2.0 PROPOSED ACTION

Gulf South proposes to construct, own, operate, and maintain interstate natural gas pipeline and associated ancillary facilities in Louisiana, Mississippi, and Alabama as described below and depicted in Figure 2.1-1.

2.1 PROPOSED FACILITIES

Gulf South proposes to construct and operate a 42-inch-diameter natural gas pipeline that would extend from existing Gulf South pipeline facilities in Simpson County, Mississippi, approximately 111 miles east to Transco's existing pipeline facilities in Choctaw County, Alabama. This 42-inch-diameter natural gas pipeline would interconnect with natural gas pipelines operated or under construction by CenterPoint, Southern Natural Gas Company (Southern Natural), Tennessee Gas Pipeline Company (Tennessee Gas), Destin, and Transco. This proposed pipeline would have a maximum allowable operating pressure (MAOP) of 1,333 pounds per square inch gauge (psig) and would be capable of receiving, transporting, and delivering up to 1.272 billion cubic feet per day (Bcf/d) of natural gas.

Throughout this Draft EIS, the locations of specific features along the proposed pipeline, such as project facilities and environmental resources, are identified by milepost (MP). Table 2.1-1 provides the location, MP, and length of pipeline facilities associated with the proposed Project. The general location of the proposed Project facilities is shown in Figure 2.1-1, and Appendix B of this Draft EIS provides more detailed facility location maps.

TABLE 2.1-1
Pipeline Facilities for the Proposed Southeast Expansion Project

County	Milepost		Length (miles)
	Begin	End	
Mississippi			
Simpson County	0.0	29.3	29.3
Smith County	29.3	49.5	20.2
Jasper County	49.5	75.5	26.0
Clarke County	75.5	104.4	28.9
Alabama			
Choctaw County	104.4	110.8	6.4
Total			**110.8**

In addition to the proposed pipeline, Gulf South would also construct and operate three compressor stations, five M/R stations, eight MLV, one side valve, and two pig[1] launcher/receiver facilities. Table 2.1-2 identifies and describes the aboveground facilities associated with the proposed Project and provides location and MP information for these facilities.

[1] A pig is a mechanical tool used to clean and inspect the interior of a pipeline.

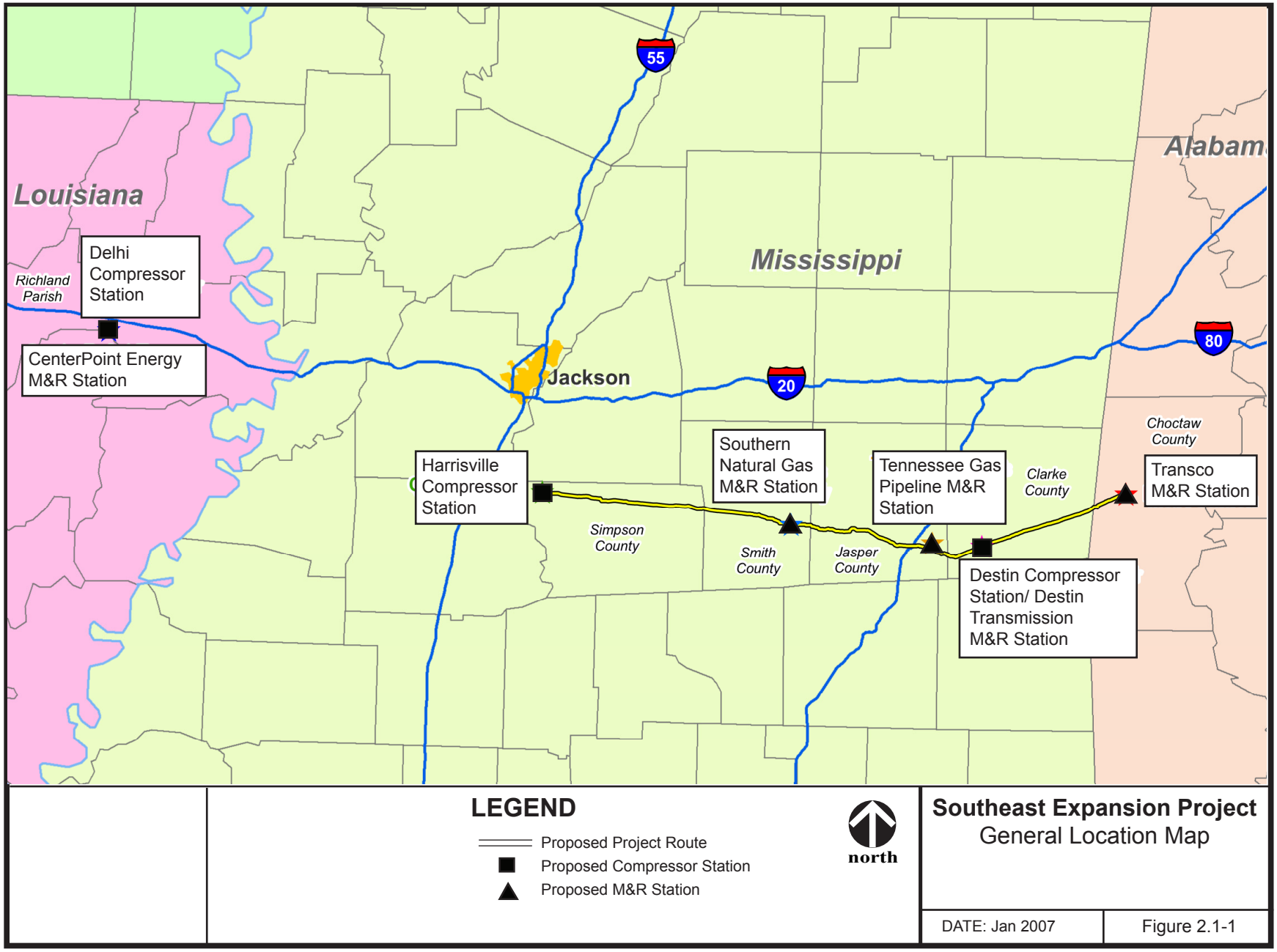
Louisiana
Mississippi
Alabam
Richland Parish
Delhi Compressor Station
CenterPoint Energy M&R Station
Jackson
55
20
80
Harrisville Compressor Station
Southern Natural Gas M&R Station
Tennessee Gas Pipeline M&R Station
Transco M&R Station
Simpson County
Smith County
Jasper County
Clarke County
Choctaw County
Destin Compressor Station/ Destin Transmission M&R Station
LEGEND
Proposed Project Route
Proposed Compressor Station
Proposed M&R Station
north
Southeast Expansion Project
General Location Map
DATE: Jan 2007
Figure 2.1-1

