Subtotal - PFO/PSS Wetlands*** | | | ***9*** | | | ***0*** | ***0.00*** | ***0.00*** |
| Conway | tdh ar w1 | 7.3 | 23 | PFO/PEM | OCM | <0.1 | 0.01 | 0.01 |
| White | WET 210^ | 34.1 | n/a | PFO/PEM | OCM | <0.1 | n/a | 0.01 |
| White | WET 219 | 35.3 | 60 | PFO/PEM | OCM | 0.1 | 0.01 | 0.03 |
| Woodruff | JAV-W24 | 81.9 | 36 | PFO/PEM | OCM | 0.1 | 0.01 | 0.02 |
| Woodruff | th w10 | 82 | 176 | PFO/PEM | OCM | 0.4 | 0.04 | 0.08 |
| Woodruff | th w2 | 82.2 | 599 | PFO/PEM | OCM | 1.1 | 0.14 | 0.28 |
| Woodruff | th w2* | 82.2 | n/a | PFO/PEM | OCM | 0.3 | n/a | n/a |
| Woodruff | tdh w2.3 | 83 | 70 | PFO/PEM | OCM | 0.1 | 0.02 | 0.03 |
| Woodruff | tdh w2.3* | 83.1 | n/a | PFO/PEM | OCM | 1 | n/a | n/a |
| Woodruff | tdh w2.3* | 83.1 | n/a | PFO/PEM | OCM | 0.1 | n/a | n/a |
| Woodruff | JAV-W29 | 85.4 | 594 | PFO/PEM | OCM | 1 | 0.14 | 0.27 |
| Woodruff | JAV-W25 | 88.1 | n/a | PFO/PEM | OCM | <0.1 | n/a | n/a |
| Woodruff | tdh bdv w1 | 95.1 | 111 | PFO/PEM | OCM | 0.2 | 0.03 | 0.05 |
| Saint Francis | DLS W2 | 111.5 | 1,255 | PFO/PEM | OCM | 2.2 | 0.29 | 0.58 |
| Lee | tdhw3 | 125.8 | n/a | PFO/PEM | OCM | 0.1 | n/a | n/a |
| Phillips | jo/tdh W09 | 140.8 | 121 | PFO/PEM | OCM | 0.2 | 0.03 | 0.06 |
| Phillips | jo/tdh W12 | 142 | 105 | PFO/PEM | OCM | 0.3 | 0.02 | 0.05 |
| Phillips | jo/tdh W15 | 142.2 | 550 | PFO/PEM | OCM | 0.9 | 0.13 | 0.25 |
| ***Subtotal - PFO/PEM Wetlands*** | | | ***3,700*** | | | ***8.1*** | ***0.85*** | ***1.70*** |
| Faulkner | WET 062 | 14.8 | n/a | PSS | OCM | <0.1 | n/a | -- |
| Faulkner | WET 144 | 24.2 | 32 | PSS | OCM | <0.1 | 0.01 | -- |
| Faulkner | WET 148 | 24.8 | 62 | PSS | OCM | 0.1 | 0.01 | -- |

**Table C-6 Wetlands Identified Within the Construction Corridor of the Proposed Project**

| County | GPS-Field ID | Approximate Start Milepost | Approximate Centerline length crossed (feet)[1] | Wetland Type[2] | Crossing Method[3] | Construction Impacts (acres)[4] | Permanently Converted Wetland Types in 10-foot wide Area Over Pipeline Centerline[5] | Permanently Converted Wetland Types in 30-foot wide area over Pipeline Centerline[6] |
|---|---|---|---|---|---|---|---|---|
| Faulkner | WET 170 | 27.7 | 19 | PSS | OCM | <0.1 | 0.00 | -- |
| White | WET 231 | 37.1 | n/a | PSS | OCM | <0.1 | n/a | -- |
| White | wrm010 | 63.6 | 122 | PSS | OCM | 0.2 | 0.03 | -- |
| White | wrm005 | 67.5 | 862 | PSS | OCM | 1.5 | 0.20 | -- |
| ***Subtotal - PSS Wetlands*** | | | ***1,097*** | | | ***1.8*** | ***0.25*** | **0.00** |
| Faulkner | WET 015 | 10.9 | n/a | PSS/PEM | OCM | <0.1 | n/a | -- |
| Faulkner | WET 060 | 14.8 | 42 | PSS/PEM | OCM | <0.1 | 0.01 | -- |
| Woodruff | JAV-W18 | 76.1 | n/a | PSS/PEM | OCM | <0.1 | n/a | -- |
| Woodruff | JAV-W23a | 81.8 | 187 | PSS/PEM | OCM | 0.2 | 0.04 | -- |
| Woodruff | JAV-W37 | 83.8 | 391 | PSS/PEM | OCM | 0.6 | 0.09 | -- |
| Woodruff | tdh bdv w4 | 96 | 3,019 | PSS/PEM | OCM | 4.5 | 0.69 | -- |
| Woodruff | tdh bdv w4* | 96 | n/a | PSS/PEM | OCM | 0.3 | n/a | -- |
| Woodruff | tdh bdv w4* | 96 | n/a | PSS/PEM | OCM | <0.1 | n/a | -- |
| Woodruff | tdh bdv w4* | 96.5 | n/a | PSS/PEM | OCM | 0.1 | n/a | -- |
| Woodruff | tdh bdv w4* | 96.5 | n/a | PSS/PEM | OCM | 0.1 | n/a | -- |
| ***Subtotal - PSS/PEM Wetlands*** | | | ***3,639*** | | | ***5.8*** | ***0.84*** | **0.00** |
| Conway | wrm001 | 2.1 | 51 | PEM | OCM | 0.1 | -- | -- |
| Faulkner | WET 041 | 13 | 26 | PEM | OCM | <0.1 | -- | -- |
| Faulkner | WET 045 | 13.3 | 8 | PEM | OCM | <0.1 | -- | -- |
| Faulkner | WET 057 | 14.2 | 33 | PEM | OCM | 0.1 | -- | -- |
| Faulkner | WET 063 | 14.8 | 41 | PEM | OCM | <0.1 | -- | -- |
| Faulkner | WET 064 | 15 | n/a | PEM | OCM | 0.1 | -- | -- |
| Faulkner | WET 071 | 15.7 | n/a | PEM | OCM | <0.1 | -- | -- |
| Faulkner | WET 076 | 16.5 | n/a | PEM | OCM | <0.1 | -- | -- |
| Faulkner | Wet 081 | 16.8 | 374 | PEM | OCM | 0.7 | -- | -- |
| Faulkner | WET 104 | 19.1 | n/a | PEM | OCM | <0.1 | -- | -- |
| Faulkner | WET 108 | 19.7 | n/a | PEM | OCM | <0.1 | -- | -- |
| Faulkner | WET 109 | 20 | 43 | PEM | OCM | 0.1 | -- | -- |
| Faulkner | WET 141 | 23.2 | 532 | PEM | OCM | 0.8 | -- | -- |
| Faulkner | WET 151 | 25.2 | 104 | PEM | OCM | 0.2 | -- | -- |
| Faulkner | WET 157 | 26.4 | 103 | PEM | OCM | 0.2 | -- | -- |
| Faulkner | WET 158 | 26.6 | 41 | PEM | OCM | 0.1 | -- | -- |
| Faulkner | WET 160 | 26.7 | n/a | PEM | OCM | <0.1 | -- | -- |
| Faulkner | WET 164 | 26.8 | 70 | PEM | OCM | 0.1 | -- | -- |

| Table C-6 Wetlands Identified Within the Construction Corridor of the Proposed Project | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| County | GPS-Field ID | Approximate Start Milepost | Approximate Centerline length crossed (feet)[1] | Wetland Type[2] | Crossing Method[3] | Construction Impacts (acres)[4] | Permanently Converted Wetland Types in 10-foot wide Area Over Pipeline Centerline[5] | Permanently Converted Wetland Types in 30-foot wide area over Pipeline Centerline[6] |
| Faulkner | WET 176 | 28.8 | 24 | PEM | OCM | <0.1 | -- | -- |
| White | WET 188 | 31.6 | 22 | PEM | OCM | <0.1 | -- | -- |
| White | WET 192 | 32 | 33 | PEM | OCM | 0.1 | -- | -- |
| Woodruff | JAV-W14 | 79.7 | 440 | PEM | OCM | 0.5 | -- | -- |
| Woodruff | JAV-W17 | 79.8 | 52 | PEM | OCM | 0.4 | -- | -- |
| Woodruff | JAV-W20 | 80.9 | 57 | PEM | OCM | 0.1 | -- | -- |
| Woodruff | JAV-W21 | 81.6 | 8 | PEM | OCM | <0.1 | -- | -- |
| Woodruff | JAV-W23b | 81.8 | 70 | PEM | OCM | 0.2 | -- | -- |
| Woodruff | th w3 | 82 | 711 | PEM | OCM | 1.2 | -- | -- |
| Woodruff | JAV-W32 | 83.2 | 154 | PEM | OCM | 0.3 | -- | -- |
| Woodruff | JAV-W33 | 83.4 | n/a | PEM | OCM | <0.1 | -- | -- |
| Woodruff | JAV-W39 | 83.4 | n/a | PEM | OCM | <0.1 | -- | -- |
| Woodruff | JAV-W34 | 83.6 | 206 | PEM | OCM | 0.3 | -- | -- |
| Woodruff | JAV-W35 | 83.7 | 116 | PEM | OCM | 0.1 | -- | -- |
| Woodruff | JAV-W26 | 86.5 | 386 | PEM | OCM | 0.6 | -- | -- |
| Woodruff | JAV-W8 | 93.7 | 240 | PEM | OCM | 0.4 | -- | -- |
| Woodruff | JAV-W1 | 99.6 | 75 | PEM | OCM | 0.1 | -- | -- |
| Saint Francis | jrw6 | 113.8 | 162 | PEM | OCM | 0.3 | -- | -- |
| Lee | DLS W1 | 120.4 | 658 | PEM | OCM | 1.2 | -- | -- |
| Phillips | jo/tdh W08 | 140.8 | 7 | PEM | OCM | <0.1 | -- | -- |
| Phillips | jo/tdh W10 | 140.9 | 64 | PEM | OCM | 0.2 | -- | -- |
| | | ***Subtotal - PEM Wetlands*** | ***4,911*** | | | **8.5** | **0.00** | **0.00** |
| ***Mississippi*** | | | | | | | | |
| Coahoma | jo w11* | 156.8 | n/a | PFO | OCM | 0.5 | n/a | n/a |
| Coahoma | jo w12 | 157.5 | 1,891 | PFO | OCM | 3.2 | 0.43 | 0.87 |
| Coahoma | jo w12* | 157.6 | n/a | PFO | OCM | 0.6 | n/a | n/a |
| Coahoma | jo w12* | 157.7 | n/a | PFO | OCM | 0.5 | n/a | n/a |
| Coahoma | jo w13 | 158 | 3,629 | PFO | OCM | 7.2 | 0.83 | 1.67 |
| Coahoma | jo w13 | 158.1 | n/a | PFO | OCM | 0.5 | n/a | n/a |
| Coahoma | jo w13 | 158.2 | n/a | PFO | OCM | 2.1 | n/a | n/a |
| Coahoma | jo w13 | 158.2 | n/a | PFO | OCM | <0.1 | n/a | n/a |
| Coahoma | jo w13 | 158.2 | n/a | PFO | OCM | 0.7 | n/a | n/a |
| Coahoma | jo w13 | 158.2 | n/a | PFO | OCM | <0.1 | n/a | n/a |
| Coahoma | jo w13 | 158.2 | n/a | PFO | OCM | 0.3 | n/a | n/a |

| Table C-6 Wetlands Identified Within the Construction Corridor of the Proposed Project | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| County | GPS-Field ID | Approximate Start Milepost | Approximate Centerline length crossed (feet)[1] | Wetland Type[2] | Crossing Method[3] | Construction Impacts (acres)[4] | Permanently Converted Wetland Types in 10-foot wide Area Over Pipeline Centerline[5] | Permanently Converted Wetland Types in 30-foot wide area over Pipeline Centerline[6] |
| Coahoma | jo w13 | 158.4 | n/a | PFO | OCM | 0.3 | n/a | n/a |
| Coahoma | jo w13 | 158.4 | n/a | PFO | OCM | 0.1 | n/a | n/a |
| Coahoma | jo w13 | 158.4 | n/a | PFO | OCM | 0.5 | n/a | n/a |
| Coahoma | jo w13 | 158.5 | n/a | PFO | OCM | 1 | n/a | n/a |
| Coahoma | jo w13 | 158.6 | n/a | PFO | OCM | <0.1 | n/a | n/a |
| | | ***Subtotal - PFO Wetlands*** | ***5,520*** | | | ***17.5*** | ***1.27*** | ***2.53*** |
| **Total Fayetteville Lateral Wetlands** | | | **27,912** | | | **57.70** | **5.28** | **8.39** |
| **Greenville Lateral** | | | | | | | | |
| ***Mississippi*** | | | | | | | | |
| Humphreys | ML-W13B | 27.4 | 52 | PFO | OCM | 0.2 | 0.01 | 0.02 |
| Humphreys | ML-W14 | 28.8 | n/a | PFO | OCM | <0.1 | n/a | n/a |
| Humphreys | ML-W15 | 29.3 | n/a | PFO | OCM | <0.1 | n/a | n/a |
| Humphreys | JAV-W5 | 37 | 870 | PFO | OCM | 2 | 0.20 | 0.40 |
| Humphreys | JAV-W6 | 39.6 | 427 | PFO | HDD | ** | ** | ** |
| Humphreys | JAV-W7 | 40.1 | n/a | PFO | OCM | <0.1 | 0.00 | n/a |
| Humphreys | kp w-3 | 40.9 | 552 | PFO | HDD | ** | ** | ** |
| Humphreys | tdh ms w3 | 44.3 | 8,763 | PFO | OCM | 21.4 | 2.01 | 4.02 |
| Humphreys | tdh ms w3* | 44.3 | n/a | PFO | OCM | 0.2 | n/a | n/a |
| Humphreys | tdh ms w3* | 44.3 | n/a | PFO | OCM | <0.1 | n/a | n/a |
| Humphreys | tdh ms w3* | 44.9 | n/a | PFO | OCM | 0.1 | n/a | n/a |
| Humphreys | tdh ms w3* | 45.5 | n/a | PFO | OCM | 0.1 | n/a | n/a |
| Humphreys | tdh ms w3* | 45.5 | n/a | PFO | OCM | 0.1 | n/a | n/a |
| Humphreys | tdh ms w3* | 46.1 | n/a | PFO | OCM | 0.2 | n/a | n/a |
| Holmes | jr w9 west | 47.4 | 210 | PFO | OCM | <0.1 | 0.05 | 0.10 |
| Holmes | jr w9 east | 47.5 | n/a | PFO | OCM | 0.5 | n/a | n/a |
| Holmes | kp w-4 | 54.2 | 427 | PFO | HDD | ** | ** | ** |
| Holmes | kp w-5 | 54.4 | 287 | PFO | HDD | ** | ** | ** |
| Holmes | tdh ms w5* | 55.1 | n/a | PFO | OCM | <0.1 | n/a | n/a |
| Holmes | tdh ms w6 | 55.3 | 168 | PFO | OCM | 0.4 | 0.04 | 0.08 |
| Holmes | JW1 | 57.3 | 192 | PFO | OCM | 0.4 | 0.04 | 0.09 |
| Holmes | kp w-8 | 59.1 | 412 | PFO | OCM | 0.4 | 0.09 | 0.19 |
| Holmes | kp w-8* | 59.1 | n/a | PFO | OCM | <0.1 | n/a | n/a |
| Holmes | JW5 | 62.2 | 157 | PFO | OCM | 0.4 | 0.04 | 0.07 |
| Holmes | JW4 | 62.9 | 24 | PFO | OCM | 0.1 | 0.01 | 0.01 |

| Table C-6 Wetlands Identified Within the Construction Corridor of the Proposed Project | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| County | GPS-Field ID | Approximate Start Milepost | Approximate Centerline length crossed (feet)[1] | Wetland Type[2] | Crossing Method[3] | Construction Impacts (acres)[4] | Permanently Converted Wetland Types in 10-foot wide Area Over Pipeline Centerline[5] | Permanently Converted Wetland Types in 30-foot wide area over Pipeline Centerline[6] |
| Holmes | tdh ms w8 | 64.6 | 22 | PFO | OCM | <0.1 | 0.01 | 0.01 |
| Holmes | JW8 | 67.7 | 286 | PFO | OCM | 0.6 | 0.07 | 0.13 |
| Holmes | JW7 | 68.1 | 43 | PFO | OCM | 0.1 | 0.01 | 0.02 |
| Holmes | jr w1 | 70.5 | 224 | PFO | OCM | 0.6 | 0.05 | 0.10 |
| Holmes | tdh ms w1 5/23 | 77.7 | 87 | PFO | OCM | 0.2 | 0.02 | 0.04 |
| Attala | tdh ms w3 5/23* | 78.1 | n/a | PFO | OCM | <0.1 | n/a | n/a |
| Attala | tdh ms w3 5/23* | 78.1 | n/a | PFO | OCM | <0.1 | n/a | n/a |
| Attala | tdh ms w3 5/23 | 78.1 | 145 | PFO | OCM | 0.2 | 0.03 | 0.07 |
| Attala | JW15west | 82.2 | 17 | PFO | OCM | <0.1 | 0.00 | 0.01 |
| Attala | JW15east | 82.3 | 184 | PFO | OCM | 0.5 | 0.04 | 0.08 |
| Attala | KW16 | 85.4 | 1,260 | PFO | OCM | 2.3 | 0.29 | 0.58 |
| Attala | jr w10 | 88.7 | 731 | PFO | OCM | 1.6 | 0.17 | 0.34 |
| Attala | jr w4 | 89.1 | 653 | PFO | OCM | 1.5 | 0.15 | 0.30 |
| Attala | jr w5 | 90 | 87 | PFO | OCM | 0.3 | 0.02 | 0.04 |
| Attala | jr w6 | 90.9 | 463 | PFO | OCM | 1.1 | 0.11 | 0.21 |
| Attala | jr w8 | 91.3 | 718 | PFO | OCM | 1.6 | 0.16 | 0.33 |
| Attala | jr w11 | 91.5 | n/a | PFO | HDD | ** | ** | ** |
| Attala | tdh ms w11 | 92.9 | 1,242 | PFO | HDD | ** | ** | ** |
| Attala | tdh ms w11.2 | 93.1 | 1,229 | PFO | HDD | ** | ** | ** |
| Attala | tdh ms w11.3 | 93.4 | 944 | PFO | HDD | ** | ** | ** |
| Attala | tdh ms w12 | 93.5 | n/a | PFO | OCM | 0.5 | n/a | n/a |
| Attala | kp w-1 | 96.1 | 53 | PFO | OCM | 0.3 | 0.01 | 0.02 |
| Attala | kp w-1* | 96.2 | n/a | PFO | OCM | 0.2 | n/a | n/a |
| | ***Subtotal - PFO Wetlands*** | | ***15,821*** | | | ***38.1*** | ***3.63*** | ***7.26*** |
| Humphreys | JAV-W9c | 40.5 | 19 | PFO/PEM | HDD | ** | ** | ** |
| Humphreys | JAV-W8c | 40.4 | 360 | PFO/PEM | HDD | ** | ** | ** |
| Holmes | tdh ms w7 | 64.6 | n/a | PFO/PEM | OCM | <0.1 | n/a | n/a |
| Holmes | tdh ms w10 | 76.5 | n/a | PFO/PEM | OCM | 4.4 | n/a | n/a |
| Holmes | tdh ms w10* | 77.2 | n/a | PFO/PEM | OCM | <0.1 | n/a | n/a |
| Holmes | tdh ms w9* | 77.2 | n/a | PFO/PEM | OCM | 0.1 | n/a | n/a |
| Holmes | tdh ms w9* | 77.5 | n/a | PFO/PEM | OCM | 0.4 | n/a | n/a |
| Holmes | tdh ms w9 | 77.6 | 5,930 | PFO/PEM | OCM | 8.6 | 1.36 | 2.72 |
| Attala | tdh ms w2 5/23 | 78 | 69 | PFO/PEM | OCM | 0.2 | 0.02 | 0.03 |
| | ***Subtotal - PFO/PEM Wetlands*** | | ***5,999*** | | | ***13.7*** | ***1.38*** | ***2.75*** |

| Table C-6 Wetlands Identified Within the Construction Corridor of the Proposed Project | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| County | GPS-Field ID | Approximate Start Milepost | Approximate Centerline length crossed (feet)[1] | Wetland Type[2] | Crossing Method[3] | Construction Impacts (acres)[4] | Permanently Converted Wetland Types in 10-foot wide Area Over Pipeline Centerline[5] | Permanently Converted Wetland Types in 30-foot wide area over Pipeline Centerline[6] |
| Holmes | TDHW-5 | 72.4 | 160 | PFO/PSS | OCM | 0.4 | 0.04 | 0.07 |
| Holmes | TDH-W4 | 72.5 | 393 | PFO/PSS | OCM | 0.8 | 0.09 | 0.18 |
| Holmes | tdh ms w4 | 75.7 | n/a | PFO/PSS | OCM | <0.1 | n/a | n/a |
| Holmes | tdh ms w9* | 77.2 | n/a | PFO/PSS | OCM | 0.1 | n/a | n/a |
| Attala | KW19 | 84.5 | 1,876 | PFO/PSS | OCM | 4.1 | 0.43 | 0.86 |
| Attala | KW18 | 84.9 | 145 | PFO/PSS | OCM | 0.2 | 0.03 | 0.07 |
| Attala | KW23 | 82.5 | 1,616 | PFO/PSS | OCM | 3.7 | 0.37 | 0.74 |
| Attala | KW15 | 85.7 | n/a | PFO/PSS | OCM | 0.7 | n/a | n/a |
| | ***Subtotal - PFO/PSS Wetlands*** | | ***4,190*** | | | ***10*** | ***0.96*** | ***1.92*** |
| Holmes | kp w-7 | 59.1 | 356 | PSS | OCM | 0.4 | 0.08 | -- |
| Holmes | JW6 | 68.2 | 63 | PSS | OCM | 0.1 | 0.01 | -- |
| Attala | KW22 | 83.4 | n/a | PSS | OCM | <0.1 | n/a | -- |
| Attala | KW17 | 85.3 | n/a | PSS | OCM | 0.1 | n/a | -- |
| | ***Subtotal - PSS Wetlands*** | | ***419*** | | | ***0.6*** | ***0.10*** | ***0.00*** |
| Washington | ML-W1A | 5.2 | 127 | PSS/PEM | OCM | 0.3 | 0.03 | -- |
| Washington | ML-W1B | 5.4 | 105 | PSS/PEM | OCM | 0.2 | 0.02 | -- |
| Humphreys | ML-W11 | 27.3 | 56 | PSS/PEM | OCM | 0.2 | 0.01 | -- |
| Humphreys | JAV-W2 | 31.2 | 34 | PSS/PEM | OCM | 0.1 | 0.01 | -- |
| Humphreys | JAV-W9d | 40.6 | 59 | PSS/PEM | HDD | ** | ** | ** |
| Humphreys | JAV-W9d* | 40.6 | n/a | PSS/PEM | OCM | <0.1 | n/a | n/a |
| Holmes | JAV-W4 | 35.5 | 44 | PSS/PEM | OCM | 0.1 | 0.01 | -- |
| Holmes | JW13 | 59 | 2,223 | PSS/PEM | OCM | 5.9 | 0.51 | -- |
| Holmes | JW14 | 59.6 | 1,986 | PSS/PEM | OCM | 4.5 | 0.46 | -- |
| Holmes | JW13* | 59.6 | n/a | PSS/PEM | OCM | 0.1 | n/a | n/a |
| Holmes | JW13* | 59.6 | n/a | PSS/PEM | OCM | <0.1 | n/a | n/a |
| Holmes | JW14* | 59.9 | n/a | PSS/PEM | OCM | 0.1 | n/a | n/a |
| Holmes | JAV-W18 | 60.2 | 1,263 | PSS/PEM | OCM | 2.9 | 0.29 | -- |
| Holmes | JAV-W18* | 60.4 | n/a | PSS/PEM | OCM | <0.1 | n/a | n/a |
| Holmes | JAV-W18* | 60.5 | n/a | PSS/PEM | OCM | <0.1 | n/a | n/a |
| Holmes | JW2* | 60.6 | n/a | PSS/PEM | OCM | 0.1 | n/a | n/a |
| Holmes | JW2* | 60.6 | n/a | PSS/PEM | OCM | 0.2 | n/a | n/a |
| Holmes | JW2 | 60.6 | 665 | PSS/PEM | OCM | 1.2 | 0.15 | -- |
| Holmes | JW2east | 60.6 | 49 | PSS/PEM | OCM | 0.4 | 0.01 | -- |
| Attala | KW13 | 85.8 | n/a | PSS/PEM | OCM | 0.8 | n/a | n/a |

**Table C-6 Wetlands Identified Within the Construction Corridor of the Proposed Project**

| County | GPS-Field ID | Approximate Start Milepost | Approximate Centerline length crossed (feet)[1] | Wetland Type[2] | Crossing Method[3] | Construction Impacts (acres)[4] | Permanently Converted Wetland Types in 10-foot wide Area Over Pipeline Centerline[5] | Permanently Converted Wetland Types in 30-foot wide area over Pipeline Centerline[6] |
|---|---|---|---|---|---|---|---|---|
| Attala | KW11 | 86.3 | 586 | PSS/PEM | OCM | 1.3 | 0.13 | -- |
| Attala | KW10 | 86.5 | 94 | PSS/PEM | OCM | 0.2 | 0.02 | -- |
| ***Subtotal - PEM/PSS Wetlands*** | | | ***7,232*** | | | ***18.6*** | ***1.66*** | ***0.00*** |
| Attala | KW20 | 84.4 | n/a | PFO/PSS/PEM | OCM | 0.2 | n/a | n/a |
| Attala | KW20east | 84.4 | n/a | PFO/PSS/PEM | OCM | 0.2 | n/a | n/a |
| Attala | KW14 | 85.6 | 712 | PFO/PSS/PEM | OCM | 0.7 | 0.16 | 0.33 |
| ***Subtotal - PFO/PSS/PEM Wetlands*** | | | ***712*** | | | ***1.1*** | ***0.16*** | ***0.33*** |
| Washington | ML-W5 | 14.6 | 65 | PEM | OCM | 0.1 | -- | -- |
| Washington | ML-W7 | 20.3 | 28 | PEM | HDD | ** | ** | ** |
| Sunflower | ML-W6A | 17.7 | 23 | PEM | OCM | <0.1 | -- | -- |
| Sunflower | ML-W6B | 17.7 | 14 | PEM | OCM | <0.1 | -- | -- |
| Humphreys | ML-W7east | 20.3 | 26 | PEM | HDD | ** | ** | ** |
| Humphreys | ML-W9 | 24.3 | 446 | PEM | OCM | 1 | -- | -- |
| Humphreys | ML-W12A | 27.3 | n/a | PEM | OCM | 0.2 | n/a | n/a |
| Humphreys | ML-W12B | 27.3 | 226 | PEM | OCM | 0.2 | -- | -- |
| Humphreys | JAV-W23 | 58.4 | 28 | PEM | OCM | 0.1 | -- | -- |
| Holmes | JW3 | 63.2 | n/a | PEM | OCM | <0.1 | n/a | n/a |
| Attala | jr w7 | 91.2 | 37 | PEM | OCM | 0.1 | -- | -- |
| ***Subtotal - PEM Wetlands*** | | | ***839*** | | | ***1.7*** | ***0.00*** | ***0.00*** |
| **Total Greenville Lateral Wetlands** | | | **35,212** | | | **83.80** | **7.89** | **12.27** |
| **TOTAL Project Wetlands** | | | **63,124** | | | **141.5** | **13.2** | **20.7** |

Notes: These totals were calculated using data and mapping provided by Texas Gas in their Resource Report 2 - Water Use and Quality and the PCN Attachment B. Variances in totals are due to fractional acreages, designated as <0.1 in the original data set.

[1]n/a – wetland would not cross proposed Project centerline and impacts would largely occur within temporary workspaces

[2]Cowardin Classification (et. al., 1979): PEM – palustrine emergent, PSS – palustrine scrub-shrub, PFO – palustrine forested

[3]Crossing method: OCM - open cut method, HDD - horizontal directional drill

[4]temporary construction impacts include a nominal 75-foot wide construction corridor, as well as access roads and additional temporary workspaces

[5]reflects width of centered ROW that may be maintained in a herbaceous state to facilitate periodic pipeline corrosion leak surveys. Centerline length crossed was multiplied by 10 feet.

[6]reflects acreage of permanent ROW where trees greater than 15 feet in height may be selectively cut and removed from the permanent ROW. Centerline length crossed was multiplied by 20 feet. Acreage excludes the 10-foot maintenance width over the pipeline.

*Wetlands within ancillary work spaces

** Use of HDD construction methods are expected to result in no significant temporary or permanent impacts within wetland communities.

^It was determined, after critical review, that 10 feet of this wetland would incur conversion impacts within the 30 foot corridor.

Table C-6 Wetlands Identified Within the Construction Corridor of the Proposed Project

| County | GPS-Field ID | Approximate Start Milepost | Approximate Centerline length crossed (feet)[1] | Wetland Type[2] | Crossing Method[3] | Construction Impacts (acres)[4] | Permanently Converted Wetland Types in 10-foot wide Area Over Pipeline Centerline[5] | Permanently Converted Wetland Types in 30-foot wide area over Pipeline Centerline[6] |
|---|---|---|---|---|---|---|---|---|

--No conversion of wetland type

# APPENDIX C-7

# TEMPORARY WORK SPACE AREAS

**Table C-7 Temporary Work Space Areas**

| County | Name | Begin Milepost | End Milepost | Size (in acres) | Land Use |
|---|---|---|---|---|---|
| **Fayetteville Lateral Route** | | | | | |
| Conway | FABRICATION AREA | 0.0 | 0.0 | 0.3 | Ag Land |
| Conway | FABRICATION AREA & TRUCK TURNAROUND | 0.0 | 0.0 | 1.0 | Ag Land |
| Conway | ACCESS | 0.0 | 0.1 | 0.3 | Ag Land |
| Conway | STAGING AREA | 0.0 | 0.1 | 2.5 | Open Land |
| Conway | WATERBODY CROSSING | 0.1 | 0.1 | 0.1 | Ag Land |
| Conway | WATERBODY CROSSING | 0.1 | 0.1 | 0.1 | Ag Land |
| Conway | ROAD CROSSING & WATERBODY CROSSING | 0.2 | 0.2 | 0.2 | Ag Land |
| Conway | ROAD CROSSING & WATERBODY CROSSING | 0.2 | 0.2 | 0.2 | Ag Land |
| Conway | STAGING AREA, ROAD CROSSING, FABRICATION AREA & WATERBODY CROSSING | 0.3 | 0.3 | 0.9 | Upland Forest |
| Conway | ROAD CROSSING & WATERBODY CROSSING | 0.3 | 0.3 | 0.2 | Upland Forest |
| Conway | WATERBODY CROSSING & P.I. | 0.3 | 0.4 | 0.1 | Upland Forest |
| Conway | WATERBODY CROSSING, P.I. & FABRICATION AREA | 0.3 | 0.4 | 0.5 | Upland Forest |
| Conway | ACCESS | 0.5 | 0.6 | 0.1 | Open Land |
| Conway | ACCESS | 0.6 | 0.6 | 0.0 | Right-of-Way |
| Conway | ACCESS | 0.6 | 0.6 | 0.1 | Open Land |
| Conway | WATERBODY CROSSING | 1.2 | 1.2 | 0.1 | Upland Forest |
| Conway | WATERBODY CROSSING | 1.3 | 1.3 | 0.2 | Upland Forest |
| Conway | ROAD CROSSING | 1.6 | 1.7 | 0.3 | Open Land |
| Conway | WATERBODY CROSSING | 1.7 | 1.8 | 0.1 | Open Land |
| Conway | WATERBODY CROSSING | 1.8 | 1.8 | 0.1 | Open Land |
| Conway | ACCESS | 1.9 | 1.9 | 0.3 | Open Land |
| Conway | WATERBODY CROSSING | 2.0 | 2.0 | 0.2 | Open Land |
| Conway | WATERBODY CROSSING | 2.1 | 2.1 | 0.2 | Open Land |
| Conway | WATERBODY CROSSING | 2.2 | 2.2 | 0.2 | Open Land |
| Conway | WATERBODY CROSSING | 2.4 | 2.4 | 0.2 | Ag Land |

**Table C-7 Temporary Work Space Areas**

| County | Name | Begin Milepost | End Milepost | Size (in acres) | Land Use |
|---|---|---|---|---|---|
| Conway | WATERBODY CROSSING | 2.5 | 2.5 | 0.1 | Ag Land |
| Conway | P.I. & FABRICATION AREA | 2.6 | 2.6 | 0.3 | Ag Land |
| Conway | P.I. & ROAD CROSSING | 2.7 | 2.7 | 0.1 | Ag Land |
| Conway | ROAD CROSSING | 2.7 | 2.7 | 0.2 | Ag Land |
| Conway | FOREIGN LINE CROSSING | 3.1 | 3.1 | 0.5 | Ag Land |
| Conway | ROAD CROSSING | 3.3 | 3.4 | 0.2 | Open Land |
| Conway | ROAD CROSSING | 3.4 | 3.4 | 0.1 | Open Land |
| Conway | P.I. & FABRICATION AREA | 3.4 | 3.5 | 0.3 | Open Land |
| Conway | WATERBODY CROSSING | 3.6 | 3.6 | 0.1 | Open Land |
| Conway | WATERBODY CROSSING | 3.7 | 3.7 | 0.1 | Open Land |
| Conway | P.I., WATERBODY CROSSING & FABRICATION AREA | 3.9 | 4.0 | 0.3 | Ag Land |
| Conway | P.I. | 4.0 | 4.0 | 0.2 | Ag Land |
| Conway | SIDE SLOPE | 4.3 | 4.7 | 1.4 | Upland Forest |
| Conway | SIDE SLOPE | 4.7 | 4.8 | 0.1 | Open Land |
| Conway | WATERBODY CROSSING | 5.0 | 5.0 | 0.2 | Open Land |
| Conway | ROAD CROSSING & P.I. | 5.1 | 5.2 | 0.1 | Upland Forest |
| Conway | ROAD CROSSING, FABRICATION AREA & FOREIGN LINE CROSSING | 5.3 | 5.4 | 0.3 | Open Land |
| Conway | TRUCK TURNAROUND, P.I., WATERBODY CROSSING & FABRICATION AREA | 5.6 | 5.7 | 0.9 | Ag Land |
| Conway | P.I. & WATERBODY CROSSING | 5.7 | 5.7 | 0.2 | Ag Land |
| Conway | WATERBODY CROSSING | 5.8 | 5.8 | 0.1 | Upland Forest |
| Conway | TRUCK TURNAROUND, P.I., WATERBODY CROSSING & FABRICATION AREA | 5.9 | 5.9 | 0.9 | Upland Forest |
| Conway | P.I. | 5.9 | 5.9 | 0.2 | Upland Forest |
| Conway | P.I. | 6.4 | 6.5 | 0.4 | Open Land |
| Conway | P.I. & FOREIGN LINE CROSSING | 6.6 | 6.7 | 0.4 | Open Land |
| Conway | ROAD CROSSING & P.I. | 6.7 | 6.8 | 0.5 | Open Land |
| Conway | P.I. | 7.0 | 7.1 | 0.2 | Open Land |

**Table C-7 Temporary Work Space Areas**

| County | Name | Begin Milepost | End Milepost | Size (in acres) | Land Use |
|---|---|---|---|---|---|
| Conway | P.I. | 7.0 | 7.1 | 0.1 | Open Land |
| Conway | P.I. & SIDE SLOPE | 7.1 | 7.3 | 0.5 | Open Land |
| Conway | P.I. | 7.4 | 7.5 | 0.4 | Ag Land |
| Conway | FOREIGN LINE CROSSING | 7.5 | 7.6 | 0.3 | Ag Land |
| Conway | P.I., SPREAD FLOP, FOREIGN LINE CROSSING, FABRICATION AREA & WATERBODY CROSSING | 7.7 | 7.8 | 0.5 | Ag Land |
| Conway | DRAG SECTION | 7.7 | 7.7 | 0.3 | Ag Land |
| Conway | P.I., FOREIGN LINE CROSSING, WATERBODY CROSSING, & SPREAD FLOP | 7.7 | 7.8 | 0.3 | Ag Land |
| Faulkner | P.I., SPREAD FLOP, FOREIGN LINE CROSSING, FABRICATION AREA & WATERBODY CROSSING | 7.8 | 7.8 | 0.0 | Ag Land |
| Conway | TRUCK TURNAROUND, P.I. & STAGING AREA | 7.8 | 7.8 | 0.0 | Ag Land |
| Faulkner | TRUCK TURNAROUND, P.I. & STAGING AREA | 7.8 | 7.8 | 0.9 | Ag Land |
| Faulkner | P.I., FOREIGN LINE CROSSING, WATERBODY CROSSING, & SPREAD FLOP | 7.8 | 7.8 | 0.1 | Ag Land |
| Conway | P.I., FOREIGN LINE CROSSING, WATERBODY CROSSING, & SPREAD FLOP | 7.8 | 7.8 | 0.0 | Open Land |
| Faulkner | P.I., FOREIGN LINE CROSSING, WATERBODY CROSSING, & SPREAD FLOP | 7.8 | 7.8 | 0.1 | Open Land |
| Faulkner | WATERBODY CROSSING & FABRICATION AREA | 7.9 | 8.0 | 0.3 | Ag Land |
| Faulkner | TRUCK TURNAROUND & STAGING AREA | 8.0 | 8.0 | 0.9 | Ag Land |
| Faulkner | ROAD CROSSING & FOREIGN LINE CROSSING | 8.2 | 8.3 | 0.2 | Ag Land |
| Faulkner | ACCESS & FOREIGN LINE CROSSING | 8.2 | 8.3 | 0.1 | Ag Land |
| Faulkner | ACCESS & FOREIGN LINE CROSSING | 8.3 | 8.3 | 0.0 | Right-of-Way |
| Faulkner | ROAD CROSSING & FOREIGN LINE CROSSING | 8.3 | 8.3 | 0.0 | Right-of-Way |
| Faulkner | ACCESS & FOREIGN LINE CROSSING | 8.3 | 8.3 | 0.1 | Open Land |
| Faulkner | ROAD CROSSING | 8.5 | 8.6 | 0.2 | Open Land |
| Faulkner | P.I., FABRICATION AREA, FOREIGN LINE CROSSING & SPREAD FLOP | 8.7 | 8.8 | 0.6 | Ag Land |
| Faulkner | P.I., FOREIGN LINE CROSSING, FABRICATION AREA & SPREAD FLOP | 8.7 | 8.8 | 0.5 | Ag Land |
| Faulkner | DRAG SECTION | 8.8 | 8.8 | 0.3 | Ag Land |

## Table C-7 Temporary Work Space Areas

| County | Name | Begin Milepost | End Milepost | Size (in acres) | Land Use |
|---|---|---|---|---|---|
| Faulkner | FABRICATION AREA, FOREIGN LINE CROSSING & ROAD CROSSING | 9.2 | 9.2 | 0.6 | Open Land |
| Faulkner | FABRICATION AREA, FOREIGN LINE CROSSING & ROAD CROSSING | 9.2 | 9.2 | 0.1 | Right-of-Way |
| Faulkner | FABRICATION AREA, FOREIGN LINE CROSSING & ROAD CROSSING | 9.2 | 9.2 | 0.0 | Open Land |
| Faulkner | ROAD CROSSING | 9.3 | 9.3 | 0.1 | Upland Forest |
| Faulkner | ROAD CROSSING | 9.3 | 9.3 | 0.1 | Open Land |
| Faulkner | FOREIGN LINE CROSSING & FABRICATION AREA | 9.4 | 9.5 | 0.3 | Open Land |
| Faulkner | WATERBODY CROSSING | 10.0 | 10.0 | 0.3 | Open Land |
| Faulkner | FOREIGN LINE CROSSING & ROAD CROSSING | 10.1 | 10.1 | 0.3 | Open Land |
| Faulkner | FOREIGN LINE CROSSING & ROAD CROSSING | 10.1 | 10.2 | 0.2 | Ag Land |
| Faulkner | P.I. & FABRICATION AREA | 10.3 | 10.3 | 0.5 | Ag Land |
| Faulkner | WATERBODY CROSSING & ROAD CROSSING | 10.5 | 10.5 | 0.1 | Ag Land |
| Faulkner | WATERBODY CROSSING, ROAD CROSSING & FABRICATION AREA | 10.5 | 10.6 | 0.5 | Ag Land |
| Faulkner | ROAD CROSSING, P.I., & FABRICATION AREA | 10.6 | 10.7 | 0.4 | Ag Land |
| Faulkner | ROAD CROSSING & P.I. | 10.7 | 10.7 | 0.1 | Ag Land |
| Faulkner | FOREIGN LINE CROSSING | 10.9 | 10.9 | 0.0 | Upland Forest |
| Faulkner | FOREIGN LINE CROSSING | 10.9 | 10.9 | 0.0 | Open Land |
| Faulkner | FOREIGN LINE CROSSING | 10.9 | 10.9 | 0.2 | Upland Forest |
| Faulkner | FOREIGN LINE CROSSING & WATERBODY CROSSING | 11.4 | 11.4 | 0.3 | Upland Forest |
| Faulkner | ROAD CROSSING & FABRICATION AREA | 11.6 | 11.7 | 0.2 | Upland Forest |
| Faulkner | ROAD CROSSING & FABRICATION AREA | 11.7 | 11.7 | 0.1 | Right-of-Way |
| Faulkner | ROAD CROSSING | 11.7 | 11.7 | 0.0 | Right-of-Way |
| Faulkner | ROAD CROSSING | 11.7 | 11.7 | 0.1 | Upland Forest |
| Faulkner | ACCESS | 12.2 | 12.2 | 0.2 | Upland Forest |
| Faulkner | P.I., SPREAD FLOP, FOREIGN LINE CROSSING & FABRICATION AREA | 12.5 | 12.6 | 0.6 | Ag Land |
| Faulkner | P.I., SPREAD FLOP & FOREIGN LINE CROSSING | 12.5 | 12.6 | 0.5 | Ag Land |
| Faulkner | WATERBODY CROSSING | 12.6 | 12.7 | 0.1 | Ag Land |

## Table C-7 Temporary Work Space Areas

| County | Name | Begin Milepost | End Milepost | Size (in acres) | Land Use |
|---|---|---|---|---|---|
| Faulkner | WATERBODY CROSSING | 12.7 | 12.7 | 0.1 | Ag Land |
| Faulkner | P.I., WATERBODY CROSSING & FABRICATION AREA | 12.7 | 12.7 | 0.4 | Ag Land |
| Faulkner | P.I. & WATERBODY CROSSING | 12.7 | 12.8 | 0.3 | Ag Land |
| Faulkner | P.I. & WATERBODY CROSSING | 12.7 | 12.8 | 0.1 | Ag Land |
| Faulkner | WATERBODY CROSSING, P.I. & FABRICATION AREA | 12.8 | 12.9 | 1.1 | Ag Land |
| Faulkner | WATERBODY CROSSING, FABRICATION AREA & TRUCK TURNAROUND | 13.0 | 13.0 | 1.3 | Ag Land |
| Faulkner | P.I., FABRICATION AREA, WATERBODY CROSSING, SPREAD FLOP, & FOREIGN LINE CROSSING | 13.1 | 13.2 | 0.4 | Ag Land |
| Faulkner | DRAG SECTION | 13.1 | 13.2 | 0.3 | Ag Land |
| Faulkner | P.I., SPREAD FLOP & FOREIGN LINE CROSSING | 13.2 | 13.3 | 0.6 | Open Land |
| Faulkner | P.I., SPREAD FLOP & FOREIGN LINE CROSSING | 13.2 | 13.2 | 0.4 | Open Land |
| Faulkner | ROAD CROSSING | 13.5 | 13.5 | 0.2 | Ag Land |
| Faulkner | TRUCK TURNAROUND | 13.6 | 13.7 | 0.9 | Upland Forest |
| Faulkner | FABRICATION AREA & WATERBODY CROSSING | 13.7 | 13.8 | 0.5 | Upland Forest |
| Faulkner | WATERBODY CROSSING | 13.9 | 14.0 | 0.1 | Open Water |
| Faulkner | WATERBODY CROSSING, P.I., FABRICATION AREA & HYDRO TEST AREA | 14.0 | 14.1 | 1.5 | Ag Land |
| Faulkner | FABRICATION AREA, P.I., STAGING AREA & TRUCK TURNAROUND | 14.2 | 14.3 | 1.7 | Ag Land |
| Faulkner | WATERBODY CROSSING | 14.4 | 14.4 | 0.1 | Ag Land |
| Faulkner | WATERBODY CROSSING | 14.4 | 14.5 | 0.1 | Ag Land |
| Faulkner | ROAD CROSSING & WATERBODY CROSSING | 14.5 | 14.6 | 0.2 | Ag Land |
| Faulkner | ROAD CROSSING & WATERBODY CROSSING | 14.6 | 14.6 | 0.2 | Ag Land |
| Faulkner | WATERBODY CROSSING & FABRICATION AREA | 14.7 | 14.8 | 0.5 | Ag Land |
| Faulkner | WATERBODY CROSSING | 14.9 | 14.9 | 0.2 | Ag Land |
| Faulkner | ROAD CROSSING | 15.0 | 15.1 | 0.2 | Ag Land |
| Faulkner | ROAD CROSSING, FABRICATION AREA & P.I. | 15.1 | 15.2 | 0.5 | Ag Land |
| Faulkner | P.I. | 15.1 | 15.2 | 0.1 | Ag Land |

## Table C-7  Temporary Work Space Areas

| County | Name | Begin Milepost | End Milepost | Size (in acres) | Land Use |
|---|---|---|---|---|---|
| Faulkner | WATERBODY CROSSING,  P.I. & FABRICATION AREA | 15.2 | 15.3 | 0.2 | Open Land |
| Faulkner | WATERBODY CROSSING & P.I. | 15.3 | 15.3 | 0.1 | Open Land |
| Faulkner | WATERBODY CROSSING,  P.I. & FABRICATION AREA | 15.3 | 15.4 | 0.6 | Upland Forest |
| Faulkner | P.I., FOREIGN LINE CROSSING & FABRICATION AREA | 15.5 | 15.6 | 0.5 | Open Land |
| Faulkner | P.I. | 15.9 | 15.9 | 0.1 | Upland Forest |
| Faulkner | WATERBODY CROSSING,  P.I. & FABRICATION AREA | 16.0 | 16.1 | 0.6 | Managed Forest |
| Faulkner | P.I. | 16.0 | 16.1 | 0.2 | Managed Forest |
| Faulkner | P.I. | 16.4 | 16.4 | 0.2 | Ag Land |
| Faulkner | ROAD CROSSING,  P.I., FOREIGN  LINE CROSSING & FABRICATION AREA | 16.4 | 16.5 | 0.7 | Ag Land |
| Faulkner | ROAD CROSSING & WATERBODY CROSSING | 16.5 | 16.6 | 0.3 | Ag Land |
| Faulkner | ROAD CROSSING & WATERBODY CROSSING | 16.5 | 16.6 | 0.3 | Open Water |
| Faulkner | ROAD CROSSING & WATERBODY CROSSING | 16.6 | 16.6 | 0.0 | Ag Land |
| Faulkner | FABRICATION AREA & PULL IN | 16.6 | 16.7 | 0.5 | Ag Land |
| Faulkner | ROAD CROSSING & FABRICATION AREA | 16.9 | 16.9 | 0.5 | Ag Land |
| Faulkner | ROAD CROSSING & WATERBODY CROSSING | 17.0 | 17.1 | 0.5 | Ag Land |
| Faulkner | ROAD CROSSING & WATERBODY CROSSING | 17.1 | 17.1 | 0.6 | Open Water |
| Faulkner | ROAD CROSSING & WATERBODY CROSSING | 17.1 | 17.1 | 0.2 | Ag Land |
| Faulkner | ROAD CROSSING | 17.3 | 17.3 | 0.3 | Ag Land |
| Faulkner | WATERBODY CROSSING | 17.5 | 17.5 | 0.2 | Open Land |
| Faulkner | WATERBODY CROSSING | 17.8 | 17.8 | 0.1 | Upland Forest |
| Faulkner | WATERBODY CROSSING | 17.8 | 17.9 | 0.4 | Upland Forest |
| Faulkner | WATERBODY CROSSING | 18.0 | 18.0 | 0.2 | Open Land |
| Faulkner | WATERBODY CROSSING, FABRICATION AREA & ROAD CROSSING | 18.2 | 18.4 | 0.9 | Ag Land |
| Faulkner | ROAD CROSSING & WATERBODY CROSSING | 18.4 | 18.5 | 0.3 | Ag Land |
| Faulkner | WATERBODY CROSSING | 18.5 | 18.5 | 0.1 | Ag Land |
| Faulkner | WATERBODY CROSSING | 18.7 | 18.7 | 0.1 | Upland Forest |
| Faulkner | WATERBODY CROSSING | 18.7 | 18.7 | 0.1 | Upland Forest |

**Table C-7 Temporary Work Space Areas**

| County | Name | Begin Milepost | End Milepost | Size (in acres) | Land Use |
|---|---|---|---|---|---|
| Faulkner | ROAD CROSSING | 19.0 | 19.0 | 0.2 | Open Land |
| Faulkner | ROAD CROSSING & WATERBODY CROSSING | 19.1 | 19.1 | 0.1 | Ag Land |
| Faulkner | WATERBODY CROSSING & FABRICATION AREA | 19.2 | 19.2 | 0.3 | Ag Land |
| Faulkner | WATERBODY CROSSING | 19.5 | 19.6 | 0.1 | Ag Land |
| Faulkner | WATERBODY CROSSING & FABRICATION AREA | 19.6 | 19.6 | 0.3 | Ag Land |
| Faulkner | P.I., WATERBODY CROSSING & FABRICATION AREA | 19.6 | 19.8 | 1.0 | Ag Land |
| Faulkner | P.I., WATERBODY CROSSING & FABRICATION AREA | 19.7 | 19.7 | 0.2 | Open Water |
| Faulkner | P.I., & FABRICATION AREA | 19.8 | 19.8 | 0.4 | Ag Land |
| Faulkner | ROAD CROSSING | 19.9 | 19.9 | 0.1 | Ag Land |
| Faulkner | ROAD CROSSING, FABRICATION AREA & STAGING AREA | 19.9 | 20.0 | 1.1 | Ag Land |
| Faulkner | FABRICATION AREA | 20.0 | 20.0 | 0.1 | Ag Land |
| Faulkner | P.I., FABRICATION AREA & WATERBODY CROSSING | 20.1 | 20.1 | 0.4 | Ag Land |
| Faulkner | FOREIGN LINE CROSSING & FABRICATION AREA | 20.3 | 20.3 | 0.3 | Upland Forest |
| Faulkner | FOREIGN LINE CROSSING & WATERBODY CROSSING | 20.6 | 20.7 | 0.6 | Ag Land |
| Faulkner | WATERBODY CROSSING | 20.9 | 20.9 | 0.1 | Ag Land |
| Faulkner | WATERBODY CROSSING | 21.0 | 21.0 | 0.1 | Ag Land |
| Faulkner | FOREIGN LINE CROSSING | 21.0 | 21.1 | 0.3 | Ag Land |
| Faulkner | STAGING AREA, FOREIGN LINE CROSSING, WATERBODY CROSSING & ROAD CROSSING | 21.2 | 21.3 | 2.7 | Ag Land |
| Faulkner | STAGING AREA, FOREIGN LINE CROSSING, WATERBODY CROSSING, ROAD CROSSING, SPREAD FLOP & P.I. | 21.3 | 21.4 | 3.9 | Ag Land |
| Faulkner | FOREIGN LINE CROSSING, P.I. & SPREAD FLOP | 21.3 | 21.5 | 0.7 | Ag Land |
| Faulkner | FOREIGN LINE CROSSING, P.I. & SPREAD FLOP | 21.4 | 21.4 | 0.1 | ROW |
| Faulkner | P.I. & FABRICATION AREA | 21.7 | 21.8 | 0.7 | Open Land |
| Faulkner | P.I. | 21.8 | 21.8 | 0.0 | Right-of-Way |
| Faulkner | P.I. | 21.8 | 21.8 | 0.3 | Open Land |
| Faulkner | P.I., ROAD CROSSING, WATERBODY CROSSING & FABRICATION AREA | 22.0 | 22.1 | 0.7 | Open Land |

**Table C-7 Temporary Work Space Areas**

| County | Name | Begin Milepost | End Milepost | Size (in acres) | Land Use |
|---|---|---|---|---|---|
| Faulkner | P.I., WATERBODY CROSSING & ROAD CROSSING | 22.0 | 22.1 | 0.6 | Open Land |
| Faulkner | ROAD CROSSING & WATERBODY CROSSING | 22.1 | 22.1 | 0.2 | Ag Land |
| Faulkner | P.I. & FABRICATION AREA | 22.1 | 22.2 | 1.0 | Ag Land |
| Faulkner | P.I. | 22.2 | 22.2 | 0.1 | Ag Land |
| Faulkner | P.I. | 22.2 | 22.3 | 0.1 | Ag Land |
| Faulkner | P.I. | 22.2 | 22.3 | 0.2 | Ag Land |
| Faulkner | FOREIGN LINE CROSSING | 22.5 | 22.5 | 0.3 | Ag Land |
| Faulkner | ACCESS | 22.6 | 22.6 | 0.0 | Ag Land |
| Faulkner | ACCESS | 22.6 | 22.6 | 0.0 | Right-of-Way |
| Faulkner | ACCESS | 22.6 | 22.7 | 0.2 | Ag Land |
| Faulkner | FOREIGN LINE CROSSING, P.I. & FABRICATION AREA | 22.8 | 22.8 | 0.5 | Ag Land |
| Faulkner | P.I., FOREIGN LINE CROSSING & SPREAD FLOP | 22.8 | 22.8 | 0.2 | Ag Land |
| Faulkner | P.I., SPREAD FLOP & FOREIGN LINE CROSSING | 22.8 | 22.9 | 0.4 | Ag Land |
| Faulkner | ROAD CROSSING, P.I. & FABRICATION AREA | 22.8 | 22.9 | 0.8 | Ag Land |
| Faulkner | FABRICATION AREA | 23.1 | 23.1 | 0.2 | Upland Forest |
| Faulkner | WATERBODY CROSSING | 23.2 | 23.2 | 0.3 | Upland Forest |
| Faulkner | WATERBODY CROSSING | 23.3 | 23.3 | 0.1 | Upland Forest |
| Faulkner | ROAD CROSSING & FABRICATION AREA | 23.4 | 23.5 | 0.6 | Ag Land |
| Faulkner | ROAD CROSSING & ACCESS | 23.5 | 23.5 | 0.1 | Ag Land |
| Faulkner | ROAD CROSSING & ACCESS | 23.5 | 23.5 | 0.0 | Commercial/Industrial |
| Faulkner | ROAD CROSSING & ACCESS | 23.5 | 23.5 | 0.0 | Right-of-Way |
| Faulkner | ROAD CROSSING & ACCESS | 23.5 | 23.6 | 0.2 | Ag Land |
| Faulkner | P.I., FABRICATION AREA & FOREIGN LINE CROSSING | 23.6 | 23.7 | 0.9 | Ag Land |
| Faulkner | P.I. & FOREIGN LINE CROSSING | 23.7 | 23.8 | 0.3 | Ag Land |
| Faulkner | P.I., & FOREIGN LINE CROSSING | 23.7 | 23.8 | 0.2 | Ag Land |
| Faulkner | FOREIGN LINE CROSSING & WATERBODY CROSSING | 24.1 | 24.2 | 0.5 | Ag Land |
| Faulkner | WATERBODY CROSSING & FABRICATION AREA | 24.7 | 24.8 | 0.3 | Ag Land |
| Faulkner | WATERBODY CROSSING & FABRICATION AREA | 25.0 | 25.0 | 0.2 | Ag Land |

**Table C-7 Temporary Work Space Areas**

| County | Name | Begin Milepost | End Milepost | Size (in acres) | Land Use |
|---|---|---|---|---|---|
| Faulkner | WATERBODY CROSSING & FABRICATION AREA | 25.0 | 25.1 | 0.2 | Open Water |
| Faulkner | WATERBODY CROSSING & FABRICATION AREA | 25.1 | 25.2 | 1.0 | Ag Land |
| Faulkner | ROAD CROSSING | 25.5 | 25.5 | 0.4 | Ag Land |
| Faulkner | ROAD CROSSING | 25.5 | 25.5 | 0.2 | Upland Forest |
| Faulkner | WATERBODY CROSSING & FABRICATION AREA | 26.2 | 26.3 | 0.6 | Ag Land |
| Faulkner | WATERBODY CROSSING & PULL IN | 26.4 | 26.4 | 0.1 | Ag Land |
| Faulkner | WATERBODY CROSSING, ROAD CROSSING & FABRICATION AREA | 26.4 | 26.5 | 0.4 | Ag Land |
| Faulkner | ROAD CROSSING & WATERBODY CROSSING | 26.5 | 26.6 | 0.4 | Ag Land |
| Faulkner | WATERBODY CROSSING & FABRICATION AREA | 26.6 | 26.8 | 0.8 | Ag Land |
| Faulkner | WATERBODY CROSSING & FABRICATION AREA | 26.7 | 26.8 | 0.1 | Open Water |
| Faulkner | WATERBODY CROSSING & FABRICATION AREA | 26.8 | 26.8 | 0.0 | Ag Land |
| Faulkner | WATERBODY CROSSING & FABRICATION AREA | 26.9 | 27.0 | 0.4 | Ag Land |
| Faulkner | WATERBODY CROSSING | 27.0 | 27.1 | 0.2 | Ag Land |
| Faulkner | WATERBODY CROSSING & FABRICATION AREA | 27.3 | 27.3 | 0.1 | Open Land |
| Faulkner | WATERBODY CROSSING & FABRICATION AREA | 27.3 | 27.3 | 0.1 | Open Water |
| Faulkner | WATERBODY CROSSING, FOREIGN LINE CROSSING & FABRICATION AREA | 27.3 | 27.3 | 0.4 | Open Land |
| Faulkner | WATERBODY CROSSING & FABRICATION AREA | 27.6 | 27.7 | 0.3 | Open Land |
| Faulkner | WATERBODY CROSSING & FABRICATION AREA | 27.7 | 27.7 | 0.2 | Open Land |
| Faulkner | WATERBODY CROSSING | 27.8 | 27.8 | 0.1 | Open Land |
| Faulkner | WATERBODY CROSSING & FABRICATION AREA | 28.1 | 28.2 | 0.3 | Ag Land |
| Faulkner | WATERBODY CROSSING | 28.2 | 28.2 | 0.1 | Ag Land |
| Faulkner | WATERBODY CROSSING | 28.2 | 28.3 | 0.2 | Ag Land |
| Faulkner | P.I. | 28.3 | 28.4 | 0.4 | Ag Land |
| Faulkner | FABRICATION AREA | 28.4 | 28.4 | 1.1 | Ag Land |
| Faulkner | ROAD CROSSING & FABRICATION AREA | 28.4 | 28.5 | 0.3 | Ag Land |
| Faulkner | ROAD CROSSING & WATERBODY CROSSING | 28.5 | 28.5 | 0.1 | Ag Land |
| Faulkner | P.I., WATERBODY CROSSING & FABRICATION AREA | 28.5 | 28.6 | 0.3 | Ag Land |
| Faulkner | WATERBODY CROSSING & FABRICATION AREA | 28.8 | 28.8 | 0.2 | Ag Land |

**Table C-7 Temporary Work Space Areas**

| County | Name | Begin Milepost | End Milepost | Size (in acres) | Land Use |
|---|---|---|---|---|---|
| Faulkner | WATERBODY CROSSING | 28.9 | 28.9 | 0.1 | Ag Land |
| White | WATERBODY CROSSING, FABRICATION AREA & TRUCK TURNAROUND | 29.4 | 29.5 | 1.1 | Open Land |
| White | WATERBODY CROSSING | 29.8 | 29.8 | 0.1 | Open Land |
| White | FABRICATION AREA & TRUCK TURNAROUND | 29.8 | 29.9 | 0.9 | Open Land |
| White | WATERBODY CROSSING | 30.2 | 30.2 | 0.1 | Ag Land |
| White | WATERBODY CROSSING, P.I., FOREIGN LINE CROSSING & FABRICATION AREA | 30.2 | 30.3 | 0.6 | Ag Land |
| White | WATERBODY CROSSING | 30.5 | 30.5 | 0.1 | Ag Land |
| White | FOREIGN LINE CROSSING, WATERBODY CROSSING, ACCESS & FABRICATION AREA | 30.5 | 30.6 | 0.3 | Ag Land |
| White | FOREIGN LINE CROSSING, WATERBODY CROSSING, ACCESS & FABRICATION AREA | 30.6 | 30.6 | 0.1 | Right-of-Way |
| White | FOREIGN LINE CROSSING, WATERBODY CROSSING, ACCESS & FABRICATION AREA | 30.6 | 30.7 | 0.7 | Ag Land |
| White | WATERBODY CROSSING & FOREIGN LINE CROSSING | 30.8 | 30.8 | 0.5 | Ag Land |
| White | STAGING AREA, FABRICATION AREA & TRUCK TURNAROUND | 30.9 | 31.0 | 4.3 | Ag Land |
| White | ROAD CROSSING | 31.0 | 31.1 | 0.1 | Managed Forest |
| White | WATERBODY CROSSING | 31.2 | 31.3 | 0.1 | Upland Forest |
| White | WATERBODY CROSSING, ROAD CROSSING, FOREIGN LINE CROSSING & FABRICATION AREA | 31.5 | 31.6 | 0.2 | Upland Forest |
| White | WATERBODY CROSSING, ROAD CROSSING, FOREIGN LINE CROSSING & FABRICATION AREA | 31.6 | 31.6 | 0.1 | Right-of-Way |
| White | WATERBODY CROSSING, ROAD CROSSING, FOREIGN LINE CROSSING & FABRICATION AREA | 31.6 | 31.6 | 0.1 | Open Land |
| White | WATERBODY CROSSING, ROAD CROSSING, FOREIGN LINE CROSSING & FABRICATION AREA | 31.6 | 31.6 | 0.1 | Upland Forest |
| White | WATERBODY CROSSING | 31.9 | 32.0 | 0.2 | Upland Forest |
| White | WATERBODY CROSSING | 32.0 | 32.0 | 0.1 | Open Land |
| White | P.I. | 32.1 | 32.1 | 0.1 | Upland Forest |
| White | WATERBODY CROSSING, P.I. & FABRICATION AREA | 32.1 | 32.2 | 0.5 | Open Land |

**Table C-7 Temporary Work Space Areas**

| County | Name | Begin Milepost | End Milepost | Size (in acres) | Land Use |
|---|---|---|---|---|---|
| White | P.I. | 32.1 | 32.1 | 0.3 | Open Land |
| White | FOREIGN LINE CROSSING, P.I. & WATERBODY CROSSING | 32.2 | 32.2 | 0.0 | Right-of-Way |
| White | FOREIGN LINE CROSSING, P.I. & WATERBODY CROSSING | 32.2 | 32.3 | 0.6 | Upland Forest |
| White | P.I. | 32.6 | 32.7 | 0.2 | Upland Forest |
| White | FABRICATION AREA | 32.8 | 32.8 | 1.0 | Upland Forest |
| White | P.I. & WATERBODY CROSSING | 32.8 | 32.8 | 0.3 | Upland Forest |
| White | P.I. & WATERBODY CROSSING | 32.9 | 33.0 | 0.7 | Upland Forest |
| White | P.I., FABRICATION AREA & ROAD CROSSING | 33.2 | 33.3 | 0.5 | Open Land |
| White | P.I. & FABRICATION AREA | 33.7 | 33.9 | 1.1 | Ag Land |
| White | P.I. | 33.8 | 33.8 | 0.1 | Ag Land |
| White | P.I. & WATERBODY CROSSING | 33.8 | 33.9 | 0.2 | Ag Land |
| White | P.I. & WATERBODY CROSSING | 33.9 | 33.9 | 0.2 | Open Water |
| White | P.I. & WATERBODY CROSSING | 33.9 | 33.9 | 0.2 | Ag Land |
| White | ROAD CROSSING | 33.9 | 34.0 | 0.3 | Ag Land |
| White | WATERBODY CROSSING, FOREIGN LINE CROSSING & FABRICATION AREA | 34.2 | 34.3 | 0.3 | Ag Land |
| White | WATERBODY CROSSING, FOREIGN LINE CROSSING & FABRICATION AREA | 34.2 | 34.3 | 0.1 | Open Water |
| White | WATERBODY CROSSING, FOREIGN LINE CROSSING & FABRICATION AREA | 34.3 | 34.3 | 0.4 | Ag Land |
| White | ROAD CROSSING | 34.4 | 34.4 | 0.2 | Ag Land |
| White | ROAD CROSSING, P.I., FOREIGN LINE CROSSING & WATERBODY CROSSING | 34.5 | 34.5 | 0.4 | Ag Land |
| White | WATERBODY CROSSING | 34.6 | 34.6 | 0.1 | Ag Land |
| White | WATERBODY CROSSING | 34.7 | 34.7 | 0.1 | Ag Land |
| White | ROAD CROSSING | 34.9 | 34.9 | 0.2 | Ag Land |
| White | ROAD CROSSING & FOREIGN LINE CROSSING | 35.0 | 35.0 | 0.4 | Ag Land |
| White | WATERBODY CROSSING | 35.1 | 35.1 | 0.1 | Ag Land |
| White | WATERBODY CROSSING | 35.1 | 35.2 | 0.1 | Ag Land |

**Table C-7 Temporary Work Space Areas**

| County | Name | Begin Milepost | End Milepost | Size (in acres) | Land Use |
|---|---|---|---|---|---|
| White | TRUCK TURNAROUND | 36.2 | 36.2 | 0.9 | Upland Forest |
| White | P.I., FABRICATION AREA & WATERBODY CROSSING | 36.2 | 36.3 | 0.3 | Upland Forest |
| White | WATERBODY CROSSING | 36.4 | 36.5 | 0.3 | Managed Forest |
| White | TRUCK TURNAROUND | 36.5 | 36.5 | 0.9 | Managed Forest |
| White | WATERBODY CROSSING, FABRICATION AREA & FOREIGN LINE CROSSING | 37.2 | 37.2 | 0.1 | Open Land |
| White | WATERBODY CROSSING, FABRICATION AREA & FOREIGN LINE CROSSING | 37.2 | 37.3 | 0.4 | Managed Forest |
| White | WATERBODY CROSSING, FABRICATION AREA & FOREIGN LINE CROSSING | 37.3 | 37.3 | 0.1 | Right-of-Way |
| White | WATERBODY CROSSING, FABRICATION AREA & FOREIGN LINE CROSSING | 37.3 | 37.3 | 0.0 | Managed Forest |
| White | WATERBODY CROSSING & FABRICATION AREA | 37.5 | 37.5 | 0.2 | Ag Land |
| White | WATERBODY CROSSING | 37.6 | 37.6 | 0.1 | Ag Land |
| White | WATERBODY CROSSING & FABRICATION AREA | 37.9 | 38.0 | 0.2 | Ag Land |
| White | WATERBODY CROSSING | 38.3 | 38.3 | 0.2 | Ag Land |
| White | FABRICATION AREA & WATERBODY CROSSING | 38.3 | 38.4 | 0.3 | Ag Land |
| White | WATERBODY CROSSING | 38.4 | 38.5 | 0.1 | Ag Land |
| White | WATERBODY CROSSING & FABRICATION AREA | 38.6 | 38.7 | 0.6 | Open Land |
| White | WATERBODY CROSSING & FABRICATION AREA | 38.7 | 38.7 | 0.7 | Open Water |
| White | WATERBODY CROSSING & FABRICATION AREA | 38.7 | 38.7 | 0.0 | Open Land |
| White | ROAD CROSSING & FABRICATION AREA | 38.9 | 38.9 | 0.0 | Upland Forest |
| White | ROAD CROSSING & FABRICATION AREA | 38.9 | 38.9 | 0.0 | Upland Forest |
| White | ROAD CROSSING & FABRICATION AREA | 38.9 | 38.9 | 0.0 | Right-of-Way |
| White | ROAD CROSSING & FABRICATION AREA | 38.9 | 39.0 | 0.2 | Upland Forest |
| White | ROAD CROSSING & FABRICATION AREA | 38.9 | 38.9 | 0.0 | Right-of-Way |
| White | ROAD CROSSING & FABRICATION AREA | 38.9 | 38.9 | 0.1 | Upland Forest |
| White | FABRICATION AREA | 39.1 | 39.1 | 0.5 | Ag Land |

### Table C-7 Temporary Work Space Areas

| County | Name | Begin Milepost | End Milepost | Size (in acres) | Land Use |
|---|---|---|---|---|---|
| White | ROAD CROSSING & FABRICATION AREA | 39.1 | 39.2 | 0.1 | Ag Land |
| White | WATERBODY CROSSING | 39.3 | 39.3 | 0.3 | Upland Forest |
| White | WATERBODY CROSSING | 39.7 | 39.7 | 0.1 | Upland Forest |
| White | WATERBODY CROSSING | 39.8 | 39.8 | 0.1 | Upland Forest |
| White | WATERBODY CROSSING & FABRICATION AREA | 39.9 | 40.0 | 0.2 | Ag Land |
| White | WATERBODY CROSSING & FABRICATION AREA | 40.1 | 40.1 | 0.0 | Ag Land |
| White | WATERBODY CROSSING & FABRICATION AREA | 40.1 | 40.1 | 0.2 | Open Water |
| White | WATERBODY CROSSING & FABRICATION AREA | 40.1 | 40.1 | 0.1 | Ag Land |
| White | P.I. & FOREIGN LINE CROSSING | 40.5 | 40.6 | 0.3 | Upland Forest |
| Cleburne | ROAD CROSSING | 41.4 | 41.4 | 0.2 | Ag Land |
| Cleburne | ROAD CROSSING, P.I. & FABRICATION AREA | 41.4 | 41.6 | 0.6 | Ag Land |
| Cleburne | P.I. | 41.5 | 41.6 | 0.1 | Ag Land |
| White | P.I. & SIDE SLOPE | 41.7 | 41.7 | 0.4 | Ag Land |
| White | P.I. & SIDE CUT | 41.8 | 41.8 | 0.4 | Ag Land |
| White | P.I. & FABRICATION AREA | 42.0 | 42.1 | 0.4 | Ag Land |
| White | P.I. | 42.2 | 42.2 | 0.1 | Open Land |
| White | ROAD CROSSING & P.I. | 42.3 | 42.4 | 0.1 | Ag Land |
| White | ROAD CROSSING & P.I. | 42.3 | 42.4 | 0.2 | Ag Land |
| Cleburne | P.I. & SIDE SLOPE | 42.6 | 42.8 | 0.4 | Ag Land |
| Cleburne | P.I. & SIDE SLOPE | 42.8 | 43.1 | 0.9 | Upland Forest |
| Cleburne | FOREIGN LINE CROSSING | 43.3 | 43.3 | 0.1 | Ag Land |
| Cleburne | WATERBODY CROSSING | 43.4 | 43.5 | 0.1 | Ag Land |
| Cleburne | WATERBODY CROSSING | 43.5 | 43.5 | 0.0 | Upland Forest |
| Cleburne | WATERBODY CROSSING & FABRICATION AREA | 43.7 | 43.7 | 0.5 | Ag Land |
| Cleburne | ROAD CROSSING & FABRICATION AREA | 43.8 | 43.9 | 0.7 | Ag Land |
| Cleburne | ROAD CROSSING | 44.0 | 44.0 | 0.2 | Ag Land |
| Cleburne | FOREIGN LINE CROSSING | 44.1 | 44.1 | 0.3 | Upland Forest |
| Cleburne | SIDE SLOPE | 44.1 | 44.2 | 0.2 | Upland Forest |
| White | SIDE SLOPE | 44.2 | 44.2 | 0.1 | Upland Forest |

## Table C-7 Temporary Work Space Areas

| County | Name | Begin Milepost | End Milepost | Size (in acres) | Land Use |
|---|---|---|---|---|---|
| White | P.I. & FABRICATION AREA | 44.2 | 44.3 | 0.3 | Upland Forest |
| White | SIDE SLOPE | 44.3 | 44.4 | 0.3 | Upland Forest |
| White | P.I. & FABRICATION AREA | 44.8 | 44.9 | 0.4 | Ag Land |
| White | P.I., ROAD CROSSING & WATERBODY CROSSING | 45.0 | 45.0 | 0.4 | Ag Land |
| White | P.I., ROAD CROSSING & WATERBODY CROSSING | 45.0 | 45.0 | 0.1 | Ag Land |
| White | WATERBODY CROSSING & FOREIGN LINE CROSSING | 45.1 | 45.1 | 0.1 | Upland Forest |
| White | WATERBODY CROSSING & FOREIGN LINE CROSSING | 45.1 | 45.1 | 0.1 | Ag Land |
| White | WATERBODY CROSSING & FOREIGN LINE CROSSING | 45.1 | 45.1 | 0.1 | Upland Forest |
| White | ROAD CROSSING & P.I. | 45.2 | 45.3 | 0.4 | Upland Forest |
| White | ROAD CROSSING | 45.2 | 45.3 | 0.1 | Upland Forest |
| White | ROAD CROSSING & FOREIGN LINE CROSSING | 45.3 | 45.3 | 0.1 | Ag Land |
| White | ROAD CROSSING, FOREIGN LINE CROSSING & WATERBODY CROSSING | 45.3 | 45.3 | 0.3 | Upland Forest |
| White | P.I., FOREIGN LINE CROSSING & FABRICATION AREA | 45.4 | 45.4 | 0.0 | Upland Forest |
| White | P.I., FOREIGN LINE CROSSING & FABRICATION AREA | 45.4 | 45.4 | 0.1 | Right-of-Way |
| White | P.I. & FOREIGN LINE CROSSING | 45.4 | 45.4 | 0.0 | Upland Forest |
| White | P.I., FOREIGN LINE CROSSING & FABRICATION AREA | 45.4 | 45.6 | 0.4 | Upland Forest |
| White | P.I. & FOREIGN LINE CROSSING | 45.4 | 45.5 | 0.1 | Right-of-Way |
| White | P.I. & FOREIGN LINE CROSSING | 45.5 | 45.5 | 0.1 | Upland Forest |
| White | P.I. | 45.5 | 45.6 | 0.1 | Upland Forest |
| White | P.I., ROAD CROSSING & FABRICATION AREA | 45.6 | 45.7 | 0.2 | Upland Forest |
| White | P.I. | 45.6 | 45.7 | 0.1 | Upland Forest |
| White | P.I. & PULL STRING | 45.7 | 45.8 | 0.4 | Upland Forest |
| White | P.I. & FABRICATION AREA | 45.7 | 45.8 | 0.2 | Upland Forest |
| White | FOREIGN LINE CROSSING, FABRICATION AREA & TRUCK TURNAROUND | 45.9 | 46.0 | 2.5 | Ag Land |
| White | HDD SITE - EXIT HOLE | 46.0 | 46.0 | 0.9 | Ag Land |

## Table C-7 Temporary Work Space Areas

| County | Name | Begin Milepost | End Milepost | Size (in acres) | Land Use |
|---|---|---|---|---|---|
| White | HDD SITE - ENTRY HOLE | 46.3 | 46.3 | 0.9 | Ag Land |
| White | P.I. | 46.3 | 46.4 | 0.3 | Ag Land |
| White | P.I., FABRICATION AREA & TRUCK TURNAROUND | 46.3 | 46.4 | 0.2 | Upland Forest |
| White | P.I., FABRICATION AREA & TRUCK TURNAROUND | 46.4 | 46.4 | 1.2 | Ag Land |
| White | ROAD CROSSING, P.I. & FABRICATION AREA | 46.5 | 46.6 | 0.7 | Ag Land |
| White | P.I. | 46.5 | 46.6 | 0.1 | Ag Land |
| White | ROAD CROSSING | 46.6 | 46.6 | 0.2 | Ag Land |
| White | ROAD CROSSING | 46.8 | 46.8 | 0.1 | Ag Land |
| White | P.I. & ROAD CROSSING | 46.9 | 46.9 | 0.1 | Upland Forest |
| White | P.I. & ROAD CROSSING | 46.9 | 46.9 | 0.0 | Ag Land |
| White | ROAD CROSSING, P.I. & FABRICATION AREA | 46.9 | 47.0 | 0.1 | Upland Forest |
| White | ROAD CROSSING & P.I. | 46.9 | 46.9 | 0.0 | Upland Forest |
| White | ROAD CROSSING & P.I. | 46.9 | 47.0 | 0.1 | Ag Land |
| White | ROAD CROSSING, P.I. & FABRICATION AREA | 46.9 | 47.0 | 0.0 | Ag Land |
| White | WATERBODY CROSSING | 47.2 | 47.2 | 0.1 | Upland Forest |
| White | WATERBODY CROSSING | 47.2 | 47.2 | 0.1 | Upland Forest |
| White | WATERBODY CROSSING | 47.2 | 47.3 | 0.1 | Upland Forest |
| White | WATERBODY CROSSING | 47.2 | 47.3 | 0.1 | Upland Forest |
| White | WATERBODY CROSSING & FABRICATION AREA | 47.7 | 47.8 | 0.4 | Upland Forest |
| White | FOREIGN LINE CROSSING | 47.7 | 47.8 | 0.2 | Upland Forest |
| White | FOREIGN LINE CROSSING | 47.8 | 47.8 | 0.1 | Ag Land |
| White | WATERBODY CROSSING & FABRICATION AREA | 47.8 | 47.8 | 0.2 | Ag Land |
| White | WATERBODY CROSSING & FABRICATION AREA | 47.8 | 47.9 | 0.1 | Upland Forest |
| White | WATERBODY CROSSING & FABRICATION AREA | 47.9 | 47.9 | 0.2 | Ag Land |

**Table C-7 Temporary Work Space Areas**

| County | Name | Begin Milepost | End Milepost | Size (in acres) | Land Use |
|---|---|---|---|---|---|
| White | WATERBODY CROSSING & P.I. | 48.1 | 48.1 | 0.2 | Managed Forest |
| White | WATERBODY CROSSING, P.I. & FABRICATION AREA | 48.1 | 48.1 | 0.3 | Managed Forest |
| White | WATERBODY CROSSING & FOREIGN LINE CROSSING | 48.4 | 48.4 | 0.1 | Managed Forest |
| White | WATERBODY CROSSING & FOREIGN LINE CROSSING | 48.4 | 48.4 | 0.1 | Managed Forest |
| White | WATERBODY CROSSING, P.I. & FABRICATION AREA | 48.5 | 48.5 | 0.4 | Ag Land |
| White | WATERBODY CROSSING | 48.5 | 48.5 | 0.1 | Ag Land |
| White | WATERBODY CROSSING & P.I. | 48.8 | 48.8 | 0.1 | Open Land |
| White | WATERBODY CROSSING, P.I. & FABRICATION AREA | 48.8 | 48.9 | 0.5 | Open Land |
| White | ROAD CROSSING | 49.0 | 49.1 | 0.3 | Open Land |
| White | ROAD CROSSING | 49.0 | 49.1 | 0.2 | Open Land |
| White | ROAD CROSSING & SPREAD FLOP | 49.1 | 49.1 | 0.2 | Ag Land |
| White | P.I. | 49.7 | 49.7 | 0.0 | Right-of-Way |
| White | P.I. | 49.7 | 49.8 | 0.5 | Ag Land |
| White | P.I. & FABRICATION AREA | 49.7 | 49.8 | 0.6 | Ag Land |
| White | P.I. & WATERBODY CROSSING | 49.9 | 49.9 | 0.4 | Ag Land |
| White | P.I. | 49.9 | 50.0 | 0.4 | Ag Land |
| White | WATERBODY CROSSING | 50.0 | 50.0 | 0.1 | Ag Land |
| White | ROAD CROSSING, P.I. & FABRICATION AREA | 50.0 | 50.1 | 0.2 | Ag Land |
| White | ROAD CROSSING, P.I. & FABRICATION AREA | 50.3 | 50.4 | 0.2 | Open Land |
| White | P.I. | 50.7 | 50.7 | 0.1 | Open Land |
| White | P.I. | 50.7 | 50.7 | 0.1 | Open Land |
| White | P.I. & SIDE SLOPE | 51.1 | 51.5 | 1.2 | Upland Forest |
| White | P.I., FABRICATION AREA & SIDE SLOPE | 51.3 | 51.5 | 0.6 | Upland Forest |
| White | P.I. | 51.8 | 51.8 | 0.2 | Upland Forest |
| White | P.I. | 51.8 | 51.8 | 0.1 | Upland Forest |
| White | TRUCK TURNAROUND | 52.0 | 52.1 | 0.7 | Upland Forest |
| White | HDD SITE - EXIT HOLE | 52.1 | 52.1 | 0.9 | Upland Forest |

**Table C-7 Temporary Work Space Areas**

| County | Name | Begin Milepost | End Milepost | Size (in acres) | Land Use |
|---|---|---|---|---|---|
| White | HYDRO TEST AREA & ACCESS | 52.1 | 52.2 | 0.1 | Upland Forest |
| White | HYDRO TEST AREA | 52.2 | 52.2 | 0.1 | Upland Forest |
| White | HYDRO TEST AREA | 52.2 | 52.2 | 0.0 | Right-of-Way |
| White | HYDRO TEST AREA | 52.2 | 52.3 | 0.3 | Ag Land |
| White | HDD SITE - ENTRY HOLE | 52.3 | 52.4 | 0.9 | Upland Forest |
| White | P.I., FABRICATION AREA & TRUCK TURNAROUND | 52.3 | 52.4 | 0.6 | Upland Forest |
| White | P.I. & TRUCK TURNAROUND | 52.4 | 52.4 | 0.2 | Upland Forest |
| White | SIDE SLOPE | 52.4 | 52.9 | 1.4 | Upland Forest |
| White | P.I., PULL IN & FABRICATION AREA | 52.9 | 53.0 | 0.7 | Ag Land |
| White | SIDE SLOPE | 52.9 | 53.0 | 0.2 | Ag Land |
| White | P.I. & PULL IN | 53.0 | 53.1 | 0.3 | Ag Land |
| White | P.I. | 53.2 | 53.3 | 0.2 | Ag Land |
| White | ROAD CROSSING & P.I. | 53.3 | 53.4 | 0.3 | Ag Land |
| White | ROAD CROSSING | 53.3 | 53.4 | 0.3 | Ag Land |
| White | ROAD CROSSING & SPREAD FLOP | 53.4 | 53.4 | 0.3 | Ag Land |
| White | ROAD CROSSING, FABRICATION AREA & P.I. | 53.4 | 53.5 | 1.0 | Ag Land |
| White | P.I. | 53.5 | 53.5 | 0.1 | Ag Land |
| White | P.I. & FABRICATION AREA | 53.8 | 53.9 | 0.3 | Ag Land |
| White | ROAD CROSSING & FABRICATION AREA | 54.2 | 54.3 | 0.2 | Ag Land |
| White | ROAD CROSSING & FABRICATION AREA | 54.2 | 54.3 | 0.5 | Ag Land |
| White | ROAD CROSSING | 54.3 | 54.3 | 0.1 | Ag Land |
| White | ROAD CROSSING | 54.3 | 54.3 | 0.1 | Ag Land |
| White | FABRICATION AREA | 54.6 | 54.7 | 0.3 | Ag Land |
| White | ROAD CROSSING | 54.7 | 54.8 | 0.2 | Ag Land |
| White | ROAD CROSSING & WATERBODY CROSSING | 54.8 | 54.8 | 0.1 | Upland Forest |
| White | WATERBODY CROSSING | 54.9 | 54.9 | 0.1 | Ag Land |
| White | P.I., FABRICATION AREA & WATERBODY CROSSING | 55.1 | 55.1 | 0.4 | Ag Land |
| White | P.I. & WATERBODY CROSSING | 55.1 | 55.1 | 0.1 | Ag Land |
| White | WATERBODY CROSSING | 55.1 | 55.1 | 0.1 | Managed Forest |

**Table C-7 Temporary Work Space Areas**

| County | Name | Begin Milepost | End Milepost | Size (in acres) | Land Use |
|---|---|---|---|---|---|
| White | ROAD CROSSING | 55.5 | 55.5 | 0.2 | Open Land |
| White | ROAD CROSSING | 55.5 | 55.5 | 0.1 | Open Land |
| White | ROAD CROSSING, P.I. & FABRICATION AREA | 55.5 | 55.5 | 1.0 | Ag Land |
| White | ROAD CROSSING & P.I. | 55.5 | 55.6 | 0.1 | Ag Land |
| White | ROAD CROSSING, P.I. & FABRICATION AREA | 55.5 | 55.6 | 0.0 | Right-of-Way |
| White | ROAD CROSSING, P.I. & FABRICATION AREA | 55.5 | 55.6 | 0.2 | Ag Land |
| White | P.I. & ROAD CROSSING | 55.8 | 55.8 | 0.2 | Ag Land |
| White | P.I. & ROAD CROSSING | 55.8 | 55.8 | 0.1 | Ag Land |
| White | ROAD CROSSING, P.I. & WATERBODY CROSSING | 55.9 | 55.9 | 0.2 | Open Land |
| White | ROAD CROSSING & P.I. | 55.9 | 55.9 | 0.2 | Open Land |
| White | ROAD CROSSING, P.I. & WATERBODY CROSSING | 55.9 | 55.9 | 0.1 | Ag Land |
| White | WATERBODY CROSSING & P.I. | 56.0 | 56.0 | 0.2 | Ag Land |
| White | SIDE SLOPE | 56.0 | 56.2 | 0.5 | Upland Forest |
| White | P.I. | 56.1 | 56.2 | 0.1 | Ag Land |
| White | P.I. | 56.2 | 56.2 | 0.1 | Upland Forest |
| White | P.I. | 56.4 | 56.4 | 0.2 | Upland Forest |
| White | P.I. | 56.5 | 56.5 | 0.3 | Upland Forest |
| White | WATERBODY CROSSING & P.I. | 56.6 | 56.6 | 0.3 | Upland Forest |
| White | P.I. | 57.0 | 57.0 | 0.1 | Ag Land |
| White | P.I. | 57.0 | 57.0 | 0.1 | Ag Land |
| White | ROAD CROSSING | 57.1 | 57.1 | 0.1 | Ag Land |
| White | SIDE SLOPE | 57.6 | 57.9 | 0.7 | Upland Forest |
| White | P.I. & ROAD CROSSING | 58.2 | 58.2 | 0.1 | Upland Forest |
| White | ROAD CROSSING & WATERBODY CROSSING | 58.2 | 58.3 | 0.3 | Open Land |
| White | ROAD CROSSING & FABRICATION AREA | 58.2 | 58.2 | 0.2 | Open Land |
| White | WATERBODY PULL IN & FABRICATION AREA | 58.5 | 58.6 | 0.3 | Ag Land |
| White | WATERBODY PULL IN | 58.6 | 58.7 | 0.2 | Ag Land |

**Table C-7  Temporary Work Space Areas**

| County | Name | Begin Milepost | End Milepost | Size (in acres) | Land Use |
|---|---|---|---|---|---|
| White | WATERBODY CROSSING | 58.8 | 58.9 | 0.1 | Upland Forest |
| White | WATERBODY CROSSING | 58.9 | 58.9 | 0.2 | Upland Forest |
| White | P.I. | 59.0 | 59.0 | 0.1 | Ag Land |
| White | P.I. & FABRICATION AREA | 59.0 | 59.0 | 0.3 | Managed Forest |
| White | P.I. & FABRICATION AREA | 59.0 | 59.0 | 0.2 | Ag Land |
| White | P.I. | 59.0 | 59.1 | 0.2 | Ag Land |
| White | ROAD CROSSING | 59.3 | 59.3 | 0.2 | Upland Forest |
| White | WATERBODY CROSSING | 59.4 | 59.4 | 0.2 | Ag Land |
| White | WATERBODY CROSSING, P.I. & FABRICATION AREA | 59.5 | 59.5 | 0.3 | Upland Forest |
| White | WATERBODY CROSSING, P.I. & FABRICATION AREA | 59.5 | 59.6 | 0.2 | Open Land |
| White | P.I. | 59.5 | 59.5 | 0.1 | Open Land |
| White | WATERBODY CROSSING & P.I. | 59.6 | 59.7 | 0.6 | Ag Land |
| White | WATERBODY CROSSING | 59.7 | 59.7 | 0.1 | Upland Forest |
| White | SIDE SLOPE | 59.8 | 60.2 | 1.2 | Upland Forest |
| White | SIDE SLOPE | 60.2 | 60.2 | 0.2 | Ag Land |
| White | WATERBODY CROSSING & P.I. | 60.2 | 60.3 | 0.2 | Ag Land |
| White | WATERBODY CROSSING & P.I. | 60.3 | 60.4 | 0.2 | Ag Land |
| White | WATERBODY CROSSING & P.I. | 60.3 | 60.4 | 0.2 | Ag Land |
| White | WATERBODY CROSSING & P.I. | 60.4 | 60.5 | 0.1 | Ag Land |
| White | WATERBODY CROSSING, P.I. & FABRICATION AREA | 60.4 | 60.5 | 0.5 | Ag Land |
| White | WATERBODY CROSSING | 60.5 | 60.5 | 0.1 | Ag Land |
| White | P.I. | 60.8 | 60.8 | 0.4 | Upland Forest |
| White | WATERBODY CROSSING | 61.0 | 61.0 | 0.1 | Upland Forest |
| White | P.I. | 61.1 | 61.1 | 0.4 | Open Land |
| White | P.I. | 61.1 | 61.1 | 0.1 | Open Land |
| White | P.I. & FABRICATION AREA | 61.4 | 61.4 | 0.3 | Open Land |
| White | SIDE SLOPE & P.I. | 61.4 | 61.4 | 0.1 | Open Land |

**Table C-7  Temporary Work Space Areas**

| County | Name | Begin Milepost | End Milepost | Size (in acres) | Land Use |
|---|---|---|---|---|---|
| White | SIDE SLOPE & P.I. | 61.4 | 61.6 | 0.4 | Upland Forest |
| White | SIDE SLOPE & P.I. | 61.6 | 61.7 | 0.2 | Ag Land |
| White | P.I. & ROAD CROSSING | 61.6 | 61.7 | 0.2 | Ag Land |
| White | P.I. & ROAD CROSSING | 61.7 | 61.7 | 0.2 | Open Land |
| White | ROAD CROSSING | 61.7 | 61.7 | 0.0 | Open Land |
| White | ROAD CROSSING | 61.7 | 61.7 | 0.0 | Right-of-Way |
| White | ROAD CROSSING | 61.7 | 61.7 | 0.1 | Open Land |
| White | ROAD CROSSING & WATERBODY CROSSING | 61.7 | 61.8 | 0.1 | Upland Forest |
| White | ROAD CROSSING & WATERBODY CROSSING | 61.7 | 61.8 | 0.1 | Upland Forest |
| White | WATERBODY CROSSING & P.I. | 61.8 | 61.8 | 0.3 | Upland Forest |
| White | ROAD CROSSING & WATERBODY CROSSING | 61.8 | 61.8 | 0.1 | Upland Forest |
| White | WATERBODY CROSSING & FABRICATION AREA | 62.1 | 62.1 | 0.3 | Open Land |
| White | WATERBODY CROSSING | 62.1 | 62.1 | 0.0 | Upland Forest |
| White | WATERBODY CROSSING | 62.1 | 62.1 | 0.0 | Open Land |
| White | WATERBODY CROSSING | 62.2 | 62.2 | 0.1 | Ag Land |
| White | WATERBODY CROSSING,  SIDE SLOPE & P.I. | 62.2 | 62.3 | 0.3 | Ag Land |
| White | P.I. | 62.2 | 62.3 | 0.1 | Residential |
| White | ROAD CROSSING | 62.3 | 62.3 | 0.1 | Residential |
| White | ROAD CROSSING | 62.3 | 62.3 | 0.1 | Residential |
| White | ROAD CROSSING | 62.3 | 62.3 | 0.0 | Right-of-Way |
| White | WATERBODY CROSSING & SIDE SLOPE | 62.3 | 62.4 | 0.1 | Upland Forest |
| White | WATERBODY CROSSING & SIDE SLOPE | 62.4 | 62.4 | 0.1 | Upland Forest |
| White | WATERBODY CROSSING & P.I. | 62.4 | 62.5 | 0.4 | Upland Forest |
| White | SIDE SLOPE & P.I. | 62.5 | 62.6 | 0.4 | Upland Forest |
| White | P.I. | 62.5 | 62.5 | 0.1 | Upland Forest |
| White | SIDE SLOPE & P.I. | 62.6 | 62.7 | 0.2 | Ag Land |
| White | SIDE SLOPE & P.I. | 62.7 | 62.8 | 0.3 | Upland Forest |
| White | P.I. | 62.7 | 62.8 | 0.2 | Upland Forest |

## Table C-7 Temporary Work Space Areas

| County | Name | Begin Milepost | End Milepost | Size (in acres) | Land Use |
|---|---|---|---|---|---|
| White | ROAD CROSSING | 62.9 | 62.9 | 0.1 | Upland Forest |
| White | ROAD CROSSING | 62.9 | 62.9 | 0.1 | Upland Forest |
| White | ROAD CROSSING | 62.9 | 62.9 | 0.1 | Upland Forest |
| White | ROAD CROSSING | 62.9 | 62.9 | 0.1 | Upland Forest |
| White | P.I. | 63.0 | 63.0 | 0.4 | Ag Land |
| White | P.I. | 63.0 | 63.0 | 0.0 | Upland Forest |
| White | P.I. | 63.0 | 63.0 | 0.1 | Ag Land |
| White | WATERBODY CROSSING & FABRICATION AREA | 63.1 | 63.2 | 0.3 | Ag Land |
| White | WATERBODY CROSSING | 63.1 | 63.2 | 0.1 | Ag Land |
| White | SIDE SLOPE | 63.2 | 63.2 | 0.1 | Upland Forest |
| White | P.I. & SIDE SLOPE | 63.2 | 63.3 | 0.4 | Upland Forest |
| White | P.I. | 63.3 | 63.3 | 0.1 | Upland Forest |
| White | WATERBODY CROSSING, P.I. & FABRICATION AREA | 63.6 | 63.6 | 0.5 | Ag Land |
| White | P.I. & WATERBODY CROSSING | 63.6 | 63.6 | 0.1 | Ag Land |
| White | WATERBODY CROSSING | 63.7 | 63.7 | 0.1 | Ag Land |
| White | ROAD CROSSING | 63.7 | 63.8 | 0.1 | Ag Land |
| White | ROAD CROSSING, WATERBODY CROSSING & FOREIGN LINE CROSSING | 63.8 | 63.8 | 0.4 | Ag Land |
| White | ROAD CROSSING | 63.8 | 63.8 | 0.1 | Ag Land |
| White | ROAD CROSSING | 63.8 | 63.9 | 0.1 | Ag Land |
| White | ROAD CROSSING | 63.9 | 63.9 | 0.0 | Right-of-Way |
| White | ROAD CROSSING | 63.9 | 63.9 | 0.1 | Ag Land |
| White | ROAD CROSSING | 63.9 | 63.9 | 0.1 | Ag Land |
| White | FOREIGN LINE CROSSING, P.I., ROAD CROSSING & FABRICATION AREA | 64.0 | 64.1 | 0.5 | Ag Land |
| White | FOREIGN LINE CROSSING & ROAD CROSSING | 64.0 | 64.1 | 0.3 | Ag Land |
| White | FABRICATION AREA | 64.1 | 64.1 | 1.0 | Ag Land |
| White | ROAD CROSSING & RAILROAD CROSSING | 64.1 | 64.2 | 0.3 | Ag Land |

**Table C-7 Temporary Work Space Areas**

| County | Name | Begin Milepost | End Milepost | Size (in acres) | Land Use |
|---|---|---|---|---|---|
| White | ROAD CROSSING | 64.2 | 64.2 | 0.1 | Ag Land |
| White | ROAD CROSSING, RAILROAD CROSSING, P.I., FABRICATION AREA & TRUCK TURNAROUND | 64.2 | 64.3 | 0.8 | Ag Land |
| White | P.I. | 64.2 | 64.3 | 0.2 | Ag Land |
| White | DRAG SECTION | 64.2 | 64.3 | 0.3 | Ag Land |
| White | P.I. & ROAD CROSSING | 64.3 | 64.3 | 0.1 | Ag Land |
| White | ROAD CROSSING, RAILROAD CROSSING, P.I. & FABRICATION AREA | 64.3 | 64.4 | 1.3 | Ag Land |
| White | ROAD CROSSING, RAILROAD CROSSING, P.I., FABRICATION AREA & TRUCK TURNAROUND | 64.3 | 64.4 | 0.8 | Ag Land |
| White | P.I., ROAD CROSSING, & FABRICATION AREA | 64.7 | 64.8 | 0.6 | Ag Land |
| White | P.I., ROAD CROSSING, & TRUCK TURNAROUND | 64.8 | 64.8 | 1.3 | Ag Land |
| White | ROAD CROSSING & P.I. | 64.9 | 64.9 | 0.4 | Ag Land |
| White | TRUCK TURNAROUND, ROAD CROSSING, P.I. & FABRICATION AREA | 64.9 | 65.0 | 2.0 | Ag Land |
| White | DRAG SECTION | 64.9 | 65.0 | 0.4 | Ag Land |
| White | WATERBODY CROSSING | 65.2 | 65.2 | 0.1 | Ag Land |
| White | WATERBODY CROSSING | 65.2 | 65.2 | 0.1 | Ag Land |
| White | WATERBODY CROSSING | 65.3 | 65.3 | 0.1 | Ag Land |
| White | ROAD CROSSING, WATERBODY CROSSING, FABRICATION AREA & FOREIGN LINE CROSSING | 65.5 | 65.6 | 0.4 | Ag Land |
| White | FABRICATION AREA | 65.6 | 65.6 | 0.5 | Ag Land |
| White | WATERBODY CROSSING & FOREIGN LINE CROSSING | 65.6 | 65.7 | 0.1 | Ag Land |
| White | WATERBODY CROSSING, FABRICATION AREA & FOREIGN LINE CROSSING | 65.7 | 65.7 | 0.3 | Ag Land |
| White | WATERBODY CROSSING & FOREIGN LINE CROSSING | 65.7 | 65.7 | 0.1 | Ag Land |
| White | FABRICATION AREA & FOREIGN LINE CROSSING | 65.9 | 65.9 | 0.4 | Ag Land |
| White | FOREIGN LINE CROSSING & FABRICATION AREA | 65.9 | 66.0 | 1.5 | Ag Land |

**Table C-7 Temporary Work Space Areas**

| County | Name | Begin Milepost | End Milepost | Size (in acres) | Land Use |
|---|---|---|---|---|---|
| White | ROAD CROSSING, FABRICATION AREA & FOREIGN LINE CROSSING | 66.0 | 66.0 | 0.4 | Ag Land |
| White | ROAD CROSSING, FOREIGN LINE CROSSING & FABRICATION AREA | 66.0 | 66.0 | 0.8 | Ag Land |
| White | SPREAD BREAK | 66.0 | 66.1 | 1.8 | Ag Land |
| White | ROAD CROSSING | 66.1 | 66.1 | 0.1 | Ag Land |
| White | WATERBODY CROSSING | 66.4 | 66.4 | 0.2 | Ag Land |
| White | WATERBODY CROSSING & P.I. | 66.5 | 66.5 | 0.1 | Ag Land |
| White | WATERBODY CROSSING | 66.5 | 66.5 | 0.2 | Ag Land |
| White | P.I. & WATERBODY CROSSING | 66.6 | 66.6 | 0.2 | Ag Land |
| White | P.I. & WATERBODY CROSSING | 66.6 | 66.6 | 0.3 | Ag Land |
| White | P.I. & FABRICATION AREA | 66.7 | 66.8 | 0.4 | Ag Land |
| White | P.I. | 66.8 | 66.8 | 0.1 | Ag Land |
| White | P.I. & ROAD CROSSING | 66.8 | 66.9 | 0.3 | Ag Land |
| White | P.I. & ROAD CROSSING | 66.8 | 66.9 | 0.1 | Ag Land |
| White | ROAD CROSSING | 66.9 | 66.9 | 0.1 | Ag Land |
| White | ROAD CROSSING | 66.9 | 66.9 | 0.1 | Ag Land |
| White | FABRICATION AREA | 67.0 | 67.0 | 0.3 | Ag Land |
| White | FABRICATION AREA | 67.1 | 67.1 | 0.1 | Ag Land |
| White | WATERBODY CROSSING | 67.2 | 67.2 | 0.1 | Ag Land |
| White | WATERBODY CROSSING | 67.2 | 67.2 | 0.1 | Ag Land |
| White | WATERBODY CROSSING | 67.2 | 67.2 | 0.1 | Ag Land |
| White | WATERBODY CROSSING | 67.2 | 67.3 | 0.1 | Ag Land |
| White | WATERBODY CROSSING | 67.3 | 67.3 | 0.1 | Ag Land |
| White | WATERBODY CROSSING | 67.3 | 67.3 | 0.1 | Ag Land |
| White | P.I., DRAG SECTION & FABRICATION AREA | 67.4 | 67.5 | 2.0 | Ag Land |
| White | WATERBODY CROSSING | 67.4 | 67.4 | 0.1 | Ag Land |
| White | P.I. | 67.5 | 67.6 | 0.2 | Ag Land |
| White | FABRICATION AREA & ROAD CROSSING | 67.7 | 67.8 | 0.5 | Upland Forest |

