Federal Energy Regulatory Commission

Office of
Energy Projects

December 2019

Florida Gas Transmission Company, LLC Docket No. CP19-474-000

# Putnam Expansion Project

## Environmental Assessment

Washington, DC 20426

FEDERAL ENERGY REGULATORY COMMISSION
WASHINGTON, D.C. 20426

OFFICE OF ENERGY PROJECTS

In Reply Refer To:
OEP/DG2E/Gas 2
Florida Gas Transmission Company, LLC
Putnam Expansion Project
Docket No. CP19-474-000

TO THE INTERESTED PARTIES:

The staff of the Federal Energy Regulatory Commission (FERC or Commission) has prepared an environmental assessment (EA) for the Putnam Expansion Project (Project), proposed by Florida Gas Transmission Company, LLC (Florida Gas) in the above-referenced docket. The Project is designed to provide 169,000 million British thermal units per day (MMBtu/d) of natural gas to subscribed Project shippers. Florida Gas also requests approval to upgrade facilities at Compressor Station 18 to increase reliability to existing shippers. The Project includes modifications to existing facilities and installation of new pipeline loops in Columbia, Union, Putnam, Clay, and Orange counties, Florida.

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

The Putnam Expansion Project would consist of the following facilities in Florida:

- **West Loop**- install 13.7 miles of 30-inch-diameter pipeline loop[1] in Columbia and Union Counties;
- **East Loop**- install 7.0 miles of 30-inch-diameter pipeline loop in Clay and Putnam Counties;

[1] A pipeline loop is a segment of pipe constructed parallel to an existing pipeline to increase capacity.

- **Columbia/Union Receiver Station Relocation**- remove and relocate the existing 30-inch-diameter loop pig[2] receiver located at the beginning of the West Loop in Columbia County to a new pig receiver station to be installed at the terminus of the West Loop in Union County;
- **Clay/Putnam Receiver Station Relocation**- remove and relocate the existing 30-inch-diateter loop pig receiver located at the beginning of the East Loop in Clay County to a new pig receiver station to be installed at the terminus of the East Loop in Putnam County; and
- **Compressor Station 18** - install new automated valves, over pressure protection device, and station piping at Florida Gas's existing Compressor Station 18 in Orange County, Florida.

The FERC staff mailed a copy of the *Notice of Availability* to federal, state, and government representatives and agencies; elected officials; environmental and public interest groups; Native American tribes; potentially affected landowners; other interested individuals and groups; and newspapers and libraries in the project area. The EA is only available in electronic format. It may be viewed and downloaded from the FERC's website (www.ferc.gov), on the Environmental Documents page (https://www.ferc.gov/industries/gas/enviro/eis.asp). In addition, the EA can be accessed by using the eLibrary link on the FERC's website. Click on the eLibrary link (https://www.ferc.gov/docs-filing/elibrary.asp), click on General Search, and enter the docket number in the "Docket Number" field, excluding the last three digits (i.e. CP19-474). Be sure you have selected an appropriate date range. For assistance, please contact FERC Online Support at FercOnlineSupport@ferc.gov or toll free at (866) 208-3676, or for TTY, contact (202) 502-8659.

Any person wishing to comment on the EA may do so. Your comments should focus on the EA's disclosure and discussion of potential environmental effects, reasonable alternatives, and measures to avoid or lessen environmental impacts. The more specific your comments, the more useful they would be. To ensure that your comments are properly recorded and considered prior to a Commission decision on the proposal, it is important that the FERC receives your comments in Washington, DC on or before 5:00pm Eastern Time on **January 6, 2020.**

For your convenience, there are three methods you can use to file your comments to the Commission. The Commission encourages electronic filing of comments and has staff available to assist you at (866) 208-3676 or FercOnlineSupport@ferc.gov. Please carefully follow these instructions so that your comments are properly recorded.

[2] A "pig" is a tool that the pipeline company inserts into and pushes through the pipeline for cleaning the pipeline, conducting internal inspections, or other purposes.

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

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

(3) You can file a paper copy of your comments by mailing them to the following address. Be sure to reference the project docket number (CP19-474-000) with your submission: Kimberly D. Bose, Secretary, Federal Energy Regulatory Commission, 888 First Street NE, Room 1A, Washington, DC 20426.

Any person seeking to become a party to the proceeding must file a motion to intervene pursuant to Rule 214 of the Commission's Rules of Practice and Procedures (18 CFR 385.214). Motions to intervene are more fully described at http://www.ferc.gov/resources/guides/how-to/intervene.asp. Only intervenors have the right to seek rehearing or judicial review of the Commission's decision. The Commission may grant affected landowners and others with environmental concerns intervenor status upon showing good cause by stating that they have a clear and direct interest in this proceeding which no other party can adequately represent. **Simply filing environmental comments will not give you intervenor status, but you do not need intervenor status to have your comments considered.**

Additional information about the Project is available from the Commission's Office of External Affairs, at **(866) 208-FERC,** or on the FERC website (www.ferc.gov) using the eLibrary link. The eLibrary link also provides access to the texts of all formal documents issued by the Commission, such as orders, notices, and rulemakings.

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

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## TECHNICAL ACRONYMS AND ABBREVIATIONS

| | |
|---|---|
| APE | Area of Potential Effects |
| AQCR | Air Quality Control Region |
| ATWS | Additional temporary workspace |
| BMP | Best Management Practices |
| Certificate | Certificate of Public Convenience and Necessity |
| CAA | Clean Air Act |
| CEQ | Council on Environmental Quality |
| CFR | Code of Federal Regulations |
| CO | carbon monoxide |
| $CO_2$ | carbon dioxide |
| $CO_2e$ | carbon dioxide equivalents |
| Commission | Federal Energy Regulatory Commission |
| CS | Compressor station |
| dB | Decibel |
| dBA | A-weighted decibel |
| DOT | U.S. Department of Transportation |
| EA | environmental assessment |
| ECD | Erosion Control Devices |
| ECMP | Environmental Construction Management Plan |
| EI | environmental inspector |
| EO | Executive Order |
| EPA | U.S. Environmental Protection Agency |
| ESA | Endangered Species Act |
| FDCP | Fugitive Dust Control Plan |
| FERC | Federal Energy Regulatory Commission |
| FNAI | Florida Natural Areas Inventory |
| FWS | U.S. Fish and Wildlife Service |
| g | Gravity |
| GHG | greenhouse gas |
| GWP | global warming potential |
| HAP | hazardous air pollutants |
| HDD | Horizontal Directional Drilling |
| hp | Horsepower |
| HUC | Hydrologic Unit Code |
| $L_{eq}$ | equivalent sound level |
| $L_{dn}$ | day-night sound level |
| MBTA | Migratory Bird Treaty Act |
| MMBtu/d | Million British thermal units per day |
| MOU | Memorandum of Understanding |
| NAAQS | National Ambient Air Quality Standards |
| NEPA | National Environmental Policy Act |
| NGA | Natural Gas Act |

| | |
|---|---|
| NNSR | Nonattainment New Source Review |
| $NO_2$ | nitrogen dioxide |
| $NO_x$ | nitrogen oxides |
| $N_2O$ | nitrous oxide |
| NOI | *Notice of Intent to Prepare an Environmental Assessment for the Proposed Putnam Expansion Project and Request for Comments on Environmental Issues* |
| NRCS | Natural Resources Conservation Service |
| NRHP | National Register of Historic Places |
| NSA | noise sensitive area |
| OEP | Office of Energy Projects |
| PAR | permanent access road |
| PCB | polychlorinated biphenyl |
| Plan | FERC's *Upland Erosion Control, Revegetation, and Maintenance Plan* |
| $PM_{2.5}$ | particulate matter with an aerodynamic diameter less than or equal to 2.5 microns |
| $PM_{10}$ | particulate matter with an aerodynamic diameter less than or equal to 10 microns |
| Procedures | FERC's *Wetland and Waterbody Construction and Mitigation Procedures* |
| Project | Putnam Expansion Project |
| PSD | Prevention of Significant Deterioration |
| Secretary | Secretary of the Commission |
| SHPO | State Historic Preservation Officer |
| $SO_2$ | sulfur dioxide |
| SPAR Plan | Spill Prevention and Response Plan |
| SWAPP | Source Water Assessment and Protection Program |
| TAR | temporary access road |
| USACE | U.S. Army Corps of Engineers |
| USET | United South and Eastern Tribes |
| USGS | U.S. Geological Service |
| VOC | volatile organic compound |

# A. PROPOSED ACTION

## 1.0 INTRODUCTION

The staff of the Federal Energy Regulatory Commission (Commission or FERC) has prepared this environmental assessment (EA) to assess the environmental effects of the natural gas pipeline facilities proposed by Florida Gas Transmission Company, LLC (Florida Gas) in Columbia, Union, Putnam, Clay, and Orange Counties, Florida. On May 31, 2019, Florida Gas filed an application with the Commission in Docket No. CP19-474-000 for the Putnam Expansion Project (Project) under section 7(c) of the Natural Gas Act (NGA) and part 157 of the Commission's regulations. Florida Gas seeks to construct, operate, certain natural gas facilities in Florida.

We[1] prepared this EA in compliance with the requirements of the National Environmental Policy Act (NEPA), Title 40 of the Code of Federal Regulations, Parts 1500-1508 [40 CFR 1500-1508]), and with the Commission's implementing regulations under 18 CFR 380.

The EA is an integral part of the Commission's decision-making process on whether to issue Florida Gas a Certificate of Public Convenience and Necessity (Certificate) to construct and operate the proposed facilities. Our principal purposes in preparing this EA are to:

- identify and assess potential impacts on the natural and human environment that could result from implementation of the proposed action;
- identify and recommend reasonable alternatives and specific mitigation measures, as necessary, to avoid or minimize Project-related environmental impacts; and
- facilitate public involvement.

## 2.0 PURPOSE AND NEED

Florida Gas stated that the Project purpose is to upgrade pipeline and existing compressor station facilities to enable Florida Gas to provide 169,000 million British thermal units per day (MMBtu/d) of firm natural gas transportation on behalf of Seminole Electric Cooperative, Inc. (SECI) to a delivery point with SeaCoast Gas Transmission, LLC (SeaCoast) in Putnam County, Florida. The Project volumes would serve a new gas-fired combined-cycle generating unit that SECI plans to construct at its existing Seminole Generation Site near the City of Palatka, in Putnam County.

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

## 3.0 PROPOSED FACILITIES

The Putnam Expansion Project would consist of the following facilities in Florida:

[1] "We," "us," and "our" refers to environmental staff of the Office of Energy Projects.

- **West Loop**- install 13.7 miles of 30-inch-diameter pipeline loop[2] in Columbia and Union Counties;
- **East Loop**- install 7.0 miles of 30-inch-diameter pipeline loop in Clay and Putnam Counties;
- **Columbia/Union Receiver Station Relocation**- remove and relocate the existing 30-inch-diameter loop pig[3] receiver located at the beginning of the West Loop in Columbia County to a new pig receiver station to be installed at the terminus of the West Loop in Union County;
- **Clay/Putnam Receiver Station Relocation**- remove and relocate the existing 30-inch-diatmeter loop pig receiver located at the beginning of the East Loop in Clay County to a new pig receiver station to be installed at the terminus of the East Loop in Putnam County; and
- **Compressor Station (CS) 18**- install new automated valves, over pressure protection device, and station piping at Florida Gas's existing CS 18 in Orange County, Florida.

These locations are depicted in figure 1.

## 4.0 NON-JURISDICTIONAL FACILITIES

Under Section 7 of the NGA, the Commission is required to consider, as part of its decision to authorize jurisdictional facilities, all factors bearing on the public convenience and necessity. Occasionally, proposed projects have associated facilities that do not come under the jurisdiction of the Commission. These non-jurisdictional facilities may be integral to the need for the proposed facilities (e.g., a gas-fueled power plant at the end of a jurisdictional pipeline) or they may be minor, non-integral components of the jurisdictional facilities that would be constructed and operated as a result of the proposed facilities.

The Putnam Expansion Project is under FERC's jurisdiction and is proposed as a result of construction of the non-jurisdictional SECI capacity expansion, which includes a new large-frame, two-on-one natural gas combined cycle unit and associated equipment, to be known as the Seminole Combined Cycle Facility[4]. This facility is scheduled to begin construction in December 2019 and would be constructed adjacent to the existing Seminole Generation Site in Putnam County, Florida. The Florida Public Service Commission has jurisdiction over this facility and granted SECI's petition to determine the need for the proposed Seminole Facility in May 2018.[5] The proposed site would be approximately 1,996 acres in rural Putnam County, bordered by US 17 and primarily undeveloped lands consisting of forested wetlands and uplands. The new facility has the potential to have a gross output of 1,183 megawatts[6]. The proposed Seminole Combined

[2] A pipeline loop is a segment of pipe constructed parallel to an existing pipeline to increase capacity.

[3] A "pig" is a tool that the pipeline company inserts into and pushes through the pipeline for cleaning the pipeline, conducting internal inspections, or other purposes.

[4] http://publicfiles.dep.state.fl.us/Siting/Outgoing/Web/Seminole/Final%20Orders/2018_7_27_SCCF_FO.pdf

[5] http://www.floridapsc.com/ClerkOffice/ShowDocket?orderNum=PSC-2018-0262-FOF-EC.

[6] http://www.psc.state.fl.us/Files/PDF/Utilities/Electricgas/TenYearSitePlans/2019/Seminole%20Electric%20Cooperative.pdf

Cycle Facility would replace one existing coal-fired generating unit, which would be retired. The facility would be located on an upland portion to avoid impacting wetlands. The presence of gopher tortoises and Sherman's fox squirrel was observed at the proposed site. No previously recorded archeological resources were documented at the site. Construction and operation of this facility would have short-term impacts on air quality. Once operational, the facility is designed to offset existing emissions by removing a Seminole coal unit from service. Short term adverse effects from dust and air emissions during construction would be controlled through best management practices. Noise levels in the immediate vicinity will increase due to the operation of turbines and other equipment. However, perceived noise increases are expected to be minimal as the site has been in operation for electrical generation for decades. Since the Seminole Combined Cycle facility is more than 20 miles from the Project and outside any applicable resource-specific geographic scope it is not assessed further[7].

SeaCoast would also construct a non-jurisdictional 21.3 mile 30-inch-diameter lateral pipeline from the Putnam Expansion Project delivery point to SECI's existing Seminole Generation Site. The USACE is reviewed portions of this project under their jurisdiction within docket number SAJ-2018-01749 (SP-MRE).[8] The SeaCoast Palatka Lateral Pipeline associated with the Project would Florida Gas's natural gas pipeline to the Seminole Combined Cycle Facility Power Plant. The route of the pipeline would connect to the East Loop of the Project at the Seacoast Lateral Gate Station. The Seacoast Palatka Lateral Pipeline project includes two main-line valves, a pig launcher/receiver, access roads and temporary work areas. The project would permanently impact 5.34 acres of wetlands, to which 0.817 credits from the Sundew Mitigation Bank would be purchased as mitigation. Several cultural sites were identified that require additional investigation along the pipeline route. The majority of the project corridor is within a consultation area for the Florida Sand Skink. No sand skinks or evidence thereof was observed during field assessment, however, portions located within the consultation area are considered to be potential sand skink habitat. Construction would have short-term impacts on air quality. Short-term adverse effects from dust and air emissions from equipment during construction would be controlled through best management practices. Noise impacts would only occur during construction of the project in the immediate vicinity of pipeline activities. Once operational, there would be no operational emissions. Based on the current permitting schedule of the Seacoast Palatka Lateral Pipeline and that construction activities are expected to last approximately three months, it is anticipated that the pipeline would be buried and in-service prior to construction of the Project.

## 5.0 PUBLIC REVIEW AND COMMENT

On July 14, 2019, the Commission issued a *Notice of Intent to Prepare an Environmental Assessment for the Proposed Putnam Expansion Project and Request for Comments on Environmental Issues* (NOI). The NOI was mailed to affected landowners, federal, state, and local government representatives and agencies; elected officials; Native American tribes; environmental and public interest groups; and newspapers and libraries in the Project area. The NOI requested written comments from the public on the scope of the analysis for the EA. The public scoping period closed on August 15, 2019. In response to the NOI, the Commission received a request for

[8] https://www.saj.usace.army.mil/Missions/Regulatory/Public-Notices/Article/1690661/saj-2018-01749-sp-mre/

formal tribal consultation from the Seminole Tribe of Florida, the Florida Department of Environmental Projection (FDEP) provided recommendations on water resources, and a comment was received from Jacqueline Bowles concerning pipeline vibration and rupture risks. Additionally, we received a comment from Judith Rhame on selling her property. These comments are addressed in sections B.5.0, B.6.0, and B.9.0. In preparing this EA, we are fulfilling our obligation under NEPA to consider and disclose the environmental impacts of the Project. This EA addresses the impacts that could occur on a wide range of resources, should the Project be approved and constructed.

## 6.0 PERMITS, APPROVALS, AND REGULATORY CONSULTATIONS

Table 1 provides a list of known federal, state, and local permits for the Project, as well as any responses that have been received to date. Florida Gas would be responsible for obtaining all permits and approvals required for the Project, regardless of their listing in table 1.