TABLE 2.1-2
Aboveground Facilities for the Proposed Southeast Expansion Project

Project Component	County/Parish	Milepost	Description
Compressor Stations			
Delhi Compressor Station	Richland, LA	N/A	Install 18,940 hp of compression. 89.5 miles northwest of MP 0.0.
Harrisville Compressor Station	Simpson, MS	0.0	Install 18,940 hp of compression
Destin Compressor Station	Clarke, MS	82.9	Install 7,100 hp of compression
Meter and Regulation (M/R) Stations			
CenterPoint M/R Station	Richland, LA	N/A	Install M/R facilities and tie-in to CenterPoint
Southern Natural M/R Station	Smith, MS	45.7	Install M/R facilities and tie-in to Southern Natural
Tennessee Gas M/R Station	Jasper, MS	72.5	Install M/R facilities and tie-in to Tennessee Gas
Destin M/R Station	Clarke, MS	82.9	Install M/R facilities and tie-in to Destin
Transco M/R Station	Choctaw, AL	110.8	Install M/R facilities and tie-in to Transco
Mainline Valves (MLV) and Other Facilities			
MLV No.1 w/Pig Launcher	Simpson, MS	0.0	Install mainline valve with launcher assembly within permanent right-of-way
MLV No.2	Simpson, MS	14.9	Install mainline valve within permanent right-of-way
MLV No.3	Smith, MS	30.3	Install mainline valve within permanent right-of-way
MLV No.4	Smith, MS	45.7	Install mainline valve within permanent right-of-way
MLV No.5	Jasper, MS	60.0	Install mainline valve within permanent right-of-way
Side Valve	Jasper, MS	72.4	Install side valve within permanent right-of-way for potential future connection with Petal Gas
MLV No.6	Jasper, MS	75.4	Install mainline valve within permanent right-of-way
MLV No.7	Clarke, MS	91.3	Install mainline valve within permanent right-of-way
MLV No.8 w/Pig Receiver	Choctaw, AL	110.8	Install mainline valve with receiver assembly within permanent right-of-way

Notes:
N/A – Not Applicable. This facility is located approximately 89.5 miles to the west of the proposed Project along the Gulf South proposed East Texas to Mississippi Expansion Project.
AL = Alabama
LA = Louisiana
MS = Mississippi

Specifically, Gulf South proposes to construct the mainline 18,940-horsepower (Hp) Harrisville Compressor Station in Simpson County, Mississippi, at MP 0.0, and two interconnect pressure management compressor stations: the 18,940-Hp Delhi Compressor Station in Richland Parish, Louisiana, at 89.5 miles west of MP 0.0, and the 7,100-Hp Destin Compressor Station in Clarke County, Mississippi, at MP 82.9. The Harrisville Compressor Station would be comprised of four Caterpillar 3616 reciprocating engines and be built 500 feet east of MP 0.0 at the point where the proposed Project starts at Gulf South's existing 30-inch-diameter Index 130 Pipeline. The Delhi Compressor Station would be comprised of four Caterpillar 3616 reciprocating engines and be built along pipeline facilities associated with Gulf South's proposed East Texas to Mississippi Expansion Project. The Delhi Compressor Station would increase the pressure of the natural gas delivered from CenterPoint's Carthage to Perryville Pipeline up to the pressure of Gulf South's pipeline associated with its proposed East Texas to Mississippi Expansion Project. The Destin Compressor Station would be comprised of two Caterpillar 3616 reciprocating engines. This station would serve as a redundant station to maintain the pressure of

the natural gas delivered from the proposed Project up to Destin's anticipated operating pressure of approximately 1,100 psig in the event of a loss of compression at the Harrisville Compressor Station.

At each compressor station site, the new compressor units and associated equipment would be housed in new buildings. Each new compressor station would also include an emergency generator to provide back-up electrical power. Gulf South would also construct an office/control building at each site. Additional facilities at sites would include filter-separators installed on the suction-side of the station to clean gas prior to compression, a fuel gas heater, and two station blowdown silencers. Other aboveground facilities would include pig launchers/receivers, MLV sites, and side valves. Most natural gas piping at the facilities would be installed below grade, and the perimeter of the compressor stations would be fenced. Portions of these sites may be paved, covered with gravel, or landscaped, depending on facility operations and maintenance requirements.

Metering and flow control for natural gas delivered to the proposed Project would be accomplished via M/R facilities as noted in Table 2.1-2. Similarly, facilities at the proposed M/R stations located at interconnects with CenterPoint, Southern Natural, Tennessee, Destin, and Transco pipelines would be used to meter the flow and adjust the pressure of natural gas delivered to those systems. Each M/R station would include a separate building for M/R equipment, flow/pressure control, and a customer facility housed within a fenced perimeter.

Gulf South would construct and operate the proposed eight MLV's below ground using 12-inch valve operation risers extending aboveground (for blowdowns and bypass) and connected on each side of the 42-inch valve with a crossover. These valves would enable portions of the pipeline to be shut down or isolated, if necessary. The MLV's would be installed in areas that are easily accessible to operating personnel and at intervals specified in U.S. Department of Transportation (DOT) safety standards for natural gas pipelines. These sites would typically be enclosed with security fencing and a lockable gate around the aboveground piping and valves.

One new side valve is proposed for construction at MP 72.4, near the intersection of the proposed 42-inch outside diameter (OD) pipeline and the existing Petal Gas Storage, LLC (Petal Gas) pipeline for a potential future connection with Petal Gas. A pig launcher is proposed at MP 0.0, and a pig receiver is proposed at MP 110.8.

Gulf South filed a supplement on March 5, 2007, to use internally-coated pipeline segments to accommodate potential capacity increases in the future, and this would not affect Gulf South's requested MAOP of 1,333 psig.

2.2 LAND REQUIREMENTS

The amount of land required for construction and operation of the proposed Project, including the proposed pipeline and associated facilities, the proposed aboveground facilities, and the requested extra work areas, are summarized in Table 2.2-1. Approximately 1,986.4 acres of land would be required for use during construction of the proposed Project. Approximately 780.7 acres of land would be required for use during operation of the proposed Project. Following construction, approximately 1,205.7 acres of land would be restored to its preconstruction condition or allowed to revert to its former use.

TABLE 2.2-1
Land Requirements by County
for the Proposed Southeast Expansion Project

Facility	Location County or Parish, State	Land Affected during Construction (acres)	Land Affected during Operation (acres)
Pipeline Facilities (42-inch diameter)[a]	Simpson County, MS	333.1	201.6
	Smith County, MS	231.6	140.8
	Jasper County, MS	300.1	180.1
	Clarke County, MS	334.8	194.0
	Choctaw County, AL	73.8	44.5
	Subtotal	**1,273.4**	**761.0**
Aboveground Facilities			
Delhi Compressor Station	Richland Parish, LA	10.0	5.0
Harrisville Compressor Station	Simpson County, MS	11.0	5.0
Destin Compressor Station	Clarke County, MS	10.0	5.0
CenterPoint M/R Station	Richland Parish, LA	0	0
Southern Natural M/R Station	Smith County, MS	1.0	1.0
Tennessee M/R Station	Jasper County, MS	1.0	1.0
Destin M/R Station	Clarke County, MS	0	0
Transco M/R Station	Choctaw County, AL	1.0	1.0
Mainline Valves	Various	5.5	0.5
	Subtotal	**39.5**	**18.5**
Other Work Areas			
Extra Workspaces	Various	421.1	0
Pipe Storage Yards and Contractor Yards	Various	189.2	0
Access Roads	Various	63.2	1.2
	Subtotal	**673.5**	**1.2**
	Total	**1,986.4**	**780.7**

Notes:
AL = Alabama
LA = Louisiana
MS = Mississippi
a Construction impacts are based on a 100-foot right-of-way in uplands and a 75-foot right-of-way in wetlands. Operation impacts are based on a 60-foot right-of-way. However, we are recommending that Gulf South's permanent right-of-way be limited to a width of 50 feet.

2.2.1 Pipeline Facilities

Gulf South proposes to use a nominal 100-foot-wide construction right-of-way in upland areas to install the proposed pipeline. In wetland areas, Gulf South proposes to use a 75-foot-wide construction right-of-way to install the proposed pipeline. These construction right-of-way widths would consist of a

60-foot-wide permanent right-of-way and an additional 40- and 15-foot-wide temporary construction work area in upland and wetland work areas, respectively. The construction right-of-way may also be expanded by an additional 50 to 100 feet to account for site specific conditions and alternative construction methods. The typical proposed pipeline construction right-of-way requirements in upland and wetland areas are illustrated in Figures 2.2.1-1 (typical right-of-way parallel to existing pipelines) and 2.2.2-2 (typical right-of-way in wetlands). Construction of the proposed pipeline through uplands and wetlands would require the temporary use of approximately 1,273 acres (see Table 2.2-1).