## Table C-7 Temporary Work Space Areas

| County | Name | Begin Milepost | End Milepost | Size (in acres) | Land Use |
|---|---|---|---|---|---|
| White | FABRICATION AREA & ROAD CROSSING | 67.7 | 67.8 | 0.2 | Upland Forest |
| White | WATERBODY CROSSING & ROAD CROSSING | 67.8 | 67.9 | 0.3 | Ag Land |
| White | ROAD CROSSING, FABRICATION AREA & WATERBODY CROSSING | 67.8 | 67.9 | 0.5 | Ag Land |
| White | WATERBODY CROSSING | 68.0 | 68.0 | 0.1 | Ag Land |
| White | WATERBODY CROSSING | 68.0 | 68.0 | 0.1 | Ag Land |
| White | P.I. | 68.1 | 68.1 | 0.4 | Ag Land |
| White | P.I. | 68.1 | 68.1 | 0.1 | Ag Land |
| White | P.I. | 68.5 | 68.5 | 0.4 | Ag Land |
| White | P.I. | 68.5 | 68.5 | 0.1 | Ag Land |
| White | ROAD CROSSING | 68.9 | 69.0 | 0.1 | Ag Land |
| White | ROAD CROSSING | 68.9 | 69.0 | 0.1 | Ag Land |
| White | ROAD CROSSING | 69.0 | 69.0 | 0.1 | Ag Land |
| White | ROAD CROSSING | 69.0 | 69.0 | 0.1 | Ag Land |
| White | WATERBODY CROSSING | 69.4 | 69.4 | 0.1 | Ag Land |
| White | WATERBODY CROSSING | 69.5 | 69.5 | 0.1 | Ag Land |
| White | WATERBODY CROSSING | 69.5 | 69.5 | 0.1 | Ag Land |
| White | WATERBODY CROSSING | 69.5 | 69.5 | 0.1 | Ag Land |
| Woodruff | P.I. | 69.7 | 69.7 | 0.4 | Ag Land |
| Woodruff | P.I. | 69.7 | 69.7 | 0.1 | Ag Land |
| Woodruff | P.I., TRUCK TURNAROUND & FABRICATION AREA | 69.8 | 70.0 | 2.3 | Ag Land |
| Woodruff | P.I. | 69.9 | 70.0 | 0.2 | Ag Land |
| Woodruff | HDD SITE - ENTRY HOLE | 70.0 | 70.0 | 0.9 | Ag Land |
| Woodruff | HDD SITE - EXIT HOLE | 70.4 | 70.5 | 0.9 | Ag Land |
| Woodruff | FABRICATION AREA & TRUCK TURNAROUND | 70.4 | 70.5 | 1.3 | Ag Land |
| Woodruff | ACCESS & P.I. | 70.6 | 70.7 | 0.3 | Ag Land |
| Woodruff | P.I. | 70.6 | 70.7 | 0.4 | Ag Land |

**Table C-7  Temporary Work Space Areas**

| County | Name | Begin Milepost | End Milepost | Size (in acres) | Land Use |
|---|---|---|---|---|---|
| Woodruff | PULL STRING | 70.7 | 71.0 | 2.4 | Ag Land |
| Woodruff | P.I. | 70.9 | 71.0 | 0.2 | Ag Land |
| Woodruff | P.I. | 70.9 | 71.0 | 0.1 | Ag Land |
| Woodruff | P.I., WATERBODY CROSSING & FABRICATION AREA | 71.2 | 71.3 | 0.5 | Ag Land |
| Woodruff | P.I. & WATERBODY CROSSING | 71.3 | 71.3 | 0.1 | Ag Land |
| Woodruff | P.I., WATERBODY CROSSING & FABRICATION AREA | 71.4 | 71.5 | 0.4 | Ag Land |
| Woodruff | P.I. & WATERBODY CROSSING | 71.4 | 71.5 | 0.2 | Ag Land |
| Woodruff | WATERBODY CROSSING | 71.5 | 71.5 | 0.2 | Ag Land |
| Woodruff | WATERBODY CROSSING | 71.5 | 71.5 | 0.1 | Ag Land |
| Woodruff | WATERBODY CROSSING | 71.9 | 71.9 | 0.1 | Ag Land |
| Woodruff | WATERBODY CROSSING | 71.9 | 71.9 | 0.1 | Ag Land |
| Woodruff | WATERBODY CROSSING | 71.9 | 71.9 | 0.1 | Ag Land |
| Woodruff | WATERBODY CROSSING | 71.9 | 72.0 | 0.1 | Ag Land |
| Woodruff | WATERBODY CROSSING | 72.4 | 72.4 | 0.1 | Ag Land |
| Woodruff | WATERBODY CROSSING | 72.4 | 72.4 | 0.1 | Ag Land |
| Woodruff | WATERBODY CROSSING | 72.4 | 72.4 | 0.1 | Ag Land |
| Woodruff | WATERBODY CROSSING | 72.4 | 72.4 | 0.1 | Ag Land |
| Woodruff | P.I. & FABRICATION AREA | 72.6 | 72.7 | 0.4 | Ag Land |
| Woodruff | P.I. | 72.7 | 72.7 | 0.1 | Ag Land |
| Woodruff | ROAD CROSSING, WATERBODY CROSSING & FABRICATION AREA | 72.8 | 72.8 | 0.4 | Ag Land |
| Woodruff | ROAD CROSSING & WATERBODY CROSSING | 72.8 | 72.8 | 0.1 | Ag Land |
| Woodruff | ROAD CROSSING, WATERBODY CROSSING & TRUCK TURNAROUND | 72.8 | 72.9 | 0.9 | Ag Land |
| Woodruff | ROAD CROSSING & WATERBODY CROSSING | 72.9 | 72.9 | 0.1 | Ag Land |
| Woodruff | ACCESS | 73.3 | 73.3 | 0.6 | Ag Land |
| Woodruff | TRUCK TURNAROUND | 73.3 | 73.3 | 0.8 | Ag Land |

## Table C-7 Temporary Work Space Areas

| County | Name | Begin Milepost | End Milepost | Size (in acres) | Land Use |
|---|---|---|---|---|---|
| Woodruff | HDD SITE - ENTRY HOLE | 73.3 | 73.3 | 0.9 | Ag Land |
| Woodruff | HDD SITE - EXIT HOLE | 73.6 | 73.6 | 0.9 | Ag Land |
| Woodruff | TRUCK TURNAROUND, & FABRICATION AREA | 73.6 | 73.6 | 1.1 | Ag Land |
| Woodruff | ACCESS | 73.7 | 73.8 | 0.3 | Ag Land |
| Woodruff | ACCESS | 73.9 | 73.9 | 0.0 | Ag Land |
| Woodruff | ACCESS | 73.9 | 73.9 | 0.0 | Right-of-Way |
| Woodruff | ACCESS | 73.9 | 74.0 | 0.4 | Ag Land |
| Woodruff | ACCESS | 73.9 | 73.9 | 0.2 | Ag Land |
| Woodruff | P.I. | 74.1 | 74.2 | 0.2 | Ag Land |
| Woodruff | P.I. | 74.1 | 74.2 | 0.1 | Ag Land |
| Woodruff | ROAD CROSSING | 74.2 | 74.3 | 0.1 | Ag Land |
| Woodruff | ROAD CROSSING | 74.2 | 74.3 | 0.1 | Ag Land |
| Woodruff | ROAD CROSSING | 74.3 | 74.3 | 0.1 | Ag Land |
| Woodruff | ROAD CROSSING & FABRICATION AREA | 74.3 | 74.4 | 0.6 | Ag Land |
| Woodruff | ROAD CROSSING, P.I. & FABRICATION AREA | 74.6 | 74.9 | 1.6 | Ag Land |
| Woodruff | ROAD CROSSING & P.I. | 74.8 | 74.9 | 0.2 | Ag Land |
| Woodruff | ROAD CROSSING & P.I. | 74.9 | 75.0 | 0.2 | Ag Land |
| Woodruff | ROAD CROSSING & P.I. | 74.9 | 74.9 | 0.1 | Ag Land |
| Woodruff | ROAD CROSSING | 75.6 | 75.6 | 0.1 | Ag Land |
| Woodruff | ROAD CROSSING | 75.6 | 75.6 | 0.1 | Ag Land |
| Woodruff | ROAD CROSSING & P.I. | 75.6 | 75.6 | 0.1 | Ag Land |
| Woodruff | ROAD CROSSING & P.I. | 75.6 | 75.6 | 0.1 | Ag Land |
| Woodruff | WATERBODY CROSSING | 75.9 | 75.9 | 0.3 | Ag Land |
| Woodruff | WATERBODY CROSSING | 75.9 | 75.9 | 0.1 | Ag Land |
| Woodruff | WATERBODY CROSSING | 75.9 | 75.9 | 0.1 | Ag Land |
| Woodruff | WATERBODY CROSSING | 75.9 | 76.0 | 0.1 | Ag Land |
| Woodruff | DRAG SECTION | 76.1 | 76.1 | 0.2 | Ag Land |
| Woodruff | P.I. | 76.9 | 76.9 | 0.2 | Ag Land |

## Table C-7 Temporary Work Space Areas

| County | Name | Begin Milepost | End Milepost | Size (in acres) | Land Use |
|---|---|---|---|---|---|
| Woodruff | P.I. | 76.9 | 76.9 | 0.1 | Ag Land |
| Woodruff | WATERBODY CROSSING | 77.1 | 77.1 | 0.1 | Ag Land |
| Woodruff | WATERBODY CROSSING | 77.1 | 77.1 | 0.1 | Ag Land |
| Woodruff | WATERBODY CROSSING | 77.1 | 77.1 | 0.1 | Ag Land |
| Woodruff | WATERBODY CROSSING | 77.1 | 77.1 | 0.1 | Ag Land |
| Woodruff | WATERBODY CROSSING | 77.4 | 77.5 | 0.1 | Ag Land |
| Woodruff | WATERBODY CROSSING | 77.4 | 77.5 | 0.1 | Ag Land |
| Woodruff | WATERBODY CROSSING | 77.5 | 77.5 | 0.1 | Ag Land |
| Woodruff | WATERBODY CROSSING | 77.5 | 77.5 | 0.1 | Ag Land |
| Woodruff | ROAD CROSSING | 77.9 | 77.9 | 0.1 | Ag Land |
| Woodruff | ROAD CROSSING | 77.9 | 77.9 | 0.1 | Ag Land |
| Woodruff | ROAD CROSSING | 78.0 | 78.0 | 0.1 | Ag Land |
| Woodruff | ROAD CROSSING | 78.0 | 78.0 | 0.1 | Ag Land |
| Woodruff | WATERBODY CROSSING | 78.3 | 78.3 | 0.2 | Ag Land |
| Woodruff | WATERBODY CROSSING | 78.3 | 78.4 | 0.2 | Ag Land |
| Woodruff | WATERBODY CROSSING | 78.4 | 78.4 | 0.1 | Ag Land |
| Woodruff | WATERBODY CROSSING | 78.4 | 78.4 | 0.1 | Ag Land |
| Woodruff | WATERBODY CROSSING | 78.6 | 78.6 | 0.1 | Ag Land |
| Woodruff | WATERBODY CROSSING | 78.6 | 78.6 | 0.1 | Ag Land |
| Woodruff | WATERBODY CROSSING | 78.6 | 78.6 | 0.1 | Ag Land |
| Woodruff | WATERBODY CROSSING | 78.6 | 78.6 | 0.1 | Ag Land |
| Woodruff | ROAD CROSSING & P.I. | 78.9 | 78.9 | 0.2 | Ag Land |
| Woodruff | ROAD CROSSING & P.I. | 78.9 | 79.0 | 0.2 | Ag Land |
| Woodruff | ROAD CROSSING & P.I. | 79.0 | 79.0 | 0.6 | Ag Land |
| Woodruff | ROAD CROSSING & P.I. | 79.0 | 79.0 | 0.1 | Ag Land |
| Woodruff | WATERBODY CROSSING & FABRICATION AREA | 79.6 | 79.8 | 0.9 | Ag Land |
| Woodruff | WATERBODY CROSSING | 79.7 | 79.8 | 0.1 | Ag Land |
| Woodruff | WATERBODY CROSSING | 79.9 | 79.9 | 0.1 | Open Land |

## Table C-7 Temporary Work Space Areas

| County | Name | Begin Milepost | End Milepost | Size (in acres) | Land Use |
|---|---|---|---|---|---|
| Woodruff | WATERBODY CROSSING & FABRICATION AREA | 79.9 | 80.0 | 0.5 | Open Land |
| Woodruff | ROAD CROSSING | 80.1 | 80.1 | 0.1 | Open Land |
| Woodruff | ROAD CROSSING | 80.1 | 80.1 | 0.1 | Open Land |
| Woodruff | ROAD CROSSING | 80.1 | 80.2 | 0.1 | Ag Land |
| Woodruff | ROAD CROSSING & P.I. | 80.1 | 80.3 | 0.6 | Ag Land |
| Woodruff | ROAD CROSSING & P.I. | 80.2 | 80.2 | 0.1 | Ag Land |
| Woodruff | P.I. | 80.7 | 80.8 | 0.2 | Ag Land |
| Woodruff | P.I. | 80.7 | 80.8 | 0.1 | Ag Land |
| Woodruff | FABRICATION AREA | 80.8 | 80.9 | 0.3 | Ag Land |
| Woodruff | FABRICATION AREA | 80.9 | 81.0 | 0.3 | Ag Land |
| Woodruff | P.I. | 81.1 | 81.2 | 0.2 | Ag Land |
| Woodruff | P.I. | 81.1 | 81.2 | 0.1 | Ag Land |
| Woodruff | P.I. | 81.5 | 81.6 | 0.2 | Ag Land |
| Woodruff | P.I. | 81.5 | 81.6 | 0.1 | Ag Land |
| Woodruff | FABRICATION AREA | 81.6 | 81.6 | 0.2 | Ag Land |
| Woodruff | FABRICATION AREA | 81.6 | 81.7 | 0.2 | Ag Land |
| Woodruff | P.I. & FABRICATION AREA | 81.7 | 81.8 | 0.8 | Ag Land |
| Woodruff | P.I., ROAD CROSSING & FABRICATION AREA | 81.9 | 82.0 | 0.5 | Ag Land |
| Woodruff | P.I. | 81.9 | 82.0 | 0.2 | Ag Land |
| Woodruff | P.I., ROAD CROSSING & FABRICATION AREA | 82.0 | 82.0 | 0.0 | Right-of-Way |
| Woodruff | TRUCK TURNAROUND & FABRICATION AREA | 82.2 | 82.3 | 0.3 | Wetland |
| Woodruff | TRUCK TURNAROUND & FABRICATION AREA | 82.2 | 82.3 | 1.0 | Ag Land |
| Woodruff | HDD SITE - ENTRY HOLE | 82.2 | 82.3 | 0.9 | Wetland |
| Woodruff | TRUCK TURNAROUND, P.I. & FABRICATION AREA | 83.0 | 83.2 | 1.7 | Ag Land |
| Woodruff | HDD SITE - EXIT HOLE | 83.0 | 83.1 | 0.9 | Ag Land |
| Woodruff | HDD SITE - EXIT HOLE | 83.0 | 83.0 | 0.0 | Right-of-Way |
| Woodruff | P.I. & FABRICATION AREA | 83.1 | 83.1 | 0.2 | Ag Land |

**Table C-7 Temporary Work Space Areas**

| County | Name | Begin Milepost | End Milepost | Size (in acres) | Land Use |
|---|---|---|---|---|---|
| Woodruff | P.I. & FABRICATION AREA | 83.1 | 83.1 | 0.1 | Wetland |
| Woodruff | PULL STRING | 83.1 | 83.1 | 1.0 | Wetland |
| Woodruff | P.I. & FABRICATION AREA | 83.1 | 83.3 | 0.7 | Ag Land |
| Woodruff | PULL STRING | 83.1 | 83.3 | 3.8 | Ag Land |
| Woodruff | WATERBODY CROSSING | 83.3 | 83.4 | 0.4 | Ag Land |
| Woodruff | WATERBODY CROSSING & FABRICATION AREA | 83.5 | 83.7 | 1.1 | Ag Land |
| Woodruff | FABRICATION AREA | 83.8 | 83.8 | 0.3 | Ag Land |
| Woodruff | P.I. | 84.1 | 84.1 | 0.4 | Ag Land |
| Woodruff | P.I. | 84.1 | 84.1 | 0.1 | Ag Land |
| Woodruff | P.I., FABRICATION AREA & SPREAD FLOP | 84.4 | 84.6 | 0.9 | Ag Land |
| Woodruff | P.I. & SPREAD FLOP | 84.4 | 84.4 | 0.3 | Ag Land |
| Woodruff | P.I., SPREAD FLOP & FABRICATION AREA | 84.7 | 84.7 | 0.1 | Ag Land |
| Woodruff | P.I., SPREAD FLOP & FABRICATION AREA | 84.7 | 84.7 | 0.0 | Right-of-Way |
| Woodruff | P.I., SPREAD FLOP & FABRICATION AREA | 84.7 | 84.8 | 0.4 | Ag Land |
| Woodruff | FABRICATION AREA & ROAD CROSSING | 85.1 | 85.2 | 0.4 | Ag Land |
| Woodruff | ROAD CROSSING | 85.2 | 85.2 | 0.1 | Ag Land |
| Woodruff | ROAD CROSSING, P.I. & FABRICATION AREA | 85.2 | 85.3 | 1.2 | Ag Land |
| Woodruff | ROAD CROSSING & P.I. | 85.3 | 85.3 | 0.1 | Ag Land |
| Woodruff | ROAD CROSSING & P.I. | 85.3 | 85.3 | 0.0 | Upland Forest |
| Woodruff | ROAD CROSSING | 85.3 | 85.4 | 0.1 | Ag Land |
| Woodruff | ROAD CROSSING | 85.4 | 85.4 | 0.1 | Ag Land |
| Woodruff | ROAD CROSSING, P.I. & FABRICATION AREA | 85.4 | 85.4 | 0.9 | Ag Land |
| Woodruff | ROAD CROSSING & P.I. | 85.4 | 85.5 | 0.1 | Ag Land |
| Woodruff | ROAD CROSSING & P.I. | 85.5 | 85.5 | 0.2 | Ag Land |
| Woodruff | P.I. | 85.6 | 85.6 | 0.0 | Upland Forest |
| Woodruff | P.I., FABRICATION AREA & WATERBODY CROSSING | 85.6 | 85.6 | 0.1 | Upland Forest |
| Woodruff | P.I., FABRICATION AREA & WATERBODY CROSSING | 85.6 | 85.9 | 0.7 | Ag Land |
| Woodruff | P.I. | 85.6 | 85.7 | 0.1 | Ag Land |

## Table C-7 Temporary Work Space Areas

| County | Name | Begin Milepost | End Milepost | Size (in acres) | Land Use |
|---|---|---|---|---|---|
| Woodruff | WATERBODY CROSSING | 85.8 | 85.9 | 0.1 | Ag Land |
| Woodruff | WATERBODY CROSSING | 85.9 | 86.0 | 0.1 | Ag Land |
| Woodruff | WATERBODY CROSSING, FABRICATION AREA, RAILROAD CROSSING & ROAD CROSSING | 86.0 | 86.1 | 0.7 | Ag Land |
| Woodruff | RAILROAD CROSSING & ROAD CROSSING | 86.1 | 86.1 | 0.1 | Ag Land |
| Woodruff | ROAD CROSSING, RAILROAD CROSSING, FABRICATION AREA & TRUCK TURNAROUND | 86.1 | 86.1 | 0.9 | Ag Land |
| Woodruff | ROAD CROSSING | 86.2 | 86.2 | 0.2 | Ag Land |
| Woodruff | ROAD CROSSING, FABRICATION AREA & STAGING AREA | 86.2 | 86.2 | 1.3 | Ag Land |
| Woodruff | RAILROAD CROSSING, ROAD CROSSING, P.I. & FABRICATION AREA | 86.2 | 86.3 | 0.4 | Ag Land |
| Woodruff | P.I. | 86.2 | 86.4 | 0.5 | Ag Land |
| Woodruff | P.I. & FABRICATION AREA | 86.3 | 86.5 | 0.6 | Ag Land |
| Woodruff | FABRICATION AREA | 86.7 | 86.8 | 0.5 | Ag Land |
| Woodruff | ROAD CROSSING | 87.4 | 87.4 | 0.1 | Ag Land |
| Woodruff | ROAD CROSSING | 87.4 | 87.4 | 0.1 | Ag Land |
| Woodruff | ROAD CROSSING | 87.4 | 87.4 | 0.1 | Ag Land |
| Woodruff | ROAD CROSSING | 87.4 | 87.4 | 0.1 | Ag Land |
| Woodruff | WATERBODY CROSSING | 87.6 | 87.6 | 0.1 | Ag Land |
| Woodruff | WATERBODY CROSSING | 87.6 | 87.6 | 0.1 | Ag Land |
| Woodruff | WATERBODY CROSSING | 87.6 | 87.6 | 0.1 | Ag Land |
| Woodruff | WATERBODY CROSSING | 87.6 | 87.6 | 0.1 | Ag Land |
| Woodruff | P.I. | 88.1 | 88.2 | 0.4 | Ag Land |
| Woodruff | P.I. | 88.1 | 88.1 | 0.1 | Ag Land |
| Woodruff | WATERBODY CROSSING | 88.3 | 88.3 | 0.3 | Ag Land |
| Woodruff | WATERBODY CROSSING | 88.3 | 88.3 | 0.1 | Ag Land |
| Woodruff | WATERBODY CROSSING, P.I., FABRICATION AREA & ROAD CROSSING | 88.3 | 88.4 | 0.6 | Ag Land |
| Woodruff | WATERBODY CROSSING, P.I. & ROAD CROSSING | 88.3 | 88.4 | 0.2 | Ag Land |

## Table C-7 Temporary Work Space Areas

| County | Name | Begin Milepost | End Milepost | Size (in acres) | Land Use |
|---|---|---|---|---|---|
| Woodruff | ROAD CROSSING | 88.4 | 88.5 | 0.1 | Open Land |
| Woodruff | ROAD CROSSING | 88.4 | 88.5 | 0.1 | Open Land |
| Woodruff | P.I. | 88.5 | 88.6 | 0.4 | Open Land |
| Woodruff | P.I. | 88.5 | 88.6 | 0.1 | Open Land |
| Woodruff | HYDRO TEST AREA | 88.6 | 88.6 | 0.5 | Ag Land |
| Woodruff | HYDRO TEST AREA | 88.6 | 88.6 | 0.0 | Upland Forest |
| Woodruff | HYDRO TEST AREA | 88.6 | 88.8 | 0.8 | Ag Land |
| Woodruff | HYDRO TEST AREA | 88.7 | 88.7 | 0.0 | Upland Forest |
| Woodruff | HYDRO TEST AREA | 88.7 | 88.7 | 0.5 | Ag Land |
| Woodruff | HYDRO TEST AREA | 88.8 | 88.8 | 0.1 | Upland Forest |
| Woodruff | HYDRO TEST AREA | 88.8 | 88.8 | 0.1 | Ag Land |
| Woodruff | FABRICATION AREA | 89.0 | 89.0 | 0.2 | Ag Land |
| Woodruff | P.I. | 89.0 | 89.1 | 0.1 | Upland Forest |
| Woodruff | P.I. & SIDE SLOPE | 89.1 | 89.3 | 0.7 | Upland Forest |
| Woodruff | P.I. & SIDE SLOPE | 89.3 | 89.4 | 0.2 | Open Land |
| Woodruff | P.I. | 89.3 | 89.4 | 0.1 | Open Land |
| Woodruff | WATERBODY CROSSING | 90.4 | 90.4 | 0.1 | Ag Land |
| Woodruff | WATERBODY CROSSING | 90.4 | 90.4 | 0.2 | Ag Land |
| Woodruff | WATERBODY CROSSING | 90.4 | 90.4 | 0.1 | Ag Land |
| Woodruff | WATERBODY CROSSING | 90.4 | 90.5 | 0.1 | Ag Land |
| Woodruff | ROAD CROSSING & P.I. | 90.7 | 90.7 | 0.1 | Ag Land |
| Woodruff | ROAD CROSSING | 90.7 | 90.7 | 0.2 | Ag Land |
| Woodruff | ROAD CROSSING | 90.7 | 90.7 | 0.1 | Ag Land |
| Woodruff | ROAD CROSSING | 90.7 | 90.7 | 0.1 | Ag Land |
| Woodruff | P.I. | 91.0 | 91.1 | 0.4 | Ag Land |
| Woodruff | P.I. | 91.0 | 91.1 | 0.1 | Ag Land |
| Woodruff | WATERBODY CROSSING & FABRICATION AREA | 91.6 | 91.7 | 0.4 | Ag Land |
| Woodruff | WATERBODY CROSSING | 91.7 | 91.7 | 0.1 | Ag Land |

## Table C-7  Temporary Work Space Areas

| County | Name | Begin Milepost | End Milepost | Size (in acres) | Land Use |
|---|---|---|---|---|---|
| Woodruff | WATERBODY CROSSING & P.I. | 91.7 | 91.7 | 0.1 | Ag Land |
| Woodruff | WATERBODY CROSSING & P.I. | 91.7 | 91.7 | 0.1 | Ag Land |
| Woodruff | WATERBODY CROSSING | 92.0 | 92.1 | 0.3 | Ag Land |
| Woodruff | WATERBODY CROSSING | 92.0 | 92.0 | 0.1 | Ag Land |
| Woodruff | WATERBODY CROSSING | 92.1 | 92.1 | 0.1 | Ag Land |
| Woodruff | WATERBODY CROSSING | 92.1 | 92.1 | 0.1 | Ag Land |
| Woodruff | WATERBODY CROSSING | 92.4 | 92.4 | 0.1 | Ag Land |
| Woodruff | WATERBODY CROSSING & FABRICATION AREA | 92.4 | 92.4 | 0.2 | Ag Land |
| Woodruff | WATERBODY CROSSING | 92.4 | 92.4 | 0.1 | Ag Land |
| Woodruff | WATERBODY CROSSING | 92.5 | 92.5 | 0.1 | Ag Land |
| Woodruff | P.I. | 92.7 | 92.8 | 0.2 | Ag Land |
| Woodruff | P.I. | 92.7 | 92.8 | 0.1 | Ag Land |
| Woodruff | WATERBODY CROSSING & FABRICATION AREA | 93.0 | 93.0 | 0.3 | Ag Land |
| Woodruff | WATERBODY CROSSING | 93.0 | 93.0 | 0.1 | Ag Land |
| Woodruff | ROAD CROSSING & WATERBODY CROSSING | 93.0 | 93.1 | 0.5 | Ag Land |
| Woodruff | WATERBODY CROSSING & ROAD CROSSING | 93.0 | 93.1 | 0.1 | Ag Land |
| Woodruff | ROAD CROSSING | 93.1 | 93.1 | 0.1 | Ag Land |
| Woodruff | ROAD CROSSING | 93.1 | 93.2 | 0.1 | Ag Land |
| Woodruff | WATERBODY CROSSING | 93.3 | 93.3 | 0.1 | Ag Land |
| Woodruff | WATERBODY CROSSING | 93.3 | 93.3 | 0.1 | Ag Land |
| Woodruff | WATERBODY CROSSING & FABRICATION AREA | 93.3 | 93.3 | 0.3 | Ag Land |
| Woodruff | WATERBODY CROSSING | 93.3 | 93.3 | 0.1 | Open Land |
| Woodruff | WATERBODY CROSSING | 93.4 | 93.4 | 0.1 | Ag Land |
| Woodruff | WATERBODY CROSSING,  P.I. & FABRICATION AREA | 93.4 | 93.4 | 0.1 | Ag Land |
| Woodruff | WATERBODY CROSSING | 93.5 | 93.5 | 0.1 | Ag Land |
| Woodruff | WATERBODY CROSSING | 93.5 | 93.5 | 0.1 | Ag Land |
| Woodruff | WATERBODY CROSSING, P.I. & FABRICATION AREA | 93.5 | 93.7 | 0.8 | Ag Land |
| Woodruff | WATERBODY CROSSING | 93.5 | 93.6 | 0.1 | Ag Land |

**Table C-7 Temporary Work Space Areas**

| County | Name | Begin Milepost | End Milepost | Size (in acres) | Land Use |
|---|---|---|---|---|---|
| Woodruff | WATERBODY CROSSING & P.I. | 93.6 | 93.7 | 0.1 | Ag Land |
| Woodruff | WATERBODY CROSSING | 93.8 | 93.8 | 0.1 | Ag Land |
| Woodruff | WATERBODY CROSSING & P.I. | 93.8 | 93.8 | 0.3 | Ag Land |
| Woodruff | WATERBODY CROSSING & FABRICATION AREA | 93.9 | 94.0 | 0.2 | Ag Land |
| Woodruff | WATERBODY CROSSING | 93.9 | 94.0 | 0.1 | Ag Land |
| Woodruff | WATERBODY CROSSING | 94.0 | 94.0 | 0.1 | Ag Land |
| Woodruff | WATERBODY CROSSING | 94.0 | 94.0 | 0.1 | Ag Land |
| Woodruff | ROAD CROSSING & FABRICATION AREA | 94.3 | 94.4 | 0.4 | Ag Land |
| Woodruff | ROAD CROSSING | 94.4 | 94.4 | 0.1 | Ag Land |
| Woodruff | ROAD CROSSING | 94.4 | 94.4 | 0.1 | Ag Land |
| Woodruff | ROAD CROSSING | 94.4 | 94.5 | 0.1 | Ag Land |
| Woodruff | P.I. & FABRICATION AREA | 94.5 | 94.5 | 0.5 | Ag Land |
| Woodruff | P.I. | 94.5 | 94.5 | 0.1 | Ag Land |
| Woodruff | P.I. | 94.9 | 94.9 | 0.2 | Ag Land |
| Woodruff | P.I. | 94.9 | 94.9 | 0.1 | Ag Land |
| Woodruff | P.I. | 95.0 | 95.0 | 0.2 | Ag Land |
| Woodruff | P.I. | 95.0 | 95.0 | 0.1 | Ag Land |
| Woodruff | WATERBODY CROSSING | 95.1 | 95.2 | 0.1 | Ag Land |
| Woodruff | WATERBODY CROSSING | 95.1 | 95.2 | 0.1 | Ag Land |
| Woodruff | WATERBODY CROSSING | 95.2 | 95.2 | 0.1 | Ag Land |
| Woodruff | WATERBODY CROSSING | 95.2 | 95.2 | 0.1 | Ag Land |
| Woodruff | FABRICATION AREA & ACCESS | 95.2 | 95.3 | 0.4 | Ag Land |
| Woodruff | FABRICATION AREA & ACCESS | 95.2 | 95.3 | 0.4 | Ag Land |
| Woodruff | TRUCK TURNAROUND | 95.5 | 95.5 | 0.9 | Ag Land |
| Woodruff | HDD SITE - EXIT HOLE | 95.5 | 95.6 | 0.9 | Ag Land |
| Woodruff | HDD SITE - ENTRY HOLE | 96.0 | 96.0 | 0.9 | Wetland |

## Table C-7 Temporary Work Space Areas

| County | Name | Begin Milepost | End Milepost | Size (in acres) | Land Use |
|---|---|---|---|---|---|
| Woodruff | TRUCK TURNAROUND, P.I., FABRICATION AREA & ACCESS | 96.0 | 96.0 | 0.7 | Ag Land |
| Woodruff | TRUCK TURNAROUND, P.I., FABRICATION AREA & ACCESS | 96.0 | 96.1 | 0.3 | Wetland |
| Woodruff | DRAG SECTION | 96.5 | 96.5 | 0.2 | Ag Land |
| Woodruff | DRAG SECTION | 96.5 | 96.5 | 0.1 | Wetland |
| Woodruff | P.I. & ROAD CROSSING | 96.5 | 96.6 | 0.1 | Ag Land |
| Woodruff | P.I. & ROAD CROSSING | 96.6 | 96.6 | 0.4 | Ag Land |
| Woodruff | ROAD CROSSING, P.I. & FABRICATION AREA | 96.6 | 96.6 | 0.3 | Ag Land |
| Woodruff | WATERBODY CROSSING | 96.7 | 96.7 | 0.1 | Ag Land |
| Woodruff | WATERBODY CROSSING | 96.7 | 96.7 | 0.1 | Ag Land |
| Woodruff | WATERBODY CROSSING | 96.7 | 96.8 | 0.1 | Ag Land |
| Woodruff | WATERBODY CROSSING | 96.7 | 96.8 | 0.1 | Ag Land |
| Woodruff | WATERBODY CROSSING | 97.0 | 97.0 | 0.1 | Ag Land |
| Woodruff | WATERBODY CROSSING | 97.0 | 97.0 | 0.1 | Ag Land |
| Woodruff | WATERBODY CROSSING | 97.0 | 97.0 | 0.1 | Ag Land |
| Woodruff | WATERBODY CROSSING | 97.0 | 97.0 | 0.1 | Ag Land |
| Woodruff | WATERBODY CROSSING & FABRICATION AREA | 97.3 | 97.3 | 0.2 | Ag Land |
| Woodruff | WATERBODY CROSSING | 97.3 | 97.3 | 0.1 | Ag Land |
| Woodruff | WATERBODY CROSSING | 97.3 | 97.3 | 0.1 | Ag Land |
| Woodruff | WATERBODY CROSSING | 97.3 | 97.3 | 0.1 | Ag Land |
| Woodruff | WATERBODY CROSSING | 97.5 | 97.6 | 0.2 | Ag Land |
| Woodruff | ROAD CROSSING | 97.6 | 97.6 | 0.1 | Ag Land |
| Woodruff | ROAD CROSSING | 97.6 | 97.6 | 0.1 | Ag Land |
| Woodruff | ROAD CROSSING | 97.6 | 97.6 | 0.1 | Ag Land |
| Woodruff | FOREIGN LINE CROSSING | 97.7 | 97.7 | 0.1 | Ag Land |
| Woodruff | FOREIGN LINE CROSSING | 97.7 | 97.7 | 0.1 | Ag Land |
| Woodruff | P.I. & WATERBODY CROSSING | 98.3 | 98.4 | 0.2 | Ag Land |
| Woodruff | P.I., WATERBODY CROSSING & FABRICATION AREA | 98.3 | 98.4 | 0.3 | Ag Land |

**Table C-7 Temporary Work Space Areas**

| County | Name | Begin Milepost | End Milepost | Size (in acres) | Land Use |
|---|---|---|---|---|---|
| Woodruff | P.I. & WATERBODY CROSSING | 98.4 | 98.4 | 0.1 | Ag Land |
| Woodruff | P.I., WATERBODY CROSSING & FABRICATION AREA | 98.4 | 98.4 | 0.2 | Ag Land |
| Woodruff | ROAD CROSSING | 98.5 | 98.6 | 0.1 | Ag Land |
| Woodruff | ROAD CROSSING | 98.6 | 98.6 | 0.1 | Ag Land |
| Woodruff | ROAD CROSSING | 98.6 | 98.6 | 0.1 | Ag Land |
| Woodruff | ROAD CROSSING | 98.6 | 98.6 | 0.1 | Ag Land |
| Woodruff | P.I. & ROAD CROSSING | 98.7 | 98.7 | 0.1 | Ag Land |
| Woodruff | P.I. | 98.7 | 98.7 | 0.1 | Ag Land |
| Woodruff | ROAD CROSSING | 98.7 | 98.8 | 0.1 | Ag Land |
| Woodruff | ROAD CROSSING | 98.8 | 98.8 | 0.1 | Ag Land |
| Woodruff | P.I. | 99.6 | 99.6 | 0.1 | Ag Land |
| Woodruff | P.I., WATERBODY CROSSING & FABRICATION AREA | 99.6 | 99.6 | 0.4 | Ag Land |
| Woodruff | WATERBODY CROSSING | 99.7 | 99.7 | 0.1 | Ag Land |
| Woodruff | WATERBODY CROSSING & FABRICATION AREA | 99.7 | 99.7 | 0.3 | Ag Land |
| Woodruff | HYDRO TEST AREA | 99.7 | 99.7 | 0.2 | Ag Land |
| Woodruff | HYDRO TEST AREA | 99.7 | 99.7 | 0.0 | Open Water |
| Woodruff | WATERBODY CROSSING & HYDRO TEST AREA | 99.7 | 99.8 | 0.3 | Ag Land |
| Woodruff | WATERBODY CROSSING & FABRICATION AREA | 99.7 | 99.8 | 0.4 | Ag Land |
| Woodruff | HYDRO TEST AREA | 99.8 | 99.8 | 0.5 | Ag Land |
| Woodruff | WATERBODY CROSSING, P.I. & FABRICATION AREA | 99.8 | 99.9 | 0.3 | Ag Land |
| Woodruff | WATERBODY CROSSING, P.I. & HYDRO TEST AREA | 99.8 | 99.9 | 0.5 | Ag Land |
| Woodruff | WATERBODY CROSSING, P.I. & HYDRO TEST AREA | 99.9 | 99.9 | 0.0 | Open Water |
| Woodruff | WATERBODY CROSSING, P.I. & HYDRO TEST AREA | 99.9 | 99.9 | 0.0 | Ag Land |
| Woodruff | P.I. & WATERBODY CROSSING | 100.1 | 100.1 | 0.1 | Ag Land |
| Woodruff | P.I., WATERBODY CROSSING & FABRICATION AREA | 100.1 | 100.1 | 0.5 | Ag Land |
| Woodruff | DRAG SECTION | 100.1 | 100.1 | 0.6 | Ag Land |
| Woodruff | WATERBODY CROSSING & FABRICATION AREA | 100.2 | 100.2 | 0.3 | Ag Land |
| Woodruff | WATERBODY CROSSING | 100.2 | 100.2 | 0.1 | Ag Land |
| Woodruff | P.I., ROAD CROSSING, RAILROAD CROSSING, FABRICATION AREA, PUSH/PULL SITE & STAGING | 100.3 | 100.4 | 1.8 | Ag Land |

**Table C-7 Temporary Work Space Areas**

| County | Name | Begin Milepost | End Milepost | Size (in acres) | Land Use |
|---|---|---|---|---|---|
| | AREA | | | | |
| Woodruff | P.I., RAILROAD CROSSING & ROAD CROSSING | 100.3 | 100.4 | 0.2 | Ag Land |
| Woodruff | RAILROAD CROSSING, ROAD CROSSING & FABRICATION AREA | 100.4 | 100.5 | 0.6 | Ag Land |
| Woodruff | RAILROAD CROSSING, ROAD CROSSING, STAGING AREA & HYDRO TEST AREA | 100.4 | 100.4 | 1.3 | Ag Land |
| Woodruff | HYDRO TEST AREA | 100.4 | 100.4 | 0.4 | Ag Land |
| Woodruff | P.I. & FABRICATION AREA | 100.5 | 100.6 | 0.4 | Ag Land |
| Woodruff | P.I. | 100.5 | 100.6 | 0.2 | Ag Land |
| Woodruff | ROAD CROSSING | 101.2 | 101.2 | 0.1 | Ag Land |
| Woodruff | ROAD CROSSING | 101.2 | 101.2 | 0.1 | Ag Land |
| Woodruff | ROAD CROSSING | 101.2 | 101.2 | 0.1 | Ag Land |
| Woodruff | ROAD CROSSING | 101.2 | 101.2 | 0.1 | Ag Land |
| Woodruff | WATERBODY CROSSING | 101.7 | 101.7 | 0.2 | Ag Land |
| Woodruff | WATERBODY CROSSING | 101.7 | 101.7 | 0.1 | Ag Land |
| Woodruff | WATERBODY CROSSING | 101.7 | 101.8 | 0.1 | Ag Land |
| Woodruff | WATERBODY CROSSING | 101.7 | 101.8 | 0.1 | Ag Land |
| Woodruff | P.I. | 102.0 | 102.1 | 0.2 | Ag Land |
| Woodruff | P.I. | 102.0 | 102.0 | 0.1 | Ag Land |
| Woodruff | P.I. & ROAD CROSSING | 102.2 | 102.2 | 0.2 | Ag Land |
| Woodruff | P.I. & ROAD CROSSING | 102.2 | 102.2 | 0.2 | Ag Land |
| Woodruff | ROAD CROSSING & WATERBODY CROSSING | 102.2 | 102.3 | 0.1 | Ag Land |
| Woodruff | ROAD CROSSING & WATERBODY CROSSING | 102.2 | 102.3 | 0.1 | Ag Land |
| Woodruff | P.I. | 102.7 | 102.7 | 0.2 | Ag Land |
| Woodruff | P.I. & FABRICATION AREA | 102.7 | 102.9 | 1.4 | Ag Land |
| Woodruff | P.I. | 102.9 | 102.9 | 0.2 | Ag Land |
| Woodruff | ROAD CROSSING | 103.2 | 103.2 | 0.2 | Ag Land |
| Woodruff | ROAD CROSSING | 103.2 | 103.2 | 0.1 | Ag Land |
| Woodruff | ROAD CROSSING | 103.3 | 103.3 | 0.1 | Ag Land |

## Table C-7 Temporary Work Space Areas

| County | Name | Begin Milepost | End Milepost | Size (in acres) | Land Use |
|---|---|---|---|---|---|
| Woodruff | ROAD CROSSING | 103.3 | 103.3 | 0.1 | Ag Land |
| Woodruff | WATERBODY CROSSING | 103.5 | 103.5 | 0.1 | Ag Land |
| Woodruff | WATERBODY CROSSING | 103.5 | 103.5 | 0.1 | Ag Land |
| Woodruff | WATERBODY CROSSING | 103.5 | 103.5 | 0.1 | Ag Land |
| Woodruff | WATERBODY CROSSING | 103.5 | 103.5 | 0.1 | Ag Land |
| Woodruff | ROAD CROSSING & WATERBODY CROSSING | 104.2 | 104.2 | 0.2 | Ag Land |
| Woodruff | ROAD CROSSING & WATERBODY CROSSING | 104.2 | 104.2 | 0.1 | Ag Land |
| Woodruff | ROAD CROSSING & WATERBODY CROSSING | 104.3 | 104.3 | 0.1 | Ag Land |
| Woodruff | ROAD CROSSING & WATERBODY CROSSING | 104.3 | 104.3 | 0.1 | Ag Land |
| Woodruff | WATERBODY CROSSING & ACCESS | 104.6 | 104.6 | 0.2 | Ag Land |
| Woodruff | WATERBODY CROSSING | 104.6 | 104.6 | 0.1 | Ag Land |
| Woodruff | WATERBODY CROSSING | 104.6 | 104.7 | 0.1 | Ag Land |
| Woodruff | WATERBODY CROSSING | 104.6 | 104.7 | 0.1 | Ag Land |
| Woodruff | ACCESS | 104.7 | 104.7 | 0.1 | Ag Land |
| Woodruff | ACCESS | 104.7 | 104.7 | 0.0 | Right-of-Way |
| Woodruff | ACCESS | 104.7 | 104.8 | 0.1 | Ag Land |
| Woodruff | ROAD CROSSING & MLV SITE | 105.2 | 105.2 | 0.2 | Ag Land |
| Woodruff | FABRICATION AREA & ROAD CROSSING | 105.2 | 105.2 | 0.5 | Ag Land |
| Woodruff | ROAD CROSSING | 105.3 | 105.3 | 0.1 | Ag Land |
| Woodruff | ROAD CROSSING | 105.3 | 105.3 | 0.1 | Ag Land |
| Woodruff | P.I., FOREIGN LINE CROSSING & FABRICATION AREA | 105.4 | 105.5 | 0.6 | Ag Land |
| Woodruff | P.I. & FOREIGN LINE CROSSING | 105.4 | 105.5 | 0.2 | Ag Land |
| Woodruff | DRAG SECTION | 105.5 | 105.6 | 0.2 | Ag Land |
| Woodruff | ROAD CROSSING | 105.6 | 105.6 | 0.2 | Ag Land |
| Woodruff | ROAD CROSSING | 105.6 | 105.6 | 0.2 | Ag Land |
| Woodruff | ROAD CROSSING | 106.7 | 106.7 | 0.2 | Ag Land |
| Woodruff | ROAD CROSSING | 106.7 | 106.8 | 0.2 | Ag Land |

**Table C-7  Temporary Work Space Areas**

| County | Name | Begin Milepost | End Milepost | Size (in acres) | Land Use |
|---|---|---|---|---|---|
| Woodruff | ACCESS | 106.9 | 106.9 | 0.2 | Ag Land |
| Woodruff | ACCESS | 106.9 | 106.9 | 0.0 | Right-of-Way |
| Woodruff | ACCESS | 106.9 | 106.9 | 0.2 | Ag Land |
| Woodruff | WATERBODY CROSSING & FABRICATION AREA | 107.6 | 107.7 | 0.5 | Ag Land |
| Woodruff | WATERBODY CROSSING & P.I. | 107.7 | 107.8 | 0.2 | Ag Land |
| Woodruff | P.I. | 107.8 | 107.9 | 0.3 | Ag Land |
| St. Francis | ROAD CROSSING | 108.1 | 108.1 | 0.2 | Ag Land |
| St. Francis | ROAD CROSSING | 108.2 | 108.2 | 0.2 | Ag Land |
| St. Francis | ROAD CROSSING,  FABRICATION AREA & P.I. | 108.3 | 108.4 | 0.5 | Ag Land |
| St. Francis | ROAD CROSSING,  WATERBODY CROSSING & FABRICATION AREA | 108.4 | 108.5 | 0.3 | Ag Land |
| St. Francis | ROAD CROSSING & FABRICATION AREA | 109.6 | 109.7 | 0.4 | Ag Land |
| St. Francis | ROAD CROSSING & WATERBODY CROSSING | 109.7 | 109.7 | 0.2 | Ag Land |
| St. Francis | WATERBODY CROSSING & FABRICATION AREA | 109.8 | 109.9 | 0.4 | Ag Land |
| St. Francis | WATERBODY CROSSING | 109.9 | 109.9 | 0.1 | Ag Land |
| St. Francis | WATERBODY CROSSING & FABRICATION AREA | 110.6 | 110.7 | 0.3 | Ag Land |
| St. Francis | WATERBODY CROSSING & ACCESS | 110.7 | 110.7 | 0.3 | Ag Land |
| St. Francis | ROAD CROSSING | 111.0 | 111.0 | 0.3 | Ag Land |
| St. Francis | ROAD CROSSING, WATERBODY CROSSING & P.I. | 111.0 | 111.2 | 0.6 | Ag Land |
| St. Francis | WATERBODY CROSSING | 111.1 | 111.2 | 0.1 | Ag Land |
| St. Francis | WATERBODY CROSSING | 111.2 | 111.2 | 0.1 | Ag Land |
| St. Francis | WATERBODY CROSSING | 111.2 | 111.2 | 0.1 | Ag Land |
| St. Francis | FABRICATION AREA & DRAG SECTION | 111.3 | 111.5 | 1.6 | Ag Land |
| St. Francis | P.I., WATERBODY CROSSING & FABRICATION AREA | 111.5 | 111.6 | 0.4 | Ag Land |
| St. Francis | P.I. & WATERBODY CROSSING | 111.5 | 111.6 | 0.1 | Ag Land |
| St. Francis | WATERBODY CROSSING | 111.8 | 111.9 | 0.1 | Ag Land |
| St. Francis | WATERBODY CROSSING | 111.9 | 111.9 | 0.4 | Ag Land |
| St. Francis | WATERBODY CROSSING & P.I. | 112.2 | 112.3 | 0.4 | Ag Land |
| St. Francis | P.I. | 112.2 | 112.3 | 0.2 | Ag Land |

**Table C-7  Temporary Work Space Areas**

| County | Name | Begin Milepost | End Milepost | Size (in acres) | Land Use |
|---|---|---|---|---|---|
| St. Francis | ROAD CROSSING | 112.4 | 112.4 | 0.1 | Ag Land |
| St. Francis | ROAD CROSSING | 112.4 | 112.4 | 0.2 | Ag Land |
| St. Francis | ROAD CROSSING | 112.4 | 112.4 | 0.1 | Ag Land |
| St. Francis | STAGING AREA, TRUCK TURNAROUND, ROAD CROSSING & FABRICATION AREA | 112.4 | 112.5 | 1.2 | Ag Land |
| St. Francis | HDD SITE - ENTRY HOLE | 112.5 | 112.5 | 0.9 | Ag Land |
| St. Francis | HDD SITE - EXIT HOLE | 112.8 | 112.8 | 0.9 | Ag Land |
| St. Francis | TRUCK TURNAROUND | 112.8 | 112.9 | 0.4 | Ag Land |
| St. Francis | TRUCK TURNAROUND | 112.8 | 112.9 | 0.5 | ROW |
| St. Francis | PULL STRING, P.I., FABRICATION AREA & ACCESS | 113.0 | 113.4 | 2.4 | Ag Land |
| St. Francis | PULL STRING, P.I., FABRICATION AREA & ACCESS | 113.4 | 113.4 | 0.0 | Right-of-Way |
| St. Francis | PULL STRING, P.I., FABRICATION AREA & ACCESS | 113.4 | 113.4 | 0.1 | Ag Land |
| St. Francis | FABRICATION AREA | 113.5 | 113.5 | 0.4 | Ag Land |
| St. Francis | TRUCK TURNAROUND, RAILROAD CROSSING, ROAD CROSSING & STAGING AREA | 113.5 | 113.6 | 1.0 | Ag Land |
| St. Francis | RAILROAD CROSSING | 113.5 | 113.6 | 0.2 | Ag Land |
| St. Francis | TRUCK TURNAROUND, ROAD CROSSING & STAGING AREA | 113.6 | 113.7 | 1.0 | Ag Land |
| St. Francis | ROAD CROSSING | 113.6 | 113.7 | 0.2 | Ag Land |
| St. Francis | ROAD CROSSING,  FOREIGN LINE CROSSING & FABRICATION AREA | 113.7 | 113.8 | 0.8 | Ag Land |
| St. Francis | FOREIGN LINE CROSSING | 113.7 | 113.7 | 0.1 | Ag Land |
| St. Francis | WATERBODY CROSSING | 113.8 | 113.8 | 0.1 | Ag Land |
| St. Francis | WATERBODY CROSSING & FABRICATION AREA | 113.8 | 113.8 | 0.2 | Ag Land |
| St. Francis | WATERBODY CROSSING | 113.9 | 113.9 | 0.3 | Ag Land |
| St. Francis | WATERBODY CROSSING | 113.9 | 113.9 | 0.1 | Ag Land |
| St. Francis | TRUCK TURNAROUND | 113.9 | 114.0 | 0.7 | Ag Land |
| St. Francis | SPREAD BREAK, ROAD CROSSING,  P.I. & FABRICATION AREA | 114.2 | 114.3 | 3.0 | Ag Land |
| St. Francis | SPREAD BREAK, ROAD CROSSING,  P.I. & FABRICATION AREA | 114.2 | 114.3 | 1.9 | Ag Land |

**Table C-7  Temporary Work Space Areas**

| County | Name | Begin Milepost | End Milepost | Size (in acres) | Land Use |
|---|---|---|---|---|---|
| St. Francis | SPREAD BREAK, ROAD CROSSING & FABRICATION AREA | 114.3 | 114.4 | 4.2 | Ag Land |
| St. Francis | ROAD CROSSING | 114.3 | 114.3 | 0.1 | Ag Land |
| St. Francis | P.I. | 114.4 | 114.5 | 0.1 | Ag Land |
| St. Francis | P.I., FABRICATION AREA & AIRSTRIP CROSSING | 114.4 | 114.6 | 0.6 | Ag Land |
| St. Francis | P.I., FABRICATION AREA & AIRSTRIP CROSSING | 114.6 | 114.6 | 0.1 | Right-of-Way |
| St. Francis | P.I., FABRICATION AREA & AIRSTRIP CROSSING | 114.6 | 114.6 | 0.1 | Ag Land |
| St. Francis | AIRSTRIP CROSSING | 114.6 | 114.6 | 0.2 | Ag Land |
| St. Francis | ROAD CROSSING | 115.7 | 115.8 | 0.2 | Ag Land |
| St. Francis | ROAD CROSSING | 115.8 | 115.8 | 0.2 | Ag Land |
| St. Francis | FABRICATION AREA & ROAD CROSSING | 115.9 | 116.1 | 1.2 | Ag Land |
| St. Francis | ROAD CROSSING | 116.3 | 116.3 | 0.2 | Ag Land |
| St. Francis | P.I. | 116.5 | 116.5 | 0.1 | Ag Land |
| St. Francis | P.I. | 116.5 | 116.5 | 0.1 | Ag Land |
| Lee | P.I. | 116.5 | 116.6 | 0.3 | Ag Land |
| Lee | P.I. | 116.5 | 116.5 | 0.0 | Ag Land |
| Lee | P.I. | 116.8 | 116.9 | 0.2 | Ag Land |
| Lee | P.I. | 116.9 | 116.9 | 0.1 | Ag Land |
| Lee | P.I. | 116.9 | 117.0 | 0.2 | Ag Land |
| Lee | P.I. | 116.9 | 117.0 | 0.1 | Ag Land |
| Lee | P.I. | 117.2 | 117.3 | 0.2 | Ag Land |
| Lee | P.I. | 117.2 | 117.3 | 0.2 | Ag Land |
| Lee | ROAD CROSSING | 117.4 | 117.4 | 0.1 | Ag Land |
| Lee | ROAD CROSSING | 117.4 | 117.5 | 0.2 | Ag Land |
| Lee | ROAD CROSSING & P.I. | 117.5 | 117.5 | 0.2 | Ag Land |
| Lee | P.I. & FABRICATION AREA | 117.7 | 117.8 | 0.4 | Ag Land |
| Lee | ROAD CROSSING | 118.2 | 118.2 | 0.2 | Ag Land |
| Lee | ROAD CROSSING | 118.2 | 118.3 | 0.2 | Ag Land |

**Table C-7 Temporary Work Space Areas**

| County | Name | Begin Milepost | End Milepost | Size (in acres) | Land Use |
|---|---|---|---|---|---|
| Lee | ROAD CROSSING | 118.5 | 118.5 | 0.2 | Ag Land |
| Lee | ROAD CROSSING | 118.5 | 118.6 | 0.2 | Ag Land |
| Lee | P.I. | 118.7 | 118.8 | 0.2 | Ag Land |
| Lee | P.I., WATERBODY CROSSING, FABRICATION AREA & HYDRO TEST AREA | 119.0 | 119.1 | 0.7 | Ag Land |
| Lee | P.I., WATERBODY CROSSING, FABRICATION AREA & HYDRO TEST AREA | 119.1 | 119.1 | 0.1 | Open Water |
| Lee | P.I., WATERBODY CROSSING, FABRICATION AREA & HYDRO TEST AREA | 119.1 | 119.1 | 0.3 | Ag Land |
| Lee | WATERBODY CROSSING & ACCESS | 119.1 | 119.2 | 0.3 | Ag Land |
| Lee | P.I. & FABRICATION AREA | 119.2 | 119.3 | 0.4 | Ag Land |
| Lee | P.I. | 119.3 | 119.3 | 0.1 | Ag Land |
| Lee | P.I. | 119.4 | 119.4 | 0.1 | Ag Land |
| Lee | P.I. | 119.4 | 119.4 | 0.4 | Ag Land |
| Lee | ROAD CROSSING | 119.8 | 119.8 | 0.2 | Ag Land |
| Lee | ROAD CROSSING & FABRICATION AREA | 119.8 | 120.0 | 0.9 | Ag Land |
| Lee | ROAD CROSSING & P.I. | 120.1 | 120.2 | 0.4 | Ag Land |
| Lee | ROAD CROSSING, P.I. & FABRICATION AREA | 120.2 | 120.3 | 0.9 | Ag Land |
| Lee | WATERBODY CROSSING & FABRICATION AREA | 120.3 | 120.4 | 0.6 | Ag Land |
| Lee | P.I. & WATERBODY CROSSING | 120.5 | 120.6 | 0.6 | Ag Land |
| Lee | P.I. | 120.6 | 120.7 | 0.1 | Ag Land |
| Lee | P.I. | 120.7 | 120.8 | 0.3 | Ag Land |
| Lee | P.I., FABRICATION AREA & ACCESS | 120.8 | 120.8 | 0.4 | Ag Land |
| Lee | P.I. | 120.8 | 120.8 | 0.0 | Right-of-Way |
| Lee | P.I., FABRICATION AREA & ACCESS | 120.8 | 120.9 | 0.5 | Ag Land |
| Lee | ACCESS | 121.0 | 121.0 | 0.3 | Ag Land |
| Lee | WATERBODY CROSSING | 121.2 | 121.3 | 0.2 | Ag Land |
| Lee | WATERBODY CROSSING | 121.3 | 121.4 | 0.2 | Ag Land |
| Lee | ROAD CROSSING | 121.5 | 121.6 | 0.2 | Ag Land |

## Table C-7 Temporary Work Space Areas

| County | Name | Begin Milepost | End Milepost | Size (in acres) | Land Use |
|---|---|---|---|---|---|
| Lee | ROAD CROSSING | 121.6 | 121.6 | 0.2 | Ag Land |
| Lee | ROAD CROSSING | 122.1 | 122.2 | 0.3 | Ag Land |
| Lee | ROAD CROSSING | 122.2 | 122.2 | 0.2 | Ag Land |
| Lee | ROAD CROSSING & P.I. | 122.9 | 122.9 | 0.5 | Ag Land |
| Lee | ROAD CROSSING & P.I. | 122.9 | 123.0 | 0.5 | Ag Land |
| Lee | ACCESS | 123.1 | 123.1 | 0.2 | Ag Land |
| Lee | ACCESS | 123.1 | 123.1 | 0.0 | Right-of-Way |
| Lee | ACCESS | 123.1 | 123.1 | 0.1 | Ag Land |
| Lee | WATERBODY CROSSING | 123.5 | 123.5 | 0.1 | Ag Land |
| Lee | WATERBODY CROSSING | 123.6 | 123.6 | 0.1 | Ag Land |
| Lee | WATERBODY CROSSING | 124.4 | 124.4 | 0.1 | Ag Land |
| Lee | WATERBODY CROSSING | 124.4 | 124.4 | 0.1 | Ag Land |
| Lee | ROAD CROSSING, FABRICATION AREA & P.I. | 124.6 | 124.6 | 0.5 | Ag Land |
| Lee | ROAD CROSSING & P.I. | 124.6 | 124.7 | 0.4 | Ag Land |
| Lee | WATERBODY CROSSING & FABRICATION AREA | 125.1 | 125.2 | 0.2 | Ag Land |
| Lee | WATERBODY CROSSING | 125.2 | 125.2 | 0.1 | Ag Land |
| Lee | ROAD CROSSING | 125.4 | 125.4 | 0.2 | Ag Land |
| Lee | ROAD CROSSING | 125.4 | 125.5 | 0.2 | Ag Land |
| Lee | P.I. | 125.6 | 125.7 | 0.4 | Ag Land |
| Lee | P.I. | 125.6 | 125.7 | 0.2 | Ag Land |
| Lee | P.I. | 125.9 | 125.9 | 0.0 | Ag Land |
| Lee | P.I. | 125.9 | 126.0 | 0.1 | Right-of-Way |
| Lee | P.I. | 126.0 | 126.0 | 0.0 | Ag Land |
| Lee | P.I. | 126.0 | 126.0 | 0.1 | Ag Land |
| Lee | P.I. | 126.0 | 126.0 | 0.1 | Ag Land |
| Lee | ROAD CROSSING | 126.3 | 126.4 | 0.1 | Ag Land |
| Lee | ROAD CROSSING | 126.4 | 126.4 | 0.1 | Ag Land |

**Table C-7 Temporary Work Space Areas**

| County | Name | Begin Milepost | End Milepost | Size (in acres) | Land Use |
|---|---|---|---|---|---|
| Lee | ROAD CROSSING & P.I. | 126.4 | 126.4 | 0.4 | Ag Land |
| Lee | ROAD CROSSING & P.I. | 126.4 | 126.4 | 0.3 | Ag Land |
| Lee | ROAD CROSSING | 126.7 | 126.7 | 0.2 | Ag Land |
| Lee | ROAD CROSSING | 126.7 | 126.7 | 0.1 | Ag Land |
| Lee | ROAD CROSSING & P.I. | 126.7 | 126.8 | 0.3 | Ag Land |
| Lee | ROAD CROSSING & P.I. | 126.7 | 126.8 | 0.2 | Ag Land |
| Lee | FABRICATION AREA & P.I. | 126.8 | 126.8 | 0.6 | Ag Land |
| Lee | FABRICATION AREA & P.I. | 127.4 | 127.5 | 0.6 | Ag Land |
| Lee | FABRICATION AREA | 127.6 | 127.7 | 0.5 | Ag Land |
| Lee | ROAD CROSSING | 128.0 | 128.0 | 0.2 | Ag Land |
| Lee | ROAD CROSSING | 128.0 | 128.1 | 0.2 | Ag Land |
| Lee | ROAD CROSSING | 128.4 | 128.5 | 0.2 | Ag Land |
| Lee | ROAD CROSSING | 128.5 | 128.5 | 0.2 | Ag Land |
| Lee | ROAD CROSSING & P.I. | 128.6 | 128.7 | 0.5 | Ag Land |
| Lee | ROAD CROSSING & P.I. | 128.7 | 128.7 | 0.5 | Ag Land |
| Lee | WATERBODY CROSSING | 129.0 | 129.0 | 0.2 | Ag Land |
| Lee | WATERBODY CROSSING | 129.0 | 129.0 | 0.2 | Ag Land |
| Lee | FABRICATION AREA | 129.2 | 129.2 | 0.2 | Ag Land |
| Lee | ROAD CROSSING | 129.3 | 129.3 | 0.1 | Ag Land |
| Lee | ROAD CROSSING | 129.3 | 129.3 | 0.2 | Ag Land |
| Lee | ROAD CROSSING | 129.4 | 129.5 | 0.2 | Ag Land |
| Lee | ROAD CROSSING | 129.5 | 129.5 | 0.2 | Ag Land |
| Lee | FOREIGN LINE CROSSING | 129.9 | 129.9 | 0.3 | Ag Land |
| Lee | WATERBODY CROSSING | 130.1 | 130.1 | 0.1 | Ag Land |
| Lee | WATERBODY CROSSING | 130.1 | 130.1 | 0.1 | Ag Land |
| Lee | WATERBODY CROSSING & FABRICATION AREA | 130.2 | 130.3 | 0.4 | Ag Land |
| Lee | WATERBODY CROSSING & ROAD CROSSING | 130.3 | 130.4 | 0.4 | Ag Land |
| Lee | ROAD CROSSING | 130.4 | 130.4 | 0.2 | Ag Land |

### Table C-7  Temporary Work Space Areas

| County | Name | Begin Milepost | End Milepost | Size (in acres) | Land Use |
|---|---|---|---|---|---|
| Lee | ROAD CROSSING | 130.4 | 130.4 | 0.1 | Ag Land |
| Lee | ROAD CROSSING | 130.5 | 130.5 | 0.1 | Ag Land |
| Lee | ROAD CROSSING | 130.5 | 130.5 | 0.2 | Ag Land |
| Lee | ROAD CROSSING | 130.5 | 130.5 | 0.1 | Ag Land |
| Lee | ROAD CROSSING & P.I. | 130.5 | 130.6 | 0.4 | Ag Land |
| Lee | P.I. | 130.6 | 130.6 | 0.1 | Ag Land |
| Lee | WATERBODY CROSSING | 130.7 | 130.8 | 0.3 | Ag Land |
| Lee | WATERBODY CROSSING | 130.8 | 130.8 | 0.1 | Ag Land |
| Lee | WATERBODY CROSSING | 130.8 | 130.8 | 0.1 | Ag Land |
| Lee | WATERBODY CROSSING & P.I. | 130.8 | 130.9 | 0.4 | Ag Land |
| Lee | WATERBODY CROSSING, FABRICATION AREA & TRUCK TURNAROUND | 131.0 | 131.0 | 1.2 | Ag Land |
| Lee | WATERBODY CROSSING, P.I. & FABRICATION AREA | 131.1 | 131.1 | 0.3 | Ag Land |
| Lee | TRUCK TURNAROUND | 131.1 | 131.2 | 1.0 | Ag Land |
| Lee | ROAD CROSSING | 132.0 | 132.0 | 0.2 | Ag Land |
| Lee | ROAD CROSSING | 132.0 | 132.1 | 0.2 | Ag Land |
| Lee | ROAD CROSSING | 132.3 | 132.3 | 0.2 | Ag Land |
| Lee | ROAD CROSSING | 132.3 | 132.4 | 0.2 | Ag Land |
| Lee | P.I. & FABRICATION AREA | 132.8 | 132.8 | 0.4 | Ag Land |
| Lee | P.I. | 132.8 | 132.9 | 0.2 | Ag Land |
| Lee | WATERBODY CROSSING | 133.0 | 133.1 | 0.4 | Ag Land |
| Lee | WATERBODY CROSSING, P.I. & FABRICATION AREA | 133.1 | 133.2 | 0.5 | Ag Land |
| Lee | ACCESS | 133.2 | 133.2 | 0.2 | Ag Land |
| Lee | ROAD CROSSING | 133.5 | 133.6 | 0.4 | Ag Land |
| Lee | ROAD CROSSING | 133.6 | 133.6 | 0.2 | Ag Land |
| Lee | WATERBODY CROSSING | 134.0 | 134.1 | 0.2 | Ag Land |
| Lee | WATERBODY CROSSING | 134.1 | 134.1 | 0.1 | Ag Land |
| Lee | ROAD CROSSING | 134.8 | 134.8 | 0.2 | Ag Land |

## Table C-7 Temporary Work Space Areas

| County | Name | Begin Milepost | End Milepost | Size (in acres) | Land Use |
|---|---|---|---|---|---|
| Lee | ROAD CROSSING | 134.8 | 134.9 | 0.2 | Ag Land |
| Lee | FABRICATION AREA & P.I. | 135.5 | 135.6 | 0.6 | Ag Land |
| Lee | FABRICATION AREA & P.I. | 135.7 | 135.8 | 0.7 | Ag Land |
| Lee | P.I. | 135.8 | 135.9 | 0.1 | Ag Land |
| Lee | ROAD CROSSING & FABRICATION AREA | 135.9 | 136.0 | 0.6 | Ag Land |
| Lee | ROAD CROSSING | 136.0 | 136.0 | 0.1 | Ag Land |
| Lee | ROAD CROSSING & P.I. | 136.0 | 136.1 | 0.4 | Ag Land |
| Lee | ROAD CROSSING & P.I. | 136.0 | 136.1 | 0.1 | Ag Land |
| Lee | P.I. | 136.2 | 136.2 | 0.1 | Ag Land |
| Lee | P.I. | 136.2 | 136.2 | 0.2 | Ag Land |
| Lee | P.I. | 136.2 | 136.2 | 0.0 | Right-of-Way |
| Lee | P.I. | 136.2 | 136.2 | 0.0 | Ag Land |
| Lee | P.I. | 136.2 | 136.2 | 0.0 | Right-of-Way |
| Lee | P.I. | 136.2 | 136.2 | 0.2 | Ag Land |
| Lee | WATERBODY CROSSING | 136.6 | 136.7 | 0.1 | Ag Land |
| Lee | WATERBODY CROSSING | 136.7 | 136.7 | 0.1 | Ag Land |
| Lee | ROAD CROSSING | 137.0 | 137.0 | 0.2 | Ag Land |
| Lee | ROAD CROSSING | 137.0 | 137.0 | 0.2 | Ag Land |
| Lee | ROAD CROSSING, WATERBODY CROSSING & P.I. | 137.2 | 137.3 | 0.5 | Ag Land |
| Lee | ROAD CROSSING, WATERBODY CROSSING & P.I. | 137.3 | 137.4 | 0.7 | Ag Land |
| Lee | FOREIGN LINE CROSSING | 137.8 | 137.8 | 0.3 | Ag Land |
| Lee | FOREIGN LINE CROSSING | 138.0 | 138.0 | 0.3 | Ag Land |
| Lee | P.I. | 138.3 | 138.4 | 0.4 | Ag Land |
| Lee | P.I. | 138.4 | 138.4 | 0.1 | Ag Land |
| Lee | ROAD CROSSING | 138.5 | 138.5 | 0.2 | Ag Land |
| Lee | ROAD CROSSING, FABRICATION AREA & P.I. | 138.5 | 138.7 | 0.9 | Ag Land |
| Lee | ROAD CROSSING & P.I. | 138.5 | 138.6 | 0.3 | Ag Land |

## Table C-7 Temporary Work Space Areas

| County | Name | Begin Milepost | End Milepost | Size (in acres) | Land Use |
|---|---|---|---|---|---|
| Phillips | WATERBODY CROSSING & FABRICATION AREA | 139.6 | 139.7 | 0.4 | Ag Land |
| Phillips | WATERBODY CROSSING, P.I. & HYDRO TEST AREA | 139.7 | 139.8 | 0.9 | Ag Land |
| Phillips | P.I., RAILROAD CROSSING, FABRICATION AREA & ACCESS | 140.1 | 140.1 | 0.8 | Ag Land |
| Phillips | RAILROAD CROSSING & TRUCK TURNAROUND | 140.1 | 140.2 | 0.3 | Ag Land |
| Phillips | P.I., RAILROAD CROSSING, WATERBODY CROSSING, ROAD CROSSING, TRUCK TURNAROUND & FABRICATION AREA | 140.2 | 140.3 | 1.3 | Ag Land |
| Phillips | ROAD CROSSING | 140.3 | 140.3 | 0.2 | Ag Land |
| Phillips | WATERBODY CROSSING & FABRICATION AREA | 140.6 | 140.8 | 0.9 | Ag Land |
| Phillips | WATERBODY CROSSING & FABRICATION AREA | 141.1 | 141.2 | 0.4 | Ag Land |
| Phillips | WATERBODY CROSSING | 141.2 | 141.3 | 0.2 | Ag Land |
| Phillips | ACCESS | 141.4 | 141.4 | 0.2 | Ag Land |
| Phillips | WATERBODY CROSSING, ACCESS & FABRICATION AREA | 141.8 | 141.9 | 0.6 | Ag Land |
| Phillips | WATERBODY CROSSING, ACCESS & FABRICATION AREA | 141.9 | 141.9 | 0.0 | Right-of-Way |
| Phillips | WATERBODY CROSSING, ACCESS & FABRICATION AREA | 141.9 | 142.0 | 0.5 | Ag Land |
| Phillips | WATERBODY CROSSING, FABRICATION AREA & P.I. | 142.4 | 142.5 | 0.6 | Ag Land |
| Phillips | WATERBODY CROSSING, FABRICATION AREA & P.I. | 142.5 | 142.5 | 0.2 | Upland Forest |
| Phillips | WATERBODY CROSSING, FABRICATION AREA & P.I. | 142.5 | 142.6 | 0.4 | Ag Land |
| Phillips | P.I. | 142.5 | 142.6 | 0.1 | Ag Land |
| Phillips | FABRICATION AREA & P.I. | 142.7 | 142.7 | 0.5 | Ag Land |
| Phillips | P.I. | 142.7 | 142.8 | 0.1 | Ag Land |
| Phillips | P.I. | 142.7 | 142.8 | 0.5 | Ag Land |
| Phillips | P.I. | 142.8 | 142.9 | 0.4 | Ag Land |
| Phillips | P.I. | 142.8 | 142.9 | 0.1 | Ag Land |
| Phillips | ROAD CROSSING & P.I. | 143.0 | 143.1 | 0.4 | Ag Land |
| Phillips | ROAD CROSSING & P.I. | 143.1 | 143.2 | 0.4 | Ag Land |

**Table C-7 Temporary Work Space Areas**

| County | Name | Begin Milepost | End Milepost | Size (in acres) | Land Use |
|---|---|---|---|---|---|
| Phillips | FABRICATION AREA | 143.3 | 143.3 | 0.5 | Ag Land |
| Phillips | FABRICATION AREA | 143.4 | 143.5 | 0.4 | Ag Land |
| Phillips | FABRICATION AREA & WATERBODY CROSSING | 143.6 | 143.6 | 0.4 | Ag Land |
| Phillips | WATERBODY CROSSING | 143.7 | 143.7 | 0.1 | Ag Land |
| Phillips | ROAD CROSSING | 144.2 | 144.2 | 0.2 | Ag Land |
| Phillips | ROAD CROSSING | 144.2 | 144.2 | 0.2 | Ag Land |
| Phillips | P.I., WATERBODY CROSSING & FABRICATION AREA | 144.5 | 144.6 | 0.4 | Ag Land |
| Phillips | WATERBODY CROSSING & P.I. | 144.5 | 144.6 | 0.2 | Ag Land |
| Phillips | TRUCK TURNAROUND | 144.6 | 144.6 | 1.1 | Ag Land |
| Phillips | WATERBODY CROSSING | 144.7 | 144.8 | 0.3 | Ag Land |
| Phillips | WATERBODY CROSSING | 144.7 | 144.8 | 0.1 | Ag Land |
| Phillips | TRUCK TURNAROUND | 144.8 | 144.8 | 0.9 | Ag Land |
| Phillips | ROAD CROSSING | 145.3 | 145.3 | 0.1 | Ag Land |
| Phillips | ROAD CROSSING | 145.3 | 145.3 | 0.1 | Ag Land |
| Phillips | ROAD CROSSING & P.I. | 145.3 | 145.3 | 0.2 | Ag Land |
| Phillips | ROAD CROSSING & P.I. | 145.3 | 145.4 | 0.2 | Ag Land |
| Phillips | P.I. | 145.5 | 145.5 | 0.1 | Ag Land |
| Phillips | FABRICATION AREA & P.I. | 145.5 | 145.6 | 0.4 | Ag Land |
| Phillips | P.I. & FABRICATION AREA | 145.8 | 145.9 | 0.5 | Ag Land |
| Phillips | TRUCK TURNAROUND, P.I., RAILROAD CROSSING, ROAD CROSSING, WATERBODY CROSSING & FABRICATION AREA | 146.3 | 146.4 | 1.4 | Open Land |
| Phillips | RAILROAD CROSSING, ROAD CROSSING, FABRICATION AREA, P.I. & STAGING AREA | 146.4 | 146.6 | 1.6 | Ag Land |
| Phillips | ROAD CROSSING | 146.9 | 147.0 | 0.2 | Ag Land |
| Phillips | ROAD CROSSING | 147.0 | 147.0 | 0.2 | Ag Land |
| Phillips | P.I. | 147.4 | 147.5 | 0.4 | Ag Land |
| Phillips | P.I. | 147.5 | 147.5 | 0.1 | Right-of-Way |

**Table C-7  Temporary Work Space Areas**

| County | Name | Begin Milepost | End Milepost | Size (in acres) | Land Use |
|---|---|---|---|---|---|
| Phillips | P.I., WATERBODY CROSSING & FABRICATION AREA | 147.5 | 147.6 | 0.4 | Ag Land |
| Phillips | P.I., WATERBODY CROSSING & FABRICATION AREA | 147.6 | 147.6 | 0.0 | Right-of-Way |
| Phillips | P.I., WATERBODY CROSSING & FABRICATION AREA | 147.6 | 147.8 | 1.2 | Ag Land |
| Phillips | P.I. | 147.6 | 147.7 | 0.1 | Ag Land |
| Phillips | WATERBODY CROSSING | 147.8 | 147.8 | 0.1 | Ag Land |
| Phillips | WATERBODY CROSSING | 148.0 | 148.0 | 0.1 | Ag Land |
| Phillips | WATERBODY CROSSING | 148.0 | 148.0 | 0.2 | Ag Land |
| Phillips | WATERBODY CROSSING | 148.2 | 148.2 | 0.1 | Ag Land |
| Phillips | WATERBODY CROSSING | 148.2 | 148.2 | 0.0 | Right-of-Way |
| Phillips | WATERBODY CROSSING | 148.2 | 148.3 | 0.1 | Ag Land |
| Phillips | ROAD CROSSING | 148.5 | 148.5 | 0.2 | Ag Land |
| Phillips | ROAD CROSSING | 148.5 | 148.6 | 0.2 | Ag Land |
| Phillips | P.I. | 148.8 | 148.9 | 0.4 | Ag Land |
| Phillips | P.I. | 148.9 | 148.9 | 0.1 | Ag Land |
| Phillips | WATERBODY CROSSING,  P.I. & FABRICATION AREA | 149.0 | 149.1 | 0.3 | Ag Land |
| Phillips | WATERBODY CROSSING & P.I. | 149.0 | 149.1 | 0.3 | Ag Land |
| Phillips | WATERBODY CROSSING | 149.1 | 149.1 | 0.2 | Ag Land |
| Phillips | WATERBODY CROSSING | 149.1 | 149.1 | 0.1 | Ag Land |
| Phillips | P.I. | 149.1 | 149.2 | 0.2 | Ag Land |
| Phillips | P.I. | 149.2 | 149.2 | 0.1 | Ag Land |
| Phillips | P.I. | 149.3 | 149.3 | 0.1 | Ag Land |
| Phillips | P.I. | 149.3 | 149.4 | 0.4 | Ag Land |
| Phillips | WATERBODY CROSSING | 149.5 | 149.5 | 0.2 | Ag Land |
| Phillips | WATERBODY CROSSING | 149.6 | 149.6 | 0.5 | Ag Land |
| Phillips | WATERBODY CROSSING | 149.6 | 149.7 | 0.2 | Ag Land |
| Phillips | WATERBODY CROSSING & FABRICATION AREA | 149.9 | 150.0 | 0.4 | Ag Land |
| Phillips | WATERBODY CROSSING | 150.0 | 150.0 | 0.2 | Ag Land |

## Table C-7 Temporary Work Space Areas

| County | Name | Begin Milepost | End Milepost | Size (in acres) | Land Use |
|---|---|---|---|---|---|
| Phillips | WATERBODY CROSSING | 150.5 | 150.6 | 0.1 | Ag Land |
| Phillips | WATERBODY CROSSING | 150.6 | 150.6 | 0.1 | Ag Land |
| Phillips | WATERBODY CROSSING | 150.7 | 150.7 | 0.1 | Ag Land |
| Phillips | WATERBODY CROSSING | 150.7 | 150.7 | 0.1 | Ag Land |
| Phillips | WATERBODY CROSSING | 151.1 | 151.1 | 0.1 | Ag Land |
| Phillips | FOREIGN LINE CROSSING, WATERBODY CROSSING, ROAD CROSSING & FABRICATION AREA | 151.1 | 151.3 | 1.0 | Ag Land |
| Phillips | ROAD CROSSING, WATERBODY CROSSING & FABRICATION AREA | 151.4 | 151.4 | 0.6 | Ag Land |
| Phillips | ROAD CROSSING | 151.5 | 151.5 | 0.1 | Open Land |
| Phillips | TRUCK TURNAROUND | 151.6 | 151.6 | 1.0 | Ag Land |
| Phillips | P.I., WATERBODY CROSSING & FABRICATION AREA | 151.6 | 151.7 | 0.6 | Ag Land |
| Phillips | WATERBODY CROSSING, FABRICATION AREA & ACCESS | 152.9 | 153.0 | 0.6 | Ag Land |
| Phillips | WATERBODY CROSSING & ROAD CROSSING | 153.0 | 153.1 | 0.6 | Ag Land |
| Phillips | ROAD CROSSING, FABRICATION AREA & STAGING AREA | 153.1 | 153.2 | 1.7 | Ag Land |
| Phillips | FABRICATION AREA & WATERBODY CROSSING | 153.3 | 153.5 | 1.1 | Ag Land |
| Phillips | FABRICATION AREA, P.I. & WATERBODY CROSSING | 153.7 | 153.9 | 0.6 | Ag Land |
| Phillips | WATERBODY CROSSING & P.I. | 153.9 | 153.9 | 0.2 | Ag Land |
| Phillips | PULL STRING & ACCESS | 154.0 | 154.3 | 1.7 | Ag Land |
| Phillips | WATERBODY CROSSING | 154.0 | 154.0 | 0.1 | Ag Land |
| Phillips | WATERBODY CROSSING & ACCESS | 154.0 | 154.1 | 0.2 | Ag Land |
| Phillips | TRUCK TURNAROUND & FABRICATION AREA | 154.2 | 154.3 | 1.5 | Ag Land |
| Phillips | HDD SITE - EXIT HOLE | 154.3 | 154.3 | 0.9 | Ag Land |
| Phillips | HDD SITE - ENTRY HOLE | 154.5 | 154.5 | 0.9 | Ag Land |
| Phillips | TRUCK TURNAROUND & FABRICATION AREA | 154.5 | 154.6 | 1.3 | Ag Land |
| Phillips | P.I., WATERBODY CROSSING & FABRICATION AREA | 154.5 | 154.6 | 0.1 | Ag Land |
| Phillips | WATERBODY CROSSING | 154.6 | 154.6 | 0.1 | Ag Land |

**Table C-7 Temporary Work Space Areas**

| County | Name | Begin Milepost | End Milepost | Size (in acres) | Land Use |
|---|---|---|---|---|---|
| Phillips | WATERBODY CROSSING & ACCESS | 154.6 | 154.7 | 0.6 | Ag Land |
| Phillips | WATERBODY CROSSING | 154.9 | 154.9 | 0.1 | Ag Land |
| Phillips | WATERBODY CROSSING | 154.9 | 154.9 | 0.1 | Ag Land |
| Phillips | WATERBODY CROSSING | 154.9 | 154.9 | 0.1 | Ag Land |
| Phillips | WATERBODY CROSSING | 154.9 | 154.9 | 0.1 | Ag Land |
| Phillips | FOREIGN LINE CROSSING | 155.0 | 155.0 | 0.3 | Ag Land |
| Phillips | FOREIGN LINE CROSSING | 155.0 | 155.0 | 0.2 | Ag Land |
| Phillips | ROAD CROSSING & WATERBODY CROSSING | 155.1 | 155.2 | 0.2 | Ag Land |
| Phillips | ROAD CROSSING & WATERBODY CROSSING | 155.1 | 155.2 | 0.1 | Ag Land |
| Phillips | ROAD CROSSING & WATERBODY CROSSING | 155.2 | 155.2 | 0.2 | Ag Land |
| Phillips | ROAD CROSSING & WATERBODY CROSSING | 155.2 | 155.2 | 0.1 | Ag Land |
| Phillips | ROAD CROSSING, WATERBODY CROSSING & P.I. | 155.4 | 155.4 | 0.2 | Ag Land |
| Phillips | ROAD CROSSING, WATERBODY CROSSING, FABRICATION AREA & P.I. | 155.4 | 155.4 | 0.5 | Ag Land |
| Phillips | PULL STRING | 155.5 | 155.7 | 1.7 | Ag Land |
| Phillips | ROAD CROSSING & WATERBODY CROSSING | 155.5 | 155.5 | 0.2 | Ag Land |
| Phillips | ROAD CROSSING & WATERBODY CROSSING | 155.5 | 155.5 | 0.1 | Ag Land |
| Phillips | P.I. | 155.7 | 155.7 | 0.2 | Ag Land |
| Phillips | P.I. & FABRICATION AREA | 155.7 | 155.8 | 0.4 | Ag Land |
| Phillips | P.I. | 155.7 | 155.7 | 0.1 | Ag Land |
| Phillips | TRUCK TURNAROUND | 156.0 | 156.1 | 0.9 | Ag Land |
| Phillips | HDD SITE - EXIT HOLE | 156.1 | 156.1 | 0.9 | Ag Land |
| Phillips | HDD SITE - ENTRY HOLE | 156.6 | 156.6 | 0.9 | Wetland |
| Phillips | TRUCK TURNAROUND | 156.7 | 156.8 | 0.4 | Upland Forest |
| Phillips | TRUCK TURNAROUND | 156.7 | 156.8 | 0.5 | Wetland |
| Phillips | HDD SITE - ENTRY HOLE | 156.8 | 156.8 | 0.9 | Wetland |
| Phillips | HYDRO TEST AREA | 156.8 | 156.9 | 0.5 | Wetland |
| Phillips | HYDRO TEST AREA | 156.9 | 156.9 | 0.1 | Upland Forest |

**Table C-7 Temporary Work Space Areas**

| County | Name | Begin Milepost | End Milepost | Size (in acres) | Land Use |
|---|---|---|---|---|---|
| Phillips | HYDRO TEST AREA | 157.5 | 157.6 | 0.1 | Open Land |
| Phillips | HYDRO TEST AREA | 157.6 | 157.7 | 0.6 | Wetland |
| Phillips | HDD SITE - EXIT HOLE | 157.7 | 157.7 | 0.9 | Wetland |
| Phillips | TRUCK TURNAROUND | 157.7 | 157.7 | 0.1 | Wetland |
| Phillips | TRUCK TURNAROUND | 157.7 | 157.7 | 0.0 | Upland Forest |
| Coahoma | TRUCK TURNAROUND | 157.7 | 157.8 | 0.4 | Upland Forest |
| Coahoma | TRUCK TURNAROUND | 157.7 | 157.8 | 0.5 | Wetland |
| Coahoma | P.I. & FABRICATION AREA | 158.1 | 158.1 | 0.1 | Wetland |
| Coahoma | P.I. & FABRICATION AREA | 158.1 | 158.1 | 0.0 | Open Land |
| Coahoma | P.I. & FABRICATION AREA | 158.1 | 158.2 | 0.2 | Open Land |
| Coahoma | P.I. & FABRICATION AREA | 158.2 | 158.2 | 0.3 | Wetland |
| Coahoma | PULL STRING | 158.2 | 158.7 | 2.7 | Wetland |
| Coahoma | P.I. & ACCESS | 158.2 | 158.3 | 0.3 | Wetland |
| Coahoma | P.I. & ACCESS | 158.2 | 158.3 | 0.3 | Open Land |
| Coahoma | P.I. & FABRICATION AREA | 158.4 | 158.5 | 0.3 | Wetland |
| Coahoma | TRUCK TURNAROUND & ACCESS | 158.5 | 158.6 | 1.0 | Wetland |
| Coahoma | TRUCK TURNAROUND & ACCESS | 158.5 | 158.6 | 0.3 | Open Land |
| Coahoma | HDD SITE - ENTRY HOLE | 158.5 | 158.6 | 0.9 | Wetland |
| Coahoma | HDD SITE - EXIT HOLE | 159.1 | 159.1 | 0.9 | Ag Land |
| Coahoma | TRUCK TURNAROUND, ROAD CROSSING, STAGING AREA, & FABRICATION AREA | 159.1 | 159.2 | 1.2 | Ag Land |
| Coahoma | ROAD CROSSING, P.I., FABRICATION AREA & STAGING AREA | 159.2 | 159.2 | 1.4 | Ag Land |
| Coahoma | ROAD CROSSING & P.I. | 159.2 | 159.3 | 0.5 | Ag Land |
| Coahoma | PULL STRING & ROAD CROSSING | 159.2 | 159.8 | 3.5 | Ag Land |
| Coahoma | ROAD CROSSING | 159.8 | 159.9 | 0.2 | Ag Land |
| Coahoma | WATERBODY CROSSING | 159.9 | 160.0 | 0.2 | Ag Land |
| Coahoma | WATERBODY CROSSING | 160.0 | 160.0 | 0.1 | Ag Land |

**Table C-7 Temporary Work Space Areas**

| County | Name | Begin Milepost | End Milepost | Size (in acres) | Land Use |
|---|---|---|---|---|---|
| Coahoma | WATERBODY CROSSING | 160.4 | 160.4 | 0.1 | Ag Land |
| Coahoma | WATERBODY CROSSING | 160.5 | 160.5 | 0.1 | Ag Land |
| Coahoma | FABRICATION AREA, P.I., ACCESS & WATERBODY CROSSING | 160.6 | 160.7 | 0.6 | Ag Land |
| Coahoma | WATERBODY CROSSING & ACCESS | 160.8 | 160.8 | 0.4 | Ag Land |
| Coahoma | P.I. | 160.9 | 160.9 | 0.3 | Ag Land |
| Coahoma | ROAD CROSSING & P.I. | 161.5 | 161.5 | 0.2 | Ag Land |
| Coahoma | ROAD CROSSING & P.I. | 161.5 | 161.5 | 0.4 | Ag Land |
| Coahoma | ROAD CROSSING, P.I. & FABRICATION AREA | 161.6 | 161.6 | 0.1 | Ag Land |
| Coahoma | ROAD CROSSING, P.I. & ACCESS | 161.6 | 161.6 | 0.0 | Right-of-Way |
| Coahoma | ROAD CROSSING, P.I. & ACCESS | 161.6 | 161.6 | 0.2 | Ag Land |
| Coahoma | ROAD CROSSING, P.I. & FABRICATION AREA | 161.6 | 161.6 | 0.0 | Right-of-Way |
| Coahoma | ROAD CROSSING, P.I. & FABRICATION AREA | 161.6 | 161.7 | 0.6 | Ag Land |
| Coahoma | WATERBODY CROSSING | 161.9 | 161.9 | 0.1 | Ag Land |
| Coahoma | WATERBODY CROSSING, P.I. & FABRICATION AREA | 161.9 | 162.1 | 1.1 | Ag Land |
| Coahoma | ACCESS | 162.1 | 162.2 | 0.4 | Ag Land |
| Coahoma | P.I. | 162.7 | 162.7 | 0.3 | Ag Land |
| Coahoma | P.I. | 163.3 | 163.3 | 0.4 | Ag Land |
| Coahoma | P.I. | 163.3 | 163.3 | 0.1 | Ag Land |
| Coahoma | P.I. | 163.8 | 163.8 | 0.1 | Ag Land |
| Coahoma | FABRICATION AREA & P.I. | 163.8 | 163.8 | 0.6 | Ag Land |
| Coahoma | TRUCK TURNAROUND | 163.8 | 163.9 | 0.3 | Ag Land |
| Coahoma | TRUCK TURNAROUND | 163.8 | 163.9 | 0.1 | Right-of-Way |
| Coahoma | TRUCK TURNAROUND | 163.8 | 163.9 | 0.5 | Ag Land |
| Coahoma | ROAD CROSSING & RAILROAD CROSSING | 163.9 | 163.9 | 0.2 | Right-of-Way |
| Coahoma | ROAD CROSSING & ACCESS | 163.9 | 164.0 | 0.3 | Ag Land |
| Coahoma | ROAD CROSSING | 163.9 | 164.0 | 0.1 | Ag Land |
| Coahoma | TRUCK TURNAROUND | 164.0 | 164.0 | 0.9 | Ag Land |

**Table C-7 Temporary Work Space Areas**

| County | Name | Begin Milepost | End Milepost | Size (in acres) | Land Use |
|---|---|---|---|---|---|
| Coahoma | ACCESS | 164.7 | 164.7 | 0.4 | Ag Land |
| Coahoma | ROAD CROSSING & P.I. | 164.9 | 165.0 | 0.5 | Ag Land |
| Coahoma | P.I. | 164.9 | 165.0 | 0.1 | Ag Land |
| Coahoma | ROAD CROSSING | 165.0 | 165.1 | 0.2 | Ag Land |
| Coahoma | FOREIGN LINE CROSSING, ROAD CROSSING & FABRICATION AREA | 165.2 | 165.3 | 1.1 | Ag Land |
| Coahoma | ROAD CROSSING | 165.4 | 165.4 | 0.4 | Ag Land |
| Coahoma | ACCESS | 165.9 | 166.0 | 0.3 | Ag Land |
| Coahoma | TRUCK TURNAROUND, TIE-IN & FABRICATION AREA | 166.1 | 166.2 | 0.9 | Ag Land |
| Coahoma | ACCESS, FABRICATION AREA, TIE-IN & STAGING AREA | 166.2 | 166.2 | 2.1 | Ag Land |
| **Greenville Lateral Route** | | | | | |
| Washington | FABRICATION AREA | 0.1 | 0.1 | 0.2 | Ag Land |
| Washington | ROAD CROSSING | 0.4 | 0.4 | 0.1 | Ag Land |
| Washington | FOREIGN PIPELINE CROSSING | 0.5 | 0.6 | 0.6 | Ag Land |
| Washington | FOREIGN PIPELINE CROSSING | 0.5 | 0.6 | 0.5 | Ag Land |
| Washington | FITTING / FABRICATION AREA | 0.7 | 0.7 | 0.1 | Ag Land |
| Washington | WATERBODY CROSSING | 0.8 | 0.8 | 0.2 | Ag Land |
| Washington | WATERBODY CROSSING | 0.9 | 0.9 | 0.2 | Ag Land |
| Washington | FITTING / ROAD CROSSING | 1.6 | 1.6 | 0.1 | Ag Land |
| Washington | ROAD CROSSING | 1.6 | 1.6 | 0.1 | Ag Land |
| Washington | ROAD CROSSING | 1.6 | 1.6 | 0.2 | Ag Land |
| Washington | FOREIGN PIPELINE CROSSING | 1.7 | 1.8 | 0.7 | Ag Land |
| Washington | FOREIGN PIPELINE CROSSING | 1.8 | 1.8 | 0.2 | Ag Land |
| Washington | WATERBODY CROSSING | 2.0 | 2.0 | 0.2 | Ag Land |
| Washington | WATERBODY CROSSING | 2.1 | 2.1 | 0.2 | Ag Land |
| Washington | FITTING / FABRICATION AREA | 2.2 | 2.2 | 0.1 | Ag Land |
| Washington | ROAD CROSSING | 2.5 | 2.5 | 0.1 | Ag Land |
| Washington | ROAD CROSSING | 2.5 | 2.6 | 0.2 | Ag Land |
| Washington | ROAD CROSSING | 2.6 | 2.6 | 0.1 | Ag Land |
| Washington | ROAD CROSSING | 2.6 | 2.6 | 0.1 | Ag Land |

**Table C-7 Temporary Work Space Areas**

| County | Name | Begin Milepost | End Milepost | Size (in acres) | Land Use |
|---|---|---|---|---|---|
| Washington | SPECIAL CROP | 2.6 | 3.7 | 2.6 | Ag Land |
| Washington | WATERBODY CROSSING | 2.9 | 2.9 | 0.2 | Ag Land |
| Washington | WATERBODY CROSSING | 2.9 | 3.0 | 0.2 | Ag Land |
| Washington | WATERBODY CROSSING | 3.4 | 3.4 | 0.2 | Ag Land |
| Washington | WATERBODY CROSSING | 3.4 | 3.5 | 0.2 | Ag Land |
| Washington | FITTING / FABRICATION AREA | 3.5 | 3.6 | 0.1 | Ag Land |
| Washington | ROAD CROSSING | 3.7 | 3.7 | 0.2 | Ag Land |
| Washington | ROAD CROSSING | 3.7 | 3.7 | 0.2 | Ag Land |
| Washington | SPECIAL CROP | 3.7 | 4.2 | 1.3 | Ag Land |
| Washington | ROAD CROSSING | 4.2 | 4.2 | 0.2 | Ag Land |
| Washington | ROAD CROSSING | 4.2 | 4.3 | 0.2 | Ag Land |
| Washington | WATERBODY CROSSING / FITTING | 4.9 | 4.9 | 0.1 | Ag Land |
| Washington | WATERBODY CROSSING | 4.9 | 4.9 | 0.1 | Ag Land |
| Washington | WATERBODY CROSSING | 4.9 | 4.9 | 0.1 | Ag Land |
| Washington | ROAD CROSSING | 5.0 | 5.0 | 0.2 | Ag Land |
| Washington | ROAD CROSSING | 5.1 | 5.1 | 0.2 | Ag Land |
| Washington | WETLAND CROSSING | 5.2 | 5.3 | 0.7 | Ag Land |
| Washington | WETLAND CROSSING | 5.3 | 5.5 | 0.8 | Ag Land |
| Washington | WETLAND CROSSING | 5.4 | 5.4 | 0.5 | Ag Land |
| Washington | WETLAND CROSSING | 5.5 | 5.6 | 0.7 | Ag Land |
| Washington | WATER BODY CROSSING | 6.2 | 6.2 | 0.2 | Ag Land |
| Washington | WATER BODY CROSSING | 6.2 | 6.3 | 0.2 | Ag Land |
| Washington | FOREIGN PIPELINE CROSSING | 6.4 | 6.5 | 0.3 | Ag Land |
| Washington | FOREIGN PIPELINE CROSSING | 6.4 | 6.5 | 0.1 | Ag Land |
| Washington | WATER BODY CROSSING | 7.0 | 7.1 | 0.2 | Ag Land |
| Washington | WATER BODY CROSSING | 7.1 | 7.1 | 0.1 | Forest |
| Washington | ROAD CROSSING | 7.1 | 7.1 | 0.1 | Ag Land |
| Washington | ROAD CROSSING | 7.1 | 7.1 | 0.1 | Ag Land |
| Washington | FITTING / FABRICATION AREA | 7.5 | 7.5 | 0.1 | Ag Land |
| Washington | FITTING / FABRICATION AREA | 8.0 | 8.0 | 0.1 | Ag Land |
| Washington | ROAD CROSSING | 9.0 | 9.0 | 0.2 | Ag Land |
| Washington | ROAD CROSSING | 9.0 | 9.0 | 0.2 | Ag Land |
| Washington | HORIZONTAL DIRECTIONAL DRILL | 9.1 | 9.2 | 1.4 | Ag Land |

**Table C-7 Temporary Work Space Areas**

| County | Name | Begin Milepost | End Milepost | Size (in acres) | Land Use |
|---|---|---|---|---|---|
| Washington | HORIZONTAL DIRECTIONAL DRILL | 9.5 | 9.7 | 2.9 | Ag Land |
| Washington | ROAD CROSSING | 10.5 | 10.5 | 0.2 | Ag Land |
| Washington | ROAD CROSSING | 10.5 | 10.5 | 0.1 | Ag Land |
| Washington | HORIZONTAL DIRECTIONAL DRILL | 11.0 | 11.1 | 1.4 | Ag Land |
| Washington | HORIZONTAL DIRECTIONAL DRILL | 11.3 | 11.6 | 2.9 | Ag Land |
| Washington | WATER BODY CROSSING | 11.9 | 11.9 | 0.2 | Ag Land |
| Washington | WATER BODY CROSSING | 11.9 | 11.9 | 0.2 | Ag Land |
| Washington | ROAD CROSSING | 12.4 | 12.4 | 0.2 | Ag Land |
| Washington | ROAD CROSSING | 12.4 | 12.4 | 0.2 | Ag Land |
| Washington | ROAD CROSSING | 14.1 | 14.1 | 0.2 | Ag Land |
| Washington | ROAD CROSSING | 14.1 | 14.1 | 0.2 | Ag Land |
| Washington | ROAD CROSSING / WETLAND CROSSING | 14.6 | 14.6 | 0.2 | Ag Land |
| Washington | ROAD CROSSING | 14.6 | 14.7 | 0.3 | Ag Land |
| Washington | ROAD CROSSING / FITTING | 14.7 | 14.7 | 0.1 | Ag Land |
| Washington | ROAD CROSSING | 15.1 | 15.1 | 0.2 | Ag Land |
| Washington | ROAD CROSSING | 15.1 | 15.2 | 0.2 | Ag Land |
| Washington | ROAD CROSSING | 16.1 | 16.2 | 0.2 | Ag Land |
| Washington | ROAD CROSSING | 16.3 | 16.3 | 0.2 | Ag Land |
| Washington | ROAD CROSSING | 17.3 | 17.3 | 0.2 | Ag Land |
| Sunflower | ROAD CROSSING | 17.3 | 17.4 | 0.2 | Ag Land |
| Sunflower | WATERBODY CROSSING | 17.7 | 17.7 | 0.3 | Ag Land |
| Sunflower | WATERBODY CROSSING | 17.8 | 17.8 | 0.3 | Ag Land |
| Sunflower | WATERBODY CROSSING | 18.3 | 18.3 | 0.2 | Ag Land |
| Sunflower | WATERBODY CROSSING | 18.3 | 18.3 | 0.2 | Ag Land |
| Sunflower | ROAD CROSSING / FITTING | 19.4 | 19.4 | 0.2 | Ag Land |
| Sunflower | ROAD CROSSING | 19.4 | 19.4 | 0.1 | Ag Land |
| Sunflower | ROAD CROSSING | 19.4 | 19.4 | 0.2 | Ag Land |
| Washington/ Sunflower | HORIZONTAL DIRECTIONAL DRILL | 19.8 | 20.2 | 3.4 | Ag Land |
| Humphreys | ACCESS RD / FABRICATION AREA | 20.4 | 20.4 | 0.1 | Ag Land |
| Humphreys | HORIZONTAL DIRECTIONAL DRILL | 20.5 | 20.6 | 1.4 | Ag Land |
| Humphreys | WATERBODY CROSSING | 20.9 | 20.9 | 0.2 | Ag Land |
| Humphreys | WATERBODY CROSSING / FITTING | 20.9 | 20.9 | 0.2 | Ag Land |
| Humphreys | WATERBODY CROSSING / FITTING | 21.1 | 21.1 | 0.2 | Ag Land |

## Table C-7 Temporary Work Space Areas

| County | Name | Begin Milepost | End Milepost | Size (in acres) | Land Use |
|---|---|---|---|---|---|
| Humphreys | WATERBODY CROSSING / FITTING | 21.1 | 21.1 | 0.2 | Ag Land |
| Humphreys | ACCESS RD / FABRICATION AREA | 21.6 | 21.6 | 0.1 | Ag Land |
| Humphreys | FITTING / FABRICATION AREA | 21.6 | 21.6 | 0.1 | Ag Land |
| Humphreys | ROAD CROSSING | 22.2 | 22.3 | 0.2 | Ag Land |
| Humphreys | ROAD CROSSING | 22.3 | 22.3 | 0.2 | Ag Land |
| Humphreys | ROAD CROSSING | 22.8 | 22.9 | 0.2 | Ag Land |
| Humphreys | FITTING / FABRICATION AREA | 22.9 | 22.9 | 0.1 | Ag Land |
| Humphreys | ROAD CROSSING | 22.8 | 22.8 | 0.1 | Ag Land |
| Humphreys | WATERBODY CROSSING | 23.4 | 23.4 | 0.6 | Ag Land |
| Humphreys | ROAD CROSSING | 23.6 | 23.7 | 0.2 | Ag Land |
| Humphreys | ROAD CROSSING | 23.7 | 23.7 | 0.1 | Ag Land |
| Humphreys | ROAD CROSSING | 23.7 | 23.7 | 0.2 | Ag Land |
| Humphreys | WETLAND CROSSING | 24.2 | 24.3 | 0.9 | Ag Land |
| Humphreys | WETLAND CROSSING | 24.4 | 24.5 | 1.0 | Ag Land |
| Humphreys | ROAD CROSSING | 25.0 | 25.0 | 0.2 | Ag Land |
| Humphreys | ROAD CROSSING | 25.0 | 25.1 | 0.2 | Ag Land |
| Humphreys | ROAD CROSSING | 25.5 | 25.5 | 0.2 | Ag Land |
| Humphreys | ROAD CROSSING | 25.5 | 25.5 | 0.2 | Ag Land |
| Humphreys | ROAD CROSSING | 25.7 | 25.7 | 0.2 | Ag Land |
| Humphreys | ROAD CROSSING | 25.8 | 25.8 | 0.2 | Ag Land |
| Humphreys | ROAD CROSSING | 26.0 | 26.0 | 0.2 | Ag Land |
| Humphreys | ROAD CROSSING | 26.0 | 26.0 | 0.2 | Ag Land |
| Humphreys | WATERBODY CROSSING | 26.1 | 26.1 | 0.5 | Ag Land |
| Humphreys | WATERBODY CROSSING | 26.2 | 26.2 | 0.5 | Ag Land |
| Humphreys | ROAD CROSSING | 26.3 | 26.3 | 0.2 | Ag Land |
| Humphreys | ROAD CROSSING | 26.3 | 26.3 | 0.2 | Ag Land |
| Humphreys | WATERBODY CROSSING | 26.6 | 26.6 | 0.2 | Ag Land |
| Humphreys | WATERBODY CROSSING | 26.7 | 26.7 | 0.2 | Ag Land |
| Humphreys | WATERBODY CROSSING | 26.9 | 26.9 | 0.2 | Ag Land |
| Humphreys | WATERBODY CROSSING | 26.9 | 26.9 | 0.2 | Ag Land |
| Humphreys | WETLAND CROSSING | 27.2 | 27.3 | 0.9 | Ag Land |
| Humphreys | WETLAND CROSSING | 27.4 | 27.5 | 0.9 | Ag Land |
| Humphreys | ROAD CROSSING | 27.5 | 27.6 | 0.2 | Ag Land |