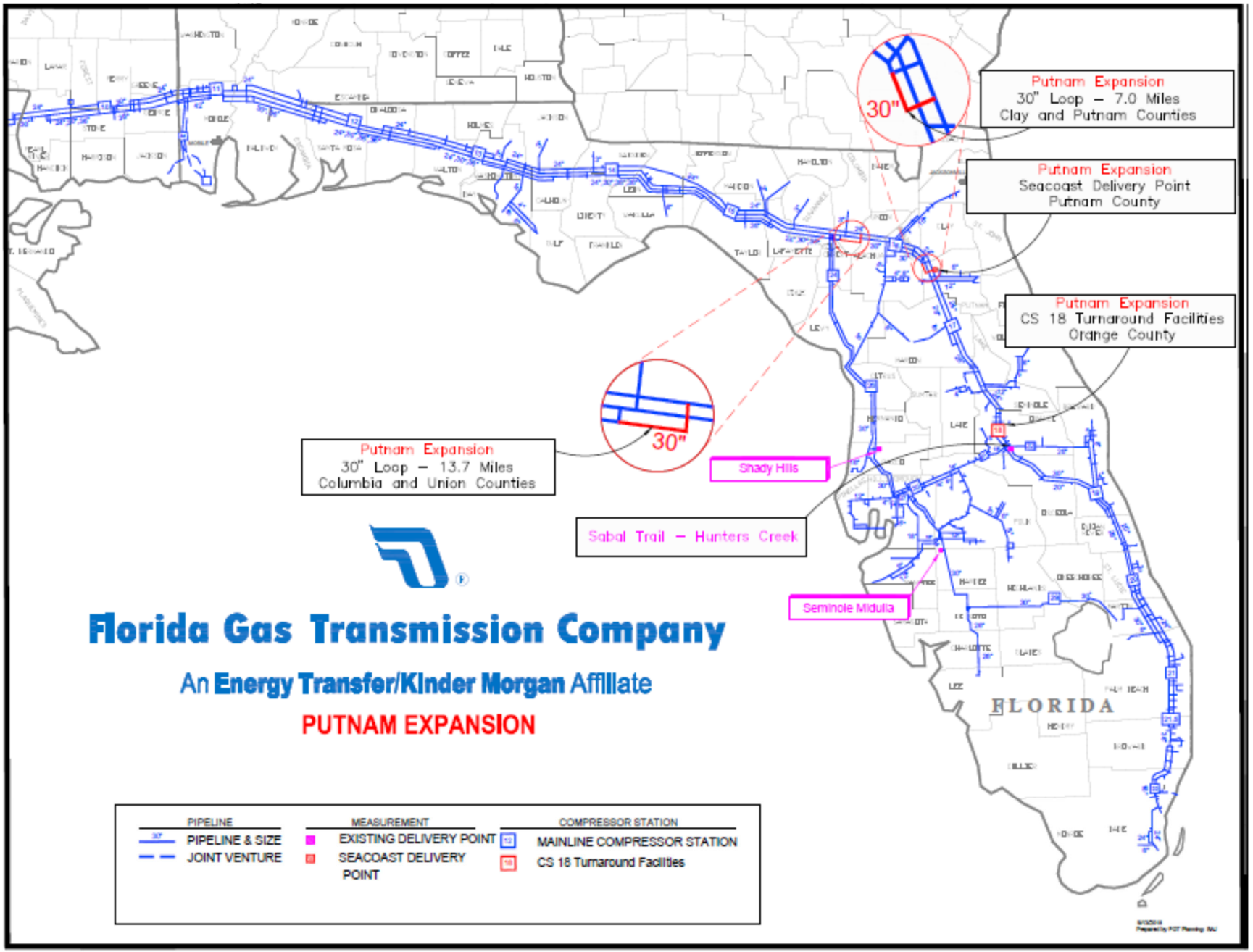


**Figure 1**
**General Location Map**

| Table 1<br>Applicable Major Permits, Authorizations, and Clearances | | |
|---|---|---|
| **Agency** | **Permit/Approval Title** | **Status** |
| **Federal** | | |
| FERC | Certificate of Public Convenience and Necessity | Submitted June 2019- Pending |
| U.S. Army Corps of Engineers (USACE) | Clean Water Act, Section 404 | Submitted June 2019- Pending |
| U.S. Fish and Wildlife Service (FWS) | Endangered Species Act, Section 7 Consultation | Submitted May 17 2019<br>Received May 21, 2019 |
| **State of Florida** | | |
| FDEP | Environmental Resource Permit/ Section 401 Water Quality Certification | Submitted June 2019- Pending |
| FDEP, Division of State Lands | Use of State-Owned Uplands for crossing Palatka Lake Butler State Trail (East Loop) | Pending |
| FDEP, Division of Water Resource Management | National Pollutant Discharge Elimination System (NPDES) Hydrostatic Test Discharge Permit | Request for exemption to be submitted within 60 days prior to commencing construction |
| Florida Division of Historical Resources | Section 106 Consultation | Submitted June 2019- Pending |
| Florida Fish and Wildlife Conservation Commission (FWC) | Florida Statues and Endangered and Threatened Species Act | Submitted May 17, 2019<br>Received June 12, 2019 |
| Florida Department of Transportation (FDOT) | State road, highway, or interstate crossing permits | Pending |
| **County Agencies** | | |
| Orange County Environmental Protection Division | Minor Construction Modification Permit Application, Compressor Station 18 | Submitted May 2019<br>Received September 24, 2019 |

## 7.0 CONSTRUCTION, OPERATION, AND MAINTENANCE

Florida Gas would construct, operate, and maintain the Project in compliance with all applicable federal and state permit requirements, regulations, and environmental guidelines, including the U.S. Department of Transportation (DOT) under 49 CFR 192 - *Transportation of Natural and Other Gas by Pipeline: Minimum Federal Safety Standards*. During all phases of the Project, Florida Gas would follow the applicable Occupational Safety and Health Administration Requirements.

Florida Gas anticipates that construction of the Project would begin in March 2021 with an in-service date of April 1, 2022. Construction activities would occur during daytime hours of 7:00AM to 7:00PM Monday through Saturday, with intermittent night time and Sunday work when required for activities such as hydrostatic testing, horizontal directional drilling (HDD) activities, tie-in activities, and operation of pumps at dry waterbody crossings.

Florida Gas adopted the FERC's *Upland Erosion Control, Revegetation, and Maintenance Plan* (Plan), and *Wetland and Waterbody Construction and Mitigation Procedures* (Procedures), along with best management practices (BMPs). Florida Gas would also utilize a Spill Prevention and Response Plan (SPAR Plan) to address the handling of construction fuel and other materials, an Unanticipated Discovery Plan for cultural resources, a Fugitive Dust Control Plan (FDCP), and HDD Contingency Plan.

During construction, Florida Gas would clear and grade the sites for the pipeline facilities and remove brush, trees, roots and other obstructions such as stumps. Erosion control devices (ECD) would be installed as needed to prevent erosion and offsite impacts in accordance with the FERC's Plan and Procedures, and applicable state permit requirements. Following pipeline lowering, the trench would be backfilled and the right-of-way would be restored to pre-construction conditions. No blasting would be required for construction of the Project.

During construction and restoration, Florida Gas would use at least one full-time environmental inspector (EI) during construction of the Project. The EI would be on site during construction activities to ensure compliance with the construction procedures contained in the Plan and Procedures. Florida Gas would conduct environmental training sessions in advance of construction to ensure that all individuals working on the Project are familiar with the environmental mitigation measures appropriate to their jobs and the EI's authority. FERC staff would also conduct inspections of the Project facilities during construction and restoration to determine compliance with any conditions attached to FERC's *Order Issuing Certificate* (Order).

Specialized Construction Techniques

HDD is a trenchless crossing method involving drilling a hole beneath the waterbody and installing a pre-fabricated pipe segment through the hole. The first step in an HDD is to directionally drill a small-diameter pilot hole from one side of the crossing to the other. The pilot hole is then enlarged by several reaming passes using successively larger reaming tools until the borehole is of sufficient diameter to allow for pullback of the pre-fabricated pipe. Throughout the drilling process, a slurry of non-toxic, bentonite clay and water is pressurized and pumped through the drilling head to lubricate the drill bit, remove drill cuttings, and hold the hole open. Although

requiring overall greater land disturbance on either side of a feature to accommodate the drilling and receiving equipment, the HDD method reduces impacts on the feature (e.g., roads; streams; riparian areas). This method is proposed for Olustee Creek on the West Loop. About 1.6 million gallons of water would be required to complete the HDD crossing. The water for the HDD would be sourced from municipal sources.

The conventional bore crossing method is similar to an HDD in that it is a trenchless construction technique; however, conventional bores are not directionally drilled and are not typically as deep underground as an HDD. The conventional bore method involves excavating large bell holes on each side of the feature that are deep enough for the bore equipment to auger a hole horizontally from one bell hole to the other, typically a minimum of 5 feet below the surface or feature. Once the bell hole has been created, the pipeline is then pushed or pulled through the hole. This method is proposed to cross Suffield Street, Silver Street, and a number of foreign utility lines. Florida Gas would use this method on the Palatka Butler State Trail and Highway 100 crossings.

Florida Gas would use the direct pipe method to cross I-75. This method is a trenchless construction method which enables borehole excavation and installation of a pipeline by combining microtunneling and HDD techniques. Soil and rock would be removed by a slurry microtunneling machine at the time that the pipeline is pushed into the ground. Florida Gas would dispose of spent drilling fluid and cuttings at an off-site State of Florida approved facility.

## 8.0 LAND REQUIREMENTS

Construction of the Project facilities would temporarily impact 357.8 acres of land, and of this, 16.4 acres would be permanently affected by operation of the proposed facilities. The Project involves two looping segments of the existing Florida Gas system, the West Loop and East Loop. The entire pipeline loop route for the West Loop and East Loop would be co-located with Florida Gas's existing mainline pipeline system.

The new West Loop would extend approximately 13.7 miles, from milepost (MP) 521.3 on Florida Gas's mainline in Columbia County to mainline MP 535.0 in Union County. The new East Loop would extend approximately 7.0 miles from Florida Gas's mainline MP 574.8 in Clay County to mainline MP 581.8 in Putnam County. The two pig receiver relocation activities would be conducted within the existing right-of-way.

Modifications at CS 18 would be conducted within the existing station boundaries. No new right-of-way would be required to facilitate activities at CS 18. Land requirements for the Project are outlined in table 2.

During construction of the proposed pipeline loops, a construction workspace 100 feet centered along the pipeline in width would be required, except those areas, such as wetland crossings, where the width would be reduced in compliance with the Procedures. The construction right-of-way for the proposed loops overlaps Florida Gas's existing permanent right-of-way by 10 feet as depicted on the alignment sheets provided in appendix A. In addition to the construction right-of-way, Florida Gas would require additional temporary workspace (ATWS) to facilitate construction at tie-in locations, crossings, storage locations and hydrostatic test-water withdrawal and discharge locations. These locations are provided in appendix B.

Contractor Yards and Access Roads

Florida Gas selected four potential pipe and contractor yards to facilitate construction of the pipeline loops. The selected yards would revert to previous conditions once construction is complete. Access for construction crews would primarily be through existing permanent public and private roads or along construction right-of-way. Two new permanent access roads (PARs) would be constructed for access to the Union Receiver Station and Putnam Receiver Station. Both PARs are located within existing Florida Gas right-of-way. ATWS and temporary access roads (TAR) would revert to pre-construction conditions.

**Table 2**
**Land Requirements for the Project**

| Facility | Land Affected During Construction [j] | | | Land Affected During Operation | | |
|---|---|---|---|---|---|---|
| | Acres | | | Acres | | |
| | Outside Existing ROW [a] | Within Existing ROW [b] | Total | Outside Existing ROW [a] | Within Existing ROW [b] | Total |
| West Loop [c] | 83.8 | 79.9 | 163.7 | 0.0 | 5.0 | 5.0 [g] |
| East Loop [c] | 47.0 | 30.8 | 77.8 | 0.0 | 10.8 | 10.8 [g] |
| **Pipeline Loop Totals [c]** | 130.8 | 110.7 | 241.5 | 0.0 | 15.8 | 15.8 [g] |
| Existing Columbia Receiver Station (West Loop) | 0.0 | 0.4 | 0.4 | 0.0 | N/A [h] | 0.0 |
| New Union Receiver Station (West Loop) | 0.0 | 0.0 | 0.0 | <0.1 | 0.2 | 0.2 |
| Existing Clay Receiver Station (East Loop) | 0.0 | 0.2 | 0.2 | 0.0 | N/A [h] | 0.0 |
| New Putnam Receiver Station (East Loop) | 0.0 | 0.0 | 0.0 | <0.1 | 0.2 | 0.2 |
| Compressor Station 18 [d] | 0.0 | 37.7 | 37.7 | 0.0 | N/A [h] | 0.0 |
| **Aboveground Facility Totals** | 0.0 | 38.3 | 38.3 | <0.1 | 0.4 | 0.4 |
| West Loop – Yard 1 | 20.9 | 0.0 | 20.9 | 0.0 | 0.0 | 0.0 |
| West Loop – Yard 3 [i] | 17.9 | 0.0 | 17.9 | 0.0 | 0.0 | 0.0 |
| East Loop – Yard 2 | 20.6 | 0.0 | 20.6 | 0.0 | 0.0 | 0.0 |
| East Loop – Yard 3 | 4.0 | 0.0 | 4.0 | 0.0 | 0.0 | 0.0 |
| **Contractor Yard Totals** | 63.4 | 0.0 | 63.4 | 0.0 | 0.0 | 0.0 |
| TAR-W-01 [e] | 1.9 | 0.0 | 1.9 | 0.0 | 0.0 | 0.0 |
| TAR-W-02 [e] | 1.6 | 0.0 | 1.6 | 0.0 | 0.0 | 0.0 |
| PAR-W-01 | 0.0 | 0.0 | 0.0 | 0.0 | <0.1 | <0.1 |
| TAR-E-01 [e] | 0.6 | 0.0 | 0.6 | 0.0 | 0.0 | 0.0 |
| TAR-E-02 [e] | <0.1 | 0.0 | <0.1 | 0.0 | 0.0 | 0.0 |
| TAR-E-03 [e] | 0.2 | 0.0 | 0.2 | 0.0 | 0.0 | 0.0 |
| TAR-E-04 [e] | 0.2 | 0.0 | 0.2 | 0.0 | 0.0 | 0.0 |
| TAR-E-05 [e] | 0.1 | 0.0 | 0.1 | 0.0 | 0.0 | 0.0 |
| TAR-E-06 [e] | 0.3 | 0.0 | 0.3 | 0.0 | 0.0 | 0.0 |

| Table 2<br>Land Requirements for the Project | | | | | | |
|---|---|---|---|---|---|---|
| Facility | Land Affected During Construction [j] | | | Land Affected During Operation | | |
| | Acres | | | Acres | | |
| | Outside Existing ROW [a] | Within Existing ROW [b] | Total | Outside Existing ROW [a] | Within Existing ROW [b] | Total |
| TAR-E-07 [f] | 2.0 | 0.0 | 2.0 | 0.0 | 0.0 | 0.0 |
| TAR-E-08 [f] | 0.7 | 0.0 | 0.7 | 0.0 | 0.0 | 0.0 |
| TAR-E-09 [f] | 4.2 | 0.0 | 4.2 | 0.0 | 0.0 | 0.0 |
| TAR-E-10 [f] | 2.8 | 0.0 | 2.8 | 0.0 | 0.0 | 0.0 |
| PAR-E-01 | 0.0 | 0.0 | 0.0 | 0.0 | 0.1 | 0.1 |
| **Access Road Totals** | 14.6 | 0.0 | 14.6 | 0.1 | 0.1 | 0.1 |
| **GRAND TOTAL** | **208.8** | **149.0** | **357.8** | **15.9** | **0.5** | **16.4** |

Notes:
[a] Does not overlap the existing Florida Gas mainline pipeline system right-of-way (ROW).
[b] Overlaps the existing Florida Gas mainline pipeline system ROW.
[c] Pipeline temporary impact acreages include the ATWS that is listed in Resource Report No. 8, Table 8.1-3. This includes 13.7 acres of ATWS for the West Loop and 4.6 acres of ATWS for the East Loop.
[d] The proposed modification to Compressor Station 18 would be entirely located within the existing fence line of the station.
[e] No planned improvements are anticipated to be required to this existing access road.
[f] Temporary access road is an existing road and would be returned to pre-construction conditions or per landowner agreement following construction.
[g] Acreage reflects new permanent ROW to be acquired.
[h] No new land would be affected during operations, existing facility with no planned changes in footprint.
[i] The yard crosses the ROW. Acreage within the construction ROW was included in the West Loop acreages.
[j] Construction impact acreage is inclusive of operational impact.

Approximately 2 construction spreads with 150 crew members per spread would be required during construction of the Project. Areas used as temporary contractor yards would be restored to pre-construction conditions upon Project completion.

## B. ENVIRONMENTAL ANALYSIS

The following sections discuss the Project's potential direct and indirect impacts on environmental resources. When considering the environmental consequences of the Project, the duration and significance of any potential impacts are described below according to the following four levels: temporary, short-term, long-term, and permanent. Temporary impacts generally occur during construction, with the resources returning to pre-construction conditions almost immediately. Short-term impacts could continue for up to three years following construction. Long-term impacts would require more than three years to recover, but eventually would recover to pre-construction conditions. Permanent impacts could occur because of activities that modify resources to the extent that they may not return to pre-construction conditions during the life of the Project, such as with the construction of an aboveground facility. An impact would be considered significant if it would result in a substantial adverse change in the physical environment.

### 1.0 GEOLOGY

Physiographic Setting

The Project is located within the Atlantic Coastal Plain physiographic province of the United States. The Coastal Plain Province developed during the middle Mesozoic through the Cenozoic Era (from about 140 million years ago to the present) time period and consists of poorly consolidated chalk, sandstone, limestone and claystone bedrock, and unconsolidated gravels, sands, silts and clays. The province forms the continental shelf and the relief is so low at the land-sea interface that the boundary between them is often blurry and indistinct (United States Geological Survey [USGS], 2018a).

Local Geologic Conditions

The Project is within the Northern Highlands, Central Valley, and Coastal Lowlands physiographic regions. The northern highlands are capped by relatively impermeable, clay-rich sediments, which result in considerable surface water runoff and the development of lakes and wetlands in the lower Central Valley (Champion and Upchurch, 2004; Canfield Jr. and Hoyer, 1998). The Coastal Lowlands are characterized by elevations from sea level to roughly 150 feet above mean sea level (MSL). The land surface is characterized by relatively flat, karstic topography and shallow, sandy soils with muck in many wetland areas. Karst landforms are widespread in the Lowlands with abundant sinkholes, sinking streams, and springs, and a high degree of interconnection between surface-water and groundwater systems. Carbonate rock (limestone, dolostone) is at or near land surface throughout much of the Gulf Coastal Lowlands (White, W.A., 1970).

As indicated by U.S. Department of Agriculture, Natural Resources Conservation Service (NRCS) soils data, approximately 0.5 percent of the proposed Project is characterized as having shallow bedrock at a depth of 5 feet or less. If shallow bedrock is encountered, Florida Gas would first attempt to use hydraulic hammers to break the rock. If blasting is found to be necessary, Florida Gas would develop a Project-specific blasting plan in coordination with the appropriate agencies that address pre- and post-blast inspections and monitoring; advanced public notification; and mitigation measures for building foundations, groundwater wells, and springs.

Mineral Resources

Mining occurs throughout Florida. Florida's mineral commodities include limestone, sand, gravel, clay, heavy minerals, phosphate, and peat. The Florida Department of Environmental Protection (FDEP) maintains datasets on mining activities and permitted oil and gas wells in Florida (FDEP, 2018a). There are no mandatory non-phosphate mines, mandatory phosphate mines, or oil and gas wells within 0.25 mile of the Project. One active mine, the Vulcan Materials Company's Grandin Sand Mine is adjacent to the East Loop from approximately MP 2.3 to 4.1 separated by an unpaved road (Swisher Lake Trail). Since the Project would be collocated along existing Florida Gas pipelines, we conclude there would not be a significant impact on the Grandin Sand Mine.

Geologic Hazards

Geologic hazards are natural physical conditions that can, when present, result in damage to land and structures or injury to people. Potential geologic hazards in the Project area were determined through database searches and literature and topographic map reviews, and include seismicity (earthquakes and faults), slope stability and landslides, subsidence and karst conditions, flooding/scour, soil liquefaction, soil expansion, and volcanism. The review of available data showed that the proposed Project sites are not characterized by volcanic conditions, surface faults, seismic hazards, or susceptible to landslides; thus, the Project would not be affected by these hazards. Flooding and subsidence (including karst conditions) are discussed below.