Following installation of the proposed pipeline and restoration of the construction right-of-way, Gulf South would permanently maintain a 60-foot-wide right-of-way located above the installed pipeline. Maintenance of this permanent right-of-way would require the use of approximately 780.7 acres.

Right-of-Way Considerations

FERC staff is aware that several agencies and various additional commentors have expressed their concerns over multiple rights-of-ways being added to greenfield or existing rights-of-way leading to accumulation of land impacts. In considering Gulf South's request for permanent right-of-way width that is wider than the usual 50 feet, together with the information filed in its data response, we believe that a 60-foot-wide permanent right-of-way may not be necessary for maintenance of the proposed Project. Based on our experience and review of similar projects, we believe that a 50-foot-wide permanent right-of-way is sufficient to maintain a 42-inch-diameter pipeline. Additionally, we have received several comments from property owners and federal and state agencies concerning the need to minimize permanent impacts associated with the permanent right-of-way, particularly when multiple rights-of-way may occur within a common corridor. Therefore, based on our experience and comments expressed during the scoping period, **we recommend that:**

- **Gulf South should limit the width of its permanent right-of-way to 50 feet.**

Limiting the permanent right-of-way to 50 feet in width would allow Gulf South to, should the proposed Project be certificated, acquire through the condemnation process, if necessary, sufficient land to operate its proposed pipeline, and would minimize permanent impacts to adjacent resources and land uses. Although Gulf South's use of federal authority to condemn lands would be limited to a permanent right-of-way 50 feet in width, Gulf South would be able to negotiate with a willing landowner for the use of additional lands for operation of the proposed Project.

In general, the installation of new pipeline on lands adjacent to existing, cleared rights-of-way (e.g., pipeline, power line, road, or railroad) may be environmentally preferable to the installation of new pipeline on lands without adjacent existing cleared rights-of-way. Gulf South would parallel a significant portion of its construction right-of-way with existing utility rights-of-way. Figures 2.2.1-1 and 2.2.1-2, Gulf South's construction right-of-way would abut the permanent right-of-way of Denbury Resources' Pipeline for approximately 0.2 mile, the Crosstex Mississippi Pipeline (Crosstex) for approximately 39.4 mile, and the Transco natural gas pipeline right-of-way for another 33.1 miles. In total, approximately 72.7 miles (i.e., approximately 65 percent) of the proposed pipeline would be collocated with existing utility corridors. Existing utility corridors that would parallel the proposed Project are listed in Table 2.2.1-2.

TABLE 2.2.1-2 Existing Rights-of-Way that are Parallel to the Proposed Southeast Expansion Project				
MP Begin	**MP End**	**Type of Right-of-Way**	**Easement Owner**	**Width of Existing Right-of-Way (feet)**
30.3	30.5	Pipeline	Denbury	50
38.3	77.7	Pipeline	Crosstex	50
77.7	110.8	Pipeline	Transco	125

We believe that if Gulf South can use part of the Denburg, Crosstex and Transco pipelines' existing right-of-way, it should also be able to make maximum use of adjacent rights-of-way in Mississippi and Alabama. Therefore, to further minimize impact, **we recommend that:**

- **<u>Prior the end of the Draft EIS comment period</u>, Gulf South should evaluate and file written documentation with the Secretary, for the use of at least 10 feet of any adjacent pipeline rights-of-way as part of its construction right-of-way and for any additional temporary workspaces that are needed. Where this is not possible, Gulf South should identify the locations by milepost and provide site-specific information explaining why the adjacent right-of-way cannot be used.**

Some segments of the proposed pipeline (major waterbody, road, and/or railway crossings) would be installed using horizontal directional drill (HDD) or bored crossings (see Section 2.3.2). Generally, these segments would only require the use of the permanent 60-foot-wide right-of-way; however, additional temporary workspaces (ATWS) would most likely be required because of the need for additional space to accommodate these construction techniques.

We note that Gulf South has requested relatively large ATWSs for stream, road, and ditch crossings. Gulf South has not provided the degree of site specific analysis and justification for use of its proposed workspace sizes in all instances of crossings of waterbodies, ditches, and roads, some of which are dirt roads. Therefore**, we recommend that:**

- **<u>Prior to the end of the Draft EIS comment period</u>, Gulf South should file with the Secretary additional site-specific justification for the size of its proposed additional temporary workspaces needed for two-tone construction.**

In addition, in almost all instances of its proposed workspace side slopes requiring the two-tone construction method, Gulf South is requesting 70-95-foot-wide ATWSs in addition to its proposed 100-foot-wide construction right-of-way. These ATWSs in particular may substantially increase the area of disturbance and the amount of forest clearing. Our review of maps and information provided by Gulf South indicates that the slopes and soil types in the project area may not justify the size of the requested ATWSs. Therefore**, we recommend that:**

- **<u>Prior to construction</u>, Gulf South should file with the Secretary for review and written approval by the Director of OEP additional site-specific justification for the size of its proposed additional temporary workspaces. The justification should include drawings of the additional temporary workspaces indicating how the space would be used and a statement from Gulf South's construction contractor agreeing with the size and location of the additional temporary workspaces.**

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Page 2-8
Figure 2.2.1-1
Typical Right-of-Way in Uplands

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Page 2-9
Figure 2.2.1-2
Typical Right-of-Way in Wetlands

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2.2.2 Aboveground Facilities

In addition to land already required for use during construction of the proposed pipeline, construction of the proposed aboveground facilities would require the use of 39.5 acres for construction and 18.5 acres for operation, respectively (Table 2.2-1). The proposed aboveground facilities include three compressor stations, five M/R stations, eight mainline valves, one side valve, and two pig launcher/ receiver facilities (each of which are associated with MLV's).

Construction of the Delhi, Harrisville, and Destin Compressor Stations would encumber 10, 11, and 10 acres of land, respectively. Operation of the Delhi, Harrisville, and Destin Compressor Stations would encumber 5, 5, and 5 acres of land, respectively. The land within the fenced perimeter of the compressor station facilities would be occupied by buildings, piping, and other equipment. Portions of these sites may be paved, covered with gravel, or landscaped, depending on facility operations and maintenance requirements. Construction and operation land requirements of the CenterPoint, Southern Natural, Tennessee, Destin, and Transco M/R stations would be 0, 1.0, 1.0, 0, and 1.0 acres, respectively. At the CenterPoint and Destin M/R stations, no additional land requirements are needed because construction and operation of both stations will be within the Delhi and Destin Compressor stations, respectively, and their land use impacts are included in the compressor stations' land values.

The MLV sites would typically consist of a 50-foot by 50-foot fenced area installed within the confines of the permanent pipeline right-of-way. Construction and operation of all but two of the MLV's would not result in land requirements beyond those already noted for the permanent pipeline right-of-way. Mainline valves Nos. 1 and 8 would require additional permanent land requirements beyond those noted for the facility for operation.

2.2.3 Other Work Areas

In addition to the proposed land requirements associated with the aforementioned pipeline and aboveground facilities, land would also be required during construction and operation of the proposed Project for ATWSs, pipe storage and contractor yards, and access roads. These requirements are described below. Should these requirements change prior to or during construction, Gulf South would be required to file a variance request with the Secretary for review and approval prior to using or impacting new areas.