**Table C-7 Temporary Work Space Areas**

| County | Name | Begin Milepost | End Milepost | Size (in acres) | Land Use |
|---|---|---|---|---|---|
| Humphreys | WATERBODY CROSSING | 27.8 | 27.9 | 0.2 | Ag Land |
| Humphreys | WATERBODY CROSSING | 27.9 | 27.9 | 0.2 | Ag Land |
| Humphreys | FITTING / FABRICATION AREA | 28.3 | 28.4 | 0.2 | Ag Land |
| Humphreys | ACCESS RD / FABRICATION AREA | 28.4 | 28.4 | 0.1 | Ag Land |
| Humphreys | FOREIGN PIPELINE CROSSING | 28.6 | 28.7 | 0.4 | Ag Land |
| Humphreys | ROAD CROSSING | 28.7 | 28.8 | 0.2 | Ag Land |
| Humphreys | ROAD CROSSING / WETLAND CROSSING | 28.8 | 28.8 | 0.7 | Ag Land |
| Humphreys | WETLAND CROSSING | 28.8 | 28.9 | 0.5 | Ag Land |
| Humphreys | FITTING / FABRICATION AREA | 29.0 | 29.0 | 0.1 | Ag Land |
| Humphreys | WETLAND CROSSING | 29.3 | 29.3 | 0.5 | Ag Land |
| Humphreys | WETLAND CROSSING | 29.4 | 29.4 | 0.5 | Ag Land |
| Humphreys | ACCESS RD / FABRICATION AREA | 29.5 | 29.5 | 0.2 | Ag Land |
| Humphreys | ROAD CROSSING | 29.2 | 29.9 | 0.2 | Ag Land |
| Humphreys | ROAD CROSSING | 30.0 | 30.0 | 0.2 | Ag Land |
| Humphreys | ROAD CROSSING | 30.0 | 30.0 | 0.2 | Ag Land |
| Humphreys | FOREIGN PIPELINE CROSSING | 30.5 | 30.5 | 0.3 | Ag Land |
| Humphreys | ROAD CROSSING | 31.2 | 31.2 | 0.2 | Ag Land |
| Humphreys | ROAD CROSSING | 31.2 | 31.2 | 0.2 | Ag Land |
| Humphreys | WETLAND CROSSING | 31.3 | 31.3 | 0.5 | Ag Land |
| Humphreys | ACCESS RD / FABRICATION AREA | 32.8 | 32.8 | 0.1 | Ag Land |
| Humphreys | WATERBODY CROSSING | 33.6 | 33.6 | 0.5 | Ag Land |
| Humphreys | WATERBODY CROSSING | 33.7 | 33.8 | 0.5 | Ag Land |
| Humphreys | ROAD CROSSING | 34.3 | 34.3 | 0.2 | Ag Land |
| Humphreys | ROAD CROSSING | 34.3 | 34.3 | 0.2 | Ag Land |
| Humphreys | WATERBODY CROSSING | 34.8 | 34.9 | 0.2 | Ag Land |
| Humphreys | WATERBODY CROSSING | 34.9 | 35.0 | 0.2 | Ag Land |
| Humphreys | ROAD CROSSING | 35.5 | 35.5 | 0.2 | Ag Land |
| Humphreys | WETLAND CROSSING | 35.5 | 35.5 | 0.5 | Ag Land |
| Humphreys | WETLAND CROSSING | 35.6 | 35.6 | 0.5 | Ag Land |
| Humphreys | FITTING / FABRICATION AREA | 35.8 | 35.8 | 0.1 | Ag Land |
| Humphreys | ROAD CROSSING | 35.4 | 35.4 | 0.2 | Ag Land |
| Humphreys | ROAD CROSSING | 36.0 | 36.0 | 0.2 | Ag Land |
| Humphreys | ROAD CROSSING | 36.0 | 36.0 | 0.2 | Ag Land |

**Table C-7 Temporary Work Space Areas**

| County | Name | Begin Milepost | End Milepost | Size (in acres) | Land Use |
|---|---|---|---|---|---|
| Humphreys | ROAD CROSSING | 36.2 | 36.2 | 0.2 | Ag Land |
| Humphreys | ROAD CROSSING | 36.3 | 36.3 | 0.2 | Ag Land |
| Humphreys | ACCESS RD / FABRICATION AREA | 36.7 | 36.7 | 0.1 | Ag Land |
| Humphreys | WETLAND CROSSING | 37.0 | 37.0 | 0.9 | Ag Land |
| Humphreys | WETLAND CROSSING | 37.2 | 37.3 | 0.9 | Ag Land |
| Humphreys | ROAD CROSSING | 37.7 | 37.7 | 0.2 | Ag Land |
| Humphreys | ROAD CROSSING | 37.8 | 37.8 | 0.2 | Ag Land |
| Humphreys | ROAD CROSSING | 38.3 | 38.3 | 0.2 | Ag Land |
| Humphreys | ROAD CROSSING | 38.4 | 38.4 | 0.2 | Ag Land |
| Humphreys | FITTING / FABRICATION AREA | 38.5 | 38.5 | 0.1 | Ag Land |
| Humphreys | ROAD CROSSING | 38.9 | 38.9 | 0.2 | Ag Land |
| Humphreys | ROAD CROSSING | 39.0 | 39.0 | 0.2 | Ag Land |
| Humphreys | HORIZONTAL DIRECTIONAL DRILL | 39.4 | 39.5 | 1.1 | Ag Land |
| Humphreys | ACCESS RD / FABRICATION AREA | 39.7 | 39.7 | 0.1 | Ag Land |
| Humphreys | HORIZONTAL DIRECTIONAL DRILL | 39.9 | 40.3 | 3.0 | Ag Land |
| Humphreys | HORIZONTAL DIRECTIONAL DRILL | 40.2 | 40.4 | 4.0 | Forest |
| Humphreys | ACCESS RD / FABRICATION AREA | 40.6 | 40.6 | 4.4 | Ag Land |
| Humphreys | HORIZONTAL DIRECTIONAL DRILL | 40.8 | 40.9 | 5.9 | Ag Land |
| Humphreys | HORIZONTAL DIRECTIONAL DRILL | 41.1 | 41.4 | 3.5 | Ag Land |
| Humphreys | ROAD CROSSING | 42.0 | 42.0 | 0.2 | Ag Land |
| Humphreys | ROAD CROSSING | 42.0 | 42.0 | 0.2 | Ag Land |
| Humphreys | WATERBODY CROSSING | 42.6 | 42.6 | 0.1 | Ag Land |
| Humphreys | WATERBODY CROSSING | 42.6 | 42.7 | 0.1 | Ag Land |
| Humphreys | WETLAND CROSSING | 42.8 | 43.0 | 1.1 | Ag Land |
| Humphreys | FABRICATION AREA | 44.1 | 44.3 | 1.1 | Ag Land |
| Humphreys | FITTING / FABRICATION AREA | 44.3 | 44.3 | 0.1 | Ag Land |
| Humphreys | ACCESS RD / FABRICATION AREA | 44.3 | 44.3 | 0.1 | Ag Land |
| Humphreys | FITTING / FABRICATION AREA | 44.8 | 44.9 | 0.1 | Forest |
| Humphreys | WATERBODY CROSSING | 44.3 | 44.3 | 0.2 | Forest |
| Humphreys | WATERBODY CROSSING | 44.4 | 44.4 | 0.2 | Forest |
| Humphreys | ACCESS RD / FABRICATION AREA | 45.5 | 45.5 | 0.1 | Forest |
| Humphreys | FOREIGN PIPELINE CROSSING | 46.1 | 46.2 | 0.7 | Forest |
| Holmes | HORIZONTAL DIRECTIONAL DRILL | 46.3 | 46.5 | 5.1 | Forest |

## Table C-7 Temporary Work Space Areas

| County | Name | Begin Milepost | End Milepost | Size (in acres) | Land Use |
|---|---|---|---|---|---|
| Holmes | HORIZONTAL DIRECTIONAL DRILL | 46.8 | 46.9 | 1.4 | Ag Land |
| Holmes | ACCESS RD / FABRICATION AREA | 47.2 | 47.2 | 0.1 | Ag Land |
| Holmes | WETLAND CROSSING | 47.4 | 47.5 | 0.7 | Ag Land |
| Holmes | WETLAND CROSSING | 47.6 | 47.7 | 0.9 | Ag Land |
| Holmes | ROAD CROSSING | 48.9 | 49.0 | 0.2 | Ag Land |
| Holmes | ROAD CROSSING | 49.0 | 49.0 | 0.2 | Ag Land |
| Holmes | ROAD CROSSING | 49.1 | 49.1 | 0.2 | Ag Land |
| Holmes | ROAD CROSSING | 49.1 | 49.2 | 0.2 | Ag Land |
| Holmes | WATERBODY CROSSING | 49.4 | 49.5 | 0.2 | Ag Land |
| Holmes | WATERBODY CROSSING | 49.5 | 49.5 | 0.2 | Ag Land |
| Holmes | ACCESS RD / FABRICATION AREA | 51.2 | 51.2 | 0.2 | Ag Land |
| Holmes | ROAD CROSSING | 51.2 | 51.2 | 0.2 | Ag Land |
| Holmes | ROAD CROSSING | 51.4 | 51.4 | 0.1 | Ag Land |
| Holmes | FITTING / ROAD CROSSING | 51.4 | 51.4 | 0.1 | Ag Land |
| Holmes | RAILROAD CROSSING | 51.4 | 51.5 | 0.2 | Ag Land |
| Holmes | RAILROAD CROSSING | 51.5 | 51.5 | 0.2 | Ag Land |
| Holmes | ACCESS RD / FABRICATION AREA | 51.8 | 51.9 | 0.1 | Ag Land |
| Holmes | FITTING / FABRICATION AREA | 52.4 | 52.4 | 0.1 | Ag Land |
| Holmes | ACCESS RD / FABRICATION AREA | 52.4 | 52.4 | 0.1 | Ag Land |
| Holmes | HORIZONTAL DIRECTIONAL DRILL | 53.3 | 54.0 | 9.5 | Ag Land |
| Holmes | HORIZONTAL DIRECTIONAL DRILL | 54.6 | 54.7 | 1.4 | Ag Land |
| Holmes | ROAD CROSSING | 55.1 | 55.1 | 0.1 | Ag Land |
| Holmes | ROAD CROSSING | 55.1 | 55.1 | 0.1 | Forest |
| Holmes | FITTING / FABRICATION AREA | 55.2 | 55.3 | 0.1 | Ag Land |
| Holmes | FITTING / ROAD CROSSING | 55.3 | 55.3 | 0.1 | Ag Land |
| Holmes | ACCESS RD / FABRICATION AREA | 55.3 | 55.3 | 0.1 | Ag Land |
| Holmes | ROAD CROSSING | 55.3 | 55.4 | 0.3 | Ag Land |
| Holmes | WETLAND CROSSING | 55.4 | 55.5 | 0.3 | Ag Land |
| Holmes | WETLAND CROSSING | 55.5 | 55.6 | 0.5 | Ag Land |
| Holmes | WETLAND CROSSING | 55.7 | 55.7 | 0.5 | Ag Land |
| Holmes | ACCESS RD / FABRICATION AREA | 56.1 | 56.2 | 0.1 | Ag Land |
| Holmes | WATERBODY CROSSING | 56.2 | 56.2 | 0.1 | Forest |
| Holmes | WATERBODY CROSSING | 56.3 | 56.3 | 0.1 | Forest |

**Table C-7  Temporary Work Space Areas**

| County | Name | Begin Milepost | End Milepost | Size (in acres) | Land Use |
|---|---|---|---|---|---|
| Holmes | ACCESS RD / FABRICATION AREA | 56.6 | 56.6 | 0.1 | Ag Land |
| Holmes | ACCESS RD / FABRICATION AREA | 56.9 | 56.9 | 0.1 | Forest |
| Holmes | ROAD CROSSING | 57.1 | 57.1 | 0.2 | Forest |
| Holmes | ROAD CROSSING | 57.1 | 57.2 | 0.2 | Forest |
| Holmes | FITTING / FABRICATION AREA | 57.1 | 57.2 | 0.1 | Ag Land |
| Holmes | ACCESS RD / FABRICATION AREA | 57.2 | 57.2 | 0.1 | Forest |
| Holmes | WETLAND CROSSING | 57.3 | 57.4 | 0.7 | Forest |
| Holmes | WETLAND CROSSING | 57.5 | 57.5 | 0.2 | Forest |
| Holmes | WETLAND CROSSING | 57.5 | 57.5 | 0.3 | Ag Land |
| Holmes | ROAD CROSSING | 57.8 | 57.9 | 0.2 | Ag Land |
| Holmes | ROAD CROSSING | 57.9 | 57.9 | 0.2 | Forest |
| Holmes | ACCESS RD / FABRICATION AREA | 58.2 | 58.2 | 0.1 | Ag Land |
| Holmes | WETLAND CROSSING | 58.4 | 58.4 | 0.2 | Forest |
| Holmes | WETLAND CROSSING | 58.5 | 58.5 | 0.5 | Forest |
| Holmes | ROAD CROSSING | 58.5 | 58.6 | 0.2 | Forest |
| Holmes | ROAD CROSSING | 58.6 | 58.6 | 0.2 | Forest |
| Holmes | WATERBODY CROSSING | 58.6 | 58.6 | 0.2 | Forest |
| Holmes | WATERBODY CROSSING | 58.8 | 58.9 | 0.2 | Ag Land |
| Holmes | WATERBODY CROSSING | 58.9 | 58.9 | 0.3 | Ag Land |
| Holmes | WATERBODY CROSSING | 58.9 | 58.9 | 0.1 | Forest |
| Holmes | WATERBODY CROSSING | 58.9 | 59.0 | 0.3 | Ag Land |
| Holmes | ACCESS RD / FABRICATION AREA | 59.1 | 59.1 | 0.1 | Ag Land |
| Holmes | ACCESS RD / FABRICATION AREA | 59.6 | 59.6 | 0.1 | Ag Land |
| Holmes | WETLAND CROSSING | 59.7 | 59.8 | 0.7 | Forest |
| Holmes | ACCESS RD / FABRICATION AREA | 59.9 | 69.9 | 0.1 | Ag Land |
| Holmes | WETLAND CROSSING | 60.1 | 60.2 | 0.7 | Ag Land |
| Holmes | ACCESS RD / FABRICATION AREA | 60.5 | 60.5 | 0.1 | Ag Land |
| Holmes | WETLAND CROSSING | 60.5 | 60.6 | 1.6 | Forest |
| Holmes | FOREIGN PIPELINE CROSSING | 60.6 | 60.7 | 0.5 | Forest |
| Holmes | WETLAND CROSSING | 60.8 | 60.9 | 0.9 | Ag Land |
| Holmes | ACCESS RD / FABRICATION AREA | 60.8 | 60.8 | 0.1 | Ag Land |
| Holmes | WATERBODY CROSSING | 60.9 | 60.9 | 0.2 | Forest |
| Holmes | FITTING / FABRICATION AREA | 61.1 | 61.1 | 0.1 | Ag Land |

**Table C-7 Temporary Work Space Areas**

| County | Name | Begin Milepost | End Milepost | Size (in acres) | Land Use |
|---|---|---|---|---|---|
| Holmes | ROAD CROSSING | 61.1 | 61.1 | 0.1 | Ag Land |
| Holmes | FITTING / FABRICATION AREA | 61.1 | 61.2 | 0.1 | Ag Land |
| Holmes | ROAD CROSSING | 61.1 | 61.1 | 0.1 | Forest |
| Holmes | WATERBODY CROSSING | 61.2 | 61.2 | 0.5 | Ag Land |
| Holmes | WATERBODY CROSSING | 61.3 | 61.3 | 0.5 | Forest |
| Holmes | WATERBODY CROSSING | 61.9 | 61.9 | 0.2 | Forest |
| Holmes | WATERBODY CROSSING | 61.9 | 61.9 | 0.2 | Forest |
| Holmes | WATERBODY CROSSING / FITTING | 61.9 | 61.9 | 0.1 | Forest |
| Holmes | WATERBODY CROSSING / FITTING | 62.0 | 62.0 | 0.2 | Forest |
| Holmes | WATERBODY CROSSING | 62.0 | 62.0 | 0.2 | Ag Land |
| Holmes | WATERBODY CROSSING | 62.1 | 62.1 | 0.2 | Forest |
| Holmes | WETLAND CROSSING | 62.2 | 62.2 | 0.5 | Ag Land |
| Holmes | WETLAND CROSSING | 62.3 | 62.3 | 0.5 | Forest |
| Holmes | ACCESS RD / FABRICATION AREA | 62.8 | 62.8 | 0.1 | Forest |
| Holmes | WETLAND CROSSING | 62.9 | 62.9 | 0.2 | Forest |
| Holmes | WETLAND CROSSING | 62.9 | 63.0 | 0.3 | Forest |
| Holmes | WETLAND CROSSING | 63.0 | 63.0 | 0.1 | Forest |
| Holmes | WETLAND CROSSING | 63.2 | 63.2 | 0.7 | Ag Land |
| Holmes | WETLAND CROSSING / ROAD CROSSING | 63.3 | 63.4 | 0.2 | Ag Land |
| Holmes | WETLAND CROSSING / ROAD CROSSING | 63.3 | 63.4 | 0.2 | Forest |
| Holmes | ROAD CROSSING | 63.4 | 63.4 | 0.2 | Forest |
| Holmes | FITTING / ROAD CROSSING | 63.6 | 63.6 | 0.1 | Ag Land |
| Holmes | ROAD CROSSING | 63.6 | 63.6 | 0.1 | Forest |
| Holmes | ROAD CROSSING | 63.6 | 63.6 | 0.1 | Forest |
| Holmes | WATERBODY CROSSING | 63.7 | 63.7 | 0.2 | Forest |
| Holmes | WATERBODY CROSSING | 63.8 | 63.8 | 0.2 | Forest |
| Holmes | ROAD CROSSING | 64.1 | 64.1 | 0.2 | Forest |
| Holmes | ROAD CROSSING | 64.1 | 64.1 | 0.2 | Forest |
| Holmes | FITTING / FABRICATION AREA | 64.2 | 64.2 | 0.1 | Forest |
| Holmes | FITTING / FABRICATION AREA | 64.3 | 64.3 | 0.1 | Forest |
| Holmes | WATERBODY CROSSING | 64.4 | 64.5 | 0.2 | Ag Land |
| Holmes | WATERBODY CROSSING / ACCESS ROAD | 64.5 | 64.5 | 0.2 | Ag Land |
| Holmes | WATERBODY CROSSING | 64.6 | 64.6 | 0.2 | Ag Land |

**Table C-7 Temporary Work Space Areas**

| County | Name | Begin Milepost | End Milepost | Size (in acres) | Land Use |
|---|---|---|---|---|---|
| Holmes | WATERBODY CROSSING | 64.6 | 64.7 | 0.2 | Ag Land |
| Holmes | WATERBODY CROSSING | 64.7 | 64.8 | 0.5 | Ag Land |
| Holmes | ROAD CROSSING | 64.9 | 64.9 | 0.2 | Ag Land |
| Holmes | ROAD CROSSING | 64.9 | 64.9 | 0.2 | Ag Land |
| Holmes | WATERBODY CROSSING / ACCESS ROAD | 65.2 | 65.2 | 0.2 | Forest |
| Holmes | WATERBODY CROSSING | 65.2 | 65.2 | 0.2 | Forest |
| Holmes | ACCESS ROAD / FABRICATION AREA | 65.6 | 65.6 | 0.1 | Forest |
| Holmes | ROAD CROSSING | 66.0 | 66.0 | 0.2 | Ag Land |
| Holmes | ROAD CROSSING | 66.0 | 66.0 | 0.1 | Ag Land |
| Holmes | FITTING / ACCESS ROAD | 66.1 | 66.1 | 0.1 | Ag Land |
| Holmes | WATERBODY CROSSING | 66.5 | 66.5 | 0.2 | Forest |
| Holmes | WATERBODY CROSSING | 66.5 | 66.5 | 0.2 | Forest |
| Holmes | FITTING / FABRICATION AREA | 66.6 | 66.6 | 0.2 | Forest |
| Holmes | ACCESS RD / FABRICATION AREA | 66.7 | 66.7 | 0.1 | Ag Land |
| Holmes | ACCESS RD / FABRICATION AREA | 66.8 | 66.8 | 0.1 | Ag Land |
| Holmes | FITTING / FABRICATION AREA | 66.9 | 67.0 | 0.2 | Forest |
| Holmes | ACCESS RD / FABRICATION AREA | 67.0 | 67.0 | 0.1 | Ag Land |
| Holmes | FITTING / FABRICATION AREA | 67.1 | 67.2 | 0.2 | Forest |
| Holmes | ROAD CROSSING | 67.5 | 67.6 | 0.2 | Forest |
| Holmes | ROAD CROSSING | 67.6 | 67.6 | 0.2 | Forest |
| Holmes | WETLAND CROSSING | 67.7 | 67.8 | 0.6 | Forest |
| Holmes | WETLAND CROSSING | 67.8 | 67.9 | 0.7 | Forest |
| Holmes | WETLAND CROSSING / ACCESS ROAD | 67.8 | 67.9 | 1.1 | Forest |
| Holmes | WETLAND CROSSING | 68.1 | 68.1 | 0.5 | Forest |
| Holmes | WETLAND CROSSING | 68.2 | 68.2 | 0.9 | Forest |
| Holmes | WETLAND CROSSING | 68.3 | 68.3 | 0.5 | Forest |
| Holmes | ACCESS RD / FABRICATION AREA | 68.5 | 68.6 | 0.1 | Forest |
| Holmes | WATERBODY CROSSING | 68.8 | 68.9 | 0.2 | Forest |
| Holmes | WATERBODY CROSSING | 68.9 | 68.9 | 0.2 | Forest |
| Holmes | FITTING / FABRICATION AREA | 68.9 | 68.9 | 0.1 | Ag Land |
| Holmes | FITTING / FABRICATION AREA | 69.0 | 69.0 | 0.1 | Ag Land |
| Holmes | ROAD CROSSING | 69.2 | 69.2 | 0.2 | Ag Land |
| Holmes | ROAD CROSSING | 69.2 | 69.2 | 0.2 | Forest |

**Table C-7 Temporary Work Space Areas**

| County | Name | Begin Milepost | End Milepost | Size (in acres) | Land Use |
|---|---|---|---|---|---|
| Holmes | WATERBODY CROSSING | 69.3 | 69.3 | 0.2 | Forest |
| Holmes | FITTING / FABRICATION AREA | 69.4 | 69.4 | 0.1 | Forest |
| Holmes | ACCESS RD / FABRICATION AREA | 70.3 | 70.3 | 0.1 | Forest |
| Holmes | WETLAND CROSSING | 70.5 | 70.6 | 0.7 | Forest |
| Holmes | WETLAND CROSSING | 70.7 | 70.7 | 0.7 | Forest |
| Holmes | WATERBODY CROSSING | 70.8 | 70.8 | 0.2 | Forest |
| Holmes | WATERBODY CROSSING | 70.8 | 70.8 | 0.2 | Forest |
| Holmes | FITTING / FABRICATION AREA | 70.9 | 70.9 | 0.1 | Ag Land |
| Holmes | ACCESS RD / FABRICATION AREA | 71.1 | 71.1 | 0.1 | Ag Land |
| Holmes | ROAD CROSSING | 71.3 | 71.3 | 0.2 | Forest |
| Holmes | ROAD CROSSING | 71.3 | 71.3 | 0.2 | Forest |
| Holmes | FITTING / FABRICATION AREA | 71.4 | 71.4 | 0.1 | Forest |
| Holmes | FITTING / FABRICATION AREA | 71.5 | 71.5 | 0.1 | Forest |
| Holmes | ACCESS RD / FABRICATION AREA | 71.7 | 71.7 | 0.1 | Ag Land |
| Holmes | WATERBODY CROSSING | 71.9 | 72.0 | 0.2 | Forest |
| Holmes | WATERBODY CROSSING | 72.0 | 72.0 | 0.2 | Forest |
| Holmes | ACCESS RD / FABRICATION AREA | 72.2 | 72.2 | 0.1 | Forest |
| Holmes | WETLAND CROSSING | 72.4 | 72.4 | 0.9 | Forest |
| Holmes | WETLAND CROSSING | 72.6 | 72.7 | 0.5 | Forest |
| Holmes | WETLAND CROSSING / ROAD CROSSING | 72.6 | 72.7 | 1.1 | Forest |
| Holmes | ROAD CROSSING | 72.7 | 72.8 | 0.1 | Forest |
| Holmes | ROAD CROSSING | 72.7 | 72.8 | 0.1 | Forest |
| Holmes | FITTING / FABRICATION AREA | 72.8 | 72.8 | 0.1 | Forest |
| Holmes | ROAD CROSSING | 73.5 | 73.5 | 0.3 | Forest |
| Holmes | ROAD CROSSING | 73.5 | 73.6 | 0.3 | Forest |
| Holmes | FITTING / FABRICATION AREA | 73.7 | 73.7 | 0.1 | Forest |
| Holmes | WATERBODY CROSSING | 73.8 | 73.8 | 0.2 | Forest |
| Holmes | WATERBODY CROSSING | 73.9 | 73.9 | 0.2 | Forest |
| Holmes | ROAD CROSSING | 73.9 | 74.0 | 0.2 | Forest |
| Holmes | ROAD CROSSING | 74.0 | 74.0 | 0.2 | Forest |
| Holmes | FITTING / FABRICATION AREA | 74.0 | 74.0 | 0.1 | Forest |
| Holmes | WATERBODY CROSSING | 74.2 | 74.2 | 0.2 | Forest |
| Holmes | WATERBODY CROSSING | 74.3 | 74.3 | 0.2 | Forest |

**Table C-7 Temporary Work Space Areas**

| County | Name | Begin Milepost | End Milepost | Size (in acres) | Land Use |
|---|---|---|---|---|---|
| Holmes | WATERBODY CROSSING | 74.7 | 74.7 | 0.2 | Ag Land |
| Holmes | WATERBODY CROSSING | 74.7 | 74.7 | 0.2 | Forest |
| Holmes | ACCESS RD / FABRICATION AREA | 75.1 | 75.1 | 0.1 | Ag Land |
| Holmes | FITTING / FABRICATION AREA | 75.2 | 75.2 | 0.2 | Ag Land |
| Holmes | FITTING / FABRICATION AREA | 75.7 | 75.7 | 0.1 | Forest |
| Holmes | ROAD CROSSING | 75.7 | 75.7 | 0.2 | Forest |
| Holmes | ROAD CROSSING | 75.7 | 75.7 | 0.1 | Ag Land |
| Holmes | FITTING / FABRICATION AREA | 75.8 | 75.8 | 0.1 | Ag Land |
| Holmes | WATERBODY CROSSING | 75.9 | 75.9 | 0.3 | Ag Land |
| Holmes | ROAD CROSSING | 76.1 | 76.1 | 0.2 | Forest |
| Holmes | ROAD CROSSING | 76.1 | 76.1 | 0.2 | Forest |
| Holmes | ROAD CROSSING / FITTING / FABRICATION AREA | 76.1 | 76.1 | 0.3 | Forest |
| Holmes | WATERBODY CROSSING | 76.2 | 76.2 | 0.5 | Forest |
| Holmes | WATERBODY CROSSING / FITTING / FABRICATION AREA | 76.4 | 76.4 | 0.6 | Forest |
| Holmes | ACCESS RD / FABRICATION AREA | 77.2 | 77.2 | 0.1 | Forest |
| Holmes | HORIZONTAL DIRECTIONAL DRILL | 77.2 | 77.6 | 2.1 | Forest |
| Attala | HORIZONTAL DIRECTIONAL DRILL | 77.8 | 77.9 | 1.4 | Forest |
| Attala | WETLAND CROSSING | 78.0 | 78.1 | 0.3 | Ag Land |
| Attala | WETLAND CROSSING | 78.0 | 78.1 | 0.2 | Ag Land |
| Attala | ACCESS RD / FABRICATION AREA | 78.1 | 78.2 | 0.1 | Ag Land |
| Attala | WETLAND CROSSING | 78.2 | 78.2 | 0.2 | Forest |
| Attala | WETLAND CROSSING | 78.2 | 78.2 | 0.3 | Forest |
| Attala | ROAD CROSSING | 78.6 | 78.6 | 0.2 | Forest |
| Attala | ROAD CROSSING / FITTING / FABRICATION AREA | 78.6 | 78.6 | 0.1 | Forest |
| Attala | ROAD CROSSING | 78.6 | 78.7 | 0.2 | Forest |
| Attala | ACCESS RD / FABRICATION AREA | 78.9 | 78.9 | 0.1 | Ag Land |
| Attala | FITTING / FABRICATION AREA | 79.9 | 80.0 | 0.1 | Forest |
| Attala | ROAD CROSSING | 80.1 | 80.2 | 0.2 | Forest |
| Attala | ROAD CROSSING | 80.2 | 80.2 | 0.2 | Forest |
| Attala | ROAD CROSSING | 80.2 | 80.2 | 0.1 | Forest |
| Attala | FITTING / FABRICATION AREA | 80.2 | 80.2 | 0.1 | Forest |
| Attala | FITTING / FABRICATION AREA | 80.6 | 80.7 | 0.1 | Ag Land |
| Attala | WATERBODY CROSSING | 80.7 | 80.7 | 0.2 | Ag Land |

## Table C-7 Temporary Work Space Areas

| County | Name | Begin Milepost | End Milepost | Size (in acres) | Land Use |
|---|---|---|---|---|---|
| Attala | WATERBODY CROSSING | 80.8 | 80.8 | 0.2 | Ag Land |
| Attala | ROAD CROSSING | 81.1 | 81.1 | 0.2 | Ag Land |
| Attala | ROAD CROSSING | 81.1 | 81.2 | 0.2 | Forest |
| Attala | ACCESS ROAD | 81.6 | 81.6 | 0.1 | Ag Land |
| Attala | ROAD CROSSING | 81.8 | 81.8 | 0.2 | Forest |
| Attala | ROAD CROSSING | 81.8 | 81.8 | 0.2 | Forest |
| Attala | FITTING / FABRICATION AREA | 82.2 | 82.2 | 0.1 | Ag Land |
| Attala | WETLAND CROSSING | 82.2 | 82.3 | 0.2 | Ag Land |
| Attala | ROAD CROSSING | 82.3 | 82.3 | 0.1 | Ag Land |
| Attala | WETLAND CROSSING | 82.4 | 82.4 | 0.1 | Ag Land |
| Attala | WETLAND CROSSING | 82.4 | 82.5 | 0.5 | Ag Land |
| Attala | WETLAND CROSSING | 82.5 | 82.6 | 0.5 | Ag Land |
| Attala | WETLAND CROSSING | 82.9 | 83.0 | 1.1 | Forest |
| Attala | WETLAND CROSSING | 83.4 | 83.4 | 0.2 | Forest |
| Attala | ROAD CROSSING | 83.4 | 83.4 | 0.1 | Forest |
| Attala | ROAD CROSSING | 83.4 | 83.5 | 0.2 | Ag Land |
| Attala | FITTING / FABRICATION AREA | 83.5 | 83.5 | 0.1 | Ag Land |
| Attala | FITTING / FABRICATION AREA | 83.6 | 83.6 | 0.1 | Ag Land |
| Attala | WATERBODY CROSSING | 83.6 | 83.7 | 0.3 | Ag Land |
| Attala | WATERBODY CROSSING | 84.0 | 84.0 | 0.2 | Forest |
| Attala | WATERBODY CROSSING | 84.1 | 84.1 | 0.2 | Forest |
| Attala | ROAD CROSSING | 84.2 | 84.2 | 0.2 | Ag Land |
| Attala | ROAD CROSSING | 84.2 | 84.2 | 0.2 | Ag Land |
| Attala | WETLAND CROSSING | 84.3 | 84.4 | 0.5 | Ag Land |
| Attala | WETLAND CROSSING | 84.4 | 84.4 | 0.5 | Ag Land |
| Attala | ROAD CROSSING | 84.8 | 84.9 | 0.2 | Forest |
| Attala | WETLAND CROSSING | 84.9 | 85.0 | 0.5 | Ag Land |
| Attala | WETLAND CROSSING | 85.0 | 85.1 | 0.5 | Ag Land |
| Attala | WETLAND CROSSING | 85.2 | 85.3 | 1.0 | Ag Land |
| Attala | WETLAND CROSSING | 85.9 | 86.0 | 0.7 | Ag Land |
| Attala | POWER LINE / RAILROAD CROSSING | 85.9 | 86.3 | 1.9 | Ag Land |
| Attala | POWER LINE / RAILROAD CROSSING | 86.1 | 86.3 | 1.0 | Ag Land |
| Attala | WETLAND CROSSING | 86.6 | 86.7 | 2.1 | Ag Land |

**Table C-7 Temporary Work Space Areas**

| County | Name | Begin Milepost | End Milepost | Size (in acres) | Land Use |
|---|---|---|---|---|---|
| Attala | FITTING / FABRICATION AREA | 87.5 | 87.5 | 0.1 | Ag Land |
| Attala | ROAD CROSSING | 86.2 | 86.2 | 0.1 | Ag Land |
| Attala | ROAD CROSSING | 87.6 | 87.6 | 0.2 | Ag Land |
| Attala | ROAD CROSSING | 87.6 | 87.6 | 0.2 | Ag Land |
| Attala | WATERBODY CROSSING | 87.7 | 87.7 | 0.2 | Ag Land |
| Attala | WATERBODY CROSSING | 87.8 | 87.8 | 0.2 | Ag Land |
| Attala | WATERBODY CROSSING | 87.9 | 87.9 | 0.2 | Ag Land |
| Attala | WATERBODY CROSSING | 88.0 | 88.0 | 0.2 | Ag Land |
| Attala | FITTING / FABRICATION AREA | 88.0 | 88.1 | 0.1 | Ag Land |
| Attala | WETLAND CROSSING | 88.7 | 88.7 | 0.3 | Forest |
| Attala | WETLAND CROSSING | 88.9 | 88.9 | 0.3 | Ag Land |
| Attala | ROAD CROSSING | 88.9 | 89.0 | 0.1 | Ag Land |
| Attala | WATERBODY CROSSING | 89.0 | 89.0 | 0.1 | Ag Land |
| Attala | WETLAND CROSSING | 89.1 | 89.1 | 0.2 | Forest |
| Attala | WETLAND CROSSING | 89.3 | 89.4 | 0.5 | Forest |
| Attala | WATERBODY CROSSING | 90.0 | 90.1 | 0.2 | Forest |
| Attala | WATERBODY CROSSING | 90.1 | 90.1 | 0.2 | Forest |
| Attala | ROAD CROSSING | 90.6 | 90.6 | 0.2 | Ag Land |
| Attala | ROAD CROSSING | 90.6 | 90.6 | 0.2 | Ag Land |
| Attala | WATERBODY CROSSING | 90.9 | 90.9 | 0.3 | Ag Land |
| Attala | WATERBODY CROSSING | 91.0 | 91.1 | 0.3 | Ag Land |
| Attala | WATERBODY CROSSING | 91.2 | 91.2 | 0.2 | Ag Land |
| Attala | WATERBODY CROSSING | 91.3 | 91.4 | 0.3 | Ag Land |
| Attala | WATERBODY CROSSING | 91.5 | 91.6 | 0.4 | Forest |
| Attala | ROAD CROSSING | 92.1 | 92.1 | 0.1 | Ag Land |
| Attala | ROAD CROSSING | 92.2 | 92.2 | 0.5 | Ag Land |
| Attala | ROAD CROSSING | 92.3 | 92.3 | 0.1 | Ag Land |
| Attala | HORIZONTAL DIRECTIONAL DRILL | 92.6 | 92.6 | 1.4 | Ag Land |
| Attala | HORIZONTAL DIRECTIONAL DRILL | 93.6 | 94.7 | 7.1 | Ag Land |
| Attala | ROAD CROSSING | 94.3 | 94.3 | 0.2 | Ag Land |
| Attala | ROAD CROSSING | 94.3 | 94.3 | 0.2 | Ag Land |
| Attala | ROAD CROSSING | 94.8 | 94.8 | 0.2 | Ag Land |
| Attala | ROAD CROSSING | 94.8 | 94.8 | 0.1 | Ag Land |

**Table C-7 Temporary Work Space Areas**

| County | Name | Begin Milepost | End Milepost | Size (in acres) | Land Use |
|---|---|---|---|---|---|
| Attala | ROAD CROSSING | 96.1 | 96.1 | 0.2 | Ag Land |
| Attala | FITTING / FABRICATION AREA | 96.1 | 96.1 | 0.1 | Ag Land |
| **Kosciusko 36” Lateral** | | | | | |
| Attala | ROAD CROSSING | 0.3 | 0.4 | 0.1 | Ag Land |
| Attala | ROAD CROSSING | 0.4 | 0.4 | 0.3 | Forest |
| Attala | ROAD CROSSING | 0.4 | 0.4 | 0.1 | Ag Land |
| Attala | ROAD CROSSING | 0.4 | 0.4 | 0.1 | Forest |
| **Kosciusko 20” Lateral** | | | | | |
| Attala | ROAD CROSSING | 0.2 | 0.2 | 0.2 | Forest |
| Attala | ROAD CROSSING | 0.2 | 0.3 | 0.2 | Ag Land |

# APPENDIX C-8

# ACCESS ROADS

**Table C-8**

**Access Roads**

| Road ID Number | County | Milepost (in miles) | Modification | Modify Type | Length (in feet) | Width (in feet) | Temporary (T) or Permanent (P) Land Requirement | Temporary or Permanent Land Requirement (in acres) |
|---|---|---|---|---|---|---|---|---|
| **Fayetteville Lateral (AR counties except as indicated)** | | | | | | | | |
| 55 | Conway | 0 | Yes | 3 | 688 | 20 | P | 0.3 |
| 55A | Conway | 0.1 | Yes | 3 | 8 | 20 | T | 0 |
| 48 | Conway | 0.6 | Yes | 3 | 1,699 | 20 | T | 0.8 |
| 49 | Conway | 1.9 | Yes | 3 | 2,112 | 20 | T | 1 |
| 56 | Conway | 3.1 | Yes | 2 | 1,582 | 20 | P | 0.7 |
| 54 | Conway | 5.2 | Yes | 3 | 346 | 20 | T | 0.2 |
| 50A | Conway | 6.7 | Yes | 3 | 91 | 20 | P | 0 |
| 50 | Conway | 6.7 | No | | 1,818 | 20 | T | 0.8 |
| 1 | Faulkner | 8.3 | No | | 2,346 | 20 | T | 1.1 |
| 57 | Faulkner | 9.4 | Yes | 3 | 77 | 20 | P | 0 |
| 2 | Faulkner | 12.2 | Yes | 3 | 2,753 | 20 | T | 1.3 |
| 3 | Faulkner | 12.9 | Yes | 2 | 3,626 | 20 | T | 1.7 |
| 67 | Faulkner | 13.4 | Yes | 3 | 14 | 20 | P | 0 |
| 68 | Faulkner | 16.5 | Yes | 3 | 49 | 20 | P | 0 |
| 58 | Faulkner | 19.6 | Yes | 3 | 567 | 20 | P | 0.3 |
| 5 | Faulkner | 22.7 | Yes | 2 | 579 | 20 | T | 0.3 |
| 59 | Faulkner | 23.5 | Yes | 2 | 484 | 20 | T | 0.2 |
| 59A | Faulkner | 23.5 | Yes | 3 | 729 | 20 | P | 0.3 |
| 6 | Faulkner | 27.4 | Yes | 2 | 671 | 20 | T | 0.3 |
| 76 | Faulkner | 28.5 | Yes | 3 | 288 | 20 | P | 0.1 |
| 7 | White | 30.6 | No | | 1,643 | 20 | T | 0.8 |
| 69 | White | 31.6 | No | | 1,583 | 20 | T | 0.7 |
| 60 | White | 32.8 | Yes | 3 | 1,586 | 20 | P | 0.7 |
| 70 | White | 35.9 | Yes | 3 | 14 | 20 | P | 0 |
| 78 | White | 38.9 | Yes | 2 | 54 | 20 | P | 0 |
| 71 | White | 39.2 | Yes | 3 | 41 | 20 | P | 0 |
| 77 | White | 45.9 | Yes | 3 | 1,494 | 20 | P | 0.7 |
| 9 | White | 48.4 | Yes | 2 | 5,215 | 20 | T | 2.4 |
| 72 | White | 50.4 | Yes | 3 | 15 | 20 | P | 0 |
| 10 | White | 52.2 | Yes | 2 | 11,653 | 20 | T | 5.4 |
| 11 | White | 52.2 | Yes | 2 | 11,690 | 20 | T | 5.4 |
| 79 | White | 54.3 | Yes | 3 | 94 | 20 | P | 0 |
| 73 | White | 55.5 | Yes | 3 | 14 | 20 | P | 0 |
| 12 | White | 56.4 | Yes | 2 | 1,128 | 20 | T | 0.5 |
| 13 | White | 63.8 | Yes | 2 | 229 | 20 | T | 0.1 |
| 74 | White | 64.1 | Yes | 3 | 13 | 20 | P | 0 |
| 62A | White | 64.4 | Yes | 3 | 2,626 | 20 | T | 1.2 |
| 62 | White | 64.6 | Yes | 1 | 132 | 20 | T | 0.1 |
| 14 | White | 65 | Yes | 2 | 2,774 | 20 | T | 1.3 |
| 63 | White | 65.9 | Yes | 3 | 729 | 20 | P | 0.3 |

**Table C-8**

**Access Roads**

| Road ID Number | County | Milepost (in miles) | Modification | Modify Type | Length (in feet) | Width (in feet) | Temporary (T) or Permanent (P) Land Requirement | Temporary or Permanent Land Requirement (in acres) |
|---|---|---|---|---|---|---|---|---|
| 15 | Woodruff | 70.6 | Yes | 2 & 4 | 16,740 | 20 | T | 7.7 |
| 16 | Woodruff | 72.8 | Yes | 2 | 2,113 | 20 | T | 1 |
| 75 | Woodruff | 73.3 | Yes | 3 | 1,708 | 20 | T | 0.8 |
| 17 | Woodruff | 73.7 | Yes | 2 | 4,313 | 20 | T | 2 |
| 17B | Woodruff | 73.9 | Yes | 2 | 1,233 | 20 | T | 0.6 |
| 17A | Woodruff | 74.2 | Yes | 2 | 162 | 20 | T | 0.1 |
| 18 | Woodruff | 77.1 | Yes | 2 | 87 | 20 | T | 0 |
| 19 | Woodruff | 78 | Yes | 2 | 65 | 20 | T | 0 |
| 80 | Woodruff | 85.4 | Yes | 3 | 39 | 20 | P | 0 |
| 20 | Woodruff | 95.2 | Yes | 2 | 2,600 | 20 | T | 1.2 |
| 64 | Woodruff | 96 | Yes | 2 | 188 | 20 | T | 0.1 |
| 64 | Woodruff | 96 | Yes | 2 | 188 | 20 | T | 0.1 |
| 21A | Woodruff | 104.6 | Yes | 2 | 862 | 20 | T | 0.4 |
| 21 | Woodruff | 104.7 | Yes | 2 | 3,437 | 20 | T | 1.6 |
| 81 | Woodruff | 105.3 | Yes | 3 | 90 | 20 | P | 0 |
| 22 | Woodruff | 106.8 | Yes | 2 | 435 | 20 | T | 0.2 |
| 23 | St. Francis | 109.9 | Yes | 2 | 622 | 20 | T | 0.3 |
| 24 | St. Francis | 110.7 | Yes | 2 | 3,394 | 20 | T | 1.6 |
| 24A | St. Francis | 110.7 | Yes | 2 | 2,162 | 20 | T | 1 |
| 25 | St. Francis | 111 | Yes | 2 | 5,289 | 20 | T | 2.4 |
| 26A | St. Francis | 112.9 | Yes | 3 & 4 | 913 | 20 | T | 0.4 |
| 26 | St. Francis | 113.4 | Yes | 2 | 4,326 | 20 | T | 2 |
| 27 | Lee | 119.1 | Yes | 2 | 2,855 | 20 | T | 1.3 |
| 28 | Lee | 119.1 | Yes | 2 | 3,857 | 20 | T | 1.8 |
| 82 | Lee | 120.2 | Yes | 3 | 25 | 20 | P | 0 |
| 29 | Lee | 120.8 | Yes | 2 | 3,293 | 20 | T | 1.5 |
| 29A | Lee | 121 | Yes | 2 | 569 | 20 | T | 0.3 |
| 30 | Lee | 123 | Yes | 2 | 492 | 20 | T | 0.2 |
| 31 | Lee | 133 | Yes | 2 | 2,898 | 20 | T | 1.3 |
| 31A | Lee | 133.2 | Yes | 2 | 745 | 20 | T | 0.3 |
| 83 | Lee | 136 | Yes | 3 | 14 | 20 | P | 0 |
| 32 | Phillips | 140.2 | Yes | 2 | 253 | 20 | T | 0.1 |
| 33 | Phillips | 141.4 | Yes | 2 | 3,848 | 20 | T | 1.8 |
| 33A | Phillips | 141.9 | Yes | 2 | 2,688 | 20 | T | 1.2 |
| 35 | Phillips | 146.4 | Yes | 3 | 356 | 20 | T | 0.2 |
| 36 | Phillips | 146.4 | Yes | 2 | 106 | 20 | T | 0 |
| 37 | Phillips | 150 | Yes | 2 | 2,446 | 20 | T | 1.1 |
| 38 | Phillips | 153 | Yes | 2 | 4,853 | 20 | T | 2.2 |
| 84 | Phillips | 153.2 | Yes | 3 | 53 | 20 | P | 0 |
| 65A | Phillips | 153.8 | Yes | 2 | 4,146 | 20 | T | 1.9 |
| 65 | Phillips | 154 | Yes | 2 | 5,365 | 20 | T | 2.5 |

**Table C-8**

**Access Roads**

| Road ID Number | County | Milepost (in miles) | Modification | Modify Type | Length (in feet) | Width (in feet) | Temporary (T) or Permanent (P) Land Requirement | Temporary or Permanent Land Requirement (in acres) |
|---|---|---|---|---|---|---|---|---|
| 66 | Phillips | 154.7 | Yes | 3 & 4 | 1,942 | 20 | T | 0.9 |
| 52B | Phillips | 156.3 | Yes | 1 | 6,172 | 20 | T | 2.8 |
| 52 | Phillips | 156.4 | Yes | 2 | 7,713 | 20 | T | 3.5 |
| 52A | Phillips | 156.6 | Yes | 4 | 1,538 | 20 | T | 0.7 |
| 41 | Coahoma, MS | 158.3 | Yes | 4 | 7,895 | 20 | T | 3.6 |
| 41B | Coahoma , MS | 158.5 | Yes | 4 | 1,010 | 20 | T | 0.5 |
| 41A | Coahoma, MS | 158.6 | Yes | 4 | 2,245 | 20 | T | 1 |
| 51 | Coahoma, MS | 158.8 | Yes | 1 & 4 | 3,908 | 20 | T | 1.8 |
| 53 | Coahoma, MS | 160.7 | Yes | 1 | 5,908 | 20 | T | 2.7 |
| 43 | Coahoma, MS | 160.8 | Yes | 1 | 6,722 | 20 | T | 3.1 |
| 45 | Coahoma, MS | 161.6 | Yes | 2 | 65 | 20 | T | 0 |
| 44 | Coahoma, MS | 162.2 | Yes | 1 | 3,433 | 20 | T | 1.6 |
| 46 | Coahoma, MS | 164.7 | Yes | 1 | 393 | 20 | T | 0.2 |
| 47A | Coahoma, MS | 166.1 | Yes | 2 | 1,284 | 20 | T | 0.6 |
| 47 | Coahoma, MS | 166.2 | Yes | 2 | 4,012 | 20 | P | 1.8 |
| 47B | Coahoma, MS | 166.2 | Yes | 2 | 555 | 20 | P | 0.3 |
| **Greenville Lateral (MS counties)** | | | | | | | | |
| 0 | Washington | 1.6 | Yes | 1, 4 | 800 | 25 | P | 0.5 |
| 1 | Washington | 4.9 | Yes | 1, 3 | 3,800 | 25 | T | 2.2 |
| 2 | Washington | 7.1 | Yes | 1 | 5,200 | 25 | P | 3.1 |
| 3 | Washington | 9.4 | Yes | 1 | 3,900 | 25 | T | 2.2 |
| 5 | Washington | 17.3 | Yes | 1 | 5,400 | 25 | T | 3.1 |
| 6 | Washington | 17.9 | Yes | 1 | 5,000 | 25 | T | 2.9 |
| 7 | Washington | 20.0 | Yes | 1, 3, 4 | 3,900 | 20 +/- | T | 1.8 |
| 8 | Humphreys | 20.4 | Yes | 1 | 1,300 | 25 | T | 0.7 |
| 9 | Humphreys | 21.6 | Yes | 1 | 2,800 | 25 | T | 1.6 |
| 10 | Humphreys | 26.2 | Yes | 1 | 1,300 | 25 | T | 0.7 |
| 11 | Humphreys | 28.4 | Yes | 1, 2 | 300 | 12 | T | 0.1 |
| 12 | Humphreys | 29.5 | Yes | 1, 2 | 1,300 | 12 +/- | T | 0.4 |
| 12A | Humphreys | 29.8 | Yes | 1, 4 | 1,000 | 25 | P | 0.6 |
| 13 | Humphreys | 32.8 | No | | 1,000 | 25 | T | 0.6 |
| 14 | Humphreys | 36.7 | Yes | 2, 1 | 2,600 | 20 +/- | T | 1.2 |
| 15 | Humphreys | 39.7 | Yes | 1 | 3,300 | 25 | P | 1.9 |
| 16 | Humphreys | 40.6 | No | | 200 | 25 | T | 0.1 |
| 17 | Humphreys | 43.0 | Yes | 1 | 100 | 25 | T | 0.1 |
| 18 | Humphreys | 44.3 | Yes | 1 | 4,000 | 25 | T | 2.3 |
| 19 | Humphreys | 45.5 | Yes | 1, 2 | 6,200 | 25 | T | 3.6 |
| 22 | Holmes | 51.2 | Yes | 1 | 350 | 25 | T | 0.2 |
| 23 | Holmes | 51.8 | Yes | 1 | 3,900 | 25 | T | 2.2 |
| 24 | Holmes | 52.4 | No | | 6,500 | 25 | T | 3.7 |
| 24A | Holmes | 54.0 | Yes | 1 | 1,200 | 25 | P | 0.7 |

**Table C-8**

**Access Roads**

| Road ID Number | County | Milepost (in miles) | Modification | Modify Type | Length (in feet) | Width (in feet) | Temporary (T) or Permanent (P) Land Requirement | Temporary or Permanent Land Requirement (in acres) |
|---|---|---|---|---|---|---|---|---|
| 25 | Holmes | 54.2 | No | | 2,700 | 25 | T | 1.5 |
| 26 | Holmes | 55.3 | Yes | 1, 2 | 100 | 25 | T | 0.1 |
| 30 | Holmes | 55.7 | Yes | 1, 2 | 300 | 25 | T | 0.2 |
| 31 | Holmes | 56.1 | Yes | 1 | 200 | 25 | T | 0.1 |
| 32 | Holmes | 56.6 | Yes | 1 | 1,300 | 25 | T | 0.7 |
| 33 | Holmes | 56.9 | Yes | 1, 2 4 | 1,200 | 25 | T | 0.7 |
| 34 | Holmes | 57.2 | Yes | 1 | 250 | 25 | T | 0.1 |
| 35 | Holmes | 57.8 | Yes | 1 | 500 | 25 | T | 0.3 |
| 36 | Holmes | 58.2 | Yes | 1 | 200 | 25 | T | 0.1 |
| 37 | Holmes | 59.1 | Yes | 1 | 450 | 25 | T | 0.3 |
| 38 | Holmes | 59.6 | Yes | 1 | 500 | 25 | T | 0.3 |
| 39 | Holmes | 59.9 | Yes | 1 | 350 | 25 | T | 0.2 |
| 40 | Holmes | 60.5 | Yes | 1 | 600 | 25 | T | 0.3 |
| 41 | Holmes | 60.8 | Yes | 1 | 350 | 25 | T | 0.2 |
| 42 | Holmes | 60.9 | Yes | 1 | 200 | 25 | T | 0.1 |
| 43 | Holmes | 61.2 | Yes | 1, 3 | 500 | 25 | T | 0.3 |
| 44 | Holmes | 62.8 | Yes | 1, 3, 4 | 3,800 | 25 | T | 2.2 |
| 45 | Holmes | 64.5 | Yes | 1, 2 | 1,000 | 25 | T | 0.6 |
| 47 | Holmes | 65.6 | No | | 300 | 25 | T | 0.2 |
| 47A | Holmes | 66.1 | Yes | 1, 4 | 200 | 25 | P | 0.1 |
| 48 | Holmes | 66.8 | Yes | 1, 2, 3, 4 | 2,100 | 25 | T | 1.2 |
| 49 | Holmes | 67.0 | Yes | 1, 3, 4 | 900 | 25 | T | 0.5 |
| 50 | Holmes | 67.1 | Yes | 1, 3, 4 | 500 | 25 | T | 0.3 |
| 51 | Holmes | 67.7 | Yes | 1, 2, 3 | 800 | 25 | T | 0.5 |
| 52 | Holmes | 67.9 | Yes | 1, 2, 3, | 1,100 | 25 | T | 0.6 |
| 53 | Holmes | 68.2 | Yes | 1, 2, 3 | 1,000 | 25 | T | 0.6 |
| 54 | Holmes | 68.5 | Yes | 1, 2, 3 | 1,900 | 25 | T | 1.1 |
| 55 | Holmes | 70.3 | Yes | 1, 2, 3, 4 | 900 | 25 | T | 0.5 |
| 56 | Holmes | 71.1 | Yes | 1, 2, 3, 4 | 1,800 | 25 | T | 1.0 |
| 57 | Holmes | 71.7 | Yes | 1, 2, 3, 4 | 2,300 | 25 | T | 1.3 |
| 58 | Holmes | 72.2 | Yes | 1, 2, 3, 4 | 400 | 25 | T | 0.2 |
| 58A | Holmes | 73.0 | Yes | 1, 4 | 100 | 25 | P | 0.1 |
| 59 | Holmes | 75.1 | Yes | 1, 3 | 600 | 25 | T | 0.3 |
| 59A | Holmes | 75.8 | Yes | 1, 3, 4 | 2,200 | 25 | P | 1.3 |
| 60 | Holmes | 77.2 | Yes | 1, 2, 3 | 2,200 | 25 | P | 1.3 |
| 61 | Attala | 78.1 | Yes | 1, 2 | 2,100 | 25 | T | 1.2 |
| 62 | Attala | 78.9 | No | | 700 | 25 | T | 0.4 |
| 62A | Attala | 80.4 | Yes | 1, 2, 4 | 600 | 25 | T | 0.3 |
| 62B | Attala | 80.6 | Yes | 1, 2, 4 | 3,500 | 25 | T | 2.0 |

**Table C-8**

**Access Roads**

| Road ID Number | County | Milepost (in miles) | Modification | Modify Type | Length (in feet) | Width (in feet) | Temporary (T) or Permanent (P) Land Requirement | Temporary or Permanent Land Requirement (in acres) |
|---|---|---|---|---|---|---|---|---|
| 63 | Attala | 81.6 | Yes | 1, 3, 4 | 750 | 25 | T | 0.4 |
| 64 | Attala | 86.2 | Yes | 1 | 500 | 25 | T | 0.3 |
| 65 | Attala | 86.7 | Yes | 1, 2 | 2,700 | 25 | T | 1.5 |
| 66 | Attala | 89.9 | Yes | 1, 2 | 2,100 | 25 | T | 1.2 |
| 67 | Attala | 90.4 | Yes | 1, 2 | 800 | 25 | T | 0.5 |
| 68 | Attala | 91.6 | Yes | 1, 2 | 4,100 | 25 | T | 2.4 |
| 69 | Attala | 92.6 | Yes | 1, 2 | 2,000 | 25 | T | 1.1 |
| **Kosciusko 36-inch Tie-in Lateral** | | | | | | | | |
| | Attala | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| **Kosciusko 20-inch Tie-in Lateral** | | | | | | | | |
| | Attala | N/A | N/A | N/A | N/A | N/A | N/A | N/A |

Notes: Modification Type 1 - Maintain; 2 - Add gravel/widen; 3 - Construct with gravel/maintain; 4 - Board matting/install culvert

# APPENDIX C-9

# RIPARIAN ZONE DESCRIPTIONS WITHIN THE CONSTRUCTION CORRIDOR OF THE PROPOSED PIPELINE ROUTE

**Table C-9 Riparian Zone Descriptions Within the Construction Corridor of the Proposed Pipeline Route a/**

| County | Milepost | Stream ID | Waterbody Name and Type b/ | Riparian Zone Description | Size of Riparian Zone | Crossing Method c,d/ |
|---|---|---|---|---|---|---|
| **Fayetteville Lateral** | | | | | | |
| **Arkansas** | | | | | | |
| Conway | 0.2 | SRM001 | Tributary to Cypress Creek (Intermittent) | Mixed forest | 30 ft | OCM |
| Conway | 0.3 | SRM002 | Tributary to Cypress Creek (Intermittent) | Mixed forest | >100 ft | OCM |
| Conway | 1.3 | SRM003 | Tributary to Cypress Creek (Intermittent) | Mixed forest | >100 ft | OCM |
| Conway | 2.1 | srm005 | Tributary to Cypress Creek (Intermittent) | Mixed forest | 60 ft | OCM |
| Conway | 2.1 | srm006 | Tributary to Cypress Creek (Intermittent) | Mixed forest | 100 ft | OCM |
| Conway | 2.1 | srm006 | Tributary to Cypress Creek (Intermittent) | Mixed forest | 100 ft | OCM |
| Conway | 2.1 | srm006 | Tributary to Cypress Creek (Intermittent) | Mixed forest | 100 ft | OCM |
| Conway | 2.1 | srm007 | Tributary to Cypress Creek (Intermittent) | Mixed forest | 100 ft | OCM |
| Conway | 3.6 | srm009 | Tributary to Cypress Creek (Intermittent) | Mixed forest | >100 ft | OCM |
| Conway | 5.0 | srm012 | Tributary to Cedar Creek (Intermittent) | Mixed forest | 100 ft | OCM |
| Conway | 5.0 | srm012 | Tributary to Cedar Creek (Intermittent) | Mixed forest | >100 ft | OCM |
| Conway | 5.5 | srm015 | Tributary to Hog Branch (Intermittent) | Mixed forest | >100 ft | OCM |
| Conway | 5.7 | srm016 | Hog Branch (Intermittent) | Mixed forest | >100 ft | OCM |
| Conway | 5.8 | srm017 | Tributary to Hog Branch (Intermittent) | Mixed forest | >100 ft | OCM |
| Faulkner | 7.9 | srm014 | Cove Creek (Perennial) | Mixed forest | >100 ft | OCM |
| Faulkner | 9.3 | SCL 002 | Tributary to Cove Creek (Intermittent) | Mixed forest | >100 ft | OCM |
| Faulkner | 9.6 | SCL 005 | Tributary to Cove Creek (Intermittent) | Mixed forest | 100 ft | OCM |
| Faulkner | 9.9 | SCL 007 | Tributary to Cove Creek (Intermittent) | Mixed forest | 80 ft | OCM |
| Faulkner | 10.0 | SCL 009 | Tributary to Cove Creek (Intermittent) | Mixed forest | 30 ft | OCM |
| Faulkner | 10.9 | SCL 013 | Tributary to Batesville Creek (Intermittent) | Mixed forest | >100 ft | OCM |
| Faulkner | 11.0 | SCL 013 | Tributary to Batesville Creek (Intermittent) | Mixed forest | >100 ft | OCM |
| Faulkner | 11.0 | SCL 013 | Tributary to Batesville Creek (Intermittent) | Mixed forest | >100 ft | OCM |
| Faulkner | 11.0 | SCL 014 | Tributary to Batesville Creek (Intermittent) | Mixed forest | >100 ft | OCM |
| Faulkner | 11.0 | SCL 013 | Tributary to Batesville Creek (Intermittent) | Mixed forest | >100 ft | OCM |
| Faulkner | 11.0 | SCL 013 | Tributary to Batesville Creek (Intermittent) | Mixed forest | >100 ft | OCM |

## Table C-9 Riparian Zone Descriptions Within the Construction Corridor of the Proposed Pipeline Route a/

| County | Milepost | Stream ID | Waterbody Name and Type b/ | Riparian Zone Description | Size of Riparian Zone | Crossing Method c,d/ |
|---|---|---|---|---|---|---|
| Faulkner | 11.0 | SCL 011 | Tributary to Batesville Creek (Intermittent) | Mixed forest | >100 ft | OCM |
| Faulkner | 11.0 | SCL 011 | Tributary to Batesville Creek (Intermittent) | Mixed forest | >100 ft | OCM |
| Faulkner | 11.0 | SCL 011 | Tributary to Batesville Creek (Intermittent) | Mixed forest | >100 ft | OCM |
| Faulkner | 11.2 | SCL 016 | Tributary to Batesville Creek (Intermittent) | Mixed forest | >100 ft | OCM |
| Faulkner | 11.4 | SCL 020 | Tributary to Batesville Creek (Intermittent) | Mixed forest | >100 ft | OCM |
| Faulkner | 11.9 | SCL 029 | Tributary to Batesville Creek (Intermittent) | Mixed forest | >100 ft | OCM |
| Faulkner | 12.3 | SCL 032 | Tributary to Batesville Creek (Intermittent) | Evergreen forest | >100 ft | OCM |
| Faulkner | 12.6 | SCL 037 | Tributary to Batesville Creek (Perennial) | Mixed forest | 60 ft | OCM |
| Faulkner | 12.8 | SCL 038 | Batesville Creek (Perennial) | Mixed forest | >100 ft | OCM |
| Faulkner | 12.9 | DLS S1 | Tributary to Batesville Creek (Perennial) | Mixed forest | >100 ft | OCM |
| Faulkner | 13.8 | SCL 052 | Tributary to Cadron Creek (Intermittent) | Deciduous forest | 80 ft | OCM |
| Faulkner | 13.8 | SCL 052 | Tributary to Cadron Creek (Intermittent) | Deciduous forest | 80 ft | OCM |
| Faulkner | 13.8 | SCL 052 | Tributary to Cadron Creek (Intermittent) | Deciduous forest | 80 ft | OCM |
| Faulkner | 14.0 | SCL 053 | Cadron Creek (Perennial) | Deciduous forest | >100 ft | OCM |
| Faulkner | 14.4 | SCL 058 | Tributary to Wolf Branch (Intermittent) | Mixed forest | 80 ft | OCM |
| Faulkner | 14.8 | SCL 061 | Wolf Branch of Cadron Creek (Intermittent) | Mixed forest | 80 ft | OCM |
| Faulkner | 15.3 | SCL 066 | Tributary to Wolf Branch (Intermittent) | Mixed forest | 60 ft | OCM |
| Faulkner | 15.6 | SCL 068 | Tributary to Wolf Branch (Intermittent) | Mixed forest | >100 ft | OCM |
| Faulkner | 15.8 | SCL 070 | Tributary to Wolf Branch (Intermittent) | Mixed forest | >100 ft | OCM |
| Faulkner | 16.0 | SCL 072 | Tributary to Wolf Branch (Intermittent) | Mixed forest to south, Evergreen forest to north | >100 ft | OCM |
| Faulkner | 17.6 | SCL 086 | Tributary to Stillhouse Branch (Intermittent) | Deciduous forest | 400 ft | OCM |
| Faulkner | 17.6 | SCL 087 | Tributary to Stillhouse Branch (Intermittent) | Mixed forest | >100 ft | OCM |
| Faulkner | 17.7 | SCL 091 | Tributary to Stillhouse Branch (Intermittent) | Mixed forest | >100 ft | OCM |
| Faulkner | 17.8 | SCL 092 | Tributary to Stillhouse Branch (Intermittent) | Mixed forest | >100 ft | OCM |
| Faulkner | 17.9 | SCL 093 | Stillhouse Branch (Perennial) | Deciduous forest | >100 ft | OCM |
| Faulkner | 17.9 | SCL 094 | Tributary to Stillhouse Branch (Intermittent) | Deciduous forest | >100 ft | OCM |
| Faulkner | 18.0 | SCL 094 | Tributary to Stillhouse Branch (Intermittent) | Mixed forest | >100 ft | OCM |
| Faulkner | 18.0 | SCL 094 | Tributary to Stillhouse Branch (Intermittent) | Mixed forest | >100 ft | OCM |
| Faulkner | 18.5 | SCL 099 | Tributary to Stillhouse Branch (Intermittent) | Deciduous forest | >100 ft | OCM |

**Table C-9 Riparian Zone Descriptions Within the Construction Corridor of the Proposed Pipeline Route a/**

| County | Milepost | Stream ID | Waterbody Name and Type b/ | Riparian Zone Description | Size of Riparian Zone | Crossing Method c,d/ |
|---|---|---|---|---|---|---|
| Faulkner | 18.7 | SCL 100 | Tributary to Stillhouse Branch (Intermittent) | Deciduous forest | >100 ft | OCM |
| Faulkner | 19.1 | SCL 103 | Tributary to Stillhouse Branch (Intermittent) | Mixed forest | >100 ft | OCM |
| Faulkner | 20.2 | SCL 111 | King Branch (Perennial) | Deciduous forest | >100 ft | OCM |
| Faulkner | 20.6 | SCL 119 | Tributary to King Branch (Intermittent) | Deciduous forest | >100 ft | OCM |
| | | | | | | |
| Faulkner | 20.9 | SCL 120 | Tributary to King Branch (Intermittent) | Deciduous forest | >100 ft | OCM |
| Faulkner | 23.1 | SCL 132 | Tributary to Mortar Creek (Intermittent) | Mixed forest | 450 ft | OCM |
| Faulkner | 23.2 | SCL 139 | Tributary to Mortar Creek (Intermittent) | Mixed forest | >100 ft | OCM |
| Faulkner | 23.3 | SCL 140 | Mortar Creek (Perennial) | Mixed forest | >100 ft | OCM |
| Faulkner | 24.3 | SCL 145 | Tributary to Buck Branch (Intermittent) | Mixed forest | >100 ft | OCM |
| Faulkner | 24.6 | SCL 147 | Tributary to Buck Branch (Intermittent) | Deciduous forest | >100 ft | OCM |
| Faulkner | 24.9 | SCL 149 | Tributary to Buck Branch (Intermittent) | Mixed forest | >100 ft | OCM |
| Faulkner | 26.9 | SCL 161 | Tributary to Clear Creek (Intermittent) | Mixed forest | >100 ft | OCM |
| Faulkner | 27.2 | SCL 165 | Tributary to Clear Creek (Intermittent) | Mixed forest | >100 ft | OCM |
| Faulkner | 27.6 | SCL 167 | Tributary to Brier Branch (Intermittent) | Deciduous forest to west, Mixed forest to east | >100 ft | OCM |
| Faulkner | 28.5 | SCL 174 | Tributary to East Fork of Cadron Creek (Perennial) | Mixed forest | >100 ft | OCM |
| Faulkner | 28.9 | SCL 175 | Tributary to East Fork of Cadron Creek (Intermittent) | Mixed forest | 60 ft | OCM |
| White | 29.6 | SCL 179 | Tributary to Piney Creek (Intermittent) | Mixed forest | >100 ft | OCM |
| White | 29.7 | SCL 180 | Piney Creek (Perennial) | Mixed forest | >100 ft | OCM |
| White | 30.5 | SCL 183 | Tributary to East Fork of Cadron Creek (Intermittent) | Evergreen forest | >100 ft | OCM |
| White | 30.7 | SCL 185 | Tributary to East Fork of Cadron Creek (Intermittent) | Evergreen forest | 60 ft | OCM |
| White | 31.3 | SCL 186 | Tributary to Jones Creek (Intermittent) | Mixed forest | >100 ft | OCM |
| White | 32.0 | SCL 191 | Jones Creek (Perennial) | Mixed forest | >100 ft | OCM |
| White | 32.0 | SCL 191 | Jones Creek (Perennial) | Mixed forest | 30 ft | OCM |
| White | 32.4 | SCL 194 | Tributary to Graham Branch (Intermittent) | Mixed forest | >100 ft | OCM |
| White | 33.0 | TDH S2 | Tributary to Graham Branch (Perennial) | Mixed forest | >100 ft | OCM |

## Table C-9 Riparian Zone Descriptions Within the Construction Corridor of the Proposed Pipeline Route a/

| County | Milepost | Stream ID | Waterbody Name and Type b/ | Riparian Zone Description | Size of Riparian Zone | Crossing Method c,d/ |
|---|---|---|---|---|---|---|
| White | 34.6 | SCL 215 | Tributary to Graham Branch (Intermittent) | Mixed forest | >100 ft | OCM |
| White | 35.1 | SCL 216 | Tributary to Brush Creek (Intermittent) | Mixed forest | 100 ft | OCM |
| White | 35.4 | SCL 217 | Tributary to Brush Creek (Intermittent) | Deciduous forest | 50 ft | OCM |
| White | 35.4 | SCL 218 | Tributary to Brush Creek (Intermittent) | Deciduous forest | 50 ft | OCM |
| White | 35.5 | SCL 220 | Tributary to Brush Creek (Intermittent) | Mixed forest | >100 ft | OCM |
| White | 36.1 | SCL 225 | Big Hollow Tributary (Intermittent) | Deciduous forest | >100 ft | OCM |
| White | 36.4 | SCL 227 | Big Hollow Creek (Intermittent) | Mixed forest to west, Evergreen forest to east | >100 ft, >100 ft | OCM |
| White | 37.2 | SCL 230 | Hyde Branch (Intermittent) | Mixed forest | >100 ft | OCM |
| White | 38.1 | SCL 234 | Tributary to Chaney Branch (Intermittent) | Mixed forest | 300 ft | OCM |
| White | 39.2 | SCL 243 | Mill Branch (Intermittent) | Deciduous forest | >100 ft | OCM |
| White | 39.3 | SCL 244 | Tributary to Mill Branch (Intermittent) | Deciduous forest | >100 ft | OCM |
| White | 39.8 | SCL 246 | Tributary to Mill Branch (Intermittent) | Mixed forest | >100 ft | OCM |
| Cleburne | 42.8 | SCL 267 | Tributary to Little Creek (Intermittent) | Mixed forest | >100 ft | OCM |
| Cleburne | 42.8 | SCL 258 | Tributary to Little Creek (Intermittent) | Deciduous forest | >100 ft | OCM |
| Cleburne | 43.0 | SCL 260 | Tributary to Little Creek (Intermittent) | Mixed forest | >100 ft | OCM |
| Cleburne | 43.5 | SCL 263 | Tributary to Big Creek (Intermittent) | Mixed forest | >100 ft | OCM |
| Cleburne | 43.5 | SCL 264 | Tributary to Big Creek (Intermittent) | Mixed forest | >100 ft | OCM |
| White | 45.1 | SCL 276 | Tributary to Big Creek (Intermittent) | Mixed forest | >100 ft | OCM |
| White | 45.3 | acer int st | Tributary to Big Creek (Intermittent) | Deciduous forest | >100 ft | OCM |
| White | 46.1 | TDH S7 | Big Creek (Perennial) | Deciduous forest | >100 ft | HDD |
| White | 47.2 | srm041 | Tributary to Big Creek (Intermittent) | Mixed forest | >100 ft | OCM |
| White | 48.1 | srm039 | Brier Creek (Perennial) | Deciduous forest to west, Evergreen forest to east | >100 ft | OCM |
| White | 48.5 | srm037 | Owl Creek (Intermittent) | Mixed forest | <100 ft | OCM |
| White | 52.3 | srm040 | Little Red River (Perennial) | Deciduous forest | >100 ft | HDD |
| White | 54.5 | srm035 | Tributary to Owl Creek (Perennial) | Mixed forest | >100 ft | OCM |
| White | 55.1 | srm035a | Tributary to Owl Creek (Intermittent) | Evergreen forest | 400 ft | OCM |
| White | 56.6 | srm034 | Onion Creek (Perennial) | Mixed forest | >100 ft | OCM |
| White | 58.9 | srm031 | Chinquapin Creek (Perennial) | Mixed forest | >100 ft | OCM |

## Table C-9 Riparian Zone Descriptions Within the Construction Corridor of the Proposed Pipeline Route a/

| County | Milepost | Stream ID | Waterbody Name and Type b/ | Riparian Zone Description | Size of Riparian Zone | Crossing Method c,d/ |
|---|---|---|---|---|---|---|
| White | 59.4 | srm030 | Tributary to Lake Bald Knob (Intermittent) | Mixed forest | >100 ft | OCM |
| White | 59.8 | srm029 | Tributary to Overflow Creek (Intermittent) | Mixed forest | >100 ft | OCM |
| White | 60.3 | srm028 | Tributary to Overflow Creek (Intermittent) | Deciduous forest | >100 ft | OCM |
| White | 60.5 | srm027 | Tributary to Overflow Creek (Intermittent) | Mixed forest | >100 ft | OCM |
| White | 61.0 | srm026 | Tributary to Overflow Creek (Perennial) | Evergreen forest to west, Mixed forest to east | >100 ft | OCM |
| White | 61.8 | srm033 | Overflow Creek (Perennial) | Mixed forest | >100 ft | OCM |
| White | 62.4 | srm032 | Big Mingo Creek (Perennial) | Mixed forest | >100 ft | OCM |
| White | 63.2 | tdh int st | Tributary to Big Mingo Creek (Intermittent) | Deciduous forest | >100 ft | OCM |
| White | 64.3 | srm020 | Tributary to Gladey Creek (Intermittent) | Deciduous forest | 70 ft | OCM |
| White | 65.2 | srm019w | Tributary to Little Mingo Creek (Intermittent) | Deciduous forest | 80 ft | OCM |
| White | 65.5 | srm018w | Tributary to Little Mingo Creek (Intermittent) | Deciduous forest | >100 ft | OCM |
| White | 65.7 | srm017w | Tributary to Little Mingo Creek (Intermittent) | Deciduous forest | 85 ft | OCM |
| White | 66.5 | srm016w | Glaise Creek (Perennial) | Deciduous forest | >100 ft | OCM |
| White | 67.9 | TDH S3 | Departee Creek (Perennial) | Deciduous forest | >100 ft | OCM |
| Woodruff | 70.3 | White R. | White River (Perennial) | Deciduous forest | 90 ft | HDD |
| Woodruff | 71.5 | TDH S5 | Bear Slough (Perennial) | Deciduous forest | 60 ft | OCM |
| Woodruff | 73.4 | TDH S4 | Taylor Bay (Perennial) | Deciduous forest | >100 ft | HDD |
| Woodruff | 82.4 | Cache Rive | Cache River (Perennial) | Deciduous forest | >100 ft | HDD |
| Woodruff | 85.9 | JAV-S32 | Tributary to Cache River (Intermittent) | Deciduous forest | >100 ft | OCM |
| Woodruff | 85.9 | JAV-S33 | Tributary to Cache River (Intermittent) | Deciduous forest | >100 ft | OCM |
| Woodruff | 88.3 | JAV-S30 | Mill Ditch (Intermittent) | Deciduous forest | 50 ft | OCM |
| Woodruff | 90.4 | tdh int st | Tributary to Miller Branch (Intermittent) | Mixed forest | 60 ft | OCM |
| Woodruff | 91.7 | ag ditch | Tributary to Buffalo Creek (Intermittent) | Deciduous forest | 30 ft | OCM |
| Woodruff | 93.4 | JAV-S12 | Tributary to Buffalo Creek (Intermittent) | Deciduous forest | 60 ft | OCM |
| Woodruff | 93.7 | JAV-S14 | Tributary to Buffalo Creek (Intermittent) | Deciduous forest | 75 ft | OCM |
| Woodruff | 96.0 | Bayou de V | Bayou de View (Perennial) | Deciduous forest | >100 ft | HDD |
| Woodruff | 96.0 | ag ditch | Tributary to Bayou de View (Intermittent) | Deciduous forest | >100 ft | OCM |
| Woodruff | 100.1 | JAV-S5 | Caney Creek (Intermittent) | Deciduous forest | >100 ft | OCM |
| Woodruff | 101.7 | ag ditch | Tributary to East Flat Fork Creek (Intermittent) | Deciduous forest | 80 ft | OCM |

## Table C-9 Riparian Zone Descriptions Within the Construction Corridor of the Proposed Pipeline Route a/

| County | Milepost | Stream ID | Waterbody Name and Type b/ | Riparian Zone Description | Size of Riparian Zone | Crossing Method c,d/ |
|---|---|---|---|---|---|---|
| Woodruff | 104.3 | tdhs2 | Tributary to East Flat Fork Creek (Intermittent) | Deciduous forest | 50 ft | OCM |
| St. Francis | 111.6 | Big C 2 | Big Creek (Perennial) | Deciduous forest | >100 ft | OCM |
| Lee | 118.2 | jo intSTRM | Tributary to Larkin Creek (Intermittent) | Deciduous forest | 60 ft | OCM |
| Lee | 121.3 | ag ditch | Tributary to Larkin Creek (Intermittent) | Deciduous forest | >100 ft | OCM |
| Lee | 123.6 | jr-s3 | Tributary to Larkin Creek (Intermittent) | Deciduous forest | 100 ft | OCM |
| Phillips | 139.7 | tdh S03 | Lick Creek (Perennial) | Deciduous forest | 25 ft | OCM |
| Phillips | 140.8 | tdh int st | Tributary to Lick Creek (Intermittent) | Deciduous forest | 400 ft | OCM |
| Phillips | 141.2 | tdh wwc | Tributary to Lick Creek (Intermittent) | Deciduous forest | 20 ft | OCM |
| Phillips | 143.7 | jo agditch | Tributary to Lick Creek (Intermittent) | Deciduous forest | 70 ft | OCM |
| Phillips | 144.7 | jo S03 | Crooked Creek (Intermittent) | Deciduous forest | 200 ft | OCM |
| Phillips | 144.7 | jo wwc | Tributary to Crooked Creek (Intermittent) | Deciduous forest | 200 ft | OCM |
| Phillips | 146.0 | jo wwc | Tributary to Lick Creek (Intermittent) | Evergreen forest | >100 ft | OCM |
| Phillips | 149.5 | jo S04 | Tributary to Beaver Bayou (Intermittent) | Deciduous forest | 75 ft | OCM |
| Phillips | 151.5 | jo S05 | Tributary to Long Lake Bayou (Intermittent) | Deciduous forest | >100 ft | OCM |
| Phillips | 151.6 | jo agditch | Tributary to Long Lake Bayou (Intermittent) | Deciduous forest | >100 ft | OCM |
| Phillips | 153.0 | Long L. | Long Lake Bayou (Perennial) | Deciduous forest | >100 ft | OCM |
| Phillips | 153.7 | jo agditch | Tributary to Long Lake Bayou (Intermittent) | Deciduous forest | >100 ft | OCM |
| Phillips | 154.4 | int st | Tributary to Long Lake (Perennial) | Deciduous forest | >100 ft | OCM |
| Phillips | 157.3 | Miss River | Mississippi River (Perennial) | Deciduous forest | >100 ft | HDD |
| **Mississippi** | | | | | | |
| Coahoma | 160.5 | tdh agditc | Tributary to Moon Lake (Intermittent) | Deciduous forest | 100 ft | OCM |
| Coahoma | 160.7 | tdh Strm | Phillips Bayou (Perennial) | Deciduous forest | 100 ft | OCM |
| **Greenville Lateral** | | | | | | |
| Washington | 4.9 | ML-D7 | Canal to Black Bayou (Intermittent) | Deciduous forest | 75 ft | OCM |
| Washington | 6.0 | ML-D9B | Canal to Black Bayou (Intermittent) | Deciduous forest | 100 ft | OCM |
| Washington | 7.1 | ML-D12 | Canal to Black Bayou (Perennial) | Deciduous forest | 100 ft | OCM |
| Washington | 9.3 | ML-D13 | Deer Creek (Perennial) | Deciduous forest | >100 ft | HDD |
| Washington | 11.2 | ML-D15 | Bogue Phalia (Perennial) | Deciduous forest | >100 ft | HDD |

## Table C-9 Riparian Zone Descriptions Within the Construction Corridor of the Proposed Pipeline Route a/

| County | Milepost | Stream ID | Waterbody Name and Type b/ | Riparian Zone Description | Size of Riparian Zone | Crossing Method c,d/ |
|---|---|---|---|---|---|---|
| Washington-Humphreys | 20.3 | ML-D21 | Big Sunflower River (Perennial) | Deciduous forest | 30 ft | HDD |
| Humphreys | 20.9 | ML-D22 | Tributary to Big Sunflower River (Intermittent) | Deciduous forest | >100 ft | OCM |
| Humphreys | 21.1 | ML-D23 | Canal to Big Sunflower River (Perennial) | Deciduous forest | >100 ft | OCM |
| Humphreys | 26.1 | ML-S10 | Beasley Bayou (Perennial) | Deciduous forest | >100 ft | OCM |
| Humphreys | 27.6 | ML-D26 | Tributary to Jackson Bayou (Intermittent) | Deciduous forest | 60 ft | OCM |
| Humphreys | 29.5 | ML-D29 | Canal to Jackson Bayou (Intermittent) | Deciduous forest | 100 ft | OCM |
| Humphreys | 31.5 | J-D1 | Canal to Cold Lake (Intermittent) | Deciduous forest | 60 ft | OCM |
| Humphreys | 34.0 | J-D5 | Tributary to Wasp Lake (Intermittent) | Deciduous forest | 30 ft | OCM |
| Humphreys | 36.7 | J-D13 | Canal to Fish Bayou (Intermittent) | Deciduous forest | 60 ft | OCM |
| Humphreys | 37.0 | J-D15 | Canal to Fish Bayou (Intermittent) | Deciduous forest | >100 ft | OCM |
| Humphreys | 37.2 | J-D17 | Canal to Fish Bayou (Intermittent) | Deciduous forest | >100 ft | OCM |
| Humphreys | 40.5 | Yazoo | Yazoo River (Perennial) | Deciduous forest | >100 ft | HDD |
| Holmes | 54.3 | Fannegusha | Fannegusha Creek (Perennial) | Deciduous forest | >100 ft | HDD |
| Holmes | 54.5 | tdh ms ag ditch | Tributary to Fannegusha Creek (Intermittent) | Deciduous forest | >100 ft | OCM |
| Holmes | 54.8 | tdh ms int stream | Tributary to Blissdale Swamp (Intermittent) | Deciduous forest | 100 ft | OCM |
| Holmes | 55.8 | J-D43 | Tributary to Black Creek (Intermittent) | Deciduous forest | 100 ft | OCM |
| Holmes | 56.3 | int st | Tributary to Black Creek (Intermittent) | Deciduous forest | >100 ft | OCM |
| Holmes | 57.1 | kp int5 | Tributary to Black Creek (Intermittent) | Mixed forest | >100 ft | OCM |
| Holmes | 57.9 | JS1 | Tributary of Black Creek (Perennial) | Mixed forest | >100 ft | OCM |
| Holmes | 57.9 | wwc2 | Tributary to Black Creek (Intermittent) | Mixed forest | >100 ft | OCM |
| Holmes | 58.0 | wwc1 | Tributary to Black Creek (Intermittent) | Mixed forest | 100 ft | OCM |
| Holmes | 58.3 | J-D44 | Tributary to Black Creek (Intermittent) | Mixed forest | >100 ft | OCM |
| Holmes | 58.5 | J-D45 | Tributary to Black Creek (Intermittent) | Mixed forest | 30 ft | OCM |
| Holmes | 58.5 | J-D46 | Tributary to Black Creek (Intermittent) | Mixed forest | >100 ft | OCM |
| Holmes | 58.6 | J-D47 | Tributary to Black Creek (Intermittent) | Mixed forest | >100 ft | OCM |
| Holmes | 58.9 | J-D48 | Tributary to Black Creek (Intermittent) | Mixed forest | >100 ft | OCM |
| Holmes | 58.9 | J-D50 | Tributary to Black Creek (Intermittent) | Mixed forest | >100 ft | OCM |

## Table C-9 Riparian Zone Descriptions Within the Construction Corridor of the Proposed Pipeline Route a/

| County | Milepost | Stream ID | Waterbody Name and Type b/ | Riparian Zone Description | Size of Riparian Zone | Crossing Method c,d/ |
|---|---|---|---|---|---|---|
| Holmes | 59.6 | J-D51 | Tributary to Black Creek (Intermittent) | Mixed forest | >100 ft | OCM |
| Holmes | 60.5 | JS2 | Tributary of Black Creek (Perennial) | Mixed forest | >100 ft | OCM |
| Holmes | 60.6 | JWWC-4 | Tributary to Black Creek (Intermittent) | Mixed forest | >100 ft | OCM |
| Holmes | 60.9 | JS3 | Tributary of Black Creek (Perennial) | Mixed forest | >100 ft | OCM |
| Holmes | 61.1 | JS11 | Tributary to Black Creek (Intermittent) | Mixed forest | 100 ft | OCM |
| Holmes | 61.2 | JS6 | Black Creek (Perennial) | Mixed forest | >100 ft | OCM |
| Holmes | 61.7 | JWWC-11 | Tributary to Black Creek (Intermittent) | Mixed forest | >100 ft | OCM |
| Holmes | 61.8 | JWWC-10 | Tributary to Black Creek (Intermittent) | Mixed forest | >100 ft | OCM |
| Holmes | 61.9 | WWC-9 | Tributary to Black Creek (Intermittent) | Mixed forest | >100 ft | OCM |
| Holmes | 62.0 | JS5 | Tributary of Black Creek (Intermittent) | Mixed forest | >100 ft | OCM |
| Holmes | 62.3 | JS4 | Tributary to Black Creek (Intermittent) | Mixed forest to west, Deciduous forest to east | 100 ft, >100 ft | OCM |
| Holmes | 62.8 | WWC5 | Tributary to Black Creek (Intermittent) | Mixed forest | >100 ft | OCM |
| Holmes | 62.9 | WWC4 | Tributary to Black Creek (Intermittent) | Mixed forest | >100 ft | OCM |
| Holmes | 63.4 | JWWC-12 | Tributary to Black Creek (Intermittent) | Mixed forest | >100 ft | OCM |
| Holmes | 63.7 | int st | Tributary to Black Creek (Intermittent) | Mixed forest | >100 ft | OCM |
| Holmes | 63.8 | jr s1 | Tributary to Black Creek (Intermittent) | Mixed forest | >100 ft | OCM |
| Holmes | 65.2 | JS7 | Gourdvine Creek (Perennial) | Mixed forest | >100 ft | OCM |
| Holmes | 66.0 | WWC15 | Tributary to Tarrey Creek (Intermittent) | Mixed forest | >100 ft | OCM |
| Holmes | 66.3 | JWWC-27 | Tributary to Tarrey Creek (Intermittent) | Mixed forest | >100 ft | OCM |
| Holmes | 66.4 | JWWC-26 | Tributary to Tarrey Creek (Intermittent) | Mixed forest | >100 ft | OCM |
| Holmes | 66.4 | WWC25 | Tributary to Tarrey Creek (Intermittent) | Mixed forest | >100 ft | OCM |
| Holmes | 66.5 | JS9 | Tributary to Tarrey Creek (Intermittent) | Mixed forest | >100 ft | OCM |
| Holmes | 66.6 | JWWC-24 | Tributary to Tarrey Creek (Intermittent) | Mixed forest | >100 ft | OCM |
| Holmes | 66.7 | JWWC-23 | Tributary to Tarrey Creek (Intermittent) | Mixed forest | >100 ft | OCM |
| Holmes | 66.8 | JWWC-21 | Tributary to Tarrey Creek (Intermittent) | Mixed forest | >100 ft | OCM |
| Holmes | 66.8 | JWWC-22 | Tributary to Tarrey Creek (Intermittent) | Mixed forest | >100 ft | OCM |
| Holmes | 67.0 | JS8 | Tributary to Tarrey Creek (Intermittent) | Mixed forest | >100 ft | OCM |
| Holmes | 67.1 | JS8 | Tributary to Tarrey Creek (Intermittent) | Mixed forest | >100 ft | OCM |
| Holmes | 67.4 | tdh ms int | Tributary to Tarrey Creek (Intermittent) | Mixed forest | >100 ft | OCM |

**Table C-9 Riparian Zone Descriptions Within the Construction Corridor of the Proposed Pipeline Route a/**

| County | Milepost | Stream ID | Waterbody Name and Type b/ | Riparian Zone Description | Size of Riparian Zone | Crossing Method c,d/ |
|---|---|---|---|---|---|---|
| | | stream | | | | |
| Holmes | 67.5 | tdh ms int stream | Tributary to Tarrey Creek (Intermittent) | Mixed forest | >100 ft | OCM |
| Holmes | 67.6 | JWWC-35 | Tributary to Tarrey Creek (Intermittent) | Mixed forest | >100 ft | OCM |
| Holmes | 67.6 | JWWC-36 | Tributary to Tarrey Creek (Intermittent) | Mixed forest | >100 ft | OCM |
| Holmes | 67.7 | tdh ms int stream | Tributary to Tarrey Creek (Intermittent) | Mixed forest | >100 ft | OCM |
| Holmes | 68.0 | WWC34 | Tributary to Tarrey Creek (Intermittent) | Mixed forest | >100 ft | OCM |
| Holmes | 68.3 | JS10 | Tributary to Tarrey Creek (Intermittent) | Mixed forest | >100 ft | OCM |
| Holmes | 68.6 | JWWC32 | Tributary to Tarrey Creek (Intermittent) | Mixed forest | >100 ft | OCM |
| Holmes | 68.7 | JWWC31 | Tributary to Tarrey Creek (Intermittent) | Mixed forest | >100 ft | OCM |
| Holmes | 68.9 | jr s2 | Tributary to Tarrey Creek (Intermittent) | Mixed forest | >100 ft | OCM |
| Holmes | 69.3 | jr s3 | Tarrey Creek (Perennial) | Mixed forest | >100 ft | OCM |
| Holmes | 70.8 | jr int4 | Tributary to Long Creek (Intermittent) | Mixed forest | >100 ft | OCM |
| Holmes | 70.9 | Trib. to Tarrey | Tributary to Tarrey Creek (Intermittent) | Mixed forest | >100 ft | OCM |
| Holmes | 71.1 | strm9b | Tributary to Tarrey Creek (Intermittent) | Mixed forest | >100 ft | OCM |
| Holmes | 71.2 | strm9a | Tributary to Tarrey Creek (Intermittent) | Mixed forest | >100 ft | OCM |
| Holmes | 71.4 | tdh-wwc13 | Tributary to Tarrey Creek (Intermittent) | Mixed forest | >100 ft | OCM |
| Holmes | 71.7 | tdh stream 3 | Tributary to Box Creek (Intermittent) | Mixed forest | >100 ft | OCM |
| Holmes | 71.8 | tdhditch2 | Tributary to Box Creek (Intermittent) | Mixed forest | >100 ft | OCM |
| Holmes | 71.9 | tdh wwc 12 | Tributary to Box Creek (Intermittent) | Mixed forest | >100 ft | OCM |
| Holmes | 72.0 | tdhwwc11 | Tributary to Box Creek (Intermittent) | Mixed forest | >100 ft | OCM |
| Holmes | 72.5 | tdh wwc 10 | Box Creek (Intermittent) | Mixed forest | >100 ft | OCM |
| Holmes | 72.9 | tdh wwc9 | Tributary to Box Creek (Intermittent) | Mixed forest | >100 ft | OCM |
| Holmes | 73.2 | tdh wwc8 | Tributary to Big Black River (Intermittent) | Mixed forest | >100 ft | OCM |
| Holmes | 73.3 | tdh-wwc8 | Tributary to Big Black River (Intermittent) | Mixed forest | >100 ft | OCM |
| Holmes | 73.4 | strm7 | Tributary to Big Black River (Intermittent) | Mixed forest | >100 ft | OCM |
| Holmes | 73.8 | tdh stream 2 | Tributary to Big Black River (Intermittent) | Mixed forest | >100 ft | OCM |
| Holmes | 73.9 | tdh-stream 1 | Tributary to Big Black River (Intermittent) | Mixed forest | >100 ft | OCM |

## Table C-9 Riparian Zone Descriptions Within the Construction Corridor of the Proposed Pipeline Route a/

| County | Milepost | Stream ID | Waterbody Name and Type b/ | Riparian Zone Description | Size of Riparian Zone | Crossing Method c,d/ |
|---|---|---|---|---|---|---|
| Holmes | 73.9 | tdhwwc 7 | Tributary to Big Black River (Intermittent) | Mixed forest | >100 ft | OCM |
| Holmes | 74.0 | tdh int 5 | Tributary to Big Black River (Intermittent) | Mixed forest | >100 ft | OCM |
| Holmes | 74.3 | tdh wwc6 | Tributary to Big Black River (Intermittent) | Mixed forest | >100 ft | OCM |
| Holmes | 74.7 | tdh stream 1 | Tributary to Big Black River (Intermittent) | Mixed forest | >100 ft | OCM |
| Holmes | 75.0 | tdh int stream 4 | Tributary to Big Black River (Intermittent) | Mixed forest | >100 ft | OCM |
| Holmes | 75.5 | jr int6 | Tributary to Big Black River (Intermittent) | Mixed forest | >100 ft | OCM |
| Holmes | 76.1 | tdh int st | Tributary to Big Black River (Intermittent) | Mixed forest | 400 ft | OCM |
| Holmes | 76.2 | Trib. 2 Big Black | Tributary to Big Black River (Intermittent) | Mixed forest | >100 ft | OCM |
| Holmes | 77.7 | Big Black | Big Black River (Perennial) | Deciduous forest | >100 ft | HDD |
| Holmes | 77.9 | tdh ms s1 | Tributary to Big Black River (Perennial) | Mixed forest | >100 ft | OCM |
| Attala | 78.4 | tdh wwc 15 | Tributary to Big Black River (Intermittent) | Mixed forest | >100 ft | OCM |
| Attala | 78.5 | tdh wwc 14 | Tributary to Big Black River (Intermittent) | Mixed forest | >100 ft | OCM |
| Attala | 79.1 | tdh int stream 3 | Tributary to Big Black River (Intermittent) | Mixed forest | >100 ft | OCM |
| Attala | 79.2 | tdh int stream 2 | Tributary to Big Black River (Intermittent) | Mixed forest | 600 ft | OCM |
| Attala | 79.5 | tdh wwc3 | Tributary to Big Black River (Intermittent) | Mixed forest | >100 ft | OCM |
| Attala | 80.1 | tdh wwc2 | Tributary to Long Creek (Intermittent) | Mixed forest | >100 ft | OCM |
| Attala | 80.7 | tdh int stream 1' | Tributary to Long Creek (Intermittent) | Deciduous forest | >100 ft | OCM |
| Attala | 82.4 | KWWC-42 | Tributary to Long Creek (Intermittent) | Deciduous forest | >100 ft | OCM |
| Attala | 82.4 | KWWC-41 | Tributary to Long Creek (Intermittent) | Mixed forest | 50 ft | OCM |
| Attala | 82.5 | KWWC-40 | Tributary to Long Creek (Intermittent) | Mixed forest | 100 ft | OCM |
| Attala | 82.6 | KWWC-38 | Tributary to Long Creek (Intermittent) | Deciduous forest | >100 ft | OCM |
| Attala | 82.6 | KWWC-39 | Tributary to Long Creek (Intermittent) | Deciduous forest | >100 ft | OCM |
| Attala | 82.8 | KWWC-37 | Tributary to Long Creek (Intermittent) | Deciduous forest | >100 ft | OCM |
| Attala | 83.0 | KWWC-36 | Tributary to Long Creek (Intermittent) | Mixed forest | >100 ft | OCM |
| Attala | 83.6 | KWWC-35 | Tributary to Long Creek (Intermittent) | Mixed forest | >100 ft | OCM |
| Attala | 83.7 | KS7 | Tributary to Long Creek (Intermittent) | Mixed forest | 380 ft | OCM |

## Table C-9 Riparian Zone Descriptions Within the Construction Corridor of the Proposed Pipeline Route a/

| County | Milepost | Stream ID | Waterbody Name and Type b/ | Riparian Zone Description | Size of Riparian Zone | Crossing Method c,d/ |
|---|---|---|---|---|---|---|
| Attala | 83.8 | KS7 | Tributary to Long Creek (Intermittent) | Mixed forest | 385 ft | OCM |
| Attala | 83.9 | KS7 | Tributary to Long Creek (Intermittent) | Mixed forest | 380 ft | OCM |
| Attala | 84.0 | KWWC-31 | Tributary to Long Creek (Intermittent) | Mixed forest | >100 ft | OCM |
| Attala | 84.0 | KWWC-32 | Tributary to Long Creek (Intermittent) | Mixed forest | >100 ft | OCM |
| Attala | 84.0 | KWWC-33 | Tributary to Long Creek (Intermittent) | Mixed forest | >100 ft | OCM |
| Attala | 84.6 | Kditch10 | Tributary to Long Creek (Intermittent) | Deciduous forest | >100 ft | OCM |
| Attala | 84.8 | Kditch9 | Tributary to Long Creek (Intermittent) | Deciduous forest | >100 ft | OCM |
| Attala | 84.9 | KS6 Station 1 | Long Creek (Perennial) | Mixed forest | >100 ft | OCM |
| Attala | 85.7 | KS6 Station 2 | Long Creek (Perennial) | Mixed forest | >100 ft | OCM |
| Attala | 85.9 | Kditch8 | Tributary to Long Creek (Intermittent) | Deciduous forest | >100 ft | OCM |
| Attala | 86.3 | KS5 | Long Creek (Perennial) | Mixed forest | >100 ft | OCM |
| Attala | 86.9 | KWWC-30 | Tributary to Long Creek (Intermittent) | Deciduous forest | >100 ft | OCM |
| Attala | 87.3 | KS4 | Tributary to Long Creek (Intermittent) | Mixed forest | >100 ft | OCM |
| Attala | 87.8 | jr int7 | Tributary to Long Creek (Intermittent) | Mixed forest | >100 ft | OCM |
| Attala | 87.8 | jr s4 | Long Creek (Perennial) | Mixed forest | >100 ft | OCM |
| Attala | 87.9 | jr s5 | Tributary to Long Creek (Perennial) | Mixed forest | >100 ft | OCM |
| Attala | 88.3 | jr int9 | Tributary to Long Creek (Intermittent) | Mixed forest | >100 ft | OCM |
| Attala | 88.7 | jr int10 | Tributary to Long Creek (Intermittent) | Mixed forest | >100 ft | OCM |
| Attala | 89.1 | jr s6 | Tributary to Long Creek (Perennial) | Mixed forest | >100 ft | OCM |
| Attala | 90.1 | jrint1 | Tributary to Long Creek (Intermittent) | Deciduous forest | >100 ft | OCM |
| Attala | 90.1 | Trib. 4 Long C | Tributary to Long Creek (Intermittent) | Mixed forest to west, Deciduous forest to east | >100 ft | OCM |
| Attala | 90.6 | ditch | Tributary to Long Creek (Intermittent) | Mixed forest | >100 ft | OCM |
| Attala | 91.3 | jrint2 | Tributary to Long Creek (Intermittent) | Mixed forest | >100 ft, 50 ft | OCM |
| Attala | 91.8 | jrint3 | Tributary to Long Creek (Intermittent) | Mixed forest | 660 ft | OCM |
| Attala | 92.7 | jrint4 | Tributary to Yockanookany River (Intermittent) | Mixed forest | >100 ft | OCM |
| Attala | 93.1 | jrs7 | Yockanookany River (Perennial) | Mixed forest | >100 ft | HDD |
| Attala | 93.7 | tdh ms int s1 | Tributary to Yockanookany River (Intermittent) | Mixed forest | 1000 ft | OCM |

**Table C-9 Riparian Zone Descriptions Within the Construction Corridor of the Proposed Pipeline Route a/**

| County | Milepost | Stream ID | Waterbody Name and Type b/ | Riparian Zone Description | Size of Riparian Zone | Crossing Method c,d/ |
|---|---|---|---|---|---|---|
| Attala | 95.0 | int st | Tributary to Conehoma Creek (Intermittent) | Mixed forest | >100 ft | OCM |
| Attala | 95.1 | Conehoma | Conehoma Creek (Perennial) | Mixed forest | >100 ft | OCM |
| Attala | 96.0 | kp int1 | Tributary to Conehoma Creek (Intermittent) | Mixed forest | >100 ft | OCM |
| **Kosciusko 36" Pipeline** | | | | | | |
| Attala | 0.3 | kp int1 | Tributary to Conehoma Creek (Intermittent) | Mixed forest | >100 ft | OCM |
| Attala | 0.7 | Little Cone. Creek | Little Conehoma Creek (Perennial) | Mixed forest | >100 ft | OCM |
| **Kosciusko/Southern Natural 20" Pipeline** | | | | | | |
| n/a | n/a | n/a | n/a | n/a | n/a | n/a |

a/ *Based on field and desktop analyses of proposed pipeline route with 2006 aerial photographs, 2001 National Land Cover Definitions and 1998 AR-GAP.*

b/ *Intermittent and Perennial designations determined by site reconnaissance and USGS name.*

c/ *HDD = horizontal directional drill, OCM = open cut method*

d/ *Riparian zones crossed by HDD will not be impacted*

# APPENDIX D
# SPILL PREVENTION, CONTROL, AND COUNTERMEASURE PLAN

# AND

# EROSION AND SEDIMENT CONTROL PLANS AND STORM WATER POLLUTION PREVENTION PLANS FOR ARKANSAS AND MISSISSIPPI

# APPENDIX D-1

# SPILL PREVENTION, CONTROL, AND COUNTERMEASURE PLAN

# TEXAS GAS TRANSMISSION LLC

## SPILL PREVENTION, CONTROL, AND COUNTERMEASURE PLAN

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# SPILL PREVENTION, CONTROL, AND COUNTERMEASURE PLAN

## 1.0 Introduction

The intent of this plan is to provide practices to prevent and/or minimize the impact of and facilitate clean up of a spill during construction of pipeline segments associated with Texas Gas Transmission LLC (Texas Gas). This plan establishes emergency response procedures and line of communication and responsibilities.