*Flooding*

Executive Order 11988 (Order 11988) directs federal agencies to demonstrate a comprehensive approach to floodplain management and establishes avoidance of actions within the 100-year floodplain as the preferred method for complying with Order 11988. The greatest potential for flooding to impact buried pipe is at a waterbody crossing during or after a large storm event with significant precipitation in a short period of time. Flooding with heavy rainfall is not uncommon in the southeast U.S. According to publicly available Federal Emergency Management Agency (FEMA) floodplain data, most of the Project area, including all aboveground facilities, are within a minimal flood hazard area and considered above the 500-year flood level. Several segments of the West and East Loop cross areas subject to inundation by a 1-percent-annual-chance flood event, for which base flood elevations either have not or have been determined, respectively.

Our review indicates that constructing the Project would result in minor modifications to floodplains. Constructing the pipeline facilities would not result in a reduction in flood storage capacity within the floodplain. Based on Florida Gas's construction and restoration measures, and the minor modifications that would occur to floodplains, we conclude that constructing and operating the Project would not conflict with the intent of Order 11988.

*Karst Terrain*

Karst terrain and the potential for karst features such as sinkholes, and/or surface collapse can occur within areas underlain by soluble carbonate bedrock and can be problematic during construction. Karst topography is a landscape that develops in regions underlain by limestone, dolomite, gypsum, or rarely, bedded salt. Karst is characterized by closed depressions termed

sinkholes, and by caves, cave systems and underground drainage. The agent of erosion that creates these cavernous features is a solution of soluble minerals from one or all of the rock types mentioned above, in combination with slightly acidic groundwater. Florida is underlain by carbonate rocks, such as limestone and dolomite, which are susceptible to dissolution, and as a result sinkholes and other karst features are found over much of Florida.

The west and east ends of the West Loop are within the southernmost extent of the Cody Scarp. The Cody Scarp is a topographic break between the Northern Highlands and Gulf Coastal Lowlands Physiographic Provinces, with an elevation change of as much as 100 feet. It is a karst escarpment that formed as the result of headward erosion by streams and dissolution of carbonate rocks by streams and groundwater, and is characterized by large complexes of sinkholes that form when the thick cover of erosional remnants of the clay-rich Hawthorn Group collapse as the underlying limestone is dissolved. These sinkholes are often of the cover-collapse type and their large extent gives the region a decidedly hilly appearance (Upchurch, 2007). The central portion of the proposed alignment crosses the Gulf Coastal Lowlands Province, which is characterized by numerous sinkholes superimposed on a flat platform. The Hawthorn Group sediments have been eroded away in this area so that the limestone is overlain only by relatively thin layers of unconsolidated sands. Sinkholes that form within this province tend to be the cover-subsidence type and are relatively small (Upchurch, 2007).

Based on a desktop and surface reconnaissance study performed by Brown and Caldwell (2019), 25 probable sinkholes were identified within the 100-foot wide Project workspace along the West Loop. The majority of the sinkholes were ranked as low or medium risk. However, six aligned sinkholes identified approximately 325 feet west of the Olustee Creek crossing were ranked as high risk as they appear to be actively forming. Surface geophysical surveys and geotechnical borings were conducted at the Olustee Creek crossing and the data was used to plan the HDD.

The East Loop is in an area characterized by a layer of unconsolidated sands that is highly variable in thickness. This material is underlain by clay-rich, consolidated Hawthorn Group sediments, approximately 80 to 120 feet thick which act as a semi-confining unit for the underlying Upper Floridan aquifer (Scott, 1983). Underling the Hawthorn group sediments is the Ocala Limestone, the highly productive uppermost unit of the Upper Floridan aquifer in the region. The abundance of lakes along the East Loop are likely cover-collapse sinkholes that were created as voids developed and enlarged in the Ocala Limestone. The cohesiveness of the Hawthorn Group sediments allowed the voids in the underlying limestone to grow large until the weight of the sediments could no longer be supported and they collapsed into the void.

Based on the 2019 Brown and Caldwell study, 12 probable sinkholes were identified within the 100-foot wide Project workspace along the East Loop. The majority of the sinkholes were ranked as low risk. None of the features identified were ranked as high risk.

Florida Gas calculated the proposed pipeline's maximum ability to span between supports and determined that the Project pipeline has a span capacity of approximately 111 feet unsupported without any sign of deflection or sag (Universal Pegasus International, 2019). This span strength would further reduce the potential for a serious pipeline incident should karst degradation cause a void beneath the pipeline.

Florida Gas prepared an HDD Contingency Plan that contains crossing contingencies in the event an HDD is unsuccessful.[6] The plan likewise provides a listing of drilling fluid additives that would be used during drilling. We reviewed the final version of this plan, and drilling additives proposed, and consider it to be adequate, with the exception of the use of the Lubra-Star Plus and DMD Clay Star HDD fluid additives.[7] Therefore, **we recommend that Florida Gas <u>should</u>**:

> **File with the Secretary of the Commission (Secretary), <u>for review and written approval</u> by the Director of the Office of Energy Projects (OEP), a revised HDD Contingency Plan removing the following unapproved HDD fluid additives: Lubra-Star Plus and DMD Clay Star HDD Fluid Additives**

In addition to the HDD Contingency Plan, the SPAR Plan, FERC's Plan and Procedures (which would minimize erosion potential), <u>Florida Gas would:</u>

a) direct runoff away from known and/or identified karst features during construction;

b) investigate and remediate any subsidence, cavities, or other incipient features;

c) have an investigation carried out by engaging a Professional Engineer/Geologist, specializing in Geotechnical Engineering and with local sinkhole experience, to evaluate potential sinkhole locations;

d) fill the hole with soil as recommended by the Geotechnical Engineer/Geologist;

e) conduct additional evaluations using geophysical methods such as Ground Penetrating Radar or Electric Resistivity Imaging, and perform subsurface exploration consisting of Standard Penetration Test Method borings or Cone Penetration Test soundings as recommended by the Geotechnical Engineer; and

f) perform additional remedial repair or subsoil stabilization as directed by the Geotechnical Engineer/Geologist.

With the implementation of the above measures, Florida Gas' plans, FERC's Plan and Procedures, and our recommendation above, we conclude the Project would not adversely affect karst terrain.

<u>Paleontological Resources</u>

The geologic units underlying the Project area are described as either non-fossiliferous or do not contain original fossil material (Florida Museum, 2018). As a result, the potential for encountering significant paleontological resources within the Project area is low. In the event that paleontological resources are encountered, Florida Gas would follow the procedure outlined in its Unanticipated Finds Plan for Paleontological Resources. We reviewed this plan and consider it to be adequate.

Given the geologic conditions within the Project area, and the fact that 100 percent of the Project would be collocated with existing utilities, we conclude that the overall effect of the Project on topography and geology would be minor, and significant adverse effects on geological

resources are not anticipated. Likewise, we do not anticipate that Project facilities would be compromised due to geologic hazards; and that the proposed facilities would not result in significant impact on geologic or paleontologic resources.

## 2.0 SOILS

Information regarding the soil types and characteristics occurring in the Project area was obtained from the NRCS Soil Survey Geographic database, which provides detailed information useful for natural resource planning and management.

Construction activities such as clearing, grading, excavation, backfilling, heavy equipment traffic, and restoration activities could result in adverse impacts on soil resources in temporary work areas, on access roads, and at aboveground facilities. Clearing would remove protective vegetation cover and would expose soils to the effects of wind, sun, and precipitation, which could increase soil erosion and the transport of sediment to sensitive areas such as waterbodies or dry washes (also referred to as ephemeral washes). Grading and equipment traffic could compact soil, reducing porosity and percolation rates, which could result in increased runoff potential. Soil contamination from equipment spills and/or leakage of fuels, lubricants, and coolants could also impact soils. Certain practices, such as the use of FERC's Plan and Procedures, and Florida Gas's Project-specific plans would help adequately minimize impacts on soils.

According to a search of federal and state databases, no reported sources of known or potential soil contamination were identified in the vicinity of the Project. Therefore, no impact from contaminated soil is anticipated. Should contamination or possible contamination be identified during construction Florida Gas has filed an Unanticipated Discovery of Contamination Plan. We reviewed this plan and find it adequate to address the unanticipated discovery of soil and/or groundwater contamination. Soil contamination from equipment spills and/or leakage of fuels, lubricants, and coolants could impact soils. Florida Gas has filed its SPAR Plan, which addresses fluid leaks and spills. Measures outlined in Florida Gas's SPAR Plan include, but are not limited to:

- spill prevention and response training for construction personnel;
- regular inspection of construction equipment for leaks;
- secondary containment for storage of fuels, oils, hazardous materials, and equipment;
- collection and disposal procedures for wastes generated during equipment maintenance; and
- standard procedures for excavation and offsite disposal of any soils contaminated by spillage.

We reviewed this plan and find it adequate to address the storage and transfer of fuels and hazardous materials as well as the response to be taken in the event of a spill. Adherence with Florida Gas's SPAR Plan would adequately minimize impacts on soils from inadvertent releases or spills during construction of Project facilities.

The U.S. Department of Agriculture defines prime farmland soils as those that have the best combination of physical and chemical characteristics for producing food, feed, forage, fiber, and oilseed crops and that is available for these uses. Unique farmland is identified as land other

than prime farmland that is used for the production of specific high-value food and fiber crops, such as citrus, tree nuts, olives, cranberries, and other fruits and vegetables. Prime and unique farmland soils can include either actively cultivated land or land that is potentially available for cultivation. Approximately 21.3 acres of the soils temporarily impacted by Project activities are considered prime or unique farmland. Of this, about 0.2 acre would be required for operation of the Project. None of this land is currently being used for agricultural purposes.

The soils within the Project areas are well drained and have generally low compaction and water erosion potential. About 37.6 percent of Project-area soils also appear to have low revegetation potential. Florida Gas would attempt to overcome low revegetation potential by implementing appropriate best management practices such as those included in FERC's Plan as well as the *Florida NRCS Post-Construction Vegetative Restoration Recommendations for Utility Pipelines*. Based on previous experience with revegetation of pipeline facilities, and with adherence to the protocols outlined in the Plan and Procedures and NRCS recommendations, we do not anticipate significant issues with successful revegetation.

Soil erosion would be mitigated through temporary erosion and sedimentation control measures and implementation of permanent measures in accordance with FERC's Plan and Procedures and Florida Gas's plans. Given the Project areas' soil characteristics and the impact minimization and mitigation measures described in these plans, we conclude that soils would not be significantly affected by Project construction and operation.

## 3.0 WATER RESOURCES

### 3.1 Groundwater

Aquifers

The Project would overlie the Floridan Aquifer System (FAS). The FAS is one of the most productive aquifers in the world, extending for more than 100,000 square miles in southern Alabama, southeastern Georgia, southern South Carolina, and all of Florida. The Floridan aquifer system provides water for Jacksonville, Tallahassee, Orlando, and St. Petersburg in Florida as well as smaller communities and rural areas. The aquifer is comprised of thick sequences of carbonate rocks (limestone and dolomite) of Tertiary age (Miller, 1990). The Project area is also underlain by a surficial aquifer. The surficial aquifer system in Florida includes any otherwise undefined aquifers that are present at land surface. The surficial aquifer is mainly used for domestic, commercial, or small municipal supplies. The surficial aquifer system is generally under unconfined, or water-table, conditions and is made up of mostly unconsolidated sand, shelly sand, and shell (Miller, 1990; USGS, 2014). Groundwater resources may be affected during various stages of construction, including clearing and grading, excavation and dewatering, and hydrostatic testing. Shallow aquifers could sustain negligible effects from temporary changes in overland water flow and recharge caused by clearing and grading of the temporary workspaces. In forested areas, water infiltration, which is normally enhanced by vegetation, could be reduced until vegetation is reestablished. Additionally, an inadvertent release of construction equipment fluid(s) or HDD drilling fluid(s) could adversely affect groundwater quality. To minimize impacts on groundwater and the aquifer during construction activities, Florida Gas would use best-management practices and measures in FERC's Plan and Procedures, including use of sediment

control measures such as filter bags, silt fences, and dewatering structures, for dewatering and hydrostatic test water discharge activities.

Sole-Source Aquifers, Protected Aquifers, and Wellhead Protection Areas

Under Section 1424(e) of the Safe Drinking Water Act, the U.S. Environmental Protection Agency (EPA) defines a sole or principal source aquifer as one that supplies at least 50 percent of the drinking water consumed in the area overlying the aquifer, and for which there are no other reasonably available alternative drinking water source(s) that could physically, legally, and economically supply all those who depend on the aquifer for drinking water should the aquifer become contaminated. The Project is not within any EPA-designated sole-source aquifers (EPA, 2018a).

Per the Florida Springs and Aquifer Protection Act (Part VIII of Chapter 373, Florida Statutes), the FDEP delineates priority focus areas for each Outstanding Florida Spring that is impaired by excessive nutrient pollution (FDEP, 2018c). The West Loop (west of US Highway 41), the Pipe and Contractor Yards for the West Loop, and the existing Columbia Receiver Station are within the Ichetucknee Spring Priority Focus Area (FDEP, 2018a). The FDEP implements the Source Water Assessment and Protection Program (SWAPP) to protect drinking water supplies. The SWAPP identifies potential contamination sources to groundwater used by Public Water System (PWS) wells and establishes a protection area centered on the well. Florida Gas searched FDEP Map Direct to identify any well protection areas within 150 feet of the Project area. Only one area was identified. The West Loop, at the location of the Interstate 75 (I-75) crossing in Columbia County, is within the boundary of a SWAPP groundwater area (PWS ID 2124384). This groundwater protection area is associated with the I-75 Ellisville Rest Area Well No. 1 (PSW ID 2124384). The well itself is over 500 feet north of the Project area (FDEP, 2018a).

Water Wells and Springs

Based on a review of the FDEP databases and online maps, no springs were identified within 150 feet of the Project work areas. One public and two private water supply wells were identified within 150 feet of Project work areas. Additionally, one inactive water well, one Florida Geological Survey sampling well, and two swallets were identified within 150 feet of Project work areas (FDEP, 2018a).

Groundwater Contamination

According to a search of federal and state databases, no reported sources of known or potential groundwater contamination were identified in the vicinity of the Project areas (FDEP, 2018a). Therefore, no impact from contaminated groundwater is anticipated.

Pipeline and related infrastructure construction necessitates the use of heavy equipment and associated fuels, lubricants, and other potentially hazardous substances that, if spilled, could affect shallow groundwater and/or aquifers. Accidental spills or leaks of hazardous materials associated with vehicle fueling, vehicle maintenance, and material storage would present the greatest potential contamination threat to groundwater resources. Soil contamination resulting from these spills or leaks could continue to add pollutants to the groundwater long after a spill had occurred.

Implementation of proper storage, containment, and handling procedures would effectively minimize the chance of such releases. Florida Gas's SPAR Plan, discussed above, addresses

preventative and mitigative measures that would be used to avoid or minimize the potential impacts of hazardous material spills during construction.

Groundwater Impacts and Mitigation

Pipeline and aboveground facility construction activities such as trench dewatering, blasting, and spills or leaks of hazardous materials have the potential to affect groundwater in several different ways. Clearing, grading, trenching, and soil stockpiling activities within the proposed right-of-way may cause minor fluctuations in local groundwater levels and/or increased turbidity due to erosion and sediment runoff, especially where shallow aquifers exist. Soil compaction caused by heavy equipment could reduce water infiltration rates. Construction of aboveground facilities may result in minor, permanent increases of impervious areas; however, the facilities are unlikely to affect infiltration or groundwater recharge beyond the facility limits.

In areas where groundwater is near the surface, trench excavation may intersect the shallow water table and dewatering may be required. Dewatering of trenches may result in temporary fluctuations in local groundwater levels. However, trench water would be discharged into well-vegetated upland areas to allow infiltration and minimize impacts on the local water table. After installation of the pipeline and aboveground facilities, the ground surface would be restored as close as practicable to original contours, and any exposed soils would be revegetated to ensure restoration of preconstruction overland flow and recharge patterns. Therefore, these minor, direct, and indirect impacts would be temporary and would not significantly affect groundwater resources.

Florida Gas did not identify any specific karst features within the proposed Project workspaces, but as discussed above in section B.1-Karst Terrain, the potential exists that certain bedrock units within the right-of-way may exhibit karst features. If karst is encountered during construction, Florida Gas would implement the measures discussed in section B.1-Karst Terrain. Florida Gas would implement the best management practices as necessary to mitigate the risks to groundwater quality, such as increased sedimentation into sinkholes or changes in recharge characteristics, and impacts on pipeline integrity associated with construction in karst terrain. In areas of potential karst bedrock, pre- and post-construction testing would be done for the well identified within 1,000 feet downgradient of an HDD work area. The tests would be used to determine whether any construction-related impacts occurred at or on the well. In the event the results indicate the well water quality or yield has been adversely impacted as a result of Project construction, Florida Gas would provide a clean water source to the landowner until a permanent solution is found. The damaged well would be restored to its former capacity and quality to the extent practical or replaced if damaged beyond repair.

We conclude that groundwater impacts during construction would be effectively minimized or avoided by implementing construction practices outlined in FERC's Plan and Procedures and Florida Gas's plans.

## 3.2 Surface Water

The Project crosses three watersheds: the Santa Fe Watershed, the Upper St. Johns Watershed, and the Lower St. Johns Watershed. The Project would not cross any waterbodies designated as wild and scenic rivers. The West Loop is the only Project component that would cross waterbodies. Florida Gas conducted field surveys within the Project area in November and

December 2018 and February and April 2019. These surveys identified eight waterbodies in the vicinity of the Project facilities, provided in table 3. Of the waterbodies identified, three are perennial waterbodies, four are ephemeral, and one is a pond.

| Table 3<br>Waterbodies Crossed by the Project | | | | | | | |
|---|---|---|---|---|---|---|---|
| **Facility** | **County** | **MP Location** | **Waterbody Name/Survey ID** | **Type** | **Approx. Crossing Width (feet)** | **Approx. Depth at Crossing (feet)** | **Crossing Method** |
| West Loop | Columbia | 9.4 | S-W-006 | Perennial | 5 | <1 | Open Cut |
| | | 10.1 | S-W-007 | Perennial | 6 | 1.5 | Bore |
| | | 10.2 | S-W-008 | Perennial | 3 | <1 | Open Cut |
| | | 11.5 | S-W-010 | Ephemeral | 2 | 0 | HDD |
| | | 11.6 | OW-013 | Ephemeral | | 3 | HDD |
| | | 11.8 | Olustree Creek/S-W-011 | Pond | 20 | 6 | HDD |
| | | 12.8 | S-W-017 | Ephemeral | 2 | 0 | Open Cut |
| | | 13.5 | S-W-018 | Ephemeral | 5 | 0 | Open Cut |

All of the waterbodies crossed by the Project are classified by the State of Florida as Class III waterbodies, which are designated to support recreation, fish, and wildlife. None of the waters crossed by the Project are designated Class I for use as potable water supplies and no potable water intakes are located within 3 miles downstream of any of the proposed crossings. No known contaminated sediments were identified within or near the Project area. No surface waters would be used for construction of the Project. Finally, the Project area is located in areas classified as minimal flood hazard areas, or above the 500-year flood level.