2.2.3.1 Additional Temporary Work Space

ATWS's would be required for construction at road crossings, railroad crossings, crossings of existing pipelines and utilities, stringing truck turnaround areas, wetland crossings, HDD entrance and exit pits, and open-cut waterbody crossings. These ATWS's would be located adjacent to the pipeline construction right-of-way and could be used for such things as spoil storage, staging, equipment movement, material stockpiles, and pull string assembly associated with HDD installation. Construction of the proposed Project would require 1,398 ATWS's, totaling 421.1 acres ranging in size from less than 0.1 acre to 6.0 acres. ATWS's would be returned to their preconstruction condition and former usage following completion of construction activities. Additional information on ATWS areas is provided in Section 3.8.

2.2.3.2 Pipe Storage and Contractor Yards

Gulf South has proposed the use of four off-site pipe storage and contractor yards for construction of the project that would consist of warehouses or open lots located in areas of existing commercial or industrial use. The identified pipe storage and contractor yards would range in size from

15.5 to 38.2 acres, and the total land requirements for these facilities would be approximately 189.2 acres. The general location of the proposed pipe storage and contractor yards is identified on the facility location maps included as Appendix B of this Draft EIS. All pipe storage and contractor yards would be leased from willing landowners, and upon completion of construction activities would be returned to their preconstruction condition and former usage.

2.2.3.3 Access Roads

Gulf South would use existing public and private roads to the extent possible to facilitate equipment and material access along the proposed Project route. Gulf South has indicated that construction of the proposed pipeline and aboveground facilities would require the temporary use of 138 existing access roads of varying lengths and construction. Gulf South reports that 47 of the 138 access roads would require upgrades to support construction-related traffic. Upgrades that could be required include grading, placement of gravel for stability, replacing or installing culverts, and clearing of overhead vegetation. Minor widening could also be required at sharp turns to facilitate passage by pipe trucks. Gulf South has not completed the detailed design plans for these access roads, but reports that improvement of existing access roads could require widening to as much as 15 feet in some locations.

Gulf South estimated that construction of new access roads and modification of existing access roads would affect approximately 63.2 acres. Following construction, three access roads would be maintained and used to provide long-term access to aboveground facilities, affecting approximately 1.2 acres. The remainder of the lands affected by disturbance at new or upgraded access roads would revert to preconstruction uses following construction.

All new access roads would be routed through previously cleared or disturbed areas to the extent practicable. Additional information on access roads is provided in Section 3.8.

2.3 CONSTRUCTION PROCEDURES

The proposed pipeline facilities would be designed, constructed, operated, and maintained in accordance with the DOT regulations under 49 CFR Part 192, *Transportation of Natural and Other Gas by Pipeline: Minimum Federal Safety Standards*; and other applicable federal and state regulations. Among other design standards, these regulations specify pipeline material selection; minimum design requirements; protection from internal, external, and atmospheric corrosion; and qualification procedures for welders and operations personnel. More detailed safety information is provided in Section 3.12. In addition, Gulf South would comply with the siting and maintenance requirements in 18 CFR 380.15 and other applicable federal and state regulations.

Upland construction of the proposed pipeline would be conducted using conventional open-cut methods as described below. The construction of the proposed pipeline through waterbodies and wetlands, as well as other specialized construction procedures, is described in Section 2.3.2.

2.3.1 General Pipeline Construction Procedures

Conventional open-cut pipeline construction has been characterized as a moving assembly line with a construction spread (crew and equipment) proceeding along the construction right-of-way in a continuous operation, as depicted in Figure 2.3.1-1. Gulf South proposes to use four individual construction spreads to complete installation of the proposed pipeline.

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Page 2-12
Figure 2.3.1-1
Typical Pipeline Construction Sequence

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Right-of-Way Survey and Fence Crossings

After right-of-way easements have been obtained, the pipeline centerline, construction right-of-way, and ATWS's would be surveyed and staked. Gulf South would contact the appropriate state One-Call system so that existing underground utilities could be located, identified, and flagged to prevent accidental damage during pipeline construction. Other sensitive resources such as wetland boundaries, cultural resources, and any areas of protected species habitat would also be marked.

Where fences are encountered along the construction right-of-way, a fence crew would install temporary fences to confine livestock to existing areas off the right-of-way and to prohibit or otherwise control public access across the right-of-way. This work would include installing new posts to brace the areas on either side of the proposed cut to avoid damage to the existing fence or wall. Temporary gates would be installed as necessary.

Clearing and Grading

The construction right-of-way and ATWS's would be cleared and graded, where necessary, to provide a relatively level surface for trench-excavating equipment and the movement of other construction equipment. Brush, trees, roots, and other obstructions, such as large rocks, would be cleared from all construction work areas. Where appropriate, stumps would be cut flush with the ground and left in place. Gulf South indicates that marketable timber could be cut and stacked at the edge of the right-of-way for landowner use or recovery of timber value. Tree stumps would be removed from within the permanent right-of-way. Cleared woody debris would be burned (in accordance with state and local burning requirements), chipped (except in wetlands), or distributed over the disturbed area as mulch or transported off-site to an appropriate disposal facility. As necessary, topsoil would be stripped and segregated in residential areas, actively cultivated or rotated croplands, pastures, hayfields, and other areas where requested by a land management agency or landowner as depicted in Figure 2.3.1-2. Topsoil would be removed to its actual depth, up to a maximum depth of 12 inches, and stockpiled separately from the subsoil excavated from the pipeline trench. Typically, topsoil would be stripped from directly over the pipeline ditch and the adjacent subsoil spoil storage area (i.e., ditch plus spoil method), but landowners would be provided with the option of topsoil segregation across the full construction work area. Additional information on topsoil segregation is provided in Section 3.2.

To contain disturbed soils during clearing and grading in upland areas and to minimize erosion and sedimentation of wetlands and waterbodies, temporary erosion controls would be installed immediately after initial disturbance of soils and would be maintained throughout construction.

Trenching

Before beginning excavation, Gulf South would contact the appropriate state One-Call system so that existing underground utilities could be located, identified, and flagged. A trench then would be excavated using a trenching machine or backhoe-type equipment. Excavated materials would typically be stored on the non-working side of the trench (Figure 2.2.1-1).

Temporary trench plugs (or barriers) would be used to create segments within the open trench to reduce erosion and allow access across the trench. Trench plugs typically would consist of either compacted subsoil or sandbags placed across the ditch (soft plugs) or short, unexcavated portions of trench (hard plugs). Trench dewatering also may be required along portions of the route.

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Figure 2.3.1-2
Typical Right-Of-Way in Agriculture

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The trench would be excavated to a depth that would allow space for the pipeline, pipeline bedding, and the minimum amount of top cover required by DOT specifications. The trench typically would be excavated to a depth of 7 feet to enable the proposed pipeline to be installed at a minimum depth of 3 feet (measured from the top of the pipeline) below the ground surface. The depth of the pipeline would vary and would range from these minimum depth requirements to that depth required for safe crossing of a feature such as a road, highway, railroad, or waterbody. At crossings of utilities or foreign pipelines, the proposed pipeline would also generally be installed at a greater depth to provide for a minimum clearance of 12 inches, or the depth that may be required by state or local regulations, whichever provides greater protection.

Areas of bedrock that might be encountered along the proposed Project route should be easily workable with standard construction equipment and techniques, and Gulf South does not anticipate the need for blasting associated with trench excavation

Pipe Stringing, Bending, and Welding

Sections of pipe up to 80 feet long would be delivered to the job site and temporarily placed or "strung" along the excavated pipeline trench, where they would be bent as necessary to follow the natural grade and direction changes of the right-of-way. Following stringing and bending, the ends of the pipeline would be carefully aligned and welded together. The welds would be visually and radiographically (i.e., x-ray) inspected to ensure structural integrity. Those welds that do not meet established specifications would be repaired or replaced.