The Spill Prevention, Control, and Countermeasure (SPCC) plan restricts the location of fuel and other hazardous material storage and construction equipment maintenance along the construction right-of-way and provides procedures and material requirements to contain and clean-up spills of fuel and other hazardous materials, should they occur. The goal of the plan is to minimize the potential for a spill of these materials, contain any spillage to the smallest area possible, and to protect areas which are considered environmentally sensitive (i.e., in the vicinity of streams, groundwater wells, wetlands, sensitive plant species, etc.).

It is the policy of Texas Gas to comply with all environmental and safety laws and regulations and to provide training and materials designed to prevent pollution. It is the intent of Texas Gas that everything practicable be done to minimize the potential for and consequences of a spill during construction of the project.

A copy of this plan is to be made available to all construction crews. It is the responsibility of the Chief Inspector to assure that the contractor is fully briefed on the content and requirements of this plan.

## 2.0 Hazardous Materials Used During Construction and Spill Prevention Measures

Potential spills from construction are limited primarily to: 1) diesel used to fuel construction equipment;and 2) lubricating oils and hydraulic fluid used by construction equipment. Particular attention should be paid to equipment (such as trackhoes) operating in the vicinity of streams and wetlands.

### 2.1 Product Storage

**To prevent these materials from reaching waterways, hazardous substances, chemicals, fuels and lubricating oils will not be stored within 100 feet of stream banks or wetlands. No construction equipment refueling or maintenance of equipment will be allowed within 100 feet of any stream bank or wetland (if project specific variances are not requested). In addition, areas within 100 feet of sensitive plant populations or goundwater wells may not be utilized for these activities.**

Proper management of these materials is the first step in reducing the potential impact of a spill to the environment. The Chief Inspector must grant **prior approval** to the location of all fuel storage and refueling areas, material storage areas, and construction equipment maintenance areas.

### 2.2 Secondary Containment

**All stationary fuel storage tanks will be located inside secondary containment designed to hold 1.5 times the capacity of the largest tank within the containment area. The containment area will incorporate a liner in its design.** The tank will be set directly on the liner. Non-abrasive padding may be used under the tank to provide stability as long as the integrity of the liner is not compromised. The purpose of this liner is to protect soils located under the tank. Any spilled materials located on the liner will be removed prior to dismantling the tank and secondary containment.

Catch basins will be installed at each of the fueling locations to collect residual materials which may drain from hoses used to fuel the construction equipment. **Materials collected in the catch basin or spillage collected in the liner will be placed in a drum for disposal. It is preferable to locate these catch basins within the secondary containment area; however, they need to be protected from overflow from storm water.**

## 2.3 Inspections

**Prior to their use, the construction contractor will visually inspect each tank for cracks, excessive corrosion, or other flaws that may compromise the integrity of the tank. Hoses and valves will be similarly inspected.** If the construction contractor determines that the equipment is in good mechanical condition, it may be moved onto the construction right-of-way, which includes staging areas and pipe yards. Otherwise, the equipment will be rejected and alternate equipment in good condition employed. Each tank will be similarly inspected as it is moved down the construction right-of-way.

**In addition, the construction contractor will inspect the integrity of all secondary containment areas and liners at least daily and repair the containment area or replace the liner immediately if they become breached or torn.**

## 2.4 Stormwater Management

It may be necessary to drain accumulated storm water from within the secondary containment area containing the fuel storage tanks. If the storm water has been contaminated with diesel fuel or other pollutants, the Texas Gas Environmental Department will arrange for its disposal. If no oil sheen is present and there are no other visible signs of pollution, the storm water may be left to evaporate within the containment area after the tank has been removed. **Under no circumstances will the construction contractor allow the surface discharge or other release of water contained within the containment area without the prior approval of the Environmental Representative of Texas Gas.**

## 2.5 Trench Dewatering

**During trench dewatering in the vicinity (within 100 feet) of streams and wetlands (if project specific variances are not requested), pumps will be set in a containment structure.** This structure will consist of a straw bale dike that completely encloses the pumps. The dike area will be covered with at least two continuous sheets of plastic sheeting. The plastic sheeting must be laid such that it extends over the tops of all straw bales and drapes onto the ground outside the dike area. **Under no circumstances will fuel or lubricants be stored in these dike areas. When it is necessary to refuel the pumps, the fuel will be carried by hand to the dike area and immediately removed once refueling is completed. When the dike area is dismantled, the plastic sheeting will be placed in trash bags and immediately hauled away from the site for disposal.**

## 2.6 Construction Equipment Maintenance

**Construction equipment maintenance requiring the draining and replacement of fluids will occur only on areas of the right-of-way approved by the Chief Inspector.** Before lubricants are drained from the construction equipment, a layer of plastic sheeting will be placed under the equipment to collect any spilled material. Spilled material will be drained from the liner and disposed with the fluids removed from the construction equipment. **Under no circumstances will the construction contractor allow material from the liner to spill on the ground surface.**

## 3.0 Training Procedure

All contractor employees and subcontractors that could be responsible for spill containment or clean-up or who will be involved with transporting or handling of fuel, fueling equipment or maintenance of construction equipment will be required to complete spill training prior to the start of construction. The training program will be conducted by the Environmental Representative of Texas Gas and attendance for those employees listed above will be mandatory. The construction contractor will be required to maintain a record of workers receiving training.

The training program will incorporate the following:

1. Review of the provisions of the SPCC Plan and a discussion of the responsibilities of each employee.
2. Operation of spill prevention and control equipment and the location of spill control materials;
3. Inspection procedures for spill prevention and containment equipment and materials;
4. Spill reporting procedures, sequence and personnel;
5. Phone numbers and verification of correctness;
6. Contractor/employee responsibility in the event of a spill; and
7. Maintenance and monitoring requirements for possible sources of spills.

## 4.0 Response Team Configuration, Agency Notification and Disposal Procedures

INSPECTOR

Texas Gas will employ an inspector(s) that are trained in spill prevention, control and cleanup. The contractor will be provided with the name and telephone number of the EI assigned to the project. In addition, the contractor will be provided with the name of an alternate contact should the EI not be available.

CONSTRUCTION CONTRACTOR SPILL MATERIAL COORDINATOR

The construction contractor will designate one individual who will be primarily responsible for maintenance and placement of spill control materials and equipment. This individual will assure that all control equipment is in place and operational prior to the start of construction.

EMERGENCY RESPONSE CONTACTS

**Attachment A of the SPCC Plan provides a list of emergency contact phone numbers.**

DISPOSAL OF HYDROCARBON CONTAMINATED MATERIALS

Should a spill occur, Texas Gas will be responsible for characterizing and disposing of any waste generated during the clean up.

## 5.0 Emergency Coordinator

The Chief Inspector will be designated as the Emergency Coordinator, with responsibility for coordinating all emergency response measures. The Chief will be thoroughly familiar with all aspects of the construction activities, the location and characteristics of all hazardous substances and waste materials handled, location of all records associated with the construction spread, location and condition of spill materials, and the spread layout. Futhermore, the Chief has been trained and has the authority to commit resources (manpower and dollars) necessary to implement this plan.

If a spill occurs, only those persons involved in the oversight or performance of emergency operations will be allowed within the spill areas.

## 6.0 Emergency Equipment

All construction projects will have on hand and maintain emergency response equipment. While construction activities are ongoing, all such equipment will be inspected daily for operability and accessibility. The location of fire extinguishers and related emergency response equipment will be clearly marked with signs. Each foreman in charge of construction activities at a given site will be provided with and will maintain readily accessible, a copy of this plan.

**Prior to any vegetation clearing or other construction activities at any wetland, river or stream crossing, spill absorbent material and booms of adequate size and number to handle a spill of diesel fuel or other hazardous materials will be stored in the immediate crossing area. If these materials are not stockpiled at the site as required by this plan, construction will not be allowed to commence.**

The Chief Inspector will determine the need and placement for booms downstream of stream and river crossings. Absorbent booms, if required, will be placed in all rivers and streams prior to any construction activities including blading, grading, or placement of the temporary equipment crossing bridge. The booms will be kept fully functional and clear of all debris during the entire crossing process.

As an example, a supply of the following spill control materials (example only) will be located at each listed stream and river crossing and at all open water wetlands:

- Six bales (200 count each) of absorbent mat pads (Pigalog MAT215 or equivalent);
- Four boxes of absorbent spaghetti strips (Pigalog PLP402 or equivalent);
- Four boxes of absorbent pulp (Pigalog SA8010 or equivalent);
- 500 Foot of 6 or 8 inch diameter absorbent skimmer boom material (not
- necessary for wetland crossing unless the wetland has standing water at a
- depth sufficient to float the boom) (Pigalog SA2010 or equivalent);
- 10 packages of heavy duty trash bags;
- 20 straw bales (additional straw bales may be required at larger crossings).

Absorbent pads, spaghetti, pulp, and booms will be of the type that is capable of absorbing petroleum products but repels water.

The construction contractor will designate a single individual who will be responsible for maintenance of these materials. In addition, the construction contractor will stock pile bales of straw on or adjacent to the right-of-way for the sole purpose of emergency response.

In addition, one bale (200 count) of absorbent pads and ten straw bales will be stored at each stationary fuel tank location and construction equipment areas (one bale of pads is sufficient if water bodies/wetlands are not present).

All fuel trucks will be supplies with one bale of absorbent pads.

## 7.0 Emergency Response Procedures

In cases of an imminent or actual spill or emergency situation, the person observing the incident will implement the following procedures.

### 7.1 Initial Response

- Make every effort to stop the source of the spill;
- Warn all personnel at the construction site; and
- Immediately contact the Chief and report the observer's name, location and the nature and extent of the incident.

The first rule of response to any spill is to contain the spill to the smallest area possible and to stop the spill from reaching a waterway or other sensitive area (i.e., a groundwater well).

The following procedures are recommended for containment of small spills:

a. For a spill on the ground surface where it can be blocked using a backhoe or other equipment, construct a ditch or dike to stop the flow of the spilled material and contain the spill to the smallest area possible.

b. In a moving water channel, set up a barrier as follows:
   (i) Dam the channel with a bypass siphon or tube;
   (ii) Use a straw barrier;
   (iii) Install additional booms if the water is deep enough to float the boom;
   (iv) Excavate a side pool or holding pond to isolate the spilled material; or
   (v) Re-channel the water around the spilled material.

Use the following procedures for major spills:

a. For a spill on the ground where it can be blocked using a backhoe or other equipment, construct a ditch or dike to stop the flow of the spilled material and contain the spill to the smallest area possible;

b. Skim into a truck or tank or use a pump and a vacuum truck to pick up the spilled material;

c. Provide for water removal if raining;

d. In a moving water channel set up a barrier immediately. It may be necessary to provide more than one barrier downstream. Make sure as many as are needed are installed to contain the flow of the spill material. Side channels can be used with collecting ponds and it will be necessary to pick up the accumulated spilled material.

   All fuel or oil or trace of fuel or oil must be soaked up by the use of straw or other absorbent material.

### 7.2 Spill Response

In the event of a spill, the release will be contained, to the extent possible, and as soon as possible, any hazardous material, contaminated materials or soil cleaned up. The following general procedures will be used for rapid and safe response and control of the situation and to prevent the recurrence or spread of a release.

### 7.2.1 Hazard Assessment

If a spill is discovered, the individual first discovering the spill will immediately report it to the Chief Inspector and provide the following information:

- The material spilled or released,
- Location of the release or spillage,
- The location in which the spill is heading,
- The rate at which the spill is released,
- Any threat to waterways, and
- Any injuries involved.

This information will help the Chief to assess the magnitude and potential seriousness of the spill or release. The Chief will contact and deploy the necessary personnel. If the accident is beyond the capabilities of the equipment and material located on site to handle, the Chief will contact necessary local emergency assistance (i.e., County Hazmat Team) and Texas Gas' Environmental Representative.

### 7.2.2 Response Coordination

The initial response to an emergency will be to protect human health and safety, and then the environment. Identification, containment, treatment and disposal assessment will be the secondary response. Because of the potential fire hazard associated with diesel fuels used during construction, possible sources of ignition will be eliminated to prevent such an occurrence. Vehicular traffic and work in the immediate area will cease until the spill is contained. If the spilled material is flammable, fire equipment will be made ready.

If a spill is not contained within the dike, an area of isolation will be established around the spill. The size of this area will generally depend on the size of the spill and the materials involved. The Chief will be responsible for determining the extent of the isolation area. When any spill occurs, only those persons involved in the oversight or performance of emergency operations will be allowed within the designated hazardous area.

For all large spills or serious leaks in storage tanks, the following guidelines will be followed as closely as possible:

(1) If a leak develops or a spill occurs, the person discovering the incident will contact the Chief. The Chief will obtain the following information:

   (a) Person(s) injured and seriousness of the injury
   (b) Location of the spill or leak, material involved and source; and
   (c) The approximate amount of spillage.

(2) Next, the Chief will:

   (a) Initiate evacuation of the hazard area;
   (b) Obtain medical attention for any injured persons and call the hospital;
   (c) Dispatch emergency personnel to the site to take the appropriate action;
   (d) Contact appropriate local emergency coordination centers so that any downstream water users can be notified; and
   (e) Contact Texas Gas' Environmental Representative who can assist with notifications of appropriate State and Federal agencies.

(3) Cleanup personnel will:

(a) Make sure all unnecessary persons are removed from the hazard area;
(b) If possible, try to stop the leak;
(c) Contain, divert and clean up the spill; and
(d) Properly contain and store all contaminated materials and await disposal instructions from Texas Gas.

### 7.2.3 Required Notification

When reporting a spill to any of the agencies, be prepared to provide the following:

- The name, address and phone number of the person reporting the spill;
- Date, time and type of incident,
- Quantity and type of hazardous waste or material involved in the incident,
- Extent of injuries, if any; and
- Estimated quantity and disposition of recovered materials, if any.

## 8.0 Cleanup and Disposal of Spills

Any soils, regardless of amount, contaminated by fuels, lubrication oils or other hazardous materials will be cleaned up, removed from the right-of-way and stored for disposal. Any stored soil must be protected from the weather.

Cleanup of contaminated soils includes the removal of all soils which have been subjected to the pollutant. If necessary, the Chief may require the construction contractor to collect samples of soil strata below the spill to assure that all hydrocarbon contaminated soils have been removed from the site.

All materials used to clean-up the spill will be double bagged and inspected prior to removal from the spill site. All vegetation contaminated by the spilled material will be similarly collected and bagged.

**The Texas Gas Environmental Department will be responsible for characterizing and disposing of all wastes generated from a spill.**

## Attachment A

## Emergency Contact Phone Numbers

Report spills into or upon the navigable waters of the United States or adjoining shorelines, as soon as there is knowledge of the spill, to the National Response Center and the appropriate state agency as listed below:

| Jurisdiction | Agency | Phone Number |
|---|---|---|
| United States | National Response Center | (800) 424-8802 |
| Arkansas | Arkansas Dept. of Emergency Management | (501) 730-9751 |
| Illinois | Illinois Emergency Management Agency | (217) 782-7860 |
| Indiana | Indiana Department of Environmental Management | (888) 233-7745 |
| Kentucky | Kentucky Department for Environmental Protection | (800) 928-2380 |
| Louisiana | Louisiana Department of Public Safety<br>Louisiana Department of Environmental Quality | (225) 925-6113<br>(225) 342-1234 |
| Mississippi | Mississippi Emergency Management Agency | (601) 352-9100 |
| Ohio | Ohio Environmental Protection Agency | (800) 282-9378 |
| Tennessee | Tennessee Emergency Management Agency | (800) 258-3300 |
| Texas | Texas Commission on Environmental Quality | (512) 239-2507 |

Report all spills, as soon as there is knowledge of the spill, to the Texas Gas environmental department.

## Texas Gas Contacts

| Name | Phone Number |
|---|---|
| John Hein | (270) 688-6956 |
| Doug Webster | (270) 688-6953<br>(270) 302-3214 (Cell) |
| Darrell Morgan | (270) 688-6957 |

## SPCC Compliance Checklist

- Report spills into or upon the navigable waters of the United States or adjoining shorelines, as soon as there is knowledge of the spill, to the National Response Center, the appropriate state agency, and Texas Gas Environmental personnel as listed in Attachment A of the Plan.

- Petroleum products shall not be stored within 100 feet of stream banks, wetlands, groundwater wells, or sensitive plant areas.

- No construction equipment refueling or maintenance shall occur within 100 feet of stream banks, wetlands, groundwater wells, or sensitive plant areas.

- All stationary fuel tanks shall have lined secondary containment designed to hold 1.5 times the volume of the tank.

- All secondary containment areas shall be inspected daily

- Each tank and hose shall be visually inspected prior to use.

- Catch basins shall be used at each refueling point to collect residual fuel which may drain from hoses.

- No contaminated stormwater (as indicated by a sheen) shall be discharged from a secondary containment area.

- Under no circumstances shall water be drained from a containment area without the prior approval of a Texas Gas representative.

- During trench dewatering within 100 feet of stream banks, wetlands, groundwater wells, or sensitive plant areas, pumps shall be placed in lined containment areas.

- Construction equipment maintenance requiring the draining of fluids will occur only in areas approved by the Chief Inspector. Under no circumstances will fluids be allowed to drain on the ground.

- All contractor and subcontractor employees responsible for spill containment, fuel management, or construction equipment maintenance must complete spill control and response training prior to construction.

- Emergency response equipment must be maintained as described in Section 6 of the Plan.

- Texas Gas will be responsible for the disposal of spilled material and all wastes generated during a clean up.

# APPENDIX D-2

# EROSION AND SEDIMENT CONTROL PLAN

# AND STORM WATER POLLUTION PREVENTION PLAN FOR ARKANSAS

# FAYETTEVILLE/GREENVILLE LATERAL EXPANSION PROJECT

## EROSION AND SEDIMENT CONTROL PLAN AND STORM WATER POLLUTION PREVENTION PLAN FOR ARKANSAS

SUBMITTED BY TEXAS GAS TRANSMISSION, LLC

JULY 2007

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# 1.0 INTRODUCTION

## 1.1 Proposed Project Name and Description

Texas Gas Transmission, LLC (Texas Gas), a Boardwalk Pipeline Partners, LP company, is seeking authorization from the Commission pursuant to Section 7(c) of the Natural Gas Act (NGA) to construct and operate the proposed Project. The Project includes:

- Two pipeline laterals totaling approximately 262.6 miles (the Fayetteville Lateral, located primarily in Arkansas, crossing the Mississippi River and into western Mississippi, and the 96.4 mile Greenville Lateral, located entirely in Mississippi);
- One (1) compressor station on the Greenville Lateral, totaling 10,650 horsepower (hp);
- The 0.8 mile Kosciusko 36" Pipeline and 0.4 mile Kosciusko/Southern Natural 20" Pipeline tie-ins, located at the terminus of the Greenville Lateral in Mississippi;
- Certain piping modifications at the existing Greenville Compressor Station located on the Texas Gas Main Line Pipeline System at Greenville, Mississippi; and
- Ancillary facilities such as interconnects, metering and regulating (M&R) stations, block valves, etc.

The Project is proposed to develop an interstate pipeline transportation system to deliver approximately 841 thousand decatherms per day (mdthd) of natural gas from Southwestern Energy Company's (Southwestern Energy) Fayetteville Shale natural gas production field in Arkansas through the Texas Gas system to several interconnects at Kosciusko, Mississippi.

Per discussions with both Arkansas and Mississippi, natural gas lines are exempt from applying for the construction permit, however, the project must meet state water quality requirements, Federal Energy Regulatory Commission (FERC) requirements, U.S. Army Corps of Engineers (Corps) Section 404 permits, and State 401 certifications. This Erosion and Sediment Control Plan addresses the National Pollution Discharge Elimination System (NPDES) General I Permit Program requirements of the Arkansas Department of Environmental Quality (ADEQ) and Stormwater Pollution Prevention Plan (SWPPP), and FERC erosion control requirements. The contractor will select and implement specific BMPs to meet or exceed the performance requirements outlined in this plan.

## 1.2 Applicant

**Prepared for:** Steven J. Law

**Company Name:** Texas Gas Transmission, LLC

**Address:** 3800 Frederica Street
Owensboro, KY 42304-00008

**Telephone:** (207) 688-6954

**Email:** steven.law@bwpmlp.com

### 1.3 Preparer Information

**Prepared by:** Ela Whelan, PE and Anne MacDonald, CEG

**Company Name:** URS Corporation

**Address:** 111 SW Columbia, Suite 1500
Portland OR 97201
**Telephone:** 503-948-7268

**Fax:** 503-222-4292

**Email:** Ela_Whelan@urscorp.com;
Anne_Macdonald@urscorp.com

### 1.4 Preparer's Credentials

Ela Whelan is registered as a professional engineer in the State of Oregon.

### 1.5 Purpose/Objectives of the Erosion Control Sediment Plan (ESCP) and Storm Water Pollution Prevention Plan (SWPPP)

The purpose of this plan is to describe the proposed construction activities and all temporary and permanent erosion and sediment control (TPESC) measures, pollution prevention measures, inspection/monitoring activities, and recordkeeping that would be implemented during the proposed construction project. The objectives of the ESCP and SWPPP are to:

1. Implement Best Management Practices (BMPs) to prevent erosion and sedimentation, and to identify, reduce, eliminate or prevent storm water contamination and water pollution from construction activity.
2. Prevent violations of surface water quality, ground water quality, or sediment management guidelines in Arkansas.
3. Prevent, during the construction phase, adverse water quality impacts including impacts on beneficial uses of the receiving water by controlling peak flow rates and volumes of storm water runoff.

### 1.6 Organization of the ESCP and SWPPP

The ESCP plan was prepared following Environmental Protection Agency (EPA) Sedimentation and Erosion Control Guidelines for Pipeline Projects, Arkansas requirements for a Storm Water Pollution Prevention Plan (SWPPP) for Construction Activities, and FERC Upland Erosion Control, Revegetation and Maintenance Plan (Plan) requirements. This report is divided into seven main sections with several appendices that include storm water related reference materials. The topics presented in the each of the main sections are:

- Section 1 – INTRODUCTION. This section provides a summary description of the project, and the organization of this document.
- Section 2 – SITE DESCRIPTION. This section provides a detailed description of the existing site conditions, proposed construction activities.

- Section 3 – CONSTRUCTION STORMWATER BMPs. This section provides a detailed description of the BMPs to be implemented based on requirements of FERC and ADEQ.
- Section 4 – CONSTRUCTION PHASING AND BMP IMPLEMENTATION. This section provides a description of construction activities and the timing of the BMP implementation in relation to the project schedule.
- Section 5 – STATE ENVIRONMENTAL COMPLIANCE, TRAINING, AND INSPECTION. This section identifies the appropriate contact names (emergency and non-emergency), monitoring personnel, and the onsite temporary erosion and sedimentation control inspector
- Section 6 – SITE INSPECTIONS AND MONITORING. This section provides a description of the inspection and monitoring requirements.
- Section 7 – RECORDKEEPING. This section describes the requirements for documentation of the BMP implementation, site inspections, monitoring results, and changes to the implementation of certain BMPs due to site factors experienced during construction.

## 2.0 SITE DESCRIPTION

### 2.1 Pipeline Route

The proposed approximately 262.6-mile long Fayetteville/Greenville Lateral Expansion Pipeline Project (Project) is located in the States of Arkansas and Mississippi , as shown in Figure 1. Figure 2 depicts the Fayetteville Lateral, whose eastern portion is located in Mississippi. Areas affected by construction include agricultural, forested, residential, commercial and industrial land uses. Runoff from the construction site would enter the following streams listed as water quality impaired under the requirements of the federal Clean Water Act, section 303(d):

Cadron Creek – Listed for siltation/turbidity.

Little Red River – Listed for bacteria and unknown parameters.

Overflow Creek – Listed for agriculture and bacteria.

Glaise Creek – Listed for agriculture.

Cache River – Listed for agriculture and siltation/turbidity.

Bayou de View – Listed for agriculture and siltation/turbidity.

Caney Creek – Listed for agriculture.

Big Creek – Listed for agriculture.

### 2.2 Proposed Construction Site Description

Of the two laterals proposed to be constructed by Texas Gas, one is proposed to be located in Arkansas. The Fayetteville Lateral is approximately 157.8 miles of 36-inch-diameter pipeline beginning in north central Arkansas, traversing east-southeast across Arkansas to and across the Mississippi River near Helena, Arkansas, before continuing an additional 8.4 miles into west central Mississippi where it would tie into Texas Gas' existing mainline system near Lula, Mississippi. See Table 1 and Figure 2.

The pipeline route would traverse steep terrain, uplands, floodplains, forested land, agricultural land, wetlands, rivers, and creeks.

**Table 1 Description of Pipeline Facilities in Arkansas**

| Pipeline Type | Diameter (inches) | Milepost From | Milepost To | Length (miles) | County |
|---|---|---|---|---|---|
| Steel Natural Gas Pipeline | 36 | 0 | 7.8 | 7.8 | Conway County |
| | 36 | 7.8 | 29.2 | 21.4 | Faulkner County |
| | 36 | 29.2 | 41.1 | 11.9 | White County |
| | 36 | 41.1 | 41.6 | 0.5 | Cleburne County |
| | 36 | 41.6 | 42.5 | 0.9 | White County |
| | 36 | 42.5 | 44.2 | 1.7 | Cleburne County |
| | 36 | 44.2 | 69.6 | 25.4 | White County |
| | 36 | 69.6 | 108.0 | 38.4 | Woodruff County |
| | 36 | 108.0 | 116.5 | 8.5 | St. Francis County |
| | 36 | 116.5 | 139.2 | 22.7 | Lee County |
| | 36 | 139.2 | 157.7 | 18.5 | Phillips County |
| Total Length | | | | **157.8** | |

### 2.3 Aboveground Facilities

The aboveground facilities would consist of a new compressor station, 29 Metering and Regulating (M&R) stations, 30 interconnects (tie-ins), 21 Mainline Valves (MLVs), and 3 launcher and receiver assemblies. The Fayetteville Lateral facilities within Arkansas will include 18 of the M&Rs and 10 of the MLVs, along with two launchers and one receiver.

Proposed aboveground facilities will be built and installed within the permanent pipeline right-of-way and will not require additional space. A summary of aboveground facility land requirements is provided in Table 2. Site plans for the Attala County compressor station, depicting the locations of the proposed facility modifications, will be provided in the Mapping Supplement to the FERC filing (Volume II, submitted separately as Non-Internet Public Information).

**Table 2 Land Requirements for Aboveground Facilities in Arkansas**

| County | Project Component | Milepost | Temporary Land Use (acres) | Permanent Land Use (acres) |
|---|---|---|---|---|
| **Fayetteville Lateral** | | | | |
| Conway | Launcher | 0.0 | 0.1 | 0.1 |
| Conway | MLV No. 1 | 0.0 | 0.1 | 0.1 |

| County | Project Component | Milepost | Temporary Land Use (acres) | Permanent Land Use (acres) |
|---|---|---|---|---|
| Conway | Southwestern Energy M&R Station | 0.0 | 1.4 | 1.4 |
| Conway | Southwestern Energy M&R Station | 3.1 | 1.0 | 1.0 |
| Conway | Southwestern Energy M&R Station | 6.7 | 0.9 | 0.9 |
| **Conway** | | **Subtotal:** | **3.5** | **3.5** |
| Faulkner | Southwestern Energy M&R Station | 9.4 | 0.9 | 0.9 |
| Faulkner | Southwestern Energy M&R Station | 13.4 | 1.6 | 1.6 |
| Faulkner | Southwestern Energy M&R Station | 16.5 | 0.9 | 0.9 |
| Faulkner | Southwestern Energy M&R Station | 19.6 | 1.1 | 1.1 |
| Faulkner | Southwestern Energy M&R Station | 23.7 | 0.9 | 0.9 |
| Faulkner | Southwestern Energy M&R Station | 28.4 | 0.9 | 0.9 |
| Faulkner | MLV No. 2 | 19.6 | 0.1 | 0.1 |
| **Faulkner** | | **Subtotal:** | **6.4** | **6.4** |
| White | Southwestern Energy M&R Station | 32.8 | 0.9 | 0.9 |
| White | Southwestern Energy M&R Station | 35.9 | 0.9 | 0.9 |
| White | MLV No. 3 | 38.9 | 0.1 | 0.1 |
| White | Southwestern Energy M&R Station | 39.2 | 1.1 | 1.1 |
| White | Centerpoint M&R Station | 45.9 | 0.9 | 0.9 |
| White | Southwestern Energy M&R Station | 50.4 | 0.9 | 0.9 |
| White | MLV No. 4 | 54.2 | 0.1 | 0.1 |
| White | Southwestern Energy M&R Station | 55.5 | 1.0 | 1.0 |
| White | NGPL M&R Station | 64.1 | 1.2 | 1.2 |
| White | Mississippi River Transmission M&R Station (twin M&R facilities) | 65.6 | 2.3 | 2.3 |
| White | Texas Eastern Transmission M&R Station | 65.9 | 0.9 | 0.9 |
| White | Launcher/Receiver | 66.0 | 0.3 | 0.3 |
| White | MLV No. 5 | 66.0 | 0.1 | 0.1 |
| **White** | | **Subtotal:** | **10.7** | **10.7** |
| Woodruff | MLV No. 6 | 85.4 | 0.1 | 0.1 |
| Woodruff | MLV No. 7 | 105.2 | 0.1 | 0.1 |
| **Woodruff** | | **Subtotal:** | **0.2** | **0.2** |
| Lee | MLV No. 8 | 120.2 | 0.1 | 0.1 |
| Lee | MLV No. 9 | 136.0 | 0.1 | 0.1 |
| **Lee** | | **Subtotal:** | **0.2** | **0.2** |
| Phillips | MLV No. 10 | 153.2 | 0.1 | 0.1 |
| **Phillips** | | **Subtotal:** | **0.1** | **0.1** |
| | | **Total** | **12.1** | **12.1** |

*Note: The acreage numbers in this table have been rounded for presentation purposes. As a result, the values may not reflect the exact sum of the addends in all cases.*

### 2.4 Location Maps, Detailed Route Maps, and Plot/Site Plans

Location of the proposed pipeline is shown on Figure 1 with more detail on the Fayetteville Lateral in Figure 2.

### 2.5 Disturbance Area Summary

To the greatest extent possible, while providing safe distance between pipelines, rights-of-way will parallel and overlap the existing Texas Gas mainline right-of-way or follow other existing utility corridors where construction constraints require installation outside the mainline right-of-way. In areas where the Project is co-located with existing utility right-of-ways, Texas Gas proposes to utilize 10 feet of the existing right-of-way during construction for trench spoil placement.

Table 3 summarizes the land requirements associated with the project including access roads.

The construction right-of-way (ROW) would be 100 ft. wide in upland areas. The construction ROW would be reduced to 75 ft. in wetlands crossings. The 100 ft. wide crossing in uplands is proposed to be supplemented by a request for an additional 20 feet of construction corridor width where full-width topsoil segregation will be required in areas of rice production. Although no additional temporary workspace is requested for topsoil segregation at this time, it is likely that Texas Gas will request temporary workspace for topsoil segregation for several locations along the pipeline by the time of construction.

**Table 3 Land Requirements for Pipeline Segments in Arkansas**

| Pipeline Type | County | Length (miles) | Construction Right of Way (acres) | New Operational Right of Way (acres) |
|---|---|---|---|---|
| Steel Natural Gas Pipeline | Conway County | 7.8 | 112.9 | 47.0 |
| | Faulkner County | 21.4 | 318.4 | 129.4 |
| | White County | 38.1 | 564.4 | 230.3 |
| | Cleburne County | 2.3 | 31.8 | 13.9 |
| | Woodruff County | 38.4 | 565.4 | 232.6 |
| | St. Francis County | 8.6 | 134.0 | 52.0 |
| | Lee County | 22.7 | 312.4 | 137.5 |
| | Phillips County | 18.5 | 283.1 | 112.2 |
| **Total** | | **157.8** | **2,322.4** | **954.9** |

*Note: The acreages for the construction right-of-way include additional temporary workspaces. The values 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.*

The typical overland pipeline construction will require a 65-foot working side and 35-foot trench spoil side. Where the Project will be co-located adjacent to an existing pipeline, the construction corridor will be no closer than 15 feet from the existing pipeline to keep construction equipment off the operation right-of-way.

### 2.6 Temporary Extra Work Space

Additional temporary workspace areas will be required for construction activities requiring additional area outside the construction corridor. These construction activities include but are not limited to:

- Road and railroad crossings;
- Wetland and waterbody crossings;
- Foreign pipeline crossings and interconnects;
- Foreign utility crossings;
- Topsoil segregation;
- Areas with steep side slopes or other difficult terrain;
- Pipeline access and truck turnarounds;
- Fabrication and staging areas;
- Hydrostatic test water withdrawal and discharge locations;
- Horizontal directional drill (HDD) sites; and
- Rock disposal sites.

Extra work space may also be required where special construction techniques would be used. The size and configuration of each extra workspace is unique and dependent upon the existing conditions (e.g., available or accessible space, the presence of buildings and other structures, crossing angle, crossing depth, length of crossing, terrain, the presence of trees or sensitive habitat, etc.) at each work location. The requirements for extra work spaces would be determined during the design of the pipeline ROW. Extra work spaces are included in the total acreage of area to be affected by construction, identified in Table 3. In most areas with steep side slopes, Texas Gas will construct the pipeline by expanding the workspace. The dimensions of these additional temporary workspaces will vary, depending upon the degree and length of the slope; these areas are summarized below and included in acreages listed in Table 3.

### 2.7 Operational Right-of-Way

Texas Gas proposes an operational right-of-way totaling 50 feet to maintain the mainline system. Texas Gas will typically maintain a right-of-way of 25 feet on either side of the pipeline in areas not co-located with another pipeline. MLVs will be contained within the operational right-of-way. Additional construction right of way is expected to be required for areas with rugged terrain, as described in Table 4. Table 4 also includes the temporary extra work space associated with rugged terrain crossings; this temporary area is included in Table 3 as well.

**Table 4 Land Requirements for Rugged Terrain Crossings**

| County | Milepost Range | Approximate Length (feet) | Additional Construction Right-of-Way Width | Additional Temporary Workspace Acreage |
|---|---|---|---|---|
| Conway | 4.3 to 4.8 | 2500 | 25 | 1.4 |
| Conway | 7.1 to 7.3 | 950 | 25 | 0.5 |
| Celburne | 41.7 to 41.7 | 300 | 50 | 0.3 |
| Celburne | 42.6 to 43.1 | 2350 | 25 | 1.3 |
| White | 44.1 to 44.2 | 450 | 25 | 0.3 |
| White | 44.3 to 44.4 | 525 | 25 | 0.3 |
| White | 56.0 to 56.8 | 850 | 25 | 0.5 |
| White | 59.8 to 60.3 | 2340 | 25 | 1.3 |
| White | 61.4 to 61.6 | 1150 | 25 | 0.7 |
| White | 62.2 to 62.3 | 430 | 25 | 0.2 |
| White | 62.4 to 62.4 | 100 | 25 | 0.1 |
| White | 62.4 to 62.5 | 300 | 50 | 0.3 |
| White | 62.5 to 62.8 | 1625 | 25 | 0.9 |
| White | 63.1 to 63.2 | 250 | 50 | 0.3 |
| White | 63.2 to 63.2 | 200 | 25 | 0.1 |
| White | 63.2 to 63.3 | 600 | 25 | 0.3 |

## 2.8 Access Roads

To the extent possible, Texas Gas will use existing access roads. Field investigation indicates that the availability of previously used roads and other existing roads is sufficient to preclude the need to construct any new roads. Maintenance may be required on some of the existing roads prior to hauling construction equipment and materials.

## 2.9 Pipe Storage and Contractor Yards

Texas Gas will use pipe storage yards to stockpile pipe, fabricate and concrete-coat joints, as necessary. Texas Gas will use contractor yards during construction to stage construction operations, store materials, park equipment, and setup temporary construction offices.

## 2.10 Soils

Pipeline construction, above ground facilities, and temporary workspaces would come into contact with a number of soil series. Soils information was provided by the National Resource Conservation Service (NRCS). Soil interpretations at the broadest scale in the United States are based on Major Land Resource Areas (MLRAs). MLRAs are geographically associated land resource units, usually encompassing several thousand acres, characterized by a particular pattern of soils, geology, climate, water resources, and land use (USDA, 2005).

In Arkansas, the Fayetteville Lateral will cross three MLRAs recognized by the NRCS: the Arkansas Valley and Ridges (MLRA 118); the Southern Mississippi Valley Alluvium (MLRA 131); and the Southern Mississippi Valley Silty Uplands (MLRA 134).

Arkansas Valley and Ridges (MLRA 118):

About 57 percent of this MLRA is forested. About one-third of the wooded area is federally owned, and most of the remaining two-thirds of the wooded area consist of farm woodlots. Twenty-six percent of the MLRA is grazed land, 11 percent is cropland, and 6 percent is used for miscellaneous purposes. Most of the cropland is in the less sloping valleys areas, but some is on flat mountain tops. (USDA NRCS, 2005).

Southern Mississippi Valley Alluvium (MLRA 131)

Most of this area is in agricultural production. About 55 percent is cropland, 35 percent woodland, 7 percent pastureland, and about 3 percent is used for miscellaneous purposes. Cropland makes up about three-fourths of the acreage in the north and less than one-fourth in the south. The proportion of forest land varies inversely with that of planted crops; the proportion of pasture is a little higher in the south. Controlling surface water and artificially draining the wet soils are major concerns for cropland management. (USDA NRCS, 1981).

Southern Mississippi Valley Silty Uplands (MLRA 134)

Most of this area is in farms; a small acreage is federally owned. About 35 percent of the area is cropland, but the proportion varies greatly from county to county, depending on the soils and the topography. About 16 percent of the area is in pasture or hay. About 46 percent is in a forest of mixed pine and hardwoods. About 3 percent of the area is used for urban development or other purposes. There is an increase in urban development near the metropolitan areas. (USDA NRCS, 1981).

Soil resource issues identified on the Fayetteville Lateral route include:

a) **Prime Farmland**

Approximately 49 percent of soil along the proposed Fayetteville Lateral is classified as Prime Farmland. Another 19 percent is classified as Prime Farmland, when adequately drained. An additional 8 percent is classified as Farmland of Statewide Importance. A total of 76 percent of soil along the proposed route is considered agriculturally important (i.e., Prime Farmland or Farmland of Statewide Importance).

b) **Hydric Soils**

Approximately 32 percent of the soil along the Fayetteville Lateral is considered predominantly hydric. Hydric soils are more common in the eastern counties of the Fayetteville Lateral compared to the western counties.

c) **Erosion Potential**

Soils with a high percentage of silt and fine sand, as well as those that occur at steeper slopes along the Fayetteville Lateral are more susceptible to erosion than those with a high clay content and in relatively flat areas. Approximately 53 percent of the soils along the Fayetteville Lateral are classified as highly erodible or potentially highly erodible. The erosion potential of soil mapping units crossed by the Fayetteville Lateral is identified in Table 5. In nearly all cases, soil erodibility is correlated with land slope, as soils are almost uniformly fine-grained silt or fine sandy loams: land slopes greater than 1 to 3 percent usually result in highly or potentially highly erodible soils.

d) **Shrink-Swell Potential**

Soils with a high shrink-swell potential underlie about 8 percent of the Fayetteville Lateral, while an additional 16 percent has a moderate shrink-swell potential.

**Table 5 Fayetteville Lateral Soil Map Units and Description**

| County | Soil Series | Map Unit Description | Hydric | Erodibility | Drainage | Topographic Setting | Slope % |
|---|---|---|---|---|---|---|---|
| White | Allen | Allen fine sandy loam, 3 to 8 percent slopes | No | Potentially highly erodible land | Well drained | hillside | 5.0 |
| Phillips, Woodruff | Amagon | Amagon silt loam, 0 to 1 percent slopes | Yes | Not highly erodible land | Poorly drained | stream terrace | 0.5 |
| Faulkner | Amy | Amy soils, frequently flooded | Yes | Not highly erodible land | Poorly drained | flood plain | 0.5 |
| Woodruff | Askew | Askew fine sandy loam, 1 to 3 percent slopes | Yes | Not highly erodible land | | depressions | 0.0 |
| White | Barling | Barling silt loam, occasionally flooded | No | Not highly erodible land | Moderately well drained | flood plain | 0.5 |
| Woodruff | Bulltown | Bulltown loamy fine sand, 1 to 8 percent slopes | Yes | Not highly erodible land | | depressions | 0.0 |
| Lee, White, Woodruff | Calhoun | Calhoun silt loam | Yes | Not highly erodible land | Poorly drained | stream terrace | 0.5 |
| Lee, St. Francis, White, Woodruff | Calloway | Calloway silt loam, 0 to 1 percent slopes | No | Not highly erodible land | Somewhat poorly drained | stream terrace | 0.5 |
| Lee, Phillips, St. Francis, Woodruff | | Calloway silt loam, 1 to 3 percent slopes | No | Potentially highly erodible land | Somewhat poorly drained | terraces | 2.0 |
| Phillips | Commerce | Commerce silt loam | No | Not highly erodible land | Somewhat poorly drained | natural levee | 0.5 |
| Phillips | Convent | Convent silt loam | No | Not highly erodible land | Somewhat poorly drained | natural levee | 0.5 |
| Phillips | Crevasse | Crevasse soils, frequently flooded | No | Not highly erodible land | Excessively drained | flood plain | 1.0 |
| St. Francis | Crowley | Crowley silt loam, 0 to 1 percent slopes | No | Not highly erodible land | Somewhat poorly drained | stream terrace | 0.5 |
| St. Francis | | Crowley silt loam, 1 to 3 percent slopes | No | Potentially highly erodible land | Somewhat poorly drained | stream terrace | 2.0 |

| County | Soil Series | Map Unit Description | Hydric | Erodibility | Drainage | Topographic Setting | Slope % |
|---|---|---|---|---|---|---|---|
| Woodruff | Dubbs | Dubbs silt loam, 0 to 1 percent slopes | No | Not highly erodible land | Well drained | natural levees, stream terraces | 0.5 |
| Woodruff | | Dubbs silt loam, 1 to 3 percent slopes | Yes | Potentially highly erodible land | | depressions | 0.0 |
| Woodruff | | Dubbs silt loam, 3 to 8 percent slopes | No | Potentially highly erodible land | Well drained | natural levees, stream terraces | 5.0 |
| Phillips, Woodruff | Dundee | Dundee silt loam, 0 to 1 percent slopes | No | Not highly erodible land | Somewhat poorly drained | natural levee | 0.5 |
| White | Enders | Enders fine sandy loam, 3 to 8 percent slopes | Yes | Not highly erodible land | | depressions | 0.0 |
| Faulkner | | Enders gravelly fine sandy loam, 3 to 8 percent slopes | No | Highly erodible land | Well drained | ridge | 5.0 |
| Conway | | Enders gravelly fine sandy loam, 8 to 12 percent slopes | No | Potentially highly erodible land | Well drained | hill | 5.0 |
| White | | Enders stony fine sandy loam, 3 to 12 percent slopes | No | Highly erodible land | Well drained | ridge | 10.0 |
| Cleburne | | Enders-Steprock complex, 8 to 20 percent slopes | No | Highly erodible land | Well drained | hillside | 8.0 |
| White | | Enders-Steprock Complex, 12 to 30 percent slopes | No | Highly erodible land | Well drained | hillside | 21.0 |
| Cleburne | | Enders-Steprock complex, 20 to 40 percent slopes | No | Highly erodible land | Well drained | hillsides or mountainsides, ridges | 30.0 |
| Phillips | Falaya | Falaya silt loam | No | Not highly erodible land | Somewhat poorly drained | flood plain | 0.5 |
| Lee | | Falaya silt loam, occasionally flooded | No | Not highly erodible land | Somewhat poorly drained | drainageway | 0.5 |
| Phillips | Fluvaquents | Fluvaquents, frequently flooded | Unranked | Not highly erodible land | | | 0.0 |
| Phillips | Foley | Foley silt loam | Yes | Not highly erodible land | Poorly drained | stream terrace | 0.5 |
| Lee, Woodruff | | Foley-Bonn complex, 0 to 1 percent slopes | Yes | Not highly erodible land | Poorly drained | stream terrace | 0.5 |
| Lee, Phillips, Woodruff | Grenada | Grenada silt loam, 1 to 3 percent slopes | Yes | Potentially highly erodible land | | depressions | 0.0 |
| Woodruff | | Grenada silt loam, 3 to 8 percent slopes, eroded | No | Highly erodible land | Moderately well drained | terraces | 5.0 |
| Woodruff | Grubbs | Grubbs silt loam, 1 to 3 percent slopes | Yes | Potentially highly erodible land | | depressions | 0.0 |
| Woodruff | | Grubbs silt loam, 3 to 8 percent slopes, eroded | No | Highly erodible land | Moderately well drained | terraces, escarpments | 5.0 |
| White | Guthrie | Guthrie silt loam, 0 to 1 percent slopes | Yes | Not highly erodible land | Poorly drained | depression | 0.5 |

| County | Soil Series | Map Unit Description | Hydric | Erodibility | Drainage | Topographic Setting | Slope % |
|---|---|---|---|---|---|---|---|
| Lee, Phillips, St. Francis, Woodruff | Henry | Henry silt loam | Yes | Not highly erodible land | Poorly drained | terraces | 0.5 |
| Woodruff | Hillemann | Hillemann silt loam, 0 to 1 percent slopes | No | Not highly erodible land | Somewhat poorly drained | terraces | 0.5 |
| Woodruff | Jackport | Jackport silty clay loam, 0 to 1 percent slopes | Yes | Not highly erodible land | Poorly drained | terraces | 0.5 |
| Lee | Jeanerette | Jeanerette silt loam | No | Not highly erodible land | Somewhat poorly drained | stream terrace | 0.5 |
| Woodruff | Kobel | Kobel silty clay loam, 0 to 1 percent slopes, frequently flooded | Yes | Not highly erodible land | Poorly drained | flood plains, backswamps | 0.5 |
| Woodruff | | Kobel silty clay loam, 0 to 1 percent slopes, ponded | Yes | Not highly erodible land | Very poorly drained | oxbows, backswamps | 0.5 |
| White | | Kobel silty clan, frequently flooded | Yes | Not highly erodible land | Poorly drained | backswamp | 0.5 |
| Woodruff | Lafe | Lafe silt loam, 0 to 1 percent slopes | No | Highly erodible land | Somewhat poorly drained | terraces | 0.5 |
| Lee | Lagrange | LaGrange fine sandy loam | Yes | Not highly erodible land | Poorly drained | alluvial flat | 0.5 |
| Conway, Faulkner, White | Leadvale | Leadvale silt loam, 1 to 3 percent slopes | No | Potentially highly erodible land | Moderately well drained | valley floor | 2.0 |
| Cleburne, Conway, White | | Leadvale silt loam, 3 to 8 percent slopes | No | Highly erodible land | Moderately well drained | valley floor | 5.0 |
| Faulkner | Linker | Linker fine sandy loam, 1 to 3 percent slopes | No | Potentially highly erodible land | Well drained | hillside | 5.0 |
| Cleburne, Conway, Faulkner, While | | Linker fine sandy loam, 3 to 8 percent slopes | No | Highly erodible land | Well drained | ridge | 5.0 |
| Conway, Faulkner, White | | Linker fine sandy loam, 8 to 12 percent slopes | No | Highly erodible land | Well drained | mountain slope | 10.0 |
| Cleburne, While | | Linker gravelly fine sandy loam, 3 to 8 percent slopes | No | Potentially highly erodible land | Well drained | hillsides, benches, ridges | 5.0 |
| Cleburne | | Linker-Mountainburg complex, 3 to 8 percent slopes | No | Potentially highly erodible land | Well drained | hillsides, benches, ridges, ledges | 5.0 |
| Cleburne | | Linker-Mountainburg complex, 8 to 20 percent slopes | No | Highly erodible land | Well drained | benches, hillsides, ledges, ridges | 10.0 |

| County | Soil Series | Map Unit Description | Hydric | Erodibility | Drainage | Topographic Setting | Slope % |
|---|---|---|---|---|---|---|---|
| Lee, Phillips, St. Francis, White | Loring | Loring silt loam, 1 to 3 percent slopes | No | Potentially highly erodible land | Moderately well drained | loess hill | 2.0 |
| St. Francis | | Loring silt loam, 1 to 3 percent slopes, eroded | No | Potentially highly erodible land | Moderately well drained | terrace | 2.0 |
| White | | Loring silt loam, 3 to 8 percent slopes | No | Highly erodible land | Moderately well drained | terrace | 5.0 |
| St. Francis, Lee | | Loring silt loam, 3 to 8 percent slopes, eroded | No | Highly erodible land | Moderately well drained | loess hill | 5.0 |
| Lee | Marvell | Marvell fine sandy loam | No | Not highly erodible land | Well drained | stream terrace | 0.5 |
| Woodruff | McCrory | McCrory fine sandy loam, 0 to 1 percent slopes | Yes | Not highly erodible land | | depressions | 0.0 |
| Lee, Phillips | Memphis | Memphis silt loam, 1 to 3 percent slopes | No | Potentially highly erodible land | Well drained | loess hill | 2.0 |
| Phillips | | Memphis silt loam, 1 to 3 percent slopes, eroded | No | Potentially highly erodible land | Well drained | loess hill | 5.0 |
| Conway, Faulkner | Mountainburg | Mountainburg gravelly fine sandy loam, 3 to 8 percent slopes | No | Highly erodible land | Well drained | ridge | 5.0 |
| Faulkner | | Mountainburg stony fine sandy loam, 3 to 12 percent slopes | No | Highly erodible land | Well drained | hill | 10.0 |
| Conway, Faulkner | | Mountainburg gravelly fine sandy loam, 8 to 12 percent slopes | No | Highly erodible land | Well drained | ridge | 26.0 |
| Faulkner | | Mountainburg very stony fine sandy loam, 8 to 12 percent slopes | No | Highly erodible land | Well drained | ridge | 8.0 |
| Conway | | Mountainburg stony fine sandy loam, 12 to 40 percent slopes | No | Highly erodible land | Well drained | bench, hill, ledge | 26.0 |
| Faulkner | | Mountainburg very stony fine sandy loam, 12 to 40 percent slopes | No | Highly erodible land | Well drained | hill | 10.0 |
| Cleburne, White | Nauvoo | Nauvoo fine sandy loam, 3 to 8 percent slopes | No | Potentially highly erodible land | Well drained | ridge | 5.0 |
| Phillips | Newellton | Newellton silty clay | No | Not highly erodible land | Somewhat poorly drained | slackwater | 0.5 |
| Phillips | | Newellton silty clay, gently undulating | No | Not highly erodible land | Somewhat poorly drained | slackwater | 1.0 |
| Phillips | | Newellton soils, frequently flooded | No | Not highly erodible land | Somewhat poorly drained | slackwater | 0.5 |

| County | Soil Series | Map Unit Description | Hydric | Erodibility | Drainage | Topographic Setting | Slope % |
|---|---|---|---|---|---|---|---|
| White | Oaklimeter | Oaklimeter silt loam, frequently flooded | No | Not highly erodible land | Moderately well drained | flood plain | 0.5 |
| Faulkner | Ouachita | Ouachita silt loam, occasionally flooded | No | Not highly erodible land | Well drained | flood plain, natural levee | 0.5 |
| Woodruff | Overcup | Overcup silt loam, 0 to 1 percent slopes | Yes | Not highly erodible land | Poorly drained | terraces | 0.5 |
| Woodruff | Patterson | Patterson fine sandy loam, 0 to 2 percent slopes | No | Not highly erodible land | Somewhat poorly drained | terraces, depressions | 0.5 |
| White | Rexor | Rexor silt loam, occasionally flooded | No | Not highly erodible land | Well drained | flood plain | 0.5 |
| Phillips | Robinsonville | Robinsonville fine sandy loam | No | Not highly erodible land | Well drained | natural levee | 0.5 |
| White | | Robinsonville fine sandy loam, frequently flooded | No | Not highly erodible land | Well drained | flood plain | 0.5 |
| Phillips | Sharkey | Sharkey silty clay | Yes | Not highly erodible land | Poorly drained | backswamp | 0.5 |
| White | Sidon | Sidon loam, 1 to 3 percent slopes | No | Potentially highly erodible land | Moderately well drained | ridge | 2.0 |
| Cleburne, White | | Sidon fine sandy loam, 3 to 8 percent slopes | No | Highly erodible land | Moderately well drained | ridge | 5.0 |
| Faulkner | Spadra | Spadra fine sandy loam, 1 to 3 percent slopes | No | Not highly erodible land | Well drained | stream terrace | 2.0 |
| White | Steprock | Steprock-Enders Complex, 12 to 30 percent slopes | No | Highly erodible land | Well drained | hillslope | 21.0 |
| White | | Steprock-Linker Complex, 3 to 8 percent slopes | No | Potentially highly erodible land | Well drained | hillslope | 5.0 |
| White | | Steprock-Mountainburg Complex, 8 to 12 percent slopes | No | Highly erodible land | Well drained | hillside | 10.0 |
| Cleburne | | Steprock-Mountainburg complex, 8 to 20 percent slopes | No | Highly erodible land | Well drained | hillsides, ridges | 14.0 |
| Cleburne | | Steprock-Mountainburg-Rock outcrop complex, 40 to 60 percent slopes | No | Highly erodible land | Well drained | hillsides or mountainsides, ridges | 50.0 |
| Cleburne | | Steprock-Nella-Mountainburg complex, 20 to 40 percent slopes | No | Highly erodible land | Well drained | hillsides or mountainsides, ridges | 30.0 |
| Conway, Faulkner, White | Taft | Taft silt loam, 0 to 2 percent slopes | No | Not highly erodible land | Somewhat poorly drained | depression | 1.0 |
| Woodruff | Taylorbay | Taylorbay silt loam, 0 to 3 percent slopes, frequently flooded | Yes | Not highly erodible land | Well drained | flood plains | 1.0 |

| County | Soil Series | Map Unit Description | Hydric | Erodibility | Drainage | Topographic Setting | Slope % |
|---|---|---|---|---|---|---|---|
| Woodruff | Teksob | Teksob loam, 0 to 1 percent slopes | No | Not highly erodible land | Well drained | terraces | 0.5 |
| Woodruff | | Teksob loam, 1 to 3 percent slopes | No | Not highly erodible land | Well drained | terraces | 2.0 |
| Woodruff | | Teksob loam, 3 to 8 percent slopes | No | Potentially highly erodible land | Well drained | terraces | 5.0 |
| Woodruff | Tichnor | Tichnor silt loam, 0 to 1 percent slopes, frequently flooded | Yes | Not highly erodible land | Poorly drained | flood plains | 0.5 |
| Woodruff | Tipp | Tipp silty clay loam, 0 to 3 percent slopes, frequently flooded | Yes | Not highly erodible land | Well drained | flood plains | 1.0 |
| Woodruff | Tuckerman | Tuckerman loam, 0 to 1 percent slopes, frequently flooded | Yes | Not highly erodible land | Poorly drained | flood plains, stream terraces | 0.5 |
| Woodruff | Tuckerman | Tuckerman silty clay loam, 0 to 1 percent slopes, frequently flooded | Yes | Not highly erodible land | Poorly drained | flood plains, stream terraces | 0.5 |
| Phillips | Tunica | Tunica silty clay | No | Not highly erodible land | Poorly drained | backswamp | 0.5 |
| Woodruff | Wiville | Wiville fine sandy loam, 0 to 1 percent slopes | No | Not highly erodible land | Well drained | dunes | 0.5 |
| Woodruff | | Wiville fine sandy loam, 1 to 3 percent slopes | No | Not highly erodible land | Well drained | dunes | 2.0 |
| Woodruff | Yancopin | Yancopin silty clay loam, 0 to 3 percent slopes, frequently flooded | No | Not highly erodible land | Somewhat poorly drained | flood plains | 1.0 |
| St. Francis | Zachary | Zachary silt loam | Yes | Not highly erodible land | Poorly drained | flood plain | 0.5 |
| Lee | Zachary | Zachary soils, frequently flooded | Yes | Not highly erodible land | Poorly drained | flood plain | 0.5 |

## Above Ground Facilities

Each of the permanent aboveground facilities on the Fayetteville Lateral is expected to utilize about 0.92 acre and all occur within the mapped pipeline corridor. Soils at each of the aboveground facilities will be considered permanently unavailable for other uses. This includes about 50 acres in use for aboveground facilities.

## Ancillary Facilities

Additional temporary workspace (ATWS) will be required at road and railroad crossings, waterbody crossings, and in areas with steep side slopes or other difficult terrain. ATWS will also be required for topsoil segregation, truck turnarounds, hydrotest water withdrawal and discharge locations, crossovers, tie-ins, staging and fabrication areas, and at foreign utility crossings. Additionally, ATWS will be needed wherever special construction techniques are required.

Impacts to soil at ancillary facilities are considered temporary, and conditions will be restored upon completion of construction.

Upon completion of the Project, the land within the pipe storage and contractor yards will be returned to preconstruction conditions, so no permanent impacts on Prime Farmland or other soil would result from use of the site.

## 3.0 CONSTRUCTION STORMWATER BMPS

### 3.1 General Description of Construction Activities

Proposed construction activities include:

- Clearing and grading activities necessary to build the pipeline. Orange construction fencing, or approved equivalent, would be used to define the limits of disturbance.
- Horizontal directional drilling (HDD) underneath selected streams and the Mississippi River.
- Trenching through topsoil in pastures.
- Trenching through wetlands and across smaller waterbodies.
- Improvements to existing access roads.

### 3.2 ESCP and SWPPP Elements

Implementation of the BMPs identified herein meet erosion control and construction requirements for ADEQ (ESCP) and the Arkansas Storm Water Pollution Prevention Plan (SWPPP). Construction approaches and BMP details expected to be employed during construction are provided in Appendix A. Alternate BMPs would be implemented in the event the BMP(s) listed herein are deemed ineffective or inappropriate during construction to satisfy the requirements set forth in the NPDES General I Permit Program issued by ADEQ (Appendix B).

#### 3.2.1 Mark Clearing Limits

To protect adjacent properties and to reduce the area of soil exposed to construction, the limits of construction would be clearly marked before land-disturbing activities begin. Trees that are to be preserved, as well as all sensitive areas and their buffers, should be clearly delineated in the field. In general, natural vegetation and native topsoil should be retained in an undisturbed state to the maximum extent possible. The BMPs relevant to marking the clearing limits that would be applied for this project include:

- Preservation of Existing Vegetation/Bufferstrips

  Clearing would be limited to within the construction easement and only where necessary. Natural vegetation would be protected to the extent possible, particularly on steep slopes.

- Silt Fence

  Silt fencing would be used downslope of construction activities along the length of the pipeline, unless there is dense vegetation that prevents sediment from leaving the site, or other protection is in place. Silt fences made of filter fabric would be buried at the bottom, stretched, and supported by posts.

### 3.2.2 Establish Construction Access

Construction access or activities occurring on unpaved areas should be minimized. Where access points are necessary, they should be stabilized to minimize the tracking of sediment onto public roads. Street sweeping should be employed to prevent sediment from entering state waters. All wash wastewater should be controlled on site. The specific BMPs related to establishing construction access that would be used on this project include:

- Stabilized Construction Entrance/Exit

  Graveled construction entrances would be used to reduce the amount of sediment tracked onto paved roads by vehicles or equipment. These areas would be shown on the final plans.

### 3.2.3 Control Flow Rates

In order to protect the properties and waterways downstream of the project site, stormwater discharges from the site would be controlled, using the following methods as applicable:

- Diversion

  Gradient terraces would be used on steep slopes to limit the quantity of concentrated runoff and minimize erosion. Water collected from the terraces would be treated, as necessary, and piped to a stable part of the site for discharge into the drainage way.

- Slope Breakers

  Texas Gas will construct slope breakers across the pipeline construction right-of-way to slow the velocity of runoff and move water off the right-of-way. Temporary slope breakers (e.g., hay bales, silt fence, and earthen berms) will be used during construction, and permanent slope breakers will be installed during final grading. Permanent slope breakers will not be installed on active agricultural lands unless requested by landowners.

- Permanent Trench Breaker

  Trench breakers consisting of sacks of soil or sand, polyurethane foam, or bentonite clay bags will be installed around the pipe in the trench to prevent subsurface channeling of water along the trench. In agricultural lands, trench breakers will be installed to a depth that does not encroach into the typical plow zone. Topsoil will not be used for trench breakers. Permanent trench breakers will be installed on slopes just before backfilling. Trench breakers will also be installed on slopes greater than 5 percent that are adjacent to waterbodies and wetlands.

- Level Spreader

  Level spreaders provide a nonerosive outlet for concentrated runoff by dispersing flow uniformly across a stable slope. Level spreaders should be used prior to concentrated flows entering a buffer zone or vegetative filter area.

Sediment controls, identified in the next section, would be used to control both sediment and runoff from the construction site.

### 3.2.4 Install Sediment Controls

All stormwater runoff from disturbed areas should pass through an appropriate sediment removal BMP before leaving the construction site or prior to being discharged to an infiltration facility. The specific BMPs to be used for controlling sediment on this project include, as applicable:

- Level Spreader

  See Section 3.2.3.

- Straw Bale Barrier

  Straw bales would be used in two ways: to create a barrier to pond water for treatment prior to discharging from the site; and, as cover to prevent erosion, the bales would be taken apart and spread onto the bare ground. Straw should be weed-free.

- Temporary Sediment Barrier

  Sediment barriers (e.g., silt fences, and staked hay or straw bales) protect surface waters and roadways by controlling the flow of sediment on the construction right-of-way and by preventing the flow of sediment off the construction right-of-way. Texas Gas will install and maintain these devices at the base of slopes adjacent to road crossings, waterbody crossings, and wetlands, as appropriate, and in other areas as necessary, until permanent revegetation measures have been judged successful and the potential for siltation has been minimized.

- Revegetation

  Texas Gas will make every effort to ensure the rapid, successful establishment of vegetation on areas requiring revegetation. Following final grading and cleanup, Texas Gas will condition the construction right-of-way for planting including the preparation of a seedbed and application and incorporation of soil amendments at rates agreed to by the landowner or land management agency, or specified in writing by an appropriate soil conservation authority. Texas Gas will seed areas to be revegetated in accordance with written recommendations for seed mixes, rates, and dates obtained from the appropriate soil conservation authorities or land management agencies.

- Silt Fence

  See Section 3.2.1.

- Detention Pond

  Ponded storm water shall be settled or filtered for sediment removal prior to discharge.

- Materials on Hand

  Quantities of erosion prevention and sediment control materials would be kept on site at all times to be used for emergency situations such as unexpected heavy rains. Materials to be kept on hand include, but are not limited to, clear plastic, weed-free straw bales for mulching, and coconut blankets for lining channels and swales.

### 3.2.5 Stabilize Soils

Exposed and unworked soils should be stabilized with the application of effective BMPs to prevent erosion throughout the life of the project. The specific BMPs for soil stabilization that should be used on this project include, as applicable:

- Temporary Seeding and Planting and Permanent Seeding

  Seeding reduces erosion by stabilizing exposed soils and would be used on all areas following final grading and testing of pipe. Temporary seeding would be used on areas that would remain unworked for over 30 days. Seeding should be with weed-free, native herbaceous seed mix. See Sections 4.4.5 and 4.4.6 for additional details.

- Topsoiling

  Topsoiling is the practice of stripping and stockpiling existing topsoil and then spreading it in graded areas to encourage future vegetation growth.

- Diversion

  See Section 3.2.3 above.

- Wind Erosion/Dust Control

  Water trucks would be kept accessible to provide dust control as necessary. Covering of materials and dust palliatives would be used as necessary.

All soils should be stabilized at the end of the shift before a holiday or weekend if needed based on weather forecasts.

In general, cut and fill slopes would be stabilized as soon as possible and soil stockpiles would be temporarily covered with plastic sheeting. All stockpiled soils should be stabilized from erosion, protected with sediment trapping measures, and where possible, be located away from storm drain inlets, waterways, and drainage channels.

### 3.2.6 Protect Slopes

All cut and fill slopes would be designed, constructed, and protected in a manner that minimizes erosion. The following specific BMPs would be used to protect slopes for this project, as applicable:

- Slope Breakers

  See Section 3.2. 3.

- Permanent Trench Breaker

  See Section 3.2.3.

- Temporary Seeding and Planting and Permanent Seeding

  See Section 3.2.5.

- Diversion

  See Section 3.2.3.

- Grassed Waterway

Vegetated lining of ditches or channels would be used to remove sediment from stormwater runoff prior to drainage leaving the construction easement.

- Rock Outlet Protection/Riprap outlet protection

  Installation of riprap type energy dissipators, as necessary.

- Mulching

  Mulching in the form of placing hay, grass, wood chips, straw or synthetic material on the soil would be used as necessary to control runoff on steep slopes.

### 3.2.7 Protect Drain Inlets

Drain inlets would be protected as applicable with the following:

- Storm Drain Inlet Protection

  Prevent course sediment from entering drainage systems prior to permanent stabilization of the disturbed area. Protect storm drain inlets with hay bales, silt fence, biobags, or other protective measure.

### 3.2.8 Stabilize Channels and Outlets

Where site runoff is to be conveyed in channels, or discharged to a stream or some other natural drainage point, efforts would be taken to prevent downstream erosion. The specific BMPs for channel and outlet stabilization that would be used on this project include:

- Grassed Waterway

  See Section 3.26.

- Rock Outlet Protection/Riprap outlet protection

  See Section 3.26.

- Mulching

  See Section 3.26.

### 3.2.9 Control Pollutants

All pollutants, including waste materials and demolition debris, oils, grease, gasoline, solvents, litter, and sanitary waste, that occur onsite should be handled and disposed of in a manner that does not cause contamination of stormwater. Good housekeeping and preventative measures would be taken as applicable to ensure that the site would be kept clean, well organized, and free of debris.

- Good Housekeeping Practices

  Equipment maintenance and repair and area for equipment wash off would be limited to contractor yards or temporary storage yards.

  Waste receptacles would be provided at convenient locations with regularly scheduled collection of the waste.

  Protected storage areas would be provided for chemicals, paints, solvents, fertilizers, and other potentially toxic materials.

Sanitary facilities would be provided and adequately maintained.

- Develop a Spill Prevention, Control, and Countermeasure Plan (SPCC Plan)

  Texas Gas will develop a Spill Prevention, Control, and Countermeasure Plan (SPCC Plan) that specifies cleanup procedures in the event of soil contamination from spills or leaks of fuel, lubricants, coolants, or solvents. Texas Gas and its contractors will use the SPCC Plan to prevent and contain, if necessary, accidental spills of any material that may contaminate soils, and to ensure that inadvertent spills of fuels, lubricants, or solvents are contained, cleaned up, and disposed of in an appropriate manner.

  An individual SPCC Plan will be implemented at each aboveground facility that stores oil in excess of the volumes identified in 40 CFR 112 to protect groundwater resources during operation.

- Contaminated Soils Response

  If contaminated or suspect soils (e.g., oil-stained soils) are identified during trenching operations, Texas Gas will be notified and work in the area of the suspected contamination will be halted until the type and extent of the contamination is determined. The response action will be identified based on the type and extent of contamination; the responsible party; and local, state, and federal regulations.

- Groundwater Protection

  Construction, operation, and maintenance of the proposed facilities are not expected to have significant or long-term impacts on groundwater resources. Impacts will be minimized or avoided by implementation of the construction practices outlined in FERC's Plan and Procedures. Texas Gas will develop a Project-specific SPCC Plan for implementation during construction. The SPCC Plan will describe preventive measures such as personnel training, equipment inspection, and refueling procedures to reduce the likelihood of spills. It will also include mitigation measures, such as containment and cleanup, to minimize potential impacts should a spill occur.

  If contaminated soil and/or groundwater are encountered during construction, Texas Gas will notify the affected landowner and will coordinate with the appropriate Federal and state agencies in accordance with applicable notification requirements.

  Texas Gas environmental inspectors have been trained to detect direct and indirect evidence of soil and/or groundwater contamination. Should a contaminated site be identified during construction, Texas Gas would notify the affected landowner and will coordinate with the appropriate Federal and state agencies in accordance with applicable notification requirements.

### 3.2.10 Maintain BMPs

All temporary and permanent erosion and sediment control BMPs should be maintained and repaired as needed to assure continued performance of their intended function. Maintenance and repair should be conducted in accordance with each particular BMP's specifications. Visual monitoring of the BMPs would be conducted at least once every calendar week and within 24 hours of any rainfall event that causes a discharge from the site. If the site becomes inactive, and is temporarily stabilized, the inspection frequency would be reduced to once every month. Repairs to BMPs must take place within 24 hours of identifying a deficiency.

All temporary erosion and sediment control BMPs should be removed within 30 days after the final site stabilization is achieved or after the temporary BMPs are no longer needed. Trapped sediment should be removed or stabilized on site. Disturbed soil resulting from removal of BMPs or vegetation should be permanently stabilized.

### 3.2.11 Manage the Project

Erosion and sediment control BMPs for this project have been designed based on the following principles:

- Design the project to fit the existing topography, soils, and drainage patterns.
- Minimize the extent and duration of the area exposed.
- Emphasize erosion control rather than sediment control.
- Keep runoff velocities low.
- Retain sediment on site.
- Thoroughly monitor site and maintain all ESC measures.
- Where possible, schedule major earthwork during the dry season.

The project would be managed according to the following key project components:

**Phasing of Construction**

- The construction project is being phased to the extent practicable in order to prevent soil erosion, and, to the maximum extent possible, the transport of sediment from the site during construction.
- Revegetation of exposed areas and maintenance of that vegetation should be an integral part of the clearing activities during each phase of construction.

**Seasonal Work Limitations**

- Texas Gas is requesting a variance of FERC's typical construction window (June 1 through September 30 and through November 30 for warmwater fisheries) Texas Gas will coordinate with the appropriate state agencies in seeking approval to perform in-stream work outside of the time window specified in FERC's Procedures. Should they be identified in the future, alternative method variances will be sought from FERC.
- From October 1 through May 31, clearing, grading, and other soil disturbing activities would be minimized and BMPs would be in place to show that silt-laden runoff would be prevented from leaving the site through a combination of the following:
    a. Site conditions including existing vegetative coverage, slope, soil type, and proximity to receiving waters;
    b. Limitations on activities and the extent of disturbed areas; and
    c. Proposed erosion and sediment control measures.
- The following activities are exempt from the seasonal clearing and grading limitations:
    a. Routine maintenance and necessary repair of erosion and sediment control BMPs;

b. Routine maintenance of public facilities or existing utility structures that do not expose the soil or result in the removal of the vegetative cover to soil; and

c. Activities where there is 100 percent infiltration of surface water runoff within the site in approved and installed erosion and sediment control facilities.

**Inspection, Maintenance, and Monitoring**

Training would be provided for the Environmental Inspectors in proper field implementation of this ESCP, SWPPP, hazardous materials management, and other environmental impact mitigation measures, see Section 5.0. Training sessions would also be provided for Company field construction management personnel and the contractor's personnel prior to and during the proposed pipeline installation. While this training would focus on ESCP implementation, it would also include instructions on the implementation of other mitigation measures, as appropriate.

- All BMPs should be inspected, maintained, and repaired as needed to assure continued performance of their intended function. Site inspections should be conducted by a person who is knowledgeable in the principles and practices of erosion and sediment control. This person has the necessary skills to:

  a. Assess the site conditions and construction activities that could impact the quality of stormwater, and

  b. Assess the effectiveness of erosion and sediment control measures used to control the quality of stormwater discharges.

- The Contractor's Environmental Coordinator should be on-site or on-call at all times.
- Whenever inspection and/or monitoring reveals that the BMPs identified in this ESCP are inadequate, due to the actual discharge of or potential to discharge a significant amount of any pollutant, appropriate BMPs or design changes should be implemented as soon as possible.

Visual and quantitative monitoring for water quality parameters would be required for this project to meet construction permit requirements, see Section 6.0.

An adequate number of copies of the Construction Drawing Package would be distributed to the Environmental Inspectors and to the contractor's supervisory personnel. If, in spite of the Chief Inspector's oversight, the contractors' performance is unsatisfactory, the terms of the contracts would allow use of a stop work order and cause a contractor to begin remedial work. Additional information on Inspection and Monitoring is presented in Section 6.0.

**Maintaining an Updated Construction ESCP and SWPPP**

- This ESCP and SWPPP should be retained on-site or within reasonable access to the site.
- The document should be modified whenever there is a change in the design, construction, operation, or maintenance at the construction site that has, or could have, a significant effect on the discharge of pollutants to waters of the state.
- The ESCP and SWPPP should be modified if, during inspections or investigations conducted by the owner/operator, or the applicable local or state regulatory authority, it is determined that the ESCP is ineffective in eliminating or significantly minimizing pollutants in stormwater discharges from the site. The ESCP should be modified as necessary to include additional or modified BMPs designed to correct problems identified. Revisions to the ESCP should be completed within seven (7) days following the inspection.

## 4.0 CONSTRUCTION PHASING AND BMP IMPLEMENTATION

This section provides a detailed description of the construction that would occur and the erosion control measures that would be implemented during construction. The final ESCP would be developed prior to construction, after a construction contractor has been selected.

### 4.1 General Approach

Those portions of the proposed pipeline facilities located primarily in upland terrain would employ conventional overland construction techniques for large-diameter pipelines. In the typical pipeline construction scenario, the construction spread (crew) would proceed along the pipeline ROW in one continuous operation. As the spread moves along, construction at any single point along the pipeline, from initial surveying and clearing to backfilling, finish grading, and site restoration, would typically last approximately 6 to 10 weeks. The entire process would be coordinated in such a manner as to minimize the total time an individual tract of land is disturbed and, therefore, exposed to erosion and temporarily precluded from its normal use. To minimize the duration of soil disturbance, Texas Gas will attempt to complete final cleanup and installation of permanent erosion control measures in an area within 20 days after backfilling the trench in that area, weather and soil conditions permitting. In no case will restoration of an area be delayed beyond the next available seeding season. An Environmental Inspector would be provided by the Owner, as described in Section 5.0. The Contractor would provide an Environmental Coordinator to implement conditions of this permit.

#### 4.1.1 Preconstruction Activities

A preconstruction meeting with project construction personnel, including the Contractor's Environmental Coordinator and the Owners Environmental Inspector, would be held to discuss erosion and sediment control measures and construction limits. Prior to construction activities, the project monitoring notebooks and submittal protocol would be prepared that would be in use throughout the duration of the project.

#### 4.1.2 Surveying

The initial step in preparing the ROW for construction would be the civil survey. A civil survey crew would stake the outside limits of the ROW, the centerline location of the pipeline, drainage centerlines and elevations, highway and railroad crossings, and any temporary extra workspace, such as laydown areas (for pipe materials) or at stream crossings. Underground utilities (i.e., cables, conduits, and pipelines) will be located and flagged. Affected landowners will be notified prior to surveying and staking of the proposed route, following applicable state/Federal guidelines.

#### 4.1.3 Marking Clearing Limits

Following surveying, clearing limits would be marked, per Section 3.2.1, prior to clearing of the ROW. Prior to initiating construction and related soil-disturbing activities, appropriate erosion prevention and control measures would be implemented and inspected by the Contractor's Environmental Coordinator and/or the Owner's Environmental Inspector. The Environmental Coordinator, who may have other duties, is responsible for ensuring appropriate erosion prevention measures are in place at all times throughout the pipeline construction. The Environmental Inspector may have other duties in addition to environmental compliance but is responsible for inspections and field documentation, including but not limited to, photographs and field notes, that would occur prior to, during, and following installation of erosion prevention and control measures.

Construction work would not occur without installation of appropriate and approved erosion and sediment control devices and/or facilities.

### 4.1.4 Clearing and Grading

Large obstacles such as trees, rocks, brush, and logs would be removed from the ROW. Timber would only be removed when absolutely necessary for construction purposes. Timber and other vegetative debris cleared from the ROW may be chipped for use as erosion-control mulch, burned, or otherwise disposed in accordance with applicable state and local regulations and landowner agreements. Burning would be conducted in such a manner as to minimize the fire hazard and prevent heat damage to surrounding vegetation. Fences would be cut and braced along the ROW, and temporary gates would be installed to control livestock and limit public access. The ROW would then be graded where necessary to create a reasonably level working surface to allow safe passage of construction equipment and materials. Conserved topsoil would be stockpiled, separate from excavated subsoil, along one side of the right-of-way, allowing the other side to be used for access, material transport, and pipe assembly. Temporary erosion control measures would be installed at this time, per Section 3.0.

### 4.1.5 Trenching

To bury the pipeline underground, it would be necessary to excavate a trench. The trench would be excavated with a rotary trenching machine, a rock trencher, a track-mounted backhoe, or similar equipment. Explosives will only be used when necessary in areas where rock substrates are found at depths that interfere with conventional excavation of rock-trenching methods. In active agricultural ground and in residential areas, subsoil would be stockpiled separately from topsoil (or the upper 12 inches of topsoil, if the topsoil is deeper). Generally, the trench will be excavated at least 12 inches wider than the diameter of the pipe. Generally, in upland areas, the trench will be excavated to a sufficient depth to allow a minimum of 3 feet of soil cover between the top of the pipe and the final land surface after backfilling. Excavated soils will be stockpiled along the right-of-way on the side of the trench away from the construction traffic and pipe assembly area.

If bedrock is encountered, Texas Gas will take precautions to minimize the mixing of excavated bedrock with backfill and will replace rock in the trench to a level that is not higher than the original bedrock profile. Where necessary, excess rock will be hauled off site from the right-of-way or, subject to landowner approval and applicable permit conditions, disposed of on the right-of-way.

### 4.1.6 Stringing

Steel pipe for the pipeline would be procured in 40-foot and 80-foot lengths or joints, protected with an epoxy coating and shipped to strategically located materials storage areas or pipe yards. The individual joints would be transported to the ROW by truck and placed along the excavated trench in a single, continuous line, easily accessible to the construction personnel on the working side of the trench, opposite the spoil side. At river crossings, railroads, and roads, the amount of pipe required to span the crossing would be stockpiled in temporary extra workspaces on one or both sides of the crossing.

### 4.1.7 Pipe Lowering

The completed section of pipe will be lifted off the temporary supports and lowered into the trench by side-boom tractors. Prior to lowering the pipe, the trench will be inspected to ensure that it is free of rocks and other debris that could damage the pipe or the coating. Before lowering the pipe into the trench, the pipe and trench will be inspected to ensure that the pipe and trench configurations are compatible. In rocky areas, if the bottom is not smooth, a layer of soil may be placed on the bottom of the trench to protect the pipe.

### 4.1.8 Padding and Backfilling

After the pipe is lowered into the trench, the trench would be backfilled. Previously excavated materials would be pushed back into the trench using bladed equipment or backhoes. Where the previously excavated material contains large rocks or other materials that could damage the pipe or coating, a padding machine would be used to separate the rock from the backfill. In some instances, clean fill or a protective rock shield coating would be placed around the pipe prior to backfilling. Segregated topsoil, where applicable, would be placed after backfilling the trench with subsoil. Following backfilling, a small crown of material would be left to account for any future soil settling that might occur. Excess soil would be distributed evenly on the ROW in upland areas only, while maintaining existing contours.

### 4.1.9 Hydrostatic Test and Final Tie In

Following backfilling of the trench, the pipeline would be hydrostatically tested to ensure it is capable of safely operating at the design pressures. The completed pipeline would be tested in multiple segments, including separate tests for each HDD pull section before and after being pulled into the borehole. All test water withdrawals and discharges would be in accordance with applicable permits to be obtained prior to construction, and they would be conducted in a manner to minimize impacts to the source and receiving streams.

Test water will be drawn from various sources and, after testing, will generally be discharged to upland areas or, in the case of surface water sources, back to the source from which it was obtained. Water discharged over land will be directed through containment structures such as hay bale structures and filter bags. The discharge rate will be regulated using valves and energy dissipation devices to prevent erosion, and the discharge will be monitored for residual materials being flushed from the tested pipe. Tie-in locations will be cleaned and restored after hydrostatic testing. No chemicals will be added to the test water during hydrostatic testing or pipeline dewatering. Pipeline dewatering will follow similar procedures.

A Hydrostatic Test Water General Permit application for NPDES discharge will be filed with ADEQ.

### 4.1.10 Cleanup and Restoration

After a segment of pipeline has been installed, backfilled, and successfully tested, the construction ROW, temporary extra work spaces, and other disturbed areas would be finish graded, and the construction debris would be disposed of properly. Original land contours would be restored to conform to adjacent areas. In agricultural areas, subsoil compacted by construction activities would be disked, and the segregated topsoil would be returned to its original horizon. Permanent erosion and sediment control measures, including silt fencing, diversion terraces, and revegetation, per Section 3.0, would be installed at this time. Private and public property, such as fences, gates, driveways, and roads, disturbed by the pipeline construction will be restored to original or better condition.

Soils imported to agricultural and residential areas will be certified as free of noxious weeds and soil pests, and only weed-free straw or hay will be used to construct sediment control devices or used as mulch applications. Texas Gas will evaluate the presence of noxious weeds in the Project area; consult with appropriate federal, state, and local agencies responsible for the containment of noxious plant material: and incorporate recommended seed mixtures into revegetation plans. Specific procedures will be developed, as necessary, to prevent the introduction or spread of noxious weeds and soil pests resulting from construction and restoration activities.

### 4.2 Wetlands Pipeline Construction Techniques

The Pipeline route was selected to minimize impacts to wetlands. Where wetlands cannot be avoided, potential impacts are minimized through the use of special wetland construction procedures. Crossing of delineated wetlands would be in accordance with the FERC procedures[1] and any variances requested herein by Texas Gas, if approved by FERC. Wetlands to be crossed during construction along with proposed crossing techniques, are listed in Appendices D and E.

The construction right-of-way width will be 75 feet in wetlands. Operation of construction equipment in wetlands will be limited to that needed to clear the right-of-way, dig the trench, fabricate the pipe, install the pipe, backfill the trench, and restore the right-of-way. Texas Gas will segregate the topsoil in the trench line up to 1 foot in depth in wetlands where hydrologic conditions permit this practice.

Texas Gas will minimize rutting of hydric soils by limiting access during wet periods, and if necessary, requiring special equipment in wetland areas. Special construction methods such as concrete coating of pipe and other weighting methods will be used, as necessary, to overcome buoyancy hazards during operation of the pipeline.

Segregated topsoil will be placed in the trench following subsoil backfilling. Restoration and monitoring of wetland crossings will be conducted in accordance with FERC's Procedures to help ensure successful wetland revegetation. In accordance with FERC procedures, fuel will not be stored within wetlands.

Construction in saturated wetland areas may involve the "push technique," "pull technique," or "drag section technique." These techniques minimize disturbance by restricting access in sensitive wetlands to equipment, vehicles, and workers needed for actual pipeline installation, and by limiting the number of crossing events.

Passage of the pipeline through forested wetlands has been minimized to the maximum extent practicable through project design and use of HDDs where appropriate and practical. The use of HDDs for a number of waterbody crossings has been included in the project design; they will substantially reduce the total amount of temporary and permanent wetland impacts associated with the Project.

In an effort to reduce permanent impacts to forested wetlands, clearing within forested wetlands will be limited in right-of-way width and the right-of-way will be maintained such that only the minimum width needed to facilitate periodic pipeline surveillance will be centered on the pipeline and up to 10 feet of width may be maintained in an herbaceous state.

Conditions along the construction corridor in areas proposed for conventional open ditch construction will likely dictate the use of either conventional open ditch lay or open ditch push/float lay. Selection of the most appropriate method will depend on site-specific weather conditions, inundation, soil saturation, and soil stability at the time of construction. The conventional open ditch lay method will be the most frequently used technique for installation of the pipeline in wetlands. The push/float lay method will be used in inundated or saturated wetland areas that support this technique. Selection of the push/float

[1] FERC Wetland and Waterbody Construction and Mitigation Procedures, Section V., WATERBODY CROSSINGS

method will be decided during construction by the construction supervisor and the environmental inspector depending on the conditions at the time of construction.

Conventional Lay Method

Soils that support construction equipment will generally be crossed using conventional open ditch construction methods. Conventional open ditch construction is similar to upland construction. In some areas, site-specific conditions may not support construction equipment proposed for conventional open ditch construction; in these cases, construction mats will be used to minimize disturbances to wetland hydrology and maintain soil structure.

Push/Float Method

The push/float method of construction will be used in inundated lowland or saturated wetland areas where the soils and hydrology cannot support conventional pipe laying equipment and where there are sufficient quantities of water to allow for pipe to be floated through the open ditch. In using this method, the pipe trench will be excavated using low-ground-weight equipment, thus limiting the need for grubbing and grading activities over the trench line or, for safety reasons, on the working side of the right-of-way. The coated and weighted pipe will be welded together at a staging area where floats are attached to the pipe. The welded pipe will then be pushed along the water-filled trench until the pipe string is in place. As necessary, "pulling" of the pipe may be required to move the pipeline along the ditch. The floats will then be cut loose, allowing the pipe to sink to the bottom of the trench. The trench will then be backfilled. The push/float construction method minimizes the number of equipment passes, reducing wetland impacts and soil compaction in the lowland areas. The staging areas will be constructed, to the extent necessary, within the construction corridor. If Texas Gas requires additional temporary workspace in wetlands, approval will be requested from FERC prior to use.

Site-Specific Variances

Texas Gas is committed to constructing the Project in accordance with FERC's Plan and Procedures to the maximum extent practical. Texas Gas will request site-specific variances, if necessary, to Section VI.B.1 (location of extra workspaces in wetlands) of the FERC procedures providing a location-specific justification for each requested variance.

## 4.3 Special Pipeline Construction Techniques

### 4.3.1 Horizontal Directional Drills

HDD is a process that allows for trenchless construction across an area by pre-drilling a hole well below the depth of a conventional pipeline lay and then pulling the pipeline through the pre-drilled borehole. HDD will be used by Texas Gas at certain locations to avoid direct impacts to sensitive areas, such as waterbodies, and/or to avoid areas with difficult constructability issues.

For most HDD crossings, electric-grid guide wires will be hand-laid across the land surface along the pipeline right-of-way to help guide the drill bit along the predetermined HDD route. In thickly vegetated areas, a swath approximately 2 to 3 feet wide may be cut across the land surface using hand tools to lay these electric-grid guide wires, resulting in minimal ground and vegetation disturbance. No large-diameter trees will be cut to accomplish guide wire installation. Following guide wire installation, a directional drilling rig will be set up and a small-diameter pilot hole will be drilled along a prescribed profile.

Electromagnetic sensors located on the tip of the drill bit will follow an electromagnetic field created by the guide wires to follow the prescribed path. In other instances, bit tip positioning sensors will guide the drill bit. Once the pilot hole is completed, it will be enlarged, using reaming tools to the diameter of the pipe. The reaming tools will be attached to the drill string at the exit point of the pilot hole and then rotated and drawn back to the drilling rig, thus progressively enlarging the pilot hole with each pass. During this process, drilling fluid consisting of bentonite clay and water will be continuously pumped into the hole to remove cuttings and maintain the integrity of the hole. Once the hole has been sufficiently enlarged, a prefabricated segment of pipe will be attached behind the reaming tool on the exit side of the crossing and pulled back through the drill hole toward the drill rig, completing the crossing.

The primary disadvantage of directional drilling is its significantly higher cost. Drilling is sometimes used for some very special environmental reasons or in unusual cases where there is a unique construction need. HDD locations are initially determined without benefit of geotechnical investigations, which generally follow in the design phase. Geotechnical investigations generally confirm the absence of unusual conditions, which are detrimental to drilling (boulders, large cobbles, fractured materials, or karst conditions), and provide guidance to the driller on mud thickness, drill speed, and other operational factors.

Geotechnical investigations for proposed HDD will begin in early June and should be completed by the end of July. Once the geotechnical data is reviewed and analyzed, the results will be used to guide the design of the HDD profiles or determine if the drill is not feasible.

### 4.3.2 Waterbody Crossings

Numerous water bodies will be crossed during the pipeline construction; many of these are waters of significant resource value (Table 6) or waters that have already impaired water quality and require additional care (Table 7). Construction across waterbodies will be performed to minimize the time that ditches for pipeline crossings of flowing streams and rivers will be left open. The trenching operation will skip the water body crossing, stopping on each side near the high bank. The waterbody section of the pipeline will be bent and fabricated as the work progresses along the right-of-way so that the excavation of the waterbody crossing is only completed immediately prior to pipe installation by the lowering-in crew.

Implementation of FERC's Plan and Procedures, specifically with respect to erosion and sedimentation control, bank stabilization, and bank revegetation, will minimize impacts related to sediment transport into adjacent waterbodies. Additional measures will include:

- All extra work areas shall be located 50 feet away from the water's edge, except where the adjacent upland consists of actively cultivated or rotated cropland or other disturbed land.
- Texas Gas will limit the amount of vegetation cleared between the waterbody and the extra work area and minimize the amount of extra work space to the greatest extent possible.
- Texas Gas will continue to consult with state agencies during the permitting process to identify appropriate site-specific mitigation measures.
- Crossings will be aligned as close to perpendicular to the axis of the waterbody channel as engineering and routing conditions allow.
- If the pipeline parallels a waterbody, Texas Gas will attempt to maintain at least 15 feet of undisturbed vegetation between the waterbody (and any adjacent wetland) and the construction right-of-way.

Construction methods at waterbody crossings will vary with the characteristics of the waterbody encountered and will be performed consistent with permit requirements outlined in right-of-way and permit stipulations.

Normal backfill cover requirements will be met. Compaction of backfill, trench breakers, sandbags, or dry soil may also be used to keep backfill from sloughing in toward the center of the waterbody. All waterbody banks will be restored to the original grade and all foreign objects will be removed from the waterbody. Excavated material not required for backfill will be removed and disposed of at an upland site.

Texas Gas will follow FERC procedures to limit water quality impacts to waterbodies during and following construction. Construction activities will be scheduled so that the pipeline trench is excavated immediately prior to pipe laying activities. In accordance with FERC procedures, the duration of construction will be limited to 24 hours across minor waterbodies (10 feet wide or less) and 48 hours across intermediate waterbodies (between 10 and 100 feet wide).

**Table 6 Major and Sensitive Waterbodies [a]**

| County | Waterbody Name | Approximate Beginning Milepost | Approximate Width at Crossing (feet) | Crossing Method [b] | Sensitive Feature |
|---|---|---|---|---|---|
| Faulkner | Cadron Creek | 14.0 | 105 | OCM | EXR, NRI, MC |
| White | Big Creek | 46.1 | 140 | HDD | EXR, NRI, MC |
| | Little Red River | 52.3 | 200 | HDD | TFS, MC |
| | Departee Creek | 67.9 | 34 | OCM | ECS (near) |
| Woodruff | White River | 70.3 | 700 | HDD | MC |
| | Taylor Bay | 73.4 | 215 | HDD | MC |
| | Cache River | 82.4 | 140 | HDD | EXR, MC |
| | Bayou De View | 96.0 | 250 | HDD | NRI, MC |
| | Long Lake Bayou | 153.0 | 210 | OCM | MC |
| | Tributary to Long Lake Bayou | 154.6 | 500 | HDD | MC |
| Phillips-Coahoma | Mississippi River | 157.3 | 4,000 | HDD | MC |

[a]Sensitive Features include those that are listed as Major Crossings (MC) (greater than 100 feet wide at crossing); are on the Nationwide Rivers Inventory (NRI) (NPS, 2004); are state-designated extraordinary resources (EXR), ecologically sensitive (ECS), are a trout fishery stream (TFS) (APCEC, 2006); and/or do not currently support designated uses (see Table 7 below).

[b]HDD = horizontal directional drill, OCM = open cut method (includes both conventional [i.e., without work area isolation] and variations [with work area isolation] on conventional methods)

**Table 7 Impaired Waterbodies Crossed by the Proposed Pipeline Route**

| County | Approximate Milepost | Waterbody Name | Crossing Type[a] | Cause[b] |
|---|---|---|---|---|
| Faulkner | 14.0 | Cadron Creek | OCM | Siltation/Turbidity |
| White | 52.3 | Little Red River | HDD | Unknown, Bacteria |
| White | 61.8 | Overflow Creek | OCM | Agriculture, Bacteria |
| White | 66.6 | Glaise Creek | OCM | Agriculture |
| Woodruff | 82.4 | Cache River | HDD | Agriculture, Siltation/Turbidity |
| Woodruff | 96.0 | Bayou De View | HDD | Agriculture, Siltation/Turbidity |
| Woodruff | 100.1 | Caney Creek | OCM | Agriculture |
| St. Francis | 111.6 | Big Creek | OCM | Agriculture |

[a] HDD = horizontal directional drill, OCM = open cut method (includes both conventional [i.e., without work area isolation] and variations [with work area isolation] on conventional methods)

[b] U.S. Environmental Protection Agency. 2004. Review of Arkansas' 2004 Section 303(d) List. http://www.epa.gov/□aterbod/6wq/npdes/tmdl/2006/waterbod/rod_final.pdf

Specific waterbody crossing construction methods are described below. Texas Gas will follow FERC's Plan and Procedures when constructing across waterbodies and restoring the ecological functions and values of the water resources and adjacent floodplain habitats to the extent practicable. HDD techniques will be used to avoid disturbance to streambed and banks where suitable. Where HDD techniques are not employed, the streambed and banks will be restored to pre-construction contours or to a stable angle of repose. To support restoration of ecological functions and values of the waterbody, streambank stabilization and streambed recontouring will be designed to match pre-construction conditions of channel conveyance over a range of flows from baseflow to bankfull flow. Because of the expected generally erodible streambanks within the project alignment, native riparian woody vegetation will be used to provide streambank stability, unless not consistent with adjacent streambank vegetation. Bioengineering techniques (e.g., live staking, wattles) may be employed to provide suitable short- and intermediate-term stability to disturbed streambanks. If necessary, rip-rap will be used to supplement this vegetation (particularly below low-water elevations). A summary description of the HDD method and four variants of the open cut method are provided below.

Horizontal Directional Drill Method

The HDD method has become a more common crossing technique for large streams and those with particularly sensitive resources associated with the stream. A primary advantage to using HDD is that it avoids disturbance of the streambed, stream banks, and upland in the immediate vicinity of the crossing. Hence, the need for re-contouring approaches and stream banks is avoided, as are the challenges of re-establishing vegetation adjacent to these features. A disadvantage of the HDD method in certain waterbody crossing conditions is the possibility of "frac-outs," when the drilling mud under pressure in the "tunnel" being created under a waterbody finds a fracture or weak area and the drilling fluids rise and escape into the waterbody.

Texas Gas presently proposes to install the pipeline using the HDD method at 5 locations on the Fayetteville Lateral, including all major (>100-ft wide) water crossings in Arkansas except Long Lake Bayou. Drilling equipment and materials will be deployed only in approved workspace. Drilling mud containment and disposal will be in accordance with applicable permit requirements.

Conventional Open-Cut Method

Conventional open cut crossings involve trench excavation within the stream channel with no containment or redirection of water flow, should water be present. A backhoe, clam dredge, dragline, or similar equipment will be used for trench excavation. The following stipulations will apply to conventional open cut waterbody crossings:

- Material excavated from the trench will be stockpiled above the stream banks;
- Excavated trench material will generally be used as backfill unless Federal or state permits specify otherwise;
- Any excess material will be removed from the waterbody; and
- The streambed will be returned to its pre-construction contours to the extent practicable.

Where feasible, pipe segments may be welded together and temporarily strung above and across the waterbody feature until the pipeline is installed. The pipeline will not obstruct the highest expected flow of the waterbody. If required, the pipe used for waterbody crossings and in floodplains will be weighted to prevent flotation. The pipe will be welded together in the staging areas and then carried or floated along the right-of-way. After the pipe is lowered into the trench, previously excavated material will be used as backfill, unless precluded by permit requirements.

The pipeline will be installed to provide a minimum of 5 feet of cover from the waterbody bottom to the top of pipe or placed at sufficient depth under the streambed (below the anticipated scour depth) to maintain the standard 5-foot minimum cover requirement. The pipeline trench will be excavated to a bottom width of at least 12 inches greater than the proposed outside diameter or to a greater width to allow proper backfill beneath and along the side of the pipeline. Trench spoil will be placed on the bank above the high water mark for use as backfill.

Flow, if present at the time of construction, will be maintained at all waterbody crossings and no alteration of the stream's capacity is anticipated as a result of pipeline construction. Crossings will be perpendicular to water flow, to the extent practicable.

The construction procedures described above will ensure that potential impacts at waterbody crossings are minimized or avoided. To limit the time required for in-stream activities, the construction right of way will be prepared on either side of the waterbody prior to in-stream construction. Where banks are wooded, trees will be preserved where possible. In accordance with FERC's Plan and Procedures, construction activities (except for blasting and other rock-breaking measures) will generally be completed within 24 hours at minor waterbodies (i.e., 10 feet wide or less) and within 48 hours at intermediate waterbodies (i.e., greater than 10 feet wide and less than or equal to 100 feet wide). Temporary erosion control measures will be used as appropriate if the construction of a waterway crossing is appreciably delayed. During construction across streams which have high velocity flows or possess erodible banks, rip-rap will be used as appropriate to provide stabilization to the substrate (stream bed and/or banks) following construction activities.

After the completion of construction, streambeds will be restored to their former elevations and grades or to a stable angle of repose. Spoil, debris, piling, cofferdams, construction materials, and any other obstructions resulting from or used during construction of the pipeline will be removed to prevent interference with normal water flow and use. Any excavated material not used as backfill will be disposed of in a manner and at locations satisfactory to the applicable jurisdictional agencies. Following grading and in accordance with permit requirements, stream banks will be restored to prevent subsequent erosion.

Variations on Conventional Open Cut Methods

On sensitive and impaired water bodies, intermediate-sized crossings, and elsewhere—as long as suitable hydraulic and construction conditions allow—variations on conventional open-cut methods that incorporate work area isolation techniques may be used to further protect instream water quality. These substantially reduce the amount of sediment released to the water column during trenching, placement, and backfilling. Any dewatering water resulting from these methods would be land applied or otherwise sent through a detention pond or similar sediment control BMP described above before being returned to the downstream side of the work area. Pipeline crossing methods are indicated for waterbodies (Appendix F). Note that at this time, Texas Gas is prepared only to differentiate between HDD and open cut methods (OCM), without specifying which waterbody crossings would include the work area isolation measures associated with the variations described below.

*Dry-Ditch Method:* In intermittent streams without flow at the time of crossing, traditional upland methods may be employed. A trench will be excavated using upland equipment and techniques. Pipeline trench plugs will be installed in the approach trenches to control erosion. Stream banks will be restored to original contour and revegetated following FERC's Plan and Procedures.

*Dry Flume Method:* A flumed or dry crossing of a waterway involves redirecting stream flow through a flume pipe or pipes near the crossing. This allows for trenching, pipe installation, and restoration in relatively dry conditions, while maintaining continuous downstream flow. Soil characteristics must be very stable and stream flow should be low to moderate for this method to be used successfully and safely. The flume pipes must be long enough to accommodate a potential increase in trench width due to sloughing during excavation. Ideally, the flume pipes will extend from the inlet side of the equipment crossing to the opposite side of the construction right-of-way. An effective seal will be created around the flume pipes so that water will not penetrate and possibly wash out channelized dams on both the inlet and outlet ends. The flume will not be removed until the pipeline has been installed and the stream and banks have been restored.

*Dam and Pump Method:* The dam and pump method is an "isolated" crossing technique that maintains waterbody flows during in-stream activities. Initially, a dam will be created upstream of the crossing and the water will then be re-rerouted over upland surfaces using a pump and hose to the downstream side of the crossing. In the event a sudden increase in stream flow occurs during the crossing, the flume method will be used as an alternate method to maintain flow and keep the crossing dry. Once the waterbody crossing site is dry, the trench will be excavated, including any upland plugs; the pipe bent and welded; and then lowered into the trench. The crossing pipe will be tied into the upland construction and water flow will be restored. The construction is considered "isolated" as the actual water body crossing and the upland construction occur at different times. If the upland construction occurs first, the upland pipe will be installed in the trench with temporary end caps in place and a hard earth plug is left between the work completed and the work to be done, usually starting at the top of bank.

### Mississippi River Crossing

The large size of the Mississippi River presents an involved crossing situation. It will require HDD methods to be used under the levees on both the west and east sides of the river and under the river. The planned pipeline routing at the Mississippi River includes the installation of the pipeline in a parallel and adjacent alignment to the existing Texas Gas Helena 12-inch pipeline river crossing. This crossing was designed by projecting the river crossing alignment perpendicular to the river and back across the levee. This approach was used to minimize right-of-way expansion and to minimize the potential extent of tree clearing and removal that would have been required if this space saving approach had not been used. If Texas Gas follows the existing pipeline to the fullest extent possible at this location, it will result in the pipeline being located on the inside of the levee over a longer distance. Therefore, a route straight across the river is planned for this major crossing to minimize the size of the right of way needed for the crossing, and avoid excess tree clearing and removal at the crossing.

In Arkansas, under the Mississippi West Levee, Texas Gas plans to use the HDD method of crossing. The application of this method is contingent on the receipt of approval from the Corps. In addition to the use of the HDD method, Texas Gas is evaluating the possibility of crossing this levee using conventional crossing methods. The presence of the existing Helena Port Authority Railroad at the toe of the levee represents an engineering constraint on this method. In order to apply the conventional method in this location, Texas Gas would have to dig at the toe of the levee in the same location where the railroad track is situated. The pipeline will be installed under the railroad. Detailed design and engineering consultations are planned with the local Corps districts to evaluate the methods for crossing and consider the constraints on the applicable crossing method to be used.

Following the completion of the HDD under the Mississippi River, the pipeline will be located on the inside of the Mississippi West Levee, parallel and adjacent to the existing Texas Gas 12-inch pipeline river crossing. Texas Gas is currently planning on HDD methods for crossing the east Mississippi River Levee in Mississippi. Conventional methods are also being evaluated. This would require the pipeline to be placed on top of the levee. This method of construction would result in greater tree clearing.