Impaired and Sensitive Surface Waters

Section 303(d) of the Clean Water Act (CWA) requires that states report on its impaired waterbodies, or those which do not meet water quality standards. Olustree Creek is listed as an impaired waterbody for dissolved oxygen (DO) and fecal coliform. The low DO in Olustree Creek

is caused by nutrients, specifically total phosphorous. Olustree Creek is considered by the FDEP to be a blackwater stream, which means that it originates in swampy areas that cause the water to be stained dark brown due to the organic acids in the water.

Olustree Creek is also considered a sensitive surface water due to its Outstanding Florida Water designation (OFW) and being part of the Santa Fe River System. Any projects proposed within an OFW must not result in the permanent lowering of ambient water quality; however, temporary lowering of water quality is not prohibited by this designation. Olustree Creek would be crossed by HDD to minimize impacts.

Florida Gas proposes to cross four of the waterbodies using a conventional open cut construction method. This construction method involves crossing the waterbody without diverting the flow of water around the construction work area during trenching. In water construction would result in short-term, localized increase in turbidity and sedimentation. Removal of vegetation on the streambanks would decrease riparian shade cover and locally elevate water temperatures. These crossings would be implemented according to the mitigation measures contained in the FERC Procedures, including completing the in-water work within 24 hours, which would minimize the impacts of construction on these minor waterbodies. After construction, streambeds and streambanks would be restored and maintenance would be limited to corrosion/leak surveys or to protect the integrity of the pipeline coating in accordance with the FERC Procedures.

The remaining four waterbodies would be crossed using either HDD or a bore method. These construction methods avoid trenching directly in the waterbody and therefore minimize impacts to aquatic resources. Florida Gas submitted a HDD Contingency Plan specifying measures to be taken in the event of an inadvertent return which would minimize the impacts on waterbodies in the event of a release of drilling mud.

Inadvertent surface spills of hazardous materials used during construction could contaminate waterbodies. To minimize the potential impacts associated with inadvertent spills, Florida Gas has prepared a SPAR Plan which we have reviewed and find acceptable. This plan includes measures designed to prevent hazardous materials from reaching sensitive resources, such as storing fuels within secondary containment structures, and refueling equipment at least 100 feet away from waterbodies. In the event that a spill should occur, Florida Gas's SPAR Plan identifies appropriate actions that would be taken to remediate and clean up the spill.

Based on the discussion above, we conclude that the Project would not have a significant impact on surface waters.

Hydrostatic Test Water and Fugitive Dust Control

Hydrostatic testing is a process in which a pipeline is tested for leaks using pressurized water, to ensure the integrity of facilities and the pipeline prior to operation. The process is generally carried out after backfilling and after completion of other construction activities. Florida Gas would be required to hydrostatically test all pipe in accordance with DOT pipeline safety regulations. A hydrostatic test involves filling the lowered-in pipeline with water and pressurizing the pipeline above its maximum allowable operating pressure. The pressure in the pipeline is then monitored for several hours. If a drop in pressure is recorded, Florida Gas must examine the pipelines to determine if any leaks are present. Approximately 5,679,700 gallons of water would

be required for the Project, including hydrostatic testing, dust suppression, HDD, and direct pipe construction. However, only municipal/commercial or existing wells would be used as water sources and no surface waters would be withdrawn. Additionally, Florida Gas does not anticipate the use of any additives in the hydrostatic test water. After hydrostatic testing is complete, hydrostatic test water would be discharged into well-vegetated upland areas using energy dissipation devices to reduce impacts on soil erosion in accordance with Florida Gas's Procedures.

## 3.3 Wetlands

Wetlands are areas that are inundated or saturated by surface or groundwater at a frequency and duration sufficient to support a prevalence of wetland vegetation adapted for life in saturated soil conditions. Wetlands can be a source of substantial biodiversity and serve a variety of functions that include providing wildlife habitat, recreational opportunities, flood control, and naturally improving water quality.

Florida Gas conducted wetland delineation surveys in November and December 2018 and February and April 2019. These surveys identified 15 wetlands in the West Loop and one wetland within the East Loop Project area, presented in table 4. No wetlands were identified in the construction workspace for the existing and proposed pig receiver stations or pipe and contractor yards. In addition, no wetlands were identified along the access roads. These surveys identified two wetland types, palustrine forested and palustrine emergent. Palustrine forested wetlands are non-tidal wetlands dominated by woody vegetation that is greater than 19.7 feet (6 meters tall), with an understory of young trees/shrubs and an herbaceous layer. Palustrine emergent wetlands consist of erect, rooted, herbaceous vegetation.

| Table 4<br>Wetlands Crossed by the Project | | | | | | | |
|---|---|---|---|---|---|---|---|
| **Facility** | **County** | **MP Location** | **Wetland ID** | **Wetland Type** | **Construction Impact (acres)** | **Operation Impact (acres)** | **Crossing Method** |
| West Loop | Columbia | 0.0 | W-7 | PEM | 0.02 | 0.0 | Within ATWS WL-001 |
| | | 4.7 | W3-B | PEM | 0.08 | 0.0 | Open Cut |
| | | 4.7 | W3-B | PFO | 0.30 | 0.06 | Open Cut |
| | | 6.3 | W4-A | PEM | 0.25 | 0.0 | Open Cut |
| | | 6.3 | W4-A | PFO | 0.68 | 0.13 | Open Cut |
| | | 8.7 | W-6 | PEM | 0.11 | 0.0 | Open Cut |
| | | 8.7 | W-6 | PFO | 0.11 | 0.02 | Open Cut |
| | | 8.9 | W4-B | PEM | 1.35 | 0.0 | Open Cut |
| | | 9.2 | W-5 | PEM | 0.41 | 0.0 | Open Cut |
| | | 9.2 | W-5 | PFO | 0.82 | 0.15 | Open Cut |
| | | 9.4 | RW-S6 | PEM | 0.05 | 0.0 | Open Cut |
| | | 9.4 | RW-S6 | PFO | 0.03 | <0.1 | Open Cut |
| | | 10.1 | RW-S7 | PFO | 0.01 | 0.0 | Bore |
| | | 10.2 | RW-S8 | PFO | 0.01 | <0.01 | Open Cut |
| | | 10.9 | W-8 | PFO | 0.13 | 0.0 | Within ATWS WL-043 |
| | | 11.7 | RW-S11 | PFO | 0.0 | 0.0 | HDD |
| | Union | 11.8 | W-15 | PFO | 0.0 | 0.0 | HDD |
| | | 11.9 | W-16 | PEM | 0.0 | 0.0 | HDD |
| | | 11.9 | W-16 | PFO | 0.0 | 0.0 | HDD |
| | | 11.9 | W-16 | PFO | 1.4 | 0.18 | Open Cut within ATWS WL-048 |
| | | 12.8 | RW-S17 | PEM | <0.01 | <0.01 | Open Cut |

**Table 4**

**Wetlands Crossed by the Project**

| Facility | County | MP Location | Wetland ID | Wetland Type | Construction Impact (acres) | Operation Impact (acres) | Crossing Method |
|---|---|---|---|---|---|---|---|
| | | 12.8 | RW-S17 | PFO | <0.01 | <0.01 | Open Cut |
| | | 13.5 | RW-S18 | PEM | <0.01 | 0.0 | Open Cut |
| | | 13.5 | RW-S18 | PFO | 0.01 | <0.01 | Open Cut |
| East Loop | Putnam | 1.3 | W-20 | PEM | 0.36 | 0.00 | Bore and within ATWS EL-012 and E-013 |

PEM = Palustrine Emergent

PFO = Palustrine Forested

The Project would temporarily impact a total of 6.14 acres of wetlands, of which 0.54 acre would be permanent. Construction of the Project would temporarily impact 2.6 acres of palustrine emergent wetlands which would be restored and allowed to vegetate to pre-construction conditions. Approximately 3.5 acres of palustrine forested wetlands would be impacted during construction, of which 0.5 acre would be permanently impacted by maintenance of the pipeline right-of-way. The operational impacts on palustrine forested wetlands would be due to a conversion in wetlands type to emergent wetlands due to operational maintenance activities; however, these wetlands would still provide important ecological functions. There are no wetland impacts associated with the aboveground facilities, pipe and contractor yards, or access roads.

Modifications to the FERC Procedures

Florida Gas would construct pipeline segments through wetlands in accordance with the FERC Procedures with one proposed modification and state and federal permitting requirements. Florida Gas's proposed modification includes locating extra work areas within 50 feet of wetlands in five locations, presented in table 5. In addition to the Plan and Procedures, Florida Gas would further minimize the impacts on wetlands by using timber mats and low ground pressure equipment when possible during Project construction based on wetland saturation. We have reviewed the site-specific justification for the use of this modification, and the additional mitigation measures proposed by Florida Gas. We approve this modification in the locations specified, and the additional mitigation measures proposed to minimize the impacts on wetland resources.

| Table 5<br>Modifications to the FERC Procedures | |
|---|---|
| **Modification** | **Justification** |
| West Loop ATWS No. WL-001 within 50 feet of wetland at approximate MP 0.0 | Wetland is within Florida Gas's existing permanent right-of-way which would be used for access to avoid construction of a new access road. |
| West Loop ATWS No. WL-043 within 50 feet of wetland at approximate MP 10.9 | Perpendicular crossing of I-75 is required and the pipe string-in extends within 50 feet of wetland. It is not possible to re-locate the workspace to the opposite side of I-75 due to existing pipeline infrastructure on the opposite side. |
| West Loop ATWS No. WL-048 within 50 feet of wetland at approximate MP 12.1 | HDD crossing of Olustee Creek requires placement of the pipe laydown area within a wetland. The workspace cannot be relocated because no uplands exist in the area. |
| East Loop ATWS No. EL-012 at approximate MP 1.2 | Crossing of the Palatka Lake Butler State Trail and Highway 100 using a bore requires placement of workspace within wetland W-020. The workspace cannot be relocated because no uplands exist in the area. |
| East Loop ATWS No. EL-013 at approximate MP 1.3 | Crossing of Highway 100 using a bore requires placement of workspace within W-20. The workspace cannot be relocated because no uplands exist in the area. |

Temporary impacts on wetlands include vegetation clearing, soil disturbance, and temporary alteration of hydrology. Construction could also affect water quality within the wetland due to sediment loading or inadvertent spills of fuel or chemicals.

Impacts on wetlands would be greatest during and immediately following construction. Most of these effects would be short term in nature and would diminish as wetland functionality recovers and eventually reaches preconstruction conditions. Wetlands affected within the temporary workspace would be returned to pre-construction contours and allowed to revegetate naturally. In areas where standing water is not present, seeding may be completed to promote revegetation. Vegetation within emergent wetlands are expected to regenerate quickly (typically within 1 to 3 years). Because these areas are naturally open and herbaceous, there would be little to no permanent impacts on emergent wetlands. Impacts on scrub-shrub and forested wetlands would last longer than those on emergent wetlands. Woody vegetation may take several years to regenerate to its original density. Furthermore, annual mowing and maintenance of a 10-foot-wide herbaceous strip centered over the pipeline, and removal of trees taller than 15 feet within 15 feet of the pipeline centerline, would result in a long-term, permanent impact by converting previously scrub-shrub vegetated wetland areas to emergent wetland areas.

Construction would result in permanent conversion of wetland habitats. Florida Gas would minimize these impacts by co-locating the proposed facilities as much as possible. Revegetation would be monitored and additional measures to promote revegetation would be developed, if necessary. Based on the mitigation and restoration measures proposed by Florida Gas, we conclude that wetland impacts associated with the construction and operation of the Project would be sufficiently minimized and do not represent a significant impact on these resources.

Although there would be no permanent loss of wetlands from the Project, Florida Gas would adhere to any requirements of the USACE and the FDEP regarding compensatory impacts for unavoidable impacts on wetlands. Florida Gas proposes to purchase compensatory wetland mitigation credits from a mitigation bank or develop a permittee-responsible mitigation plan, as required. This plan would be filed with FERC, when available.

## 4.0 VEGETATION, WILDLIFE, AND THREATENED AND ENDANGERED SPECIES

This section discusses wildlife habitats and existing vegetation resources at each of the Project sites, and the federally- and state-protected wildlife species that are known to occur or may potentially occur in the Project vicinity.

### 4.1 Vegetation

Vegetation in the Project area consists of forested land, herbaceous/shrub upland, wetlands, developed land, agricultural land, and silviculture. The herbaceous/shrub uplands category is all areas that are not forested or in agricultural production or landscaped. Agricultural land includes cropland and pastureland. Developed land includes residential landscaped land and areas with little to no vegetation such as Florida Gas's existing, fenced aboveground facilities. The forested areas include coniferous forest, xeric oak forest, and mixed coniferous/hardwood forest. Common upland forest species include longleaf and loblolly pine, bluejack oak, turkey oak, and live oak. Upland herbaceous/shrub includes existing Florida Gas right-of-way, utility easements, road corridors, herbaceous dry prairie, and shrub/brushland. Open water includes intermittent streams, ditched or artificial waterways, a small pond, and inland ponds and sloughs.

There are no rare, unique, or sensitive natural communities or vegetation species present within the Project area. Vegetation impacted by the Project is presented in table 6.

| Table 6<br>Vegetation Impacted by the Project | | | |
|---|---|---|---|
| **Vegetation Type** | | **Construction Impact (acre)[a]** | **Operational Impact (acre)[b]** |
| Agricultural Land | | 32.5 | 1.0 |
| Developed Land | Residential Land | 19.3 | 0.2 |
| | Industrial/Commercial Land | 38.3 | 0.0 |
| Forest/Woodland | | 117.5 | 11.3 |
| Silviculture | | 16.3 | <0.1 |
| Upland herbaceous/shrub | | 7.6 | 0.4 |
| Rangeland | | 54.1 | 0.7 |
| Right-of-Way | | 81.9 | 2.1 |
| Open Water | | <0.1 | <0.1 |
| Wetlands | PEM | 2.6 | <0.1 |
| | PSS | 0.0 | 0.0 |
| | PFO | 3.5 | 0.5 |
| **TOTAL** | | **374.2** | **16.4** |

**a = Construction impact represents the total disturbance for the Project, including the temporary construction right-of-way and the permanent operational right-of-way**

**b = Operational impact includes the area that would be permanently maintained during operation of the pipeline.**

Invasive plant species are species that have been introduced from another part of the U.S. or another country and display rapid growth and spread. These species can outcompete native vegetation and change the composition of native vegetation communities and reduce the quality of habitat for wildlife and native plant species.

The Florida Exotic Pest Plant Council (FEPPC) maintains a list of invasive plant species in Florida and categorizes these species based on the extent that they have affected native Florida plant communities. Category I invasives are altering native plant communities by displacing native species, changing community structures or ecological functions, or hybridizing with natives. Category II invasive species have increased in abundance or frequency but have not yet altered Florida plant communities to the extent shown by Category I species. Florida Gas identified invasive species during field surveys of the Project area. Nine invasive species were identified during the surveys including six category I species (air potato, camphor tree, natal grass, mimosa or silktree, torpedograss, and Japanese climbing fern), and three category II species (chinaberry tree, Chinese wisteria, and flamegold tree).

Florida Gas has committed to several mitigation measures to minimize the potential to introduce or spread noxious and invasive vegetation species including;

- informing and training construction personnel regarding noxious weed and invasive species identification and the protocols to prevent or control the spread of invasive species;
- marking the entry and exit of areas of noxious weed infestation with signage along the construction right-of-way, prior to construction;

- inspecting vehicles and equipment for remnant soils, vegetation, and debris and cleaning of these materials before they are brought to the Project area;

- cleaning of equipment used in areas containing invasive plant species before moving to an uninfested area to prevent the spread of seeds, roots, or other viable plant materials;

- ensuring that seeds for revegetation and straw or hay bales used for sediment barrier installations or mulch distribution, where appropriate, are certified weed-free;

- monitoring of invasive plant species populations and colonization of the right-of-way would be conducted for a minimum of two years. Monitoring reports detailing the success of right-of-way restoration and revegetation measures would identify invasive plant species' colonization locations and densities and the management measures that will be implemented to control the identified populations; and

- utilizing mechanical treatment or herbicide application to control the spread of invasive species during and after construction. Herbicides would be applied according to manufacturer's printed recommendations and in accordance with applicable agency regulations governing herbicide application. No herbicides or pesticides would be used within 100 feet of waterbodies or wetlands. A qualified contractor would be utilized to determine the appropriate herbicide application method.

After construction is complete, the project right-of-way and all temporary work areas would be revegetated according to measures contained in the FERC Plan and all other areas would be maintained in permanent operational use. All disturbed areas would be reseeded using seed mixes recommended by local and state agencies and allowed to revert to pre-construction condition, which would be a short-term impact (1 to 3 years to reach preconstruction densities) for open land, and would be a long-term impact (10 to 30 years to reach preconstruction densities) for forested areas. In addition, temporary workspaces at aboveground facilities are adjacent to existing aboveground facilities and within existing facility property boundaries that are previously developed and disturbed industrial areas and would not significantly alter the vegetative communities at these sites. Therefore, we conclude that the Project would not have a significant impact on vegetation in the Project area.

## 4.2 Wildlife

The habitat types affected by the Project include forest/woodland, herbaceous upland, developed land (i.e., industrial/commercial, residential, and roads), agricultural land, silviculture, and wetland. Common wildlife found in the herbaceous upland portions of Project area include American robin, common grackle, eastern cottontail rabbit, raccoon, garter snake, and various frogs. In forested areas, wildlife such as red-headed woodpecker, wild turkey, black bear, gray squirrel, hognose snake, and Florida box turtle may be found. Wetlands in the Project area support species such as beaver, great egret, mallard duck, white ibis, alligator, Florida leopard frog, and various turtle species.

There are no designated unique, sensitive, or critical wildlife habitat within the Project area. No national parks, state forests, or wildlife management areas are crossed by the Project.

Potential impacts on wildlife include habitat removal and construction-related ground disturbance and noise. Most species present in the Project area have adapted to human presence and disturbance. Some individuals could be inadvertently injured or killed by construction equipment; however, more mobile species such as birds and mammals would likely relocate to other nearby suitable habitat to avoid the Project area once construction activities commence. The temporary disturbance of local habitat is not expected to have population-level effects on wildlife because the amount of habitat crossed represents only a small portion of the habitat available to wildlife throughout the proposed Project area, and much of the Project area would return to preconstruction use. However, long-term impacts from habitat alteration would be further minimized by the implementation of mitigation measures contained in the FERC's Plan, which would ensure revegetation of most areas disturbed by construction. Therefore, we conclude that the Project would not have a significant impact on wildlife or their habitat in the Project area.