An external coating would cover and protect the delivered pipeline sections. Following welding, the previously uncoated ends of the pipe at all joints would be coated with material compatible with a factory-applied coating, as applicable, in preparation for installation. The coating on the remainder of the completed pipe section would be inspected for defects, and repairs would be made to any damaged areas prior to lowering the pipe into the trench. At some locations, it may be necessary to provide negative buoyancy in the form of concrete weights, a concrete coating, pipe sacks, and/or soil anchors. In addition, Gulf South has indicated that the pipeline would be internally coated.

Lowering-in and Backfilling

Prior to lowering the pipeline, the trench would be cleaned of debris and foreign material and would be dewatered as necessary. Trench dewatering, which would entail pumping accumulated groundwater or rainwater from the trench to stable upland areas, would be performed in accordance with applicable local, state, and federal permitting requirements. In areas of rock, the bottom of the trench may be padded with sand, gravel, screened soils, sandbags, or support pillows to protect the pipe coating. However, topsoil would not be used as padding material. The pipeline then would be lowered into the trench by appropriately spaced sideboom tractors working in unison to avoid buckling of the pipe. Trench breakers would be installed at regular intervals where appropriate to prevent subsurface erosion and flow of water between the trench and crossed waterbodies, wetlands, and near-surface groundwater.

After the pipeline is lowered into the trench and adequately protected, previously excavated materials would be used to backfill the trench. Any excess excavated materials or materials deemed unsuitable for backfill would be evenly spread over the right-of-way or disposed of in accordance with applicable regulations and landowner requirements. Backfilling over the trenchline would occur to approximately 6 inches above the original elevation to accommodate future soil settlement.

Hydrostatic Testing

Once installation and backfilling are completed and before the proposed Project begins operation, the pipeline would be hydrostatically pressure-tested in accordance with DOT safety standards (49 CFR Part 192) to verify its integrity and to ensure its ability to withstand the MAOP. Hydrostatic testing consists of installing a hydrostatic test cap and manifold, filling the pipeline with water, pressurizing the pipeline to its MAOP, and maintaining that test pressure for a specified period of time. Any leaks detected during the test would be repaired and the pipeline would be re-tested.

Water used for hydrostatic testing would be obtained from surface water sources and municipal supplies, and no biocides or other hydrostatic test water additives would be added to the test water. After hydrostatic testing is completed, the test water either would be pumped to the next segment of pipeline to be tested or would be discharged. Additional information on hydrostatic testing is provided in Section 3.3.

Once a segment of pipe has been successfully tested, it would be cleaned and dried using mechanical tools (pigs) moved through the pipeline with pressurized, dry air. The hydrostatic test cap and manifold then would be removed and the pipe would be connected to the remainder of the pipeline using the welding and inspection procedures describe above.

Cleanup and Restoration

Within 20 days (or as soon as possible) of completing the backfilling of the trench, all remaining trash, debris, surplus materials, and temporary structures would be removed from the right-of-way and disposed of in accordance with applicable federal, state, and local regulations. All disturbed areas would be finish-graded and restored as closely as possible to preconstruction contours. Permanent erosion control measures also would be installed. Topsoil previously segregated from the subsoil material in all agricultural and residential areas would be spread uniformly across the construction right-of-way, and the topsoil and subsoil in these areas would be tested for compaction along the disturbed corridor.

Vegetation restoration would begin within six days of final grading. After the soil is readied for planting or seeding in areas where Gulf South and landowners have negotiated agreements, Gulf South would reseed or replant according to those agreements. To provide permanent erosion control along the right-of-way, all other upland areas disturbed by construction would be fertilized, limed, and seeded in accordance with the prescribed dates and seed mixes specified by the local soil conservation authorities or land management agencies. Wetland areas would not be fertilized, limed, or mulched unless Gulf South is directed to do so by state or local regulatory agencies.

Disturbed pavement and other road surfaces along access roads would be restored to preconstruction or better conditions, unless otherwise specified by the property owner and approved by applicable regulatory agencies. Likewise, any private or public property damaged during construction, such as fences, gates, and driveways, would also be restored to original or better condition consistent with individual landowner agreements.

Pipeline markers and/or warning signs would be installed along the pipeline centerline at specified intervals to identify the pipeline location, specify Gulf South as the operator of the pipeline, and provide telephone numbers for emergencies and inquiries.

Minimization Measures

To minimize construction-related effects, Gulf South proposes to implement its *Upland Erosion Control, Revegetation, and Maintenance Plan* (Plan) and its *Wetland and Waterbody Construction and Mitigation Procedures* (Procedures) as described in Section 3.4. With the exception of a few alternative measures, Gulf South's proposed Plan and Procedures are consistent with our guidance documents of the same name. The FERC Plan and Procedures are available for review on the FERC Internet website at www.ferc.gov/industries/gas/enviro/guidelines. The intent of Gulf South's Plan is to outline baseline mitigation measures that minimize erosion and enhance revegetation in upland areas. The major components of this Plan are described in Section 3.2. The intent of Gulf South's Procedures is to outline baseline mitigation measures that minimize the extent and duration of construction-related disturbances to wetlands and waterbodies. The major components of these Procedures are described in Sections 3.3 and 3.4.

Gulf South has also developed several Project-specific plans to avoid or minimize environmental impacts during construction. Gulf South has prepared a general Spill Prevention, Containment, and Control (SPCC) Plan, which describes the management of hazardous materials, such as fuels, lubricants, and coolants that would be used during construction. Site-specific plans would be developed for each construction spread once the construction contractors have been selected. Gulf South developed a *Plan for the Unanticipated Discovery of Contaminated Environmental Media* that would be used in the event contaminated soils are identified during construction activities. Gulf South has also developed a *Plan for the Containment of Inadvertent Release of Drilling Mud During Horizontal Directional Drilled Wetland and Waterbody Crossings* (HDD Plan) that describes the procedures that would be implemented to monitor for, contain, and clean up any inadvertent releases of drilling fluid during HDD operations. The HDD Plan also includes the directional drilling contingency plan (DDC Plan). Additionally, Gulf South has developed a *Plan for the Unanticipated Discovery of Historic Properties, Human Remains or Potential Paleontological Evidence During Construction* that would guide the treatment of any unanticipated discoveries of cultural resources or human remains during construction (see Section 3.10). Gulf South is also developing a Stormwater Pollution Prevention Plan (SWPPP), but this plan is not yet complete. These plans can be viewed on the internet using our eLibrary which is found at www.ferc.gov.

2.3.2 Specialized Pipeline Construction Procedures

2.3.2.1 Waterbody Crossings

A total of 254 waterbodies would be crossed by the proposed Project. Gulf South proposes to use either open-cut or HDD techniques for all of these crossings as described below. Construction of the proposed pipeline across these waterbodies would be accomplished in accordance with Gulf South's Procedures and all applicable permits.

Open-cut Crossing

An open-cut waterbody crossing would be conducted using methods similar to conventional open-cut trenching. The open-cut construction method would involve excavation of the pipeline trench across the waterbody, installation of a prefabricated segment of pipeline, and backfilling of the trench with native material. Excavation and backfilling of the trench would be accomplished using backhoes or other excavation equipment operating from one or both banks of the waterbody. The use of equipment operating in the waterbody would be limited to that needed for construction of the crossing. All other construction equipment would cross the waterbody using equipment bridges.