The primary land uses at the Mississippi River crossing, in addition to the levees, are riparian woodland, wetland, and cropland on the west side, and bottomland hardwoods and cropland on the east side. No clear-cutting is proposed with the HDD method, and impacts to the sites of HDD installation are assumed to be minimal. This crossing is currently being evaluated and further details of potential impacts will be provided with the formal application. The Little Rock, Vicksburg and Memphis Corps districts have been provided with the preliminary pipeline route, background descriptive information pertaining to the Project and related to the Commission pre-filing process. The districts have indicated their individual jurisdictions and the general permit process that will be followed for the Project. At present, Texas Gas is intending to conduct detailed consultations with the individual Corps districts and Levee districts in regard to the crossings of flood control levees and site specific permitting requirements.

### 4.3.3 Road and Railroad Crossings

Road and railroad crossings will be maintained continuously using provisions such as steel plates or alternate access to minimize inconvenience to the public. Construction of the pipeline across hard surface roads will typically be installed through the roadbed by boring, with an excavated hole on either side of the road or railroad to provide a working area for the equipment.

Crossing of non-paved roads shall be installed by open-cut method in coordination and approval by local authorities. Immediately following installation, the pipe will be backfilled by either the flowable fill method or the granular fill method, topped with dense graded aggregate limestone and a top layer matching the existing roadway.

### 4.3.4 Foreign Pipeline and Utility Crossings

Foreign pipelines are pipelines other than the proposed Texas Gas Pipeline. Foreign pipelines and other underground utilities are likely to be discovered during the pre-construction shallow hazards survey. Because of the relatively large diameter of the proposed Texas Gas Pipeline and the soil cover and separation requirements, the proposed pipeline would cross under most foreign pipelines and utilities. The larger spoil volumes from increased excavation depths at these crossings and the preference not to place spoil or construction equipment over existing pipelines may require extra work space at each crossing. Precautions would be taken to ensure that the existing pipelines and utilities are not damaged during construction of the proposed pipeline.

### 4.3.5 Agricultural Areas

Texas Gas conserves topsoil in all actively cultivated and rotated cropland, improved pasture, non-saturated wetlands and residential areas. Up to 12 inches of topsoil will be segregated in these areas, and in other areas at the specific request of the landowner or land management agency. The topsoil and subsoil will be stockpiled separately on the construction right-of-way and will not be allowed to mix. Rock will not be used as backfill in rotated or permanent cropland.

To prevent mixing of the soil horizons or incorporation of additional rock into the topsoil, topsoil segregation will be performed in non-saturated wetlands, croplands, pastures, hayfields, and in areas requested by the landowner. The topsoil will be segregated, as appropriate, from all subsoil and will be replaced in the proper order during backfilling and final grading. Implementation of proper topsoil segregation will help ensure post-construction revegetation success, thereby minimizing loss of crop productivity and the potential for long-term erosion problems. The Arkansas and Mississippi Department of Natural Resources indicated no additional requirements for construction through Prime Farmland areas (Singleton, Arkansas NRCS, personal communication, May 1, 2007; Johnson, Mississippi Department of Natural Resources, personal communication April 29, 2007).

The introduction of subsoil rocks/stones into agricultural topsoil will be minimized by segregating topsoil from trench spoil and replacing topsoil in agricultural areas after cleanup. This practice will prevent subsoil rocks from being brought to the surface and incorporated with the topsoil layer. Texas Gas will make diligent efforts to remove excess rock/stone greater than 4 inches in size from the topsoil and exposed subsoil of all disturbed soils, to the extent practicable, in cultivated and rotated croplands, hayfields, pastures, residential areas, and at the landowner's request, in other areas. Texas Gas will also remove excess rock/stone from surface soils disturbed by construction such that the size, density, and distribution of rock on the construction right-of-way will be similar to adjacent non-right-of-way areas. Texas Gas will not remove rocks from backfilled areas if the rocks/stones in the backfill are consistent in size and density with conditions before construction.

Texas Gas will excavate a trench sufficient for a minimum of 4 feet of cover in all actively tilled, pasture, or previously tilled land. Texas Gas will excavate deeper than the minimum 4 feet of cover in areas where deeper tilling (for example, using parabolic plows) occurs, or excavate deeper in areas in order to maintain existing drainage systems. Upon completing construction, Texas Gas will cooperate with local farmers and agricultural agencies to allow continued agricultural use of property while minimizing impacts to pipeline operations, including development of a grazing deferment plan with willing landowners.

Texas Gas will question landowners and local agricultural agency personnel regarding the potential presence of drain tiles and irrigation systems in affected agricultural fields. In addition, observations will be made before and during construction for evidence of the presence of drain tiles and irrigation systems.

In fields with drain tiles and irrigation systems, pipeline construction will be conducted in accordance with FERC's Plan and Texas Gas' Construction Specifications. The pipe will be installed below agricultural drainage lines, except in the rare circumstance of a deep main drainage line. Agricultural drainage features will be repositioned in a manner consistent with drainage orientation.

Should drainage tiles or irrigation piping be damaged during construction, Texas Gas will repair/restore their function. Texas Gas will carefully mark the location of the damage in a prominent manner, such as a securely staked lath with survey tape attached. Drain tile used for replacement shall be of the same size and quality as the original tile encountered on site. If original tile is not available, replacement tiles will be of appropriate size and materials to connect with the existing line without loss of function.

Operation of the pipeline following construction and repair of any damaged tile and irrigation line is not expected to affect operation of the drainage and irrigation systems.

### 4.3.6 Residential Areas

Where there are residences in close proximity to the construction right-of-way, Texas Gas will reduce pipeline offset or construction workspace areas, as practical, to minimize inconvenience to property owners. If construction requires the removal of private property features, such as gates or fences, the landowner or tenant will be notified prior to the action. Following completion of major construction, the property will be restored in accordance with Texas Gas' standards regarding right-of-way restoration and maintenance. Property restoration will be in accordance with any agreements between Texas Gas and the landowner.

### 4.3.7 Commercial and Industrial Areas

Texas Gas would maintain close coordination with business owners to maintain access, decrease construction duration, and generally minimize impacts.

### 4.3.8 Blasting

Soil survey surficial geological information indicates that bedrock may be encountered in scattered locations along the Fayetteville Lateral, west of MP 63.3. Where unrippable subsurface rock is encountered, blasting for ditch excavation may be necessary. In these areas, care will be taken to prevent damage to underground structures (e.g., cables, conduits, and pipelines) or to springs, water wells, or other water sources. Blasting mats or padding will be used as necessary to prevent the scattering of loose rock. All blasting will be conducted during daylight hours and will not begin until occupants of nearby buildings, stores, residences, places of business, and farms have been notified.

Texas Gas considers blasting as a last resort to reach the design pipeline depth; however, if required, blasting will be conducted in a manner to minimize possible impacts on nearby water supply wells. Use of controlled blasting techniques should mitigate impacts of blasting and limit rock fracture to the immediate vicinity of detonation.

If blasting is required within 150 feet of a water well, Texas Gas will, with landowner permission, conduct pre- and post-construction well testing and perform necessary repair and restoration to ensure there is no loss of productivity and quality.

### 4.3.9 Rugged Terrain

In addition to additional construction right of way, steep slopes may also require the installation of special erosion control measures, including trench breakers, slope breakers, interception dikes, and erosion control mats, per Section 3.

## 4.4 Above-Ground Facilities Installation Procedures

Construction of the proposed aboveground facilities will follow industry-accepted practices and procedures, as further described below. In general, construction would begin with site grading, laying of building foundations and pipe support piers, installation of equipment and piping, and the erection of permanent buildings. After completion of service lines, pipe tie-ins and testing, final construction would consist of painting aboveground facilities, road surfacing, grading, and gravelling the station yard. Aboveground facilities will be painted per the Texas Gas Transmission, LLC painting specifications and standards.

Typical construction activities associated with compressor installation are summarized below. No special construction methods will be required for the proposed station modifications.

### 4.4.1 General

Construction activities and the temporary storage of construction materials and equipment would be confined to the areas within the site boundaries. Debris and wastes generated from the construction would be disposed of appropriately. All surface areas disturbed would be restored and stabilization measures installed in a timely manner. The facilities will be constructed in accordance with Texas Gas construction standards and specifications.

### 4.4.2 Foundations

Excavation will be performed as necessary to accommodate the new reinforced concrete foundation for the new compressors. Forms will be set, rebar installed, and the concrete poured and cured in accordance with applicable standards. Concrete pours will be randomly sampled to verify compliance with minimum strength requirements. Backfill will be compacted in place, and excess soil will be used elsewhere or distributed around the site.

## 4.5 Restoration

Following construction of the proposed pipeline and aboveground facilities, the areas disturbed by construction will, to the greatest extent practicable, be restored to their original condition and use. Seeding and mulching in cultivated areas will conform to the adjacent off-right-of-way area unless otherwise requested, in writing, by the landowner. Unless requested by a landowner, no areas will be left unseeded beyond the next available seeding season.

### 4.5.1 Pipeline Right-of-Way

Upon completion of the pipeline installation, the surface of the ROW disturbed by construction activities would be graded to match original contours and to be compatible with surrounding drainage patterns, except at those locations where permanent changes in drainage would be required to prevent erosion, scour, and possible exposure of the pipeline. Segregated topsoil would be replaced, and soils that have been compacted by construction equipment traffic would be disked. Permanent erosion control measures would be installed at this time. Temporary construction erosion control measures may be left in place, or replaced with interim erosion control measures, where appropriate, until sufficient vegetative cover is re-established to prevent significant erosion and sedimentation.

### 4.5.2 Uplands

In most upland locations, an herbaceous native vegetative cover would be re-established by spreading a grass seed and mulch mixture over the disturbed surface. The type of seed would be selected to match adjacent cover, or as otherwise requested/required by the landowner or land management agency, or as recommended by the county extension agent. Depending upon the time of year, a seasonal variety may be spread until a more permanent cover can be established. Steep slopes may require erosion control mats, revetments, or sod. The revegetation success would be monitored by Texas Gas, and reseeding, fertilizing, and other measures would be employed until a cover equivalent to approximately 80 percent of similar, adjacent areas is achieved. Temporary and interim erosion control measures would be removed at that time. Active cropland may be left unseeded at the request of the landowner if preparation of the ground for planting is imminent following construction. Pasture would be reseeded with a similar species or mixture. Residential and commercial lawns would be reseeded or sodded, depending upon the original grass variety. Shrubs and small trees on residential properties would be temporarily transplanted and replaced where practicable, and where allowed relative to the permanent ROW. Forested areas would be allowed to recover, except that no trees would be allowed to grow within 5 feet of the pipeline to facilitate pipeline inspections during operations, and no trees greater than 15 feet in height would be allowed within 15 feet of the pipeline.

Owners or managers of forested lands will be offered the opportunity to install and maintain measures to control unauthorized vehicle access to the right-of-way, including use of signs, fences, vegetative or other barriers.

### 4.5.3 Wetlands

Original surface hydrology would be re-established in wetlands by backfilling the pipe trench and grading the surface with backhoes or draglines operating from the temporary board road, or with low-ground-pressure (LGP) tracked vehicles working in the spoil pile, depending upon the ambient water level, degree of soil saturation, and the bearing capacity of the soils. Segregated topsoil would be replaced in unsaturated wetlands. Roots and stumps would have been removed only in the areas of the pipe trench, allowing pre-existing vegetation to recover more rapidly in the remainder of the ROW once the board roads and spoil piles have been removed. Wetlands along the proposed pipeline may display a varying degree of saturation and water elevation, requiring a variety of plant species to be re-established. In unsaturated wetlands, most vegetation would be replaced by seeding. Saturated wetlands would typically be re-vegetated by the transplantation of mature herbaceous specimens at pre-established spacing. Transplant specimens would be obtained from adjacent wetlands, collected over a relatively large area to minimize negative impacts to the donor site, or from local commercial nurseries. Adjacent donor sites are preferred over nurseries because the plants would be acclimated to the specific conditions of the site. Some specimens may also be collected from the ROW prior to construction, stored in temporary nurseries, and replanted after pipeline construction is complete.

All disturbed areas within the construction right of way will be successfully regenerated with wetland herbaceous and/or woody plant species by natural succession. Topsoil segregation in unsaturated wetlands will preserve the native seed source, which will facilitate regrowth of wetlands once pipeline installation is complete. Monitoring of wetland revegetation will be conducted annually for the first three years after construction or until wetland vegetation is successful. Revegetation will be considered successful if the density and cover of non-nuisance vegetation are similar in density and cover to adjacent undisturbed lands.

Texas Gas would work with state and local agencies, and landowners to develop an acceptable site-specific revegetation plan prior to commencement of construction.

### 4.5.4 Above-Ground Facilities

All above ground facilities would be permanently converted to industrial use. Most areas in and around the meters and associated piping and equipment would be covered with crushed rock (or equivalent) for worker safety and to minimize the amount of maintenance required. Roads and parking areas may be crushed rock, concrete, or asphalt. Other ground surfaces would be seeded with a native grass that is compatible with the climate and easily maintained. Areas outside the fence would be restored as described above for the permanent pipeline ROW.

### 4.5.5 Access Roads

Previously existing roads that were used for access during construction would be returned to original or better condition, or as otherwise requested by the landowner, upon completion of the pipeline facilities installation. New access roads, if any, constructed specifically for installation of the Project would be removed, the surface graded to original contours, and the land restored to its original use, unless otherwise requested by the landowner, or unless the roads would be required for ongoing access to the ROW during pipeline operations. No new access roads are anticipated to be built for construction of the pipeline project. Temporary erosion control measures would be removed upon final stabilization and installation of permanent erosion control measures.

Currently, the only new permanent roads that will be constructed are those that will provide access to the new M&R stations. The locations and dimensions of these roads are currently being evaluated.

### 4.5.6 Pipe Storage and Contractor Yards

Upon completion of construction, all temporary facilities (i.e., trailers, sheds, latrines, pipe supports, fencing, gates, etc.) would be removed from the pipe storage and contractor yards. Unless otherwise requested by the landowners, the sites would be graded to original contours, and the land restored to their original use. The sites would be re-vegetated, if applicable, permanent erosion control measures would be installed, and temporary erosion control measures would be removed.

## 4.6 Operation and Maintenance of the Natural Gas Pipeline

Texas Gas will operate and maintain the proposed pipeline and aboveground facilities in compliance with USDOT regulations provided in 49 CFR 192, FERC's guidance at 18 CFR 380.15, and maintenance provisions of FERC's Plan and Procedures.

Operational activity on the pipeline will be limited primarily to maintenance of the right-of-way and inspection, repair, and cleaning of the pipeline itself. Periodic aerial and ground inspections by pipeline personnel will identify soil erosion which may expose the pipe; dead vegetation that may indicate a leak in the line; conditions of the vegetative cover and erosion control measures; unauthorized encroachment on the right-of-way, such as buildings and other substantial structures; and other conditions which could present a safety hazard or require preventative maintenance or repairs. The pipeline cathodic protection (CP) system will also be monitored and inspected periodically to ensure proper and adequate corrosion protection. Appropriate responses to conditions observed during inspection will be taken as necessary.

Vegetation on the permanent right-of-way will be maintained by mowing, cutting, and trimming. The right-of-way will be allowed to revegetate; however, large brush and trees will be periodically removed. Trees or deep-rooted shrubs could damage the pipeline's protective coating, obscure periodic surveillance, or interfere with potential repairs and would not be allowed to grow within 15 feet in wetlands, and 25 feet in uplands, of the pipeline centerline. Vegetation maintenance will be conducted once every three years and will be performed in accordance with FERC's Plan and Procedures. Vegetation maintenance will not normally be required in agricultural or grazing areas.

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

In accordance with 49 CFR 192, the pipeline system will have a CP system to protect it where minute defects occur in the pipe coating. Without a CP system, such defects are anodic and subject to corrosion. The CP system impresses a direct current on the pipe, which makes the pipe cathodic. The CP system provides a ground-bed anode, which will corrode instead of the pipe. The CP system does not in any way influence the pipeline excavation depth. The main components of the CP system are anode beds, rectifiers, and test stations.

Texas Gas proposes to utilize the existing CP sites on the Texas Gas system. A survey will then be performed to determine if adequate protection has been achieved. If adequate protection is not achieved with the existing CP system, additional CP sites will be proposed at the inadequately protected areas. All existing CP sites are within the existing right-of-way. Any additional sites, if required, will also be sited in the existing right-of-way.

## 5.0 SAFETY, ENVIRONMENTAL COMPLIANCE, TRAINING AND INSPECTION

To ensure that construction of the proposed facilities will comply with mitigation measures identified by Texas Gas, the analysis by FERC of this Project and the requirements of other Federal and state permitting agencies, implementation details will be included in construction drawings and specifications. Selected contractors will receive copies of specifications and a Construction Drawing Package containing, among other things, plant and equipment drawings designated as being approved for construction. To solicit accurate bids for construction, specifications and advance versions of the Construction Drawing Package will be provided to prospective contractors.

Concerning those mitigation measures that address pre-construction surveys and clearances, reference to pertinent correspondence and documentation will be incorporated into the Construction Drawing Package. For those mitigation measures that address permit conditions from Federal, state, and local agencies, copies of permits and related drawings will also be added to the Construction Drawing Package. For those mitigation measures that, in part, address post-construction requirements, instructions and documentation (Maintenance Plan) will be provided to operating personnel following the completion of construction. The Maintenance Plan will include copies of pertinent permits with particular reference to long-term permit conditions.

The selected contractors will install facilities according to company specifications, the Construction Drawing Package, and the terms of the negotiated contract. To specifically support the application of proper field construction methods, a Soil Erosion and Sediment Control Plan (Soil Plan) will be prepared incorporating provisions of FERC's Plan and Procedures. Texas Gas conducts annual training for its environmental inspectors in proper field implementation of Soil Plans and other mitigation measures. The Project inspectors will be drawn from the company's inspector pool or, in some cases, from qualified third party contractors. Prior to and during construction, training for field construction personnel and contractor personnel will be conducted. While this training focuses on Soil Plan implementation, it will also include instruction on the implementation of other mitigation measures, as appropriate.

For purposes of quality assurance and compliance with mitigation measures, other applicable regulatory requirements, and company specifications, the Chief Inspector or Spread Superintendent will represent the company at each spread. The Spread Superintendent will be assisted by a Chief Inspector who will be assisted by one or more craft inspectors, and at least one environmental inspector, depending upon the size of the spread. The environmental inspector's duties are consistent with those contained in Paragraph III.B (Responsibilities of the Environmental Inspector) of FERC's Plan and shall be:

- Responsible for monitoring and documenting compliance with all mitigative measures required by FERC's Order and any other grants, permits, certificates, or other authorizing documents;
- Responsible for evaluating the construction contractor's implementation of the environmental mitigation measures required in the contract or any other authorizing document;
- Empowered to order correction of acts that violate the environmental conditions of FERC's Order, or any other authorizing document (e.g., Clean Water Act Section 404 permit issued by the Corps);
- A full-time position separate from all other activity inspectors; and
- Responsible for maintaining status reports and training records.

An ample number of copies of the Construction Drawing Package will be distributed to inspectors and to contractors' supervisory personnel. If a contractor's performance is unsatisfactory, the terms of the contract will allow for work stoppage and will require the contractor to begin remedial work.

The Engineering and Construction Department is responsible for designing and constructing certificated facilities in compliance with regulatory and non-regulatory requirements and agreements. If technical or management assistance is required, the responsible Texas Gas Chief Inspector will request assistance from the appropriate company department or division. The operations department will be responsible for long-term Project maintenance and regulatory compliance.

## 5.1 Emergency Contacts

Names and contact information for emergency notification are provided in the following table.

| Title | Name(s) | Phone Number/Email |
|---|---|---|
| Environmental Inspector (Owner) | TBD | TBD |
| Environmental Coordinator (Contractor) | TBD | TBD |
| Emergency ADEQ Contact | TBD | TBD |
| Emergency Owner Contact | Steven J. Law | 207-688-6954 |
| Non-Emergency Contact | Steven J. Law | 207-688-6954 |
| Monitoring Personnel | TBD | TBD |

| Title | Name(s) | Phone Number/Email |
|---|---|---|
| Arkansas Hazardous Materials Emergency Response Commission/ Department of Emergency Management | (501) 683-6700 | |
| Chemical Transportation Emergency Center (CHEMTREC) | 800-424-9300 | |
| Natural Resource Center (NRC) Hotline | 800-424-8802 | |
| Conway County, AR Sheriff | | Emergency 911<br>Non-Emergency 501-354-2411 |
| Faulkner County, AR Sheriff | | Emergency 911<br>Non-Emergency 501-450-4914 |
| Cleburne County, AR Sheriff | | Emergency 911<br>Non-Emergency 501-362-2911 |
| White County, AR Sheriff | | Emergency 911<br>Non-Emergency 501-279-6231 |
| Woodruff County, AR Sheriff | | Emergency 911<br>Non-Emergency 870-347-5152 |
| St. Francis County, AR Sheriff | | Emergency 911<br>Non-Emergency 870-777-6727 |
| Lee County, AR Sheriff | | Emergency 911<br>Non-Emergency 870-295-7775 |
| Phillips County, AR Sheriff | | Emergency 911<br>Non-Emergency 870-338-5555 |

## 6.0 SITE INSPECTIONS AND MONITORING

Monitoring includes visual inspection, monitoring for water quality parameters of concern, and documentation of the inspection and monitoring findings in a site log book. A site log book would be maintained for all on-site construction activities and would include:

- A record of the implementation of the ESCP and other permit requirements;
- Site inspections; and,
- Stormwater quality monitoring.

The inspection form and water quality monitoring forms included in this ESCP include the required information for the site log book. The forms would be included in a separate site log book which would be maintained on-site or within reasonable access to the site. Modifications to BMPs and records of BMP repair would also be maintained in the log book.

### 6.1 Site Inspection

Site inspection would occur in all areas disturbed by construction activities and at all stormwater discharge points. Stormwater would be examined for the presence of suspended sediment, turbidity, discoloration, and oily sheen. The Environmental Inspector would evaluate and document the effectiveness of the installed BMPs and determine if it is necessary to repair or replace any of the BMPs to improve the quality of stormwater discharges. All maintenance and repairs would be documented in the site log book. All new BMPs or design changes would be documented in the ESCP as soon as possible.

### 6.1.1 Site Inspection Frequency

Site inspections would be conducted at least once a week and within 24 hours following any rainfall event which causes a discharge of stormwater from the site. For sites with temporary stabilization measures, the site inspection frequency can be reduced to once every month. Daily inspections of active sites are required during storm water runoff.

### 6.1.2 Site Inspection Documentation

The site inspector would record each site inspection using the site log inspection forms provided in Appendix C. The site inspection log forms may be separated from this ESCP document, but would be maintained on-site or within reasonable access to the site and be made available upon request by DEQ or the local jurisdiction.

## 6.2 Storm Water Quality Monitoring

### 6.2.1 Water Quality Monitoring

Sampling for turbidity will occur on all streams, particularly those streams on the ADEQ 303(d) list for turbidity and sedimentation as identified in Section 2.1. Sampling shall occur in two locations, one sample upstream of runoff from the Project, and downstream at the limit of a 750-foot mixing zone. Turbidity outside of the limits of a 750-foot mixing zone shall not exceed ambient turbidity by more than 50 Nephelometric Turbidity Units (NTU). In the event that turbidity is expected to exceed this limit, Texas Gas will apply for a Short-Term Activity Authorization from the Director of ADEQ. Turbidity measurements in streams receiving storm water runoff from the project and shall be taken after every storm with precipitation of half an inch or greater, or, sufficient precipitation to produce runoff. Ambient turbidity levels shall be measured at a location near but upstream of the crossing.

### 6.2.2 Visual Monitoring

All ESCP controls and practices must be inspected as follows:

- Daily during active period.
- Once, to ensure ESCP measures are in working order prior to site becoming inactive or inaccessible.
- Once every two weeks during inactive periods of greater than seven consecutive days.
- Daily, if practical, during inaccessible periods due to inclement weather.

# 7.0 RECORDKEEPING

## 7.1 Site Log Book

A site log book would be maintained for all on-site construction activities and would include:

- A record of the implementation of the ESCP and other permit requirements;
- Site inspections;

- Stormwater quality monitoring;
- Method of application, application rate, and type of fertilizer, pH modifying agent, seed, and mulch used;
- Acreage treated;
- Dates of backfilling and seeding;
- Names of landowners requesting special seeding treatment; and,
- A description of the follow-up actions; and any problem areas and how they were addressed.

For convenience, the inspection form and water quality monitoring forms included in this ESCP include the required information for the site log book.

Quarterly reports will be filed to FERC documenting problems, landowner issues, and corrective actions taken for at least two years following construction.

Weekly, or biweekly, reports to FERC shall identify areas used by the project that are in excess of what has been identified herein. Approvals of landowners shall be obtained and documented in the files. Areas shall be identified by Station number and referenced to an alignment sheet, and survey information of the additional area incorporated into the project.

### 7.2 Records Retention

Records of all monitoring information (site log book, inspection reports/checklists, etc.), this ESCP, and any other documentation of compliance with water quality requirements would be retained during the life of the construction project and for a minimum of three years following completion of construction.

### 7.3 Access to Plans and Records

The ESCP and SWPPP, and Site Log Book, would be retained on site or within reasonable access to the site and would be made immediately available upon request to ADEQ or local municipality. A copy of the ESCP or access to the ESCP would be provided to the public when requested in writing.

### 7.4 Updating the ESCP

This ESCP and SWPPP would be modified if they are deemed to be ineffective in eliminating or significantly minimizing pollutants in stormwater discharges from the site or there has been a change in design, construction, operation, or maintenance at the site that has a significant effect on the discharge, or potential for discharge, of pollutants to the waters of the State. This ESCP and SWPPP would be modified within ten days of determination based on inspection(s) that additional or modified BMPs are necessary to correct problems identified, and an updated timeline for BMP implementation would be prepared.

# FIGURES

# APPENDICES

# Appendix A

## Site Plan and Details

**Details:**

Upland Pipeline Construction Sequence
Typical Cross Section with 36″ Pipe Adjacent to Foreign Pipeline
36″ Typical Cross Section
Typical HDD Waterbody Crossing
Typical Foreign Pipeline Crossing Detail
Typical Waterbody Crossing
Typical Saturated Wetland Crossing
Permanent Right-of-Way Maintenance in Forested Wetland Areas
Typical Horizontal Directional Drill Layout
Typical Compressor Station Plot Plan
Typical Cross Section with 36″ Pipe Adjacent to Powerline

# Appendix B

## Arkansas Construction Stormwater General Permit

## Appendix C

## Example Site Inspection Forms

The results of each inspection should be summarized in an inspection report or checklist that is entered into or attached to the site log book. This ESCP and SWPPP and the site inspection forms be kept onsite at all times during construction, and inspections shall be performed and documented as outlined below.

At a minimum, each inspection report or checklist should include:

a. Inspection date/times.

b. Weather information: general conditions during inspection, approximate amount of precipitation since the last inspection, and approximate amount of precipitation within the last 24 hours.

c. A summary or list of all BMPs that have been implemented, including observations of all erosion/sediment control structures or practices.

d. The following should be noted:

   i. locations of BMPs inspected,

   ii. locations of BMPs that need maintenance,

   iii. the reason maintenance is needed,

   iv. locations of BMPs that failed to operate as designed or intended, and

   v. locations where additional or different BMPs are needed, and the reason(s) why.

e. A description of stormwater discharged from the site. The presence of suspended sediment, turbid water, discoloration, and/or oil sheen should be noted, as applicable.

g. General comments and notes, including a brief description of any BMP repairs, maintenance or installations made as a result of the inspection.

h. A statement that, in the judgment of the person conducting the site inspection, the site is either in compliance or out of compliance with the terms and conditions of the ESCP and SWPPP. If the site inspection indicates that the site is out of compliance, the inspection report should include a summary of the remedial actions required to bring the site back into compliance, as well as a schedule of implementation.

   i. Name, title, and signature of person conducting the site inspection; and the following statement: "I certify under penalty of law that this report is true, accurate, and complete, to the best of my knowledge and belief."

When the site inspection indicates that the site is not in compliance with any terms and conditions of the ESCP and SWPPP, the Permittee should take immediate action(s) to: stop, contain, and clean up the unauthorized discharges, or otherwise stop the noncompliance; correct the problem(s); implement appropriate Best Management Practices (BMPs), and/or conduct maintenance of existing BMPs; and achieve compliance with all applicable standards and permit conditions.

Project-specific Site inspection forms to be developed by contractor and approved by Texas Gas. Example inspection forms are attached.

## *Example Erosion and Sediment Control Inspection Forms (Source: USEPA 1992)*

HOMERVILLE APARTMENTS

STORM WATER POLLUTION PREVENTION PLAN

INSPECTION AND MAINTENANCE REPORT FORM

TO BE COMPLETED EVERY 7 DAYS AND WITHIN 24 HOURS OF A RAINFALL EVENT OF 0.5 INCHES OR MORE

INSPECTOR ______________ DATE: ______________

INSPECTOR'S QUALIFICATIONS: ______________

DAYS SINCE LAST RAINFALL: ________ AMOUNT OF LAST RAINFALL ______ INCHES

STABILIZATION MEASURES

| AREA | DATE SINCE LAST DISTURBED | DATE OF NEXT DISTURBANCE | STABILIZED? (YES/NO) | STABILIZED WITH | CONDITION |
|---|---|---|---|---|---|
| BLDG. A | | | | | |
| BLDG. B | | | | | |
| BLDG. C | | | | | |
| PRKNG. 1 | | | | | |
| PRKNG. 2 | | | | | |
| GRASS 1 | | | | | |
| GRASS 2 | | | | | |

STABILIZATION REQUIRED: ______________

TO BE PERFORMED BY: ______________ ON OR BEFORE: ______________

USEPA. 1992. Storm Water Management for Construction Activities: Developing Pollution Prevention Plans and Best Management Practices – Summary Guidance. EPA 833-R-92-001.

*Example Erosion and Sediment Control Inspection Forms (Source: USEPA 1992)*

HOMERVILLE APARTMENTS

STORM WATER POLLUTION PREVENTION PLAN

INSPECTION AND MAINTENANCE REPORT FORM

STRUCTURAL CONTROLS

DATE: ________________

EARTH DIKE:

| FROM | TO | IS DIKE STABILIZED? | IS THERE EVIDENCE OF WASHOUT OR OVER-TOPPING? |
|---|---|---|---|
| BUILDING B | STABILIZED CONSTRUCTION ENTRANCE | | |
| STABILIZED CONSTRUCTION ENTRANCE | SEDIMENT BASIN | | |
| BUILDING B | SEDIMENT BASIN | | |

MAINTENANCE REQUIRED FOR EARTH DIKE:

________________________________________

________________________________________

________________________________________

________________________________________

TO BE PERFORMED BY: ________________ ON OR BEFORE: ________________

## *Example Erosion and Sediment Control Inspection Forms (Source: USEPA 1992)*

HOMERVILLE APARTMENTS

STORM WATER POLLUTION PREVENTION PLAN

INSPECTION AND MAINTENANCE REPORT FORM

SEDIMENT BASIN:

| DEPTH OF SEDIMENT IN BASIN | CONDITION OF BASIN SIDE SLOPES | ANY EVIDENCE OF OVERTOPPING OF THE EMBANKMENT? | CONDITION OF OUTFALL FROM SEDIMENT BASIN |
|---|---|---|---|
| | | | |

MAINTENANCE REQUIRED FOR SEDIMENT BASIN:

________________________________________

________________________________________

________________________________________

________________________________________

TO BE PERFORMED BY: ________________ ON OR BEFORE: ________________

OTHER CONTROLS

STABILIZED CONSTRUCTION ENTRANCE:

| DOES MUCH SEDIMENT GET TRACKED ON TO ROAD? | IS THE GRAVEL CLEAN OR IS IT FILLED WITH SEDIMENT? | DOES ALL TRAFFIC USE THE STABILIZED ENTRANCE TO LEAVE THE SITE? | IS THE CULVERT BENEATH THE ENTRANCE WORKING? |
|---|---|---|---|
| | | | |

MAINTENANCE REQUIRED FOR STABILIZED CONSTRUCTION ENTRANCE:

________________________________________

________________________________________

________________________________________

________________________________________

TO BE PERFORMED BY: ________________ ON OR BEFORE: ________________

***Example Erosion and Sediment Control Inspection Forms (Source: USEPA 1992)***

**HOMERVILLE APARTMENTS**

**STORM WATER POLLUTION PREVENTION PLAN**

**INSPECTION AND MAINTENANCE REPORT FORM**

CHANGES REQUIRED TO THE POLLUTION PREVENTION PLAN:

REASONS FOR CHANGES:

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gathered and evaluated the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

SIGNATURE:____________________ DATE:__________

# Appendix D

## Wetland Crossing Table

**Table D-1 Wetlands Identified Within the Construction Corridor or the Proposed Pipeline Route**

| Arkansas County | GPS-Field ID | Approximate Start Milepost | Approximate Centerline length crossed (feet)[a] | Wetland Type[b] | Crossing Type[c] | Approximate Construction Impacts[d] | Approximate Permanent Impacts[e] |
|---|---|---|---|---|---|---|---|
| Conway | wrm001 | 2.1 | 51 | PEM | OCM | 0.1 | n/a |
| Conway | tdh ar w1 | 7.3 | 23 | PFO/PEM | OCM | <0.1 | n/a |
| Faulkner | WET 015 | 10.9 | n/a | PEM/PSS | OCM | <0.1 | n/a |
| Faulkner | WET 041 | 13.0 | 26 | PEM | OCM | <0.1 | n/a |
| Faulkner | WET 045 | 13.3 | 8 | PEM | OCM | <0.1 | n/a |
| Faulkner | WET 057 | 14.2 | 33 | PEM | OCM | 0.1 | n/a |
| Faulkner | WET 060 | 14.8 | 42 | PEM/PSS | OCM | <0.1 | n/a |
| Faulkner | WET 062 | 14.8 | n/a | PSS | OCM | <0.1 | n/a |
| Faulkner | WET 063 | 14.8 | 41 | PEM | OCM | <0.1 | n/a |
| Faulkner | WET 064 | 15.0 | n/a | PEM | OCM | 0.1 | n/a |
| Faulkner | WET 071 | 15.7 | n/a | PEM | OCM | <0.1 | n/a |
| Faulkner | WET 076 | 16.5 | n/a | PEM | OCM | <0.1 | n/a |
| Faulkner | Wet 081 | 16.8 | 374 | PEM | OCM | 0.7 | n/a |
| Faulkner | WET 104 | 19.1 | n/a | PEM | OCM | <0.1 | n/a |
| Faulkner | WET 108 | 19.7 | n/a | PEM | OCM | <0.1 | n/a |
| Faulkner | WET 109 | 20.0 | 43 | PEM | OCM | 0.1 | n/a |
| Faulkner | WET 112 | 20.1 | 282 | PFO | OCM | 0.5 | n/a |
| Faulkner | WET 138 | 23.1 | 31 | PFO | OCM | 0.1 | n/a |
| Faulkner | WET 141 | 23.2 | 532 | PEM | OCM | 0.8 | n/a |
| Faulkner | WET 144 | 24.2 | 32 | PSS | OCM | <0.1 | n/a |
| Faulkner | WET 148 | 24.8 | 62 | PSS | OCM | 0.1 | n/a |
| Faulkner | WET 151 | 25.2 | 104 | PEM | OCM | 0.2 | n/a |
| Faulkner | WET 157 | 26.4 | 103 | PEM | OCM | 0.2 | n/a |
| Faulkner | WET 158 | 26.6 | 41 | PEM | OCM | 0.1 | n/a |
| Faulkner | WET 160 | 26.7 | n/a | PEM | OCM | <0.1 | n/a |
| Faulkner | WET 164 | 26.8 | 70 | PEM | OCM | 0.1 | n/a |
| Faulkner | WET 170 | 27.7 | 19 | PSS | OCM | <0.1 | n/a |
| Faulkner | WET 176 | 28.8 | 24 | PEM | OCM | <0.1 | n/a |

**Table D-1 Wetlands Identified Within the Construction Corridor or the Proposed Pipeline Route**

| Arkansas County | GPS-Field ID | Approximate Start Milepost | Approximate Centerline length crossed (feet)[a] | Wetland Type[b] | Crossing Type[c] | Approximate Construction Impacts[d] | Approximate Permanent Impacts[e] |
|---|---|---|---|---|---|---|---|
| White | WET 188 | 31.6 | 22 | PEM | OCM | <0.1 | n/a |
| White | WET 192 | 32.0 | 33 | PEM | OCM | 0.1 | n/a |
| White | WET 210 | 34.1 | n/a | PEM/PFO | OCM | <0.1 | n/a |
| White | WET 219 | 35.3 | 60 | PEM/PFO | OCM | 0.1 | n/a |
| White | WET 222 | 35.5 | 20 | PFO | OCM | <0.1 | n/a |
| White | WET 231 | 37.1 | n/a | PSS | OCM | <0.1 | n/a |
| White | wrm012 | 47.8 | 839 | PFO | OCM | 1.5 | n/a |
| White | wrm011 | 48.1 | 9 | PFO/PSS | OCM | <0.1 | n/a |
| White | wrm010 | 63.6 | 122 | PSS | OCM | 0.2 | n/a |
| White | wrm007 | 65.4 | 229 | PFO | OCM | 0.4 | n/a |
| White | wrm006 | 65.6 | n/a | PFO | OCM | <0.1 | n/a |
| White | wrm004 | 66.4 | 195 | PFO | OCM | 0.3 | n/a |
| White | wrm003 | 66.5 | 107 | PFO | OCM | 0.2 | n/a |
| White | th w11 | 67.0 | 77 | PFO | OCM | 0.1 | n/a |
| White | wrm005 | 67.5 | 862 | PSS | OCM | 1.5 | n/a |
| White | th w6 | 67.9 | 103 | PFO | OCM | 0.2 | n/a |
| White | th w5 | 70.1 | 156 | PFO | HDD | 0.3 | n/a |
| Woodruff | th w9 | 71.4 | 75 | PFO | OCM | 0.1 | n/a |
| Woodruff | tdh ar w2 | 73.3 | 19 | PFO | OCM | 0.2 | n/a |
| Woodruff | th w7 | 73.4 | 405 | PFO | HDD | 0.5 | n/a |
| Woodruff | th w8 | 74.4 | 1100 | PFO | OCM | 1.9 | n/a |
| Woodruff | JAV-W18 | 76.1 | n/a | PEM/PSS | OCM | <0.1 | n/a |
| Woodruff | JAV-W14 | 79.7 | 440 | PEM | OCM | 0.5 | n/a |
| Woodruff | JAV-W17 | 79.8 | 52 | PEM | OCM | 0.4 | n/a |
| Woodruff | JAV-W20 | 80.9 | 57 | PEM | OCM | 0.1 | n/a |
| Woodruff | JAV-W21 | 81.6 | 8 | PEM | OCM | <0.1 | n/a |
| Woodruff | JAV-W23a | 81.8 | 187 | PEM/PSS | OCM | 0.2 | n/a |
| Woodruff | JAV-W23b | 81.8 | 70 | PEM | OCM | 0.2 | n/a |
| Woodruff | JAV-W24 | 81.9 | 36 | PFO/PEM | OCM | 0.1 | n/a |

**Table D-1 Wetlands Identified Within the Construction Corridor or the Proposed Pipeline Route**

| Arkansas County | GPS-Field ID | Approximate Start Milepost | Approximate Centerline length crossed (feet)[a] | Wetland Type[b] | Crossing Type[c] | Approximate Construction Impacts[d] | Approximate Permanent Impacts[e] |
|---|---|---|---|---|---|---|---|
| Woodruff | th w10 | 82.0 | 176 | PFO/PEM | OCM | 0.4 | n/a |
| Woodruff | th w3 | 82.0 | 711 | PEM | OCM | 1.2 | n/a |
| Woodruff | th w2 | 82.2 | 599 | PFO/PEM | OCM | 1.1 | n/a |
| Woodruff | th w2.1 | 82.4 | 2453 | PFO | HDD | 4.3 | n/a |
| Woodruff | th w2.2 | 82.9 | 450 | PFO | HDD | 0.7 | n/a |
| Woodruff | tdh w2.3 | 83.0 | 70 | PFO/PEM | OCM | 0.1 | n/a |
| Woodruff | JAV-W32 | 83.2 | 154 | PEM | OCM | 0.3 | n/a |
| Woodruff | JAV-W33 | 83.4 | n/a | PEM | OCM | <0.1 | n/a |
| Woodruff | JAV-W39 | 83.4 | n/a | PEM | OCM | <0.1 | n/a |
| Woodruff | JAV-W34 | 83.6 | 206 | PEM | OCM | 0.3 | n/a |
| Woodruff | JAV-W35 | 83.7 | 116 | PEM | OCM | 0.1 | n/a |
| Woodruff | JAV-W37 | 83.8 | 391 | PEM/PSS | OCM | 0.6 | n/a |
| Woodruff | JAV-W38 | 83.9 | 232 | PFO | OCM | 0.3 | n/a |
| Woodruff | JAV-W31 | 84.0 | 42 | PFO | OCM | 0.2 | n/a |
| Woodruff | JAV-W29 | 85.4 | 594 | PFO/PEM | OCM | 1.0 | n/a |
| Woodruff | JAV-W26 | 86.5 | 386 | PEM | OCM | 0.6 | n/a |
| Woodruff | JAV-W25 | 88.1 | n/a | PFO/PEM | OCM | <0.1 | n/a |
| Woodruff | JAV-W8 | 93.7 | 240 | PEM | OCM | 0.4 | n/a |
| Woodruff | tdh bdv w1 | 95.1 | 111 | PFO/PEM | OCM | 0.2 | n/a |
| Woodruff | tdh bdv w2 | 95.5 | 1911 | PFO | HDD | 3.2 | n/a |
| Woodruff | tdh bdv w3 | 95.9 | 83 | PFO | HDD | 0.3 | n/a |
| Woodruff | tdh bdv w4 | 96.0 | 3019 | PSS/PEM | OCM | 4.5 | n/a |
| Woodruff | JAV-W1 | 99.6 | 75 | PEM | OCM | 0.1 | n/a |
| Woodruff | tdh ar w3 | 100.1 | 259 | PFO | OCM | 0.5 | n/a |
| Saint Francis | DLS W2 | 111.5 | 1255 | PFO/PEM | OCM | 2.2 | n/a |
| Saint Francis | jrw6 | 113.8 | 162 | PEM | OCM | 0.3 | n/a |
| Saint Francis | jr-w4a | 116.1 | 751 | PFO | OCM | 1.3 | n/a |
| Lee | jr-w2c | 116.7 | n/a | PFO | OCM | <0.1 | n/a |
| Lee | jr-w3 | 117.0 | 41 | PFO | OCM | 0.1 | n/a |

**Table D-1 Wetlands Identified Within the Construction Corridor or the Proposed Pipeline Route**

| Arkansas County | GPS-Field ID | Approximate Start Milepost | Approximate Centerline length crossed (feet)[a] | Wetland Type[b] | Crossing Type[c] | Approximate Construction Impacts[d] | Approximate Permanent Impacts[e] |
|---|---|---|---|---|---|---|---|
| Lee | jr-w1 | 117.4 | n/a | PFO | OCM | 0.1 | n/a |
| Lee | jo W02 | 120.0 | 427 | PFO | OCM | 0.7 | n/a |
| Lee | DLS W1 | 120.4 | 658 | PEM | OCM | 1.2 | n/a |
| Lee | tdhw1 | 124.3 | 28 | PFO | OCM | <0.1 | n/a |
| Lee | tdhw3 | 125.8 | n/a | PFO/PEM | OCM | 0.1 | n/a |
| Lee | tdhw4 | 126.8 | 151 | PFO | OCM | 0.3 | n/a |
| Lee | tdhw5 | 127.5 | 352 | PFO | OCM | 0.6 | n/a |
| Lee | jo/tdh W05 | 135.6 | 342 | PFO | OCM | 0.6 | n/a |
| Phillips | jo/tdh W08 | 140.8 | 7 | PEM | OCM | <0.1 | n/a |
| Phillips | jo/tdh W09 | 140.8 | 121 | PFO/PEM | OCM | 0.2 | n/a |
| Phillips | jo/tdh W10 | 140.9 | 64 | PEM | OCM | 0.2 | n/a |
| Phillips | jo/tdh W07 | 141.1 | 35 | PFO | OCM | <0.1 | n/a |
| Phillips | jo/tdh W12 | 142.0 | 105 | PFO/PEM | OCM | 0.3 | n/a |
| Phillips | jo/tdh W15 | 142.2 | 550 | PFO/PEM | OCM | 0.9 | n/a |
| Phillips | jo W07 | 143.4 | 30 | PFO | OCM | 0.1 | n/a |
| Phillips | jo W06 | 143.5 | 121 | PFO | OCM | 0.2 | n/a |
| Phillips | jo W08 | 151.4 | 415 | PFO | OCM | 0.7 | n/a |
| Phillips | jo W09 | 152.9 | 204 | PFO | OCM | <0.1 | n/a |
| Phillips | jo W10 | 154.3 | 518 | PFO | HDD | 0.9 | n/a |
| Phillips | jo W11 | 156.4 | 2529 | PFO | OCM | 4.3 | n/a |

[a] *Wetlands with a designation of "n/a" are located within the construction corridor, but are not crossed by the proposed pipeline centerline.*

[b] *Wetland Type: PEM – palustrine emergent, PSS – palustrine scrub shrub, PFO – palustrine forested*

[c] *OCM = open cut method, HDD = horizontal directional drill*

[d] *Construction impacts are based on a 75-foot-wide construction right-of-way over the pipeline.*

[e] *Permanent acreage reflects acreage lost due to permanently maintained facility.*

[f] *Totals may differ due to fractional acreages.*

## Appendix E

## Aboveground Facilities and Associated Wetlands

**Table E-1 Aboveground Facilities/Extra Workspace and Associated Wetlands**

| Arkansas County | Feature or Facility Name | Wetland Field ID | Wetland Type | Nearest Approximate Milepost | Approximate Impact (Acres) |
|---|---|---|---|---|---|
| **Aboveground Facilities** | | | | | |
| n/a | None | n/a | n/a | n/a | n/a |
| | | | | **subtotal** | **n/a** |
| **Extra Workspaces** | | | | | |
| Woodruff | Truck turn around and fabrication area | th w2 | PFO/PEM | 82.2 | 0.3 |
| Woodruff | Pull string | tdh w2.3 | PFO/PEM | 83.1 | 1.0 |
| Woodruff | P.I. & fabrication area | tdh w2.3 | PFO/PEM | 83.1 | 0.1 |
| Woodruff | Truck turn around, P.I. fabrication area, and access | tdh bdv w4 | PSS/PEM | 96.0 | 0.3 |
| Woodruff | Drag section | tdh bdv w4 | PSS/PEM | 96.5 | 0.1 |
| Woodruff | P.I. & road crossing | tdh bdv w4 | PSS/PEM | 96.5 | 0.1 |
| Phillips | Truck turn around | jo W11 | PFO | 156.7 | 0.5 |
| **Access Roads** | | | | | |
| Woodruff | Access Road 64 | tdh bdv w4 | PSS/PEM | 96.0 | <0.1 |
| Lee | Access Road 27 | jo W03 | PFO | 119.1 | <0.1 |
| Phillips | Access Road 52A | jo W11 | PFO | 156.6 | <0.1 |

# Appendix F

# Waterbody Crossing Table

**Table F-1 Waterbodies Within the Construction Corridor of the Proposed Pipeline Route**

| Arkansas County | Approximate Milepost at Crossing | Field ID | Waterbody Name and Type[b, c] | Size[d] and Estimated Width of Stream Crossing | Crossing Method[e] | State Water Classification[f] and/or Environmental Sensitivity[g] |
|---|---|---|---|---|---|---|
| Conway | 0.2 | SRM001 | Tributary to Cypress Creek (Intermittent) | Minor-7 ft | OCM | SC, DIA, SF |
| Conway | 0.3 | SRM002 | Tributary to Cypress Creek (Intermittent) | Minor-7 ft | OCM | SC, DIA, SF |
| Conway | 1.3 | SRM003 | Tributary to Cypress Creek (Intermittent) | Minor- 3 ft | OCM | SC, DIA, SF |
| Conway | 1.8 | SRM004 | Tributary to Cypress Creek (Intermittent) | Minor- 2 ft | OCM | SC, DIA, SF |
| Conway | 2.1 | srm005 | Tributary to Cypress Creek (Intermittent) | Minor- 3 ft | OCM | SC, DIA, SF |
| Conway | 2.1 | srm006 | Tributary to Cypress Creek (Intermittent) | Minor- 2 ft | OCM | SC, DIA, SF |
| Conway | 2.1 | srm006 | Tributary to Cypress Creek (Intermittent) | Minor- 2 ft | OCM | SC, DIA, SF |
| Conway | 2.1 | srm006 | Tributary to Cypress Creek (Intermittent) | Minor- 2 ft | OCM | SC, DIA, SF |
| Conway | 2.1 | srm007 | Tributary to Cypress Creek (Intermittent) | Minor- 5 ft | OCM | SC, DIA, SF |
| Conway | 2.5 | srm008 | Cypress Creek (Intermittent) | Minor- 7 ft | OCM | SC, DIA, SF |
| Conway | 3.6 | srm009 | Tributary to Cypress Creek (Intermittent) | Minor- 3 ft | OCM | SC, DIA, SF |
| Conway | 5.0 | srm012 | Tributary to Cedar Creek (Intermittent) | Minor- 5 ft | OCM | SC, DIA, SF |
| Conway | 5.0 | srm012 | Tributary to Cedar Creek (Intermittent) | Minor- 5 ft | OCM | SC, DIA, SF |
| Conway | 5.5 | srm015 | Tributary to Hog Branch (Intermittent) | Minor- 7 ft | OCM | SC, DIA, SF |
| Conway | 5.7 | srm016 | Hog Branch (Intermittent) | Intermediate- 13 ft | OCM | SC, DIA, SF |
| Conway | 5.8 | srm017 | Tributary to Hog Branch (Intermittent) | Intermediate- 23 ft | OCM | SC, DIA, SF |
| Faulkner | 7.9 | srm014 | Cove Creek (Perennial) | Intermediate- 49 ft | OCM | SC, DIA, PF |
| Faulkner | 9.3 | SCL 002 | Tributary to Cove Creek (Intermittent) | Minor- 1 ft | OCM | SC, DIA, SF |
| Faulkner | 9.6 | SCL 005 | Tributary to Cove Creek (Intermittent) | Minor- 3 ft | OCM | SC, DIA, SF |
| Faulkner | 9.9 | SCL 007 | Tributary to Cove Creek (Intermittent) | Minor- 1 ft | OCM | SC, DIA, SF |
| Faulkner | 10.0 | SCL 009 | Tributary to Cove Creek (Intermittent) | Minor- 8 ft | OCM | SC, DIA, SF |
| Faulkner | 10.9 | SCL 013 | Tributary to Batesville Creek (Intermittent) | Minor- 3 ft | OCM | SC, DIA, SF |
| Faulkner | 11.0 | SCL 013 | Tributary to Batesville Creek (Intermittent) | Minor- 3 ft | OCM | SC, DIA, SF |
| Faulkner | 11.0 | SCL 013 | Tributary to Batesville Creek (Intermittent) | Minor- 3 ft | OCM | SC, DIA, SF |
| Faulkner | 11.0 | SCL 014 | Tributary to Batesville Creek (Intermittent) | Minor- 3 ft | OCM | SC, DIA, SF |
| Faulkner | 11.0 | SCL 013 | Tributary to Batesville Creek (Intermittent) | Minor- 3 ft | OCM | SC, DIA, SF |
| Faulkner | 11.0 | SCL 013 | Tributary to Batesville Creek (Intermittent) | Minor- 3 ft | OCM | SC, DIA, SF |
| Faulkner | 11.0 | SCL 011 | Tributary to Batesville Creek (Intermittent) | Minor- 2 ft | OCM | SC, DIA, SF |
| Faulkner | 11.0 | SCL 011 | Tributary to Batesville Creek (Intermittent) | Minor- 2 ft | OCM | SC, DIA, SF |
| Faulkner | 11.0 | SCL 011 | Tributary to Batesville Creek (Intermittent) | Minor- 2 ft | OCM | SC, DIA, SF |
| Faulkner | 11.2 | SCL 016 | Tributary to Batesville Creek (Intermittent) | Minor- 7 ft | OCM | SC, DIA, SF |
| Faulkner | 11.4 | SCL 020 | Tributary to Batesville Creek (Intermittent) | Minor- 3 ft | OCM | SC, DIA, SF |
| Faulkner | 11.9 | SCL 029 | Tributary to Batesville Creek (Intermittent) | Minor- 3 ft | OCM | SC, DIA, SF |

**Table F-1 Waterbodies Within the Construction Corridor of the Proposed Pipeline Route**

| Arkansas County | Approximate Milepost at Crossing | Field ID | Waterbody Name and Type[b, c] | Size[d] and Estimated Width of Stream Crossing | Crossing Method[e] | State Water Classification[f] and/or Environmental Sensitivity[g] |
|---|---|---|---|---|---|---|
| Faulkner | 12.3 | SCL 032 | Tributary to Batesville Creek (Intermittent) | Minor- 2 ft | OCM | SC, DIA, SF |
| Faulkner | 12.6 | SCL 037 | Tributary to Batesville Creek (Perennial) | Minor- 8 ft | OCM | SC, DIA, SF |
| Faulkner | 12.8 | SCL 038 | Batesville Creek (Perennial) | Minor- 8 ft | OCM | SC, DIA, SF |
| Faulkner | 12.9 | DLS S1 | Tributary to Batesville Creek (Perennial) | Minor- 6 ft | OCM | SC, DIA, SF |
| Faulkner | 13.1 | SCL 042 | Tributary to Batesville Creek (Intermittent) | Minor- 3 ft | OCM | SC, DIA, SF |
| Faulkner | 13.8 | SCL 052 | Tributary to Cadron Creek (Intermittent) | Minor- 3 ft | OCM | SC, DIA, SF |
| Faulkner | 13.8 | SCL 052 | Tributary to Cadron Creek (Intermittent) | Minor- 3 ft | OCM | SC, DIA, SF |
| Faulkner | 13.8 | SCL 052 | Tributary to Cadron Creek (Intermittent) | Minor- 3 ft | OCM | SC, DIA, SF |
| Faulkner | 14.0 | SCL 053 | Cadron Creek (Perennial) | Major- 105 ft | OCM | PC, SC, DIA, PF |
| Faulkner | 14.4 | SCL 058 | Tributary to Wolf Branch (Intermittent) | Minor- 3 ft | OCM | SC, DIA, SF |
| Faulkner | 14.6 | SCL 059 | Tributary to Wolf Branch (Intermittent) | Minor- 2 ft | OCM | SC, DIA, SF |
| Faulkner | 14.8 | SCL 061 | Wolf Branch of Cadron Creek (Intermittent) | Intermediate- 10 ft | OCM | SC, DIA, SF |
| Faulkner | 15.3 | SCL 066 | Tributary to Wolf Branch (Intermittent) | Minor- 6 ft | OCM | SC, DIA, SF |
| Faulkner | 15.6 | SCL 068 | Tributary to Wolf Branch (Intermittent) | Minor 4 ft | OCM | SC, DIA, SF |
| Faulkner | 15.8 | SCL 070 | Tributary to Wolf Branch (Intermittent) | Minor- 2 ft | OCM | SC, DIA, SF |
| Faulkner | 16.0 | SCL 072 | Tributary to Wolf Branch (Intermittent) | Minor- 1 ft | OCM | SC, DIA, SF |
| Faulkner | 16.5 | SCL 077 | Tributary to Cadron Creek (Intermittent) | Minor- 2 ft | OCM | SC, DIA, SF |
| Faulkner | 17.6 | SCL 086 | Tributary to Stillhouse Branch (Intermittent) | Minor- 3 ft | OCM | SC, DIA, SF |
| Faulkner | 17.6 | SCL 087 | Tributary to Stillhouse Branch (Intermittent) | Minor- 1 ft | OCM | SC, DIA, SF |
| Faulkner | 17.7 | SCL 091 | Tributary to Stillhouse Branch (Intermittent) | Minor- 1 ft | OCM | SC, DIA, SF |
| Faulkner | 17.8 | SCL 092 | Tributary to Stillhouse Branch (Intermittent) | Minor- 4 ft | OCM | SC, DIA, SF |
| Faulkner | 17.9 | SCL 093 | Stillhouse Branch (Perennial) | Minor- 3 ft | OCM | SC, DIA, SF |
| Faulkner | 17.9 | SCL 094 | Tributary to Stillhouse Branch (Intermittent) | Minor- 1 ft | OCM | SC, DIA, SF |
| Faulkner | 18.0 | SCL 094 | Tributary to Stillhouse Branch (Intermittent) | Minor- 1 ft | OCM | SC, DIA, SF |
| Faulkner | 18.0 | SCL 094 | Tributary to Stillhouse Branch (Intermittent) | Minor- 1 ft | OCM | SC, DIA, SF |
| Faulkner | 18.5 | SCL 099 | Tributary to Stillhouse Branch (Intermittent) | Minor- 2 ft | OCM | SC, DIA, SF |
| Faulkner | 18.7 | SCL 100 | Tributary to Stillhouse Branch (Intermittent) | Minor- 4 ft | OCM | SC, DIA, SF |
| Faulkner | 19.1 | SCL 103 | Tributary to Stillhouse Branch (Intermittent) | Minor- 2 ft | OCM | SC, DIA, SF |
| Faulkner | 19.6 | SCL 106 | Tributary to King Branch (Intermittent) | Minor- 2 ft | OCM | SC, DIA, SF |
| Faulkner | 20.2 | SCL 111 | King Branch (Perennial) | Minor- 4 ft | OCM | SC, DIA, PF |
| Faulkner | 20.6 | SCL 119 | Tributary to King Branch (Intermittent) | Minor- 1 ft | OCM | SC, DIA, SF |
| Faulkner | 20.7 | SCL 118 | Tributary to King Branch (Intermittent) | Minor-1 ft | OCM | SC, DIA, SF |
| Faulkner | 20.9 | SCL 120 | Tributary to King Branch (Intermittent) | Minor- 4 ft | OCM | SC, DIA, SF |
| Faulkner | 21.3 | DLS ditch | Tributary to King Branch (Intermittent) | Minor- 1 ft | OCM | SC, DIA, SF |

**Table F-1 Waterbodies Within the Construction Corridor of the Proposed Pipeline Route**

| Arkansas County | Approximate Milepost at Crossing | Field ID | Waterbody Name and Type[b, c] | Size[d] and Estimated Width of Stream Crossing | Crossing Method[e] | State Water Classification[f] and/or Environmental Sensitivity[g] |
|---|---|---|---|---|---|---|
| Faulkner | 21.3 | DLS ditch 2 | Tributary to King Branch (Intermittent) | Minor- 1 ft | OCM | SC, DIA, SF |
| Faulkner | 22.1 | tdh ditch | Tributary to Nichols Creek (Intermittent) | Minor- 1ft | OCM | SC, DIA, SF |
| Faulkner | 22.1 | tdh ditch | Tributary to Nichols Creek (Intermittent) | Minor- 1ft | OCM | SC, DIA, SF |
| Faulkner | 23.1 | SCL 132 | Tributary to Mortar Creek (Intermittent) | Minor- 5 ft | OCM | SC, DIA, SF |
| Faulkner | 23.2 | SCL 139 | Tributary to Mortar Creek (Intermittent) | Intermediate- 12 ft | OCM | SC, DIA, SF |
| Faulkner | 23.3 | SCL 140 | Mortar Creek (Perennial) | Intermediate- 30 ft | OCM | SC, DIA, PF |
| Faulkner | 24.3 | SCL 145 | Tributary to Buck Branch (Intermittent) | Minor- 3 ft | OCM | SC, DIA, SF |
| Faulkner | 24.6 | SCL 147 | Tributary to Buck Branch (Intermittent) | Minor- 4 ft | OCM | SC, DIA, SF |
| Faulkner | 24.9 | SCL 149 | Tributary to Buck Branch (Intermittent) | Minor- 2 ft | OCM | SC, DIA, SF |
| Faulkner | 26.3 | SCL 153 | Tributary to Clear Creek (Intermittent) | Minor-3 ft | OCM | SC, DIA, SF |
| Faulkner | 26.3 | SCL 155 | Tributary to Clear Creek (Intermittent) | Minor- 2 ft | OCM | SC, DIA, SF |
| Faulkner | 26.9 | SCL 161 | Tributary to Clear Creek (Intermittent) | Minor- 3 ft | OCM | SC, DIA, SF |
| Faulkner | 27.2 | SCL 165 | Tributary to Clear Creek (Intermittent) | Intermediate- 10 ft | OCM | SC, DIA, SF |
| Faulkner | 27.6 | SCL 167 | Tributary to Brier Branch (Intermittent) | Minor- 6 ft | OCM | SC, DIA, SF |
| Faulkner | 27.8 | SCL 169 | Tributary to Brier Branch (Intermittent) | Minor- 2 ft | OCM | SC, DIA, SF |
| Faulkner | 27.8 | SCL 171 | Tributary to Brier Branch (Intermittent) | Minor- 2 ft | OCM | SC, DIA, SF |
| Faulkner | 28.2 | SCL 173 | Tributary to Strain Branch (Intermittent) | Minor- 3 ft | OCM | SC, DIA, PF |
| Faulkner | 28.2 | SCL 173east | Tributary to Strain Branch (Intermittent) | Minor- 3ft | OCM | SC, DIA, PF |
| Faulkner | 28.5 | SCL 174 | Tributary to East Fork of Cadron Creek (Perennial) | Minor- 3 ft | OCM | SC, DIA, SF |
| Faulkner | 28.9 | SCL 175 | Tributary to East Fork of Cadron Creek (Intermit) | Minor- 3 ft | OCM | SC, DIA, SF |
| White | 29.6 | SCL 179 | Tributary to Piney Creek (Intermittent) | Minor- 1 ft | OCM | SC, DIA, SF |
| White | 29.7 | SCL 180 | Piney Creek (Perennial) | Intermediate- 15 ft | OCM | SC, DIA, PF |
| White | 30.2 | SCL 181 | Blakey Branch (Intermittent) | Minor- 4 ft | OCM | SC, DIA, PF |
| White | 30.5 | SCL 183 | Tributary to East Fork of Cadron Creek (Intermit) | Minor- 1 ft | OCM | SC, DIA, SF |
| White | 30.7 | SCL 185 | Tributary to East Fork of Cadron Creek (Intermit) | Minor- 1 ft | OCM | SC, DIA, SF |
| White | 31.3 | SCL 186 | Tributary to Jones Creek (Intermittent) | Minor- 2 ft | OCM | SC, DIA, SF |
| White | 32.0 | SCL 191 | Jones Creek (Perennial) | Intermediate- 20 ft | OCM | SC, DIA, SF |
| White | 32.0 | SCL 191 | Jones Creek (Perennial) | Intermediate- 20 ft | OCM | SC, DIA, SF |
| White | 32.4 | SCL 194 | Tributary to Graham Branch (Intermittent) | Minor- 2 ft | OCM | SC, DIA, SF |
| White | 32.8 | SCL 196 | Tributary to Graham Branch (Intermittent) | Minor- 1 ft | OCM | SC, DIA, SF |
| White | 32.9 | SCL 199 | Graham Branch (Perennial) | Minor- 9 ft | OCM | SC, DIA, PF |
| White | 33.0 | TDH S2 | Tributary to Graham Branch (Perennial) | Minor- 9 ft | OCM | SC, DIA, PF |
| White | 34.3 | SCL 212 | Tributary to Graham Branch (Intermittent) | Minor- 1 ft | OCM | SC, DIA, SF |

**Table F-1 Waterbodies Within the Construction Corridor of the Proposed Pipeline Route**

| Arkansas County | Approximate Milepost at Crossing | Field ID | Waterbody Name and Type[b, c] | Size[d] and Estimated Width of Stream Crossing | Crossing Method[e] | State Water Classification[f] and/or Environmental Sensitivity[g] |
|---|---|---|---|---|---|---|
| White | 34.5 | SCL 214 | Tributary to Graham Branch (Intermittent) | Minor- 1 ft | OCM | SC, DIA, SF |
| White | 34.6 | SCL 215 | Tributary to Graham Branch (Intermittent) | Minor- 6 ft | OCM | SC, DIA, SF |
| White | 35.1 | SCL 216 | Tributary to Brush Creek (Intermittent) | Minor- 1 ft | OCM | SC, DIA, SF |
| White | 35.4 | SCL 217 | Tributary to Brush Creek (Intermittent) | Minor- 1 ft | OCM | SC, DIA, SF |
| White | 35.4 | SCL 218 | Tributary to Brush Creek (Intermittent) | Minor- 1 ft | OCM | SC, DIA, SF |
| White | 35.5 | SCL 220 | Tributary to Brush Creek (Intermittent) | Minor- 1 ft | OCM | SC, DIA, SF |
| White | 36.1 | SCL 225 | Big Hollow Tributary (Intermittent) | Minor- 1 ft | OCM | SC, DIA, SF |
| White | 36.4 | SCL 227 | Big Hollow Creek (Intermittent) | Intermediate- 15 ft | OCM | SC, DIA, PF |
| White | 37.2 | SCL 230 | Hyde Branch (Intermittent) | Minor- 1 ft | OCM | SC, DIA, PF |
| White | 37.2 | SCL 230 | Hyde Branch (Intermittent) | Minor- 1 ft | OCM | SC, DIA, PF |
| White | 37.2 | SCL 230 | Hyde Branch (Intermittent) | Minor- 1 ft | OCM | SC, DIA, PF |
| White | 37.6 | SCL 232 | Chaney Branch (Intermittent) | Minor- 2 ft | OCM | SC, DIA, PF |
| White | 38.1 | SCL 234 | Tributary to Chaney Branch (Intermittent) | Minor- 1 ft | OCM | SC, DIA, SF |
| White | 39.2 | SCL 243 | Mill Branch (Intermittent) | Minor- 4 ft | OCM | SC, DIA, PF |
| White | 39.3 | SCL 244 | Tributary to Mill Branch (Intermittent) | Minor- 1 ft | OCM | SC, DIA, SF |
| White | 39.3 | SCL 244 | Tributary to Mill Branch (Intermittent) | Minor- 1 ft | OCM | SC, DIA, SF |
| White | 39.8 | SCL 246 | Tributary to Mill Branch (Intermittent) | Minor- 1 ft | OCM | SC, DIA, SF |
| Cleburne | 42.8 | SCL 267 | Tributary to Little Creek (Intermittent) | Minor- 2 ft | OCM | SC, DIA, SF |
| Cleburne | 42.8 | SCL 258 | Tributary to Little Creek (Intermittent) | Minor- 1 ft | OCM | SC, DIA, SF |
| Cleburne | 43.0 | SCL 260 | Tributary to Little Creek (Intermittent) | Minor- 2 ft | OCM | SC, DIA, SF |
| Cleburne | 43.5 | SCL 263 | Tributary to Big Creek (Intermittent) | Minor- 2 ft | OCM | SC, DIA, SF |
| Cleburne | 43.5 | SCL 264 | Tributary to Big Creek (Intermittent) | Minor- 1 ft | OCM | SC, DIA, SF |
| White | 45.1 | SCL 276 | Tributary to Big Creek (Intermittent) | Minor- 5 ft | OCM | SC, DIA, SF |
| White | 45.3 | acer int st | Tributary to Big Creek (Intermittent) | Minor- 1ft | OCM | SC, DIA, SF |
| White | 46.1 | TDH S7 | Big Creek (Perennial) | Major- 140 ft | HDD | PC, SC, DIA, PF |
| White | 47.2 | srm041 | Tributary to Big Creek (Intermittent) | Minor- 6 ft | OCM | SC, DIA, PF |
| White | 48.1 | srm039 | Brier Creek (Perennial) | Intermediate- 16 ft | OCM | SC, DIA, PF |
| White | 48.5 | srm037 | Owl Creek (Intermittent) | Intermediate- 16 ft | OCM | SC, DIA, PF |
| White | 48.8 | tdh ar s3 | Tributary to Owl Creek (Perennial) | Minor- 1 ft | OCM | SC, DIA, PF |
| White | 50.0 | srm036 | Tributary to Big Creek (Intermittent) | Minor- 3 ft | OCM | SC, DIA, PF |
| White | 52.3 | srm040 | Little Red River (Perennial) | Major- 200 ft | HDD | PC, SC, DIA, PF, FT |
| White | 54.5 | srm035 | Tributary to Owl Creek (Perennial) | Minor- 3 ft | OCM | SC, DIA, SF |
| White | 55.1 | srm035a | Tributary to Owl Creek (Intermittent) | Minor- 3 ft | OCM | SC, DIA, SF |
| White | 56.6 | srm034 | Onion Creek (Perennial) | Intermediate- 15 ft | OCM | SC, DIA, PF |

**Table F-1 Waterbodies Within the Construction Corridor of the Proposed Pipeline Route**

| Arkansas County | Approximate Milepost at Crossing | Field ID | Waterbody Name and Type[b, c] | Size[d] and Estimated Width of Stream Crossing | Crossing Method[e] | State Water Classification[f] and/or Environmental Sensitivity[g] |
|---|---|---|---|---|---|---|
| White | 58.9 | srm031 | Chinquapin Creek (Perennial) | Intermediate- 12 ft | OCM | SC, DIA, PF |
| White | 59.4 | srm030 | Tributary to Lake Bald Knob (Intermittent) | Minor- 8 ft | OCM | SC, DIA, SF |
| White | 59.8 | srm029 | Tributary to Overflow Creek (Intermittent) | Intermediate- 10 ft | OCM | SC, DIA, SF |
| White | 60.3 | srm028 | Tributary to Overflow Creek (Intermittent) | Intermediate- 35 ft | OCM | SC, DIA, SF |
| White | 60.5 | srm027 | Tributary to Overflow Creek (Intermittent) | Minor- 5 ft | OCM | SC, DIA, SF |
| White | 61.0 | srm026 | Tributary to Overflow Creek (Perennial) | Minor- 5 ft | OCM | SC, DIA, SF |
| White | 61.8 | srm033 | Overflow Creek (Perennial) | Intermediate- 13 ft | OCM | PC, SC, DIA, PF |
| White | 62.4 | srm032 | Big Mingo Creek (Perennial) | Intermediate- 10 ft | OCM | SC, DIA, PF |
| White | 63.2 | tdh int st | Tributary to Big Mingo Creek (Intermittent) | Minor- 1 ft | OCM | SC, DIA, SF |
| White | 63.7 | srm021 | Gladey Creek (Intermittent) | Minor-3 ft | OCM | SC, DIA, PF |
| White | 64.3 | srm020 | Tributary to Gladey Creek (Intermittent) | Intermediate- 13 ft | OCM | SC, DIA, SF |
| White | 65.2 | srm019w | Tributary to Little Mingo Creek (Intermittent) | Minor- 7 ft | OCM | SC, DIA, SF |
| White | 65.5 | srm018w | Tributary to Little Mingo Creek (Intermittent) | Minor- 7 ft | OCM | SC, DIA, SF |
| White | 65.7 | srm017w | Tributary to Little Mingo Creek (Intermittent) | Minor- 7 ft | OCM | SC, DIA, SF |
| White | 66.5 | srm016w | Glaise Creek (Perennial) | Intermediate- 30 ft | OCM | PC, SC, DIA, PF |
| White | 67.2 | tdh int st | Tributary to Glaise Creek (Intermittent) | Minor- 3 ft | OCM | SC, DIA, SF |
| White | 67.4 | tdh int st | Tributary to Glaise Creek (Intermittent) | Minor- 3 ft | OCM | SC, DIA, SF |
| White | 67.9 | TDH S3 | Departee Creek (Perennial) | Intermediate- 50 ft | OCM | ESW, SC, DIA, PF |
| White | 69.5 | tdh int st | Tributary to White River (Intermittent) | Minor- 3 ft | OCM | SC, DIA, SF |
| Woodruff | 70.3 | White R. | White River (Perennial) | Major- 700 ft | HDD | PC, SC, DIA, PF |
| Woodruff | 71.3 | ag ditch | Tributary to Bear Slough (Intermittent) | Minor- 3 ft | OCM | SC, DIA, SF |
| Woodruff | 71.5 | TDH S5 | Bear Slough (Perennial) | Intermediate- 50 ft | OCM | PC, SC, DIA, PF |
| Woodruff | 71.9 | ag ditch | Tributary to Bear Slough (Intermittent) | Minor- 3 ft | OCM | SC, DIA, SF |
| Woodruff | 72.4 | C. to Tayl | Canal to Taylor Bay (Intermittent) | Intermediate- 40 ft | OCM | SC, DIA, SF |
| Woodruff | 72.8 | ag ditch | Tributary to Taylor Bay (Intermittent) | Minor- 3ft | OCM | SC, DIA, SF |
| Woodruff | 72.9 | ag ditch | Tributary to Taylor Bay (Intermittent) | Minor- 3ft | OCM | SC, DIA, SF |
| Woodruff | 73.4 | TDH S4 | Taylor Bay (Perennial) | Major-215 ft | HDD | PC, SC, DIA, PF |
| Woodruff | 75.9 | JAV-S28 | Tributary to Cypress Brake (Intermittent) | Minor- 6 ft | OCM | SC, DIA, SF |
| Woodruff | 77.1 | JAV-S27 | Tributary to Maple Creek (Intermittent) | Minor- 3 ft | OCM | SC, DIA, SF |
| Woodruff | 77.5 | JAV-S26 | Tributary to Maple Creek (Intermittent) | Minor- 3 ft | OCM | SC, DIA, SF |
| Woodruff | 78.6 | JAV-S25 | Tributary to Maple Creek (Intermittent) | Minor- 2 ft | OCM | SC, DIA, SF |
| Woodruff | 79.9 | TDH S1 | Canal to Maple Creek (Intermittent) | Minor- 8 ft | OCM | SC, DIA, SF |
| Woodruff | 80.0 | JAV-S23 | Tributary to Maple Creek (Intermittent) | Minor- 2 ft | OCM | SC, DIA, SF |
| Woodruff | 81.9 | JAV-S29 | Tributary to Cache River (Intermittent) | Minor- 3 ft | OCM | SC, DIA, SF |

**Table F-1 Waterbodies Within the Construction Corridor of the Proposed Pipeline Route**

| Arkansas County | Approximate Milepost at Crossing | Field ID | Waterbody Name and Type[b, c] | Size[d] and Estimated Width of Stream Crossing | Crossing Method[e] | State Water Classification[f] and/or Environmental Sensitivity[g] |
|---|---|---|---|---|---|---|
| Woodruff | 82.4 | Cache Rive | Cache River (Perennial) | Major-140 ft | HDD | ERW, CDES, PC, SC, DIA, PF |
| Woodruff | 83.1 | JAV-S35 | Tributary to Cache River (Intermittent) | Minor- 2 ft | OCM | SC, DIA, SF |
| Woodruff | 83.5 | JAV-S36 | Tributary to Cache River (Intermittent) | Minor- 5 ft | OCM | SC, DIA, SF |
| Woodruff | 85.9 | JAV-S32 | Tributary to Cache River (Intermittent) | Minor- 9 ft | OCM | SC, DIA, SF |
| Woodruff | 85.9 | JAV-S33 | Tributary to Cache River (Intermittent) | Minor- 9 ft | OCM | SC, DIA, SF |
| Woodruff | 86.1 | JAV-S34 | Tributary to Cache River (Intermittent) | Minor- 5 ft | OCM | SC, DIA, SF |
| Woodruff | 87.6 | JAV-S31 | Tributary to Mill Ditch (Intermittent) | Minor- 2 ft | OCM | SC, DIA, SF |
| Woodruff | 88.3 | JAV-S30 | Mill Ditch (Intermittent) | Intermediate- 15 ft | OCM | SC, DIA, PF |
| Woodruff | 90.4 | tdh int st | Tributary to Miller Branch (Intermittent) | Minor- 2 ft | OCM | SC, DIA, SF |
| Woodruff | 91.7 | ag ditch | Tributary to Buffalo Creek (Intermittent) | Minor- 2 ft | OCM | SC, DIA, SF |
| Woodruff | 91.7 | ditch | Tributary to Buffalo Creek (Intermittent) | Minor- 2 ft | OCM | SC, DIA, SF |
| Woodruff | 92.1 | JAV-S20 | Tributary to Buffalo Creek (Intermittent) | Minor- 2 ft | OCM | SC, DIA, SF |
| Woodruff | 92.4 | JAV-S19 | Tributary to Buffalo Creek (Intermittent) | Minor- 2 ft | OCM | SC, DIA, SF |
| Woodruff | 92.4 | JAV-S18 | Tributary to Buffalo Creek (Intermittent) | Minor- 2 ft | OCM | SC, DIA, SF |
| Woodruff | 93.0 | JAV-S17 | Tributary to Buffalo Creek (Intermittent) | Minor- 3 ft | OCM | SC, DIA, SF |
| Woodruff | 93.0 | JAV-S16 | Tributary to Buffalo Creek (Intermittent) | Minor- 5 ft | OCM | SC, DIA, SF |
| Woodruff | 93.3 | JAV-S11 | Tributary to Buffalo Creek (Intermittent) | Minor- 5 ft | OCM | SC, DIA, SF |
| Woodruff | 93.4 | JAV-S12 | Tributary to Buffalo Creek (Intermittent) | Minor- 2 ft | OCM | SC, DIA, SF |
| Woodruff | 93.5 | JAV-S13 | Tributary to Buffalo Creek (Intermittent) | Minor- 2 ft | OCM | SC, DIA, SF |
| Woodruff | 93.7 | JAV-S14 | Tributary to Buffalo Creek (Intermittent) | Minor- 3 ft | OCM | SC, DIA, SF |
| Woodruff | 94.0 | JAV-S15 | Tributary to Buffalo Creek (Intermittent) | Minor- 9 ft | OCM | SC, DIA, SF |
| Woodruff | 95.2 | ag ditch | Tributary to Bayou de View (Intermittent) | Minor- 2 ft | OCM | SC, DIA, SF |
| Woodruff | 96.0 | Bayou de V | Bayou de View (Perennial) | Major- 250 ft | HDD | CDES, PC, SC, DIA, PF |
| Woodruff | 96.0 | ag ditch | Tributary to Bayou de View (Intermittent) | Minor- 2 ft | OCM | SC, DIA, SF |
| Woodruff | 96.7 | JAV-S6 | Tributary to Bayou de View (Intermittent) | Minor- 3 ft | OCM | SC, DIA, SF |
| Woodruff | 97.0 | JAV-S7 | Tributary to Bayou de View (Intermittent) | Minor- 9 ft | OCM | SC, DIA, SF |
| Woodruff | 97.3 | JAV-S8 | Tributary to Bayou de View (Intermittent) | Minor- 2 ft | OCM | SC, DIA, SF |
| Woodruff | 98.4 | JAV-S1 | Tributary to Upper Seibert Lake (Intermittent) | Minor- 2 ft | OCM | SC, DIA, SF |
| Woodruff | 98.4 | ag ditch | Tributary to Bayou de View (Intermittent) | Minor- 2 ft | OCM | SC, DIA, SF |
| Woodruff | 99.7 | JAV-S3 | Tributary to Caney Creek (Intermittent) | Minor- 2 ft | OCM | SC, DIA, SF |
| Woodruff | 99.8 | JAV-S4 | Tributary to Caney Creek (Intermittent) | Minor- 3 ft | OCM | SC, DIA, SF |
| Woodruff | 100.1 | JAV-S5 | Caney Creek (Intermittent) | Intermediate- 30 ft | OCM | SC, DIA, SF |
| Woodruff | 101.7 | ag ditch | Tributary to East Flat Fork Creek (Intermittent) | Minor- 2 ft | OCM | SC, DIA, SF |

## Table F-1 Waterbodies Within the Construction Corridor of the Proposed Pipeline Route

| Arkansas County | Approximate Milepost at Crossing | Field ID | Waterbody Name and Type[b, c] | Size[d] and Estimated Width of Stream Crossing | Crossing Method[e] | State Water Classification[f] and/or Environmental Sensitivity[g] |
|---|---|---|---|---|---|---|
| Woodruff | 102.2 | tdhs1 | Tributary to East Flat Fork Creek (Intermittent) | Intermediate - 16 ft | OCM | SC, DIA, SF |
| Woodruff | 103.5 | ag ditch | Tributary to East Flat Fork Creek (Intermittent) | Minor- 2 ft | OCM | SC, DIA, SF |
| Woodruff | 104.3 | tdhs2 | Tributary to East Flat Fork Creek (Intermittent) | Minor- 2 ft | OCM | SC, DIA, SF |
| Woodruff | 104.6 | ag ditch | Tributary to East Flat Fork Creek (Intermittent) | Minor- 2 ft | OCM | SC, DIA, SF |
| Woodruff | 107.7 | jr-s2 | East Flat Fork Creek (Perennial) | Intermediate- 20 ft | OCM | SC, DIA, SF |
| St. Francis | 109.7 | ag ditch | Tributary to Big Creek (Intermittent) | Minor- 2 ft | OCM | SC, DIA, SF |
| St. Francis | 109.9 | ag ditch | Tributary to Big Creek (Intermittent) | Minor- 2 ft | OCM | SC, DIA, SF |
| St. Francis | 109.9 | ag ditch | Tributary to Big Creek (Intermittent) | Minor- 2 ft | OCM | SC, DIA, SF |
| St. Francis | 110.7 | ag ditch | Tributary to Big Creek (Intermittent) | Minor- 2 ft | OCM | SC, DIA, SF |
| St. Francis | 111.2 | ag ditch | Tributary to Big Creek (Intermittent) | Minor- 2 ft | OCM | SC, DIA, SF |
| St. Francis | 111.6 | Big C 2 | Big Creek (Perennial) | Major- 115 ft | OCM | PC, SC, DIA, PF |
| St. Francis | 112.2 | DLS agditch | Tributary to Big Creek (Intermittent) | Minor- 2 ft | OCM | SC, DIA, SF |
| St. Francis | 113.9 | jr-s1 | Hog Tusk Creek (Perennial) | Intermediate- 15 ft | OCM | SC, DIA, PF |
| Lee | 118.2 | jo intSTRM | Tributary to Larkin Creek (Intermittent) | Minor- 2 ft | OCM | SC, DIA, SF |
| Lee | 119.1 | No Name #2 | Tributary to Larkin Creek (Intermittent) | Minor- 1 ft | OCM | SC, DIA, SF |
| Lee | 120.4 | jo agditch | Tributary to Larkin Creek (Intermittent) | Minor- 1 ft | OCM | SC, DIA, SF |
| Lee | 120.5 | jo agditch | Tributary to Larkin Creek (Intermittent) | Minor- 3 ft | OCM | SC, DIA, SF |
| Lee | 121.3 | ag ditch | Tributary to Larkin Creek (Intermittent) | Minor- 1 ft | OCM | SC, DIA, SF |
| Lee | 123.6 | jr-s3 | Tributary to Larkin Creek (Intermittent) | Intermediate- 15 ft | OCM | SC, DIA, SF |
| Lee | 125.2 | ag ditch | Tributary to Larkin Creek (Intermittent) | Minor- 1 ft | OCM | SC, DIA, SF |
| Lee | 129.0 | jo agditch | Tributary to Big Cypress Creek (Intermittent) | Minor- 3 ft | OCM | SC, DIA, SF |
| Lee | 130.1 | jo agditch | Tributary to Big Cypress Creek (Intermittent) | Minor- 3 ft | OCM | SC, DIA, SF |
| Lee | 130.3 | jo S01 | Tributary to Big Cypress Creek (Intermittent) | Intermediate- 13 ft | OCM | SC, DIA, SF |
| Lee | 130.4 | jo wwc | Tributary to Big Cypress Creek (Intermittent) | Minor- 2 ft | OCM | SC, DIA, SF |
| Lee | 130.8 | tdh S02 | Big Cypress Creek (Perennial) | Minor- 8 ft | OCM | SC, DIA, PF |
| Lee | 131.1 | tdh agditc | Tributary to Big Cypress Creek (Intermittent) | Minor- 2 ft | OCM | SC, DIA, SF |
| Lee | 133.0 | tdh agditc | Tributary to Big Cypress Creek (Intermittent) | Minor- 2 ft | OCM | SC, DIA, SF |
| Lee | 134.1 | tds ditch | Tributary to Big Cypress Creek (Intermittent) | Minor- 1 ft | OCM | SC, DIA, SF |
| Lee | 136.7 | jo/tds wwc | Tributary to Caney Creek (Intermittent) | Minor -2 ft | OCM | SC, DIA, SF |
| Lee | 137.3 | jo/tdh wwc | Tributary to Big Cypress (Intermittent) | Minor- 2 ft | OCM | SC, DIA, SF |
| Lee | 137.3 | jo/tdh wwc | Tributary to Big Cypress (Intermittent) | Minor- 2 ft | OCM | SC, DIA, SF |
| Phillips | 139.7 | tdh S03 | Lick Creek (Perennial) | Intermediate- 50 ft | OCM | SC, DIA, SF |
| Phillips | 140.2 | tdh rrditc | Tributary to Lick Creek (Intermittent) | Minor- 2 ft | OCM | SC, DIA, SF |
| Phillips | 140.8 | tdh int st | Tributary to Lick Creek (Intermittent) | Minor- 3 ft | OCM | SC, DIA, SF |

**Table F-1 Waterbodies Within the Construction Corridor of the Proposed Pipeline Route**

| Arkansas County | Approximate Milepost at Crossing | Field ID | Waterbody Name and Type[b, c] | Size[d] and Estimated Width of Stream Crossing | Crossing Method[e] | State Water Classification[f] and/or Environmental Sensitivity[g] |
|---|---|---|---|---|---|---|
| Phillips | 140.8 | tdh int st | Tributary to Lick Creek (Intermittent) | Minor- 3 ft | OCM | SC, DIA, SF |
| Phillips | 141.2 | tdh wwc | Tributary to Lick Creek (Intermittent) | Minor- 2 ft | OCM | SC, DIA, SF |
| Phillips | 143.7 | jo agditch | Tributary to Lick Creek (Intermittent) | Minor- 2 ft | OCM | SC, DIA, SF |
| Phillips | 144.7 | jo S03 | Crooked Creek (Intermittent) | Intermediate- 50 ft | OCM | SC, DIA, PF |
| Phillips | 144.7 | jo wwc | Tributary to Crooked Creek (Intermittent) | Minor- 2 ft | OCM | SC, DIA, SF |
| Phillips | 144.7 | jo wwc | Tributary to Crooked Creek (Intermittent) | Minor- 2 ft | OCM | SC, DIA, SF |
| Phillips | 144.7 | jo wwc | Tributary to Crooked Creek (Intermittent) | Minor- 2 ft | OCM | SC, DIA, SF |
| Phillips | 146.0 | jo wwc | Tributary to Lick Creek (Intermittent) | Minor- 2 ft | OCM | SC, DIA, SF |
| Phillips | 146.4 | jo INT st | Tributary to Lick Creek (Intermittent) | Minor- 5 ft | OCM | SC, DIA, SF |
| Phillips | 147.8 | jo agditch | Tributary to Hurricane Ditch (Intermittent) | Minor- 2 ft | OCM | SC, DIA, SF |
| Phillips | 147.8 | jo agditch | Tributary to Hurricane Ditch (Intermittent) | Minor- 2 ft | OCM | SC, DIA, SF |
| Phillips | 147.8 | jo agditch | Tributary to Hurricane Ditch (Intermittent) | Minor- 2 ft | OCM | SC, DIA, SF |
| Phillips | 147.8 | jo agditch | Tributary to Hurricane Ditch (Intermittent) | Minor- 2 ft | OCM | SC, DIA, SF |
| Phillips | 148.0 | jo agditch | Tributary to Hurricane Ditch (Intermittent) | Minor- 2 ft | OCM | SC, DIA, SF |
| Phillips | 148.2 | jo agditch | Tributary to Hurricane Ditch (Intermittent) | Minor- 2 ft | OCM | SC, DIA, SF |
| Phillips | 149.1 | jo agditch | Tributary to Beaver Bayou (Intermittent) | Minor- 2 ft | OCM | SC, DIA, SF |
| Phillips | 149.5 | jo S04 | Tributary to Beaver Bayou (Intermittent) | Intermediate- 10 ft | OCM | SC, DIA, PF |
| Phillips | 149.6 | jo agditch | Beaver Bayou (Intermittent) | Minor- 2 ft | OCM | SC, DIA, SF |
| Phillips | 150.0 | jo agditch | Tributary to Beaver Bayou (Intermittent) | Minor- 2 ft | OCM | SC, DIA, SF |
| Phillips | 150.0 | jo agditch | Tributary to Beaver Bayou (Intermittent) | Minor- 2 ft | OCM | SC, DIA, SF |
| Phillips | 150.6 | jo agditch | Tributary to Beaver Bayou (Intermittent) | Minor- 2 ft | OCM | SC, DIA, SF |
| Phillips | 150.7 | jo agditch | Tributary to Beaver Bayou (Intermittent) | Minor- 2 ft | OCM | SC, DIA, SF |
| Phillips | 150.7 | jo wwc | Tributary to Beaver Bayou (Intermittent) | Minor- 2 ft | OCM | SC, DIA, SF |
| Phillips | 151.2 | jo wwc | Tributary to Beaver Bayou (Intermittent) | Minor- 2 ft | OCM | SC, DIA, SF |
| Phillips | 151.3 | jo INT st | Tributary to Chaney Creek (Intermittent) | Minor- 5 ft | OCM | SC, DIA, SF |
| Phillips | 151.5 | jo S05 | Tributary to Long Lake Bayou (Intermittent) | Minor- 8 ft | OCM | SC, DIA, SF |
| Phillips | 151.6 | jo agditch | Tributary to Long Lake Bayou (Intermittent) | Minor- 2 ft | OCM | SC, DIA, SF |
| Phillips | 153.0 | Long L. | Long Lake Bayou (Perennial) | Major- 210 ft | OCM | PC, SC, DIA, SF |
| Phillips | 153.7 | jo agditch | Tributary to Long Lake Bayou (Intermittent) | Minor- 2 ft | OCM | SC, DIA, SF |
| Phillips | 153.9 | jo wwc | Tributary to Long Lake Bayou (Intermittent) | Minor- 2 ft | OCM | SC, DIA, SF |
| Phillips | 154.0 | jo agditch | Tributary to Long Lake Bayou (Intermittent) | Minor- 2 ft | OCM | SC, DIA, SF |
| Phillips | 154.4 | int st | Tributary to Long Lake (Perennial) | Minor- 2 ft | OCM | SC, DIA, SF |
| Phillips | 154.6 | jo agditch | Tributary to Long Lake Bayou (Intermittent) | Major 500 ft | OCM | SC, DIA, SF |
| Phillips | 154.9 | jo wwc | Tributary to Mississippi River (Intermittent) | Minor- 2 ft | OCM | SC, DIA, SF |

**Table F-1 Waterbodies Within the Construction Corridor of the Proposed Pipeline Route**

| Arkansas County | Approximate Milepost at Crossing | Field ID | Waterbody Name and Type[b, c] | Size[d] and Estimated Width of Stream Crossing | Crossing Method[e] | State Water Classification[f] and/or Environmental Sensitivity[g] |
|---|---|---|---|---|---|---|
| Phillips | 155.2 | DLS ditch | Tributary to Mississippi River (Intermittent) | Minor- 2 ft | OCM | SC, DIA, SF |
| Phillips | 155.2 | DLS ditch | Tributary to Mississippi River (Intermittent) | Minor- 2 ft | OCM | SC, DIA, SF |
| Phillips | 155.4 | DLS ditch | Tributary to Mississippi River (Intermittent) | Minor- 2 ft | OCM | SC, DIA, SF |
| Phillips | 155.5 | DLS ditch | Tributary to Mississippi River (Intermittent) | Minor- 2 ft | OCM | SC, DIA, SF |
| Phillips | 157.3 | Miss River | Mississippi River (Perennial) | Major- 4000 ft | HDD | PC, SC, DIA / FW |

[a]*Milepost based on desktop analysis of proposed pipeline route.*

[b]*Intermittent and Perennial designations determined by site reconnaissance and USGS name.*

[c]*Perennial waterbodies in St. Francis, Lee, and Phillips counties may contain potential habitat for the fat pocketbook; perennial waterbodies in St. Francis, Lee, and Phillips counties, Arkansas may contain potential habitat for the scaleshell; perennial waterbodies in Cleburne County, Arkansas may contain potential habitat for speckled pocketbook; perennial waterbodies in Woodruff County, Arkansas may contain potential habitat for the pink mucket; large waterbodies in St. Francis County, Arkansas may contain potential habitat for the pallid sturgeon.*

[d]*Minor stream is less than 10 feet wide, Intermediate streams are between 10 and 99 feet, and Major are over 100 feet.*

[e]*HDD = horizontal directional drill, OCM = open cut method (includes both conventional [i.e., without work area isolation] and non-coventional [with work area isolation] methods).*

[f]*Arkansas State Water Quality Classifications (found within project area) –Extraordinary Resource Waters (ERW), Ecologically Sensitive Waterbodies (ESW), Channel-altered Delta Eco-region Streams (CDES), Primary Contact Recreation (PC), Secondary Contact Recreation (SC), Domestic, Industrial, and Agricultural Water Supplies (DIA), Trout Fisheries (FT), Seasonal Fishery (SF), Perennial Fishery (PF)*

[g]*Environmental Sensitivity = Extraordinary Resource Water (ERW), Nationwide Rivers Inventory (NRI), Trout Fisheries Stream (TFS)*

# APPENDIX D-3

# EROSION AND SEDIMENT CONTROL PLAN

# AND STORM WATER POLLUTION PREVENTION PLAN FOR MISSISSIPPI

# FAYETTEVILLE/GREENVILLE LATERAL EXPANSION PROJECT

## EROSION AND SEDIMENT CONTROL PLAN AND STORM WATER POLLUTION PREVENTION PLAN FOR MISSISSIPPI

SUBMITTED BY TEXAS GAS TRANSMISSION, LLC

JULY 2007

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# 1.0 INTRODUCTION

## 1.1 Proposed Project Name, Description, and Erosion and Sediment Control Regulatory Requirements

Texas Gas Transmission, LLC (Texas Gas), a Boardwalk Pipeline Partners, LP company, is seeking authorization from the Commission pursuant to Section 7(c) of the Natural Gas Act (NGA) to construct and operate the proposed Project. The Project includes:

- Two pipeline laterals totaling approximately 262.6 miles (the Fayetteville Lateral, located primarily in Arkansas, crossing the Mississippi River and into western Mississippi, and the 96.4 mile Greenville Lateral, located entirely in Mississippi);
- One (1) compressor station on the Greenville Lateral, totaling 10,650 horsepower (hp);
- The 0.8 mile Kosciusko 36" Pipeline and 0.4 mile Kosciusko/Southern Natural 20" Pipeline tie-ins, located at the terminus of the Greenville Lateral in Mississippi;
- Certain piping modifications at the existing Greenville Compressor Station located on the Texas Gas Main Line Pipeline System at Greenville, Mississippi; and
- Ancillary facilities such as interconnects, metering and regulating (M&R) stations, block valves, etc.

The Project is proposed to develop an interstate pipeline transportation system to deliver approximately 841 thousand decatherms per day (mdthd) of natural gas from Southwestern Energy Company's (Southwestern Energy) Fayetteville Shale natural gas production field in Arkansas through the Texas Gas system to several interconnects at Kosciusko, Mississippi.

The Fayetteville Lateral will consist of approximately 166.2 miles of 36-inch-diameter pipeline with a capacity of 841 mdthd. The proposed route of the Fayetteville Lateral would begin in Conway County, Arkansas; extend through Faulkner, Cleburne, White, Woodruff, St. Francis, Lee, and Phillips counties in Arkansas; cross the Mississippi river near Helena, Arkansas; and interconnect with the existing Texas Gas mainline in Coahoma County, Mississippi.

To the extent that gas from the Fayetteville Lateral is nominated for delivery to the Greenville Lateral, that movement will be accomplished by a backhaul down the existing Texas Gas mainline between its interconnects with the two proposed laterals. Backhauling this gas will provide for continued transport to northern markets while delivering Fayetteville Shale natural gas production field volumes to Kosciusko, Mississippi.

The Greenville Lateral will consist of approximately 96.4 miles of 36-inch-diameter pipeline with a capacity of 768 mdthd. The proposed route of the Greenville Lateral will originate at the existing Texas Gas compression station in Greenville, Mississippi, and extend through Washington, Sunflower, Humphreys, and Holmes counties to an interconnect with Texas Eastern Transmission, LP (Texas Eastern) and other pipelines near Kosciusko in Attala County, Mississippi. The existing yard and piping at the existing Texas Gas compressor station will be modified so that gas can be delivered east along the new Greenville Lateral to interconnect with existing pipelines at Kosciusko, Mississippi. There is no planned increase in hp at the Greenville Compressor Station.

In order to meet the Project design to deliver the capacity of natural gas, Texas Gas will construct a new compressor station for the Greenville Lateral, with 10,650 hp. This compressor station will be located near Kosciusko, Mississippi in Attala County.

The 0.8 mile Kosciusko 36" Pipeline will begin at the Kosciusko Compressor Station, trend west to Niles Road, and then follow Niles Road trending generally south to a tie-in with Gulf South at MP 0.8. The 0.4 mile Kosciusko/Southern Natural 20" Pipeline will begin at the tie-in with Gulf South, and trend generally south-southeast to a tie-in with Southern Natural.

This Erosion Control Plan and Storm Water Pollution Prevention Plan for Mississippi is designed to conform to the related requirements of the Federal Energy Regulatory Commission (FERC), and to support state certification of both the FERC project approval and Clean Water Act Section 404 (i.e., wetlands) permits granted by the U.S. Army Corps of Engineers (Corps), Memphis and Vicksburg Districts. Such certification, under Clean Water Act Section 401, requires that the project meet state water quality requirements. To meet these requirements, this plan conforms to the guidelines of the State of Mississippi contained in Chapter 2 of the *Planning and Design Manual for the Control of Erosion, Sediment, and Stormwater* prepared in 1994 by the Mississippi Department of Environmental Quality (MDEQ), Mississippi Soil and Water Conservation Commission, and USDA Soil Conservation Service, and to the May 2005 MDEQ *Mississippi Storm Water Pollution Prevention Plan (SWPPP) Guidance Manual for Construction Activities*. As described on the General Permits Branch website of MDEQ,

> "MDEQ will follow the federal storm water regulations as they apply to oil and gas-related construction activities. Construction activities associated with oil and gas exploration, production, processing and treatment, and transmission facilities that are defined in the following North American Industrial Classification System (NAICS) codes and titles: 211-Oil and Gas Extraction, 213111-Drilling Oil and Gas Wells, 213112-Support Activities for Oil and Gas Operations, 48611-Pipeline Transportation of Crude Oil and 48621-Pipeline Transportation of Natural Gas, are generally exempt from State NPDES construction requirements. MDEQ strongly encourages voluntary application of construction best management practices in order to minimize the discharge of pollutants in storm water runoff."[1]

The contractor will implement specific BMPs to meet or exceed the performance requirements outlined in this plan. BMP details developed by the contractor may require information (i.e., dimensions) in addition to those shown in Appendix A to fulfill the requirements of the MDEQ Hydrostatic Test Water General Permit.

### 1.2 Applicant

| | |
|---|---|
| **Prepared for:** | Steven J. Law |
| **Company Name:** | Texas Gas Transmission, LLC<br>3800 Frederica Street |
| **Address:** | Owensboro, KY 42304-00008 |
| **Telephone:** | (207) 688-6954 |
| **Email:** | steven.law@bwpmlp.com |

### 1.3 Preparer Information

[1] http://www.deq.state.ms.us/MDEQ.nsf/page/epd_epdgeneral?OpenDocument

**Prepared by:** Ela Whelan, PE and Anne MacDonald, CEG

**Company Name:** URS Corporation

**Address:** 111 SW Columbia, Suite 1500
Portland OR 97201

**Telephone:** 503-948-7268

**Fax:** 503-222-4292

**Email:** Ela_Whelan@urscorp.com; Anne_Macdonald@urscorp.com

### 1.4 Preparer's Credentials

Ela Whelan is registered as a Professional Engineer in the State of Oregon. Anne MacDonald is a Certified Engineering Geologist in the State of Oregon.

### 1.5 Purpose/Objectives of the Erosion Control Sediment Plan (ESCP) and Storm Water Pollution Prevention Plan (SWPPP)

The purpose of this plan is to describe the proposed construction activities and all temporary and permanent erosion and sediment control (ESC) measures, pollution prevention measures, inspection/monitoring/maintenance activities, and recordkeeping that would be implemented during the proposed construction project. The objectives of the ESCP and SWPPP are to:

1. Implement Best Management Practices (BMPs) to prevent erosion and sedimentation, and to identify, reduce, eliminate or prevent storm water contamination and water pollution from construction activity.
2. Prevent violations of surface water quality, ground water quality, or sediment management guidelines in Mississippi.
3. Prevent, during the construction phase, adverse water quality impacts including impacts on beneficial uses of the receiving water by controlling peak flow rates and volumes of storm water runoff.

### 1.6 Organization of the ESCP and SWPPP

This report is divided into seven main sections with several appendices that include storm water related reference materials. The topics presented in the each of the main sections are:

- Section 1 – INTRODUCTION. This section provides a summary description of the project, and the organization of this document.
- Section 2 – SITE DESCRIPTION. This section provides a detailed description of the existing site conditions, proposed construction activities.
- Section 3 – CONSTRUCTION STORMWATER BMPs. This section provides a detailed description of the BMPs to be implemented based on requirements of FERC and MDEQ.
- Section 4 – CONSTRUCTION PHASING AND BMP IMPLEMENTATION. This section provides a description of construction activities and the timing of the BMP implementation in relation to the project schedule.

- Section 5 – STATE ENVIRONMENTAL COMPLIANCE, TRAINING, AND INSPECTION. This section identifies the appropriate contact names (emergency and non-emergency), monitoring personnel, and the onsite temporary erosion and sedimentation control inspector
- Section 6 – SITE INSPECTIONS AND MONITORING. This section provides a description of the inspection and monitoring requirements.
- Section 7 – RECORDKEEPING. This section describes the requirements for documentation of the BMP implementation, site inspections, monitoring results, and changes to the implementation of certain BMPs due to site factors experienced during construction.

## 2.0 SITE DESCRIPTION

### 2.1 Pipeline Route

The proposed approximately 262.6-mile long Fayetteville/Greenville Lateral Expansion Pipeline Project (Project) is located in the States of Mississippi and Arkansas, as shown in Figure 1. Figure 2 depicts the pipeline route for the Fayetteville Lateral located in Arkansas with the eastern portion in Mississippi, and Figure 3 includes the Greenville Lateral located in Mississippi. Areas impacted by construction include agricultural, forested, residential, commercial and industrial land uses. Runoff from the pipeline construction would enter the following Mississippi streams listed as water quality impaired under the requirements of the federal Clean Water Act, section 303(d):

Humphreys, Yazoo River – Listed for nutrients and organic enrichment/low dissolved oxygen (DO).