**Migratory Birds**

Migratory birds are federally protected under the Migratory Bird Treaty Act (MBTA). The MBTA (16 USC 703-712) as amended, implements protection of many migratory game and non-game birds with exceptions for the control of species that cause damage to agricultural or other interests. The MBTA prohibits the take of any migratory bird or their parts, nests, and eggs, where "take" means to "pursue, hunt, shoot, wound, kill, trap, capture, or collect."

Executive Order 13186 requires that all federal agencies undertaking activities that may negatively affect migratory birds take a prescribed set of actions to further implement the MBTA, and directs federal agencies to develop a memorandum of understanding (MOU) with the FWS that promotes the conservation of migratory birds through enhanced collaboration with the FWS. FERC entered into an MOU with the FWS in March 2011.

Though all migratory birds are afforded protection under the MBTA, both Executive Order 13186 and the MOU require that Birds of Conservation Concern (BCC) and federally listed species be given priority when considering the effects on migratory birds. Executive Order 13186 states that emphasis should be placed on species of concern, priority habitats, and key risk factors, and that particular focus should be given to addressing population-level impacts.

Migratory birds that are considered BCC that are known to be present in the Project area, their nesting habitat types, and breeding seasons are listed in table 7. Florida Gas proposes to start construction of the Project in March 2021. Potential impacts on migratory birds include habitat loss, disruption of foraging adults, and abandonment or destruction of active nests. During construction, the noise and human activity could result in short-term disturbance, causing birds to avoid the area and/or relocate during active construction. This EA also discusses several plans (e.g., FERC's Plan and Procedures, SPAR Plan) that contain project-specific mitigation measures that would reduce the extent and duration of impacts on migratory bird habitat, actively and naturally allow a great majority of the construction right-of-way to return to preconstruction condition, and limit the potential effects from spills or environmental contamination.

| Table 7<br>Birds of Conservation Concern Potentially Occurring in the Vicinity of the Project | | | | | |
|---|---|---|---|---|---|
| **Common Name** | **Facility** | **Breeding Timeframe** | **Nesting Habitat** | | |
| | | | **Ground** | **Shrub** | **Tree** |
| American kestrel | West Loop, East Loop | April 1-August 31 | | | X |
| Bachman's sparrow | West Loop, East Loop | May 1-September 30 | X | | |
| Bald eagle | West Loop, East Loop | September 1-July 31 | | | X |
| Common ground-dove | West Loop, East Loop | February 1-December 31 | X | X | X |
| Eastern whip-poor-will | West Loop, East Loop | May 1-August 20 | X | | |
| Prairie warbler | West Loop, East Loop, CS 18 | May 1-July 31 | | X | X |
| Prothonotary warbler | West Loop, East Loop | April 1-July 31 | | | X |
| Red-headed woodpecker | West Loop, East Loop, CS 18 | May 10-September 10 | | | X |
| Swallow-tailed kite | West Loop, East Loop, CS 18 | March 10-June 30 | | | X |
| Wood thrush | West Loop, East Loop | May 10-August 31 | | | X |

Given that the Project is collocated with Florida Gas's existing facilities and the abundance of suitable habitats in the immediate vicinity, we conclude that the impacts on migratory birds would be temporary and minor and would not constitute population-level effects.

**Bald Eagle**

Bald eagles are protected under the MBTA and the Bald and Golden Eagle Protection Act. Bald eagles nest in tall trees near large bodies of water. The FWC's Eagle Nest Locator Database records of known bald eagle nests indicate that no eagle nests are within 660 feet of the Project area. The closest bald eagle nest to the West Loop is located approximately 5.5 miles to the southwest. There are two nests located approximately 2 miles east of the East Loop. The closest recorded bald eagle nest to Compressor Station 18 approximately 1.6 miles to the west. During Florida Gas's field surveys, no eagle nests were observed in the Project area.

During operation of the Project, vegetative maintenance clearing would occur outside of the migratory bird nesting season in accordance with the FERC Plan. Given that the proposed facilities are entirely collocated with Florida Gas's existing pipeline facilities, we conclude that the Project would not have a significant impact on migratory birds. Additionally, the potential loss of nests and adult birds relocating to avoid construction is an impact of limited duration that would not result in a substantial or long-term change in migration patterns through the area nor constitute a population-level impact.

**Fisheries**

Construction of the West Loop would cross eight waterbodies: three perennial streams, four ephemeral streams, and one pond. All of the waterbodies support warmwater, freshwater fish communities, with the exception of the ephemeral waterbodies which likely do not have sufficient water to support fisheries. Typical species found in waterbodies crossed by the Project include bowfin, bluegill, catfish, crayfish, and various killifish, minnow, and shiner species. None of the waterbodies are known to contain federal or state-listed species or critical habitat. There are also no significant spawning or rearing areas or recreationally or commercially important fish species, and there is no Essential Fish Habitat present. Four of the waterbodies would be crossed using trenchless construction methods (HDD or bore) which would avoid direct impacts. The remaining four waterbodies would be crossed using a wet open-cut construction method. All in stream work at these crossings would be completed within 24 hours to minimize the effects of sedimentation and turbidity. Florida Gas would restore the streambed and streambanks to pre-construction conditions. Based on our analysis, we conclude that the Project would not have a significant impact on fisheries.

**Special Status Species**

Special status species are those species for which state or federal agencies provide an additional level of protection by law, regulation, or policy. Included in this category are federally listed species that are protected under the Endangered Species Act (ESA) or are considered as candidates for such listing by the FWS, those species that are state-listed as threatened or endangered, and state species of special concern.

**Federally Listed Species**

Florida Gas, acting as the non-federal representative to FERC for the purposes of informal consultation, met with the FWS in November 2018 to identify federally listed species potentially occurring in the Project area. Appendix C identifies the federally listed species potentially occurring in the Project area. Federally listed species that may be affected by the Project are further discussed below. No critical habitat for any of these species was identified within the Project area.

*Eastern Indigo Snake*

The Eastern indigo snake is a federally listed and state-listed threatened species that inhabits a variety of habitats including pine flatwoods, scrubby flatwoods, high pine, dry prairie, tropical hardwood hammocks, edges of freshwater marshes, agricultural fields, coastal dunes, and human-altered habitats. No Eastern indigo snakes were observed during field surveys; however,

the Project area does provide suitable habitat. Gopher tortoise burrows, which are present in the Project area, are commonly utilized by the Eastern indigo snake as refuge from winter cold and/or desiccating conditions in xeric habitats. Florida Gas consulted with the FWS and determined that the potential for Eastern indigo snakes to occur in the Project area is relatively low. However, Florida Gas would survey the Project area for gopher tortoise burrows prior to construction and would comply with the FWC Gopher Tortoise Permitting Guidelines. If snakes are discovered inhabiting burrows, they would be allowed to leave the area on their own during the relocation of tortoises. Additionally, Florida Gas would implement the FWS' *Standard Protection Measures of the Eastern Indigo Snake*, which contain specific provisions requiring the development and implementation of an education plan for the avoidance of Eastern indigo snakes and conducting post-construction reporting. Given the avoidance measures that Florida Gas has committed to and the relatively low likelihood of species presence in the Project area, we conclude that the Project *may affect, but is not likely to adversely affect* the Eastern indigo snake.

*Gopher Tortoise*

Gopher tortoises are a federal candidate and state-listed threatened species typically found in areas that have three general characteristics: well drained soils, adequate herbaceous vegetation for foraging, and open sunny areas for nesting. Their preferred natural habitat pine flatwoods, longleaf pine/xeric oak, and xeric oak scrub; however, they can be found in almost any other natural community type and in disturbed sites such as roadsides, fencerows, clearings, and old fields. During Florida Gas's field surveys, gopher tortoise burrows were confirmed within the construction workspaces. Therefore, Project construction would result in the loss of habitat and require the removal of existing gopher tortoise burrows. To minimize the impacts on gopher tortoise, Florida Gas would implement the 2017 FWC *Gopher Tortoise Permitting Guidelines.* At least 90 days prior to the initiation of relocation efforts, Florida Gas would use authorized gopher tortoise agents to conduct a complete survey of all uplands within the construction limits, including a 25-foot buffer zone. Florida Gas would obtain the necessary permits from the FWC for excavation, capturing, and relocating gopher tortoises to suitable habitat on-site or other approved recipient site. Silt fencing would be installed and maintained throughout Project activities to prevent tortoises from moving back into the construction work areas. Based on Florida Gas's commitment to these minimization measures, we conclude that the Project *is not likely to jeopardize the continued existence* of the gopher tortoise.

*Sand Skink*

The sand skink is a federally listed and state-listed threatened species. Skinks are widespread in xeric uplands with sandy substrates. Sand skinks require loose sand for burrowing with large patches of sparse to no groundcover or canopy. The Putnam County sandhill portion of the East Loop is within the FWS Consultation Area for sand skink. During field surveys, no evidence of sand skinks were observed. Therefore, we conclude that the Project *may affect, but is not likely to adversely affect* the sand skink.

In correspondence to Florida Gas dated May 21, 2019, the FWS concurred with the determinations of effect for the eastern indigo snake, gopher tortoise, and sand skink. Therefore, no further section 7 consultation is necessary for the Project.

**State-listed species**

Florida Gas consulted with the Florida Fish and Wildlife Commission (FWC) regarding state-listed species potentially occurring in the Project area. Appendix D identifies the state-listed species may occur in the Project area, based on the Florida Natural Areas Inventory (FNAI) Biodiversity Matrix Query Screening Tool of Rare Species Occurrence Information for State-Listed Species in Florida. The FNAI database did not identify any documented occurrences of any state-listed species within the Project area. Based on the available habitat in the Project area, seven state-listed species may be affected by the Project. These seven species are further discussed below.

*Southeastern American Kestrel*

The Southeastern American kestrel is a state-listed threatened, non-migratory sub-species of kestrel that is found in open pine savannahs, sandhills, prairies, and pastures in the southeastern United States. This species prefers open habitats including pasturelands, open longleaf pine-turkey oak sandhill communities, grasslands, and open sites within rural and suburban areas. Kestrels primarily nest in cavities in large dead trees that have been previously excavated by woodpeckers. During field surveys, five occurrences of American kestrel were recorded along the West Loop; however, due to the time of year, it could not be determined if these were the more common American kestrel or the rarer Southeastern American kestrel. No active nests were observed within or adjacent to the Project area. Florida Gas committed to conducting pre-construction surveys and coordination with the FWC if any Southeastern American kestrel nests are identified in the Project area prior to construction. In addition, Florida Gas committed to several FWC-recommended mitigation measures, including nest buffers, included in the FWC's June 12, 2019 comments on the Project.

*Sherman's Fox Squirrel*

The Sherman's fox squirrel is a state species of special concern. Sherman's fox squirrels prefer mature, open, fire-maintained longleaf pine-turkey oak sandhills and flatwoods. They also inhabit mixed hardwood pine, mature pine forests, cypress domes, pastures, the ecotone between bay heads and pine flatwoods, and other open habitats with pines and oaks. Sherman's fox squirrel typically has two breeding seasons per year, in the winter from October-February and in the summer from April-August. This species nests in oak trees with nests that are constructed of oak leaves and Spanish moss. During field surveys, four adult fox squirrels and three fox squirrel nests were identified along the East Loop. One nest was also identified along a temporary access road for the East Loop (TAR-E-09). No fox squirrels were identified along the West Loop. Florida Gas committed to conducting pre-construction surveys and coordinating with the FWC if any Sherman's fox squirrel nests are identified in the Project area prior to construction.

*Gopher Tortoise and Commensal Species (Florida Mouse, Gopher Frog, and Florida Pine Snake)*

As previously discussed, gopher tortoises are both a federal candidate and state-listed species that is common in the Project area. Therefore, several gopher tortoise commensal species (Florida mouse, gopher frog, and Florida pine snake) potentially occur in the Project area. These species obtain food, refuge, and other benefits from gopher tortoise burrows. A healthy and widespread gopher tortoise population is necessary for populations of these commensal species to exist.

Florida mouse, gopher frog, and Florida pine snake are all considered species of special concern in Florida. Evidence of Florida mouse and pine snake was identified during Florida Gas's field surveys along the East Loop. One gopher frog was observed at the entrance to a juvenile gopher tortoise burrow within the existing right-of-way along the East Loop and one individual was observed along a temporary access road (TAR-E-09). Florida Gas committed to the 2017 FWC *Gopher Tortoise Permitting Guidelines* by relocating all gopher tortoises from the construction area. There is abundant undisturbed habitat adjacent to the Project area for gopher tortoise and commensal species to be relocated according to the FWC guidelines. Florida Gas would also provide environmental training to include protected species for construction personnel.

*Burrowing Owl*

The Florida burrowing owl is a species of special concern that occurs primarily in peninsular Florida although isolated pairs and small colonies have been found further west in the state and as far south as the Dry Tortugas and the Bahamas. The distribution is localized and patchy, especially in the northern part of its range. Burrowing owls inhabit open habitats with low-growing groundcover which can include parturelands, agricultural fields, golf courses, airports, schools, and vacant residential lots. Because of this broad range of habitat types, this species could use the Project area.

Although no burrowing owls or nests were identified during field surveys, Florida Gas would conduct pre-construction surveys and coordinate with the FWC if any burrowing owls are identified within the construction workspaces.

*Florida Sandhill Crane*

The Florida sandhill crane is a state-listed threatened species that forages in prairies, freshwater marshes, pasturelands, and agricultural areas. It typically avoids forests and deep march areas but uses transition zones and edges of these habitats. Although Florida sandhill cranes forage in a variety of open habitats, shallow freshwater marshes are critical for nesting and roosting.

The Project would temporarily prevent Florida sandhill cranes from foraging in suitable areas during pipeline construction activities. However, there is abundant suitable foraging habitat in the Project vicinity. No individuals were identified during Florida Gas's field surveys of the Project area. The FWC recommended in its June 12, 2019 comment letter that Florida Gas survey

for nesting Florida sandhill cranes during the December to August breeding season, prior to construction because this species does not nest in the same location every year. Florida Gas committed to conducting surveys for this species and coordinating with the FWC for appropriate mitigation measures, which may include using a 400-foot nest site buffer or obtaining appropriate permits, if necessary.

*Florida Spiny-Pod*

The Florida spiny-pod is state-listed as threatened. The Florida spiny-pod is a deciduous herbaceous vining milkweed resident of upland woodlands, sandhills, and open fields. During field surveys, this plant species was observed in five areas within the West Loop survey corridor between MP 10.6 and 11.6 and two of the areas are located within the proposed construction work areas. Florida Gas committed to consulting with the FWC to determine appropriate measures such as relocating the plants to suitable adjacent habitat or other protected lands, dependent on landowner agreement.

*Showy Dawnflower*

The showy dawnflower is a state-listed threatened plant species that inhabits dry sandy soil in oak or sand pine scrub or turkey oak barrens. During field surveys, this plant was identified in two locations (MP 5.5 and MP 6.7) along the East Loop survey corridor. One of the locations is within the construction work area and one is outside of the area that would be affected by the Project and within Florida Gas's existing maintained right-of-way. Florida Gas would consult with the FWC to determine the appropriate measures to minimize impacts which may include relocation to nearby suitable habitat.

*Florida black bear*

Florida black bears, previously state-listed as threatened, are abundant in the Project area which is within the North and Central Bear Management Units identified in the 2012 Bear Management Plan. Black bears are adaptable and will take advantage of human-provided food sources, which can become a risk to public safety. The FWC recommended in its June 12, 2019 comments on the Project that Florida Gas maintain clean construction sites with wildlife resistant containers for any wildlife-attractant refuse and conducting frequent trash removal and using proper food storage and removal practices on work sites. Florida Gas committed to implementing these measures to avoid any conflicts with the Florida black bear during construction.

Although several state-listed potentially or occur or are known to exist within the construction work areas, Florida Gas committed to conducting pre-construction surveys where appropriate and consulting with the FWC to minimize adverse effects on state-listed species. Based on the discussion above, we conclude that the Project would not significantly affect state-listed species within the Project area.

## 5.0 CULTURAL RESOURCES

In addition to accounting for impacts on cultural resources under NEPA, Section 106 of the National Historic Preservation Act (NHPA), as amended, requires FERC to take into account the

effects of its undertakings on historic properties listed, or eligible for listing on the National Register of Historic Places (NRHP),[11] and to afford the Advisory Council on Historic Preservation an opportunity to comment. Florida Gas, as a non-federal party, is assisting FERC in meeting our obligations under Section 106 and its implementing regulations at 36 CFR 800.

## 5.1 Area of Potential Effects

The area of potential effects (APE) is the "geographic area or areas within which an undertaking may directly or indirectly cause alterations in the character or use of historic properties, if any such properties exist" (36 CFR 800.16(d)). Florida Gas defined the Project APE as the proposed Project area, along with a 100-foot-wide survey corridor for proposed access roads, proposed workspaces, aboveground facilities, and cathodic protection areas. The APE which includes all areas of potential direct and indirect effects from construction, and operation of the proposed Project. Due to the Project's location within an existing right-of-way, the APE is sufficient to account for all the potential direct and indirect effects to historic properties by the proposed Project.

## 5.2 Tribal Consultation

Florida Gas contacted the following Native American tribes (tribes) regarding the proposed Project: Seminole Tribe of Florida, Miccosukee Tribe of Indians, Eastern Shawnee Tribe of Oklahoma, Muscogee Creek Nation, Seminole Nation of Oklahoma, and Poarch Band of Creek Indians.

Florida Gas also contacted the United South and Eastern Tribes (USET), a non-profit, inter-Tribal organization that represents twenty-seven federally recognized Tribal Nations. USET supports member Nation's efforts to integrate federal policy.

On May 21, 2019, Florida Gas provided to the tribes and USET a Project information package, a cultural resources assessment, and a draft unanticipated discoveries plan. FERC also contacted the tribes by letter on regarding the Project. On July 1, 2019, the Seminole Tribe of Florida Tribal Historic Preservation Office responded by letter explaining that the Project is in an area of concern and the proposed undertaking does fall within the Seminole Tribe of Florida's "Area of Interest." The Seminole Tribe of Florida requested formal tribal consultation pursuant to Section 106 of the NHPA and its implementing authority, 36 CFR 800. On August 27, 2019, the Seminole Tribe of Florida submitted a letter requesting all sites within the APE be demarcated by two negative shovel tests and conveyed their concerns that two of the archaeological sites, 8CO00110 and 8CO00244, might actually be one large site. Florida Gas responded by email, explaining that the state similarly indicated Florida Gas should conduct additional evaluation or avoidance of sites 8CO00110 and 8CO00244. Revisions to the Project footprint removed sites 8CO00110 and 8CO00244 from the APE and these sites would not be impacted by the undertaking. Although revised work plan eliminated the sites from the APE, Florida Gas returned to the field and delineated the sites to two negatives as per the Seminole Tribe of Florida request.