During construction, Gulf South would implement mitigation measures to minimize impacts to the aquatic environment, as described in its Procedures. Construction would be scheduled so that the trench would be excavated immediately prior to pipelaying activities. The duration of construction across minor waterbodies would be limited to 24 hours for minor waterbodies (10 feet wide or less) and 48 hours for intermediate waterbodies (greater than 10 feet wide but less than or equal to 100 feet in width). In accordance with its Procedures, excavated spoil would be stockpiled in the construction right-of-way at least 10 feet from the stream bank or in approved additional work areas, and would be surrounded by sediment control devices to prevent sediment from returning to the waterbody. The waterbody banks would be returned to as near preconstruction conditions as possible within 24 hours of completing all open-cut crossings.

Horizontal Directional Drill

The HDD method is a trenchless crossing method that may be used to avoid direct impacts to sensitive resources such as waterbodies, wetlands, and infrastructure (e.g., roads, railways, etc.) by directionally drilling beneath them. HDD installation on the proposed Project would result in a pipeline that is installed beneath the ground surface by pulling the pipeline through a pre-drilled bore hole. HDD installation is typically carried out in three stages: (1) directional drilling of a small-diameter pilot hole; (2) enlarging the pilot hole to a sufficient diameter to accommodate the pipeline; and (3) pulling the prefabricated pipeline, or pull string, into the enlarged bore hole. Figure 2.3.2-1 illustrates a typical HDD installation process.

The pilot hole (i.e., approximately 12 inches in diameter depending on drill head and soil characteristics) would be drilled along a predetermined HDD bore. The drill head for the pilot hole would have a down-hole, hydraulic, motor-powered drill bit attached to the drill string (pipe connecting the drill rig to the drill head). The hydraulic motor would convert hydraulic energy from drilling fluid, or drilling mud, pumped from the surface to mechanical energy at the drill head, allowing for bit rotation without drill string rotation. Drill string would be added as the pilot hole progressed.

Gulf South proposes to use hand-laid electric-grid guide wires to assist guidance of the drill bit along the proposed route. A small pathway approximately 2 to 3 feet wide may be cut using hand tools in heavily vegetated areas such as wetlands in order to position these guide wires, resulting in minimal ground disturbance. No large trees would be cut as part of this process. The path of the drill head would be controlled using an electromagnetic steering tool positioned on the tip of the drill bit and would follow the electromagnetic field created by the guide wires. Additionally, drill bit positioning sensors may help guide the path of the drill.

After completion of the pilot hole, the HDD bore would be progressively reamed to a diameter about 12 inches larger than the pipeline diameter. Drilling fluid would be pumped through the reaming tools to aid in cutting, support the bore hole, transport spoil back to the surface, and lubricate the trailing pipe. Upon completion of drilling and reaming, the drill string would extend from the entrance pit to the exit pit. Concurrent with reaming the bore, the pull string to be inserted in the HDD bore would be fabricated and laid out within the construction right-of-way or ATWS extending from the HDD exit pit. The pull string would be connected to the drill string and pulled back through the bore. The pipeline would be neutrally buoyant in the drilling fluid, allowing it to be pulled through the HDD bore hole.

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Figure 2.3.2-1
Typical HDD Pipeline Installation

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Drilling fluid circulated through the bore during the pilot hole drilling and reaming process would be collected at the surface and processed to remove spoils, allowing the fluid to be reused. Excess spoils and drilling fluid would be 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 montmorillonite clay, 10 percent quartz and feldspars, and 5 percent accessory materials, such as calcite and gypsum.

A successful HDD would result in little or no impact to 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 the pilot hole drill, 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, Gulf South would implement the corrective measures identified in its HDD Plan. If a frac-out does occur, Gulf South would immediately notify public agencies specified in its HDD Plan to determine a course of action, whether it be modification of drilling fluid parameters or complete suspension of drilling operations. These corrective measures would be effected to minimize or prevent further releases. Any surfaced (land) drilling fluids would be contained, clean-up procedures would commence, and the appropriate agencies would be notified. A discussion of the potential impacts of HDD on waterbodies and wetlands is provided in Sections 3.3 and 3.4.

In the event that Gulf South's attempted HDD fails, Gulf South would use it contingency procedures outlined in its HDD Plan for filling abandoned holes, relocating a new drill hole, reattempting the new HDD, or adopting an alternative crossing method. Gulf South would consult with appropriate regulatory agencies and submit the selection of any alternative crossing method to the FERC.

Gulf South proposes to use 12 separate HDD crossings to accomplish pipeline installation across 18 waterbodies, including four major waterbodies (greater than 100 feet in width), and two Nationwide Rivers Inventory (NRI) listed streams, the Strong River and the Chickasawhay River (Table 2.3.2.1-1). Section 3.3 and Appendix D identify and describe the waterbodies that would be crossed using HDD techniques. In addition to waterbodies, Gulf South proposes to cross 13 wetlands and four roadways via HDD methods.

TABLE 2.3.2.1-1
Proposed Horizontal Directional Drill Locations for the Proposed Southeast Expansion Project

Drill Location	Milepost		Length (feet)
	Begin	End	
U.S. Hwy. 49 and Dabbs Creek	12.3	12.8	2,400
Campbell's Creek/Campbell's Road	15.9	16.2	1,600
Strong River and Highway 13	17.9	18.4	2,525
Oakohay Creek/Beaver Creek	34.1	34.7	3,500
Leaf River	44.0	44.3	1,600
West Tallahala River	45.2	45.5	1,600

TABLE 2.3.2.1-1 Proposed Horizontal Directional Drill Locations for the Proposed Southeast Expansion Project			
Drill Location	Milepost		Length (feet)
	Begin	End	
Tallahala Creek	62.4	62.7	1,600
Interstate 59 and County Road 8	69.3	69.7	1,800
Shubuta Creek	82.5	82.8	1,600
Chickasawhay River	89.0	89.5	2,300
Bucatunna Creek	100.3	100.6	1,600
Okatuppa Creek	107.2	107.5	1,600

2.3.2.2 Wetland Crossings

Construction of the proposed Project pipeline across wetlands would be conducted in accordance with applicable permits and Gulf South's Procedures. Overall, the wetland crossing methods and mitigation measures identified in its Procedures are designed to minimize the extent and duration of construction-related disturbance within wetlands. Construction methods in wetlands would consist of the conventional lay method, push-float method, or HDD. Other than planned HDD's, the site-specific crossing procedures used to install the pipeline across wetlands would be determined based on conditions at the time of construction and would vary dependent on the level of soil stability and saturation encountered during construction.

The construction right-of-way width through wetland areas would be reduced to 75 feet. Within the right-of-way, woody vegetation would be removed or cut off at ground level and would be removed from the wetlands, leaving the root systems intact. Pulling of tree stumps and grading activities would be limited to that area directly over the trenchline, unless it was determined that safety-related construction constraints required grading or removal of tree stumps from under the working side of the construction right-of-way. Temporary erosion control devices would be installed as necessary immediately after initial disturbance of wetlands or adjacent upland areas to prevent sediment flow into wetlands, and would be maintained until revegetation is complete. Trench plugs would be installed as necessary to maintain wetland hydrology.

The construction equipment operating in wetland areas would be limited to that needed to clear the construction right-of-way, dig the trench, fabricate and install the pipeline, backfill the trench, and restore the construction right-of-way. If standing water or saturated soil conditions were present, or if construction equipment caused ruts or mixing of the topsoil and subsoil, construction equipment operating in wetland areas would be further limited to the use of low-ground-pressure equipment or normal equipment operating from timber riprap or prefabricated equipment mats.