Holmes, Tchula Lake – Listed for nutrients, organic enrichment/low DO, sediment/siltation.

Holmes, Box Creek – Listed for sediment/siltation.

Holmes-Attala, Big Black River – Listed for sediment/siltation.

### 2.2 Proposed Construction Site Description

Texas Gas is proposing the construction of two laterals, as described in Table 1:

- The Fayetteville Lateral is approximately 166.2 miles of 36-inch-diameter pipeline beginning in north central Arkansas, traversing east-southeast across Arkansas to and across the Mississippi River near Helena, Arkansas, and into west central Mississippi for 8.4 miles where it would tie into Texas Gas' existing mainline system near Lula, Mississippi. See Table 1 and Figure 2.
- The Greenville Lateral is approximately 96.4 miles of 36-inch-diameter pipeline from it's existing Greenville, Mississippi Compressor Station in Washington County, Mississippi to near Kosciusko in Attala County, Mississippi. See Figure 3.

The pipeline route would traverse steep terrain, uplands, floodplains, forested land, agricultural land, wetlands, rivers, and creeks.

The 0.8 mile Kosciusko 36" Pipeline will begin at the Kosciusko Compressor Station, trend west to Niles Road, and then follow Niles Road trending generally south to a tie-in with Gulf South at MP 0.8. The 0.4 mile Kosciusko/Southern Natural 20" Pipeline will begin at the tie-in with Gulf South, and trend generally south-southeast to a tie-in with Southern Natural.

**Table 1 Description of Pipeline Facilities in Mississippi**

| Pipeline Type | Diameter (inches) | Milepost From | Milepost To | Length (miles) | County |
|---|---|---|---|---|---|
| **Fayetteville Lateral** | | | | | |
| Steel Natural Gas Pipeline | 36 | 157.7 | 166.2 | 8.5 | Coahoma County |
| **Greenville Lateral** | | | | | |
| Steel Natural Gas Pipeline | 36 | 0.0 | 17.3 | 17.3 | Washington County |
| | 36 | 17.3 | 20.1 | 2.7 | Sunflower County |
| | 36 | 20.1 | 20.3 | 0.3 | Washington County |
| | 36 | 20.3 | 46.1 | 25.4 | Humphreys County |
| | 36 | 46.1 | 77.7 | 31.5 | Holmes County |
| | 36 | 77.7 | 96.4 | 18.7 | Attala County |
| **Kosciusko 36" Pipeline** | | | | | |
| Steel Natural Gas Pipeline | 36 | 0.0 | 0.8 | 0.8 | Attala County |
| **Kosciusko/Southern Natural 20" Pipeline** | | | | | |
| Steel Natural Gas Pipeline | 20 | 0.0 | 0.4 | 0.4 | Attala County |
| **Total Length in Mississippi** | | | | **106.1** | |

## 2.3 Aboveground Facilities

The aboveground facilities would consist of a new compressor station, 29 Metering and Regulating (M&R) stations, 30 interconnects (tie-ins), 21 Mainline Valves (MLVs), and 3 launcher and receiver assemblies. The Mississippi portion of the Fayetteville Lateral will include 1 M&R station, 1 MLV, and a receiver assembly. Greenville Lateral will include 10 of the M&Rs and 10 of the MLVs. One launcher and one receiver assembly will be located on the Greenville Lateral along with a distillate storage tank.

The new compressor station will be located at milepost (MP) 96.4 in Attala County, near Kosciusko, Mississippi. The Kosciusko Compressor Station will contain two Caterpillar 3612 Engines Driving Arial Compressors (3,550 hp each) and two Caterpillar 3606 Engines Driving Arial Compressors (1,775 hp each) to supply the needed compression. At the existing Texas Gas Greenville Compressor Station near Greenville, Mississippi, modifications will be made to the yard and station piping, valves, fittings, cooling, controls, and metering facilities.

Proposed aboveground facilities, with the exception of compressor stations, will be built and installed within the permanent pipeline right-of-way and will not require additional space. A summary of aboveground facility land requirements is provided in Table 2.

**Table 2 Land Requirements for Aboveground Facilities in Mississippi**

| County | Project Component | Milepost | Temporary Land Use (acres) | Permanent Land Use (acres) |
|---|---|---|---|---|
| **Fayetteville Lateral** | | | | |
| Coahoma | Texas Gas Transmission M&R Station | 166.2 | 1.8 | 1.8 |
| Coahoma | Receiver | 166.2 | 0.1 | 0.1 |
| Coahoma | MLV No. 11 | 166.2 | 0.1 | 0.1 |
| **Coahoma** | | **Subtotal:** | **2.0** | **2.0** |
| **Greenville Lateral** | | | | |
| Washington | Texas Gas Pipeline M&R Station | 0.0 | 0.9 | 0.9 |
| Washington | MLV No. 1 | 0.0 | 0.1 | 0.1 |
| Washington | Launcher | 0.0 | 0.1 | 0.1 |
| Washington | Tennessee Gas Pipeline M&R Station | 0.5 | 2.4 | 2.4 |
| Washington | American Natural Resources M&R Station | 1.8 | 2.6 | 2.6 |
| Washington | Trunkline M&R Station | 6.4 | 2.0 | 2.0 |
| Washington | MLV No. 2 | 6.4 | 0.1 | 0.1 |
| **Washington** | | **Subtotal:** | **8.2** | **8.2** |
| Sunflower | MLV No. 3 | 19.4 | 0.1 | 0.1 |
| **Sunflower** | | **Subtotal:** | **0.1** | **0.1** |
| Humphreys | Columbia Gulf Transmission M&R Station | 28.7 | 2.0 | 2.0 |
| Humphreys | Tennessee Gas Pipeline M&R Station | 29.8 | 0.9 | 0.9 |
| Humphreys | MLV No. 4 | 29.8 | 0.1 | 0.1 |
| Humphreys | MLV No. 5 | 42.0 | 0.1 | 0.1 |
| **Humphreys** | | **Subtotal:** | **3.1** | **3.1** |
| Holmes | MLV No. 6 | 54.0 | 0.1 | 0.1 |
| Holmes | MLV No. 7 | 66.1 | 0.1 | 0.1 |
| Holmes | MLV No. 8 | 73.0 | 0.1 | 0.1 |
| **Holmes** | | **Subtotal:** | **0.3** | **0.3** |
| Attala | MLV No. 9 | 81.8 | 0.1 | 0.1 |
| Attala | MLV No. 10 | 96.4 | 0.1 | 0.1 |
| Attala | Gulf South M&R Station | 96.4 | 2.4 | 2.4 |
| Attala | Texas Eastern Transmission M&R Station | 96.4 | 1.9 | 1.9 |
| Attala | Southern Natural M&R Station | 96.4 | 1.4 | 1.4 |
| Attala | Texas Eastern Transmission M&R Station | 96.4 | 0.8 | 0.8 |

| County | Project Component | Milepost | Temporary Land Use (acres) | Permanent Land Use (acres) |
|---|---|---|---|---|
| Attala | Receiver | 96.4 | 0.1 | 0.1 |
| Attala | Kosciusko Compressor Station | 96.4 | 65.0 | 65.0 |
| **Attala** | | **Subtotal:** | **71.8** | **71.8** |
| | | **Total:** | **85.5** | **85.5** |

*Note: The acreage numbers in this table have been rounded for presentation purposes. As a result, the values may not reflect the exact sum of the addends in all cases.*

### 2.4 Location Maps, Detailed Route Maps, and Plot/Site Plans

Location of the proposed pipeline is shown on Figure 1 with more information on the Greenville Lateral in Figure 3.

### 2.5 Disturbance Area Summary

To the greatest extent possible, while providing safe distance between pipelines, rights-of-way will parallel and overlap the existing Texas Gas mainline right-of-way or follow other existing utility corridors where construction constraints require installation outside the mainline right-of-way. In areas where the Project is co-located with existing utility right-of-ways, Texas Gas proposes to utilize 10 feet of the existing right-of-way during construction for trench spoil placement.

Table 3 summarizes the land requirements associated with the project including access roads.

**Table 3 Land Requirements for Pipeline Segments In Mississippi**

| Pipeline Type | County | Length (miles) | Construction Right of Way (acres) | New Operational Right of Way (acres) |
|---|---|---|---|---|
| **Fayetteville Lateral** | | | | |
| Steel Natural Gas Pipeline | Coahoma | 8.4 | 132.9 | 51.1 |
| **Greenville Lateral** | | | | |
| Steel Natural Gas Pipeline | Washington | 17.5 | 232.0 | 106.0 |
| | Sunflower | 2.8 | 43.0 | 17.0 |
| | Humphreys | 25.8 | 355.0 | 157.0 |
| | Holmes | 31.6 | 434.0 | 192.0 |
| | Attala | 19.9 | 262.0 | 120.0 |
| **Total** | | **97.6** | **1,458.9** | **643.5** |

*Note: The acreages for the construction right-of-way include additional temporary workspaces. The values 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.*

The construction right-of-way (ROW) would be 100 ft. wide in upland areas. The construction ROW would be reduced to 75 ft. in wetlands crossings. The 100 ft. wide crossing in uplands is proposed to be supplemented by a request for an additional 20 feet of construction corridor width where full-width topsoil segregation will be required in areas of rice production. Although no additional temporary workspace is requested for topsoil segregation at this time, it is likely that Texas Gas will request temporary workspace for topsoil segregation for several locations along the pipeline by the time of construction.

The typical overland pipeline construction will require a 65-foot working side and 35-foot trench spoil side. Where the Project will be co-located adjacent to an existing pipeline, the construction corridor will be no closer than 15 feet from the existing pipeline to keep construction equipment off the operation right-of-way.

## 2.6 Temporary Extra Work Space

Additional temporary workspace areas will be required for construction activities requiring additional area outside the construction corridor. These construction activities include but are not limited to:

- Road and railroad crossings;
- Wetland and waterbody crossings;
- Foreign pipeline crossings and interconnects;
- Foreign utility crossings;
- Areas requiring topsoil segregation;
- Areas with steep side slopes or other difficult terrain;
- Pipeline access and truck turnarounds;
- Fabrication and staging areas;
- Hydrostatic test water withdrawal and discharge locations;
- Horizontal directional drill (HDD) sites; and
- Rock disposal sites.

Extra work space may also be required where special construction techniques would be used. The size and configuration of each extra workspace is unique and dependent upon the existing conditions (e.g., available or accessible space, the presence of buildings and other structures, crossing angle, crossing depth, length of crossing, terrain, the presence of trees or sensitive habitat, etc.) at each work location. The requirements for extra work spaces would be determined during the design of the pipeline ROW. Extra work spaces are included in the total acreage of area to be affected by construction, identified in Table 3.

## 2.7 Operational Right-of-Way

Texas Gas proposes an operational right-of-way totaling 50 feet to maintain the mainline system. Texas Gas will typically maintain a right-of-way of 25 feet on either side of the pipeline in areas not co-located with another pipeline. MLVs will be contained within the operational right-of-way.

### 2.8 Access Roads

To the extent possible, Texas Gas will use existing access roads. Field investigation indicates that the availability of previously used roads and other existing roads is sufficient to preclude the need to construct any new roads. Maintenance may be required on some of the existing roads prior to hauling construction equipment and materials.

### 2.9 Pipe Storage and Contractor Yards

Texas Gas will use pipe storage yards to stockpile pipe, fabricate and concrete-coat joints, as necessary. Texas Gas will use contractor yards during construction to stage construction operations, store materials, park equipment, and setup temporary construction offices.

### 2.10 Soils

Pipeline construction, above ground facilities, and temporary workspaces would come into contact with a number of soil series. Soils information was provided by the National Resource Conservation Service (NRCS). Soil interpretations at the broadest scale in the United States are based on Major Land Resource Areas (MLRAs). MLRAs are geographically associated land resource units, usually encompassing several thousand acres, characterized by a particular pattern of soils, geology, climate, water resources, and land use.

#### Fayetteville Lateral

The Fayetteville Lateral will cross three MLRAs recognized by the NRCS: the Arkansas Valley and Ridges (MLRA 118); the Southern Mississippi Valley Alluvium (MLRA 131); and the Southern Mississippi Valley Silty Uplands (MLRA 134). Of these MLRA, the Fayetteville Lateral will cross only MLRA 131.

<u>Southern Mississippi Valley Alluvium (MLRA 131)</u>

Most of this area is in agricultural production. About 55 percent is cropland, 35 percent woodland, 7 percent pastureland, and about 3 percent is used for miscellaneous purposes. Cropland makes up about three-fourths of the acreage in the north and less than one-fourth in the south. The proportion of forest land varies inversely with that of planted crops; the proportion of pasture is a little higher in the south. Controlling surface water and artificially draining the wet soils are major concerns for cropland management.

Soil resource issues identified along the length of the Fayetteville Lateral route include:

a) **Prime Farmland**

Approximately 49 percent of soil along the proposed Fayetteville Lateral is classified as Prime Farmland. Another 19 percent is classified as Prime Farmland, when adequately drained. An additional 8 percent is classified as Farmland of Statewide Importance. A total of 76 percent of soil along the proposed route is considered agriculturally important (i.e., Prime Farmland or Farmland of Statewide Importance).

b) **Hydric Soils**

Approximately 32 percent of the soil along the Fayetteville Lateral is considered predominantly hydric. Hydric soils are more common in the eastern counties of the Fayetteville Lateral compared to the western counties.

c) **Erosion Potential**

Soils with a high percentage of silt and fine sand, as well as those that occur at steeper slopes along the Fayetteville Lateral are more susceptible to erosion that those with a high clay content and in relatively flat areas. Approximately 53 percent of the soils along the Fayetteville Lateral are classified as highly erodible or potentially highly erodible. The erosion potential of soil mapping units crossed by the Fayetteville Lateral in Mississippi is identified in Table 5.

d) **Shrink-Swell Potential**

Soils with a high shrink-swell potential underlie about 8 percent of the Fayetteville Lateral, while an additional 16 percent has a moderate shrink-swell potential.

**Greenville Lateral**

The Greenville Lateral will cross two MLRAs: the Southern Mississippi Valley Alluvium (MLRA 131) and the Southern Mississippi Valley Silty Uplands (MLRA 134). MLRA 131 is described above.

Southern Mississippi Valley Silty Uplands (MLRA 134)

Most of this area is in farms; a small acreage is federally owned. About 35 percent of the area is cropland, but the proportion varies greatly from county to county, depending on the soils and the topography. About 16 percent of the area is in pasture or hay. About 46 percent is in a forest of mixed pine and hardwoods. About 3 percent of the area is used for urban development or other purposes. There is an increase in urban development near the metropolitan areas. (USDA NRCS, 1981).

Soil resource issues identified on the Greenville Lateral route include:

e) **Prime Farmland**

Approximately 83 percent of soil along the Greenville Lateral is classified as Prime Farmland or Prime Farmland, when adequately drained. No Farmland of Statewide Importance was identified.

f) **Hydric Soils**

Approximately 83 percent of the soil along the Greenville Lateral is considered predominantly hydric, or containing significant hydric inclusions.

g) **Erosion Potential**

Soils with a high percentage of silt and fine sand, as well as those that occur at steeper slopes along the Greenville Lateral, are more susceptible to erosion that those with a high clay content and in relatively flat areas. Approximately 26 percent of the soil along the Greenville Lateral is classified as highly erodible or potentially highly erodible, with the occurrence increasing in the Southern Mississippi

Valley Silty Uplands MLRA. The erosion potential of soil units crossed by the Greenville Lateral is identified in Table 4.

### h) Shrink-Swell Potential

Soils with a high shrink-swell potential underlie about 54 percent of the Greenville Lateral, while an additional 13 percent has a moderate shrink-swell potential. The shrink-swell potential of soil units crossed by the Greenville Lateral is identified in Table 4.

**Table 4 Greenville Lateral Soil Map Units and Description**

| County | Soil Series | Map Unit Description | Drainage | Hydric Soil | Erodibility | Shrink-Swell Potential |
|---|---|---|---|---|---|---|
| Humphreys, Sunflower, Washington | Alligator | Alligator clay, level phase | Poorly drained | All hydric | Not highly erodible land | Very high |
| | | Alligator clay, nearly level phase | Poorly drained | All hydric | Not highly erodible land | |
| | | Alligator clay, gently sloping phase | Poorly drained | All hydric | Potentially highly erodible land | |
| | | Alligator clay, nearly level overflow phase | Poorly drained | All hydric | Not highly erodible land | |
| | | Alligator silty clay, nearly level phase | Poorly drained | All hydric | Not highly erodible land | |
| | | Alligator silty clay loam, nearly level overflow phase | Poorly drained | All hydric | Not highly erodible land | |
| | | Alligator silty clay, gently sloping phase | Poorly drained | All hydric | Potentially highly erodible land | |
| | | Alligator-Dowling clays, overflow phase | Poorly drained | All hydric | Potentially highly erodible land | |
| | | Alligator, Dowling, and Forestdale soils, overflow phase | Poorly drained | All hydric | Potentially highly erodible land | |
| Washington | Bosket | Bosket very fine sandy loam, nearly level phase (askew) | Moderately well drained | Partially hydric | Not highly erodible land | Low |
| Attala, Holmes | Calhoun | Calhoun silt loam | | Hydric Soil | | Low |
| Humphreys, Sunflower, Washington | Dowling | Dowling clay (sharkey) | Very poorly drained | Partially hydric | Not highly erodible land | Very high |
| | | Dowling clay, overflow phase | Very poorly drained | Partially hydric | Not highly erodible land | |
| | | Dowling soils (sharkey) | Very poorly drained | Partially hydric | Not highly erodible land | |
| | | Dowling soils, overflow phase | Very poorly drained | Partially hydric | Not highly erodible land | |
| Holmes, Humphreys | Dubbs | Dubbs very fine sandy loam | | Partially hydric | Not highly erodible land | |
| Holmes, Humphreys, Sunflower, Washington | Dundee | Dundee silty clay loam, nearly level phase | Somewhat poorly drained | Partially hydric | Not highly erodible land | High |
| | | Dundee silty clay loam, nearly level shallow | Somewhat poorly drained | Partially hydric | Not highly erodible land | |

| County | Soil Series | Map Unit Description | Drainage | Hydric Soil | Erodibility | Shrink-Swell Potential |
|---|---|---|---|---|---|---|
| | | phase | | | | |
| | | Dundee silty clay loam, gently sloping phase | Somewhat poorly drained | Partially hydric | Not highly erodible land | |
| | | Dundee silt loam, gently sloping phase | Somewhat poorly drained | Partially hydric | Not highly erodible land | |
| | | Dundee very fine sandy loam, nearly level phase | Somewhat poorly drained | Partially hydric | Not highly erodible land | High |
| Holmes, Humphreys, Sunflower, Washington | Forestdale | Forestdale silty clay, nearly level phase | Poorly drained | Partially hydric | Not highly erodible land | |
| | | Forestdale silty clay, gently sloping phase | Poorly drained | Partially hydric | Potentially highly erodible land | |
| | | Forestdale silty clay loam, level phase | Poorly drained | Partially hydric | Not highly erodible land | |
| | | Forestdale silty clay loam, nearly level phase | Poorly drained | Partially hydric | Not highly erodible land | |
| | | Forestdale silty clay loam, nearly level overflow phase | Poorly drained | Partially hydric | Not highly erodible land | |
| | | Forestdale silty clay loam, nearly level shallow phase | Poorly drained | Partially hydric | Not highly erodible land | |
| | | Forestdale silty clay loam, gently sloping phase | Poorly drained | Partially hydric | Not highly erodible land | |
| | | Forestdale silty clay loam, gently sloping overflow phase | Poorly drained | Partially hydric | Not highly erodible land | |
| | | Forestdale silt loam, nearly level phase | Poorly drained | Partially hydric | Not highly erodible land | |
| | | Forestdale silt loam, nearly level overflow phase | Poorly drained | Partially hydric | Not highly erodible land | |
| | | Forestdale silt loam, nearly level moderately shallow phase | Poorly drained | Partially hydric | Not highly erodible land | |
| | | Forestdale silt loam, gently sloping phase | Poorly drained | Partially hydric | Not highly erodible land | |
| | | Forestdale very fine sandy loam, nearly level phase | Poorly drained | Partially hydric | Not highly erodible land | |
| Attala ,Holmes | Gillsburg | Gillsburg silt loam, occasionally flooded | | Hydric Soil | | Moderate |
| Humphreys | Iberia | Iberia clay | Poorly drained | Hydric Soil | Not highly erodible land | High |
| Attala | Kinston | Kinston loam, occasionally flooded | | Hydric Soil | | Moderate |
| Attala | Kirksville | Kirksville loam, occasionally flooded | | Hydric Soil | | Moderate |
| Attala | Mantachie | Mantachie loam, occasionally flooded | | Hydric Soil | | Moderate |
| | | Mantachie loam, frequently flooded | | Hydric Soil | | |
| Attala, Holmes | Oaklimiter | Oaklimiter silt loam, occasionally flooded | | Hydric Soil | | Low |
| Attala, Holmes | Providence | Providence silt loam, 2 to 5 percent slopes, eroded | | Not hydric | Highly erodible land | Low |

| County | Soil Series | Map Unit Description | Drainage | Hydric Soil | Erodibility | Shrink-Swell Potential |
|---|---|---|---|---|---|---|
| | | Providence silt loam, 8 to 12 percent slopes, eroded | | Partially hydric | Highly erodible land | |
| | | Providence silt loam, 5 to 8 percent slopes, eroded | | Partially hydric | Highly erodible land | |
| Washington | Sharkey | Sharkey clay, level phase | Poorly drained | All hydric | Not highly erodible land | Very high |
| | | Sharkey clay, nearly level phase | Poorly drained | All hydric | Not highly erodible land | |
| | | Sharkey clay, gently sloping phase | Poorly drained | All hydric | Potentially highly erodible land | |
| | | Sharkey silty clay loam, nearly level phase | Poorly drained | All hydric | Not highly erodible land | |
| Attala, Holmes | Smithdale | Smithdale fine sandy loam, 8 to 15 percent slopes | | Partially hydric | Highly erodible land | Low |
| | | Smithdale fine sandy loam, 15 to 40 percent slopes | | Partially hydric | Highly erodible land | |
| Attala, Holmes | Sweatman | Sweatman loam, 8 to 12 percent slopes, eroded | | Partially hydric | Highly erodible land | Moderate |
| Attala | Tippah | Tippah silt loam, 2 to 5 percent slopes, eroded | | Not hydric | Highly erodible land | Low |
| | | Tippah silt loam, 8 to 12 percent slopes, eroded | | Partially hydric | Highly erodible land | |
| Washington | Tunica | Tunica clay, nearly level phase | Poorly drained | Not hydric | Not highly erodible land | Very High |
| Attala | Chenneby | Chenneby-Rosebloom complex, Yockanookany River bottoms | | Hydric Soil | | Very high |

### Above Ground Facilities

The Greenville Lateral will require the addition of a new 10,650 hp compressor facility to be located at MP 96.4 in Attala County (Kosciusko Compressor Station). This permanent facility is expected to cover 35 acres, with up to 70 acres disturbed during construction. Soils on the preferred location are mapped as the Smithdale-Sweatman-Providence association. The Sweatman and Providence components are listed as Prime Farmland soils. All three soil series are described as moderately well to well drained slit loams. The Sweatman loam, which is mapped in the northwest corner of the site, appears to be limited due to a seasonally high water table of approximately 30 inches (Hart, NRCS personal communication, March 15, 2007).

Each of the other permanent aboveground facilities is expected to utilize about 0.92 acre and all occur within the mapped pipeline corridor. Soils at each of the aboveground facilities will be considered permanently unavailable for other uses. This includes the above 35 acres in use as a compressor station, and about 50 acres in use for other aboveground facilities.

### Ancillary Facilities

Additional temporary workspace (ATWS) will be required at road and railroad crossings, waterbody crossings, and in areas with steep side slopes or other difficult terrain. ATWS will also be required for topsoil segregation, truck turnarounds, hydrotest water withdrawal and discharge locations, crossovers, tie-ins, staging and fabrication areas, and at foreign utility crossings. Additionally, ATWS will be needed wherever special construction techniques are required.

Impacts to soil at ancillary facilities are considered temporary, and conditions will be restored upon completion of construction.

Upon completion of the Project, the land within the pipe storage and contractor yards will be returned to preconstruction conditions, so no permanent impacts on Prime Farmland or other soil would result from use of the site.

## 3.0 CONSTRUCTION STORMWATER BMPS

### 3.1 General Description of Construction Activities

Proposed construction activities include:

- Clearing and grading activities necessary to build the pipeline. Orange construction fencing, or approved equivalent, would be used to define the limits of disturbance.
- Horizontal directional drilling (HDD) underneath streams and the Mississippi River.
- Trenching through topsoil in pastures.
- Trenching through wetlands.
- Improvements to existing access roads.

### 3.2 ESCP and SWPPP Elements

Implementation of the BMPs identified herein meet erosion control and construction requirements for MDEQ (ESCP) and the Mississippi Storm Water Pollution Prevention Plan (SWPPP). Construction approaches and BMP details expected to be employed during construction are provided in Appendix A. Alternate BMPs would be implemented in the event the BMP(s) listed herein are deemed ineffective or inappropriate during construction to satisfy the requirements set forth in the Large Construction Storm Water General Permit issued by MDEQ (Appendix B).

#### 3.2.1 Mark Clearing Limits

To protect adjacent properties and to reduce the area of soil exposed to construction, the limits of construction would be clearly marked before land-disturbing activities begin. Trees that are to be preserved, as well as all sensitive areas and their buffers, should be clearly delineated in the field. In general, natural vegetation and native topsoil should be retained in an undisturbed state to the maximum extent possible. The BMPs relevant to marking the clearing limits that would be applied for this project include:

- Preservation of Existing Vegetation/Bufferstrips (ESCP and SWPPP)

  Clearing would be limited to within the construction easement and only where necessary. Natural vegetation would be protected to the extent possible, particularly on steep slopes.

- Silt Fence (ESCP and SWPPP)

  Silt fencing would be used downslope of construction activities along the length of the pipeline, unless there is dense vegetation that prevents sediment from leaving the site, or other protection is in place. Silt fences made of filter fabric would be buried at the bottom, stretched, and supported by posts.

### 3.2.2 Establish Construction Access

Construction access or activities occurring on unpaved areas should be minimized. Where access points are necessary, they should be stabilized to minimize the tracking of sediment onto public roads. Street sweeping should be employed to prevent sediment from entering state waters. All wash wastewater should be controlled on site. The specific BMPs related to establishing construction access that would be used on this project include:

- Stabilized Construction Entrance/Exit (ESCP and SWPPP)

  Graveled construction entrances would be used to reduce the amount of sediment tracked onto paved roads by vehicles or equipment. These areas would be shown on the final plans.

### 3.2.3 Control Flow Rates

In order to protect the properties and waterways downstream of the project site, stormwater discharges from the site would be controlled using the following BMPs as applicable.

- Diversion (ESCP and SWPPP)

  Gradient terraces would be used on steep slopes to limit the quantity of concentrated runoff and minimize erosion. Water collected from the terraces would be treated, as necessary, and piped to a stable part of the site for discharge into the drainage way.

- Slope Breakers

  Texas Gas will construct slope breakers across the pipeline construction right-of-way to slow the velocity of runoff and move water off the right-of-way. Temporary slope breakers (e.g., hay bales, silt fence, and earthen berms) will be used during construction, and permanent slope breakers will be installed during final grading. Permanent slope breakers will not be installed on active agricultural lands unless requested by landowners.

- Permanent Trench Breaker

  Trench breakers consisting of sacks of soil or sand, polyurethane foam, or bentonite clay bags will be installed around the pipe in the trench to prevent subsurface channeling of water along the trench. In agricultural lands, trench breakers will be installed to a depth that does not encroach into the typical plow zone. Topsoil will not be used for trench breakers. Permanent trench breakers will be installed on slopes just before backfilling. Trench breakers will also be installed on slopes greater than 5 percent that are adjacent to waterbodies and wetlands.

- Level Spreader (ESCP and SWPPP)

  Level spreaders provide a nonerosive outlet for concentrated runoff by dispersing flow uniformly across a stable slope. Level spreaders should be used prior to concentrated flows entering a buffer zone or vegetative filter area.

Sediment controls, identified in the next section, would be used to control both sediment and runoff from the construction site.

### 3.2.4 Install Sediment Controls

All stormwater runoff from disturbed areas should pass through an appropriate sediment removal BMP before leaving the construction site or prior to being discharged to an infiltration facility. The specific BMPs to be used as applicable for controlling sediment on this project include:

- Level Spreader (ESCP and SWPPP)

  See Section 3.2.3.

- Straw Bale Barrier (ESCP and SWPPP)

  Straw bales would be used in two ways: to create a barrier to pond water for treatment prior to discharging from the site; and, as cover to prevent erosion, the bales would be taken apart and spread onto the bare ground to be used as mulch. Straw should be weed-free.

- Temporary Sediment Barrier

  Sediment barriers (e.g., silt fences, and staked hay or straw bales) protect surface waters and roadways by controlling the flow of sediment on the construction right-of-way and by preventing the flow of sediment off the construction right-of-way. Texas Gas will install and maintain these devices at the base of slopes adjacent to road crossings, waterbody crossings, and wetlands, as appropriate, and in other areas as necessary, until permanent revegetation measures have been judged successful and the potential for siltation has been minimized.

- Revegetation

  Texas Gas will make every effort to ensure the rapid, successful establishment of vegetation on areas requiring revegetation. Following final grading and cleanup, Texas Gas will condition the construction right-of-way for planting including the preparation of a seedbed and application and incorporation of soil amendments at rates agreed to by the landowner or land management agency, or specified in writing by an appropriate soil conservation authority. Texas Gas will seed areas to be revegetated in accordance with written recommendations for seed mixes, rates, and dates obtained from the appropriate soil conservation authorities or land management agencies where appropriate, from the landowners where agricultural or other commodities require revegetation, or as described in the Seeding Chart for the State of Mississippi (contained in the 2005 SWPPP Guidance).

- Silt Fence (ESCP and SWPPP)

  See Section 3.2.1.

- Detention Pond (ESCP)

  Ponded storm water shall be settled or filtered for sediment removal prior to discharge.

- Materials on Hand

  Quantities of erosion prevention and sediment control materials would be kept on site at all times to be used for emergency situations such as unexpected heavy rains. Materials to be kept on hand include, but are not limited to, clear plastic, weed-free straw bales for mulching, and coconut blankets for lining channels and swales.

### 3.2.5 Stabilize Soils

Exposed and unworked soils should be stabilized with the application of effective BMPs to prevent erosion throughout the life of the project. The specific BMPs for soil stabilization that should be used as applicable on this project include:

- Temporary Seeding and Planting and Permanent Seeding (ESCP and SWPPP)

  Seeding reduces erosion by stabilizing exposed soils and would be used on all areas following final grading and testing of pipe. Temporary seeding would be used on areas that would remain unworked for over 30 days. Seeding should be with weed-free seed mix as described in Section 3.2.4 . See Sections 4.4.5 and 4.4.6 for additional details.

- Topsoiling (ESCP)

  Topsoiling is the practice of stripping and stockpiling existing topsoil and then spreading it in graded areas to encourage future vegetation growth.

- Diversion (ESCP and SWPPP)

  See Section 3.2.3 above.

- Wind Erosion/Dust Control (ESCP)

  Water trucks would be kept accessible to provide dust control as necessary. Covering of materials and dust palliatives would be used as necessary.

All soils should be stabilized at the end of the shift before a holiday or weekend if needed based on weather forecasts.

In general, cut and fill slopes would be stabilized as soon as possible and soil stockpiles would be temporarily covered with plastic sheeting. All stockpiled soils should be stabilized from erosion, protected with sediment trapping measures, and where possible, be located away from storm drain inlets, waterways, and drainage channels. (ESCP)

### 3.2.6 Protect Slopes

All cut and fill slopes would be designed, constructed, and protected in a manner that minimizes erosion. The following specific BMPs would be used as applicable to protect slopes for this project:

- Slope Breakers

  See Section 3.2. 3.

- Permanent Trench Breaker

  See Section 3.2.3.

- Temporary Seeding and Planting and Permanent Seeding (ESCP and SWPPP)

  See Section 3.2.5.

- Diversion (ESCP and SWPPP)

  See Section 3.2.3.

- Grassed Waterway (ESCP)

  Vegetated lining of ditches or channels would be used to remove sediment from stormwater runoff prior to drainage leaving the construction easement.

- Rock Outlet Protection/Riprap outlet protection (ESCP and SWPPP)

  Installation of riprap type energy dissipators, as necessary.

- Mulching (ESCP and SWPPP)

  Mulching in the form of placing hay, grass, wood chips, straw or synthetic material on the soil would be used as necessary to control runoff on steep slopes.

### 3.2.7 Protect Drain Inlets

Drain inlets will be protected as applicable with the following:

- Storm Drain Inlet Protection (ESCP and SWPPP)

  Prevent course sediment from entering drainage systems prior to permanent stabilization of the disturbed area. Protect storm drain inlets with hay bales, silt fence, biobags, or other protective measures, as needed.

### 3.2.8 Stabilize Channels and Outlets

Where site runoff is to be conveyed in channels, or discharged to a stream or some other natural drainage point, efforts would be taken to prevent downstream erosion. The specific BMPs for channel and outlet stabilization that would be used as applicable on this project include:

- Grassed Waterway (ESCP)

  See Section 3.26.

- Rock Outlet Protection/Riprap outlet protection (ESCP and SWPPP)

  See Section 3.26.

- Mulching (ESCP and SWPPP)

  See Section 3.26.

### 3.2.9 Control Pollutants

All pollutants, including waste materials and demolition debris, oils, grease, gasoline, solvents, litter, and sanitary waste, that occur onsite should be handled and disposed of in a manner that does not cause contamination of stormwater or soils. Good housekeeping and preventative measures would be taken as applicable to ensure that the site would be kept clean, well organized, and free of debris.

- Good Housekeeping Practices (SWPPP)

  Equipment maintenance and repair and area for equipment wash off would be limited to contractor yards or temporary storage yards.

  Waste receptacles would be provided at convenient locations with regularly scheduled collection of the waste.

  Protected storage areas would be provided for chemicals, paints, solvents, fertilizers, and other potentially toxic materials.

  Sanitary facilities would be provided and adequately maintained.

- Develop a Spill Prevention, Control, and Countermeasure Plan (SPCC Plan)

Texas Gas will develop a Spill Prevention, Control, and Countermeasure Plan (SPCC Plan) that specifies cleanup procedures in the event of soil contamination from spills or leaks of fuel, lubricants, coolants, or solvents. Texas Gas and its contractors will use the SPCC Plan to prevent and contain, if necessary, accidental spills of any material that may contaminate soils, and to ensure that inadvertent spills of fuels, lubricants, or solvents are contained, cleaned up, and disposed of in an appropriate manner.

An individual SPCC Plan will be implemented at each aboveground facility that stores oil in excess of the volumes identified in 40 CFR 112 to protect groundwater resources during operation.

- Contaminated Soils Response

  If contaminated or suspect soils (e.g., oil-stained soils) are identified during trenching operations, Texas Gas will be notified and work in the area of the suspected contamination will be halted until the type and extent of the contamination is determined. The response action will be identified based on the type and extent of contamination; the responsible party; and local, state, and federal regulations.

- Groundwater Protection

  Construction, operation, and maintenance of the proposed facilities are not expected to have significant or long-term impacts on groundwater resources. Impacts will be minimized or avoided by implementation of the construction practices outlined in FERC's Plan and Procedures. Texas Gas will develop a Project-specific SPCC Plan for implementation during construction. The SPCC Plan will describe preventive measures such as personnel training, equipment inspection, and refueling procedures to reduce the likelihood of hydrocarbon spills. It will also include mitigation measures, such as containment and cleanup, to minimize potential impacts should a spill occur.

  If contaminated soil and/or groundwater are encountered during construction, Texas Gas will notify the affected landowner and will coordinate with the appropriate Federal and state agencies in accordance with applicable notification requirements.

  Texas Gas environmental inspectors have been trained to detect direct and indirect evidence of soil and/or groundwater contamination. Should a contaminated site be identified during construction, Texas Gas would notify the affected landowner and will coordinate with the appropriate Federal and state agencies in accordance with applicable notification requirements.

### 3.2.10 Maintain BMPs

All temporary and permanent erosion and sediment control BMPs should be maintained and repaired as needed to assure continued performance of their intended function. Maintenance and repair should be conducted in accordance with each particular BMP's specifications. Visual monitoring of the BMPs would be conducted at least once every calendar week and within 24 hours of any rainfall event that causes a discharge from the site. If the site becomes inactive, and is temporarily stabilized, the inspection frequency would be reduced to once every month. Repairs to BMPs must take place within 24 hours of identifying a deficiency. Additional guidance for site inspection is described in Section 6.0.

All temporary erosion and sediment control BMPs should be removed within 30 days after the final site stabilization is achieved or after the temporary BMPs are no longer needed. Trapped sediment should be removed or stabilized on site. Disturbed soil resulting from removal of BMPs or vegetation should be permanently stabilized.

### 3.2.11 Manage the Project

Erosion and sediment control BMPs for this project have been designed based on the following principles:

- Design the project to fit the existing topography, soils, and drainage patterns.
- Minimize the extent and duration of the area exposed.
- Emphasize erosion control rather than sediment control.
- Keep runoff velocities low.
- Retain sediment on site.
- Thoroughly monitor site and maintain all ESC measures.

The project would be managed according to the following key project components:

**Phasing of Construction**

- The construction project is being phased to the extent practicable in order to prevent soil erosion, and, to the maximum extent possible, the transport of sediment from the site during construction.
- Revegetation of exposed areas and maintenance of that vegetation should be an integral part of the clearing activities during each phase of construction.

**Seasonal Work Limitations**

- Texas Gas is requesting a variance of FERC's typical construction window (June 1 through through November 30 for warmwater fisheries) Texas Gas will coordinate with the appropriate state agencies in seeking approval to perform in-stream work outside of the time window specified in FERC's Procedures. Should they be identified in the future, alternative method variances will be sought from FERC.
- From October 1 through May 31, clearing, grading, and other soil disturbing activities would be minimized and BMPs would be in place to show that silt-laden runoff would be prevented from leaving the site through a combination of the following:
    a. Site conditions including existing vegetative coverage, slope, soil type, and proximity to receiving waters;
    b. Limitations on activities and the extent of disturbed areas; and
    c. Proposed erosion and sediment control measures.
- The following activities are exempt from the seasonal clearing and grading limitations:
    a. Routine maintenance and necessary repair of erosion and sediment control BMPs;
    b. Routine maintenance of public facilities or existing utility structures that do not expose the soil or result in the removal of the vegetative cover to soil; and

c. Activities where there is 100 percent infiltration of surface water runoff within the site in approved and installed erosion and sediment control facilities.

**Inspection, Maintenance, and Monitoring**

Training would be provided for the Environmental Inspectors in proper field implementation of this ESCP, SWPPP, hazardous materials management, and other environmental impact mitigation measures, see Section 5.0. Training sessions would also be provided for Company field construction management personnel and the contractor's personnel prior to and during the proposed pipeline installation. While this training would focus on ESCP implementation, it would also include instructions on the implementation of other mitigation measures, as appropriate.

- All BMPs should be inspected, maintained, and repaired as needed to assure continued performance of their intended function. Site inspections should be conducted by a person who is knowledgeable in the principles and practices of erosion and sediment control. This person has the necessary skills to:
  a. Assess the site conditions and construction activities that could impact the quality of stormwater, and
  b. Assess the effectiveness of erosion and sediment control measures used to control the quality of stormwater discharges.
- The Contractor's Environmental Coordinator should be on-site or on-call at all times.
- Whenever inspection and/or monitoring reveals that the BMPs identified in this ESCP are inadequate, due to the actual discharge of or potential to discharge a significant amount of any pollutant, appropriate BMPs or design changes should be implemented as soon as possible.

Visual and quantitative monitoring for water quality parameters would be required for this project to meet construction permit requirements; see Section 6.0.

An adequate number of copies of the Construction Drawing Package would be distributed to the Environmental Inspectors and to the contractor's supervisory personnel. If, in spite of the Chief Inspector's oversight, the contractors' performance is unsatisfactory, the terms of the contracts would allow use of a stop work order and cause a contractor to begin remedial work. Additional information on Inspection and Monitoring is presented in Section 6.0.

**Maintaining an Updated Construction ESCP and SWPPP**

- This ESCP and SWPPP should be retained on-site or within reasonable access to the site.
- The document should be modified whenever there is a change in the design, construction, operation, or maintenance at the construction site that has, or could have, a significant effect on the discharge of pollutants to waters of the state.
- The ESCP and SWPPP should be modified if, during inspections or investigations conducted by the owner/operator, or the applicable local or state regulatory authority, it is determined that the ESCP is ineffective in eliminating or significantly minimizing pollutants in stormwater discharges from the site. The ESCP should be modified as necessary to include additional or modified BMPs designed to correct problems identified. Revisions to the ESCP should be completed within seven (7) days following the inspection.

## 4.0 CONSTRUCTION PHASING AND BMP IMPLEMENTATION

This section provides a detailed description of the construction that would occur and the erosion control measures that would be implemented during construction. The final ESCP would be developed prior to construction, after a construction contractor has been selected.

## 4.1 General Approach

Those portions of the proposed pipeline facilities located primarily in upland terrain would employ conventional overland construction techniques for large-diameter pipelines. In the typical pipeline construction scenario, the construction spread (crew) would proceed along the pipeline ROW in one continuous operation. As the spread moves along, construction at any single point along the pipeline, from initial surveying and clearing to backfilling, finish grading, and site restoration, would typically last approximately 6 to 10 weeks. The entire process would be coordinated in such a manner as to minimize the total time an individual tract of land is disturbed and, therefore, exposed to erosion and temporarily precluded from its normal use. To minimize the duration of soil disturbance, Texas Gas will attempt to complete final cleanup and installation of permanent erosion control measures in an area within 20 days after backfilling the trench in that area, weather and soil conditions permitting. In no case will restoration of an area be delayed beyond the next available seeding season. An Environmental Inspector would be provided by the Owner, as described in Section 5.0. The Contractor would provide an Environmental Coordinator to implement conditions of this permit.

### 4.1.1 Preconstruction Activities

A preconstruction meeting with project construction personnel, including the Contractor's Environmental Coordinator and the Owners Environmental Inspector, would be held to discuss erosion and sediment control measures and construction limits. Prior to construction activities, the project monitoring notebooks and submittal protocol would be prepared that would be in use throughout the duration of the project.

### 4.1.2 Surveying

The initial step in preparing the ROW for construction would be the civil survey. A civil survey crew would stake the outside limits of the ROW, the centerline location of the pipeline, drainage centerlines and elevations, highway and railroad crossings, and any temporary extra workspace, such as laydown areas (for pipe materials) or at stream crossings. Underground utilities (i.e., cables, conduits, and pipelines) will be located and flagged. Affected landowners will be notified prior to surveying and staking of the proposed route, following applicable state/Federal guidelines.

### 4.1.3 Marking Clearing Limits

Following surveying, clearing limits would be marked, per Section 3.2.1, prior to clearing of the ROW. Prior to initiating construction and related soil-disturbing activities, appropriate erosion prevention and control measures would be implemented and inspected by the Contractor's Environmental Coordinator and/or the Owner's Environmental Inspector. The Environmental Coordinator, who may have other duties, is responsible for ensuring appropriate erosion prevention measures are in place at all times throughout the pipeline construction. The Environmental Inspector may have other duties in addition to environmental compliance but is responsible for inspections and field documentation, including but not limited to, photographs and field notes, that would occur prior to, during, and following installation of erosion prevention and control measures.

Construction work would not occur without installation of appropriate and approved erosion and sediment control devices and/or facilities.

#### 4.1.4 Clearing and Grading

Large obstacles such as trees, rocks, brush, and logs would be removed from the ROW. Trees would only be removed when absolutely necessary for construction purposes. Trees and other vegetative debris cleared from the ROW may be chipped for use as erosion-control mulch, burned, or otherwise disposed in accordance with applicable state and local regulations and landowner agreements. Burning would be conducted in such a manner as to minimize the fire hazard and prevent heat damage to surrounding vegetation. Fences would be cut and braced along the ROW, and temporary gates would be installed to control livestock and limit public access. The ROW would then be graded where necessary to create a reasonably level working surface to allow safe passage of construction equipment and materials. Conserved topsoil would be stockpiled, separate from excavated subsoil, along one side of the right-of-way, allowing the other side to be used for access, material transport, and pipe assembly. Temporary erosion control measures would be installed at this time, per Section 3.0.

#### 4.1.5 Trenching

To bury the pipeline underground, it would be necessary to excavate a trench. The trench would be excavated with a rotary trenching machine, a rock trencher, a track-mounted backhoe, or similar equipment. Explosives will only be used when necessary in areas where rock substrates are found at depths that interfere with conventional excavation of rock-trenching methods. In active agricultural ground and in residential areas, subsoil would be stockpiled separately from topsoil (or the upper 12 inches of topsoil, if the topsoil is deeper). Generally, the trench will be excavated at least 12 inches wider than the diameter of the pipe. Generally, in upland areas, the trench will be excavated to a sufficient depth to allow a minimum of 3 feet of soil cover between the top of the pipe and the final land surface after backfilling. Excavated soils will be stockpiled along the right-of-way on the side of the trench away from the construction traffic and pipe assembly area.

If bedrock is encountered, Texas Gas will take precautions to minimize the mixing of excavated bedrock with backfill and will replace rock in the trench to a level that is not higher than the original bedrock profile. Where necessary, excess rock will be hauled off site from the right-of-way or, subject to landowner approval and applicable permit conditions, disposed of on the right-of-way.

#### 4.1.6 Stringing

Steel pipe for the pipeline would be procured in 40-foot and 80-foot lengths or joints, protected with an epoxy coating and shipped to strategically located materials storage areas or pipe yards. The individual joints would be transported to the ROW by truck and placed along the excavated trench in a single, continuous line, easily accessible to the construction personnel on the working side of the trench, opposite the spoil side. At river crossings, railroads, and roads, the amount of pipe required to span the crossing would be stockpiled in temporary extra workspaces on one or both sides of the crossing.

#### 4.1.7 Pipe Lowering

The completed section of pipe will be lifted off the temporary supports and lowered into the trench by side-boom tractors. Prior to lowering the pipe, the trench will be inspected to ensure that it is free of rocks and other debris that could damage the pipe or the coating. Before lowering the pipe into the trench, the pipe and trench will be inspected to ensure that the pipe and trench configurations are compatible. In rocky areas, if the bottom is not smooth, a layer of soil may be placed on the bottom of the trench to protect the pipe.

### 4.1.8 Padding and Backfilling

After the pipe is lowered into the trench, the trench would be backfilled. Previously excavated materials would be pushed back into the trench using bladed equipment or backhoes. Where the previously excavated material contains large rocks or other materials that could damage the pipe or coating, a padding machine would be used to separate the rock from the backfill. In some instances, clean fill or a protective rock shield coating would be placed around the pipe prior to backfilling. Segregated topsoil, where applicable, would be placed after backfilling the trench with subsoil. Following backfilling, a small crown of material would be left to account for any future soil settling that might occur. Excess soil would be distributed evenly on the ROW in upland areas only, while maintaining approximate existing contours.

### 4.1.9 Hydrostatic Test and Final Tie In

Following backfilling of the trench, the pipeline would be hydrostatically tested to ensure it is capable of safely operating at the design pressures. The completed pipeline would be tested in multiple segments, including separate tests for each HDD pull section before and after being pulled into the borehole. All test water withdrawals and discharges would be in accordance with applicable permits to be obtained prior to construction, and they would be conducted in a manner to minimize impacts to the source and receiving streams. A Hydrostatic Test Water General Permit application for NPDES discharge will be filed with MDEQ, with this ESCP/SWPPP appended to that application.

Test water will be drawn from various sources and, after testing, will generally be discharged to upland areas or, in the case of surface water sources, back to the source from which it was obtained. Water will be discharged over land and will be directed through a splash plate and containment structures such as hay bale structures and filter bags located more than 50 feet away from adjacent wetlands and waterbodies, as required by the Mississippi General NPDES stormwater permit for hydrostatic test water discharges. The discharge rate will be regulated using valves and energy dissipation devices to prevent erosion, and the discharge will be monitored for residual materials being flushed from the tested pipe. Tie-in locations will be cleaned and restored after hydrostatic testing. No chemicals will be added to the test water during hydrostatic testing or pipeline dewatering. Pipeline dewatering will follow similar procedures.

### 4.1.10 Cleanup and Restoration

After a segment of pipeline has been installed, backfilled, and successfully tested, the construction ROW, temporary extra work spaces, and other disturbed areas would be finish graded, and the construction debris would be disposed of properly. Original land contours would be restored to conform to adjacent areas. In agricultural areas, subsoil compacted by construction activities would be disked, and the segregated topsoil would be returned to its original horizon. Permanent erosion and sediment control measures, including silt fencing, diversion terraces, and revegetation, per Section 3.0, would be installed at this time. Private and public property, such as fences, gates, driveways, and roads, disturbed by the pipeline construction will be restored to original or better condition.

Soils imported to agricultural and residential areas will be certified as free of noxious weeds and soil pests, and only weed-free straw or hay will be used to construct sediment control devices or used as mulch applications. Texas Gas will evaluate the presence of noxious weeds in the Project area; consult with appropriate federal, state, and local agencies responsible for the containment of noxious plant material: and incorporate recommended seed mixtures into revegetation plans. Specific procedures will be developed, as necessary, to prevent the introduction or spread of noxious weeds and soil pests resulting from construction and restoration activities.

### 4.2 Wetlands Pipeline Construction Techniques

The Pipeline route was selected to minimize impacts to wetlands. Where wetlands cannot be avoided, potential impacts are minimized through the use of special wetland construction procedures. Crossing of delineated wetlands would be in accordance with the FERC procedures[1] and any variances requested herein by Texas Gas, if approved by FERC. Wetlands to be crossed during construction, along with proposed crossing techniques, are listed in Appendices D and E.

The construction right-of-way width will be 75 feet in wetlands. Operation of construction equipment in wetlands will be limited to that needed to clear the right-of-way, dig the trench, fabricate the pipe, install the pipe, backfill the trench, and restore the right-of-way. Texas Gas will segregate the topsoil in the trench line up to 1 foot in depth in wetlands where hydrologic conditions permit this practice.

Texas Gas will minimize rutting of hydric soils by limiting access during wet periods, and if necessary, requiring special equipment in wetland areas. Special construction methods such as concrete coating of pipe and other weighting methods will be used, as necessary, to overcome buoyancy hazards during operation of the pipeline.

Segregated topsoil will be placed in the trench following subsoil backfilling. Restoration and monitoring of wetland crossings will be conducted in accordance with FERC's Procedures to help ensure successful wetland revegetation. In accordance with FERC procedures, fuel will not be stored within wetlands.

Construction in saturated wetland areas may involve the "push technique," "pull technique," or "drag section technique." These techniques minimize disturbance by restricting access in sensitive wetlands to equipment, vehicles, and workers needed for actual pipeline installation, and by limiting the number of crossing events.

Passage of the pipeline through forested wetlands has been minimized to the maximum extent practicable through project design and use of HDDs where appropriate and practical. The use of HDDs for a number of waterbody crossings has been included in the project design; they will substantially reduce the total amount of temporary and permanent wetland impacts associated with the Project.

Clearing within forested wetlands will be limited in right-of-way width and the right of way will be maintained such that only the minimum width needed for pipeline protection and surveillance is maintained, in an effort to reduce permanent impacts to forested wetlands.

In an effort to reduce permanent impacts to forested wetlands, clearing within forested wetlands will be limited in right-of-way width and the right of way will be maintained such that only the minimum width needed to facilitate periodic pipeline surveillance will be centered on the pipeline and up to 10 feet of width may be maintained in an herbaceous state.

Conditions along the construction corridor in areas proposed for conventional open ditch construction will likely dictate the use of either conventional open ditch lay or open ditch push/float lay. Selection of the most appropriate method will depend on site-specific weather conditions, inundation, soil saturation, and soil stability at the time of construction. The conventional open ditch lay method will be the most frequently used technique for installation of the pipeline in wetlands. The push/float lay method will be used in inundated or saturated wetland areas that support this technique. Selection of the push/float method will be decided during construction by the construction supervisor and the environmental inspector depending on the conditions at the time of construction.

[1] FERC Wetland and Waterbody Construction and Mitigation Procedures, Section V., WATERBODY CROSSINGS

Conventional Lay Method

Soils that support construction equipment will generally be crossed using conventional open ditch construction methods. Conventional open ditch construction is similar to upland construction. In some areas, site-specific conditions may not support construction equipment proposed for conventional open ditch construction; in these cases, construction mats will be used to minimize disturbances to wetland hydrology and maintain soil structure.

Push/Float Method

The push/float method of construction will be used in inundated lowland or saturated wetland areas where the soils and hydrology cannot support conventional pipe laying equipment and where there are sufficient quantities of water to allow for pipe to be floated through the open ditch. In using this method, the pipe trench will be excavated using low-ground-weight equipment, thus limiting the need for grubbing and grading activities over the trench line or, for safety reasons, on the working side of the right-of-way. The coated and weighted pipe will be welded together at a staging area where floats are attached to the pipe. The welded pipe will then be pushed along the water-filled trench until the pipe string is in place. As necessary, "pulling" of the pipe may be required to move the pipeline along the ditch. The floats will then be cut loose, allowing the pipe to sink to the bottom of the trench. The trench will then be backfilled. The push/float construction method minimizes the number of equipment passes, reducing wetland impacts and soil compaction in the lowland areas. The staging areas will be constructed, to the extent necessary, within the construction corridor. If Texas Gas requires additional temporary workspace in wetlands, approval will be requested from FERC prior to use.

Site-Specific Variances

Texas Gas is committed to constructing the Project in accordance with FERC's Plan and Procedures to the maximum extent practical. Texas Gas will request site-specific variances, if necessary, to Section VI.B.1 (location of extra workspaces in wetlands) of the FERC procedures providing a location-specific justification for each requested variance.

## 4.3 Special Pipeline Construction Techniques

### 4.3.1 Horizontal Directional Drills

HDD is a process that allows for trenchless construction across an area by pre-drilling a hole well below the depth of a conventional pipeline lay and then pulling the pipeline through the pre-drilled borehole. HDD will be used by Texas Gas at certain locations to avoid direct impacts to sensitive areas, such as waterbodies, and/or to avoid areas with difficult constructability issues.

For most HDD crossings, electric-grid guide wires will be hand-laid across the land surface along the pipeline right-of-way to help guide the drill bit along the predetermined HDD route. In thickly vegetated areas, a swath approximately 2 to 3 feet wide may be cut across the land surface using hand tools to lay these electric-grid guide wires, resulting in minimal ground and vegetation disturbance. No large-diameter trees will be cut to accomplish guide wire installation. Following guide wire installation, a directional drilling rig will be set up and a small-diameter pilot hole will be drilled along a prescribed profile.

Electromagnetic sensors located on the tip of the drill bit will follow an electromagnetic field created by the guide wires to follow the prescribed path. In other instances, bit tip positioning sensors will guide the drill bit. Once the pilot hole is completed, it will be enlarged, using reaming tools to the diameter of the pipe. The reaming tools will be attached to the drill string at the exit point of the pilot hole and then rotated and drawn back to the drilling rig, thus progressively enlarging the pilot hole with each pass. During this process, drilling fluid consisting of bentonite clay and water will be continuously pumped into the hole to remove cuttings and maintain the integrity of the hole. Once the hole has been sufficiently enlarged, a prefabricated segment of pipe will be attached behind the reaming tool on the exit side of the crossing and pulled back through the drill hole toward the drill rig, completing the crossing.

The primary disadvantage of directional drilling is its significantly higher cost. Drilling is sometimes used for some very special environmental reasons or in unusual cases where there is a unique construction need. HDD locations are initially determined without benefit of geotechnical investigations, which generally follow in the design phase. Geotechnical investigations generally confirm the absence of unusual conditions, which are detrimental to drilling (boulders, large cobbles, fractured materials, or karst conditions), and provide guidance to the driller on mud thickness, drill speed, and other operational factors.

Geotechnical investigations for proposed HDD will begin in early June and should be completed by the end of July. Once the geotechnical data is reviewed and analyzed, the results will be used to guide the design of the HDD profiles or determine if the drill is not feasible.

### 4.3.2 Waterbody Crossings

Numerous water bodies will be crossed during the pipeline construction; many of these are waters of significant resource value (Table 5) or waters that have already impaired water quality and require additional care (Table 6). Construction across waterbodies will be performed to minimize the time that ditches for pipeline crossings of flowing streams and rivers will be left open. The trenching operation will skip the water body crossing, stopping on each side near the high bank. The waterbody section of the pipeline will be bent and fabricated as the work progresses along the right-of-way so that the excavation of the waterbody crossing is only completed immediately prior to pipe installation by the lowering-in crew.

Implementation of FERC's Plan and Procedures, specifically with respect to erosion and sedimentation control, bank stabilization, and bank revegetation, will minimize impacts related to sediment transport into adjacent waterbodies. Additional measures will include:

- All extra work areas shall be located 50 feet away from the water's edge, except where the adjacent upland consists of actively cultivated or rotated cropland or other disturbed land.
- Texas Gas will limit the amount of vegetation cleared between the waterbody and the extra work area and minimize the amount of extra work space to the greatest extent possible.
- Texas Gas will continue to consult with state agencies during the permitting process to identify appropriate site-specific mitigation measures.
- Crossings will be aligned as close to perpendicular to the axis of the waterbody channel as engineering and routing conditions allow.
- If the pipeline parallels a waterbody, Texas Gas will attempt to maintain at least 15 feet of undisturbed vegetation between the waterbody (and any adjacent wetland) and the construction right-of-way.

Construction methods at waterbody crossings will vary with the characteristics of the waterbody encountered and will be performed consistent with permit requirements outlined in right-of-way and permit stipulations.

Normal backfill cover requirements will be met. Compaction of backfill, trench breakers, sandbags, or dry soil may also be used to keep backfill from sloughing in toward the center of the waterbody. All waterbody banks will be restored to the original grade and all foreign objects will be removed from the waterbody. Excavated material not required for backfill will be removed and disposed of at an upland site.

Texas Gas will follow FERC procedures to limit water quality impacts to waterbodies during and following construction. Construction activities will be scheduled so that the pipeline trench is excavated immediately prior to pipe laying activities. In accordance with FERC procedures, the duration of construction will be limited to 24 hours across minor waterbodies (10 feet wide or less) and 48 hours across intermediate waterbodies (between 10 and 100 feet wide).

**Table 5 Major and Sensitive Waterbodies [a]**

| State/County | Waterbody Name | Approximate Beginning Milepost | Approximate Width at Crossing (feet) | Crossing Method [b] | Sensitive Feature |
|---|---|---|---|---|---|
| **Fayetteville Lateral** | | | | | |
| **ARKANSAS/ MISSISSIPPI** | | | | | |
| Phillips-Coahoma | Mississippi River | 157.3 | 4,000 | HDD | MC |
| **MISSISSIPPI** | | | | | |
| Coahoma | Phillips Bayou | 160.7 | 110 | OCM | MC |
| **Greenville Lateral** | | | | | |
| Washington | Deer Creek | 9.3 | 60 | HDD | MSNHP |
| | Bogue Phalia | 11.2 | 200 | HDD | MC |
| Washington-Humphreys | Big Sunflower River | 20.3 | 250 | HDD | MC |
| Humphreys | Yazoo River | 40.5 | 395 | HDD | MC |
| Holmes | Tchula Lake | 46.7 | 160 | HDD | MC |
| | Fannegusha Creek | 54.3 | 100 | HDD | MC |
| Holmes-Attala | Big Black River | 77.7 | 270 | HDD | NRI, MC |

[a] Sensitive Features include those that are listed as Major Crossings (MC) (greater than 100 feet wide at crossing); are on the Nationwide Rivers Inventory (NRI) (NPS, 2004); are important aquatic habitats for rare species (MSNHP, 2006); and/or do not currently support designated uses (see Table 6 below).

[b] HDD = horizontal directional drill, OCM = open cut method (includes both conventional [i.e., without work area isolation] and variations [with work area isolation] on conventional methods)

**Table 6 Impaired Waterbodies Crossed by the Proposed Pipeline Route**

| County | Approximate Milepost | Waterbody Name | Crossing Type [a] | Cause [b] |
|---|---|---|---|---|
| Humphreys [c] | 40.5 | Yazoo River | HDD | Nutrients, Organic Enrichment/Low DO |
| Holmes [c] | 46.7 | Tchula Lake | HDD | Nutrients, Organic Enrichment/Low DO, Sediment/Siltation |

Table 6 Impaired Waterbodies Crossed by the Proposed Pipeline Route

| County | Approximate Milepost | Waterbody Name | Crossing Type [a] | Cause [b] |
|---|---|---|---|---|
| Holmes | 72.5 | Box Creek | OCM | Sediment/Siltation |
| Holmes-Attala [c] | 77.7 | Big Black River | HDD | Sediment/Siltation |

[a] HDD = horizontal directional drill. OCM = open cut method (includes both conventional [i.e., without work area isolation] and variations [with work area isolation] on conventional methods)

[b] Mississippi Department of Environmental Quality. 2006. Mississippi 2006 Section 303(D) List of Impaired Water Bodies. http://www.deq.state.ms.us/mdeq.nsf/pdf/TWB_2006_303d_List_draft_April_1_06.

[c] Found under Section B, of the Mississippi 2006 Section 303(D) List of Impaired Water Bodies. For these water bodies, no current monitoring data indicates impairments exist. MDEQ will monitor these water bodies to determine their water quality condition before removing them from Section B.

Specific waterbody crossing construction methods are described below. Texas Gas will follow FERC's Plan and Procedures when constructing across waterbodies and restoring the ecological functions and values of the water resources and adjacent floodplain habitats to the extent practicable. HDD techniques will be used to avoid disturbance to streambed and banks where suitable. Where HDD techniques are not employed, the streambed and banks will be restored to pre-construction contours or to a stable angle of repose. To support restoration of ecological functions and values of the waterbody, streambank stabilization and streambed recontouring will be designed to match pre-construction conditions of channel conveyance over a range of flows from baseflow to bankfull flow. Because of the expected generally erodible streambanks within the project alignment, native riparian woody vegetation will be used to provide streambank stability, unless not consistent with adjacent streambank vegetation. Bioengineering techniques (e.g., live staking, wattles) may be employed to provide suitable short- and intermediate-term stability to disturbed streambanks. If necessary, rip-rap will be used to supplement this vegetation (particularly below low-water elevations). A summary description of the HDD method and four variants of the open cut method are provided below.

Horizontal Directional Drill Method

The HDD method has become a more common crossing technique for large streams and those with particularly sensitive resources associated with the stream. A primary advantage to using HDD is that it avoids disturbance of the streambed, stream banks, and upland in the immediate vicinity of the crossing. Hence, the need for re-contouring approaches and stream banks is avoided, as are the challenges of re-establishing vegetation adjacent to these features. A disadvantage of the HDD method in certain waterbody crossing conditions is the possibility of "frac-outs," when the drilling mud under pressure in the "tunnel" being created under a waterbody finds a fracture or weak area and the drilling fluids rise and escape into the waterbody. Texas Gas presently proposes to install the pipeline using the HDD method at 10 locations on the Greenville Lateral, including all major water crossings. Drilling equipment and materials will be deployed only in approved workspace. Drilling mud containment and disposal will be in accordance with applicable permit requirements.

Conventional Open-Cut Method

Conventional open cut crossings involve trench excavation within the stream channel with no containment or redirection of water flow, should water be present. A backhoe, clam dredge, dragline, or similar equipment will be used for trench excavation. The following stipulations will apply to conventional open cut waterbody crossings:

- Material excavated from the trench will be stockpiled above the stream banks;
- Excavated trench material will generally be used as backfill unless Federal or state permits specify otherwise;
- Any excess material will be removed from the waterbody; and
- The streambed will be returned to its pre-construction contours to the extent practicable.

Where feasible, pipe segments may be welded together and temporarily strung above and across the waterbody feature until the pipeline is installed. The pipeline will not obstruct the highest expected flow of the waterbody. If required, the pipe used for waterbody crossings and in floodplains will be weighted to prevent flotation. The pipe will be welded together in the staging areas and then carried or floated along the right-of-way. After the pipe is lowered into the trench, previously excavated material will be used as backfill, unless precluded by permit requirements.

The pipeline will be installed to provide a minimum of 5 feet of cover from the waterbody bottom to the top of pipe or placed at sufficient depth under the streambed (below the anticipated scour depth) to maintain the standard 5-foot minimum cover requirement. The pipeline trench will be excavated to a bottom width of at least 12 inches greater than the proposed outside diameter or to a greater width to allow proper backfill beneath and along the side of the pipeline. Trench spoil will be placed on the bank above the high water mark for use as backfill.

Flow, if present at the time of construction, will be maintained at all waterbody crossings and no alteration of the stream's capacity is anticipated as a result of pipeline construction. Crossings will be perpendicular to water flow, to the extent practicable.

The construction procedures described above will ensure that potential impacts at waterbody crossings are minimized or avoided. To limit the time required for in-stream activities, the construction right of way will be prepared on either side of the waterbody prior to in-stream construction. Where banks are wooded, trees will be preserved where possible. In accordance with FERC's Plan and Procedures, construction activities (except for blasting and other rock-breaking measures) will generally be completed within 24 hours at minor waterbodies (i.e., 10 feet wide or less) and within 48 hours at intermediate waterbodies (i.e., greater than 10 feet wide and less than or equal to 100 feet wide). Temporary erosion control measures will be used as appropriate if the construction of a waterway crossing is appreciably delayed. During construction across streams which have high velocity flows or possess erodible banks, rip-rap will be used as appropriate to provide stabilization to the substrate (stream bed and/or banks) following construction activities.

After the completion of construction, streambeds will be restored to their former elevations and grades or to a stable angle of repose. Spoil, debris, piling, cofferdams, construction materials, and any other obstructions resulting from or used during construction of the pipeline will be removed to prevent interference with normal water flow and use. Any excavated material not used as backfill will be disposed of in a manner and at locations satisfactory to the applicable jurisdictional agencies. Following grading and in accordance with permit requirements, stream banks will be restored to prevent subsequent erosion.

<u>Variations on Conventional Open Cut Methods</u>

On sensitive and impaired water bodies, intermediate-sized crossings, and elsewhere—as long as suitable hydraulic and construction conditions allow—variations on conventional open-cut methods that incorporate work area isolation techniques may be used to further protect instream water quality. These substantially reduce the amount of sediment released to the water column during trenching, placement, and backfilling. Any dewatering water resulting from these methods would be land applied or otherwise sent through a detention pond or similar sediment control BMP described above before being returned to the downstream side of the work area. Pipeline crossing methods are indicated for waterbodies (Appendix F). Note that at this time, Texas Gas is prepared only to differentiate between HDD and open cut methods (OCM), without specifying which waterbody crossings would include the work area isolation measures associated with the variations described below.

*Dry-Ditch Method:* In intermittent streams without flow at the time of crossing, traditional upland methods may be employed. A trench will be excavated using upland equipment and techniques. Pipeline trench plugs will be installed in the approach trenches to control erosion. Stream banks will be restored to original contour and revegetated following FERC's Plan and Procedures.

*Dry Flume Method:* A flumed or dry crossing of a waterway involves redirecting stream flow through a flume pipe or pipes near the crossing. This allows for trenching, pipe installation, and restoration in relatively dry conditions, while maintaining continuous downstream flow. Soil characteristics must be very stable and stream flow should be low to moderate for this method to be used successfully and safely. The flume pipes must be long enough to accommodate a potential increase in trench width due to sloughing during excavation. Ideally, the flume pipes will extend from the inlet side of the equipment crossing to the opposite side of the construction right-of-way. An effective seal will be created around the flume pipes so that water will not penetrate and possibly wash out channelized dams on both the inlet and outlet ends. The flume will not be removed until the pipeline has been installed and the stream and banks have been restored.

*Dam and Pump Method:* The dam and pump method is an "isolated" crossing technique that maintains waterbody flows during in-stream activities. Initially, a dam will be created upstream of the crossing and the water will then be re-rerouted over upland surfaces using a pump and hose to the downstream side of the crossing. In the event a sudden increase in stream flow occurs during the crossing, the flume method will be used as an alternate method to maintain flow and keep the crossing dry. Once the waterbody crossing site is dry, the trench will be excavated, including any upland plugs; the pipe bent and welded; and then lowered into the trench. The crossing pipe will be tied into the upland construction and water flow will be restored. The construction is considered "isolated" as the actual water body crossing and the upland construction occur at different times. If the upland construction occurs first, the upland pipe will be installed in the trench with temporary end caps in place and a hard earth plug is left between the work completed and the work to be done, usually starting at the top of bank.

**Mississippi River Crossing**

The large size of the Mississippi River presents an involved crossing situation. It will require HDD methods to be used under the levees on both the west and east sides of the river and under the river. The planned pipeline routing at the Mississippi River includes the installation of the pipeline in a parallel and adjacent alignment to the existing Texas Gas Helena 12-inch pipeline river crossing. This crossing was designed by projecting the river crossing alignment perpendicular to the river and back across the levee. This approach was used to minimize right-of-way expansion and to minimize the potential extent of tree clearing and removal that would have been required if this space saving approach had not been used. If Texas Gas follows the existing pipeline to the fullest extent possible at this location, it will result in the pipeline being located on the inside of the levee over a longer distance. Therefore, a route straight across the river is planned for this major crossing to minimize the size of the right of way needed for the crossing, and avoid excess tree clearing and removal at the crossing.

In Arkansas, under the Mississippi West Levee, Texas Gas plans to use the HDD method of crossing. The application of this method is contingent on the receipt of approval from the Corps. In addition to the use of the HDD method, Texas Gas is evaluating the possibility of crossing this levee using conventional crossing methods. The presence of the existing Helena Port Authority Railroad at the toe of the levee represents an engineering constraint on this method. In order to apply the conventional method in this location, Texas Gas would have to dig at the toe of the levee in the same location where the railroad track is situated. The pipeline will be installed under the railroad. Detailed design and engineering consultations are planned with the local Corps district to evaluate the methods for crossing and consider the constraints on the applicable crossing method to be used.

Following the completion of the HDD under the Mississippi River, the pipeline will be located on the inside of the Mississippi West Levee, parallel and adjacent to the existing Texas Gas 12-inch pipeline river crossing. Texas Gas is currently planning on HDD methods for crossing the east Mississippi River Levee in Mississippi. Conventional methods are also being evaluated. This would require the pipeline to be placed on top of the levee. This method of construction would result in greater tree clearing.

The primary land uses at the Mississippi River crossing, in addition to the levees, are riparian woodland, wetland, and cropland on the west side, and bottomland hardwoods and cropland on the east side. No clear-cutting is proposed with the HDD method, and impacts to the sites of HDD installation are assumed to be minimal. This crossing is currently being evaluated and further details of potential impacts will be provided with the formal application. The Little Rock, Vicksburg and Memphis Corps districts have been provided with the preliminary pipeline route, background descriptive information pertaining to the Project and related to the Commission pre-filing process. The districts have indicated their individual jurisdictions and the general permit process that will be followed for the Project. At present, Texas Gas is intending to conduct detailed consultations with the individual Corps districts and Levee districts in regard to the crossings of flood control levees and site specific permitting requirements.

### 4.3.3 Road and Railroad Crossings

Road and railroad crossings will be maintained continuously using provisions such as steel plates or alternate access to minimize inconvenience to the public. Construction of the pipeline across hard surface roads will typically be installed through the roadbed by boring, with an excavated hole on either side of the road or railroad to provide a working area for the equipment.

Crossing of non-paved roads shall be installed by open-cut method in coordination and approval by local authorities. Immediately following installation, the pipe will be backfilled by either the flowable fill method or the granular fill method, topped with dense graded aggregate limestone and a top layer matching the existing roadway.

### 4.3.4 Foreign Pipeline and Utility Crossings

Foreign pipelines are pipelines other than the proposed Texas Gas Pipeline. Foreign pipelines and other underground utilities are likely to be discovered during the pre-construction shallow hazards survey. Because of the relatively large diameter of the proposed Texas Gas Pipeline and the soil cover and separation requirements, the proposed pipeline would cross under most foreign pipelines and utilities. The larger spoil volumes from increased excavation depths at these crossings and the preference not to place spoil or construction equipment over existing pipelines may require extra work space at each crossing. Precautions would be taken to ensure that the existing pipelines and utilities are not damaged during construction of the proposed pipeline.

#### 4.3.5 Agricultural Areas

Texas Gas conserves topsoil in all actively cultivated and rotated cropland, improved pasture, non-saturated wetlands and residential areas. Up to 12 inches of topsoil will be segregated in these areas, and in other areas at the specific request of the landowner or land management agency. The topsoil and subsoil will be stockpiled separately on the construction right-of-way and will not be allowed to mix. Rock will not be used as backfill in rotated or permanent cropland.

To prevent mixing of the soil horizons or incorporation of additional rock into the topsoil, topsoil segregation will be performed in non-saturated wetlands, croplands, pastures, hayfields, and in areas requested by the landowner. The topsoil will be segregated, as appropriate, from all subsoil and will be replaced in the proper order during backfilling and final grading. Implementation of proper topsoil segregation will help ensure post-construction revegetation success, thereby minimizing loss of crop productivity and the potential for long-term erosion problems. The Mississippi Department of Natural Resources indicated no additional requirements for construction through Prime Farmland areas (Johnson, Mississippi Department of Natural Resources, personal communication April 29, 2007).

The introduction of subsoil rocks/stones into agricultural topsoil will be minimized by segregating topsoil from trench spoil and replacing topsoil in agricultural areas after cleanup. This practice will prevent subsoil rocks from being brought to the surface and incorporated with the topsoil layer. Texas Gas will make diligent efforts to remove excess rock/stone greater than 4 inches in size from the topsoil and exposed subsoil of all disturbed soils, to the extent practicable, in cultivated and rotated croplands, hayfields, pastures, residential areas, and at the landowner's request, in other areas. Texas Gas will also remove excess rock/stone from surface soils disturbed by construction such that the size, density, and distribution of rock on the construction right-of-way will be similar to adjacent non-right-of-way areas. Texas Gas will not remove rocks from backfilled areas if the rocks/stones in the backfill are consistent in size and density with conditions before construction.

Texas Gas will excavate a trench sufficient for a minimum of 4 feet of cover in all actively tilled, pasture, or previously tilled land. Texas Gas will excavate deeper than the minimum 4 feet of cover in areas where deeper tilling (for example, using parabolic plows) occurs, or excavate deeper in areas in order to maintain existing drainage systems. Upon completing construction, Texas Gas will cooperate with local farmers and agricultural agencies to allow continued agricultural use of property while minimizing impacts to pipeline operations, including development of a grazing deferment plan with willing landowners.

Texas Gas will question landowners and local agricultural agency personnel regarding the potential presence of drain tiles and irrigation systems in affected agricultural fields. In addition, observations will be made before and during construction for evidence of the presence of drain tiles and irrigation systems.

In fields with drain tiles and irrigation systems, pipeline construction will be conducted in accordance with FERC's Plan and Texas Gas' Construction Specifications. The pipe will be installed below agricultural drainage lines, except in the rare circumstance of a deep main drainage line. Agricultural drainage features will be repositioned in a manner consistent with drainage orientation.

Should drainage tiles or irrigation piping be damaged during construction, Texas Gas will repair/restore their function. Texas Gas will carefully mark the location of the damage in a prominent manner, such as a securely staked lath with survey tape attached. Drain tile used for replacement shall be of the same size and quality as the original tile encountered on site. If original tile is not available, replacement tiles will be of appropriate size and materials to connect with the existing line without loss of function.

Operation of the pipeline following construction and repair of any damaged tile and irrigation line is not expected to affect operation of the drainage and irrigation systems.

#### 4.3.6 Residential Areas

Where there are residences in close proximity to the construction right-of-way, Texas Gas will reduce pipeline offset or construction workspace areas, as practical, to minimize inconvenience to property owners. If construction requires the removal of private property features, such as gates or fences, the landowner or tenant will be notified prior to the action. Following completion of major construction, the property will be restored in accordance with Texas Gas' standards regarding right-of-way restoration and maintenance. Property restoration will be in accordance with any agreements between Texas Gas and the landowner.

#### 4.3.7 Commercial and Industrial Areas

Texas Gas would maintain close coordination with business owners to maintain access, decrease construction duration, and generally minimize impacts.

#### 4.3.8 Blasting

Soil survey and surficial geological information indicates that no bedrock is likely to be encountered along the Mississippi portions of the project.

Texas Gas considers blasting as a last resort to reach the design pipeline depth; however, if required, blasting will be conducted in a manner to minimize possible impacts on nearby water supply wells. Use of controlled blasting techniques should mitigate impacts of blasting and limit rock fracture to the immediate vicinity of detonation.

If blasting is required within 150 feet of a water well, Texas Gas will, with landowner permission, conduct pre- and post-construction well testing and perform necessary repair and restoration to ensure there is no loss of productivity and quality.

#### 4.3.9 Rugged Terrain

In most areas with steep side slopes, Texas Gas will construct the pipeline by expanding the workspace. The dimensions of these additional temporary workspaces will vary, depending upon the degree and length of the slope. Additional temporary workspace for rugged terrain is not anticipated on the Greenville Lateral.

Steep slopes may also require the installation of special erosion control measures, including trench breakers, slope breakers, interception dikes, and erosion control mats, per Section 3.

### 4.4 Above-Ground Facilities Installation Procedures

Construction of the proposed aboveground facilities will follow industry-accepted practices and procedures, as further described below. In general, construction would begin with site grading, laying of building foundations and pipe support piers, installation of equipment and piping, and the erection of permanent buildings. After completion of service lines, pipe tie-ins and testing, final construction would consist of painting aboveground facilities, road surfacing, grading, and gravelling the station yard. Aboveground facilities will be painted per the Texas Gas Transmission, LLC painting specifications and standards.

Typical construction activities associated with compressor installation are summarized below. No special construction methods will be required for the proposed station modifications.

### 4.4.1 General

Construction activities and the temporary storage of construction materials and equipment would be confined to the areas within the site boundaries. Debris and wastes generated from the construction would be disposed of appropriately. All surface areas disturbed would be restored and stabilization measures installed in a timely manner. The facilities will be constructed in accordance with Texas Gas construction standards and specifications.

### 4.4.2 Foundations

Excavation will be performed as necessary to accommodate the new reinforced concrete foundation for the new compressors. Forms will be set, rebar installed, and the concrete poured and cured in accordance with applicable standards. Concrete pours will be randomly sampled to verify compliance with minimum strength requirements. Backfill will be compacted in place, and excess soil will be used elsewhere or distributed around the site.

## 4.5 Restoration

Following construction of the proposed pipeline and aboveground facilities, the areas disturbed by construction will, to the greatest extent practicable, be restored to their original condition and use. Seeding and mulching in cultivated areas will conform to the adjacent off-right-of-way area unless otherwise requested, in writing, by the landowner. Unless requested by a landowner, no areas will be left unseeded beyond the next available seeding season.

### 4.5.1 Pipeline Right-of-Way

Upon completion of the pipeline installation, the surface of the ROW disturbed by construction activities would be graded to match original contours and to be compatible with surrounding drainage patterns, except at those locations where permanent changes in drainage would be required to prevent erosion, scour, and possible exposure of the pipeline. Segregated topsoil would be replaced, and soils that have been compacted by construction equipment traffic would be disked. Permanent erosion control measures would be installed at this time. Temporary construction erosion control measures may be left in place, or replaced with interim erosion control measures, where appropriate, until sufficient vegetative cover is re-established to prevent significant erosion and sedimentation.

### 4.5.2 Uplands

In most upland locations, an herbaceous native vegetative cover would be re-established by spreading a grass seed and mulch mixture over the disturbed surface. The type of seed would be selected to match adjacent cover, or as otherwise requested/required by the landowner or land management agency, or as recommended by the county extension agent. Depending upon the time of year, a seasonal variety may be spread until a more permanent cover can be established. Steep slopes may require erosion control mats, revetments, or sod. The revegetation success would be monitored by Texas Gas, and reseeding, fertilizing, and other measures would be employed until a cover equivalent to approximately 80 percent of similar, adjacent areas is achieved. Temporary and interim erosion control measures would be removed at that time. Active cropland may be left unseeded at the request of the landowner if preparation of the ground for planting is imminent following construction. Pasture would be reseeded with a similar species or mixture. Residential and commercial lawns would be reseeded or sodded, depending upon the original grass variety. Shrubs and small trees on residential properties would be temporarily transplanted and replaced where practicable, and where allowed relative to the permanent ROW. Forested areas would be allowed to recover, except that no trees would be allowed to grow within 5 feet of the pipeline to facilitate pipeline inspections during operations, and no trees greater than 15 feet in height would be allowed within 15 feet of the pipeline.

Owners or managers of forested lands will be offered the opportunity to install and maintain measures to control unauthorized vehicle access to the right-of-way, including use of signs, fences, vegetative or other barriers.

#### 4.5.3 Wetlands

Original surface hydrology would be re-established in wetlands by backfilling the pipe trench and grading the surface with backhoes or draglines operating from the temporary board road, or with low-ground-pressure (LGP) tracked vehicles working in the spoil pile, depending upon the ambient water level, degree of soil saturation, and the bearing capacity of the soils. Segregated topsoil would be replaced in unsaturated wetlands. Roots and stumps would have been removed only in the areas of the pipe trench, allowing pre-existing vegetation to recover more rapidly in the remainder of the ROW once the board roads and spoil piles have been removed. Wetlands along the proposed pipeline may display a varying degree of saturation and water elevation, requiring a variety of plant species to be re-established. In unsaturated wetlands, most vegetation would be replaced by seeding. Saturated wetlands would typically be re-vegetated by the transplantation of mature herbaceous specimens at pre-established spacing. Transplant specimens would be obtained from adjacent wetlands, collected over a relatively large area to minimize negative impacts to the donor site, or from local commercial nurseries. Adjacent donor sites are preferred over nurseries because the plants would be acclimated to the specific conditions of the site. Some specimens may also be collected from the ROW prior to construction, stored in temporary nurseries, and replanted after pipeline construction is complete.

All disturbed areas within the construction right of way will be successfully regenerated with wetland herbaceous and/or woody plant species by natural succession. Topsoil segregation in unsaturated wetlands will preserve the native seed source, which will facilitate regrowth of wetlands once pipeline installation is complete. Monitoring of wetland revegetation will be conducted annually for the first three years after construction or until wetland vegetation is successful. Revegetation will be considered successful if the density and cover of non-nuisance vegetation are similar in density and cover to adjacent undisturbed lands.

Texas Gas would work with state and local agencies, and landowners to develop an acceptable site-specific revegetation plan prior to commencement of construction.

#### 4.5.4 Above-Ground Facilities

All above ground facilities would be permanently converted to industrial use. Most areas in and around the meters and associated piping and equipment would be covered with crushed rock (or equivalent) for worker safety and to minimize the amount of maintenance required. Roads and parking areas may be crushed rock, concrete, or asphalt. Other ground surfaces would be seeded with a native grass that is compatible with the climate and easily maintained. Areas outside the fence would be restored as described above for the permanent pipeline ROW.

#### 4.5.5 Access Roads

Previously existing roads that were used for access during construction would be returned to original or better condition, or as otherwise requested by the landowner, upon completion of the pipeline facilities installation. New access roads, if any, constructed specifically for installation of the Project would be removed, the surface graded to original contours, and the land restored to its original use, unless otherwise requested by the landowner, or unless the roads would be required for ongoing access to the ROW during pipeline operations. No new access roads are anticipated to be built for construction of the pipeline project. Temporary erosion control measures would be removed upon final stabilization and installation of permanent erosion control measures.

Currently, the only new permanent roads that will be constructed are those that will provide access to the new compressor station and M&R stations. The locations and dimensions of these roads are currently being evaluated.

### 4.5.6 Pipe Storage and Contractor Yards

Upon completion of construction, all temporary facilities (i.e., trailers, sheds, latrines, pipe supports, fencing, gates, etc.) would be removed from the pipe storage and contractor yards. Unless otherwise requested by the landowners, the sites would be graded to original contours, and the land restored to their original use. The sites would be re-vegetated, if applicable, permanent erosion control measures would be installed, and temporary erosion control measures would be removed.

## 4.6 Operation and Maintenance of the Natural Gas Pipeline

Texas Gas will operate and maintain the proposed pipeline and aboveground facilities in compliance with USDOT regulations provided in 49 CFR 192, FERC's guidance at 18 CFR 380.15, and maintenance provisions of FERC's Plan and Procedures.

Operational activity on the pipeline will be limited primarily to maintenance of the right-of-way and inspection, repair, and cleaning of the pipeline itself. Periodic aerial and ground inspections by pipeline personnel will identify soil erosion which may expose the pipe; dead vegetation that may indicate a leak in the line; conditions of the vegetative cover and erosion control measures; unauthorized encroachment on the right-of-way, such as buildings and other substantial structures; and other conditions which could present a safety hazard or require preventative maintenance or repairs. The pipeline cathodic protection (CP) system will also be monitored and inspected periodically to ensure proper and adequate corrosion protection. Appropriate responses to conditions observed during inspection will be taken as necessary.

Vegetation on the permanent right-of-way will be maintained by mowing, cutting, and trimming. The right-of-way will be allowed to revegetate; however, large brush and trees will be periodically removed. Trees or deep-rooted shrubs could damage the pipeline's protective coating, obscure periodic surveillance, or interfere with potential repairs and would not be allowed to grow within 15 feet in wetlands, and 25 feet in uplands, of the pipeline centerline. Vegetation maintenance will be conducted once every three years and will be performed in accordance with FERC's Plan and Procedures. Vegetation maintenance will not normally be required in agricultural or grazing areas.

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

In accordance with 49 CFR 192, the pipeline system will have a CP system to protect it where minute defects occur in the pipe coating. Without a CP system, such defects are anodic and subject to corrosion. The CP system impresses a direct current on the pipe, which makes the pipe cathodic. The CP system provides a ground-bed anode, which will corrode instead of the pipe. The CP system does not in any way influence the pipeline excavation depth. The main components of the CP system are anode beds, rectifiers, and test stations.

Texas Gas proposes to utilize the existing CP sites on the Texas Gas system. A survey will then be performed to determine if adequate protection has been achieved. If adequate protection is not achieved with the existing CP system, additional CP sites will be proposed at the inadequately protected areas. All existing CP sites are within the existing right-of-way. Any additional sites, if required, will also be sited in the existing right-of-way.

## 5.0 SAFETY, ENVIRONMENTAL COMPLIANCE, TRAINING AND INSPECTION

To ensure that construction of the proposed facilities will comply with mitigation measures identified by Texas Gas, the analysis by FERC of this Project and the requirements of other Federal and state permitting agencies, implementation details will be included in construction drawings and specifications. Selected contractors will receive copies of specifications and a Construction Drawing Package containing, among other things, plant and equipment drawings designated as being approved for construction. To solicit accurate bids for construction, specifications and advance versions of the Construction Drawing Package will be provided to prospective contractors.

Concerning those mitigation measures that address pre-construction surveys and clearances, reference to pertinent correspondence and documentation will be incorporated into the Construction Drawing Package. For those mitigation measures that address permit conditions from Federal, state, and local agencies, copies of permits and related drawings will also be added to the Construction Drawing Package. For those mitigation measures that, in part, address post-construction requirements, instructions and documentation (Maintenance Plan) will be provided to operating personnel following the completion of construction. The Maintenance Plan will include copies of pertinent permits with particular reference to long-term permit conditions.

The selected contractors will install facilities according to company specifications, the Construction Drawing Package, and the terms of the negotiated contract. To specifically support the application of proper field construction methods, a Soil Erosion and Sediment Control Plan (Soil Plan) will be prepared incorporating provisions of FERC's Plan and Procedures. Texas Gas conducts annual training for its environmental inspectors in proper field implementation of Soil Plans and other mitigation measures. The Project inspectors will be drawn from the company's inspector pool or, in some cases, from qualified third party contractors. Prior to and during construction, training for field construction personnel and contractor personnel will be conducted. While this training focuses on Soil Plan implementation, it will also include instruction on the implementation of other mitigation measures, as appropriate.

For purposes of quality assurance and compliance with mitigation measures, other applicable regulatory requirements, and company specifications, the Chief Inspector or Spread Superintendent will represent the company at each spread. The Spread Superintendent will be assisted by a Chief Inspector who will be assisted by one or more craft inspectors, and at least one environmental inspector, depending upon the size of the spread. The environmental inspector's duties are consistent with those contained in Paragraph III.B (Responsibilities of the Environmental Inspector) of FERC's Plan and shall be:

- Responsible for monitoring and documenting compliance with all mitigative measures required by FERC's Order and any other grants, permits, certificates, or other authorizing documents;
- Responsible for evaluating the construction contractor's implementation of the environmental mitigation measures required in the contract or any other authorizing document;

- Empowered to order correction of acts that violate the environmental conditions of FERC's Order, or any other authorizing document (e.g., Corps Section 404 permit);
- A full-time position separate from all other activity inspectors; and
- Responsible for maintaining status reports and training records.

An ample number of copies of the Construction Drawing Package will be distributed to inspectors and to contractors' supervisory personnel. If a contractor's performance is unsatisfactory, the terms of the contract will allow for work stoppage and will require the contractor to begin remedial work.

The Engineering and Construction Department is responsible for designing and constructing certificated facilities in compliance with regulatory and non-regulatory requirements and agreements. If technical or management assistance is required, the responsible Texas Gas Chief Inspector will request assistance from the appropriate company department or division. The operations department will be responsible for long-term Project maintenance and regulatory compliance.

### 5.1 Emergency Contacts

Names and contact information for emergency notification are provided in the following table.

| Title | Name(s) | Phone Number/Email |
|---|---|---|
| Environmental Inspector (Owner) | TBD | TBD |
| Environmental Coordinator (Contractor) | TBD | TBD |
| Emergency MDEQ Contact | TBD | TBD |
| Emergency Owner Contact | Steven J. Law | 207-688-6954 |
| Non-Emergency Contact | Steven J. Law | 207-688-6954 |
| Monitoring Personnel | TBD | TBD |
| Mississippi Emergency Response Commission | 601-352-9100 | |
| Chemical Transportation Emergency Center (CHEMTREC) | 800-424-9300 | |
| Natural Resource Center (NRC) Hotline | 800-424-8802 | |
| Coahoma County, MS Sheriff | | Emergency 911<br>Non-Emergency 662-624-3085 |
| Washington County, MS Sheriff | | Emergency 911<br>Non-Emergency 662-334-2653 |
| Humphreys County, MS Sheriff | | Emergency 911<br>Non-Emergency 662-247-2551 |
| Sunflower County, MS Sheriff | | Emergency 911<br>Non-Emergency 662-887-2121 |
| Holmes County, MS Sheriff | | Emergency 911<br>Non-Emergency 668-834-2902 |
| Attala County, MS Sheriff | | Emergency 911<br>Non-Emergency 662-289-5556 |

## 6.0 SITE INSPECTIONS AND MONITORING

Monitoring includes visual inspection, monitoring for water quality parameters of concern, and documentation of the inspection and monitoring findings in a site log book. A site log book would be maintained for all on-site construction activities and would include:

- A record of the implementation of the ESCP and other permit requirements;
- Site inspections; and
- Stormwater quality monitoring.

The inspection form and water quality monitoring forms included in this ESCP include the required information for the site log book. The forms would be included in a separate site log book which would be maintained on-site or within reasonable access to the site. Modifications to BMPs and records of BMP repair would also be maintained in the log book.

### 6.1 Site Inspection

Site inspection would occur in all areas disturbed by construction activities and at all stormwater discharge points. Stormwater would be examined for the presence of suspended sediment, turbidity, discoloration, and oily sheen. The Environmental Inspector would evaluate and document the effectiveness of the installed BMPs and determine if it is necessary to repair or replace any of the BMPs to improve the quality of stormwater discharges. All maintenance and repairs would be documented in the site log book. All new BMPs or design changes would be documented in the ESCP as soon as possible.

#### 6.1.1 Site Inspection Frequency

Site inspections would be conducted at least once a week and within 24 hours following any rainfall event which causes a discharge of stormwater from the site. For sites with temporary stabilization measures, the site inspection frequency can be reduced to once every month. Daily inspections of active sites are required during storm water runoff.

#### 6.1.2 Site Inspection Documentation

The site inspector would record each site inspection using the site log inspection forms provided in Appendix C. The site inspection log forms may be separated from this ESCP document, but would be maintained on-site or within reasonable access to the site and be made available upon request by DEQ or the local jurisdiction.

### 6.2 Storm Water Quality Monitoring

#### 6.2.1 Water Quality Monitoring

Sampling for Total Suspended Solids will occur on all streams, particularly those streams on the MDEQ 303(d) list for turbidity and sedimentation as identified in Section 2.1. Sampling shall occur in two locations, one sample upstream of runoff from the Project, and downstream at the limit of a 750-foot mixing zone. Per MDEQ letter to the Corps Vicksburg District Regulatory Branch dated March 15, 2002, turbidity outside of the limits of a 750-foot mixing zone shall not exceed ambient turbidity by more than 50 Nephelometric Turbidity Units (NTU). Turbidity measurements in streams receiving storm water runoff from the project and shall be taken after every storm with precipitation of half an inch or greater or precipitation sufficient to produce runoff.

Additional monitoring is required by MDEQ as a condition of the Hydrostatic Test General Permit, as described below. Testing for chlorine is included, as it is not required if the water source is not chlorinated.

Subject Item: Limitations and Monitoring Requirements for New Pipelines, Storage Tanks, and Flowlines
RPNT0000000001: Table 1 (Fresh Water)



Such discharges shall be limited and monitored by the permittee as specified below:

| Parameter | Discharge Limitations | | | | | | | Monitoring Requirements | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Quantity / Loading Average | Quantity / Loading Maximum | Quantity / Loading Units | Conc. / Quality Minimum | Conc. / Quality Average | Conc. / Quality Maximum | Conc. / Quality Units | Frequency | Sample Type | Which Months |
| *Chlorine, total residual Effluent* | ...... | ...... | ...... | ...... | ...... | 0.019 Semi Maximum | mg/L | once per discharge event | grab sampling | Jan-Dec |
| *Flow Effluent* | ...... | Report Semi Maximum | million gallons per day | ...... | ...... | ...... | ...... | once per discharge event | estimate | Jan-Dec |
| *Oil and grease Effluent* | ...... | ...... | ...... | ...... | ...... | 15 Semi Maximum | mg/L | once per discharge event | grab sampling | Jan-Dec |
| *pH Effluent* | ...... | ...... | ...... | 6.0 Minimum | ...... | 9.0 Maximum | SU | once per discharge event | grab sampling | Jan-Dec |
| *Solids (Total Suspended) Effluent* | ...... | ...... | ...... | ...... | ...... | 50 Semi Maximum | mg/L | once per discharge event | grab sampling | Jan-Dec |

### 6.2.2 Visual Monitoring

All ESCP controls and practices must be inspected as follows:

- Daily during active period.
- Once, to ensure ESCP measures are in working order prior to site becoming inactive or inaccessible.
- Once every two weeks during inactive periods of greater than seven consecutive days.
- Daily, if practical, during inaccessible periods due to inclement weather.

## 7.0 RECORDKEEPING

### 7.1 Site Log Book

A site log book would be maintained for all on-site construction activities and would include:

- A record of the implementation of the ESCP and other permit requirements;
- Site inspections;
- Stormwater quality monitoring;
- Method of application, application rate, and type of fertilizer, pH modifying agent, seed, and mulch used;
- Acreage treated;
- Dates of backfilling and seeding;
- Names of landowners requesting special seeding treatment; and

- A description of the follow-up actions, any problem areas, and how they were addressed.

For convenience, the inspection form and water quality monitoring forms included in this ESCP include the required information for the site log book.

Quarterly reports will be filed to FERC documenting problems, landowner issues, and corrective actions taken for at least two years following construction.

Weekly, or biweekly, reports to FERC shall identify areas used by the project that are in excess of what has been identified herein. Approvals of landowners shall be obtained and documented in the files. Areas shall be identified by Station number and referenced to an alignment sheet, and survey information of the additional area incorporated into the project.

### 7.2 Records Retention

Records of all monitoring information (site log book, inspection reports/checklists, etc.), this ESCP, and any other documentation of compliance with water quality requirements would be retained during the life of the construction project and for a minimum of three years following completion of construction.

### 7.3 Access to Plans and Records

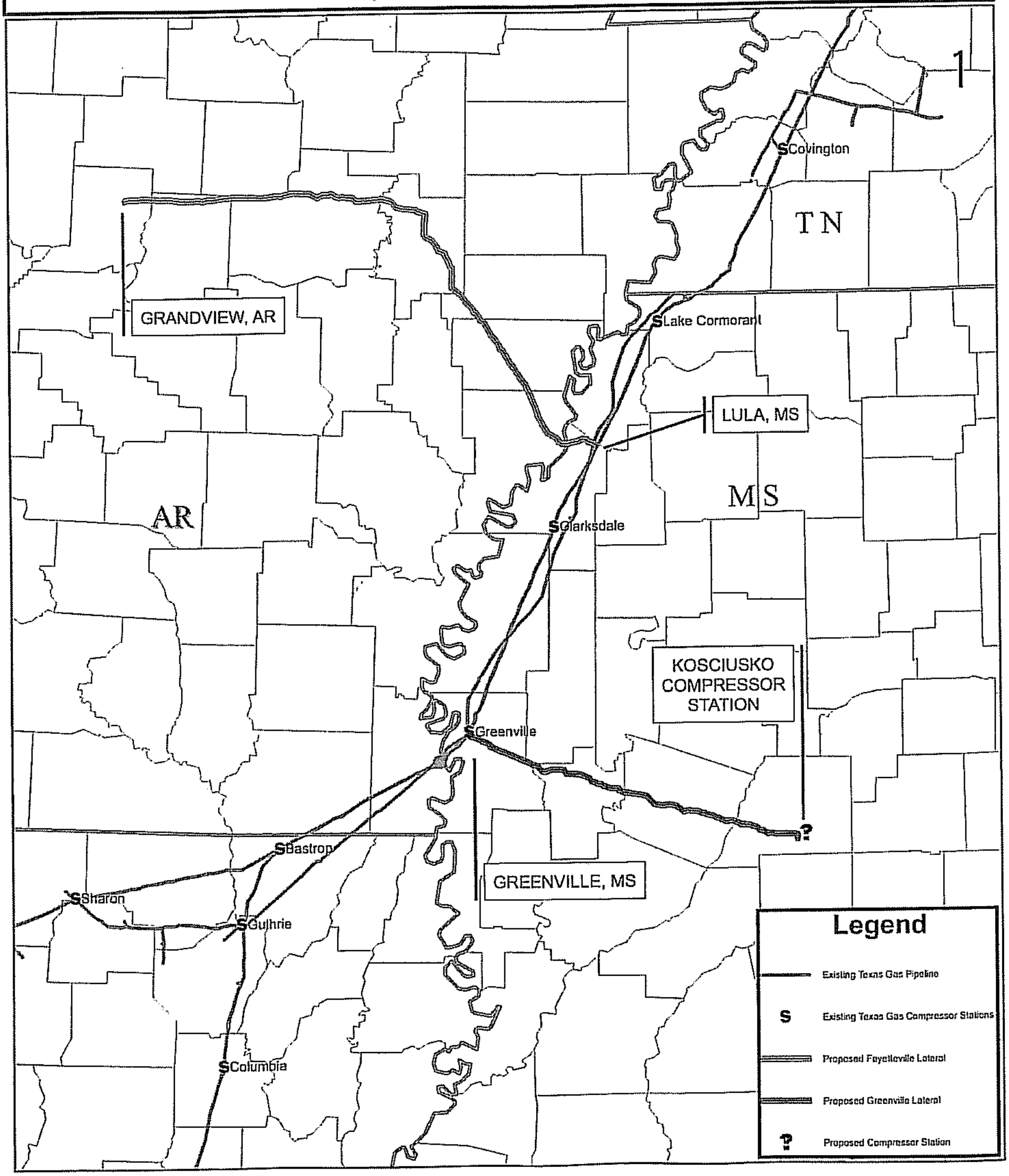
The ESCP and SWPPP, and Site Log Book, would be retained on site or within reasonable access to the site and would be made immediately available upon request to MDEQ or local municipality. A copy of the ESCP or access to the ESCP would be provided to the public when requested in writing.