[11] In accordance with 36 CFR 800.16(l)(1), a historic property is any prehistoric or historic district, site, building, structure, object, or property of traditional religious and cultural importance to an Indian tribe or Native Hawaiian organization, included in, or eligible for inclusion in, the NRHP. This term includes artifacts, records, and remains that are related to and located within such properties.

To date, Florida Gas and FERC have not received any additional responses from the other tribes.

## 5.3 Cultural Resources Investigations

In an effort to identify historic properties within the Project APE and to account for any effects to those properties by the proposed Project, Florida Gas conducted a cultural resources investigation which included background research, a Phase I archaeological survey, and a historic architectural survey. Preliminary research indicated that eleven known cultural resources were within or adjacent to the APE (Hilton, Quennoz, & Hughey 2019: 13).

Florida Gas conducted the historic architectural survey to identify architectural resources within the APE. The architectural field survey was limited to the exterior inspection of buildings and structures visible from the public right-of-way. The field survey included a visual assessment, site walkover, and photographic documentation of historic architectural resources in the APE. No aboveground features are within the APE or viewshed. No other historic architectural resources were identified during the survey. One newly identified historic dump site assigned to the Nineteenth century was encountered during survey.

On November 8, 2018, Florida Gas submitted the cultural resources investigation report to the Florida Division of Historical Resources, which serves as the Florida State Historic Preservation Office (SHPO), requesting review and concurrence with their recommendations.

### Unanticipated Discoveries Plan

Florida Gas developed a Project-specific plan titled: *Unanticipated Discoveries Plan Cultural Resources and Human Remains,* which outlines the procedures to follow, in accordance with state and federal laws, in the event that unanticipated cultural resources or human remains are discovered during construction of the Project, including consultation with FERC, the SHPO, and tribes regarding discoveries. The plan was submitted to FERC and the SHPO. FERC requested minor revisions to the plan. Florida Gas provided a revised plan which we find acceptable.

### Compliance with the National Historic Preservation Act

Florida Gas conducted cultural resources surveys and reviewed indirect effects on aboveground resources within the project APE. Florida Gas recommended that the Project would have no effects on historic properties. In December 2018, Florida SHPO requested additional testing within the APE. Florida Gas has not filed the results of the additional testing with FERC or the comments from the SHPO.

Therefore, **we recommend that:**

**Florida Gas should <u>not begin</u> construction of facilities and/or use of staging, storage, or temporary work areas and new or to-be-improved access roads <u>until</u>:**

**a) Florida Gas files with the Secretary the final cultural resources report for the Project*;***

**b) Florida Gas files with the Secretary comments on the cultural resources reports and plans from the Florida State Historic Preservation Office;**

**c) the Advisory Council on Historic Preservation is afforded an opportunity to comment if historic properties would be adversely affected; and**

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

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

## 6.0 LAND USE, RECREATION AND VISUAL RESOURCES

Land use in the Project area would consist of commercial/industrial land, open upland, range land, wetlands, upland forest, silviculture, residential land, open water, and agriculture. Overall land use for the Project is presented in table 8. Land use per facility can be found in appendix F.

**Table 8**
**Summary of Land Use for the Putnam Expansion Project**

| Putnam Expansion Land Use Category | | Acreage | | Percent of Total[a] |
|---|---|---|---|---|
| | | Construction Impact [c] | Operational Impact [d] | |
| Agricultural Land | | 31.5 | 1.0 | 8.8 |
| Forest/Woodland | | 106.2 | 11.3 | 29.7 |
| Silviculture | | 16.3 | <0.1 | 4.6 |
| Rangeland | | 53.4 | 0.7 | 14.9 |
| Open Land | | 7.2 | 0.4 | 2.0 |
| Residential Land | | 19.1 | 0.2 | 5.3 |
| Industrial/Commercial Land | | 38.3 | 0.0 | 10.7 |
| Open Water [a] | | <0.1 | <0.1 | <0.1 |
| Wetlands [b] | PEM | 2.5 | <0.1 | 0.7 |
| | PSS | 0.0 | 0.0 | 0.0 |
| | PFO | 3.5 | 0.5 | 1.0 |
| Right-of-Way (ROW) | | 79.8 | 2.1 | 22.3 |
| **Total** | | **357.8** | **16.4** | |

Notes:
[a] Represents the construction acreage total as a perfect of total project impact
[b] Temporary impact acreages include the ATWS
[c] Construction impact represents the total disturbance for the Project, including the temporary construction right-of-way and the permanent operational right-of-way
[d] Operational impact includes the area that would be permanently maintained during operation of the pipeline.

*Pipeline Facilities*

The Project involves two looping segments of the existing Florida Gas system, which would be 100 percent collocated. The West Loop would be located approximately 30 feet from

the closest pipeline within the existing 90-foot-wide permanent right-of-way. The East Loop would be offset by 30 feet from the closest pipeline within Florida Gas's existing 75-foot-wide permanent right-of-way. Florida Gas would need to acquire new permanent right-of-way to allow for operational maintenance that would typically be 15 feet wide directly adjacent to the existing permanent right-of-way for each pipeline loop.

The predominant land uses that would temporarily be affected during construction activities includes forest/woodlands and rangeland (improved pasture). These areas would revert to pre-construction conditions once construction is complete, with no operational land use changes.

*Aboveground Facilities*

The Project would involve construction of new pig receiver stations at the end of the West Loop and East Loop. In addition, an existing pig receiver at the beginning of each loop would be relocated to the new pig receiver station. Modifications would also be made to the existing CS 18. Work to remove the existing receiver from the Columbia Receiver Station on the West Loop for relocation would occur within the existing permanent right-of-way. The receiver would be installed at a new receiver station (Union Receiver Station) located at the eastern end of the West Loop. The new receiver station would be located within the new permanent right-of-way.

A receiver would be removed from the existing Clay Receiver Station located at the northern end of the East Loop. Work at the station to remove the receiver for relocation would occur within the existing permanent right-of-way. The receiver removed from the Clay Receiver Station would be installed at a new receiver station (Putnam Receiver Station) located at the southern end of the East Loop. The new Putnam Receiver Station would be within the new permanent right-of-way.

The Project includes construction for a turnaround at the existing CS 18 facility. Construction at CS 18 would be limited to areas within the fenced station property that have been previously disturbed.

*Contractor Yards*

Two contractor yards have been proposed to facilitate construction of each of the pipeline loops, presented in table 9.

**Table 9**
**Proposed Pipe and Contractor Yards**

| Pipeline Loop | Pipe and Contractor Yard | Location (County, State) | Approx. Milepost | Approx. Size (Acres) | Current Land Use | Access |
|---|---|---|---|---|---|---|
| West Loop | Yard 1 | Columbia County, Florida | 4.7 | 20.9 | Agricultural Land | Access from SW Old Wire Road |
| | Yard 3 | | 7.1 | 17.9 | Rangeland (improved pasture) | Access from SW Herlong Street |
| East Loop | Yard 2 | Putnam County, Florida | 0.0 | 20.6 | Rangeland (improved pasture) | Access from N. County Road 315 |
| | Yard 3 | | 1.9 | 4.0 | Rangeland (improved pasture) | Access from Sykes Road |

*Access Roads*

Two new permanent access roads would be constructed, one for access to the new Union Receiver Station (PAR-W-01) and the second for access to the new Putnam Receiver Station (PAR-E-01). The access roads, proposed in table 10, would be located in areas which are part of the existing Florida Gas right-of-way.

| Table 10<br>Proposed Access Roads | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| **Pipeline Loop** | **Access Road [a]** | **Location (County)** | **Approx. Milepost** | **Type** | **Length (feet)** | **Acres** | **Current Land Use** | **Planned Improvements** |
| West Loop | TAR-W-01 (Appalachee Terrace) | Columbia County | 3.5 | Existing | 4,256 | 1.9 | Unpaved dirt road | None |
| | TAR-W-02 (SW Roanoke Terrace) | | 4.1 | Existing | 3,419 | 1.6 | Unpaved dirt road | |
| | PAR-W-01 | Union County | 13.6 | New | 60 | <0.1 | Agriculture | New gravel road |
| East Loop | TAR-E-01 (Lone Pine Trail) | Clay County | 0.0 | Existing | 1,322 | 0.6 | Unpaved dirt road | None |
| | TAR-E-02 (Lone Pine Trail) | | 0.0 | Existing | 67 | <0.1 | Unpaved dirt road | |
| | TAR-E-03 (Catus Hill Road) | | 0.2 | Existing | 424 | 0.2 | Unpaved dirt road | |
| | TAR-E-04 (Dukes Trail) | Putnam County | 0.5 | Existing | 717 | 0.2 | Unpaved dirt road | |
| | TAR-E-05 (Wall Lake Trail) | | 1.6 | Existing | 138 | 0.1 | Unpaved dirt road | |
| | TAR-E-06 (Swisher Lake Trail) | | 1.6 | Existing | 744 | 0.3 | Unpaved dirt road | |
| | TAR-E-07 (Unnamed) | | 2.4 | Existing | 4,243 | 2.0 | Unpaved dirt road | Limited grading, widening, and gravel placement (if needed) |
| | TAR-E-08 (Unnamed) | | 2.6 | Existing | 1,512 | 0.7 | Unpaved dirt road | |
| | TAR-E-09 (Unnamed) | | 4.3 / 4.9 | Existing | 9,283 | 4.2 | Unpaved dirt road | |
| | TAR-E-10 (Unnamed) | | 6.5 | Existing | 6,101 | 2.8 | Unpaved dirt road | |
| | PAR-E-01 | | 7.0 | New | 152 | 0.1 | Open land (ROW) | New gravel road |

Note:
[a] Temporary access roads will be returned to pre-construction conditions or per landowner agreement following construction.

*Recreation*

The East and West Loops would not cross nor would be located within 0.25 mile of any National Park System Unit, which includes national parks, monuments, preserves, historic sites, historical parks, memorials, battlefields, military parks, cemeteries, recreation areas, seashores, lakeshores, rivers, parkways, trails, and other designations. The West Loop would cross Olustee Creek. The proposed crossing location of Olustee Creek has been determined by FDEP to consist of sovereign submerged lands and crossing of the creek would require a submerged state lands easement. The East Loop would cross the Palatka Lake Butler State Trail, which is part of the

Florida National Scenic Trail System. The FDEP would require an upland private easement across state lands. The East Loop would be adjacent to the Ordway-Swisher Biological Station, which is a University of Florida research support facility.

No natural, recreational, or scenic areas are identified within 0.25 mile of the existing or proposed aboveground facilities, PARs or TARs. One contractor yard, East Loop- Yard 3, is located across Florida Highway 100 from the Palatka Lake Butler State Trail. Based on the location and nature of construction activities, we conclude the Project would have no adverse impact on recreational areas.

*Residential Areas*

Several residences would be within 50 feet of a construction work area. Florida Gas would implement mitigation measures for residences within 50 feet that include landowner notification, maintaining access and traffic flow, install safety fencing, avoiding mature tree removal, and minimizing fugitive dust. All lawn areas and landscaping within the construction work area would be restored once construction is complete. Specific mitigation plans would be utilized for those properties located within 25 feet of construction. Residences within 50 feet of Project construction are identified in table 11.

A comment was received from Judith Rhame concerning the addition of a third pipeline to the property and suggesting Florida Gas acquisition. A Florida Gas right-of-way agent contacted the landowner on June 24, 2019 to discuss project schedule and impacts to the landowner's property. As property sale is outside the scope of the EA and FERC's jurisdiction, this comment is not addressed further. Once constructed, affected land would be restored to pre-construction conditions, therefore there would be no land use impacts due to the Project.

The West Loop crosses within 0.25 mile of several residential subdivisions in Columbia County and include Apalachee Trace, Highland Farms, Meadowlands, Pine Haven, South Wind, Southern Meadows, and Sunview Estates. All of these subdivisions would be crossed by the West Loop except for Highland Farms, South Wind and Southern Meadows, which are located within 0.25 mile of Project sites. There are no commercial areas within 0.25 mile of the West Loop.

The East Loop crosses within 0.25 mile of Cooper L. Hills Estate residential development and the Grandin Sand Mine.

The existing Columbia Receiver Station is located adjacent to the Pine Haven Subdivision. No residential developments were identified within 0.25 mile of the new Union Receiver Station. No residential developments were identified within 0.25 mile of the existing Clay Receiver Station. The new Putnam Receiver Station is located at the southern end of the East Loop where the Cooper L. Hills Estate development is located less than 265 feet away. No commercial areas were identified within 0.25 mile of the receiver stations.

CS 18 is surrounded to the west, east, and south by the Metrowest subdivision and to the north by the Steer Lake subdivision. Construction at CS 18 would be contained within the existing fence line and there would be no encroachment on either of these developments. No residential or commercial developments were identified within 0.25 mile of the proposed contractor yards. No

residential or commercial developments were identified within 0.25 mile of the two PARs or the TARs which require improvement.

There are plans for expansion of the Grandin Sand Mine. No other pending plans were identified for residential or commercial developments located within 0.25 mile of the Project area. Based on the location and nature of construction activities, we conclude the Project would have no adverse impact on residences.

**Table 11**
**Residences or Buildings Within 50 Feet of the Putnam Expansion Project**

| Milepost | County | Description | Habitable | Distance Away (feet) | |
|---|---|---|---|---|---|
| | | | | Construction Work Area | Pipeline Centerline |
| **West Loop** | | | | | |
| 0.76 | Columbia | Residence | Yes | 14.8 | 79.8 |
| 0.78 | Columbia | Barn | No | 1.9 | 16.3 |
| 5.62 | Columbia | Residence | Yes | 31.3 | 61.3 |
| 5.65 | Columbia | Structure | No | 6.9 | 36.9 |
| 5.75 | Columbia | Residence | Yes | 12.0 | 26.4 |
| 6.17 | Columbia | Residence | Yes | 42.5 | 107.5 |
| 7.21 | Columbia | Residence | Yes | 40.4 | 449.2 |
| 7.23 | Columbia | Barn | No | 35.7 | 419.4 |
| 8.15 | Columbia | Structure | No | 0.00 | 11.2 |
| 8.15 | Columbia | Residence | Yes | 24.2 | 64.2 |
| 8.77 | Columbia | Residence | Yes | 8.9 | 123.9 |
| 9.47 | Columbia | Structure | No | 16.9 | 56.9 |
| 9.81 | Columbia | Barn | No | 0.0 | 0.0 |
| 9.88 | Columbia | Barn | No | 0.0 | 0.0 |
| 10.11 | Columbia | Barn | No | 40.8 | 105.8 |
| 11.33 | Columbia | Structure | No | 26.4 | 61.4 |
| 12.48 | Union | Structure | No | 0.0 | 0.0 |
| 13.49 | Union | Residence | Yes | 16.6 | 81.8 |
| 13.63 | Union | Residence | Yes | 11.2 | 75.9 |
| **East Loop** | | | | | |
| 0.24 | Putnam | Residence | Yes | 48.2 | 72.2 |
| 0.25 | Putnam | Structure | No | 3.2 | 27.2 |
| 0.26 | Putnam | Barn | No | 3.8 | 27.8 |
| 1.58 | Putnam | Residence | Yes | 34.1 | 74.1 |
| 1.83 | Putnam | Residence | Yes | 48.5 | 124.5 |

Where Florida Gas is unable to maintain 25 feet or more between a residence and the construction work area, Florida Gas has developed site-specific residential construction plans,

located in appendix E. We have reviewed these plans and find them acceptable. Landowners are encouraged to review these site-specific plans and provide us with any comments during the EA comment period.

At MP8.77 on the West Loop, there is a residence within 10 feet of the proposed construction workspace. Because of the increased potential for construction activities to disrupt residences within 10 feet of construction activities, and to ensure that a property owner has adequate input to a construction activity occurring so close to their residence, **we recommend that**:

> **Prior to construction of the West Loop, Florida Gas should file with the Secretary, for review and written approval by the Director of OEP, evidence of landowner concurrence with the site-specific construction plan for the property at MP 8.77 or file a revised site-specific construction plan that maintains a 10-foot buffer between the residence and the temporary workspace.**

*Visual Resources*

The proposed Project would not be located within any federal, state, or locally designated scenic areas, with the exception of the Palatka Lake Butler State Trail adjacent to the East Loop. Visual impacts during construction would be limited to construction equipment and storage within designated temporary workspaces. The West Loop and East Loop would be adjacent to existing, maintained rights-of-way and would be belowground, and not visible. The existing and new receiver facility locations are within or adjacent to existing maintained rights-of-way. The existing CS 18 is located within a residential area of Orange County. Activities for the CS 18 turnaround would be limited to the currently maintained fenced property. The proposed contractor yards would not be in the viewshed of visually sensitive areas, with the exception of the East Loop- Yard 3, which is located across the highway from the Palatka Lake Butler State Trail. There are no visually sensitive areas within the viewshed of access roads. Visual impacts due to construction would be temporary.

Once complete, visual impacts for the Project would be limited to the new pig receiver stations, which would be located at the ends of the East and West Loops. As work at CS 18 is within the existing fenced operational property, no new visual impacts would occur from the modifications.

The expanded right-of-way would not yield any visual impacts. No residential developments were identified within 0.25 mile of the new Union Receiver Station. The new Putnam Receiver Station is located at the southern end of the East loop where the Cooper L. Hills Estate development is located. No commercial areas were identified within 0.25 mile of the receiver stations. We conclude that impacts on visual resources would be minimal due to the similar characteristics of the Project area.

*Coastal Zone Management Areas*

The State of Florida has developed a coastal management program approved by the National Oceanic and Atmospheric Administration. Based upon the geography of Florida, the entire state of Florida is included within the coastal zone. However, for completing federal

consistency reviews of federally-licensed and permitted activities, only the geographical area encompassed by the 35 Florida coastal counties and the adjoining territorial sea is utilized. The Project is not located in any of those coastal counties.

The Project was designed to minimize impacts to land uses, primarily by collocating with existing Florida Gas pipeline systems, property and other utility and roadway corridors. Based on the nature and location of Project activities, we conclude that the Project construction and operational activities would not adversely affect land use in the area.

## 7.0 AIR QUALITY AND NOISE

### 7.1 Air Quality

Air quality would be affected by construction and operation of the Project. During construction, short-term emissions would be generated from the usage of equipment, land disturbance, and increased traffic from worker and delivery vehicles for all locations. Other than fugitive methane emissions associated with the pipeline, no operational emissions would be associated with the Project.

Ambient air quality is protected by federal and state regulations. Under the Clean Air Act (CAA) and its amendments, the EPA has established National Ambient Air Quality Standards (NAAQS)[12] for carbon monoxide (CO), lead (Pb), nitrogen dioxide ($NO_x$) ozone, particulate matter less than 10 microns ($PM_{10}$), particulate matter less than 2.5 microns ($PM_{2.5}$), and sulfur dioxide ($SO_2$). The FDEP have the authority to implement permit programs under the CAA for the proposed Project facilities.