Topsoil would be stripped from the area directly over the trench line to a maximum depth of 12 inches in unsaturated soils and would be stockpiled separately from the subsoil where practicable. The segregated topsoil would be restored to its original location immediately following installation of the pipe and backfill of the trench. Materials such as timber mats placed in wetlands during construction would be removed during final cleanup, and the preconstruction contours of the wetland would be restored. Any required permanent erosion control measures would then be installed, and disturbed areas within the wetland would be temporarily stabilized with appropriate vegetation to protect the wetland soils from erosion.

The wetlands that would be affected by construction of the proposed Project are described in Section 3.4. That section also provides further discussion of the wetland restoration and mitigation procedures that would be implemented by Gulf South.

2.3.2.3 Road, Highway, and Railroad Crossings

The proposed pipeline would cross numerous paved and unpaved roads, highways, and railroads along the proposed Project route. Construction across these features would be accomplished in accordance with Gulf South's Plan and the requirements of all applicable crossing permits and approvals. During roadway construction, Gulf South would incorporate any safety precautions required by state and local transportation agencies.

All railroads and approximately 91 major highways and paved roads would be crossed using HDD or subsurface boring techniques. The HDD crossing method as described in detail in Section 2.3.2.1 would be used at Interstates 49 and 59, Mississippi Highway 13, and County Road 8. Bores beneath roads and railways would entail excavating pits on both sides of the feature and boring a horizontal hole equal to the diameter of the pipe (or casing, if required) at the depth of the pipeline installation. The pipeline section and/or casing then would be pushed through the bore. If additional pipeline sections were required, they would be welded to the first section of the pipeline in the bore pit before being pushed through the bore. There would likely be little disruption of traffic on roads and railways that are bored. Section 3.8 provides additional information on the proposed major road crossing locations.

Pipeline crossings of lightly traveled and unimproved rural dirt roads typically would be crossed via open-cut installation. Such crossings would require the temporary closure of these roads and implementation of detours, where feasible. In the absence of a reasonable detour, construction across the roadway would be staged to allow at least one lane of traffic to remain open except for the limited periods required for installing the pipeline. Efforts would be made to schedule lane closures outside of peak traffic periods. Attempts would also be made to avoid peak-traffic periods on all road construction. All construction operations at these crossings, including repair and surface restoration, would typically be completed within one day.

2.3.2.4 Agricultural Areas

Agricultural areas along the proposed Project route include pasture areas used for livestock grazing, hayfields, fallow fields, and rotated croplands such as cotton and corn. In these areas, Gulf South would implement special procedures to minimize impacts on current agricultural uses. Unless the landowner or land management agency specifically approves otherwise, topsoil would be removed to its actual depth, up to a maximum of 12 inches, and would be stockpiled separately from the subsoil excavated from the pipeline trench. Typically, topsoil would be stripped from directly over the pipeline ditch and the adjacent subsoil spoil storage area, but landowners would be provided with the option of topsoil segregation across the full width of the construction work area. During construction, the natural flow patterns of all fields would be maintained by providing breaks in topsoil and subsoil stockpiles.

During cleanup and restoration, all disturbed areas would be finish-graded and restored as closely as possible to preconstruction contours. Topsoil previously segregated from the trench material in all agricultural areas would be spread uniformly across the construction right-of-way, and any stones or excess rock would be removed from at least the top 12 inches of soil. The topsoil and subsoil in all agricultural and residential areas also would be tested for compaction at regular intervals using penetrometers or other appropriate devices to conduct tests. Any severely compacted areas would be

plowed with a paraplow or other deep tillage device. In areas where the topsoil was segregated, the subsoil also would be plowed before replacing the segregated topsoil.

Gulf South stated that the proposed Project would not cross any known drainage structures or irrigation facilities but plans to contact landowners again to confirm this finding. Its Plan requires it to work with property owners to identify locations of existing drainage structures and irrigation facilities that could be damaged during construction. Should any damage occur to these facilities, Gulf South would repair these systems with the input of the property owners. Gulf South also would work with landowners during easement negotiations to establish compensation agreements for crop damages and for loss of growing time, as applicable. Additional information on special procedures used in agricultural areas is presented in Sections 3.2 and 3.8.

2.3.2.5 Rugged Topography

The proposed Project would not involve construction in areas of excessively rugged topography, such as mountains or canyons. However, some portions of the proposed Project route would traverse areas of side slopes and rolling terrain that could require specialized "two-tone" construction techniques to provide for safe working conditions. Under the two-tone construction technique, the uphill side of the construction right-of-way would be cut during grading. The material removed from the cut would be used to fill the downhill side of the construction right-of-way to provide a safe and level surface from which to operate heavy equipment. The pipeline trench would then be excavated along the newly graded right-of-way. Figure 2.3.2.5-1 provides a typical cross-section of the two-tone construction technique. The areas along the proposed Project that likely would be affected by two-tone construction techniques are listed in Table 2.3.2.5-1.

TABLE 2.3.2.5-1
Areas That Would Be Affected by Two-Tone Construction Techniques for the Proposed Southeast Expansion Project

Milepost	Length Affected (feet)	Additional Workspace Requirement
0.0-1.1	2,115	45 to 90-foot-wide ATWS
3.2-3.7	2,730	70-foot wide ATWS
4.0-5.0	3,370	45-foot-wide ATWS
6.3-6.9	2,485	45-foot-wide ATWS
8.7-8.9	1,470	70-foot-wide ATWS
10.8-11.1	940	25-foot-wide ATWS
20.4-23.1	6,685	25 to 75-foot-wide ATWS
29.2-29.7	1,630	70-foot-wide ATWS
75.5-75.7	970	70-foot-wide ATWS
77.2-78.5	4,180	70-foot-wide ATWS
90.8-110.6	37,930	50 to 120-foot wide ATWS
Total	**64,505**	

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Figure 2.3.2.5-1
Typical Side Slope Workspace Construction Area

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The two-tone construction technique would likely require ATWSs to accommodate the additional volumes of fill material generated by this technique (see Section 3.8). Following pipeline installation and backfill of the trench, excavated material would be placed back in the cut and compacted to restore the approximate original contours. All disturbed areas would then be stabilized in accordance with Gulf South's Plan.

2.3.2.6 Residential Areas

Gulf South proposes to complete construction activities near residences as quickly as possible to minimize construction-related disturbances. Open access to residences would be maintained to the extent possible, and coordination with landowners would be conducted to minimize inconvenience regarding possible temporary loss of utility service or to address special landscaping issues. Safety fencing would also be used to prevent pedestrian access to the construction site. Gulf South has developed construction measures for all residences within 50 feet of the construction ROW, and site-specific construction plans for residences located within 25 feet of the construction right-of-way.

Section 3.11 provides additional information on noise abatement and emission control technology. As necessary, disturbed or interrupted electrical, domestic water and septic, and communications utilities would be installed.

2.3.3 Aboveground Facilities Construction Procedures

The aboveground facilities would be constructed concurrent with pipeline installation, but construction would be conducted by special fabrication crews generally working separately from the pipeline construction spreads.

Construction of the compressor stations would involve clearing, grading, and compacting the sites to the surveyed elevations, where necessary, for placement of concrete foundations for buildings and to support skid-mounted equipment. Prefabricated segments of pipe, valves, fittings, and flanges would be shop- or site-welded and assembled at the compressor station site. The compressor units and other large equipment would be mounted on their respective foundations, and the compressor enclosures would be erected around them. Noise abatement equipment (including sound-attenuating enclosures around the turbines, exhaust stack silencers, and air inlet silencers) and emission control technology would be installed as needed to meet applicable federal, state, and/or local standards. Section 3.11 provides additional information on noise abatement and emission control technology. As necessary, electrical, domestic water and septic, and communications utilities would be installed.