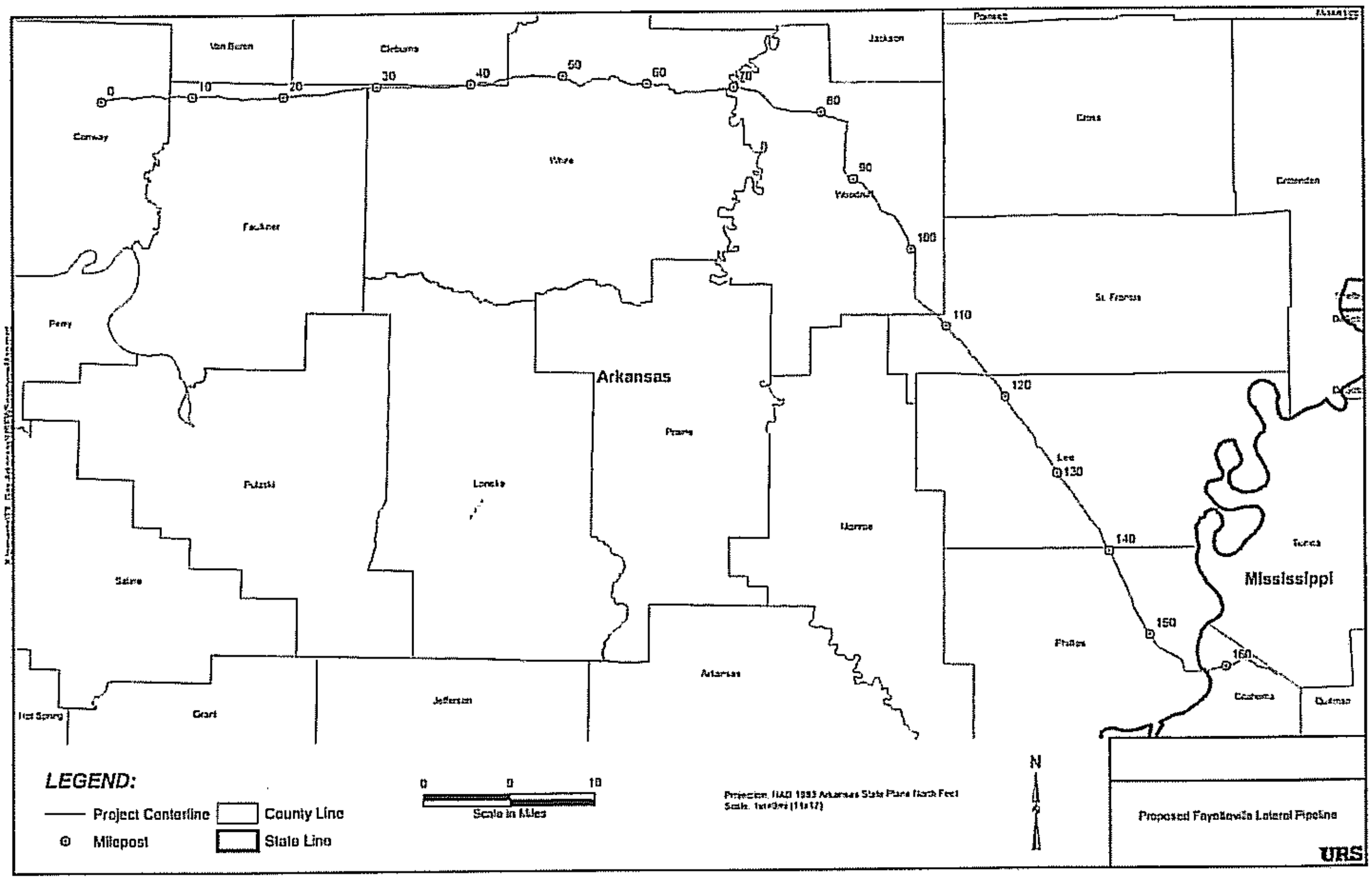
### 7.4 Updating the ESCP

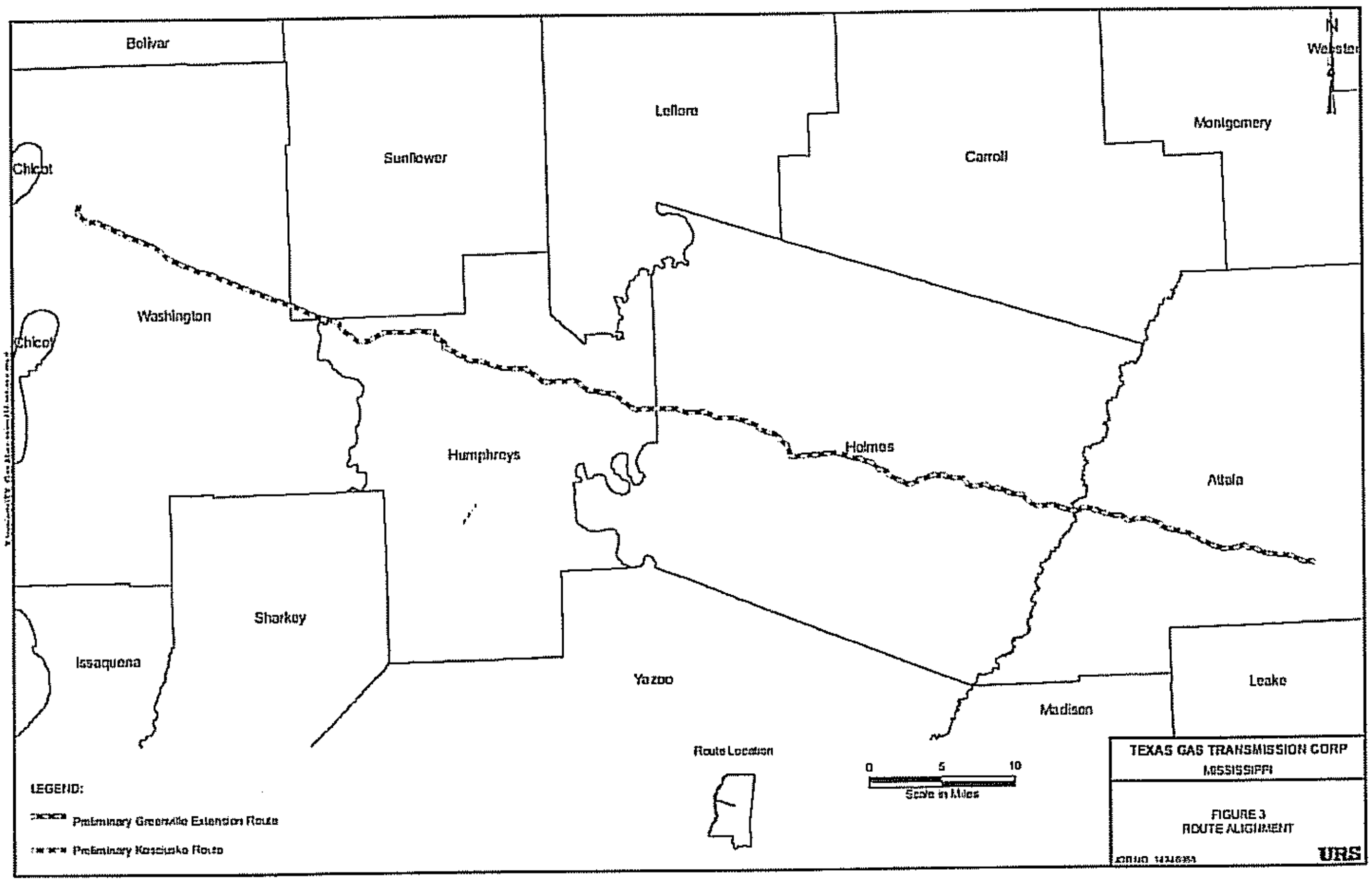
This ESCP and SWPPP would be modified if they are deemed to be ineffective in eliminating or significantly minimizing pollutants in stormwater discharges from the site or there has been a change in design, construction, operation, or maintenance at the site that has a significant effect on the discharge, or potential for discharge, of pollutants to the waters of the State. This ESCP and SWPPP would be modified within ten days of determination based on inspection(s) that additional or modified BMPs are necessary to correct problems identified, and an updated timeline for BMP implementation would be prepared.

# FIGURES

# FAYETTEVILLE/GREENVILLE EXPANSION PROJECT
## FIGURE 1
## PRELIMINARY ROUTE MAP




Van Buren
Cleburne
Jackson
Cross
Conway
White
Faulkner
Woodruff
Crittenden
St. Francis
Perry
Arkansas
Prairie
Pulaski
Lonoke
Lee
Monroe
Tunica
Mississippi
Saline
Phillips
Arkansas
Jefferson
Coahoma
Quitman
Hot Spring
Grant
0
10
20
30
40
50
60
70
80
90
100
110
120
130
140
150
160
LEGEND:
Project Centerline
County Line
Milepost
State Line
0
5
10
Scale in Miles
N
Proposed Fayetteville Lateral Pipeline
URS


Bolivar
Sunflower
Leflore
Carroll
Montgomery
Webster
N
Chicot
Washington
Chicot
Humphreys
Holmes
Attala
Sharkey
Issaquena
Yazoo
Madison
Leake
Route Location
0 5 10
Scale in Miles
LEGEND:
Preliminary Greenville Extension Route
Preliminary Kosciusko Route
TEXAS GAS TRANSMISSION CORP
MISSISSIPPI
FIGURE 3
ROUTE ALIGNMENT
URS

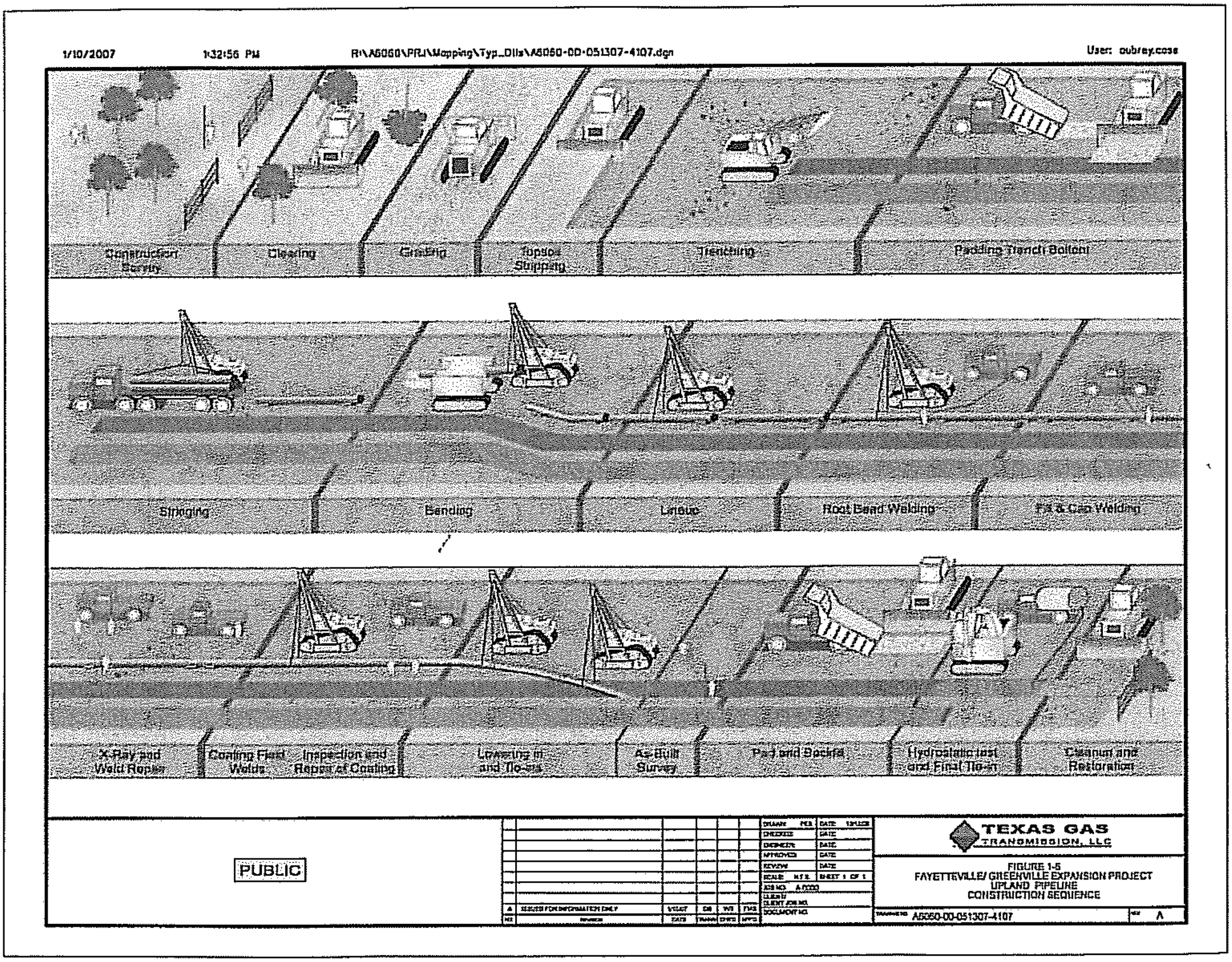
## APPENDICES

## Appendix A

## Site Plan and Details, and BMP Details

**Details:**

Upland Pipeline Construction Sequence
Typical Cross Section with 36″ Pipe Adjacent to Foreign Pipeline
36″ Typical Cross Section
Typical HDD Waterbody Crossing
Typical Foreign Pipeline Crossing Detail
Typical Waterbody Crossing
Typical Saturated Wetland Crossing
Permanent Right-of-Way Maintenance in Forested Wetland Areas
Typical Horizontal Directional Drill Layout
Typical Compressor Station Plot Plan
Typical Cross Section with 36″ Pipe Adjacent to Powerline
MDEQ Gravel Construction Entrance
MDEQ Diversion
MDEQ Proper Placement Of A Filter Barrier In A Drainage Way
MDEQ Construction Of A Silt Fence
MDEQ Straw Bale Drop Inlet Sediment Filter
MDEQ Burlap Drop Inlet Sediment Filter
MDEQ Proper Placement Of Straw Bale Barrier In Drainage Way/
MDEQ Cross-Section Of A Properly Installed Straw Bale
MDEQ Level Spreader Outlet For Diversion
MDEQ Typical Section Of A Waterway With Stone Center Drain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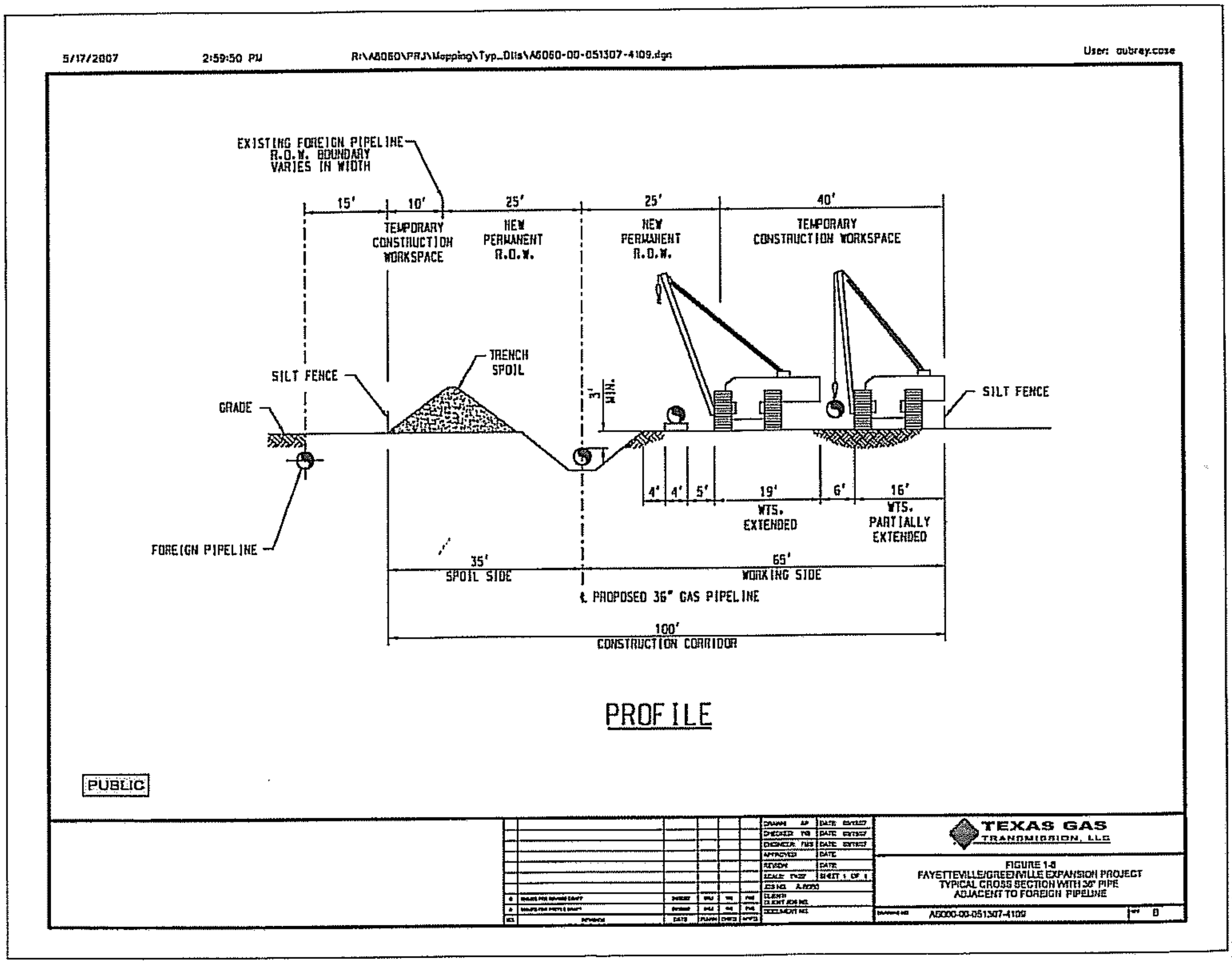
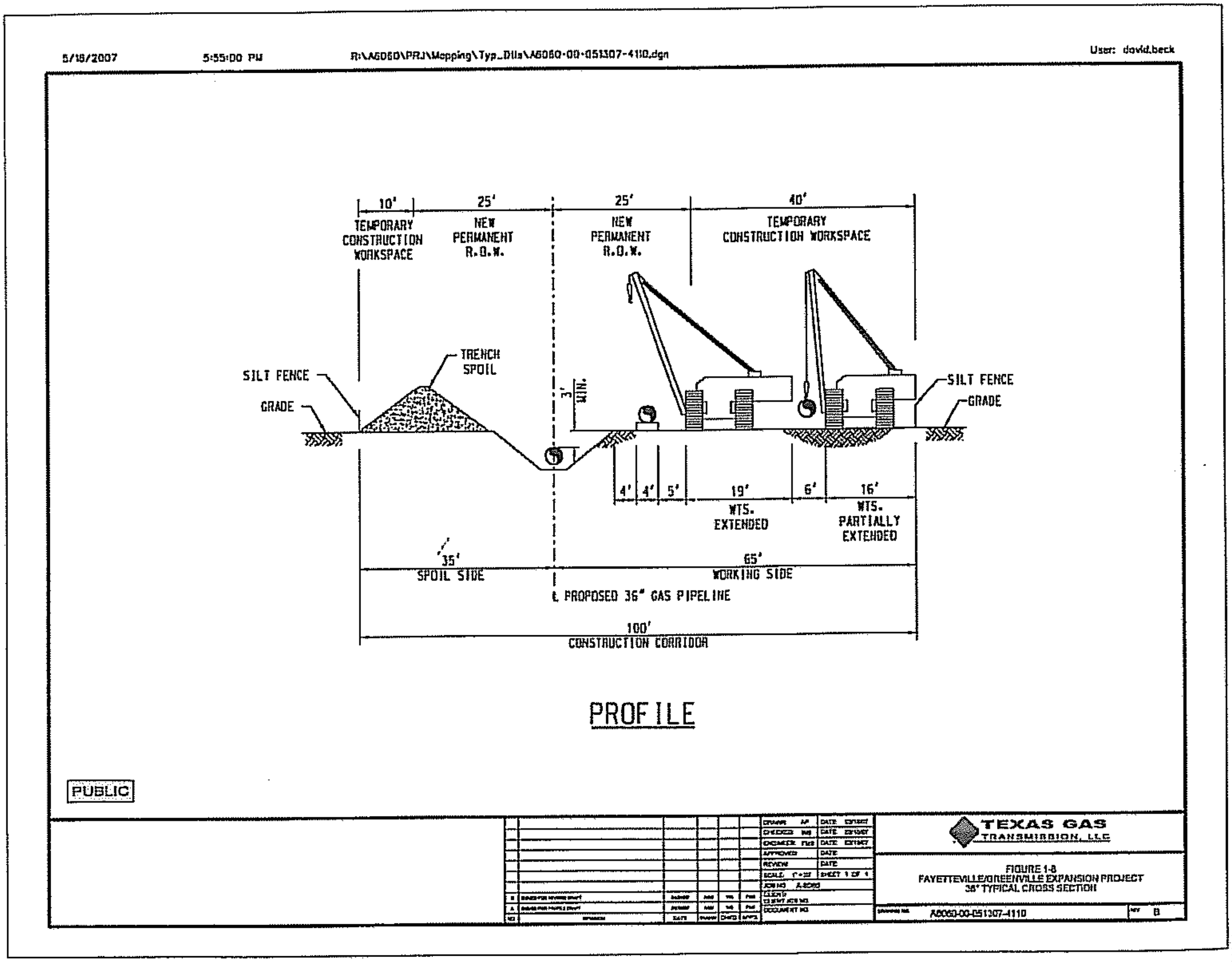
Construction Survey
Clearing
Grading
Topsoil Stripping
Trenching
Padding Trench Bottom
Stringing
Bending
Lineup
Root Bead Welding
Fill & Cap Welding
X-Ray and Weld Repair
Coating Field Welds
Inspection and Repair of Coating
Lowering in and Tie-ins
As-Built Survey
Pad and Backfill
Hydrostatic test and Final Tie-in
Cleanup and Restoration
PUBLIC
TEXAS GAS TRANSMISSION, LLC
FIGURE 1-5
FAYETTEVILLE/ GREENVILLE EXPANSION PROJECT
UPLAND PIPELINE
CONSTRUCTION SEQUENCE
A6060-00-051307-4107
A



5/17/2007
2:59:50 PM
User: aubrey.cose
EXISTING FOREIGN PIPELINE R.O.W. BOUNDARY VARIES IN WIDTH
15'
10'
25'
25'
40'
TEMPORARY CONSTRUCTION WORKSPACE
NEW PERMANENT R.O.W.
NEW PERMANENT R.O.W.
TEMPORARY CONSTRUCTION WORKSPACE
TRENCH SPOIL
SILT FENCE
GRADE
3' MIN.
SILT FENCE
FOREIGN PIPELINE
4'
4'
5'
19'
WTS. EXTENDED
6'
16'
WTS. PARTIALLY EXTENDED
35'
SPOIL SIDE
65'
WORKING SIDE
℄ PROPOSED 36" GAS PIPELINE
100'
CONSTRUCTION CORRIDOR
PROFILE
PUBLIC
TEXAS GAS TRANSMISSION, LLC
FIGURE 1-6
FAYETTEVILLE/GREENVILLE EXPANSION PROJECT
TYPICAL CROSS SECTION WITH 36" PIPE
ADJACENT TO FOREIGN PIPELINE
A5000-00-051307-4109



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5:55:00 PM
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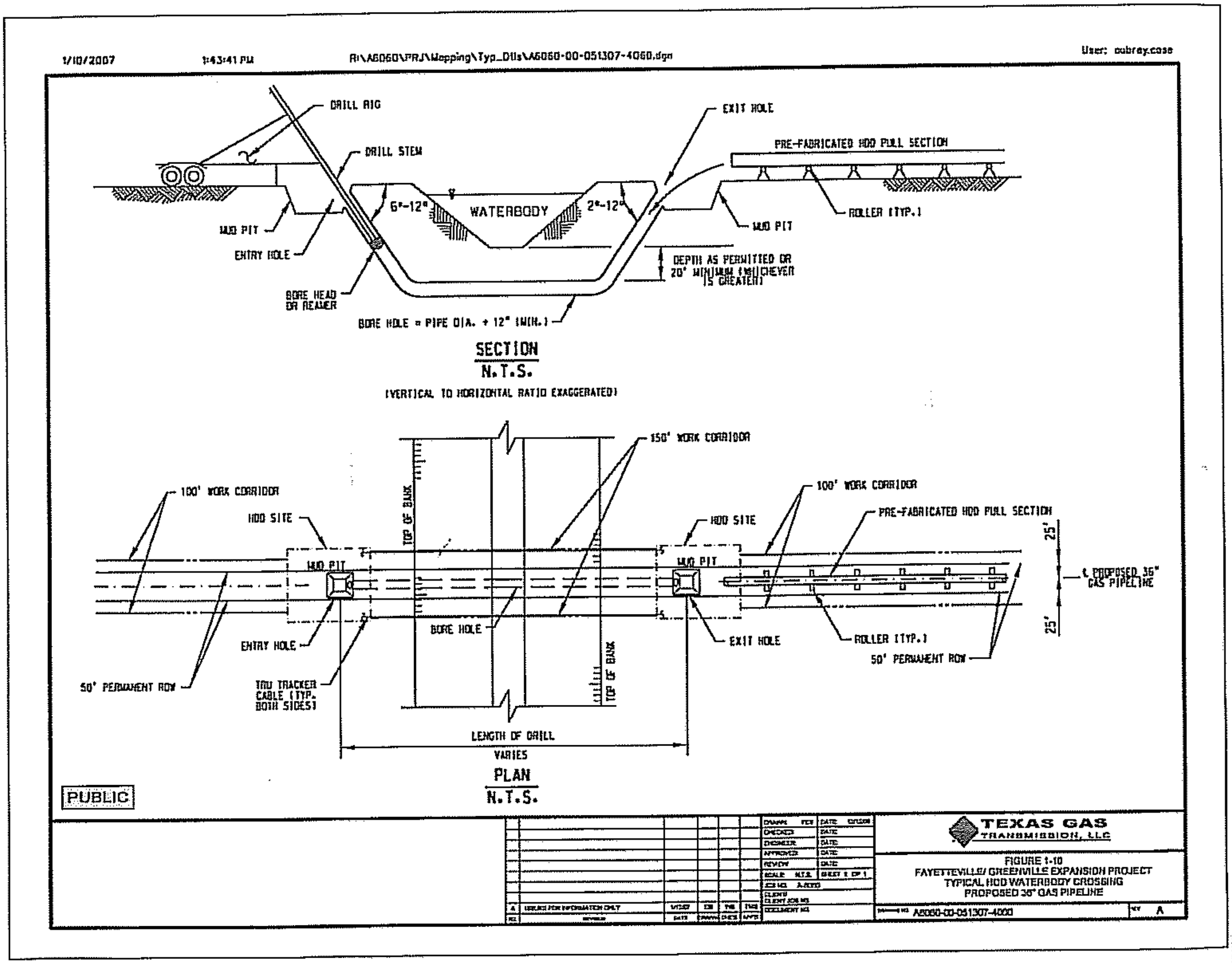
User: david.beck
10'
25'
25'
40'
TEMPORARY CONSTRUCTION WORKSPACE
NEW PERMANENT R.O.W.
NEW PERMANENT R.O.W.
TEMPORARY CONSTRUCTION WORKSPACE
TRENCH SPOIL
SILT FENCE
GRADE
3' MIN.
SILT FENCE
GRADE
4'
4'
5'
19'
6'
16'
WTS. EXTENDED
WTS. PARTIALLY EXTENDED
35'
SPOIL SIDE
65'
WORKING SIDE
℄ PROPOSED 36" GAS PIPELINE
100'
CONSTRUCTION CORRIDOR
PROFILE
PUBLIC
TEXAS GAS TRANSMISSION, LLC
FIGURE 1-8
FAYETTEVILLE/GREENVILLE EXPANSION PROJECT
36" TYPICAL CROSS SECTION
A6060-00-051307-4110
B



1/10/2007
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DRILL RIG
DRILL STEM
EXIT HOLE
PRE-FABRICATED HDD PULL SECTION
6"-12"
WATERBODY
2"-12"
MUD PIT
ENTRY HOLE
MUD PIT
ROLLER (TYP.)
DEPTH AS PERMITTED OR 20' MINIMUM (WHICHEVER IS GREATER)
BORE HEAD OR REAMER
BORE HOLE = PIPE DIA. + 12" (MIN.)
SECTION
N.T.S.
(VERTICAL TO HORIZONTAL RATIO EXAGGERATED)
150' WORK CORRIDOR
100' WORK CORRIDOR
HDD SITE
TOP OF BANK
100' WORK CORRIDOR
HDD SITE
PRE-FABRICATED HDD PULL SECTION
MUD PIT
MUD PIT
25'
PROPOSED 36" GAS PIPELINE
25'
BORE HOLE
ENTRY HOLE
EXIT HOLE
ROLLER (TYP.)
50' PERMANENT ROW
50' PERMANENT ROW
TRU TRACKER CABLE (TYP. BOTH SIDES)
TOP OF BANK
LENGTH OF DRILL
VARIES
PLAN
N.T.S.
PUBLIC
TEXAS GAS
TRANSMISSION, LLC
FIGURE 1-10
FAYETTEVILLE/ GREENVILLE EXPANSION PROJECT
TYPICAL HDD WATERBODY CROSSING
PROPOSED 36" GAS PIPELINE
A6060-00-051307-4000
A

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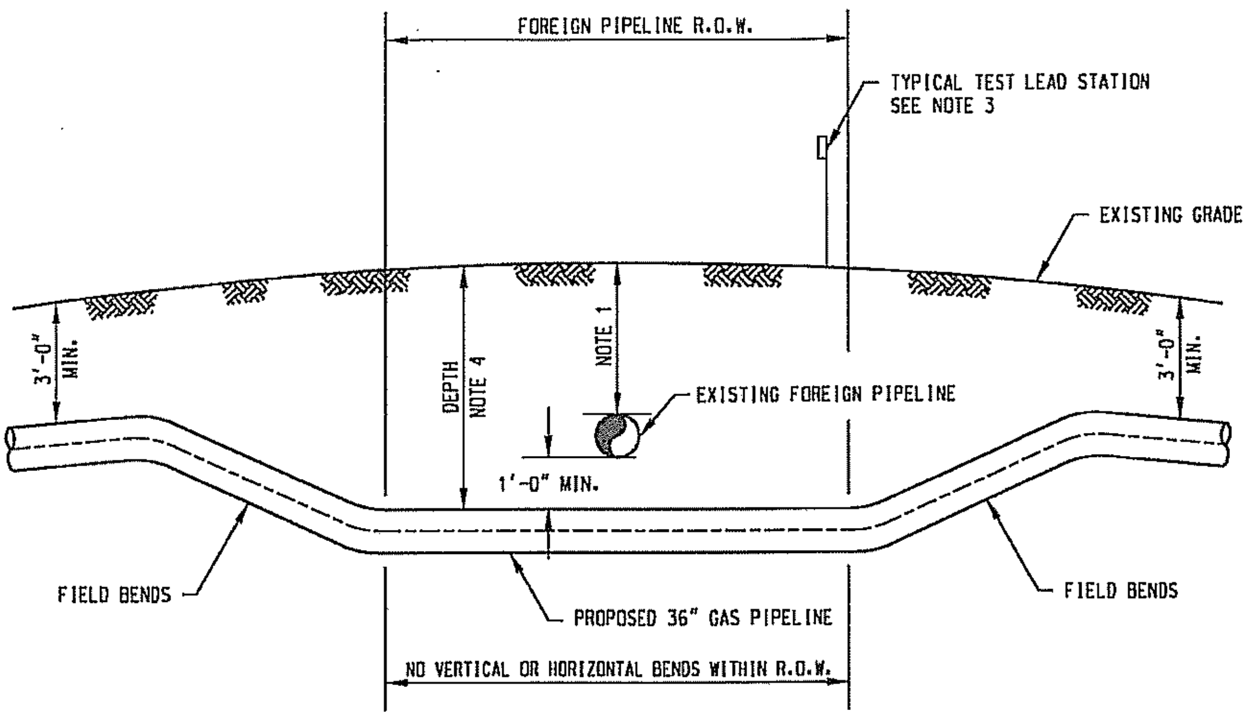


# TYPICAL FOREIGN PIPELINE CROSSING DETAIL

## NOTES:

1. FOREIGN PIPELINE LOCATIONS & DEPTHS TO BE DETERMINED BY ELECTRONIC MEANS IN ADVANCE OF PIPELINE CONSTRUCTION AND CONFIRMED BY CAREFULLY EXPOSING BY HAND DIGGING.
2. OWNER OF FOREIGN PIPELINE(S) SHALL BE NOTIFIED 48 HOURS IN ADVANCE OF EXCAVATION OF CROSSING.
3. TEST LEAD STATION TO BE INSTALLED WHERE PRACTICAL AT THE NEAREST FENCE, HEDGE ROW OR FIELD EDGE, AND WHERE READILY ACCESSIBLE.
4. DEPTH OF PIPELINE INCLUDING 1'-0" MIN. CLEARANCE SHALL BE MAINTAINED FOR ALL FULL ANGULAR WIDTH OF FOREIGN PIPELINE R.O.W.
5. PROPOSED PIPELINE MAY ONLY CROSS ABOVE THE FOREIGN PIPELINE(S) WHERE REQUESTED BY OR APPROVED BY FOREIGN OWNER IN WRITING.

PUBLIC

| NO. | REVISION | DATE | DRAWN | CHECK | APPR. |
|---|---|---|---|---|---|
| A | ISSUED FOR INFORMATION ONLY | 1/12/07 | DS | WS | FMS |

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| DRAWN: FES | DATE: 12/12/2006 |
| CHECKED: | DATE: |
| ENGINEER: | DATE: |
| APPROVED: | DATE: |
| REVIEW | DATE: |
| SCALE: N.T.S. | SHEET 1 OF 1 |
| JOB NO.: A-6060 | |
| CLIENT/ CLIENT JOB NO. | |
| DOCUMENT NO. | |

TEXAS GAS TRANSMISSION, LLC

FIGURE 1-11
FAYETTEVILLE/ GREENVILLE EXPANSION PROJECT
TYPICAL FOREIGN PIPELINE
CROSSING DETAIL

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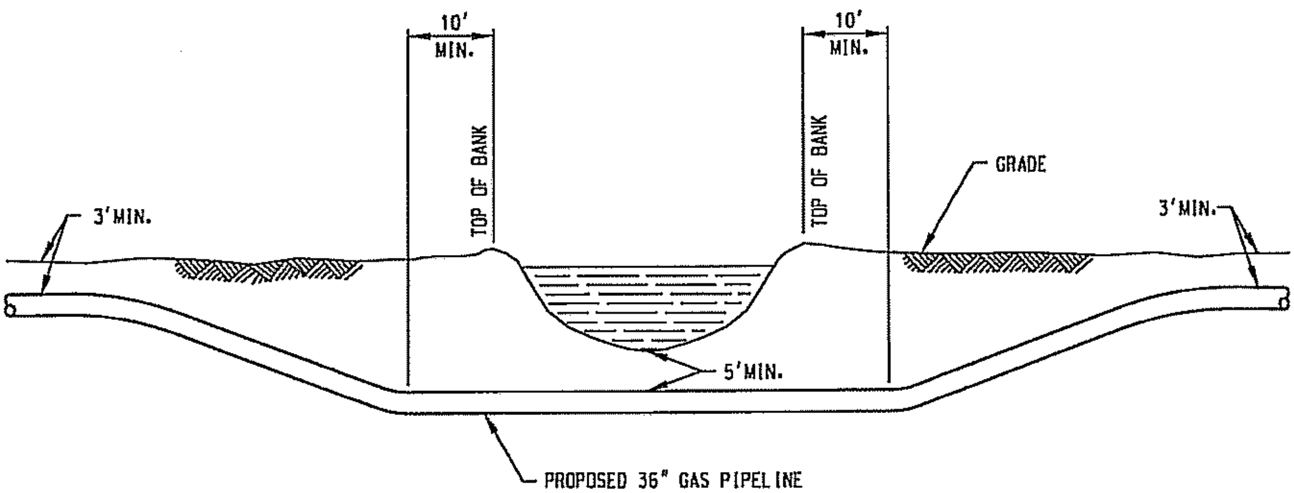


# TYPICAL WATERBODY CROSSING

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ENGINEER: DATE:
APPROVED: DATE:
REVIEW: DATE:
SCALE: N.T.S. SHEET 1 OF 1
JOB NO.: A-6060
CLIENT/
CLIENT JOB NO.
DOCUMENT NO

TEXAS GAS TRANSMISSION, LLC

FIGURE 1-12
FAYETTEVILLE/ GREENVILLE EXPANSION PROJECT
TYPICAL WATERBODY
CROSSING

DRAWING NO. A6060-00-051307-4116 REV A

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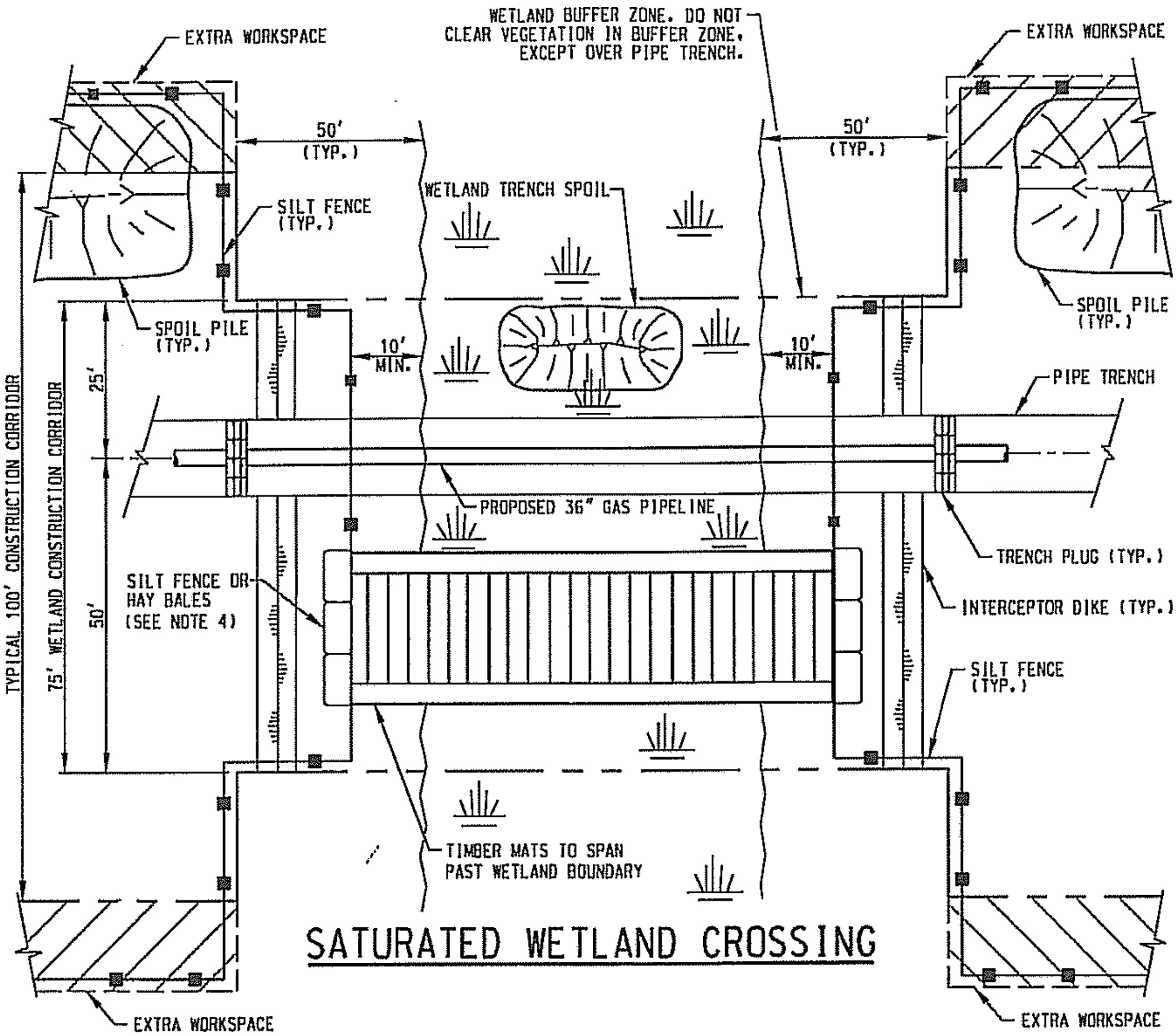


## SATURATED WETLAND CROSSING

NOTES:

1. INSTALL PERMANENT INTERCEPTOR DIKES AT THE BASE OF ALL SLOPES ADJACENT TO THE WETLAND.
2. CONTRACTOR SHALL POSTPONE GRADING OF RIGHT-OF-WAY ADJACENT TO WETLAND UNTIL STAGING AREA IS PREPARED AND WORK IN THE WETLAND IS READY TO COMMENCE.
3. SILT FENCE OR HAY BALES SHALL BE PLACED IN THE GAP AT THE TIMBER MATS BY THE END OF EACH DAY OR PRIOR TO APPROACHING RAIN TO PREVENT SEDIMENT FLOW INTO WETLAND.
4. USE ADDITIONAL TIMBER MAT LAYERS TO RAISE CROSSING ABOVE GRADE WHERE POOR SOIL CONDITIONS EXIST.
5. SILT FENCE AND INTERCEPTOR DIKE TO BE REMOVED ACROSS PIPE TRENCH AND DURING CONSTRUCTION OF PIPELINE. SILT FENCE AND INTERCEPTOR DIKE TO BE REPLACED AFTER BACKFILL OF TRENCH.

PUBLIC

| NO. | REVISION | DATE | DRAWN | CHK'D | APP'D |
|---|---|---|---|---|---|
| B | ISSUED FOR REVISED DRAFT | 04/20/07 | DB | WS | FMS |
| A | ISSUED FOR PREFILE DRAFT | 03/20/07 | DB | WS | FMS |

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| DRAWN: AP | DATE: 03/15/07 |
| CHECKED: WS | DATE: 03/15/07 |
| ENGINEER: FMS | DATE: 03/15/07 |
| APPROVED: | DATE: |
| REVIEW | DATE: |
| SCALE: N.T.S. | SHEET 1 OF 2 |
| JOB NO.: A-6060 | |
| CLIENT | |
| CLIENT JOB NO. | |
| DOCUMENT NO. | |

TEXAS GAS TRANSMISSION, LLC

FIGURE 1-25
FAYETTEVILLE/ GREENVILLE EXPANSION PROJECT
TYPICAL SATURATED WETLAND CROSSING

DRAWING NO. A6060-00-051307-4158 REV. B

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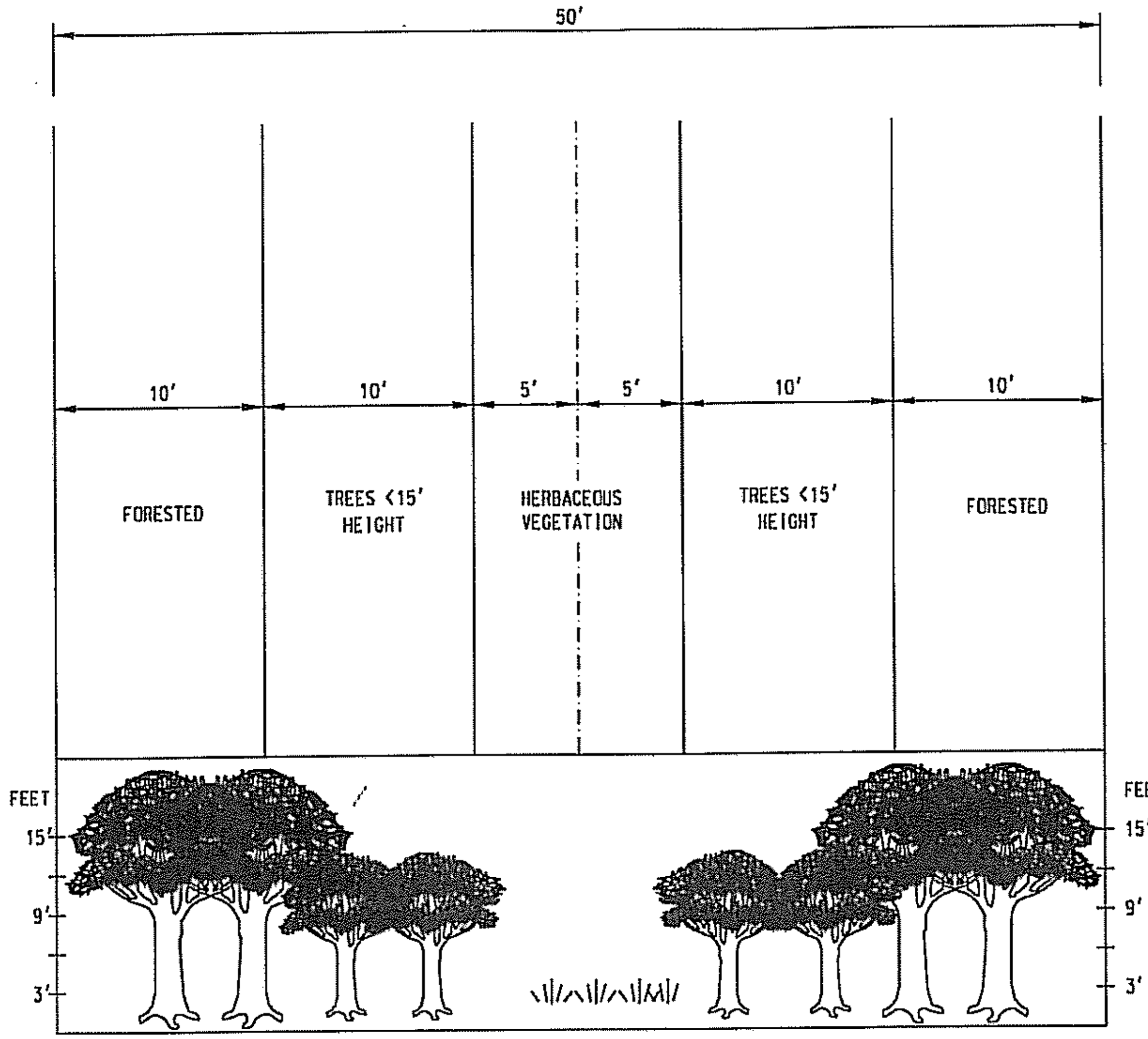


ELEVATION PROFILE

# PERMANENT RIGHT-OF-WAY MAINTENANCE IN FORESTED WETLAND AREAS

PUBLIC

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| | | | | | | DRAWN: PES | DATE: |
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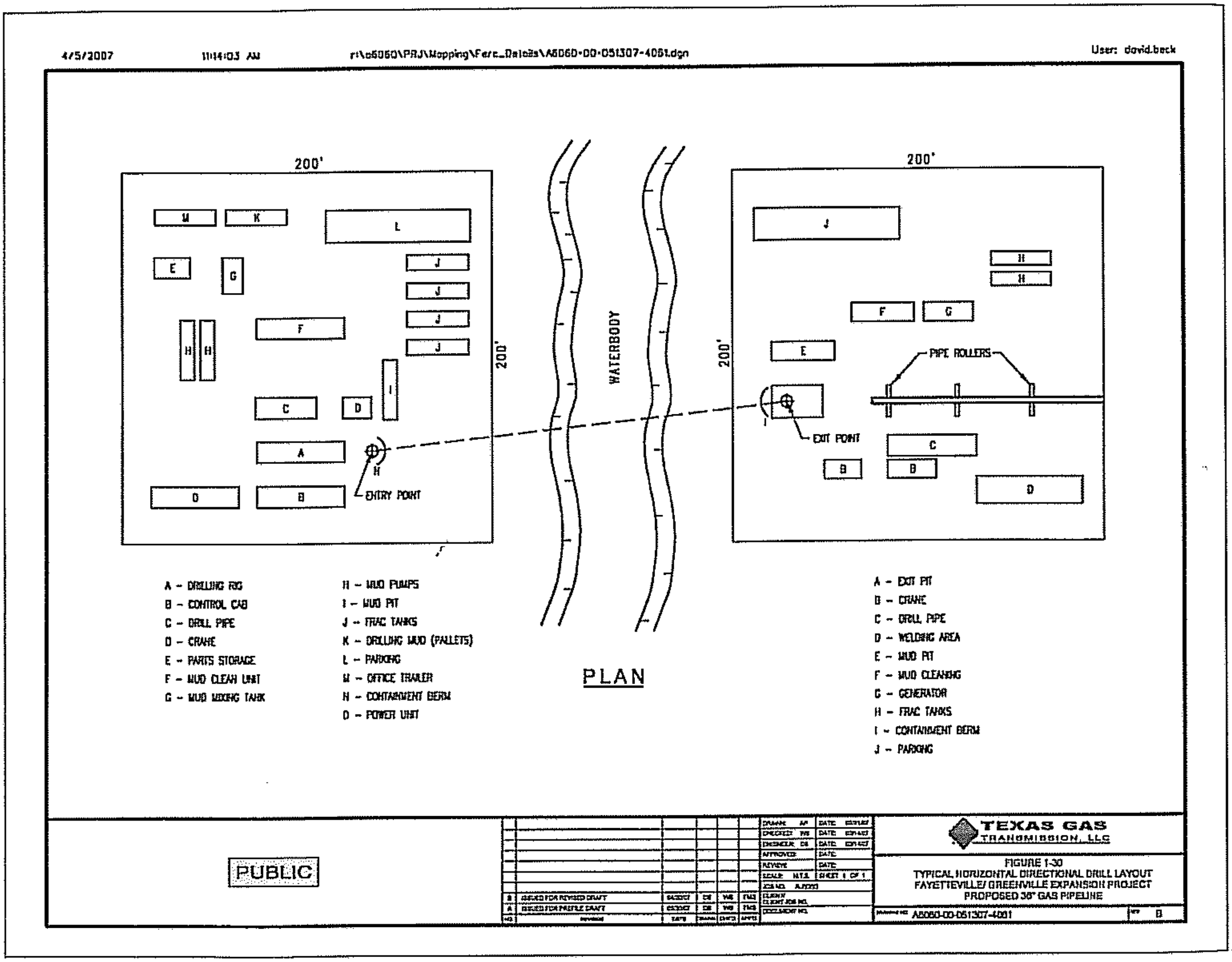
| | | | | | | JOB NO. A-6000 | |
| | | | | | | CLIENT/ CLIENT JOB NO. | |
| A | ISSUED FOR INFORMATION ONLY | [illegible] | DS | WS | FMS | DOCUMENT NO. | |
| NO. | REVISION | DATE | DRAWN | CHKD. | APPD. | | |

TEXAS GAS TRANSMISSION, LLC

FIGURE 1-29
FAYETTEVILLE/ GREENVILLE EXPANSION PROJECT
PERMANENT RIGHT-OF-WAY MAINTENANCE
IN FORESTED WETLAND AREAS

DRAWING NO. A6060-00-051307-4160 REV. A



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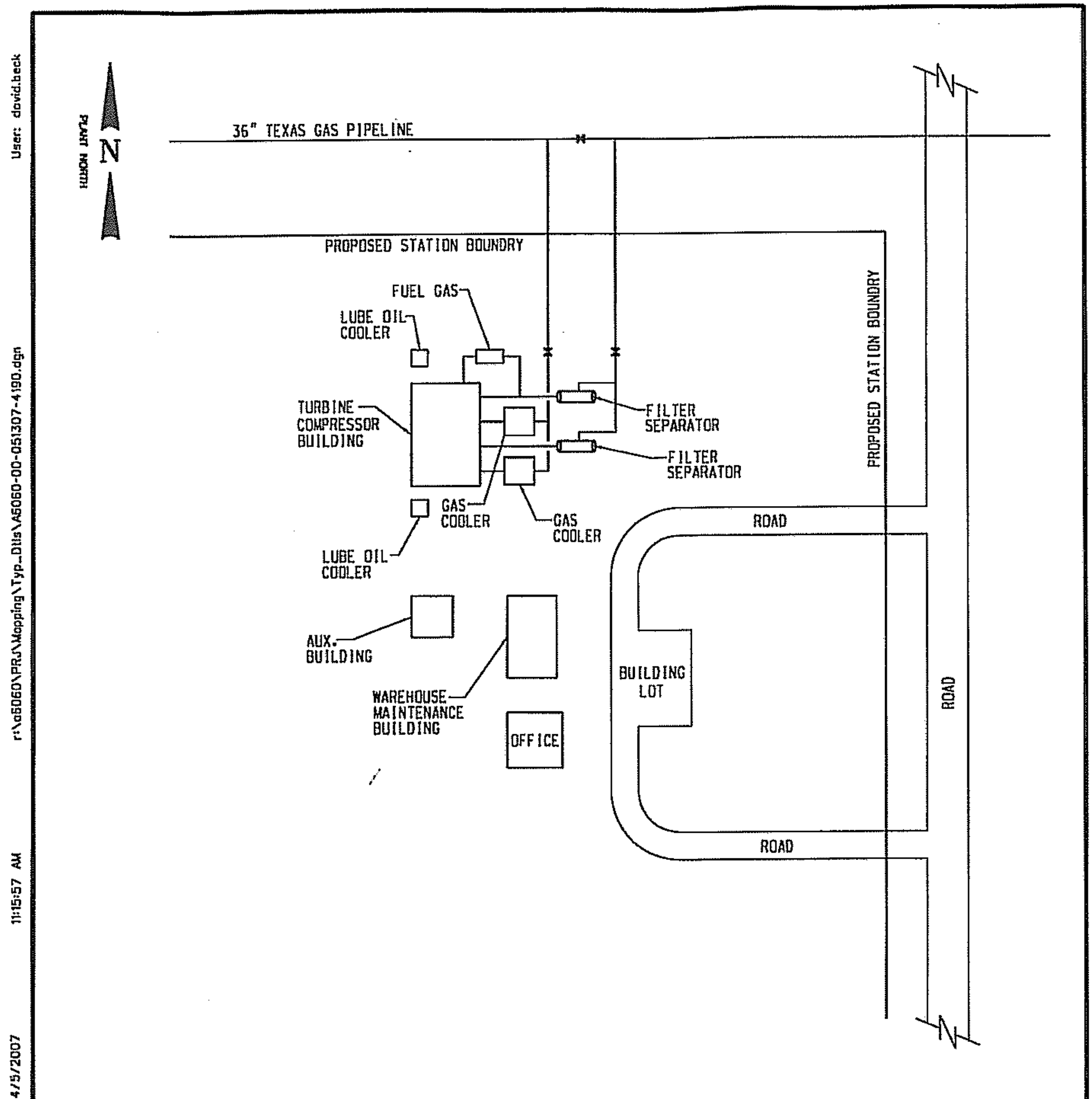
User: david.beck
200'
M
K
L
E
G
J
F
H
200'
C
D
I
A
B
ENTRY POINT
WATERBODY
200'
EXIT POINT
PIPE ROLLERS
A - DRILLING RIG
B - CONTROL CAB
C - DRILL PIPE
D - CRANE
E - PARTS STORAGE
F - MUD CLEAN UNIT
G - MUD MIXING TANK
H - MUD PUMPS
I - MUD PIT
J - FRAC TANKS
K - DRILLING MUD (PALLETS)
L - PARKING
M - OFFICE TRAILER
N - CONTAINMENT BERM
O - POWER UNIT
PLAN
A - EXIT PIT
B - CRANE
C - DRILL PIPE
D - WELDING AREA
E - MUD PIT
F - MUD CLEANING
G - GENERATOR
H - FRAC TANKS
I - CONTAINMENT BERM
J - PARKING
PUBLIC
TEXAS GAS TRANSMISSION, LLC
FIGURE 1-30
TYPICAL HORIZONTAL DIRECTIONAL DRILL LAYOUT
FAYETTEVILLE/ GREENVILLE EXPANSION PROJECT
PROPOSED 36" GAS PIPELINE
SCALE N.T.S.
SHEET 1 OF 1
A5060-00-051307-4001




TYPICAL COMPRESSOR STATION PLOT PLAN

PUBLIC

| NO. | REVISION | DATE | DRAWN | CHKD. | APPD. |
|---|---|---|---|---|---|
| B | ISSUED FOR REVISED DRAFT | 04/20/07 | DB | WS | FMS |
| A | ISSUED FOR PREFILE DRAFT | 03/20/07 | DB | WS | FMS |

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| DRAWN: AP | DATE: 03/22/07 |
| CHECKED: WS | DATE: 03/22/07 |
| ENGINEER: FMS | DATE: 03/22/07 |
| APPROVED: | DATE: |
| REVIEW: | DATE: |
| SCALE: N.T.S. | SHEET 1 OF 1 |
| JOB NO.: A-6060 | |
| CLIENT/ CLIENT JOB NO. | |
| DOCUMENT NO. | |

TEXAS GAS TRANSMISSION, LLC

FIGURE 1-31
FAYETTEVILLE/ GREENVILLE EXPANSION PROJECT
TYPICAL COMPRESSOR STATION PLOT PLAN
PROPOSED 36" GAS PIPELINE

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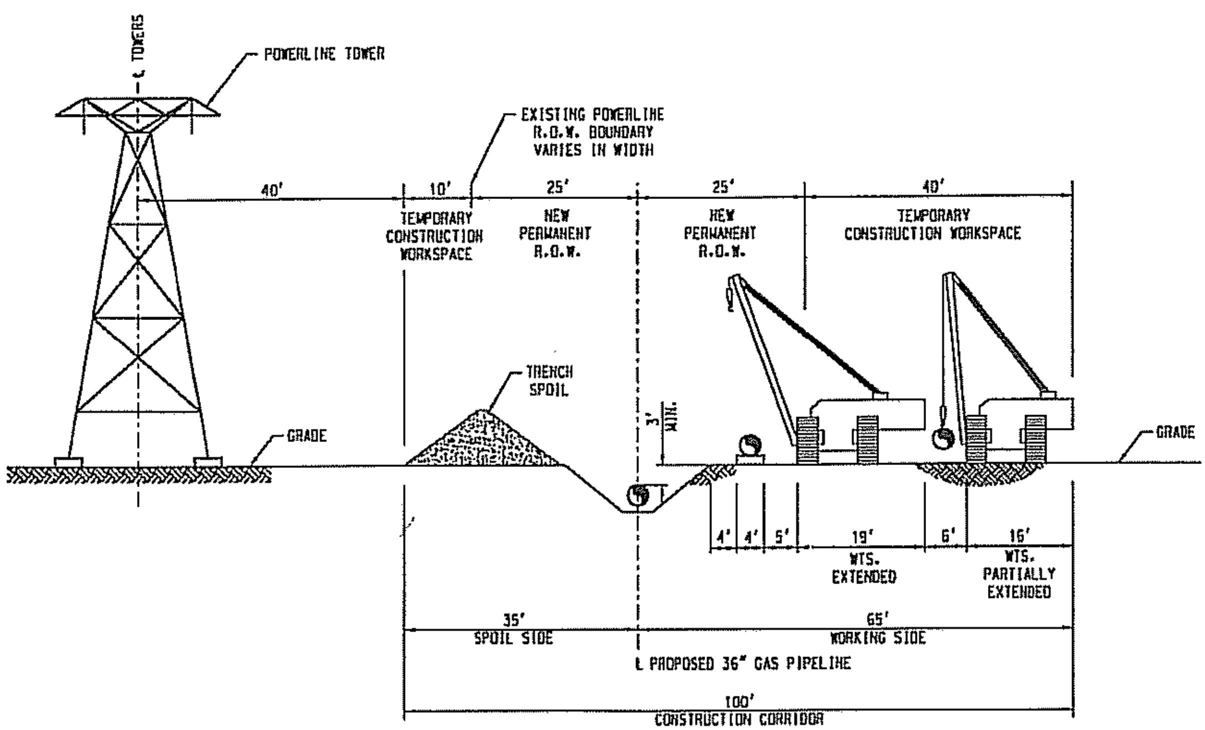



PROFILE

PUBLIC

TEXAS GAS TRANSMISSION, LLC

FIGURE 1-35
FAYETTEVILLE/GREENVILLE EXPANSION PROJECT
TYPICAL CROSS SECTION WITH 36" PIPE
ADJACENT TO POWERLINE

A6060-00-051307-4121

## Plans and Specifications

Plans for constructing and installing the construction entrance shall be in keeping with this standard and shall describe the requirements for applying the practice to achieve the intended purpose.

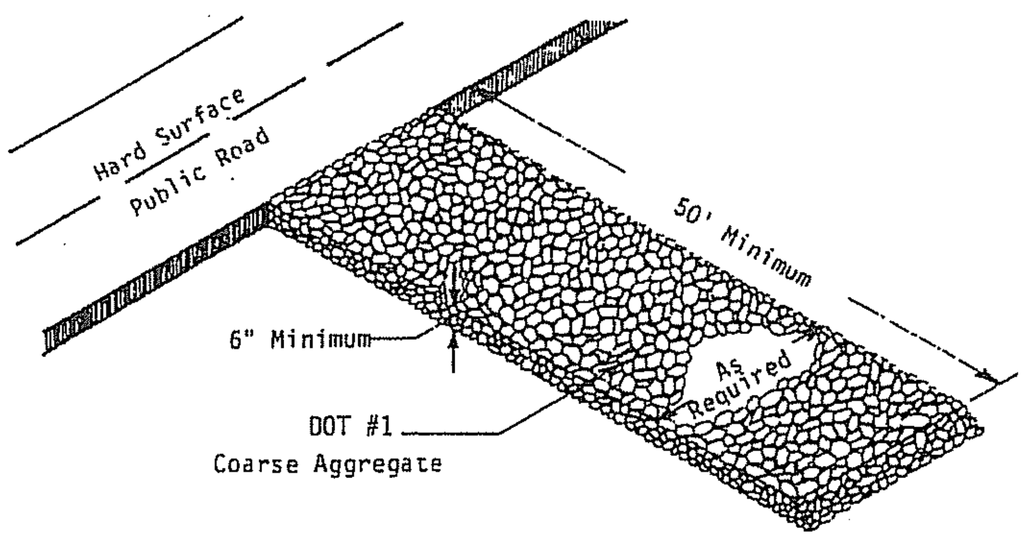
Specifications for installing the construction entrance shall use or be in conformance with the following. Any variation from these specifications shall be approved by an engineer.

1. Placement

   The area of the entrance should be cleared of all vegetation, roots, and other objectionable material. The gravel shall be placed to the specified dimensions. Any drainage facilities required because of washing should be constructed according to specifications. If wash racks are used, they should be installed according to manufacturer's specifications.

2. Maintenance

   The entrance shall be maintained in a condition which will prevent tracking or flow of mud onto public rights-of-way. This may require periodic top dressing with 2-inch stone, as conditions demand, and repair and/or cleanout of any structures used to trap sediment. All materials spilled, dropped, washed, or tracked from vehicles onto roadways or into storm drains must be removed immediately.




GRAVEL CONSTRUCTION ENTRANCE

## DIVERSION
(Temporary Practice)

### Definition

A temporary ridge or excavated channel or combination ridge and channel constructed across sloping land on a predetermined grade.

### Purpose

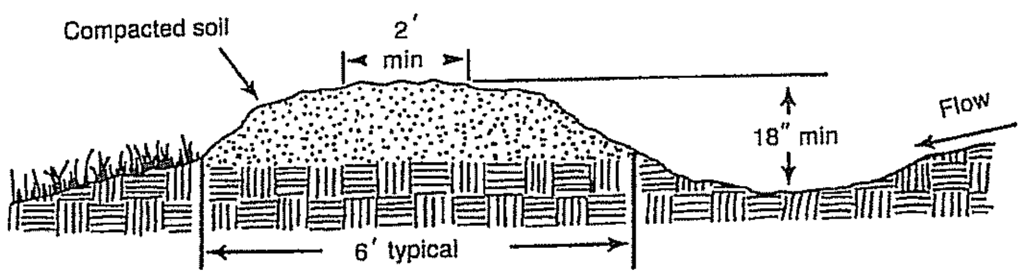
To protect work areas from upslope runoff and to divert sediment-laden water to appropriate traps or stable outlets.

### Conditions Where Practice Applies

Wherever stormwater runoff must be temporarily diverted to protect disturbed slopes or retain sediments on site during construction. These structures generally have a life expectancy of 18 months or less.

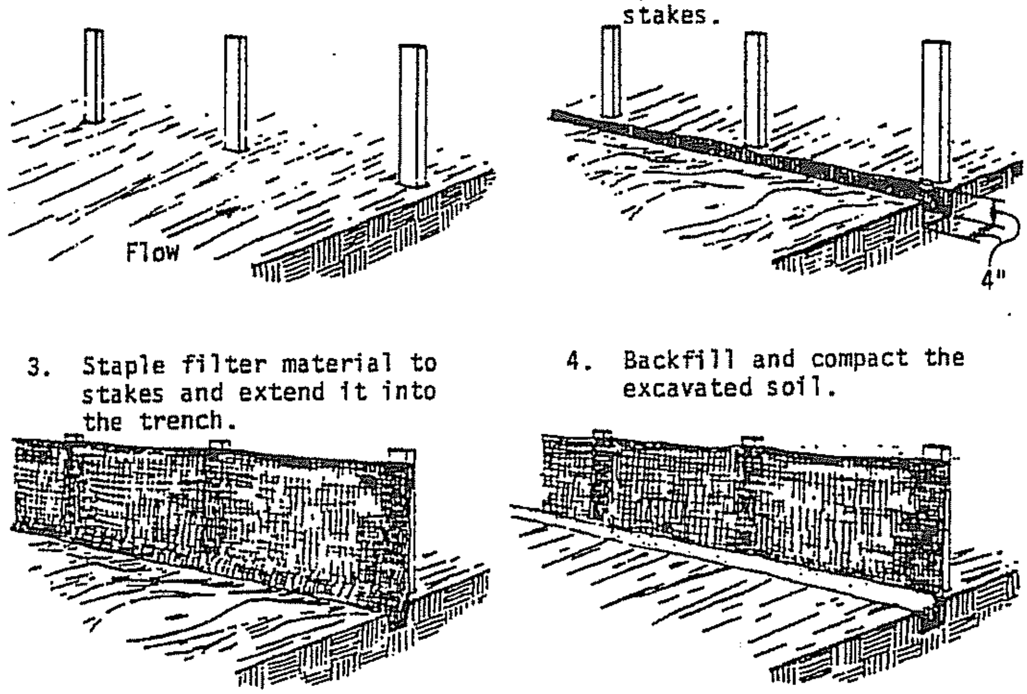
### Planning Considerations

A temporary diversion dike is intended to divert overland sheet flow to a stabilized outlet or a sediment trapping facility during establishment of permanent stabilization on sloping, disturbed areas. When used at the top of a slope, the structure protects exposed slopes by keeping upland runoff away. When used at the base of a slope, the structure protects adjacent and downstream areas by diverting sediment-laden runoff to a sediment trapping facility.

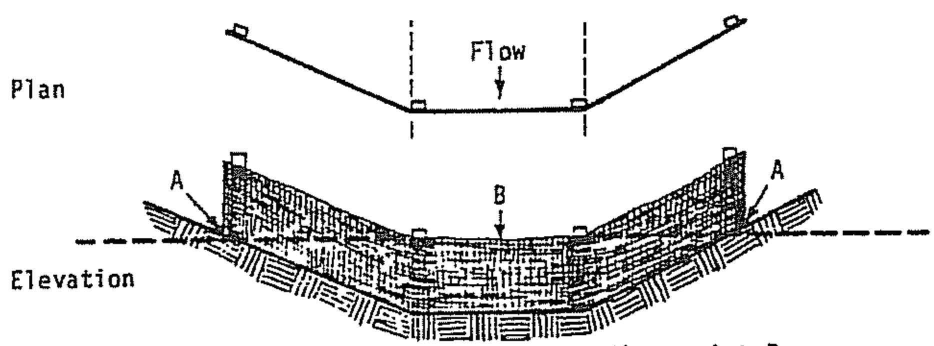



If the dike is going to remain in place for longer than 30 days, it is very important that it be established with temporary or permanent vegetation. The slope behind the dike is also an important consideration. The dike must have a positive grade to assure drainage, but if the slope is too great, precautions must be taken to prevent erosion due to high velocity flow behind the dike.

1. Set the stakes.
2. Excavate a 4"x4" trench upslope along the line of stakes.
3. Staple filter material to stakes and extend it into the trench.
4. Backfill and compact the excavated soil.



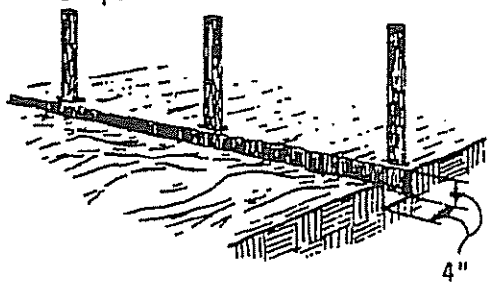

CONSTRUCTION OF A FILTER BARRIER



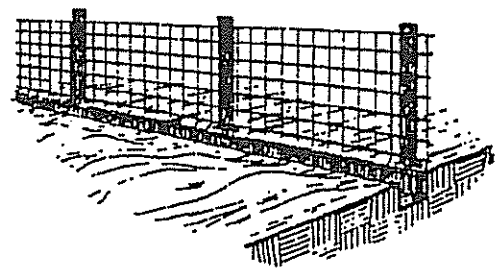

Points A should be higher than point B

PROPER PLACEMENT OF A FILTER BARRIER IN A DRAINAGE WAY

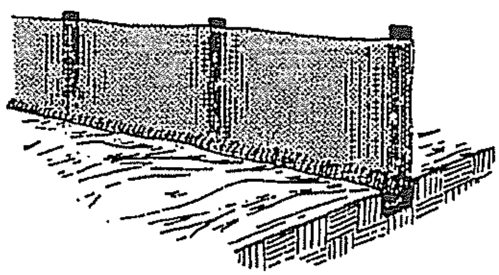
1. Set posts and excavate a 4"x4" trench upslope along the line of posts.



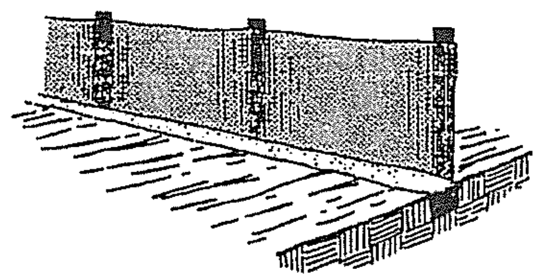

2. Staple wire fencing to the posts.



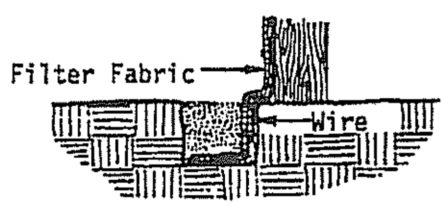
3. Attach the filter fabric to the wire fence and extend it into the trench.



4. Backfill and compact the excavated soil.



Extension of fabric and wire into the trench.




CONSTRUCTION OF A SILT FENCE

1. STRAW BALE DROP INLET STRUCTURE

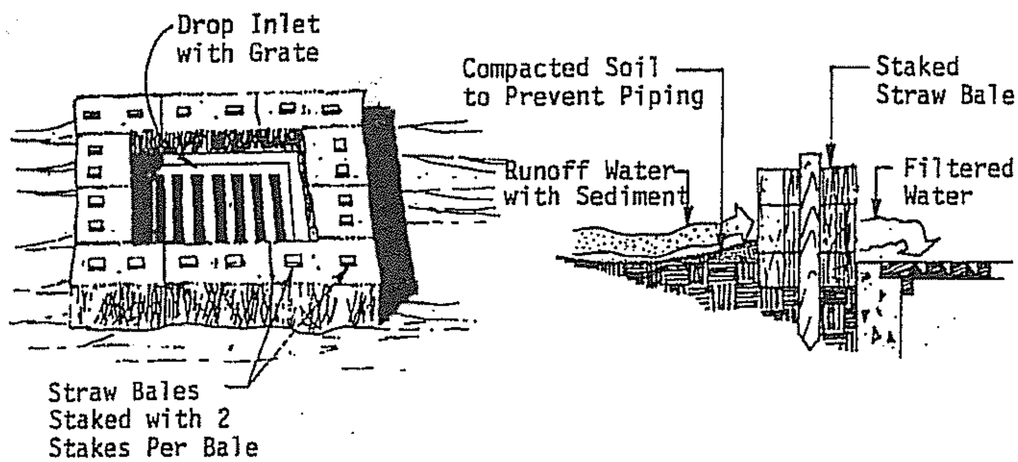
   a. Bales shall be either wire-bound or string-tied with the bindings oriented around the sides rather than over and under the bales.

   b. Bales shall be placed lengthwise in a single row surrounding the inlet with the ends of adjacent bales pressed together.

   c. The filter barrier shall be entrenched and backfilled. A trench shall be excavated around the inlet the width of a bale to a minimum depth of 4 inches. After the bales are staked, the excavated soil shall be backfilled and compacted against the filter barrier.

   d. Each bale shall be securely anchored and held in place by at least two stakes or rebars driven through the bale.

   e. Loose straw should be wedged between bales to prevent water from entering between bales.




Specific Application

This method of inlet protection is applicable where the inlet drains a relatively flat area (slopes no greater than 5 percent) where sheet or overland flows (not exceeding 0.5 cfs) are typical. The method shall not apply to inlets receiving concentrated flows, such as in street or highway medians.

STRAW BALE DROP INLET SEDIMENT FILTER

2. SILT FENCE DROP INLET SEDIMENT FILTER

   a. Fence shall be 10 ounce per square yard and shall be cut from a continuous roll to avoid joints.

   b. Stakes shall be 1" x 2" wood (preferred) or equivalent metal with a minimum length of 3 feet.

   c. Staples shall be of heavy duty wire at least 1/2-inch long.

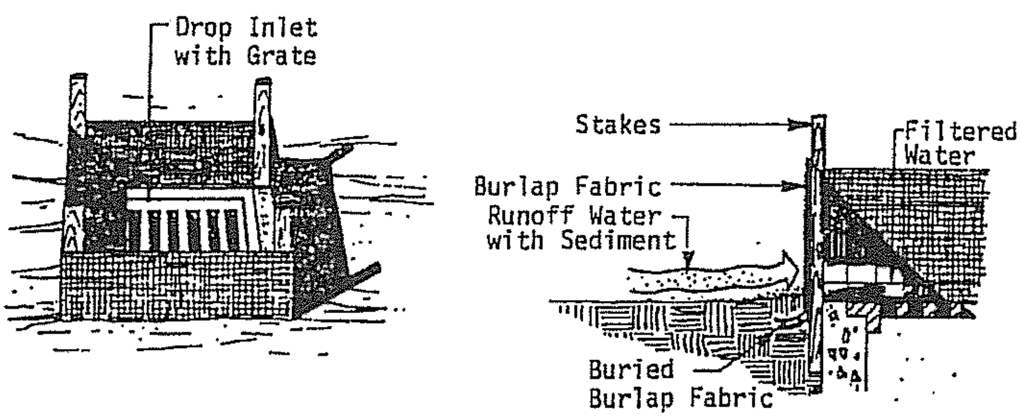
   d. Stakes shall be spaced around the perimeter of the inlet a maximum of 3 feet apart and securely driven into the ground (minimum of 8 inches).

   e. A trench shall be excavated approximately 4 inches wide and 4 inches deep around the outside perimeter of the stakes.

   f. The fabric shall be stapled to the wooden stakes, and 8 inches of the fabric shall be extended into the trench. The height of the filter barrier shall be a minimum of 15 inches and shall not exceed 18 inches.

   g. The trench shall be backfilled and the soil compacted over the fabric.

   h. Silt fence fabric may be used in lieu of burlap fabric if installed in accordance to the specifications listed in this manual for "Silt Fence."



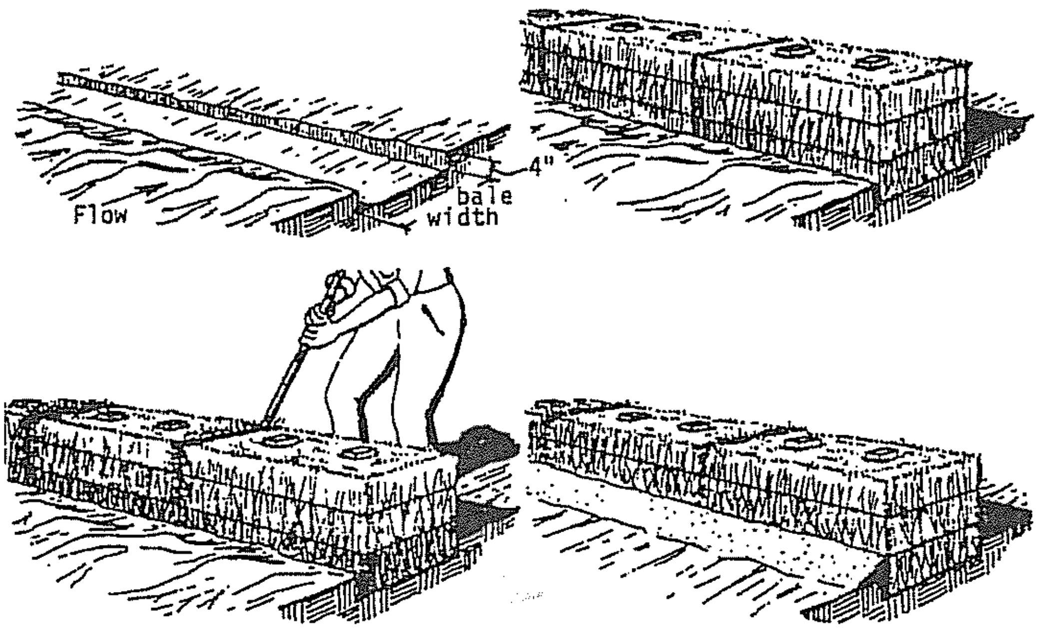

Specific Application

This method of inlet protection is applicable where the inlet drains a relatively flat area (slopes no greater than 5 percent) where sheet or overland flows (not exceeding 0.5 cfs) are typical. The method shall not apply to inlets receiving concentrated flows, such as in street or highway medians.

BURLAP DROP INLET SEDIMENT FILTER

1. Excavate the trench.

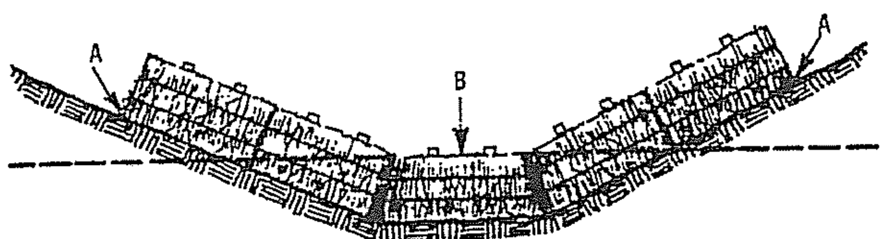
2. Place and stake straw bales.




3. Wedge loose straw between bales.

4. Backfill and compact the excavated soil.

CONSTRUCTION OF A STRAW BALE BARRIER




Points A should be higher than point B

PROPER PLACEMENT OF STRAW BALE BARRIER IN DRAINAGE WAY are higher in elevation than the top of the lowest middle bale to assure that sediment-laden runoff will flow either through or over the barrier but not around it.

3. Maintenance

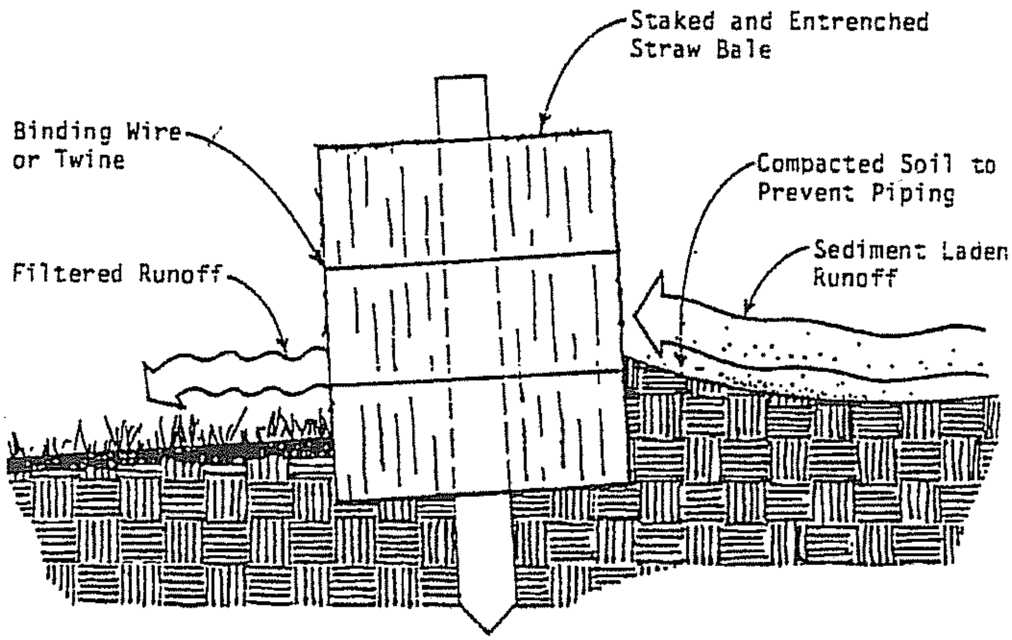
Straw bale barriers shall be inspected immediately after each rainfall and at least daily during prolonged rainfall.

Close attention shall be paid to the repair of damaged bales, end runs and undercutting beneath bales.

Necessary repairs to barriers or replacement of bales shall be accomplished promptly.

Sediment deposits should be removed after each rainfall. They must be removed when the level of deposition reaches approximately one-half the height of the barrier.

Any sediment deposits remaining in place after the straw bale barrier is no longer required shall be dressed to conform to the existing grade, prepared and seeded.




CROSS-SECTION OF A PROPERLY INSTALLED STRAW BALE

## LEVEL SPREADER
(Permanent Practice)

### Definition

An outlet for dikes, diversions, or other concentrated runoff which is slightly depressional allowing water to collect and then disperse uniformly over the surrounding vegetated area.

### Purpose

To convert concentrated runoff to sheet flow and release it onto area stabilized by existing vegetation.

### Conditions Where Practice Applies

Where sediment-free storm runoff is intercepted and diverted away from graded areas onto undisturbed stabilized areas. This practice applies only in those situations where the spreader can be constructed on undisturbed soil and the area below the level lip is stabilized by natural or pre-established vegetation. The water should not be allowed to reconcentrate after release (Figure 4-113).

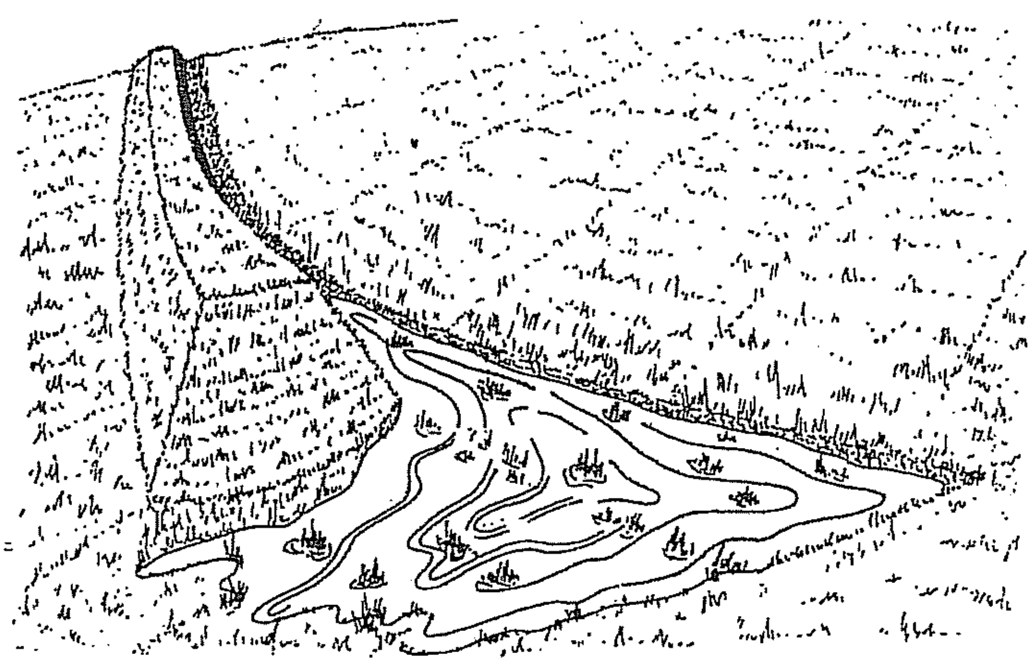


Figure 4-113 Level spreader outlet for diversion.

Table 4-104 Manning's "n" for rock riprap.

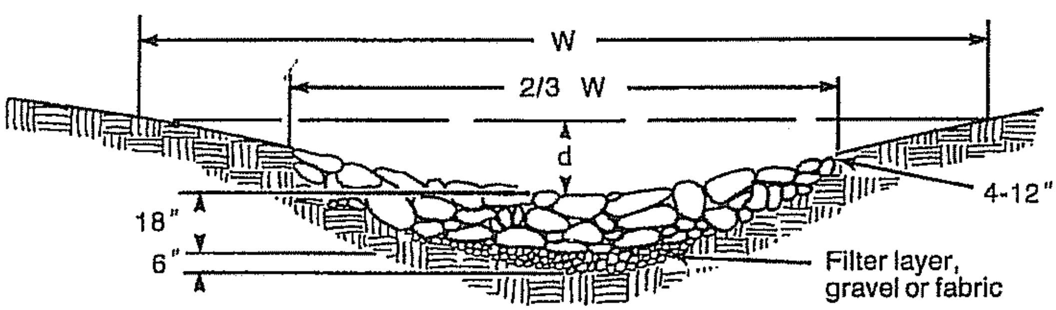
| Stone Size | Channel Flow Depth | | | |
|---|---|---|---|---|
| $d_{50}$ (inches) | 0-0.5 ft | 0.5-1.0 ft | 1.0-2.0 ft | >2.0 ft |
| 6 | 0.106 | 0.054 | 0.044 | 0.041 |
| 9 | 0.215 | 0.068 | 0.062 | 0.047 |
| 12 | 0.797 | 0.084 | 0.060 | 0.053 |
| 15 | -- | 0.104 | 0.068 | 0.059 |
| 18 | -- | 0.127 | 0.076 | 0.064 |
| 21 | -- | 0.158 | 0.085 | 0.070 |
| 24 | -- | 0.199 | 0.095 | 0.076 |

Erosion control blankets are considered as temporary cover and, therefore, may not be substituted for needed permanent linings.

Waterways or outlets with velocities exceeding critical shall discharge into an energy dissipator to reduce velocity to less than critical.

3. Cross section. The cross section may be triangular, parabolic, or trapezoidal (Figure 4-114). Cross section made of monolithic concrete and gabions may be rectangular.

Vegetated Parabolic-shaped Waterway with Stone Center Drain




Vegetated V-shaped Waterway with Stone Center Drain

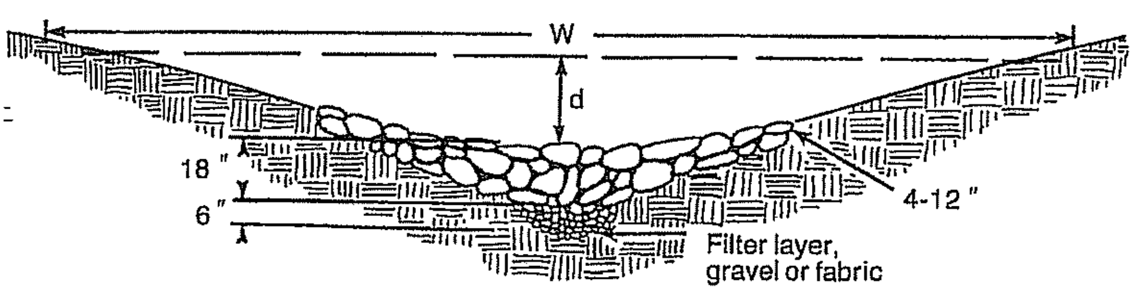



Figure 4-114 Typical section of waterway with stone center drain.

**Appendix B**

**Mississippi General Construction Storm Water Permit**

**State of Mississippi**
**Mississippi Department of Environmental Quality (MDEQ)**
**Office of Pollution Control (OPC)**

LARGE CONSTRUCTION STORM WATER GENERAL PERMIT
FOR LAND DISTURBING ACTIVITIES OF 5 OR MORE ACRES

TO DISCHARGE STORM WATER IN ACCORDANCE WITH THE
NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES)

**THIS CERTIFIES THAT**

Projects issued a Certificate of Permit Coverage under this general permit are granted permission to discharge storm water associated with construction activities into State waters

in accordance with effluent limitations, monitoring requirements and other conditions set forth herein. This permit is issued in accordance with the provisions of the Mississippi Water Pollution Control Law (Mississippi Code Ann. Sections 49-17-1 et seq.), and the regulations and standards adopted and promulgated thereunder, and under authority granted pursuant to Section 402(b) of the Federal Water Pollution Control Act.