These standards incorporate short-term (hourly or daily) levels and long-term (annual) levels to address acute and chronic exposures to the pollutants, as appropriate. The NAAQS include primary standards, which are designed to protect human health, including the health of sensitive subpopulations such as children and those with chronic respiratory problems. The NAAQS also include secondary standards designed to protect public welfare, including economic interests, visibility, vegetation, animal species, and other concerns not related to human health. Table 12 presents the NAAQS.

Air quality control regions (AQCRs) are areas established by the EPA and local agencies for air quality planning purposes, in which State Implementation Plans describe how the NAAQS would be achieved and maintained. 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 smaller portion within an AQCR (such as a county), is designated, based on compliance with the NAAQS, as attainment, unclassifiable, maintenance, or nonattainment, on a pollutant by-pollutant basis. Areas in compliance or below the NAAQS are designated as attainment, while areas not in compliance or above the NAAQS are designated as nonattainment. Areas previously designated as nonattainment that have since demonstrated compliance with the NAAQS are designated as maintenance for that pollutant. Maintenance areas may be subject to more stringent regulatory

[12] The current NAAQS are listed on EPA's website at https://www.epa.gov/criteria-air-pollutants/naaqs-table.

requirements to ensure continued attainment of the NAAQS. Areas that lack sufficient data to determine attainment status are designated unclassifiable and treated as attainment areas. All Project components occur within areas that are designated as attainment for all criteria pollutants.

**Permitting/Regulatory Requirements**

*Prevention of Significant Deterioration and Nonattainment New Source Review*

The Prevention of Significant Deterioration (PSD) and Nonattainment New Source Review (NNSR) air permit programs are designed to protect air quality when air pollutant emissions are increased either through the construction of new major stationary sources or major modifications to existing stationary sources. The FDEP administer the PSD and NNSR permitting programs in their state. These programs do not apply to the Project.

*Title V Permitting*

Title V is an operating air permit program run by each state for each facility that is considered a "major source." Emissions associated with the Project would result from construction activities and would not result in any new sources, therefore this program does not apply to the Project.

*New Source Performance Standards (NSPS)*

The EPA promulgates NSPS to establish emission limits and fuel, monitoring, notification, reporting, and recordkeeping requirements for stationary source types or categories that cause or contribute significantly to air pollution. Emissions associated with the Project are from construction activities and would not result in any new sources, therefore this program does not apply to the Project.

**Table 12**
**National Ambient Air Quality Standards**

| Pollutant | Averaging Period | Standards | |
|---|---|---|---|
| | | Primary | Secondary |
| Sulfur dioxide ($SO_2$) | 1-hour [l,m] | 75 ppb<br>196 µg/m³ | |
| | 3-hour [b] | -- | 0.5 ppm<br>1300 µg/m³ |
| | Annual [a,m] | 0.03 ppm<br>80 µg/m³ | -- |
| | 24-hour [b,m] | 0.14 ppm<br>365 µg/m³ | -- |
| $PM_{10}$ | 24-hour [d] | 150 µg/m³ | 150 µg/m³ |
| $PM_{2.5}$ (2012 Standard) | Annual [e] | 12.0 µg/m³ | 15.0 µg/m³ |
| $PM_{2.5}$ (2006 Standard) | 24-hour [f] | 35 µg/m³ | 35 µg/m³ |
| Nitrogen Dioxide ($NO_2$) | Annual [a] | 0.053 ppm (53 ppb)<br>100 µg/m³ | 0.053 ppm (53 ppb)<br>100 µg/m³ |
| | 1-hour [c] | 100 ppb<br>188 µg/m³ | -- |
| Carbon Monoxide (CO) | 8-hour [b] | 9 ppm<br>10,000µg/m³ | -- |
| | 1-hour [b] | 35 ppm<br>40,000 µg/m³ | -- |
| Ozone (2008 Standard) | 8-hour [g,h] | 0.075 ppm | 0.075 ppm |
| Ozone (2015 Standard) | 8-Hour [i] | 0.070 ppm | 0.070 ppm |
| Ozone (O3) | 1-hour [j,k] | 0.12 ppm | 0.12 ppm |
| Lead (Pb) | Rolling 3-month [a] | 0.15 µg/m³ | 0.15 µg/m³ |

a. Not to be exceeded
b. Not to be exceeded more than once per year
c. Compliance based on 3-year average of the 98th percentile of the daily maximum 1-hour average at each monitor within an area
d. Not to be exceeded more than once per year on average over 3 years
e. Compliance based on 3-year average of weighted annual mean $PM_{2.5}$ concentrations at community-oriented monitors
f. Compliance based on 3-year average of 98th percentile of 24-hour concentrations at each population-oriented monitor within an area
g. Compliance based on 3-year average of fourth-highest daily maximum 8-hour average ozone concentrations measured at each monitor within an area
h. The 2008 8-hour ozone standard would remain in effect until one year after an area is designated for the 2015 8-hour ozone standard, which corresponds with January 16, 2019 based upon attainment designations for the 2015 ozone standard issued on January 16, 2018
i. Permit applications that have not met EPA's grandfathering criteria would have to demonstrate that the proposed project does not cause or contribute to a violation of any revised ozone standards that are in effect when the permit is issued, including the 2015 revised standards
j. Maximum 1-hour daily average not to be exceeded more than one day per calendar year on average
k. The 1-hour ozone standard has been revoked in all areas in which Project activities would occur
l. Compliance based on 3-year average of 99th percentile of the daily maximum 1-hour average at each monitor within an area
m. The 24-hour and annual average primary standards for $SO_2$ have been revoked.
ppm = parts per million by volume; ppb = parts per billion by volume.
µg/m³ = micrograms per cubic meter.

*National Emission Standards for Hazardous Air Pollutants (NESHAP)*

The 1990 CAA Amendments established a list of 189 hazardous air pollutants (HAPs), resulting in the promulgation of NESHAP. The NESHAP regulate HAP emissions from specific source types located at major or area sources of HAPs by setting emission limits, monitoring, testing, record keeping, and notification requirements. Emissions associated with the Project are from construction activities, no new sources of emissions are proposed, and therefore this program does not apply to the Project.

*State and County Regulations*

Florida regulations applicable to the project include obtaining an air construction permit for modifications at CS 18 from the Orange County Environmental Protection Division. No ordinances from Columbia, Union, Clay, or Putnam counties apply to the Project.

*General Conformity*

The EPA promulgated the General Conformity Rule to implement the conformity provision of Title I, Section 176(c)(1) of CAA. Section 176(c)(1) requires that the federal government not engage, support, or provide financial assistance for licensing or permitting, or approve any activity not conforming to, an approved CAA implementation plan.

The General Conformity Rule is codified in Title 40 CFR Part 51, Subpart W and Part 93, Subpart B, Determining Conformity of General Federal Actions to State or Federal Implementation Plans. A conformity determination must be conducted by the lead federal agency if a federal action's construction and operational activities is likely to result in generating direct and indirect emissions that would exceed the conformity threshold (*de minimis*) levels of the pollutant(s) for which an air basin is in nonattainment or maintenance. According to the conformity regulations, emissions from sources that are subject to any NNSR or PSD permitting/licensing (major or minor) are exempt and are deemed to have conformed.

The General Conformity Rule was developed to ensure that federal actions in nonattainment and maintenance areas do not impede states' attainment of the NAAQS. The lead federal agency must conduct a conformity determination if a federal action's construction and operational activities is likely to result in generating direct and indirect emissions that would exceed the General Conformity Applicability threshold levels of the pollutant(s) for which an air basin is designated nonattainment or maintenance. Section 176(c)(1) states that a federal agency cannot approve or support any activity that does not conform to an approved State Implementation Plan. Conforming activities or actions should not, through additional air pollutant emissions:

- cause or contribute to new violations of the NAAQS in any area;
- increase the frequency or severity of any existing violation of any NAAQS; or
- delay timely attainment of any NAAQS or interim emission reductions.

The General Conformity Rule entails both an applicability analysis and a subsequent conformity determination, if deemed necessary. A General Conformity Determination must be

completed when the total direct and indirect emissions of a project would equal or exceed the specified pollutant thresholds on a calendar year basis for each nonattainment or maintenance area.

As noted earlier, the Project facilities would be constructed and operated within counties in attainment for all criteria pollutants, therefore, a General Conformity Determination would not be required.

*Greenhouse Gases*

Greenhouse gases (GHGs) occur in the atmosphere both naturally and as a result of human activities, such as the burning of fossil fuels. GHGs are gases that absorb infrared radiation in the atmosphere, and an increase in emissions of these gasses has been determined by the EPA to endanger public health and welfare by contributing to global climate change. The most common GHGs emitted during fossil fuel combustion and natural gas transportation are carbon dioxide ($CO_2$), methane ($CH_4$), and nitrous oxide ($N_2O$). Emissions of GHGs are typically expressed in terms of $CO_2$ equivalents ($CO_2e$), where the potential of each gas to increase heating in the atmosphere is expressed as a multiple of the heating potential of $CO_2$ over a specific timeframe, or its global warming potential (GWP)[13]. The 100-year GWP of $CO_2$ is 1, $CH_4$ is 25, and $N_2O$ is 298. During construction and operation of the Project, these GHGs would be emitted from non-electrical construction and operational equipment, as well as from fugitive $CH_4$ leaks from the pipeline and aboveground facilities.

On November 8, 2010, the EPA signed a rule that finalizes reporting requirements for the petroleum and natural gas industry under 40 CFR 98. Subpart W of 40 CFR 98 requires petroleum and natural gas facilities that emit 25,000 metric tons or more of $CO_2e$ per year to report annual emissions of specified GHGs from various processes within the facility. Construction emissions are not covered under the GHG Reporting Rule, but those related to the proposed Project are expected to be well below the 25,000 metric tons reporting threshold. Operational emissions from the proposed facilities are likewise not expected to exceed this threshold and be reported to the EPA. The EPA has expanded its regulations to include the emission of GHGs from major stationary sources under the PSD program. The EPA's current rules require that a stationary source that is major for a non-GHG-regulated New Source Review pollutant must also obtain a PSD permit prior to beginning construction of a new or modified major source with mass-based GHG emissions equal to or greater than 100,000 tons per year (tpy) and significant net emission increases in units of $CO_2e$ equal to or greater than 75,000 tpy. There are no NAAQS or other significance thresholds for GHGs.

*Construction Emissions*

Construction of the Project would result in short-term increases in emissions of some pollutants from the use of fossil fuel-fired equipment and the generation of fugitive dust due to earthmoving activities. Some temporary indirect emissions, attributable to construction workers commuting to and from work sites during construction and from on-road and off-road construction vehicle traffic, could also occur. Large earth-moving equipment and other mobile equipment are

[13] These GWPs are based on a 100-year time period. We have selected their use over other published GWPs for other timeframes because these are the GWPs the EPA has established for reporting of GHG emissions and air permitting requirements. This allows for a consistent comparison with these regulatory requirements.

sources of combustion-related emissions, including criteria pollutants (i.e., $NO_x$, CO, VOC, $SO_2$, and $PM_{10}$).

Florida Gas would mitigate exhaust emissions from construction equipment by requiring contractors to meet all air quality regulations and emission standards associated with each piece of equipment, and limit idling of diesel and gasoline powered on-road vehicles and non-road construction equipment operating at, or visiting, the construction site. Fugitive dust emissions during construction would be mitigated by measures outlined in the Fugitive Dust Control Plan, such as spraying water on unpaved areas subject to frequent vehicle traffic. These emissions present the combined emissions for each facility of construction equipment combustion, on-road vehicle travel, off-road vehicle travel, and earthmoving fugitives.

Construction related emission estimates were based on a typical construction equipment list, hours of operation, and vehicle miles traveled by the construction equipment and supporting vehicles for each area of the Project. These emission-generating activities would include earthmoving, construction equipment exhaust, on-road vehicle traffic, and off-road vehicle traffic. Florida Gas conservatively utilized emission factors from EPA's AP-42 along with EPA's NONROAD2008a and MOBILE6.2 emission modeling software.

Construction is estimated to occur between March 2021 and April 2022. The air quality impacts of Project construction would be considered short-term and would be further minimized by Florida Gas's implementation of fugitive dust control measures outlined in the Fugitive Dust Control Plan. Following construction, air quality would revert back to previous conditions. Construction emissions for the Project are presented in table 13.

**Table 13**
**Estimated Construction Emissions**
**(tons per year)**

| Year and Source | CO | NOx | $SO_2$ | VOC | Total HAPs | $PM_{10}$ | $PM_{2.5}$ | GHG ($CO_{2e}$) |
|---|---|---|---|---|---|---|---|---|
| **2021** | | | | | | | | |
| Construction Equipment | 174.53 | 134.01 | 7.00 | 21.25 | 0.39 | 7.87 | 7.85 | 23,272 |
| Deliveries/Commute | 4.42 | 0.85 | 0.02 | 0.31 | 0.04 | 0.83 | 0.83 | 166 |
| Fugitive Dust | - | - | - | - | - | 176.35 | 17.63 | - |
| **2022** | | | | | | | | |
| Construction Equipment | 43.64 | 33.50 | 1.75 | 5.31 | 0.10 | 1.97 | 1.96 | 5,818 |
| Deliveries/Commute | 1.10 | 0.21 | 0.01 | 0.08 | 0.01 | 0.21 | 0.21 | 42 |
| Fugitive Dust | - | - | - | - | - | 44.09 | 4.41 | - |
| **Project Total** | **223.69** | **168.57** | **8.78** | **26.95** | **0.54** | **231.32** | **32.89** | **29,298** |
| **General Conformity Thresholds** | **100** | **100** | **100** | **50** | **100** | **100** | **100** | |

Given the temporary nature of construction, and the intermittent nature of construction emissions, we find that emissions from construction-related activities for the Project would not be

expected to cause or significantly contribute to a violation of any applicable ambient air quality standard, or significantly affect local or regional air quality.

*Operational Emissions*

There are no permanent sources of operational emissions proposed as part of the Project. Operational fugitive methane emissions from the pipeline are presented in table 14.

**Table 14**

**Operational Fugitive Pipeline Emissions (tpy)**

| **Source** | | **$CH_4$** | **$CO_2$** | **$CO_2e$[a]** |
|---|---|---|---|---|
| **Pipeline** | Miles of pipeline: 20.89 | 1.29 | 0.03 | 32.18 |
| **Valve** | Number of valves: 2 | 5.22 | 0.11 | 130.54 |

a. GWP of 25 for $CH_4$ and 298 for $N_20$ used. From 40 CFR Part 98 Subpart A

Considering the minimal operational emissions associated with the Project, we conclude that operational emissions would not have a significant impact on air quality.

*Downstream Emissions*

As noted in section A of the EA, the Project's purpose is to provide 169,000 MMBtu/d of natural gas on behalf of SECI to a delivery point with SeaCoast in Putnam County, Florida. The Project volumes would serve a new gas-fired combined-cycle generating unit that SECI plans to construct at its existing Seminole Generation Site near the City of Palatka, in Putnam County. Combustion of this volume of natural gas would result in 3.26 million metric tons of $CO_2$ per year. This represents an upper bound of GHG emissions from the Project because it assumes the total maximum capacity is transported 365 days per year. The Seminole Combined Cycle Facility would replace an existing coal-fired generating unit that would be retired. The new Seminole Combined Cycle Facility has the potential to have a gross output of 1,183 megawatts. The 3.26 million metric

tons of GHG emissions from the Project would result in a 1.4% increase in GHG emissions from fossil fuel combustion in Florida[14], and a 0.06% increase in national emissions.[15]

## 7.2 Noise

Construction and operation of the Project would affect the local noise environment in the Project area. The ambient sound level of a region, which is defined by the total noise generated within the specific environment, is usually comprised of sounds emanating from both natural and artificial sources. At any location, both the magnitude and frequency of environmental noise may vary considerably over the course of the day and throughout the week, in part due to changing weather conditions and the impacts of seasonal vegetative cover.

The EPA published its Information on Levels of Environmental Noise Requisite to Protect Public Health and Welfare with an Adequate Margin of Safety. Two measurements used by some federal agencies to relate the time-varying quality of environmental noise to its known effects on people are the equivalent sound level ($L_{eq}$) and the day-night sound level ($L_{dn}$). The $L_{eq}$ is an A-weighted sound level containing the same sound energy as the instantaneous sound levels measured over a specific time period. Noise levels are perceived differently, depending on length of exposure and time of day. The $L_{dn}$ takes into account the duration and time the noise is encountered. Specifically, in the calculation of the $L_{dn}$, late night to early morning (10:00 PM to 7:00 AM) noise exposures are penalized +10 decibels (dB), to account for people's greater sensitivity to sound during the nighttime hours. The A-weighted scale (dBA) is used because human hearing is less sensitive to low and high frequencies than mid-range frequencies. For an essentially steady sound source that operates continuously over a 24-hour period and controls the environmental sound level, the $L_{dn}$ is approximately 6.4 dB above the measured $L_{eq}$.

The EPA has indicated that an $L_{dn}$ of 55 dBA protects the public from indoor and outdoor activity interference. We have adopted this criterion and use it to evaluate the potential noise impacts from the proposed Project at noise sensitive areas (NSAs), such as residences, schools, or hospitals. Also, in general, a person's threshold of perception for a perceivable change in loudness on the A-weighted sound level is about 3 dBA, whereas a 5 dBA change is clearly noticeable, and a 10 dBA change is perceived as either twice or half as loud.

There are no applicable county, or local noise regulations associated with the Project.

*Construction Noise*

Construction of the facilities would involve operation of general construction equipment and noise would be generated during the installation of the Project components. Construction of the Project would include crossing I-75 with the direct pipe construction method and crossing Olustee Creek using the HDD method. Most HDD activities would be limited to a single 12-hour

[14] Based on Florida's GHG emissions of 228.0 million metric tons of $CO_2$ from fossil fuel consumption for the 2017 calendar year. U.S. Energy Information Admin., *Florida Carbon Dioxide Emissions from Fossil Fuel Consumption* (2019), *available at* https://www.eia.gov/environment/emissions/state/.

[15] Based upon national net emissions of 5,742.6 million metric ton of $CO_2e$ for the 2017 calendar year. U.S. EPA, *Inventory of U.S. Greenhouse Gas Emissions and Sinks: 1990-2017* at ES-8 (2019), *available at* https://www.epa.gov/sites/production/files/2019-04/documents/us-ghg-inventory-2019-main-text.pdf.

daytime shift, however, certain HDD activities such as pull back would require limited nighttime work. Noise from HDDs and construction activities would be episodic and temporary.

Construction noise would be highly variable because the types of equipment in use at a construction site changes with the construction phase and the types of activities. Noise from construction activities may be noticeable at nearby NSAs. However, construction equipment would be operated on an as-needed basis during the short-term construction period. Further, Florida Gas would limit construction activities to occur during daytime hours, except when required for activities such as hydrostatic testing, operation of pumps at waterbody crossings, and certain HDD activities that require continuous work. FERC staff considers daytime hours to be 7:00 AM to 7:00 PM. If night time construction is required, advanced notice would be provided to the residents informing them of the planned activities and duration.