Facility piping, both above and below ground, would be installed and hydrostatically tested before being placed in service. Controls and safety devices, such as the emergency shutdown system, relief valves, gas and fire detection facilities, and other protection and safety devices, would also be checked and tested. Upon completion of construction, all disturbed areas associated with the aboveground facilities would be finish-graded and seeded or covered with gravel, as appropriate. All roads and parking areas would be graveled. Additionally, the compressor station sites would be fenced for security and protection.

Construction of M/R stations, mainline valves, and pig launcher/receiver facilities not collocated with the compressor stations would generally be similar to that described above for compressor station sites, and would entail site clearing and grading, installation and erection of facilities, hydrostatic pressure testing, cleanup and stabilization, and installation of security fencing around the facilities.

2.4 CONSTRUCTION SCHEDULE

Gulf South proposes to commence construction of the Southeast Expansion Project on September 1, 2007, assuming that the FERC has granted approval by July of 2007. The facilities, including installation of the proposed pipeline, compressor stations, and associated ancillary facilities, then would be completed in approximately four months and would be in service by December 31, 2007. The actual start date of construction, if the proposed Project is certificated, would depend on the Commission's environmental review process.

2.5 ENVIRONMENTAL TRAINING AND MONITORING

Gulf South has indicated that it would conduct environmental training for all company and construction contractor personnel prior to and during construction activities. Such training would focus on implementation of Gulf South's Plan and Procedures, but would also address Project-specific permit requirements, company policy and commitments, any protection procedures and restrictions associated with cultural resources or sensitive species/habitats, and any other pertinent job-related information.

During Project construction, environmental inspectors (EIs) would be responsible for monitoring and ensuring compliance with all environmental mitigation measures required by the FERC Certificate, if granted, and Gulf South's Plan and Procedures as modified in this Draft EIS (see Section 3.4). The EIs would have the authority to stop activities that violate the environmental conditions of these authorizations, state and federal environmental permit conditions, or landowner requirements, and order appropriate corrective actions if needed. Gulf South has indicated that it would be represented by at least one EI per construction spread, consistent with FERC's Plan. However, Gulf South's Plan also indicates that the number and experience of EIs assigned to each construction spread should be appropriate for the length of the construction spread and the number/significance of resources affected. If the proposed Project were authorized, Gulf South would be required to develop and submit an Implementation Plan for our approval prior to construction. During our review of the Implementation Plan, we would consider the absolute number and qualifications of the EI personnel proposed by Gulf South.

Gulf South has indicated that it is willing to use a third party monitoring program, consistent with other approved programs previously used by the Commission to ensure adequate oversight during construction.

Gulf South established an Internet website (http://www.gulfsouthpl.com/sefactsheet.asp), toll-free telephone number (1-877-972-8533), and e-mail address (southeastexpansionproject@ gulfsouthpl.com) to provide potentially affected landowners and stakeholders with a venue for providing comments or requesting additional information about the proposed Project.

2.6 OPERATION, MAINTENANCE, AND SAFETY CONTROLS

As described previously, the proposed pipeline and aboveground facilities would be designed, constructed, operated, and maintained to meet or exceed all safety standards as set forth in the DOT's *Transportation of Natural and Other Gas By Pipeline: Minimum Federal Safety Standards* (49 CFR Part 192).

The pipeline would be constructed of welded carbon steel that meets or exceeds industry standards and would be covered with a protective coating to minimize rust and corrosion. To protect against damage from external forces, the proposed pipeline would be buried at a minimum depth of 3 feet below ground. All welds joining each section of pipe would be visually inspected and x-rayed to ensure the integrity of the welds. Prior to being placed in service, the pipeline would be hydrostatically tested to

verify its integrity and to ensure its ability to withstand the designed MAOP. A cathodic protection system would be installed to protect all underground pipeline facilities constructed of metallic materials from external, internal, and atmospheric corrosion. Additional information regarding safety standards is described further in Section 3.12.

During operations, Gulf South would conduct regular patrols of the pipeline right-of-way in accordance with the requirements of 49 CFR Part 192. The patrol program would include periodic aerial, vehicle, and/or pedestrian patrols of the pipeline facilities. These patrols would be conducted to survey surface conditions on and adjacent to the pipeline right-of-way for evidence of leaks, unauthorized excavation activities, erosion and wash-out areas, areas of sparse vegetation, damage to permanent erosion control devices, exposed pipe, and other conditions that might affect the safety or operation of the pipeline. The cathodic protection system would also be inspected periodically to ensure that it is functioning properly. In addition, intelligent pigs would regularly be sent through the pipeline to check for corrosion and irregularities in the pipe. Gulf South would keep detailed records of all inspections and supplement the corrosion protection system as necessary to meet the requirements of 49 CFR Part 192.

Routine operation and maintenance would also be performed at all 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.

Gulf South would establish and maintain a liaison with the appropriate fire, police, and public officials. This program would identify the available resources and responsibilities of each organization that may respond to a natural gas pipeline emergency and assist in developing coordination responsibilities.

Pipeline markers would be placed and maintained along the right-of-way at roadway crossings, railroad crossings, and other highly visible places to alert those contemplating working in the vicinity of the location of the buried pipeline. The markers would identify Gulf South as the operator and display telephone numbers to call if any abnormal conditions are detected.

Gulf South would also participate in the One-Call program. This program provides telephone numbers for excavation contractors to call prior to commencing any excavation activities. The One-Call operator would notify Gulf South of any planned excavation in the vicinity of the pipeline so that Gulf South could flag the location of the pipeline and assign staff to monitor activities if required.

Vegetation management procedures during operation would be performed in accordance with Gulf South's proposed Plan and Procedures and would include regular mowing, cutting, and trimming along most of the proposed 60-foot-wide permanent pipeline right-of-way. Routine vegetative maintenance clearing would not be performed more frequently than every three years unless requested or approved by appropriate state and local agencies. However, a corridor not exceeding 10 feet in width centered on the pipeline could be maintained annually in an herbaceous state, as required to facilitate periodic corrosion and leak detection surveys. Vegetation management is discussed further in Section 3.5.

2.7 FUTURE PLANS AND ABANDONMENT

Gulf South currently has no plans for future expansion of the facilities proposed. If additional demand for natural gas supplies requires future expansion, Gulf South would seek the appropriate authorizations from the FERC. When and if an application is filed, the environmental impact of the new proposal would be examined at that time.

Abandonment of the pipeline facilities would be subject to the approval of the FERC under Section 7(b) of the NGA and would comply with DOT regulations and specific agreements or stipulations made for the pipeline rights-of-way. An environmental review of any proposed abandonment would be conducted when the application is filed with the FERC.

2.8 NON-JURISDICTIONAL FACILITIES

Under Section 7 of the Natural Gas Act (NGA), the FERC is required to consider, as part of its decision to certificate jurisdictional facilities, all factors bearing on the public convenience and necessity. Toward this end, the FERC may need to consider the environmental impact of related "non-jurisdictional" facilities that would be constructed upstream and downstream of the jurisdictional facilities for the purpose of delivering, receiving, or using the proposed gas volumes. Integrally related non-jurisdictional facilities could include major power facilities, such as cogeneration plants, as well as less significant facilities, such as lateral pipeline connections. Gulf South indicated that there are no non-jurisdictional facilities associated with the Southeast Expansion Project.