**Mississippi Environmental Quality Permit Board**

**Authorized Signature**

**Mississippi Department of Environmental Quality**

Issued: June 10, 2005

Permit No. MSR10

Expires: May 31, 2010

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Table of Contents

Large Construction General Permit (Revised Format)
Subject Item Inventory

Activity ID No.: GNP20050001

**Subject Item Inventory:**

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| ACT2 | LCGP | Permit Applicability and Coverage |
| ACT3 | LCGP | Obtaining Coverage |
| ACT5 | LCGP | Large Construction Notice of Intent |
| ACT6 | LCGP | Storm Water Pollution Prevention Plan (SWPPP) General Information |
| ACT7 | LCGP | Implementation, Inspection, and Reporting Requirements |
| ACT8 | LCGP | Limitation Requirements |
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| ACT12 | LCGP | Definitions |
| AI19192 | | |

| KEY | |
|---|---|
| ACT = Activity | AI = Agency Interest |
| AREA = Area | |

Large Construction General Permit (Revised Format)
Facility Requirements

Activity ID No.: GNP20050001



**ACT1 (LCGP) Introduction:**

## Narrative Requirements:

| Condition No. | Condition |
|---|---|
| T-1 | Introduction:<br><br>The Large Construction General Permit (LCGP) authorizes storm water discharges from construction activities 5 acres or greater or less than 5 acres if part of a "larger common plan of development or sale" (see Definitions). Storm water discharges that enter state waters or storm water conveyance systems leading to state waters are subject to regulation and compliance with the conditions set forth in this permit. This permit also authorizes storm water discharges from any other construction activity designated by the Executive Director based on the potential for contribution to an excursion of a water quality standard or for significant contribution of pollutants to state waters. This permit replaces the previous Construction General Permit that expired on March 27, 2005. [WPC-1] |

**ACT2 (LCGP) Permit Applicability and Coverage:**

## Narrative Requirements:

| Condition No. | Condition |
|---|---|
| T-1 | Permit Area:<br><br>The Large Construction General Permit covers all areas of the State of Mississippi. [WPC-1] |
| T-2 | Eligibility:<br><br>(1) Discharges composed entirely of storm water and allowable non-storm water discharges identified in T-3, page 3 from construction activity, including clearing, grading, excavating and other land disturbing activities of 5 or more acres or less than 5 acres if part of a "larger common plan of development or sale" (see Definitions). The discharges must not cause nor contribute to violations of State Water Quality Standards.<br><br>(2) A facility is eligible for coverage under this general permit for discharges of pollutants of concern to water bodies for which there is a total maximum daily load (TMDL) established or approved by EPA if measures and controls are incorporated that are consistent with the assumptions and requirements of such TMDL. To be eligible for coverage under this general permit, the facility must incorporate any conditions applicable to any discharge(s) necessary for consistency with the assumptions and requirements of such TMDL. If, after coverage issuance, a specific wasteload allocation is established that would apply to the facility's discharge, the facility must implement steps necessary to meet that allocation.<br><br>(3) Coverage under this permit is available only if the regulated entity's storm water discharges, allowable non-storm water discharges, and discharge-related activities are not likely to jeopardize the continued existence of any species that is listed as endangered or threatened ("listed") under the Environmental Species Act (ESA) or result in the adverse modification or destruction of habitat that is designated as critical under the ESA ("critical habitat"). [WPC-1] |

## Narrative Requirements:

| Condition No. | Condition |
|---|---|
| T-3 | Eligibility (continued):<br><br>(4) Allowable Non-Storm Water Discharges:<br><br>Discharges from fire-fighting activities<br>Fire hydrant flushing<br>Water used to control dust<br>Potable water including uncontaminated water line flushing<br>Routine external building wash down that does not use detergents<br>Pavement wash waters where spills or leaks of toxic or hazardous materials have not occurred (unless all spilled material has been removed) and where detergents are not used<br>Uncontaminated air conditioning or compressor condensate<br>Uncontaminated ground water or spring water<br>Foundation or footing drains where flows are not contaminated with process materials such as solvents<br>Uncontaminated excavation dewatering<br>Landscape irrigation. [WPC-1] |

**ACT3 (LCGP) Obtaining Coverage:**

## Submittal/Action Requirements:

| Condition No. | Condition |
|---|---|
| S-1 | How To Obtain Authorization:<br><br>(1) Owners and/or operators (see Definitions) must submit a Large Construction Notice of Intent (LCNOI) in accordance with the requirements of this permit. For construction activities, the operator is typically the Prime Contractor. The owner may submit the LCNOI and later, prior to actual construction, the operator may submit the Prime Contractor Certification accepting responsibility for applicable permit conditions.<br><br>The owner(s) of the property and the operator(s) associated with the regulated construction activity on the property have joint and severable responsibility for compliance with the permit. Not withstanding any permit condition to the contrary, the coverage recipient and any person who causes pollution of waters of the state or places waste in a location where they are likely to cause pollution, shall remain responsible under applicable federal and state laws and regulations, and applicable permits.<br><br>(2) Upon review of the LCNOI, the MDEQ staff may recommend that coverage not be granted and/or that an alternate permit would be more appropriate. The MDEQ staff recommendations may be brought before the Mississippi Environmental Quality Permit Board (Permit Board) for review and consideration at a regularly scheduled meeting.<br><br>(3) Owners or operators are authorized to discharge storm water associated with construction activity under the terms and conditions of this permit only upon receipt of written notification of approval of coverage by the Permit Board staff. Discharge of storm water without written notification of coverage or issuance of an individual National Pollutant Discharge Elimination System (NPDES) Storm Water Permit is a violation of the Mississippi Air and Water Pollution Control Law 49-17-29(2)(b). [WPC-1] |

## Submittal/Action Requirements:

| Condition No. | Condition |
|---|---|
| S-2 | Requiring An Individual Permit Or Alternative General Permit: |
| | (1) The Permit Board may require any coverage recipient to apply for and obtain either an individual or an alternative general NPDES permit. Any interested person may petition the Permit Board to take action under this paragraph. The Permit Board may require any coverage recipient to apply for an individual NPDES permit only if the owner or operator has been notified in writing. This notice shall include reasons for this decision, an application form and a filing deadline. The Permit Board may grant additional time upon request. If a coverage recipient fails to submit a requested application in a timely manner, coverage under this permit is automatically terminated at the end of the day specified for application submittal. |
| | (2) Any coverage recipient may request to be excluded from permit coverage by applying for an individual permit or coverage under another general permit. The applicant shall submit an individual application (Form 1 and the narrative requirements of 40 CFR 122.26(c)(1)(ii)) or the appropriate Notice of Intent. [WPC-1] |
| S-3 | How to Obtain Recoverage Under the Reissued Permit: |
| | Once the Construction General Permit is reissued, active coverage recipients will receive a recoverage form with a letter of instruction. If a coverage recipient wishes to be covered by the current Construction General Permit, the recoverage form must be completed and returned to the MDEQ. Resubmittal of the Storm Water Pollution Prevention Plan (SWPPP) is not required if the SWPPP is on-site or locally available, current and adequately addresses the sources of pollution at the facility. [WPC-1] |
| S-4 | Commercial Development - Individual Lots or Parcels: |
| | Individual lots or parcels that are part of the "larger common plan of development or sale" (see Definitions) are regulated regardless of size or owner. If the owner or developer obtains construction permit coverage for a development then sells lots or parcels within that development, permit coverage must continue on those areas under new ownership. The original coverage recipient is responsible for all construction activities until individual lots or parcels within the development are sold to others and the new owner submits a LCNOI and obtains coverage under Mississippi's Large Construction General Permit or applies for an individual permit. [WPC-1] |

## Submittal/Action Requirements:

| Condition No. | Condition |
|---|---|
| S-5 | Residential Subdivision - Individual Lots:<br><br>Individual lots within a residential subdivison are part of the "larger common plan of development or sale" (see Definitions) and are regulated regardless of size or ownership. If the owner or developer obtains construction permit coverage for a residential development, then sells individual lots within that development, permit coverage shall continue on those lots under new ownership. The original coverage recipient may retain responsibility for permit compliance, or the new owner (purchaser) or operator shall satisfy authorization requirements by:<br><br>(1) Completing and submitting the MDEQ Registration Form (see Large Construction Forms Package) and developing and implementing a sediment and erosion control plan for the specific lot(s), or<br><br>(2) Completing and submitting for approval from the MDEQ, a LCNOI and required documents, or<br><br>(3) Applying for an individual storm water permit.<br><br>The owner or developer (seller) is responsible for providing the new owner or operator (purchaser) with a copy of the MDEQ Registration Form and a copy of the Large Construction General Permit. These documents as well as the individual application may be found on our website at www.deq.state.ms.us or by calling 601-961-5171. [WPC-1] |
| S-6 | Residential Subdivision - New Phases and New Owner:<br><br>If an individual, other than the original developer (coverage recipient), proposes construction of a new phase of an existing subdivision and the proposed phase was not included in the initial submittal of the LCNOI, the new owner or operator must apply for separate permit coverage. [WPC-1] |
| S-7 | Residential Subdivision - Expansions:<br><br>For subsequent phases, expansions and major modifications of subdivision development that are proposed but were not included in the original SWPPP, the coverage recipient shall submit to the MDEQ the Major Modification Form (see Large Construction Forms Package). [WPC-1] |

## Narrative Requirements:

| Condition No. | Condition |
|---|---|
| T-1 | Applicability of Requirements For Individual Lots and Parcels in a Larger Common Plan of Development or Sale:<br><br>(1) The original coverage recipient remains responsible for compliance with this general permit until a new owner or operator satisfies the requirements of S-4 on page 5 or S-5 on page 6.<br><br>(2) Lots and parcels sold on or after the issuance date of this permit shall follow the requirements of S-4, page 5 and S-5, page 6.<br><br>(3) Lots and parcels sold prior to the issuance date of this permit shall follow the requirements of S-4, page 5 and S-5, page 6 or the developer may continue to require the lot owners to take measures to prevent or mitigate sediment from leaving the lots through covenants and/or lot purchase contracts. [WPC-1] |

**ACT5 (LCGP) Large Construction Notice of Intent:**

## Submittal/Action Requirements:

| Condition No. | Condition |
|---|---|
| S-1 | Deadlines For Notification:<br><br>Persons desiring coverage for a storm water discharge associated with construction activity under this general permit shall submit a LCNOI form at least 30 days prior to the commencement of construction, or 15 days if the SWPPP has previously been approved. A recoverage form must be completed within 30 days of the date of the letter of instruction. [WPC-1] |
| S-2 | Required Submittals With The LCNOI:<br><br>Submittals required with a completed LCNOI include a SWPPP (see Definitions) associated with the construction activities, a United States Geological Survey (USGS) quad map, or photocopy, extending at least 1/2 mile beyond the facility property boundaries with the site location outlined or highlighted. [WPC-1] |
| S-3 | Additional Submittals May Include The Following:<br><br>(1) appropriate Section 404 documentation from U.S. Army Corps of Engineers<br>(2) appropriate documentation concerning future disposal of sanitary sewage and sewage collection system construction<br>(3) appropriate documentation from the MDEQ Office of Land & Water concerning dam construction and low flow requirements. [WPC-1] |
| S-4 | Additional Notification:<br><br>The covered owner or operator must notify the Permit Board at least 30 days before any planned changes of ownership or whenever there are any changes in information previously submitted in the LCNOI form. [WPC-1] |

## Narrative Requirements:

| Condition No. | Condition |
|---|---|
| T-1 | Construction Sites Not Currently Covered By Storm Water Construction General Permit:<br><br>LCNOI forms may be obtained from the MDEQ at the address shown below or by calling 601-961-5171. LCNOI forms, as well as the general permit and guidance manual, may be found on the MDEQ web site at www.deq.state.ms.us. Coverage under this permit will not be granted until all other required MDEQ permits, certifications and approvals are satisfactorily addressed. [WPC-1] |
| T-2 | Where To Submit The LCNOI:<br><br>Complete and appropriately signed LCNOI Forms must be submitted to:<br><br>Chief, Environmental Permits Division<br>Mississippi Department of Environmental Quality<br>Office of Pollution Control<br>P.O. Box 10385<br>Jackson, Mississippi 39289-0385. [WPC-1] |
| T-3 | Failure To Notify:<br><br>Persons who discharge storm water associated with Large Construction activity to waters of the State without an NPDES permit are in violation of the Mississippi Air and Water Pollution Control Law 49-17-29(2)(b). [WPC-1] |

**ACT6 (LCGP) Storm Water Pollution Prevention Plan (SWPPP) General Information:**

## Narrative Requirements:

| Condition No. | Condition |
|---|---|
| T-1 | SWPPP Development:<br><br>A SWPPP shall be developed and implemented by each owner or operator subject to this permit. A SWPPP shall be prepared in accordance with sound engineering practices and shall identify potential sources of pollution, which may reasonably be expected to affect the quality of storm water discharges associated with construction activity. The SWPPP shall describe and ensure the implementation of best management practices, which will reduce pollutants in storm water discharges and assure compliance with the terms and conditions of this permit. [WPC-1] |
| T-2 | Erosion and Sediment Controls. The owner or operator shall list and describe controls appropriate for the construction activities as well as the procedures for implementing such controls.<br><br>The controls should to the extent practicable:<br><br>(1) divert up-slope water around disturbed areas of the site;<br>(2) limit the exposure of disturbed areas to the shortest amount of time as possible;<br>(3) minimize the amount of surface area that must be disturbed;<br>(4) implement best management practices to mitigate adverse impacts from storm water runoff;<br>(5) remove sediment that would contribute to or cause adverse impacts to state waters from storm water before it leaves the site. [WPC-1] |

## Narrative Requirements:

| Condition No. | Condition |
|---|---|
| T-3 | As a minimum, the controls must be in accordance with the standards set forth in the most current edition of the " Planning and Design Manual for the Control of Erosion, Sediment & Stormwater" or other recognized manual of design. The SWPPP shall address the following minimum components.<br><br>(1) Vegetative practices shall be designed to preserve existing vegetation where possible and re-vegetate disturbed areas as soon as practicable after grading or construction. Such practices may include, but are not limited to, surface roughening, temporary seeding, permanent seeding, mulching, sod stabilization, vegetative buffer strips, and protection of trees. When a disturbed area will be left undisturbed for 30 days or more, the appropriate temporary or permanent vegetative practices shall be implemented within 7 calendar days.<br><br>(2) Structural practices shall divert flows from exposed soils, store flows or otherwise limit runoff from exposed areas. Such practices may include, but are not limited to, construction entrance/exit, straw bale dikes, silt fences, earth dikes, brush barriers, drainage swales, check dams, subsurface drains, pipe slope drains, level spreaders, drain inlet protection, outlet protection, detention/retention basins, sediment traps, temporary sediment basins or equivalent sediment controls. [WPC-1] |
| T-4 | (3) For drainage locations (a drainage point at boundary of land disturbing activity) that serves an area with 10 or more disturbed acres at one time, a temporary (or permanent) sediment basin providing at least 3600 cubic feet (133 cubic yards) of storage per acre drained shall be provided until final stabilization of the site. Sediment basins must be installed before major site grading.<br><br>(4) A description of any post-construction control measures. Post-construction control measures should be installed to control pollutants in storm water after construction is complete. These controls include, but are not limited to, one or more of the following: on-site infiltration of runoff, flow attenuation using open vegetated swales, exfiltration trenches and natural depressions, constructed wetlands and retention/detention structures. Where needed, velocity dissipation devices shall be placed at detention or retention pond outfalls and along the outfall channel to provide for a non-erosive flow.<br><br>(5) Proposed responsible parties (original coverage recipient or new owner or operator) for individual lots or out-parcels that are part of a larger common plan of development or sale. If permit responsibility is retained by the original coverage recipient, a narrative description of sediment and erosion controls for subdivision lots is acceptable. Out-parcels in commercial developments must be included in the site map (see T-7, page 12). [WPC-1] |
| T-5 | Non-Storm Water Discharge Management:<br><br>The SWPPP must identify all allowable sources of non-storm water discharges, except for flows from fire fighting activities, which are combined with storm water discharges associated with construction activity at the site. Non-storm water discharges should be eliminated or reduced to the extent feasible. The SWPPP must identify and ensure the implementation of appropriate best management practices for the non-storm water component of the discharge. [WPC-1] |

## Narrative Requirements:

| Condition No. | Condition |
|---|---|
| T-6 | Housekeeping Practices:<br><br>The owner or operator shall describe and list practices appropriate to prevent pollutants from entering storm water from construction sites because of poor housekeeping. The owner or operator shall designate areas for equipment maintenance and repair; concrete chute wash off; provide waste receptacles at convenient locations and provide regular collection of waste; provide protected storage areas for chemicals, paints, solvents, fertilizers, and other potentially toxic materials; and provide adequately maintained sanitary facilities. [WPC-1] |
| T-7 | Prepare Scaled Site Map(s):<br><br>The owner or operator shall prepare a scaled site map showing original and proposed contours (if practicable), drainage patterns, adjacent receiving water bodies, north arrow, all erosion & sediment controls (vegetative and structural), any post-construction control measures, and location of housekeeping practices. If the construction project is a linear construction project (e.g., pipeline, highway, etc.), a scaled site map is not required, however standard diagrams (e.g., cross sections showing dimensions and labeled components) of erosion and sediment controls to be used must be submitted. [WPC-1] |
| T-8 | Implementation Sequence:<br><br>The owner or operator shall prepare an orderly listing which coordinates the timing of all major land-disturbing activities together with the necessary erosion and sedimentation control measures planned for the project. [WPC-1] |
| T-9 | Implementation of Controls:<br><br>The SWPPP shall require the owner or operator, in disturbing an area, to implement controls as needed to prevent erosion and adverse impacts to state waters. [WPC-1] |
| T-10 | Maintenance and Weekly Inspections:<br><br>The SWPPP shall describe procedures to maintain vegetation, erosion and sediment controls and other protective measures. Procedures shall provide that all erosion controls are inspected weekly for a minimum of four inspections per month (see S-4, page 14). [WPC-1] |
| T-11 | Example Storm Water Pollution Prevention Plans (SWPPPs):<br><br>Example SWPPPs are included in the MDEQ Registration Form for Individual Residential Lots (see Large Construction Forms Package) as well as in the Mississippi Storm Water Pollution Prevention Plan Guidance Manual for Construction Activities. [WPC-1] |

**ACT7 (LCGP) Implementation, Inspection, and Reporting Requirements:**

## Submittal/Action Requirements:

| Condition No. | Condition |
|---|---|
| S-1 | Implementation Requirements:<br><br>The coverage recipient shall:<br><br>(1) implement the SWPPP and retain a copy of the SWPPP at the permitted site or locally available. Failure to implement the SWPPP is a violation of permit requirements. A copy of the SWPPP must be made available to the MDEQ inspectors for review at the time of an on-site inspection.<br><br>(2) ensure that appropriate Best Management Practices (BMPs) are in place upon commencement of construction.<br><br>(3) if notified at any time by the Executive Director of the MDEQ that the SWPPP does not meet the minimum requirements, amend the SWPPP and certify in writing to the Executive Director that the requested changes have been made. Unless otherwise provided, the requested changes shall be made within 15 days.<br><br>(4) amend the SWPPP whenever there is a change in design, construction, operation, or maintenance which may potentially affect the discharge of pollutants to state waters; or the SWPPP proves to be ineffective in controlling storm water pollutants. The amended SWPPP shall be submitted within 30 days of amendment. Coverage recepients shall submit to the MDEQ the Major Modification Form (see Large Construction Forms Package) for subsequent phases, expansions and modifications of subdivision development that are proposed but were not included in the original SWPPP.<br><br>(5) install needed erosion controls even if they may be located in the way of subsequent activities, such as utility installation, grading or construction. It shall not be an acceptable defense that controls were not installed because subsequent activities would require their replacement or cause their destruction.<br><br>(6) install additional and/or alternative erosion and sediment controls when existing controls prove to be ineffective in preventing sediment from leaving the site.<br><br>(7) minimize off-site vehicle tracking of sediments. [WPC-1] |

## Submittal/Action Requirements:

| Condition No. | Condition |
|---|---|
| S-2 | Implementation Requirements (continued): |
| | (8) comply with applicable State or local waste disposal, sanitary sewer or septic system regulations. |
| | (9) maintain all erosion controls. Except for sediment basins, all accumulated sediment shall be removed from structural controls when sediment deposits reach 1/3 to 1/2 the height of the control. For sediment basins, accumulated sediment shall be removed when the capacity has been reduced by 50%. All removed sediment deposits shall be properly disposed. Non-functioning controls shall be repaired, replaced or supplemented with functional controls within 24 hours of discovery or as soon as field conditions allow. |
| | (10) if, after coverge issuance, a specific wasteload allocation is established that would apply to the facility's discharge, the facility must implement steps necessary to meet that allocation. [WPC-1] |
| S-3 | Compliance With Local Storm Water Ordinances: |
| | (1) The SWPPP shall be in compliance with all local storm water ordinances. |
| | (2) When storm water discharges into an MS4 (municipal separate storm sewer system), the owner or operator shall make the SWPPP available to the local authority upon request. [WPC-1] |
| S-4 | Inspection Requirements: |
| | Inspection of all erosion controls and other SWPPP requirements shall be performed during permit coverage using a copy of the form provided in the Large Construction Forms Package, and inspections shall be performed: |
| | (1) at least weekly for a minimum of four inspections per month; and |
| | (2) as often as is necessary to ensure that appropriate erosion and sediment controls have been properly constructed and maintained and determine if additional or alternative control measures are required. The MDEQ strongly recommends that coverage recipients perform a "walk through" inspection of the construction site before anticipated storm events. [WPC-1] |

**ACT8 (LCGP) Limitation Requirements:**

## Limitation Requirements:

| Condition No. | Parameter | Condition |
|---|---|---|
| L-1 | | Limitation Requirements:<br>Storm water discharges shall be free from:<br>(1) debris, oil, scum, and other floating materials other than in trace amounts,<br>(2) eroded soils and other materials that will settle to form objectionable deposits in receiving waters,<br>(3) suspended solids, turbidity and color at levels inconsistent with the receiving waters,<br>(4) chemicals in concentrations that would cause violation of State Water Quality Criteria in the receiving waters. [WPC-1] |

**ACT9 (LCGP) Record Keeping:**

## Record-Keeping Requirements:

| Condition No. | Condition |
|---|---|
| R-1 | Retention of Records:<br><br>All records, reports, forms and information resulting from activities required by this permit shall be retained for a period of at least 3 years from the date that the document(s) was generated.<br><br>The inspections described in S-4, page 14 must be documented on copies of the Monthly Inspection Report and Certification Form provided in the Large Construction Forms Package and be kept with the SWPPP.<br><br>Submittals of the MDEQ Registration Form for residential lots is required. It is the responsibility of both the owner or developer (seller) and the new owner or operator (purchaser) to maintain a copy of the MDEQ Registration Form. The new owner or operator must maintain a copy of the MDEQ Registration Form at the site or locally available. [WPC-1] |
| R-2 | Suspension of Weekly Inspections and Monthly Record Keeping:<br><br>Coverage recipients under this general permit may suspend weekly inspection and monthly reporting requirements, if the coverage recipient certifies that:<br><br>(1) land disturbing activities have temporarily ceased<br>(2) no further land disturbing activities are planned for a period of at least 6 months<br>(3) the site is stable with no active erosion<br>(4) vegetative cover has been established<br><br>Color photographs representative of the site must be submitted with the Inspection Suspension Form provided in the Large Construction Forms Package. The coverage recipient shall notify the MDEQ once construction activities are resumed and the weekly inspections shall commence immediately and as required in S-4 on page 14. The coverage recipient is still responsible for all permit conditions during the suspension period and nothing in this condition shall limit the rights of the MDEQ to take enforcement or other actions against the coverage recipient. [WPC-1] |

**ACT10 (LCGP) Termination of Permit Coverage:**

## Submittal/Action Requirements:

| Condition No. | Condition |
|---|---|
| S-1 | Within 30 days of final stabilization (see Definition of Final Stabilization (1)) for a covered project, a completed Notice of Termination (NOT) of Coverage form (provided in the Large Construction Forms Package) shall be submitted to the Permit Board. Upon receiving the completed NOT the MDEQ staff will inspect the site. If no sediment and erosion control problems are identified and adequate permanent controls are established the owner or operator will receive a termination letter. Coverage is not terminated until done so in writing. Failing to submit a NOT is a violation of permit conditions. [WPC-1] |
| S-2 | The coverage recipient of a "larger common plan of development or sale" must submit a NOT within 30 days after the following conditions are met:<br>(1) Final stabilization (see Definition of Final Stabilization (2)) has been achieved on all portions of the site for which the coverage recipient is responsible, and<br>(2) Other owner(s) or operator(s) have assumed control (by completing a CNOI or MDEQ Registration Form) over all areas of the site that have not achieved final stabilization. [WPC-1] |
| S-3 | The coverage recipient of a residential "larger common plan of development or sale" must submit a copy of the MDEQ Registration Form for each lot sold with the NOT. [WPC-1] |
| S-4 | Residential lot owners or operators that have completed the MDEQ Registration forms are not required to submit a NOT, unless specifically requested by the MDEQ staff. The lot permit coverage is considered terminated upon "successful completion of all permanent erosion and sediment controls" (see Definitions). [WPC-1] |

**ACT11 (LCGP) Standard Requirements Applicable To All Water Permits:**

## Narrative Requirements:

| Condition No. | Condition |
|---|---|
| T-1 | Duty to Comply:<br><br>The permittee must comply with all conditions of this permit. Any permit noncompliance constitutes a violation and is grounds for enforcement action; for coverage termination, revocation and reissuance, or modifications; or denial of a renewal application. [WPC-1] |
| T-2 | Duty to Mitigate:<br><br>The owner or operator shall take all reasonable steps to minimize or prevent any discharge in violation of this permit which is likely to adversely affect human health or the environment. [WPC-1] |
| T-3 | Duty to Provide Information:<br><br>The owner or operator shall furnish to the Permit Board, within a reasonable time, any information that the Permit Board may request to determine compliance with this permit. [WPC-1] |

## Narrative Requirements:

| Condition No. | Condition |
|---|---|
| T-4 | Signatory Requirements:<br><br>All LCNOIs, SWPPPs, reports, certifications or information shall be signed as follows or by the duly authorized representative (see T-5 below).<br><br>(1) For a corporation by a responsible corporate officer. For this permit, a responsible corporate officer means:<br><br>a) a president, secretary, treasurer, or vice-president of the corporation in charge of a principal business function, or any other person who performs similar policy or decision-making functions for the corporation; or<br><br>b) the manager of one or more manufacturing, production or operating facilities employing more than 250 persons or having gross annual sales or expenditures exceeding $25 million (in second-quarter 1980 dollars) if authority to sign documents has been assigned or delegated to the manager in accordance with corporate procedures;<br><br>(2) For a partnership or sole proprietorship by a general partner or the proprietor, respectively; or<br><br>(3) For a municipal, State, Federal, or other public agency by either a principal executive officer or ranking elected official. For purposes of this section, a principal executive officer of a Federal agency includes: a) the chief executive officer of the agency, or b) a senior executive officer having responsibility for the overall operations of a principal geographic unit of the agency. [WPC-1] |
| T-5 | Duly Authorized Representative:<br><br>All reports required by this permit, and other information requested by the Permit Board shall be signed by a person described in T-4 above, or by a duly authorized representative of that person. A person is a duly authorized representative when:<br><br>(1) The authorization is made in writing and submitted to the Permit Board by a person described in T-4 above.<br><br>(2) The authorization specifies either an individual or a position having responsibility for the overall operation of the regulated activity, such as: manager, operator of a well or well field, superintendent, person of equivalent responsibility, or an individual or position having overall responsibility for environmental matters for the company. (A duly authorized representative may be either a specified individual or position). [WPC-1] |

## Narrative Requirements:

| Condition No. | Condition |
|---|---|
| T-6 | Changes to Authorization:<br><br>If an authorization is no longer accurate because a different individual or position has permit responsibility, a new authorization satisfying the requirements of T-4 and T-5 on page 19, must be submitted to the Permit Board prior to or together with any reports, information or applications signed by the representative. [WPC-1] |
| T-7 | Certification:<br><br>Any person signing documents under this section shall make the following certification:<br><br>"I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gathered and evaluated the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations." [WPC-1] |
| T-8 | Oil and Hazardous Substance Liability:<br><br>Nothing in this permit shall relieve the owner or operator from responsibilities, liabilities, or penalties under Section 311 of the CWA. [WPC-1] |
| T-9 | Property Rights:<br><br>The issuance of this permit does not convey any property rights of any sort, nor any exclusive privileges, nor does it authorize any injury to private property nor any invasion of personal rights, nor any infringement of Federal, State or local laws or regulations. [WPC-1] |
| T-10 | Severability:<br><br>The provisions of this permit are severable, and if any provision of this permit, or the application of any provision of this permit to any circumstance, is held invalid, the application of such provision to other circumstances, and the remainder of this permit shall not be affected thereby. [WPC-1] |
| T-11 | Transfers:<br><br>Coverage under this permit is not transferable to any person except after notice to and approval by the Permit Board. The Permit Board may require the permittee to obtain another NPDES permit as stated in S-2, page 5. Transfer of coverage requests shall be submitted to the Permit Board using the form provided in the Large Construction Forms Package. [WPC-1] |

## Narrative Requirements:

| Condition No. | Condition |
|---|---|
| T-12 | Proper Operation and Maintenance:<br><br>The owner or operator shall at all times properly operate and maintain all facilities and systems of treatment and control (and related appurtenances) which are installed or used by the owner or operator to achieve compliance with the conditions of this permit including the storm water pollution prevention plan. Proper operation and maintenance includes adequate laboratory controls with appropriate quality assurance procedures and requires the operation of backup or auxiliary facilities when necessary to achieve compliance with permit conditions. [WPC-1] |
| T-13 | Bypass Prohibition:<br><br>Bypass (see 40 CFR 122.41(m)) is prohibited and enforcement action may be taken against an owner or operator for a bypass, unless: a) The bypass was unavoidable to prevent loss of life, personal injury, or severe property damage; b) There were no feasible alternatives to the bypass, such as the use of auxiliary treatment facilities, retention of untreated wastes, or maintenance during normal periods of equipment downtime. This condition is not satisfied if the owner or operator should, in the exercise of reasonable engineering judgement, have installed adequate backup equipment to prevent a bypass which occurred during normal periods of equipment downtime or preventive maintenance; and c) The owner or operator submitted notices per T-17 and/or T-18, page 22. [WPC-1] |
| T-14 | Upset Conditions:<br><br>An upset (see 40 CFR 122.41(n)) constitutes an affirmative defense to an action brought for noncompliance with technology-based permit limitations if a permittee shall demonstrate, through properly signed, contemporaneous operating logs, or other relevant evidence, that: 1) An upset occurred and the permittee can identify the specific cause(s) of the upset, 2) The permitted facility was at the time being properly operated, 3) The permittee submitted notices per T-17 and/or T-18, page 22, and 4) The permittee took remedial measures as required under T-2, page 18. In any enforcement proceeding, the permittee has the burden of proof that an upset occurred. No determination made during administrative review of claims that noncompliance was caused by upset, and before an action for noncompliance, is final administrative action subject to judicial review. [WPC-1] |

## Narrative Requirements:

| Condition No. | Condition |
|---|---|
| T-15 | Inspection and Entry:<br><br>The owner or operator shall allow the Permit Board staff or an authorized representative, upon the presentation of credentials and other documents as may be required by law, to;<br><br>- enter upon the owner or operator's premises where a regulated activity is located or conducted or where records must be kept under the conditions of this permit;<br><br>- have access to and copy at reasonable times any records that must be kept under the conditions of this permit; and<br><br>- inspect at reasonable times any facilities or equipment. [WPC-1] |
| T-16 | Permit Actions:<br><br>This permit may be modified, revoked and reissued, or terminated for cause. A request by the owner or operator for permit or coverage modification, revocation and reissuance, or termination, or a certification of planned changes or anticipated noncompliance does not stay any permit condition. [WPC-1] |
| T-17 | Anticipated Noncompliance:<br><br>The owner or operator shall give at least 10 days advance notice, if possible, before any planned noncompliance with permit requirements. [WPC-1] |
| T-18 | Unanticipated Noncompliance:<br><br>The owner or operator shall notify the MDEQ orally within 24 hours from the time he or she becomes aware of unanticipated noncompliance. A written report shall be provided to the MDEQ within 5 working days of the time he or she becomes aware of the circumstances. The report shall describe the cause, the exact dates and times, steps taken or planned to reduce, eliminate, or prevent reoccurrence and, if the noncompliance has not ceased, the anticipated time for correction. [WPC-1] |
| T-19 | Reopener Clause:<br><br>If there is evidence indicating potential or realized impacts on water quality due to storm water discharge covered by this permit, the owner or operator may be required to obtain individual permit or an alternative general permit in accordance with S-2, page 5 or the permit may be modified to include different limitations and/or requirements. [WPC-1] |

## Narrative Requirements:

| Condition No. | Condition |
|---|---|
| T-20 | Permit Modification:<br><br>Permit modification or revocation will be conducted according to 40 CFR 122.62, 122.63, 122.64 and 124.5. [WPC-1] |
| T-21 | Falsifying Reports:<br><br>Any permittee who falsifies any written report required by or in response to a permit condition shall be deemed to have violated a permit condition and shall be subject to the penalties provided for a violation of a permit condition pursuant to Section 49-17-43 of the Mississippi Water Pollution Control Law (Mississippi Code Ann. Sections 49-17-1 et seq.). [WPC-1] |
| T-22 | Civil and Criminal Liability:<br><br>(1) Any person who violates a term, condition or schedule of compliance contained within this permit or the Mississippi Air and Water Pollution Control Law is subject to the actions defined by the Mississippi Air and Water Pollution Control Law.<br><br>(2) Except as provided in permit conditions on "Bypassing" and "Upsets", nothing in this permit shall be construed to relieve the permittee from civil or criminal penalties for noncompliance.<br><br>(3) It shall not be the defense of the permittee in an enforcement action that it would have been necessary to halt or reduce the permitted activity in order to maintain compliance with the conditions of this permit. [WPC-1] |

## ACT12 (LCGP) Definitions:

### Narrative Requirements:

| Condition No. | Condition |
|---|---|
| T-1 | Definitions:<br><br>Best Management Practices (BMPs) means schedules of activities, prohibitions of practices, maintenance procedures, and other management practices to prevent or reduce the discharge of pollutants to waters of the United States. BMPs also include treatment requirements, operating procedures, and practices to control plant site runoff, spillage or leaks, sludge or waste disposal, or drainage from raw material storage. [WPC-1] |
| T-2 | Construction Activity as used in this permit, includes construction activity as defined in 40 CFR part 122.26(b)(14)(x). This includes a disturbance to the land that results in the change in topography, existing soil cover (both vegetative and non-vegetative), or the existing topography that may result in accelerated storm water runoff, leading to soil erosion and movement of sediment into surface waters or drainage systems. Examples of construction activity may include clearing, grading, filling and excavating. Construction activity does not include routine maintenance that is performed to maintain the original line and grade, hydraulic capacity, or original purpose of the site. [WPC-1] |
| T-3 | Control Measure as used in this permit, refers to any Best Management Practice or other method used to prevent or reduce the discharge of pollutants to waters of the United States. [WPC-1] |
| T-4 | Commencement of Construction Activities means the initial disturbance of soils associated with clearing, grading, or excavating activities or other construction-related activities. [WPC-1] |
| T-5 | Commission means the Mississippi Commission on Environmental Quality. [WPC-1] |
| T-6 | Clean Water Act (CWA) refers to the Federal Water Pollution Control Act, 33 U.S.C. section 1251 et seq. [WPC-1] |
| T-7 | Executive Director means the Executive Director of the Department of Environmental Quality. [WPC-1] |
| T-8 | Facility or Activity means any NPDES "point source" or any other facility or activity (including land or appurtenances thereto) that is subject to regulation under the NPDES program. [WPC-1] |

## Narrative Requirements:

| Condition No. | Condition |
|---|---|
| T-9 | Definitions (continued):<br><br>Final stabilization means that either:<br><br>(1) All soil disturbing activities at the site have been completed, and that a uniform perennial vegetative cover with a density of at least 70% for the area has been established or equivalent measures have been employed; or<br><br>(2) For individual lots part of a larger common plan of development or sale in residential or commercial developments, that either: a) the coverage recipient has completed final stabilization as specified in (1) above, or b) the coverage recipient has established temporary stabilization before another property owner assumes operational control for the property AND the coverage recipient for the larger common plan of development has provided the appropriate Notice of Intent or Registration form, the appropriate Construction General Permit, and guidance documents to the new property owner and the new owner assumes control by completing the appropriate NOI or Registration Form. [WPC-1] |
| T-10 | Large Construction Activity includes clearing, grading, and excavating resulting in a land disturbance that will disturb equal to or greater than 5 acres of land or will disturb less than 5 acres of total land area but is part of a larger common plan of development or sale that will ultimately disturb equal to or greater than 5 acres. [WPC-1] |
| T-11 | Larger Common Plan of Development or Sale means a contiguous area where multiple separate and distinct construction activities are occurring under one plan. The plan in a common plan of development or sale is broadly defined as any announcement or piece of documentation (including a sign, public notice or hearing, sales pitch, advertisement, drawing, permit application, zoning request, computer design, etc.) or physical demarcation (including boundary signs, lot stakes, surveyor markings, etc.) indicating that construction activities may occur on a specific plot. [WPC-1] |
| T-12 | Owner or Operator for the purpose of this permit and in the context of storm water associated with construction activity, means any party associated with a construction project that meets either of the following two criteria:<br><br>(1) The party has operational control over construction plans and specifications, including the ability to make modifications to those plans and specifications; or<br><br>(2) The party has day to day operational control of those activities at a project which are necessary to ensure compliance with a storm water pollution prevention plan for the site or other permit conditions (e.g., they are authorized to direct workers at a site to carry out activities required by the SWPPP or comply with other permit conditions). This definition is provided to inform permittees of MDEQ's interpretation of how the regulatory definitions of "owner or operator" and "facility or activity" are applied to discharges of storm water associated with construction activity. [WPC-1] |

## Narrative Requirements:

| Condition No. | Condition |
|---|---|
| T-13 | Definitions (continued):<br><br>NPDES the National Pollutant Discharge Elimination System which is a division of the Clean Water Act which prohibits discharge of pollutants into waters of the United States unless a special permit is issued. [WPC-1] |
| T-14 | Permit Board means the Mississippi Environmental Quality Permit Board established pursuant to Miss. Code Ann. 49-17-28. [WPC-1] |
| T-15 | Pollutant is defined at 40 CFR 122.2. A partial listing from this definition includes: dredged spoil, solid waste, sewage, garbage, sewage sludge, chemical wastes, biological materials, heat, wrecked or discarded equipment, rock, sand, sediment, silt, cellar dirt, and industrial or municipal waste. [WPC-1] |
| T-16 | State Waters means all waters within the jurisdiction of this State, including all streams, lakes, ponds, wetlands, impounding reservoirs, marshes, watercourses, waterways, wells, springs, irrigation systems, drainage systems, and all other bodies or accumulations of water, surface and underground, natural or artificial, situated wholly or partly within or bordering upon the State, and such coastal waters as are within the jurisdiction of the State, except lakes, ponds, or other surface waters which are wholly landlocked and privately owned, and which are not regulated under the Federal Clean Water Act (33 U.S.C.1251 et seq.). [WPC-1] |
| T-17 | Storm Water means rainfall runoff, snowmelt runoff, and surface runoff. [WPC-1] |
| T-18 | Storm Water Pollution Prevention Plan (SWPPP) means a plan that includes site map(s), an identification of construction/contractor activities that could cause pollutants in the storm water, and a description of measures or practices to control these pollutants. [WPC-1] |
| T-19 | Successful completion of all permanent erosion and sediment controls means when land disturbing construction activities have been completed and disturbed areas have been stabilized with no significant erosion occurring. [WPC-1] |
| T-20 | Turbidity is the presence of suspended material such as clay, silt, finely divided organic material, plankton, and other inorganic material in water. [WPC-1] |
| T-21 | WPC-1 means the State of Mississippi's Wastewater Regulations for National Pollutant Discharge Elimination System (NPDES) Permits, Underground Injection Control (UIC) Permits, State Permits, Water Quality Based Effluent Limitations and Water Quality Certification. [WPC-1] |

## GENERAL INFORMATION

Large Construction General Permit (Revised Format)

**Alternate/Historic Identifiers**
**Emissions Inventory ID:** 245517

**Appendix C**

**MDEQ Site Inspection Form**

The results of each inspection should be summarized in an inspection report or checklist that is entered into or attached to the site log book. This ESCP and SWPPP and the site inspection forms be kept onsite at all times during construction, and inspections shall be performed and documented as outlined below.

At a minimum, each inspection report or checklist should include:

a. Inspection date/times.

b. Weather information: general conditions during inspection, approximate amount of precipitation since the last inspection, and approximate amount of precipitation within the last 24 hours.

c. A summary or list of all BMPs that have been implemented, including observations of all erosion/sediment control structures or practices.

d. The following should be noted:

   i. locations of BMPs inspected,

   ii. locations of BMPs that need maintenance,

   iii. the reason maintenance is needed,

   iv. locations of BMPs that failed to operate as designed or intended, and

   v. locations where additional or different BMPs are needed, and the reason(s) why.

e. A description of stormwater discharged from the site. The presence of suspended sediment, turbid water, discoloration, and/or oil sheen should be noted, as applicable.

g. General comments and notes, including a brief description of any BMP repairs, maintenance or installations made as a result of the inspection.

h. A statement that, in the judgment of the person conducting the site inspection, the site is either in compliance or out of compliance with the terms and conditions of the ESCP and SWPPP. If the site inspection indicates that the site is out of compliance, the inspection report should include a summary of the remedial actions required to bring the site back into compliance, as well as a schedule of implementation.

   i. Name, title, and signature of person conducting the site inspection; and the following statement: "I certify under penalty of law that this report is true, accurate, and complete, to the best of my knowledge and belief."

When the site inspection indicates that the site is not in compliance with any terms and conditions of the ESCP and SWPPP, the Permittee should take immediate action(s) to: stop, contain, and clean up the unauthorized discharges, or otherwise stop the noncompliance; correct the problem(s); implement appropriate Best Management Practices (BMPs), and/or conduct maintenance of existing BMPs; and achieve compliance with all applicable standards and permit conditions.

A copy of the site inspection form required by MDEQ is attached.

Keep a Copy Available at the Construction Site or Locally Available
Submit the Inspection Reports Only if Requested by the Mississippi Department of Environmental Quality (MDEQ)

# INSPECTION AND CERTIFICATION FORM
## FOR EROSION AND SEDIMENT CONTROLS

**All coverage recipients and individual lot owners who have completed the "Registration Form for Residential Lot Coverage" shall use this form to record site inspections. Individual lot owners are not required to fill in the General NPDES Permit Coverage Number requested below. Inspections must be performed weekly and certified monthly.**

**Construction Storm Water General NPDES Permit Coverage No. MSR10 __ __ __ __ County: ____________**
**(Fill in your Certificate of Coverage Number & County where Project is Located)**
(Please Print)

Owner and/or Prime Contractor: ______________________________

Project Name: ______________________________

Street Address: ______________________________

City: ______________________________

Inspection Log

| Date and Time | Rain Gauge Measurement (inches) (Optional) | Any Deficiencies Observed? Yes or No | Inspector(s) |
|---|---|---|---|
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |

Deficiencies Noted During any Inspection (give date(s); attach additional sheets if necessary):

______________________________

______________________________

Corrective Action Taken or Planned (give date(s); attach additional sheets if necessary):

______________________________

______________________________

Based upon this inspection which I or personnel under my direct supervision conducted, I certify that all erosion and sediment controls have been implemented and maintained, except for those deficiencies noted above, in accordance with the Storm Water Pollution Prevention Plan filed with the Office of Pollution Control and sound engineering practices as required by the above referenced permit.

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fines and imprisonment for knowing violations.

| ____________ | ____________ | ____________ |
|---|---|---|
| Authorized Name (Print) | Signature | Date |

**Appendix D**

**Wetland Crossing Table**

**Table D-1 Wetlands Identified Within the Construction Corridor or the Proposed Pipeline Route**

| Mississippi County | GPS-Field ID | Approximate Start Milepost | Approximate Centerline length crossed (feet)[a] | Wetland Type[b] | Crossing Type[c] | Approximate Construction Impacts[d] | Approximate Permanent Impacts[e] |
|---|---|---|---|---|---|---|---|
| **Fayetteville Lateral** | | | | | | | |
| Coahoma | jo w12 | 157.5 | 1691 | PFO | OCM | 3.2 | n/a |
| Coahoma | jo w13 | 158.0 | 3629 | PFO | OCM | 7.2 | n/a |
| **Greenville Lateral** | | | | | | | |
| Washington | ML-W1A | 5.2 | 127 | PEM/PSS | OCM | 0.3 | n/a |
| Washington | ML-W1B | 5.4 | 105 | PEM/PSS | OCM | 0.2 | n/a |
| Washington | ML-W5 | 14.6 | 65 | PEM | OCM | 0.1 | n/a |
| Sunflower | ML-W6A | 17.7 | 23 | PEM | OCM | <0.1 | n/a |
| Sunflower | ML-W6B | 17.7 | 14 | PEM | OCM | <0.1 | n/a |
| Washington | ML-W7 | 20.3 | 28 | PEM | HDD | 0.1 | n/a |
| Humphreys | ML-W7east | 20.3 | 26 | PEM | HDD | <0.1 | n/a |
| Humphreys | ML-W9 | 24.3 | 446 | PEM | OCM | 1.0 | n/a |
| Humphreys | ML-W11 | 27.3 | 56 | PEM/PSS | OCM | 0.2 | n/a |
| Humphreys | ML-W12A | 27.3 | n/a | PEM | OCM | 0.2 | n/a |
| Humphreys | ML-W12B | 27.3 | 226 | PEM | OCM | 0.2 | n/a |
| Humphreys | ML-W13B | 27.4 | 52 | PFO | OCM | 0.2 | n/a |
| Humphreys | ML-W14 | 28.8 | n/a | PFO | OCM | <0.1 | n/a |
| Humphreys | ML-W15 | 29.3 | n/a | PFO | OCM | <0.1 | n/a |
| Humphreys | JAV-W2 | 31.2 | 34 | PEM/PSS | OCM | 0.1 | n/a |
| Holmes | JAV-W4 | 35.5 | 44 | PEM/PSS | OCM | 0.1 | n/a |
| Humphreys | JAV-W5 | 37.0 | 870 | PFO | OCM | 2.0 | n/a |
| Humphreys | JAV-W6 | 39.6 | 427 | PFO | HDD | 1.0 | n/a |
| Humphreys | JAV-W8c | 40.4 | 360 | PFO/PEM | HDD | 0.8 | n/a |
| Humphreys | JAV-W9c | 40.5 | 19 | PEM/PFO | HDD | <0.1 | n/a |
| Humphreys | JAV-W9d | 40.6 | 59 | PEM/PSS | HDD | 0.1 | n/a |
| Humphreys | kp w-3 | 40.9 | 552 | PFO | HDD | 1.3 | n/a |
| Humphreys | tdh ms w3 | 44.3 | 8763 | PFO | OCM | 21.4 | n/a |
| Holmes | jr w9 west | 47.4 | 210 | PFO | OCM | <0.1 | n/a |

**Table D-1 Wetlands Identified Within the Construction Corridor or the Proposed Pipeline Route**

| Mississippi County | GPS-Field ID | Approximate Start Milepost | Approximate Centerline length crossed (feet)[a] | Wetland Type[b] | Crossing Type[c] | Approximate Construction Impacts[d] | Approximate Permanent Impacts[e] |
|---|---|---|---|---|---|---|---|
| Holmes | jr w9 east | 47.5 | n/a | PFO | OCM | 0.5 | n/a |
| Holmes | kp w-4 | 54.2 | 427 | PFO | HDD | 0.8 | n/a |
| Holmes | kp w-5 | 54.4 | 287 | PFO | HDD | 0.8 | n/a |
| Holmes | tdh ms w6 | 55.3 | 168 | PFO | OCM | 0.4 | n/a |
| Holmes | JW1 | 57.3 | 192 | PFO | OCM | 0.4 | n/a |
| Humphreys | JAV-W23 | 58.4 | 28 | PEM | OCM | 0.1 | n/a |
| Holmes | JW13 | 59.0 | 2223 | PEM/PSS | OCM | 5.9 | n/a |
| Holmes | kp w-8 | 59.1 | 412 | PFO | OCM | 0.4 | n/a |
| Holmes | kp w-7 | 59.1 | 356 | PSS | OCM | 0.4 | n/a |
| Holmes | JW14 | 59.6 | 1986 | PEM/PSS | OCM | 4.5 | n/a |
| Holmes | JAV-W18 | 60.2 | 1263 | PEM/PSS | OCM | 2.9 | n/a |
| Holmes | JW2 | 60.6 | 665 | PEM/PSS | OCM | 1.2 | n/a |
| Holmes | JW2east | 60.6 | 49 | PEM/PSS | OCM | 0.4 | n/a |
| Holmes | JW5 | 62.2 | 157 | PFO | OCM | 0.4 | n/a |
| Holmes | JW4 | 62.9 | 24 | PFO | OCM | 0.1 | n/a |
| Holmes | JW3 | 63.2 | n/a | PEM | OCM | <0.1 | n/a |
| Holmes | tdh ms w7 | 64.6 | n/a | PEM/PFO | OCM | <0.1 | n/a |
| Holmes | tdh ms w8 | 64.6 | 22 | PFO | OCM | <0.1 | n/a |
| Holmes | JW8 | 67.7 | 286 | PFO | OCM | 0.6 | n/a |
| Holmes | JW7 | 68.1 | 43 | PFO | OCM | 0.1 | n/a |
| Holmes | JW6 | 68.2 | 63 | PSS | OCM | 0.1 | n/a |
| Holmes | jr w1 | 70.5 | 224 | PFO | OCM | 0.6 | n/a |
| Holmes | TDHW-5 | 72.4 | 160 | PFO/PSS | OCM | 0.4 | n/a |
| Holmes | TDH-W4 | 72.5 | 393 | PFO/PSS | OCM | 0.8 | n/a |
| Holmes | tdh ms w4 | 75.7 | n/a | PFO/PSS | OCM | <0.1 | n/a |
| Holmes | tdh ms w10 | 76.5 | n/a | PFO/PEM | OCM | 4.4 | n/a |
| Holmes | tdh ms w9 | 77.6 | 5930 | PFO/PEM | OCM | 8.6 | n/a |
| Holmes | tdh ms w1 5/23 | 77.7 | 87 | PFO | OCM | 0.2 | n/a |
| Attala | tdh ms w2 5/23 | 78.0 | 69 | PEM/PFO | OCM | 0.2 | n/a |

**Table D-1 Wetlands Identified Within the Construction Corridor or the Proposed Pipeline Route**

| Mississippi County | GPS-Field ID | Approximate Start Milepost | Approximate Centerline length crossed (feet)[a] | Wetland Type[b] | Crossing Type[c] | Approximate Construction Impacts[d] | Approximate Permanent Impacts[e] |
|---|---|---|---|---|---|---|---|
| Attala | tdh ms w3 5/23 | 78.1 | 145 | PFO | OCM | 0.2 | n/a |
| Attala | JW15west | 82.2 | 17 | PFO | OCM | <0.1 | n/a |
| Attala | JW15east | 82.3 | 184 | PFO | OCM | 0.5 | n/a |
| Attala | KW23 | 82.5 | 1616 | PSS/PFO | OCM | 3.7 | n/a |
| Attala | KW22 | 83.4 | n/a | PSS | OCM | <0.1 | n/a |
| Attala | KW20 | 84.4 | n/a | PEM/PSS/PFO | OCM | 0.2 | n/a |
| Attala | KW20east | 84.4 | n/a | PEM/PSS/PFO | OCM | 0.2 | n/a |
| Attala | KW19 | 84.5 | 1876 | PFO/PSS | OCM | 4.1 | n/a |
| Attala | KW18 | 84.9 | 145 | PFO/PSS | OCM | 0.2 | n/a |
| Attala | KW17 | 85.3 | n/a | PSS | OCM | 0.1 | n/a |
| Attala | KW16 | 85.4 | 1260 | PFO | OCM | 2.3 | n/a |
| Attala | KW14 | 85.6 | 712 | PEM/PFO/PSS | OCM | 0.7 | n/a |
| Attala | KW15 | 85.7 | n/a | PSS/PFO | OCM | 0.7 | n/a |
| Attala | KW13 | 85.8 | n/a | PEM/PSS | OCM | 0.8 | n/a |
| Attala | KW11 | 86.3 | 586 | PEM/PSS | OCM | 1.3 | n/a |
| Attala | KW10 | 86.5 | 94 | PEM/PSS | OCM | 0.2 | n/a |
| Attala | jr w10 | 88.7 | 731 | PFO | OCM | 1.6 | n/a |
| Attala | jr w4 | 89.1 | 653 | PFO | OCM | 1.5 | n/a |
| Attala | jr w5 | 90.0 | 87 | PFO | OCM | 0.3 | n/a |
| Attala | jr w6 | 90.9 | 463 | PFO | OCM | 1.1 | n/a |
| Attala | jr w7 | 91.2 | 37 | PEM | OCM | 0.1 | n/a |
| Attala | jr w8 | 91.3 | 718 | PFO | OCM | 1.6 | n/a |
| Attala | jr w11 | 91.5 | n/a | PFO | HDD | <0.1 | n/a |
| Attala | tdh ms w11 | 92.9 | 1242 | PFO | HDD | 2.8 | n/a |
| Attala | tdh ms w11.2 | 93.1 | 1229 | PFO | HDD | 3.3 | n/a |
| Attala | tdh ms w11.3 | 93.4 | 944 | PFO | HDD | 1.2 | n/a |
| Attala | tdh ms w12 | 93.5 | n/a | PFO | OCM | 0.5 | n/a |
| Attala | kp w-1 | 96.1 | 53 | PFO | OCM | 0.1 | 0.2 |

*[a] Wetlands with a designation of "n/a" are located within the construction corridor, but are not crossed by the proposed pipeline centerline.*

**Table D-1 Wetlands Identified Within the Construction Corridor or the Proposed Pipeline Route**

| Mississippi County | GPS-Field ID | Approximate Start Milepost | Approximate Centerline length crossed (feet)[a] | Wetland Type[b] | Crossing Type[c] | Approximate Construction Impacts[d] | Approximate Permanent Impacts[e] |
|---|---|---|---|---|---|---|---|

[b] *Wetland Type: PEM – palustrine emergent, PSS – palustrine scrub shrub, PFO – palustrine forested*

[c] *OCM = open cut method, HDD = horizontal directional drill*

[d] *Construction impacts are based on a 75-foot-wide construction right-of-way over the pipeline.*

[e] *Permanent acreage reflects acreage lost due to permanently maintained facility.*

[f] *Totals may differ due to fractional acreages.*

# Appendix E

## Aboveground Facilities and Associated Wetlands

Table E-1 Aboveground Facilities/ Extra Workspace and Associated Wetlands

| Mississippi County | Feature or Facility Name | Wetland Field ID | Wetland Type | Nearest Approximate Milepost | Approximate Impact (Acres) |
|---|---|---|---|---|---|
| FAYETTEVILLE LATERAL | | | | | |
| Aboveground Facilities | | | | | |
| n/a | None | n/a | n/a | n/a | n/a |
| Extra Workspaces | | | | | |
| Coahoma | HYDRO TEST AREA | jo W11 | PFO | 156.8 | 0.5 |
| Coahoma | HYDRO TEST AREA | jo W12 | PFO | 157.6 | 0.6 |
| Coahoma | TRUCK TURNAROUND | jo W12 | PFO | 157.7 | 0.5 |
| Coahoma | P.I. & FABRICATION AREA | jo W13 | PFO | 158.1 | 0.5 |
| Coahoma | PULL STRING | jo W13 | PFO | 158.2 | <0.1 |
| Coahoma | P.I. & ACCESS | jo W13 | PFO | 158.2 | 0.3 |
| Coahoma | PULL STRING | DLS W3 | PFO | 158.2 | 2.1 |
| Coahoma | P.I. & ACCESS | DLS W3 | PFO | 158.2 | <0.1 |
| Coahoma | PULL STRING | DLS W4 | PFO | 158.2 | 0.7 |
| Coahoma | P.I. & FABRICATION AREA | jo W13 | PFO | 158.4 | 0.3 |
| Coahoma | TRUCK TURNAROUND & ACCESS | jo W13 | PFO | 158.5 | 1.0 |
| Access Roads | | | | | |
| Coahoma | Access Road 41 | jo W13 | PFO | 158.4 | 0.1 |
| Coahoma | Access Road 41B | jo W13 | PFO | 158.4 | 0.5 |
| Coahoma | Access Road 41A | jo W13 | PFO | 158.6 | <0.1 |
| GREENVILLE LATERAL | | | | | |
| Aboveground Facilities | | | | | |
| Attala | Kosciusko Compressor Station | kp w-1 | | 96.2 | 0.2 |
| Additional Temporary Workspaces | | | | | |
| Humphreys | Temporary work space and access road | JAV-W9d | PEM/PSS | 40.6 | <0.1 |
| Humphreys | Pull string | tdh ms w3 | PFO | 44.3 | 0.2 |
| Humphreys | Fabrication area | tdh ms w3 | PFO | 44.9 | 0.1 |
| Humphreys | Access road and fabrication area | tdh ms w3 | PFO | 45.5 | 0.1 |
| Humphreys | Waterbody crossing and fabrication area | tdh ms w3 | PFO | 46.1 | 0.2 |
| Holmes | Road crossing and fabrication area | tdh ms w5 | PFO | 55.1 | <0.1 |
| Holmes | Road crossing and fabrication area | kp w-8 | PFO | 59.1 | <0.1 |

Table E-1 Aboveground Facilities/ Extra Workspace and Associated Wetlands

| Mississippi County | Feature or Facility Name | Wetland Field ID | Wetland Type | Nearest Approximate Milepost | Approximate Impact (Acres) |
|---|---|---|---|---|---|
| Holmes | Waterbody crossing and fabrication area | JW13 | PEM/PSS | 59.6 | 0.1 |
| Holmes | Access road and fabrication area | JW14 | PEM/PSS | 59.9 | 0.1 |
| Holmes | Access road and fabrication area | JAV-W18 | PEM/PSS | 60.4 | <0.1 |
| Holmes | Pipeline crossing and fabrication area | JW2 | PEM/PSS | 60.6 | 0.1 |
| Holmes | Pipeline crossing and fabrication area | JW2 | PEM/PSS | 60.6 | 0.2 |
| Holmes | Access road and fabrication area | tdh ms w9 | PFO/PEM | 77.2 | 0.1 |
| Holmes | Pull string | tdh ms w10 | PFO/PEM | 77.2 | <0.1 |
| Holmes | Truck turnaround and access | tdh ms w9 | PFO/PEM | 77.5 | 0.4 |
| Attala | Access road and fabrication area | tdh ms w3 5/23 | PFO | 78.1 | <0.1 |
| **Access Roads** | | | | | |
| Humphreys | Access Road AR-15 | JAV-W7 | PFO | 40.1 | <0.1 |
| Humphreys | Access Road AR-18 | tdh ms w3 | PFO | 44.3 | <0.1 |
| Humphreys | Access Road AR-19 | tdh ms w3 | PFO | 45.5 | 0.1 |
| Holmes | Access Road AR-38 | JW13 | PEM/PSS | 59.6 | <0.1 |
| Holmes | Access Road AR-40 | JAV-W18 | PEM/PSS | 60.5 | <0.1 |
| Holmes | Access Road AR-60 | tdh ms w9 | PFO/PSS | 77.2 | 0.1 |
| Attala | Access Road AR-61 | tdh ms w3 5/23 | PFO | 78.1 | <0.1 |
| **KOSCIUSKO 36" PIPELINE** | | | | | |
| **Aboveground Facilities** | | | | | |
| n/a | none | n/a | n/a | n/a | n/a |
| **Additional Temporary Workspaces** | | | | | |
| n/a | none | n/a | n/a | n/a | n/a |
| **Access Roads** | | | | | |
| n/a | none | n/a | n/a | n/a | n/a |
| **KOSCIUSKO/SOUTHERN NATURAL 20" PIPELINE** | | | | | |
| **Aboveground Facilities** | | | | | |
| n/a | none | n/a | n/a | n/a | n/a |
| **Additional Temporary Workspaces** | | | | | |
| n/a | none | n/a | n/a | n/a | n/a |

**Table E-1 Aboveground Facilities/ Extra Workspace and Associated Wetlands**

| Mississippi County | Feature or Facility Name | Wetland Field ID | Wetland Type | Nearest Approximate Milepost | Approximate Impact (Acres) |
|---|---|---|---|---|---|
| Access Roads | | | | | |
| n/a | none | n/a | n/a | n/a | n/a |

## Appendix F

## Waterbody Crossing Table

**Table F-1 Waterbodies Within the Construction Corridor of the Proposed Pipeline Route**

| Mississippi County | Approximate Mileposts at Crossing | Field ID | Waterbody Name and Type[b, c] | Size[d] and Estimated Width of Stream Crossing | Crossing Method[e] | State Water Classification[f] |
|---|---|---|---|---|---|---|
| **Fayetteville Lateral** | | | | | | |
| Phillips | 157.3 | Miss River | Mississippi River (Perennial) | Major- 4000 ft | HDD | FW |
| Coahoma | 160.0 | tdh int st | Rowen Bayou (Intermittent) | Minor- 2 ft | OCM | FW |
| Coahoma | 160.5 | tdh agditc | Tributary to Moon Lake (Intermittent) | Minor- 2 ft | OCM | FW |
| Coahoma | 160.7 | tdh Strm | Phillips Bayou (Perennial) | Major- 110 ft | OCM | FW |
| Coahoma | 161.9 | tdh agditc | Tributary to Muddy Bayou (Intermittent) | Minor- 2 ft | OCM | FW |
| **Greenville Lateral** | | | | | | |
| Washington | 0.8 | ML-D1 | Tributary to Main Canal (Intermittent) | Minor- 3 ft | OCM | FW |
| Washington | 2.1 | ML-D2 | Canal to Swiftwater Bayou (Intermittent) | Minor- 3 ft | OCM | FW |
| Washington | 3.3 | ML-D3 | Canal to Swiftwater Bayou (Intermittent) | Minor- 3 ft | OCM | FW |
| Washington | 3.4 | ML-D4 | Canal to Jackson Bayou (Intermittent) | Minor- 3 ft | OCM | FW |
| Washington | 3.7 | ML-D5 | Canal to Widow Bayou (Intermittent) | Minor-3 ft | OCM | FW |
| Washington | 3.9 | ag ditch | Tributary to Black Bayou (Intermittent) | Minor- 3 ft | OCM | FW |
| Washington | 4.7 | ML-D6 | Canal to Widow Bayou (Intermittent) | Minor- 3 ft | OCM | FW |
| Washington | 4.9 | ML-D7 | Canal to Black Bayou (Intermittent) | Intermediate- 26 ft | OCM | FW |
| Washington | 5.2 | B. Bayou | Black Bayou (Perennial) | Intermediate- 60 ft | OCM | FW |
| Washington | 5.3 | B. Bayou | Black Bayou (Perennial) | Intermediate 35 ft | OCM | FW |
| Washington | 5.5 | B. Bayou | Black Bayou (Perennial) | Intermediate 90 ft | OCM | FW |
| Washington | 6.0 | ML-D9B | Canal to Black Bayou (Intermittent) | Minor- 9 ft | OCM | FW |
| Washington | 6.2 | ML-D11 | Canal to Black Bayou (Intermittent) | Minor- 9 ft | OCM | FW |
| Washington | 6.4 | ag ditch | Tributary to Black Bayou (Intermittent) | Minor- 3 ft | OCM | FW |
| Washington | 6.7 | ag ditch | Tributary to Black Bayou (Intermittent) | Minor- 3 ft | OCM | FW |
| Washington | 7.1 | ML-D12 | Canal to Black Bayou (Perennial) | Minor- 9 ft | OCM | FW |
| Washington | 9.3 | ML-D13 | Deer Creek (Perennial) | Intermediate – 60 ft | HDD | FW |
| Washington | 11.2 | ML-D15 | Bogue Phalia (Perennial) | Major- 125 ft | HDD | FW |
| Washington | 11.9 | ML-D17 | Tributary to Bogue Phalia (Intermittent) | Minor- 9 ft | OCM | FW |
| Washington | 14.7 | Canal to B. Phalia | Canal to Bogue Phalia (Intermittent) | Minor- 9 ft | OCM | FW |
| Washington | 16.9 | Trib. of Sixmile | Tributary to Sixmile Bayou (Intermittent) | Minor- 9 ft | OCM | FW |
| Sunflower | 17.6 | ML-D18 | East Sixmile Bayou (Intermittent) | Intermediate- 33 ft | OCM | FW |
| Sunflower | 18.3 | ML-D19 | Canal to Bogue Phalia (Intermittent) | Minor- 9 ft | OCM | FW |
| Sunflower | 18.6 | ML-D20 | Cypress Slough (Intermittent) | Minor- 9 ft | OCM | FW |

Table F-1 Waterbodies Within the Construction Corridor of the Proposed Pipeline Route

| Mississippi County | Approximate Mileposts at Crossing | Field ID | Waterbody Name and Type[b,c] | Size[d] and Estimated Width of Stream Crossing | Crossing Method[e] | State Water Classification[f] |
|---|---|---|---|---|---|---|
| Washington | 19.4 | tdh ditch 2 | Tributary to Mellon Lake (Intermittent) | Minor- 3 ft | OCM | FW |
| Washington | 19.4 | tdh ditch 3 | Tributary to Mellon Lake (Intermittent) | Minor- 3 ft | OCM | FW |
| Washington-Humphreys | 20.3 | ML-D21 | Big Sunflower River (Perennial) | Major- 250 ft | HDD | FW |
| Humphreys | 20.9 | ML-D22 | Tributary to Big Sunflower River (Intermittent) | Minor- 9 ft | OCM | FW |
| Humphreys | 21.1 | ML-D23 | Canal to Big Sunflower River (Perennial) | Minor- 9 ft | OCM | FW |
| Humphreys | 23.6 | ML-S8 | Beasley Bayou (Perennial) | Intermediate- 98 ft | OCM | FW |
| Humphreys | 25.3 | ML-D24 | Canal to Big Sunflower River (Intermittent) | Minor- 9 ft | OCM | FW |
| Humphreys | 26.1 | ML-S10 | Beasley Bayou (Perennial) | Intermediate 50 ft | OCM | FW |
| Humphreys | 26.7 | ML-D25A | Tributary to Jackson Bayou (Intermittent) | Minor- 9 ft | OCM | FW |
| Humphreys | 26.9 | ML-D25B | Tributary to Jackson Bayou (Intermittent) | Minor- 9 ft | OCM | FW |
| Humphreys | 27.3 | Jackson B | Jackson Bayou (Intermittent) | Minor- 9 ft | OCM | FW |
| Humphreys | 27.6 | ML-D26 | Tributary to Jackson Bayou (Intermittent) | Minor- 9 ft | OCM | FW |
| Humphreys | 27.9 | ML-D27 | Tributary to Jackson Bayou (Intermittent) | Minor- 9 ft | OCM | FW |
| Humphreys | 29.4 | ML-D28 | Canal to Jackson Bayou (Intermittent) | Minor- 9 ft | OCM | FW |
| Humphreys | 29.5 | ML-D29 | Canal to Jackson Bayou (Intermittent) | Minor- 9 ft | OCM | FW |
| Humphreys | 31.3 | jr Int12 | Little Jackson Bayou (Intermittent) | Intermediate- 25 ft | OCM | FW |
| Humphreys | 31.5 | J-D1 | Canal to Cold Lake (Intermittent) | Minor- 9 ft | OCM | FW |
| Humphreys | 31.8 | J-D2 | Canal to Cold Lake (Intermittent) | Minor- 9 ft | OCM | FW |
| Humphreys | 33.1 | J-D3 | Canal to Wasp Lake (Intermittent) | Minor- 9 ft | OCM | FW |
| Humphreys | 34.0 | J-D5 | Tributary to Wasp Lake (Intermittent) | Minor- 9 ft | OCM | FW |
| Humphreys | 34.3 | J-D6 | Canal to Wasp Lake (Intermittent) | Minor- 9 ft | OCM | FW |
| Humphreys | 34.8 | J-D7 | Tributary to Wasp Lake (Intermittent) | Minor- 9 ft | OCM | FW |
| Humphreys | 34.9 | J-D8 | Canal to Wasp Lake (Intermittent) | Minor- 9 ft | OCM | FW |
| Humphreys | 35.2 | J-D9 | Canal to Wasp Lake (Intermittent) | Minor- 9 ft | OCM | FW |
| Humphreys | 35.4 | J-D9 | Canal to Wasp Lake (Intermittent) | Minor- 9 ft | OCM | FW |
| Humphreys | 35.6 | jr Int13 | Fish Bayou (Intermittent) | Minor- 9 ft | OCM | FW |
| Humphreys | 36.2 | J-D10 | Canal to Fish Bayou (Intermittent) | Minor- 5 ft | OCM | FW |
| Humphreys | 36.4 | J-D11 | Canal to Fish Bayou (Intermittent) | Minor- 5 ft | OCM | FW |
| Humphreys | 36.5 | J-D12 | Canal to Fish Bayou (Intermittent) | Minor- 5 ft | OCM | FW |
| Humphreys | 36.7 | J-D13 | Canal to Fish Bayou (Intermittent) | Minor- 5 ft | OCM | FW |
| Humphreys | 37.0 | J-D15 | Canal to Fish Bayou (Intermittent) | Minor- 5 ft | OCM | FW |
| Humphreys | 37.2 | J-D17 | Canal to Fish Bayou (Intermittent) | Minor- 5 ft | OCM | FW |

Table F-1 Waterbodies Within the Construction Corridor of the Proposed Pipeline Route

| Mississippi County | Approximate Mileposts at Crossing | Field ID | Waterbody Name and Type[b, c] | Size[d] and Estimated Width of Stream Crossing | Crossing Method[e] | State Water Classification[f] |
|---|---|---|---|---|---|---|
| Humphreys | 39.6 | J-D19 | Canal to Yazoo River (Intermittent) | Minor- 5 ft | OCM | FW |
| Humphreys | 40.5 | Yazoo | Yazoo River (Perennial) | Major- 395 ft | HDD | FW |
| Humphreys | 41.1 | ag ditch | Tributary to Toney Brake (Intermittent) | Minor- 5 ft | OCM | FW |
| Humphreys | 41.4 | J-D21 | Tributary to Toney Brake (Intermittent) | Minor- 5 ft | OCM | FW |
| Humphreys | 41.7 | J-D22 | Tributary to Toney Brake (Intermittent) | Minor- 5 ft | OCM | FW |
| Humphreys | 42.6 | J-D23 | Canal to Mathena Brake (Intermittent) | Minor- 5 ft | OCM | FW |
| Holmes | 46.7 | Tchula | Tchula Lake | Major- 160 ft | HDD | FW |
| Holmes | 49.5 | J-D29 | Canal to Tchula Lake (Intermittent) | Minor- 5 ft | OCM | FW |
| Holmes | 49.8 | J-D30 | Canal to Tchula Lake (Intermittent) | Minor- 5 ft | OCM | FW |
| Holmes | 50.2 | J-D31 | Canal to Tchula Lake (Intermittent) | Minor- 5 ft | OCM | FW |
| Holmes | 50.5 | J-D32 | Canal to Tchula Lake (Intermittent) | Minor- 5 ft | OCM | FW |
| Holmes | 51.3 | tdh ms ditch | Tributary to Old Fannegusha Creek (Intermittent) | Minor- 3 ft | OCM | FW |
| Holmes | 51.5 | tdh ms ag ditch | Tributary to Old Fannegusha Creek (Intermittent) | Minor- 3 ft | OCM | FW |
| Holmes | 51.8 | tdh ms ag ditch | Tributary to Old Fannegusha Creek (Intermittent) | Minor- 3 ft | OCM | FW |
| Holmes | 54.3 | Fannegusha | Fannegusha Creek (Perennial) | Major-100 ft | HDD | FW |
| Holmes | 54.5 | tdh ms ag ditch | Tributary to Fannegusha Creek (Intermittent) | Minor- 3ft | OCM | FW |
| Holmes | 54.8 | tdh ms int stream | Tributary to Blissdale Swamp (Intermittent) | Minor- 3ft | OCM | FW |
| Holmes | 55.8 | J-D43 | Tributary to Black Creek (Intermittent) | Minor- 9 ft | OCM | FW |
| Holmes | 56.3 | int st | Tributary to Black Creek (Intermittent) | Minor- 2 ft | OCM | FW |
| Holmes | 57.1 | kp int5 | Tributary to Black Creek (Intermittent) | Minor- 2 ft | OCM | FW |
| Holmes | 57.9 | JS1 | Tributary of Black Creek (Perennial) | Minor- 9 ft | OCM | FW |
| Holmes | 57.9 | wwc2 | Tributary to Black Creek (Intermittent) | Minor- 2 ft | OCM | FW |
| Holmes | 58.0 | wwc1 | Tributary to Black Creek (Intermittent) | Minor- 2 ft | OCM | FW |
| Holmes | 58.3 | J-D44 | Tributary to Black Creek (Intermittent) | Minor- 9 ft | OCM | FW |
| Holmes | 58.5 | J-D45 | Tributary to Black Creek (Intermittent) | Minor- 9 ft | OCM | FW |
| Holmes | 58.5 | J-D46 | Tributary to Black Creek (Intermittent) | Minor- 9 ft | OCM | FW |
| Holmes | 58.6 | J-D47 | Tributary to Black Creek (Intermittent) | Minor- 9 ft | OCM | FW |
| Holmes | 58.9 | J-D48 | Tributary to Black Creek (Intermittent) | Minor- 9 ft | OCM | FW |
| Holmes | 58.9 | J-D50 | Tributary to Black Creek (Intermittent) | Minor- 9 ft | OCM | FW |
| Holmes | 59.6 | J-D51 | Tributary to Black Creek (Intermittent) | Minor- 9 ft | OCM | FW |
| Holmes | 60.1 | J-D53 | Tributary to Black Creek (Intermittent) | Minor- 9 ft | OCM | FW |
| Holmes | 60.5 | JS2 | Tributary of Black Creek (Perennial) | Intermediate- 13 ft | OCM | FW |

Table F-1 Waterbodies Within the Construction Corridor of the Proposed Pipeline Route

| Mississippi County | Approximate Mileposts at Crossing | Field ID | Waterbody Name and Type[b, c] | Size[d] and Estimated Width of Stream Crossing | Crossing Method[e] | State Water Classification[f] |
|---|---|---|---|---|---|---|
| Holmes | 60.6 | JWWC-4 | Tributary to Black Creek (Intermittent) | Minor- 2 ft | OCM | FW |
| Holmes | 60.9 | JS3 | Tributary of Black Creek (Perennial) | Intermediate- 10 ft | OCM | FW |
| Holmes | 61.1 | JS11 | Tributary to Black Creek (Intermittent) | Intermediate- 10 ft | OCM | FW |
| Holmes | 61.2 | JS6 | Black Creek (Perennial) | Intermediate- 58 ft | OCM | FW |
| Holmes | 61.7 | JWWC-11 | Tributary to Black Creek (Intermittent) | Minor- 2 ft | OCM | FW |
| Holmes | 61.8 | JWWC-10 | Tributary to Black Creek (Intermittent) | Minor- 2 ft | OCM | FW |
| Holmes | 61.9 | WWC-9 | Tributary to Black Creek (Intermittent) | Minor- 2 ft | OCM | FW |
| Holmes | 62.0 | JS5 | Tributary of Black Creek (Intermittent) | Intermediate- 23 ft | OCM | FW |
| Holmes | 62.3 | JS4 | Tributary to Black Creek (Intermittent) | Intermediate- 13 ft | OCM | FW |
| Holmes | 62.8 | WWC5 | Tributary to Black Creek (Intermittent) | Minor- 2 ft | OCM | FW |
| Holmes | 62.9 | WWC4 | Tributary to Black Creek (Intermittent) | Minor- 2 ft | OCM | FW |
| Holmes | 63.4 | JWWC-12 | Tributary to Black Creek (Intermittent) | Minor- 2 ft | OCM | FW |
| Holmes | 63.7 | int st | Tributary to Black Creek (Intermittent) | Minor- 2 ft | OCM | FW |
| Holmes | 63.8 | jr s1 | Tributary to Black Creek (Intermittent) | Minor- 6ft | OCM | FW |
| Holmes | 64.5 | ditch-1 | Tributary to Black Creek (Intermittent) | Minor- 2 ft | OCM | FW |
| Holmes | 65.2 | JS7 | Gourdvine Creek (Perennial) | Intermediate- 50 ft | OCM | FW |
| Holmes | 66.0 | WWC15 | Tributary to Tarrey Creek (Intermittent) | Minor- 2 ft | OCM | FW |
| Holmes | 66.3 | JWWC-27 | Tributary to Tarrey Creek (Intermittent) | Minor- 2 ft | OCM | FW |
| Holmes | 66.4 | JWWC-26 | Tributary to Tarrey Creek (Intermittent) | Minor- 2 ft | OCM | FW |
| Holmes | 66.4 | WWC25 | Tributary to Tarrey Creek (Intermittent) | Minor- 2 ft | OCM | FW |
| Holmes | 66.5 | JS9 | Tributary to Tarrey Creek (Intermittent) | Minor- 7 ft | OCM | FW |
| Holmes | 66.6 | JWWC-24 | Tributary to Tarrey Creek (Intermittent) | Minor- 2 ft | OCM | FW |
| Holmes | 66.7 | JWWC-23 | Tributary to Tarrey Creek (Intermittent) | Minor- 2 ft | OCM | FW |
| Holmes | 66.8 | JWWC-21 | Tributary to Tarrey Creek (Intermittent) | Minor- 2 ft | OCM | FW |
| Holmes | 66.8 | JWWC-22 | Tributary to Tarrey Creek (Intermittent) | Minor- 2 ft | OCM | FW |
| Holmes | 67.0 | JS8 | Tributary to Tarrey Creek (Intermittent) | Intermediate- 16 ft | OCM | FW |
| Holmes | 67.1 | JS8 | Tributary to Tarrey Creek (Intermittent) | Intermediate- 16 ft | OCM | FW |
| Holmes | 67.4 | tdh ms int stream | Tributary to Tarrey Creek (Intermittent) | Minor- 2 ft | OCM | FW |
| Holmes | 67.5 | tdh ms int stream | Tributary to Tarrey Creek (Intermittent) | Minor- 2 ft | OCM | FW |
| Holmes | 67.6 | JWWC-35 | Tributary to Tarrey Creek (Intermittent) | Minor- 2 ft | OCM | FW |
| Holmes | 67.6 | JWWC-36 | Tributary to Tarrey Creek (Intermittent) | Minor- 2 ft | OCM | FW |

Table F-1 Waterbodies Within the Construction Corridor of the Proposed Pipeline Route

| Mississippi County | Approximate Mileposta at Crossing | Field ID | Waterbody Name and Type[b,c] | Size[d] and Estimated Width of Stream Crossing | Crossing Method[e] | State Water Classification[f] |
|---|---|---|---|---|---|---|
| Holmes | 67.7 | tdh ms int stream | Tributary to Tarrey Creek (Intermittent) | Minor- 2 ft | OCM | FW |
| Holmes | 68.0 | WWC34 | Tributary to Tarrey Creek (Intermittent) | Minor- 2 ft | OCM | FW |
| Holmes | 68.3 | JS10 | Tributary to Tarrey Creek (Intermittent) | Intermediate- 16 ft | OCM | FW |
| Holmes | 68.6 | JWWC32 | Tributary to Tarrey Creek (Intermittent) | Minor- 2 ft | OCM | FW |
| Holmes | 68.7 | JWWC31 | Tributary to Tarrey Creek (Intermittent) | Minor- 2 ft | OCM | FW |
| Holmes | 68.9 | jr s2 | Tributary to Tarrey Creek (Intermittent) | Minor- 9 ft | OCM | FW |
| Holmes | 69.3 | jr s3 | Tarrey Creek (Perennial) | Minor- 9 ft | OCM | FW |
| Holmes | 70.8 | jr int4 | Tributary to Long Creek (Intermittent) | Minor- 5 ft | OCM | FW |
| Holmes | 70.9 | Trib. to Tarrey | Tributary to Tarrey Creek (Intermittent) | Minor- 5 ft | OCM | FW |
| Holmes | 71.1 | strm9b | Tributary to Tarrey Creek (Intermittent) | Minor- 5 ft | OCM | FW |
| Holmes | 71.2 | strm9a | Tributary to Tarrey Creek (Intermittent) | Minor- 5 ft | OCM | FW |
| Holmes | 71.4 | tdh-wwc13 | Tributary to Tarrey Creek (Intermittent) | Minor- 2 ft | OCM | FW |
| Holmes | 71.7 | tdh stream 3 | Tributary to Box Creek (Intermittent) | Intermediate- 15 ft | OCM | FW |
| Holmes | 71.8 | tdhditch2 | Tributary to Box Creek (Intermittent) | Minor- 1 ft | OCM | FW |
| Holmes | 71.9 | tdh wwc 12 | Tributary to Box Creek (Intermittent) | Minor- 2 ft | OCM | FW |
| Holmes | 72.0 | tdhwwc11 | Tributary to Box Creek (Intermittent) | Minor- 2 ft | OCM | FW |
| Holmes | 72.5 | tdh wwc 10 | Box Creek (Intermittent) | Minor- 2 ft | OCM | FW |
| Holmes | 72.9 | tdh wwc9 | Tributary to Box Creek (Intermittent) | Minor- 2 ft | OCM | FW |
| Holmes | 73.2 | tdh wwc8 | Tributary to Big Black River (Intermittent) | Minor- 2 ft | OCM | FW |
| Holmes | 73.3 | tdh-wwc8 | Tributary to Big Black River (Intermittent) | Minor- 2 ft | OCM | FW |
| Holmes | 73.4 | strm7 | Tributary to Big Black River (Intermittent) | Minor- 5 ft | OCM | FW |
| Holmes | 73.8 | tdh stream 2 | Tributary to Big Black River (Intermittent) | Minor- 5 ft | OCM | FW |
| Holmes | 73.9 | tdh-stream 1 | Tributary to Big Black River (Intermittent) | Minor- 9 ft | OCM | FW |
| Holmes | 73.9 | tdhwwc 7 | Tributary to Big Black River (Intermittent) | Minor- 2 ft | OCM | FW |
| Holmes | 74.0 | tdh int 5 | Tributary to Big Black River (Intermittent) | Minor- 5 ft | OCM | FW |
| Holmes | 74.3 | tdh wwc6 | Tributary to Big Black River (Intermittent) | Minor- 2 ft | OCM | FW |
| Holmes | 74.7 | tdh stream 1 | Tributary to Big Black River (Intermittent) | Minor- 9 ft | OCM | FW |
| Holmes | 75.0 | tdh int stream 4 | Tributary to Big Black River (Intermittent) | Minor- 5 ft | OCM | FW |
| Holmes | 75.5 | jr int6 | Tributary to Big Black River (Intermittent) | Minor- 9 ft | OCM | FW |
| Holmes | 76.1 | tdh int st | Tributary to Big Black River (Intermittent) | Minor- 2 ft | OCM | FW |
| Holmes | 76.2 | Trib. 2 Big | Tributary to Big Black River (Intermittent) | Minor- 9 ft | OCM | FW |

Table F-1 Waterbodies Within the Construction Corridor of the Proposed Pipeline Route

| Mississippi County | Approximate Mileposts at Crossing | Field ID | Waterbody Name and Type[b,c] | Size[d] and Estimated Width of Stream Crossing | Crossing Method[e] | State Water Classification[f] |
|---|---|---|---|---|---|---|
| | | Black | | | | |
| Holmes | 77.7 | Big Black | Big Black River (Perennial) | Major- 270 ft | HDD | FW |
| Holmes | 77.9 | tdh ms s1 | Tributary to Big Black River (Perennial) | Minor- 9ft | OCM | FW |
| Attala | 78.4 | tdh wwc 15 | Tributary to Big Black River (Intermittent) | Minor- 2 ft | OCM | FW |
| Attala | 78.5 | tdh wwc 14 | Tributary to Big Black River (Intermittent) | Minor- 2 ft | OCM | FW |
| Attala | 78.9 | tdh wwc 4 | Tributary to Big Black River (Intermittent) | Minor- 2 ft | OCM | FW |
| Attala | 79.1 | tdh int stream 3 | Tributary to Big Black River (Intermittent) | Minor- 6 ft | OCM | FW |
| Attala | 79.2 | tdh int stream 2 | Tributary to Big Black River (Intermittent) | Minor- 5 ft | OCM | FW |
| Attala | 79.3 | tdh int stream 2 | Tributary to Big Black River (Intermittent) | Minor- 5 ft | OCM | FW |
| Attala | 79.5 | tdh wwc3 | Tributary to Big Black River (Intermittent) | Minor- 2 ft | OCM | FW |
| Attala | 80.1 | tdh wwc2 | Tributary to Long Creek (Intermittent) | Minor- 2 ft | OCM | FW |
| Attala | 80.3 | tdh ditch 1 | Tributary to Long Creek (Intermittent) | Minor- 1 ft | OCM | FW |
| Attala | 80.7 | tdh int stream 1' | Tributary to Long Creek (Intermittent) | Minor- 5 ft | OCM | FW |
| Attala | 80.8 | tdh wwc1 | Tributary to Long Creek (Intermittent) | Minor- 2 ft | OCM | FW |
| Attala | 82.4 | KWWC-41 | Tributary to Long Creek (Intermittent) | Minor- 2 ft | OCM | FW |
| Attala | 82.4 | KWWC-42 | Tributary to Long Creek (Intermittent) | Minor- 2 ft | OCM | FW |
| Attala | 82.5 | KWWC-40 | Tributary to Long Creek (Intermittent) | Minor- 2 ft | OCM | FW |
| Attala | 82.6 | KWWC-38 | Tributary to Long Creek (Intermittent) | Minor- 2 ft | OCM | FW |
| Attala | 82.6 | KWWC-39 | Tributary to Long Creek (Intermittent) | Minor- 2 ft | OCM | FW |
| Attala | 82.8 | KWWC-37 | Tributary to Long Creek (Intermittent) | Minor- 2 ft | OCM | FW |
| Attala | 83.0 | KWWC-36 | Tributary to Long Creek (Intermittent) | Minor- 2 ft | OCM | FW |
| Attala | 83.6 | KWWC-35 | Tributary to Long Creek (Intermittent) | Minor-2 ft | OCM | FW |
| Attala | 83.7 | KS7 | Tributary to Long Creek (Intermittent) | Minor- 5 ft | OCM | FW |
| Attala | 83.8 | KS7 | Tributary to Long Creek (Intermittent) | Minor- 5 ft | OCM | FW |
| Attala | 83.9 | KS7 | Tributary to Long Creek (Intermittent) | Minor- 5 ft | OCM | FW |
| Attala | 84.0 | KWWC-31 | Tributary to Long Creek (Intermittent) | Minor- 2 ft | OCM | FW |
| Attala | 84.0 | KWWC-32 | Tributary to Long Creek (Intermittent) | Minor- 2 ft | OCM | FW |
| Attala | 84.0 | KWWC-33 | Tributary to Long Creek (Intermittent) | Minor- 2 ft | OCM | FW |
| Attala | 84.6 | Kditch10 | Tributary to Long Creek (Intermittent) | Minor- 1 ft | OCM | FW |

Table F-1 Waterbodies Within the Construction Corridor of the Proposed Pipeline Route

| Mississippi County | Approximate Mileposts at Crossing | Field ID | Waterbody Name and Type[b,c] | Size[d] and Estimated Width of Stream Crossing | Crossing Method[e] | State Water Classification[f] |
|---|---|---|---|---|---|---|
| Attala | 84.8 | Kditch9 | Tributary to Long Creek (Intermittent) | Minor- 1 ft | OCM | FW |
| Attala | 84.9 | KS6 Station 1 | Long Creek (Perennial) | Intermediate- 30 ft | OCM | FW |
| Attala | 85.2 | KWWC-29 | Tributary to Long Creek (Intermittent) | Minor- 2 ft | OCM | FW |
| Attala | 85.7 | KS6 Station 2 | Long Creek (Perennial) | Intermediate- 50 ft | OCM | FW |
| Attala | 85.9 | Kditch8 | Tributary to Long Creek (Intermittent) | Minor- 1 ft | OCM | FW |
| Attala | 86.3 | KS5 | Long Creek (Perennial) | Intermediate- 43 ft | OCM | FW |
| Attala | 86.9 | KWWC-30 | Tributary to Long Creek (Intermittent) | Minor- 2 ft | OCM | FW |
| Attala | 87.3 | KS4 | Tributary to Long Creek (Intermittent) | Minor- 5 ft | OCM | FW |
| Attala | 87.8 | jr int7 | Tributary to Long Creek (Intermittent) | Minor- 5 ft | OCM | FW |
| Attala | 87.8 | jr s4 | Long Creek (Perennial) | Minor- 9 ft | OCM | FW |
| Attala | 87.9 | jr s5 | Tributary to Long Creek (Perennial) | Intermediate- 12 ft | OCM | FW |
| Attala | 88.3 | jr int9 | Tributary to Long Creek (Intermittent) | Minor- 5 ft | OCM | FW |
| Attala | 88.7 | jr int10 | Tributary to Long Creek (Intermittent) | Minor- 5 ft | OCM | FW |
| Attala | 89.1 | jr s6 | Tributary to Long Creek (Perennial) | Minor- 9 ft | OCM | FW |
| Attala | 90.1 | jrint1 | Tributary to Long Creek (Intermittent) | Minor- 2 ft | OCM | FW |
| Attala | 90.1 | Trib. 4 Long C | Tributary to Long Creek (Intermittent) | Minor- 5 ft | OCM | FW |
| Attala | 90.6 | ditch | Tributary to Long Creek (Intermittent) | Minor- 2 ft | OCM | FW |
| Attala | 91.3 | jrint2 | Tributary to Long Creek (Intermittent) | Minor- 2 ft | OCM | FW |
| Attala | 91.8 | jrint3 | Tributary to Long Creek (Intermittent) | Minor- 2 ft | OCM | FW |
| Attala | 92.7 | jrint4 | Tributary to Yockanookany River (Intermittent) | Minor- 5 ft | OCM | FW |
| Attala | 93.1 | jrs7 | Yockanookany River (Perennial) | Intermediate- 50 ft | HDD | FW |
| Attala | 93.7 | tdh ms int s1 | Tributary to Yockanookany River (Intermittent) | Minor- 5 ft | OCM | FW |
| Attala | 95.0 | int st | Tributary to Conehoma Creek (Intermittent) | Minor- 5 ft | OCM | FW |
| Attala | 95.1 | Conehoma | Conehoma Creek (Perennial) | Intermediate- 20 ft | OCM | FW |
| Attala | 96.0 | kp int1 | Tributary to Conehoma Creek (Intermittent) | Minor- 5 ft | OCM | FW |
| Kosciusko 36" Pipeline | | | | | | |
| Attala | 0.3 | kp int1 | Tributary to Conehoma Creek (Intermittent) | Minor- 5 ft | OCM | FW |
| Attala | 0.7 | Little Cone. Creek | Little Conehoma Creek (Perennial) | Intermediate- 20 ft | OCM | FW |

Table F-1 Waterbodies Within the Construction Corridor of the Proposed Pipeline Route

| Mississippi County | Approximate Mileposts at Crossing | Field ID | Waterbody Name and Type[b, c] | Size[d] and Estimated Width of Stream Crossing | Crossing Method[e] | State Water Classification[f] |
|---|---|---|---|---|---|---|
| Kosciusko/Southern Natural 20" Pipeline | | | | | | |
| n/a | n/a | n/a | n/a | n/a | n/a | n/a |

[a] *Milepost based on desktop analysis of proposed pipeline route.*

[b] *Intermittent and Perennial designations determined by site reconnaissance and USGS name.*

[c] *Perennial waterbodies in Coahoma County, Mississippi may contain potential habitat for the fat pocketbook.*

[d] *Minor stream is less than 10 feet wide, Intermediate streams are between 10 and 99 feet, and Major are over 100 feet.*

[e] *HDD = horizontal directional drill, OCM = open cut method (includes both conventional [i.e., without work area isolation] and non-coventional [with work area isolation] methods).*

[f] *Mississippi State Water Quality Classifications – Fish and Wildlife (FW), Shellfish Harvesting (SH), Recreation (R), Ephemeral Stream (ES), Public Water Supply (PWS)*

# APPENDIX E

# EXOTIC AND INVASIVE SPECIES CONTROL PLAN

TEXAS GAS
TRANSMISSION, LLC

# Fayetteville/Greenville Lateral Expansion Project

# Exotic and Invasive Species Control Plan

# Exotic and Invasive Species Control Plan

# Fayetteville/Greenville Lateral Expansion Project
# Texas Gas Transmission, LLC

Texas Gas Transmission, LLC has developed an exotic and invasive species control plan for the Fayetteville/Greenville Lateral Expansion Project, The following species include those that have been designated to have the potential to occur along the pipeline project.

| Common Name | Scientific Name | Growth Form | Typical Habitat |
|---|---|---|---|
| Cogon grass | *Imperiata cylindrica* | Erect grass | **Upland areas** |
| Water hyacinth | *Eichhornia crassipes* | Floating aquatic | **Aquatic** |
| Johnsongrass | *Sorghum halepense* | Erect grass | **Upland to mesic** |

Because a pipeline project is a linear energy corridor configuration, construction of the corridor with the associated excavation for pipeline placement exposes the topsoil surface to potential entrance of exotic and/or invasive species. This can occur either by physical transport onto the exposed soil site by way of machinery or vehicles or through windborne dissemination of seeds of the exotic or invasive species from the surrounding area. To avoid and minimize the potential for the introduction of these seeds to the protect corridor, Texas Gas will apply two exotic and invasive species specific management strategies.

These two strategies for exotic and invasive species control include:

1. Minimization of the introduction of species which were not documented as common endemic species during the environmental surveys conducted along the pipeline route. This strategy is achieved through pressure-washing all construction equipment before it is brought to the construction area for the first time. This should remove any potential seeds or plant parts of the exotic or invasive species from the equipment to prevent this as a mechanism by which the undesirable species could be transported onto the construction site. As a part of this process, all water and material that is captured from the pressure washings will be contained at the pressure washing site and will be disposed of properly to prevent potential dispersal of this material.

2. In addition to the pressure washing of equipment described above, a second strategy to be used in this plan involves the monitoring and selective spot

treatment / eradication of any exotic or invasive species encountered during construction. Texas Gas proposes to monitor the right-of-way for the first 3 to 5 years during normal pipeline monitoring activities to allow for early detection of exotic or invasive species infestations or outbreaks. If species or colonies of exotic or invasive species are found in numbers that are substantially different from those of existing nearby off right-of-way locations, Texas Gas will conduct selective spot eradications of those species. This control measure could include herbicide application, or hand cutting to achieve effective removal of the species.

In addition to the above two strategies to prevent exotic and invasive species encroachment onto the right-of-way, the following control measures will be used to further minimize introduction and/or spread of these species:

- Adherence to FERC's Plan and Procedures to assure that sediment movement and the associated movement of non-native seeds into newly disturbed soils are minimized.
- Use construction techniques along the pipeline route that minimize the time that bare soil is exposed and, therefore, minimize the opportunity for exotic species to become established.
- In wetland construction areas where practicable, remove topsoil from the excavation areas and store it to the side for replacement once the construction is complete. This will minimize the introduction of non-native species and maintain the native plant seed bank.
- Sow a cover crop along all exposed soil surfaces within a short time to assure that a suitable growing substrate for exotic or invasive species is not available for long periods of time.

# APPENDIX F
# NATCHEZ TRACE PARKWAY

# 1.0 NATCHEZ TRACE PARKWAY

## 1.1 INTRODUCTION

This appendix was developed to address the proposed 36-inch-diameter natural gas pipeline crossing of the Natchez Trace Parkway (Parkway) by Texas Gas Transmission, LLC's (Texas Gas) proposed Fayetteville/Greenville Expansion Project (Project). Although this appendix incorporates by reference other sections within the Environmental Impact Statement (EIS), our intent was to consolidate the most pertinent information relevant to the Parkway in this appendix, including an overview of the alternatives considered. The Parkway is managed by the National Park Service (NPS), which requires a distinct National Environmental Policy Act (NEPA) evaluation before deciding whether to allow the proposed crossing. In order for the Project to cross Parkway property, the NPS would have to grant a right-of-way and issue an easement. It is anticipated that the information and analyses included in this appendix and the EIS would address NPS's NEPA requirements.

The Parkway is a 444-mile roadway system that connects southern portions of the Mississippi River, through Alabama, to central Tennessee (NPS 2006). Recreational opportunities associated with the parkway include scenic driving, hiking, biking, horseback riding, and camping. The Parkway was authorized by Congress in 1938 and commemorates the historic Old Natchez Trace. The Old Natchez Trace was historically used for centuries by Native Americans, traders, military personnel, and early settlers as a pathway connecting the mid-South with the lower Mississippi River. The Congressionally designated purpose of the Parkway is to provide and maintain a scenic and recreational roadway. The Parkway also is designated as a National Scenic Byway and All-American Road due to the presence of significant archeological, cultural, historic, natural, recreational, and scenic qualities.

The proposed Greenville Lateral is the segment of the project that would cross the Parkway. It is an approximately 96.4 mile-long pipeline extending from the existing Texas Gas existing Greenville Compression Station in Greenville, Mississippi through Washington, Sunflower, Humphreys, and Holmes Counties, Mississippi, to an interconnection with a Boardwalk Pipeline subsidiary, Gulf South Pipeline Company, LP (Gulf South), in Attala County, Mississippi. The Greenville Lateral would cross the Parkway at Parkway milepost (MP) 157 between pipeline MP 92.8 and MP 93.0 in Attala County, Mississippi (see figure G-1). Alternatives were evaluated for crossing the Parkway and a preferred crossing was chosen in consultation with the NPS where no developed recreational or service features would be within 0.25 mile of the pipeline corridor. Additionally, the alignment of the Greenville Lateral and ultimately the location where the Parkway would be crossed was determined by the location of the existing Greenville Compressor Station which is on a Texas Gas mainline, and the proposed pipeline terminus near Kosciusko, Mississippi. The generally east-west trending proposed route for the Greenville Lateral between these end points would minimize the overall length of the pipeline, thereby reducing potential environmental impacts and costs.

## 1.2 NEED FOR THE PROPOSED ACTION

The primary purpose of the Project is specified in detail in section 1.1 of the EIS. In general, the need is to meet the transportation needs of producers of natural gas from the Fayetteville Shale production area in north-central Arkansas, a region that currently lacks the pipeline infrastructure and capacity to transport this new natural gas supply, to markets in the mid-western, northeastern, and southeastern U.S., by creating new interstate transportation capacity and interconnection to existing intrastate and interstate pipeline systems. Specifically with respect to the Parkway, any interstate natural gas pipeline that would extend in an east to west fashion through Mississippi would likely encounter the Parkway, which extends diagonally across most of the State in a southwest to northeast direction. Therefore, it would be difficult or impossible to completely avoid crossing the Parkway.

**1.3 DESCRIPTION OF THE PROPOSED ACTION**

Texas Gas proposes to construct, own, operate, and maintain two pipeline laterals and associated facilities in Arkansas and Mississippi. The Project would be constructed in two phases during an 8-month-long construction season in 2008. Phase I would consist of the western-most 66 miles of the Fayetteville Lateral, from Conway County to Bald Knob, Arkansas. Phase II would include: construction of the remaining 100 miles of the Fayetteville Lateral from White County, Arkansas, to the interconnect with Texas Gas's mainline in Coahoma County, Mississippi; the entire Greenville Lateral, including the Kosciusko 36-inch Tie-in Lateral and the Kosciusko 20-inch Tie-in Lateral; and the Kosciusko Compressor Station.

The proposed crossing of the Parkway would be near Parkway MP 157. Parkway MPs begin at 0 near Natchez, Mississippi; increase sequentially as the roadway proceeds generally to the northeast; and end at MP 444 near Nashville, Tennessee. The crossing location would be along the proposed Greenville Lateral between pipeline MP 92.8 and MP 93.0. The proposed Greenville Lateral would approach the Parkway boundary from the west through actively cultivated agricultural land. It would be installed across NPS-managed land by using horizontal directional drill (HDD) methods. The proposed HDD would be about 4,850 feet in length and would avoid direct impact to the Parkway and Yockanookany River and forested areas within its floodplain. The entry and exit drill holes would be on private land with agricultural land use.

The proposed route would to follow an existing electric transmission line right-of-way thereby minimizing the amount of tree trimming that would be required, and it would also be the shortest route across forest land. It would also maximize the use of agricultural areas for the entry and exit points of the HDD crossing. The drill hole for the HDD on the west side of the crossing would be about 500 feet from the Parkway roadbed. The exit hole for the HDD on the east side of the crossing would be almost 4,000 feet from the Parkway roadbed.

If an HDD was not used to cross the Parkway, Texas Gas would need to clear a construction right-of-way to the shoulder of the Parkway and install the pipeline beneath the Parkway using a bored crossing method of construction. A 50-foot-wide permanent right-of-way would permanently convert the forest land use to open land use along the pipeline corridor. Due to potential visual impacts to the Parkway this crossing method would create, it was not considered a viable option. Based on the distance from the Parkway, and the use of existing agricultural lands for workspaces to accommodate the equipment needed for the HDD, we believe there would be no significant impacts to visual resources as a result of the construction of this alignment by HDD during construction or operation of the Project.

Most of the proposed construction activities would not occur on NPS-managed lands. Existing trees would visually screen the construction workspaces from the Parkway and Highway 14. Since the HDD method involves installation of the pipeline by drilling beneath a waterbody or land surface, there would be minimal land disturbance along the path of the HDD; only small areas along the edges of the 150-foot-wide construction right-of-way would be disturbed for placement of the electric grid guide wires used to guide the drill and for the civil survey. Therefore, minimal clearing of woody vegetation for the placement of tracker wires for the HDD crossing and the civil survey would be needed. Although these activities may require removal of a few low-hanging tree limbs to establish line-of-sight, no significant impacts are anticipated.

**1.4 SCOPING**

The level of scoping, as well as agency and public involvement, is describes in detail in section 1.4 of the EIS. In specific regard to the Parkway, the NPS agreed to be a cooperating federal agency in the development of the EIS. NPS was consulted about its concerns about Project. Texas Gas representatives also communicated with the NPS staff to develop the proposed route. The NPS representatives expressed a preference for the proposed crossing location and that the HDD method be used to cross the Parkway.

**1.5 ALTERNATIVES CONSIDERED**

We considered several route variations in conjunction with the crossing of the Parkway. Consultation with the NPS indicated a need to avoid potentially significant impacts to the viewshed at this crossing, which largely eliminated the feasibility of a conventional bore of the Parkway. Some route variations suggested by the NPS were not considered viable because of significant construction feasibility limitations and because they would have resulted in unacceptable environmental impacts associated with existing soil contamination.

Three alternatives, in addition to the proposed route (preferred route), were considered in relation to the proposed Project: the No Action Alternative, the Postponed Action Alternative and Greenville Lateral - Alternative C.

**1.5.1 No-Action or Postponed-Action Alternative**

If the Federal Energy Regulatory Commission (FERC or Commission) denies the proposal (i.e., selects the No-Action Alternative), or if the NPS denied the proposed crossing of the Parkway, the proposed Project would not be constructed (see section 3.1 of the EIS). Selection of the No-Action Alternative would not meet the purpose and need for the proposed Project; thus, specific shipper needs would not be met. No additional transportation capacity would be provided for the substantial volumes of newly produced natural gas in north-central Arkansas, which would potentially prevent the production of additional gas supplies from these fields. On a broader scale, implementation of this alternative would not meet the national goal of increasing the production of stable and reliable natural gas supplies in the U.S. (The White House National Economic Council, February 2006). If adequate natural gas supplies are not available in the U.S., consumers would need to seek other sources of fuel, many of which are potentially more costly and could result in greater environmental impacts associated with combustion of other fuels. Natural gas shortages also would be possible, since natural gas demand in the U.S. is expected to continue to grow, while U.S. production is expected to continue to decline. Analysis by the Department of Energy's Energy Information Administration (DOE/EIA) indicates that, in the lower 48 states, demand is expected to exceed supply by about 8 trillion cubic feet by 2010 (DOE/EIA, 2005).

If the No-Action Alternative is selected, the impacts of constructing and operating the proposed Project would be avoided. However, if this Project is not implemented, other projects and activities would be needed, and these projects would result in their own environmental impacts. In addition, the beneficial impacts of implementing the proposed Project would not occur, including increased employment, income, and tax revenues. The No-Action Alternative was rejected for these reasons.

A delay in approval (the Postponed-Action Alternative) would only defer any construction-related environmental impacts to the future. Other gas transportation projects would still be required to meet the demand for natural gas and to transport the new Fayetteville Shale natural gas production. Reduction in available supply could result in higher natural gas prices, potentially causing switching to less environmentally benign sources of fuel or the curtailment of economic growth. Delay in approval would not meet the stated purpose of the Project to develop an interstate transportation infrastructure for natural gas from north-central Arkansas to consumer markets served by intrastate and interstate pipelines.

### 1.5.2 Preferred Route

The preferred route for crossing the Parkway is identified in figure G-1 and is the proposed route Texas Gas filed in its certificate application with the FERC. While slightly longer than the alternative route evaluated below, this alignment would parallel an existing electric transmission line right-of-way and provides the opportunity to establish workspaces for the HDD drill holes within agricultural land. On a larger scale, the alignment of the Greenville Lateral, and to a smaller degree the crossing the Parkway, were determined by the location of the existing Greenville Compressor Station along the Texas Gas mainline where the proposed Greenville Lateral would originate and the proposed terminus near Kosciusko. The east-west alignment of the Greenville Lateral between these end points would minimize the overall length of the pipeline, thereby reducing potential environmental impacts and costs.

### 1.5.3 Greenville Lateral – Alternative C

One route alternative at the eastern end of the Greenville Lateral was evaluated. This 8.3-mile-long route alternative would deviate from the proposed Greenville Lateral at MP 87.6 and would terminate at an interconnect southwest of the proposed Kosciusko Compressor Station. Alternative C would require an estimated 6,000-foot-long HDD crossing of the Parkway and the Yockanookany River channel, and would impact higher quality forested wetland in the Yockanookany River floodplain than the proposed route. Because the HDD route for Alternative C would be through a forested area, this alternative would require an extensive amount of forest clearing to accommodate the HDD pull string. The preferred route for crossing the Parkway and the Yockanookany River channel would be shorter (about 4,850 feet) and would allow these resources to be crossed by the HDD, and the HDD staging areas would be established mostly in cleared pasture.

Existing trees would visually screen construction activities and the permanent right-of-way from view along the Parkway and Highway 14; therefore, no significant impacts on visual resources would occur as a result of construction of the preferred route. The only activities on NPS lands would be a civil survey across the area along the path of the HDD to mark the centerline and the edges of the construction right-of-way, and the placement of two drag tracker wires for the HDD along the edges of the construction right-of-way. Although these activities may require the removal of a few low-hanging tree limbs, no significant impacts would be anticipated. The entry hole for the HDD on the west side of the crossing would be about 500 feet from the road. The exit hole for the HDD on the east side of the crossing would be almost 4,000 feet from the road and east of the Yockanookany River. Use of the HDD crossing technique would reduce impacts on the Parkway, the Yockanookany River and associated wetlands, and forests compared to the use of an open-cut technique since no clearing would be required along the path of the HDD.

Based on the protection of the visual resources associated with the Parkway and reduced environmental impacts associated with the HDD of the Parkway and the Yockanookany River, we believe that the proposed route offers significant environmental benefits over Alternative C. We conclude that the proposed route is the preferred route.

**1.6 AFFECTED RESOURCES, IMPACTS, AND MITIGATION**

This section of describes the resources that would be affected by the proposed crossing of the Parkway, as well as affected resources in adjacent areas.

**1.6.1 Soils**

The soils at the proposed crossing of the Parkway are comprised of the Smithdale-Providence-Collins soil association and are best described as a silty loam. These soils typically have low erosion potential, are not hydric, have good revegetation potential, and usually are not subject to soil compaction. The drainage characteristics of these soils range from moderately well drained to well drained. Because Texas Gas would use an HDD to cross the Parkway, no soils within the NPS-managed Parkway would be disturbed since the surface disturbance would be avoided along the path of the proposed HDD. The workspaces and drill holes for the HDD would be on private land beyond the Parkway. Texas Gas would implement its HDD Contingency Plan to further minimize potential impacts during construction of the HDD across the Parkway. To minimize potential impacts due to construction and operation of the Project, Texas Gas would also implement the measures described in its Spill Prevention, Control, and Countermeasures Plan to address handling hazardous materials and to address instances where there are spills; its Storm Water Pollution Prevention Plan; our Upland Erosion Control, Revegetation, and Maintenance Plan; and our Wetland and Waterbody Construction and Mitigation Procedures. Use of the preferred alternative is not expected to result in an impairment to soil resources of the Parkway.

**1.6.2 Water Resources and Wetlands**

Significant wetland areas, including forested wetland, associated with the Yockanookany River occur east of the Parkway. The proposed HDD crossing method would also avoid significant impacts to these wetlands and the Yockanookany River. Use of the preferred alternative is not expected to result in an impairment to wetland or water resources of the Parkway.

**1.6.3 Vegetation and Wildlife**

Vegetation types occurring within the Parkway boundary that could be affected by the proposed Project include maintained grass adjacent to the roadway, scattered forested land, and some agricultural areas. By establishing the workspaces for the HDD entry and exit holes outside the limits of the NPS-managed Parkway, impacts to vegetation would be largely avoided. Construction activities may require removal of a few low-hanging tree limbs to place the guide wires and to conduct civil surveys for the HDD crossing, but no significant clearing would occur.

The wildlife species present in the vicinity of the proposed Parkway crossing would be typical of the modified edge habitats. These species are relatively tolerant of human activity. Impacts to habitat resulting from the proposed crossing of the Parkway would be temporary or short-term, and relatively minor overall. Increased activity associated with the HDD crossing could result in some short-term displacement of wildlife since wildlife may avoid areas where there would be human and construction-related activity and noise; but these communities would be expected to quickly reestablish following completion of construction.

No federally protected species of concern have been identified in proximity to the Parkway, and based on the existing land uses; none would be expected to occur where the proposed Project would cross the Parkway. Implementation of the preferred alternative is not expected to result in an impairment to vegetation and wildlife resources of the Parkway.

### 1.6.4 Roads and Transportation

The Parkway and Highway 14 are both paved two-lane roads that provide access and transportation routes to local residents. Commercial traffic is prohibited on the Parkway, and the speed limit is 50 miles per hour. The Parkway is used for sightseeing and tourism given its status, associated historic attractions, and views.

The proposed pipeline crossing would not affect traffic flow along the Parkway. The pipeline installation would be accomplished by HDD beneath the Parkway, with no need for road closure or construction activity on the road surface or adjacent side slopes. Other than survey vehicles, no Project use of the Parkway would be anticipated based on the prohibition of commercial traffic. Impacts to traffic flow along Highway 14 would be relatively minor and temporary. Although the level of traffic on Highway 14 would be minimal due to the rural nature of the area, Texas Gas would utilize flagmen, as necessary to manage traffic flow and to provide safe travel during construction. We believe that based on the lack of impacts on the Parkway and the temporary and relatively minor impacts to surrounding local roads, no significant impacts to transportation would occur as a result of construction of the proposed Project. Implementation of the preferred alternative is not expected to result in an impairment to roads or transportation resources of the Natchez Trace Parkway.

### 1.6.7 Visual Resources

The primary visual resources associated with the proposed Parkway crossing include those areas and objects visible to motorists using the Parkway. These areas include the roadway itself, the grassy side slopes immediately adjacent to the roadway, agricultural fields located near the Parkway, and small scattered forested areas. Secondary visual resources, which include views of the Parkway and its associated property from Highway 14 or other adjacent areas, are virtually identical to the primary resources identified.

The proposed Project pipeline would be a narrow linear feature that would primarily be constructed below ground using the HDD method, which would not require any physical disturbance to the Parkway or side slopes. Also, equipment, supplies, and personnel would not be positioned in the immediate vicinity of the Parkway. Therefore, visual impact on the Parkway is considered negligible. Texas Gas would establish a workspace for the HDD drill about 500 feet west of the Parkway. This workspace would be in an agricultural field and screened from the Parkway by scattered forest land. Direct line of sight to construction related activities could potentially occur, but this impact would be of short term duration and seen from only an isolated perspective on the Parkway. Following completion of the HDD crossing, no visual remnants of construction would likely be visible from the Parkway. By using agricultural lands for the HDD workspaces, there would be no long term alternation of visual resources from the Parkway. Therefore, we believe that given the nature of the resources present, and the largely temporary nature of the impacts anticipated, implementation of the preferred alternative is not expected to result in an impairment to visual resources of the Parkway.

**1.6.8 Noise**

The existing noise environment at the proposed crossing location reflects the predominately rural landscape. The agricultural areas near the Parkway support wildlife capable of making noise in a natural setting, such as birds and insects. Human influence such as farming activity would also result in periodic noise associated with operation of tractors, other equipment, and light trucks. Vehicular traffic on the Parkway and Highway 14 would also result in intermittent noise, although traffic volume in this rural area is light to moderate and commercial traffic is prohibited on the Parkway. The proposed crossing would result in construction noise during daylight hours for a limited time period and would mainly be associated with completing the HDD. This noise would result from operation of heavy equipment, some minor increase in traffic volume on local roads, and the presence of personnel at the site. However, this increase in noise would be temporary and extremely localized. It could be noticeable to motorists using the Parkway for a short duration, estimated at approximately 1 minute or less, assuming that the vehicle passed the site at the speed limit of 50 miles per hour. Given the temporary, minor, and transient nature of the impacts anticipated, we believe that implementation of the preferred alternative is not expected to result in an impairment to noise resources of the Parkway.

**1.6.9 Cultural Resources**

The Parkway has been found to be potentially eligible for listing on the NRHP in its entirety as "a designed cultural landscape" and is in the process of being nominated to the NRHP (NPS 2006i, Goodwin and Bergman, 2007). The Old Natchez Trace was historically used first by Native Americans, and then by traders and early settlers. The Old Natchez Trace provided an early and valuable transportation route connecting the lower Mississippi River and Gulf Coast to areas located well inland as far north as Tennessee. No cultural resources were identified within that portion of the project area that would cross the Parkway or at the proposed HDD workspaces (Goodwin and Bergman, 2007). The NPS accepted this finding without comment (Keel, 2007b). Therefore, implementation of the preferred alternative is not expected to result in an impairment to cultural resources of the Parkway.

**1.6.10 Air Quality**

The primary air quality impacts for the Project will be from equipment located at the proposed Kosciusko Compressor Station on the Greenville Lateral in Attala County, Mississippi. The Compressor Station would be about 3 miles east of the Parkway at Greenville Lateral MP 96.4. The air quality impacts resulting from the construction and operation of the Project pipeline and aboveground facilities in the vicinity of the Parkway would be minimal. Therefore, implementation of the preferred alternative is not expected to result in an impairment to air quality resources of the Parkway.

**1.6.11 Cumulative Impacts**

Cumulative impact results when impacts associated with a proposed project are superimposed on, or added to, impacts associated with past, present, or reasonably foreseeable future projects within the area affected by the proposed project. Although the individual impacts of the separate projects may be minor, the effects from the projects taken together could be significant. The Fayetteville Lateral portion of the Project would end in western Mississippi, several counties away from the Parkway and would not cross it. Another pending major natural gas pipeline project, Ozark Gas Transmission, LLC's East End Expansion Project (FERC Docket Number

PF06-34), would be constructed near the Fayetteville Lateral. The East End Expansion Project would terminate in western Mississippi far from the Parkway and would not cross it.

Four other gas (three natural gas and one carbon dioxide) pipeline projects would cross the Parkway and are either are pending or under construction. All of these projects would be north of the proposed Greenville Lateral crossing of the Parkway at Parkway MP 157. The Denbury Carbon Dioxide Pipeline will cross it at Parkway MP 117. The East Texas to Mississippi Expansion Project (FERC Docket Number CP06-446-000) was approved by the FERC on June 18, 2007, is currently under construction, and will cross the Parkway at Parkway Milepost 73. The Southeast Supply Header Project (FERC Docket Number CP07-44-000) was approved by the FERC on September 20, 2007. It will cross the Parkway at Parkway MP 49. Lastly, an EIS is being prepared for the Midcontinent Express Pipeline Project (FERC Docket Number CP08-6-000). That project would cross the Parkway at MP 80.5.

Since the closest of these projects would be about 40 miles from the Greenville Lateral. No other major projects in the vicinity of the Greenville Lateral or that would cross the Parkway, have been identified, therefore we anticipate no significant cumulative impacts to the Parkway.

**1.6.12 Conclusion**

Based on our review of the selected route and crossing location, the resources present, potential impacts including cumulative impacts, and mitigation measures, we conclude that construction and operation of the proposed Project would not have a significant effect on the Natchez Trace Parkway.

# DRAFT ENVIRONMENTAL IMPACT STATEMENT FOR THE PROPOSED FAYETTEVILLE/GREENVILLE EXPANSION PROJECT

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PF07-2-000

Appendix F
Natchez Trace Parkway

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Figure F-1
Greenville Lateral Project Area,
Proposed Route and Alternative Route

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# LIST OF PREPARERS

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