Measures to mitigate construction noise would include compliance with federal regulations limiting noise from trucks, proper maintenance of equipment, and ensuring that sound muffling devices provided by the manufacturer are kept in good working condition.

Nine NSAs were identified near the HDD sites. Predicted noise levels for HDD activities are presented in table 15.

| Table 15<br>HDD Noise Analysis | | | | | | |
|---|---|---|---|---|---|---|
| **NSA** | **Distance (feet)/ Direction** | **Site** | **Existing Ambient Ldn (dBA)** | **Estimated Construction Noise (dBA)** | **Mitigated Construction Noise Levels+ Ambient (dBA)** | **Increase in Noise Levels (dBA)** |
| 1a | 900/SW | I-75 Entry (Direct Pipe) | 59.3 | 60.1 | 62.7 | 3.4 |
| 1b | 775/SSW | I-75 Entry (Direct Pipe) | 59.3 | 60.9 | 63.2 | 3.9 |
| 1c | 1,600/NE | I-75 Entry (Direct Pipe) | 62.3 | 56.7 | 63.4 | 1.1 |
| 2a | 2,500/SW | Olustee Creek Entry (HDD) | 65.3 | 44.4 | 65.3 | 0.0 |
| 2b | 2,600/S | Olustee Creek Entry (HDD) | 56.1 | 46.9 | 56.6 | 0.5 |
| 2c | 2,000/SW | Olustee Creek Exit (HDD) | 53.7 | 51.3 | 55.7 | 2.0 |
| 2d | 1,675/SW | Olustee Creek Exit (HDD) | 53.7 | 50.8 | 55.5 | 1.8 |
| 2e | 2,400/NE | Olustee Creek Exit (HDD) | 46.4 | 38.0 | 47.0 | 0.6 |
| 2f | 2,100/NW | Olustee Creek Exit (HDD) | 49.9 | 50.2 | 53.1 | 3.2 |

Ambient sound levels at several affected NSAs are existing above 55dBA. Increases due to HDD activities would be temporary and below the threshold of perceptible increase of 3 dBA with the exception of locations 1a, 1b, and 2f, which would yield increases above 3 dBA. Location 2f would continue to present noise levels below 55 dBA. Because construction of the Project would be intermittent and mostly be limited to daytime hours, we conclude that construction noise would not have a significant impact on the environment.

*Operation*

There are no sources of operational noise associated with the Project. Based on the duration of construction and lack of operational noise, we conclude that the Project would not result in significant noise impacts on residents and the surrounding communities.

## 8.0 RELIABILITY AND SAFETY

The transportation of natural gas by pipeline involves some incremental risk to the public due to the potential for accidental release of natural gas. The greatest hazard is a fire or explosion following a major pipeline rupture.

Methane, the primary component of natural gas, is colorless, odorless, and tasteless. It is not toxic, but is classified as a simple asphyxiate, possessing a slight inhalation hazard. If breathed in high concentration, oxygen deficiency can result in serious injury or death. Methane has an auto-ignition temperature of 1,000 degrees Fahrenheit and is flammable at concentrations between 5.0 percent and 15.0 percent in air. An unconfined mixture of methane and air is not explosive, however it may ignite and burn if there is an ignition source. A flammable concentration within an enclosed space in the presence of an ignition source can explode. It is buoyant at atmospheric temperatures and disperses rapidly in air.

### 8.1 Safety Standards

The DOT is mandated to prescribe minimum safety standards to protect against risks posed by pipeline facilities under Title 49, U.S.C. Chapter 601. The DOT's Pipeline and Hazardous Materials Safety Administration (PHMSA) 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. PHMSA's safety mission is to ensure 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.

Title 49, U.S.C. Chapter 601 provides for a state agency to assume all aspects of the safety program for intrastate facilities by adopting and enforcing the federal standards. A state may also act as DOT's agent to inspect interstate facilities within its boundaries; however, the DOT is responsible for enforcement actions.

The DOT pipeline standards are published in Parts 190-199 of Title 49 of the CFR. Part 192 specifically addresses natural gas pipeline safety issues.

The USDOT 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 would 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. Alternatively, an applicant must certify that it has been granted a waiver of the requirements of the safety standards by the USDOT in accordance with Section 3(e) of the Natural Gas Pipeline Safety Act. Under a Memorandum of Understanding on Natural Gas Transportation Facilities (Memorandum) dated January 15, 1993, between the USDOT and the FERC, the FERC accepts this certification and does not impose additional safety standards. If the Commission 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 if proposed safety regulations are reasonable, feasible, and practicable.

The pipeline and aboveground facilities associated with the Putnam Expansion Project must be designed, constructed, operated, and maintained in accordance with the DOT Minimum Federal Safety Standards in 49 CFR 192. The regulations are intended to ensure adequate protection for the public and to prevent natural gas facility accidents and failures. The DOT specifies material selection and qualification; minimum design requirements; and protection from internal, external, and atmospheric corrosion.

The DOT 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 below:

| | |
|---|---|
| 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 aboveground are prevalent. |

Class locations representing more populated areas require higher safety factors in pipeline design, testing, and operation. For instance, 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 (*e.g.*, 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 (MAOP); inspection and testing of welds; and frequency of pipeline patrols and leak surveys must also conform to higher standards in more populated areas. Preliminary class locations for the Project have been developed based on the relationship of the pipeline centerline to other nearby structures and manmade features.

**Table 16**
**Pipeline Classification Specifications Along the West and East Loops of the Putnam Expansion Project**

| Pipeline Loop | Milepost | Class |
|---|---|---|
| West Loop | 0.0 | 2 |
| | 1.0 | 1 |
| | 2.3 | 2 |
| | 2.6 | 1 |
| | 3.9 | 2 |
| | 4.3 | 1 |
| | 7.9 | 2 |
| | 8.5 | 1 |
| | 13.7 | 1 |
| East Loop | 0.0 | 1 |
| | 0.2 | 2 |
| | 0.8 | 1 |
| | 1.4 | 2 |
| | 1.6 | 3 |
| | 1.8 | 2 |
| | 2.1 | 1 |
| | 7.0 | 1 |

If a subsequent increase in population density adjacent to the right-of-way results in a change in class location for the pipeline, Florida Gas would reduce the MAOP or replace the segment with pipe of sufficient grade and wall thickness, if required to comply with the DOT requirements for the new class location.

The US DOT Pipeline Safety Regulations require operators to develop and follow a written integrity management program that contain all the elements described in 49 CFR 192.911 and address the risks on each transmission pipeline segment. The rule establishes an integrity management program which applies to all high consequence areas (HCA).

*High Consequence Areas*

The DOT has published rules that define 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 for DOT 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[16] is greater than 660 feet and there are 20 or more buildings intended for human occupancy within the potential impact circle[17], or
- any area in Class 1 or 2 where the potential impact circle includes an identified site.

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.

In the second method, an HCA includes any area within a potential impact circle which 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 section 192.911. There are no HCAs located near the Project.

A comment was received from Jacqueline Bowles concerning pipeline vibration and rupture risks. Florida Gas filed supplemental information stating that it met with the landowner concerning the proposed project on October 16, 2018 and were informed of the vibration concern. Florida Gas followed up with the field operations personnel to determine if any activities had been performed that would have led to pipeline shaking, none were identified. Survey crews were notified to be aware of the concern and to document any instance of vibration on or near the property. Florida Gas contacted other landowners equidistant from the pipeline and received no complaints or indication of a vibration event. Florida Gas asked the landowner to document any noise and vibration phenomena and to contact Florida Gas if the issue occurred again. Florida Gas has received no further complaints about rumbling or vibration on the tract from the landowner.

[16] The potential impact radius is calculated as the product of 0.69 and the square root of: the MAOP of the pipeline in psig multiplied by the square of the pipeline diameter in inches.

[17] The potential impact circle is a circle of radius equal to the potential impact radius.

Florida Gas reports that it has initiated a Sound Level Study with SLR International Corporation for a sound survey of the pipelines in the easement on the Ms. Bowles property, and will file the results of the Sound Level Study as soon as available. Based on the information currently available, a definitive cause for Ms. Bowles complaints has not been determined. However, we conclude that Florida Gas is taking appropriate steps to investigate that matter.

As discussed above, the Project facilities must be designed, constructed, operated, and maintained in accordance with the DOT Minimum Federal Safety Standards in 49 CFR 192 that are designed to minimize the risks of such impacts. The DOT specifies material selection and qualification; minimum design requirements; and protection from internal, external, and atmospheric corrosion. The requirements include provisions for written emergency plans and emergency shutdowns. Florida Gas would provide the appropriate training to local emergency service personnel before the facilities are placed into service.

The DOT prescribes the minimum standards for operating and maintaining pipeline facilities, including the requirement to establish a written plan governing these activities. Each pipeline operator is required to establish an emergency plan that includes procedures to minimize the hazards of 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 system shutdown and safe restoration of service;
- making personnel, equipment, tools, and materials available at the scene of an emergency; and
- protecting people first and then property, and making them safe from actual or potential hazards.

The DOT requires that each operator 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 must also establish a continuing education program to enable customers, the public, government officials, and those engaged in excavation activities to recognize a gas pipeline emergency and report it to appropriate public officials. Florida Gas would provide the appropriate training to local emergency service personnel before the pipeline is placed in service.

On October 1, 2019 the PHMSA issued new regulations modifying and expanding the standard pipeline safety standards under 49 CFR Parts 191 and 192. These regulations, in part, established: new standards for in-line inspections; requirements for newly established moderate consequence areas (MCA); explicitly requires consideration of seismicity and geotechnical risks in its integrity management plan for the pipeline; new regulations on pipeline patrol frequency for HCAs, MCAs and grandfathered pipelines; a policy to reconfirm maximum allowable operating pressure (MAOP) for certain pipelines; installation of pressure relief for pig launcher/receivers, and report exceedances of MAOP to PHMSA. These regulations go into effect on July 1, 2020.

## 8.2 Pipeline Accident Data

The DOT requires all operators of natural gas transmission pipelines to notify the DOT of any significant incident and to submit a report within 30 days. Significant incidents are defined as any leaks that:

- caused a death or personal injury requiring hospitalization; or
- involve property damage of more than $50,000 (1984 dollars)[18].

During the 20 year period from 1999 through 2018, a total of 1,373 significant incidents were reported on the more than 300,000 total miles of natural gas transmission pipelines nationwide.

Additional insight into the nature of service incidents may be found by examining the primary factors that caused the failures. Table 17 provides a distribution of the causal factors as well as the number of each incident by cause. The dominant causes of pipeline incidents are corrosion and pipeline material, weld or equipment failure constituting 53.2 percent of all significant incidents. The pipelines included in the data set in table 17 vary widely in terms of age, diameter, and level of corrosion control. Each variable influences the incident frequency that may be expected for a specific segment of pipeline. The frequency of significant incidents is strongly dependent on pipeline age. Older pipelines have a higher frequency of corrosion incidents and material failure, because corrosion and pipeline stress/strain is a time-dependent process.

**Table 17**
**Natural Gas Transmission Pipeline Significant Incidents by Cause (1999-2018)[a]**

| Cause | Number of Incidents | Percentage |
|---|---|---|
| Pipeline material, weld, or equipment failure | 413 | 30.1 |
| Corrosion | 317 | 23.1 |
| Excavation | 195 | 14.2 |
| All other causes [b] | 142 | 10.3 |
| Natural forces [c] | 156 | 11.4 |
| Outside force [d] | 95 | 6.9 |
| Incorrect operation | 55 | 4.0 |
| **Total** | **1,310** | **100** |

a All data gathered from PHMSA's Oracle BI Interactive Dashboard website for Significant Transmission Pipeline Incidents, https://hip.phmsa.dot.gov/analyticsSOAP/saw.dll?Portalpages&NQUser=PDM_WEB_USER&NQPassword=Public_Web_User1&PortalPath=%2Fshared%2FPDM%20Public%20Website%2F_portal%2FSC%20Incident%20Trend&Page=Significant&Action=Navigate&col1=%22PHP%20-%20Geo%20Location%22.%22State%20Name%22&val1=%22%22

b All other causes include miscellaneous, unspecified, or unknown causes.

c Natural force damage includes earth movement, heavy rain, floods, landslides, mudslides, lightning, temperature, high winds, and other natural force damage.

d Outside force damage includes previous mechanical damage, electrical arcing, static electricity, fire/explosion, fishing/maritime activity, intentional damage, and vehicle damage (not associated with excavation).

[18] $50,000 in 1984 dollars is approximately $112,955.73 as of May 2015 (CPI, Bureau of Labor Statistics, 2015)

The use of both an external protective coating and a cathodic protection system[19], required on all pipelines installed after July 1971, significantly reduces the corrosion rate compared to unprotected or partially protected pipe.

Outside force, excavation, and natural forces are the cause in 33.5 percent of significant pipeline incidents. These 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 18 provides a breakdown of external force incidents by cause.

**Table 18**
**Excavation, Natural Forces, and Outside Force Incidents by Cause (1996-2015) [a]**

| Cause | Number of Excavation, Natural Forces, and Outside Force Incidents | Percentage of All Incidents [b,c] |
|---|---|---|
| Third party excavation damage | 172 | 13.1 |
| Heavy rain, floods, mudslides, landslides | 74 | 5.7 |
| Vehicle (not engaged with excavation) | 49 | 3.7 |
| Earth movement, earthquakes, subsidence | 32 | 2.4 |
| Lightning, temperature, high winds | 27 | 2.1 |
| Operator/contractor excavation damage | 25 | 1.9 |
| Unspecified excavation damage/previous damage | 13 | 1.0 |
| Other or unspecified natural forces | 13 | 1.0 |
| Fire/explosion | 9 | 0.7 |
| Fishing or maritime activity | 9 | 0.7 |
| Other outside force | 9 | 0.7 |
| Previous mechanical damage | 6 | 0.5 |
| Electrical arcing from other equipment/facility | 1 | 0.1 |
| Intentional damage | 1 | 0.1 |
| Total | 440 | 33.5 |

a All data gathered from PHMSA's Oracle BI Interactive Dashboard website for Significant Transmission Pipeline Incidents, https://hip.phmsa.dot.gov/analyticsSOAP/saw.dll?Portalpages&NQUser=PDM_WEB_USER&NQPassword=Public_Web_User1&PortalPath=%2Fshared%2FPDM%20Public%20Website%2F_portal%2FSC%20Incident%20Trend&Page=Significant&Action=Navigate&col1=%22PHP%20-%20Geo%20Location%22.%22State%20Name%22&val1=%22%22 (DOT, 2016a). Accessed on 2/17/2016.
b Percentage of all incidents was calculated as a percentage of the total number of incidents natural gas transmission pipeline significant incidents (i.e., all causes) presented in table 4.12.3-1
c Due to rounding, column does not equal 33.6 percent.

[19] Cathodic protection is a technique to reduce corrosion (rust) of the natural gas pipeline through the use of an induced current or a sacrificial anode (like zinc) that corrodes at faster rate to reduce corrosion.

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 movement.

Since 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 on the underground location of pipes, cables, and culverts.

The available data from PHMSA show that natural gas transmission pipelines continue to be a safe, reliable means of energy transportation. The construction and operation of the modified facilities would represent a minimum increase in risk to the nearby public and we are confident that with implementation of the required design criteria for the design of these facilities, that they would be constructed and operated safely.

*Polychlorinated Biphenyls*

When any existing station piping or pipeline is cut, the contractor would follow the EPA issued Polychlorinated Biphenyls (PCB) rules and regulations contained in 40 Code of Federal Regulations Part 761. Florida Gas was not one of the thirteen pipelines that the EPA considered to be presumed PCB-contaminated prior to the issue of the PCB Mega-Rule. The liquids in Florida Gas's system have been documented as PCB-free. The new pipeline loops would not contain PCBs. Based on this, we conclude that PCB's are not expected on any portion of the Project facilities.

## 9.0 CUMULATIVE IMPACTS

In accordance with NEPA and with FERC policy, we identified other actions in the vicinity of the proposed Project facilities and evaluated the potential for a cumulative impact on the environment. As defined by the Council on Environmental Quality (CEQ), a cumulative effect is the impact on the environment that results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regardless of the agency or party undertaking such other actions. Cumulative impacts can result from individually minor, but collectively significant actions, taking place over time. The CEQ guidance states that an adequate cumulative effects analysis may be conducted by focusing on the current aggregate effects of past actions without delving into the historical details of individual past actions.

In this analysis, we consider the impacts of past projects within defined geographic scopes as part of the affected environment (environmental baseline) which were described and evaluated in the preceding environmental analysis. However, present effects of past actions that are relevant and useful are also considered. Our cumulative effects analysis focuses on potential impacts from the proposed project on resource areas or issues where the incremental contribution could result in cumulative impacts when added to the potential impacts of other actions. To avoid unnecessary discussions of insignificant impacts and projects and to adequately address and accomplish the

purposes of this analysis, an action must first meet the following three criteria to be included in the cumulative analysis:

- affects a resource also potentially affected by the Project;
- causes this impact within all, or part of, the Project area defined by the resource-specific geographic scope; and
- causes this impact within all, or part of, the time span of the Project's estimated impacts.

As described in section B of this EA, constructing and operating the Project would temporarily and permanently affect the environment. However, with the exceptions noted below, we concluded that most of the Project-related impacts would be contained within or adjacent to the temporary construction workspaces, existing pipeline and roadway corridors, or utility easements. Based on this, along with the proposed minimization and mitigation measures described in Florida Gas's construction procedures, we have concluded that most of the Project impacts would be limited to workspaces and adjacent areas.

Resources that could be affected outside the immediate Project area and are subject to our cumulative impacts review include groundwater, surface water, wildlife, wetlands, vegetation, noise, and air quality. However, for some resources, the contribution to regional cumulative impacts is lessened by the expected recovery of ecosystem function. For example, erosion control measures included in FERC's Plan would keep disturbed soils within the work areas and would therefore not contribute to cumulative impacts on soil or geological resources. Additionally, we determined that there would be no significant noise impacts during construction of the Project and there are no projects identified near the Project site that would be constructed during the Project construction timeline, and once completed, the Project would not be a source of operational noise levels. Based on the location and nature of construction activities, there would be no impact to visual resources as all modifications are either below ground or within existing facility viewshed. Furthermore, no cultural resources were identified within the modified footprint. As there are no new sources of emissions proposed for the Project, there would be no operational emissions. Because the Project would have no or only minimal, localized, and/or temporary impacts impact on these resources, cumulative impacts have not been assessed further for geology and soils, cultural resources, visual impacts, operational and construction noise for the Project, and operational air emissions.

Based on the impacts of the Project as identified and described in this EA and consistent with CEQ guidance, we have determined that the resource-specific geographic scope described below are appropriate to assess cumulative impacts.

- impacts on groundwater, surface water, wetlands, vegetation and wildlife were assessed within the watershed boundary [Hydrologic Unit Code (HUC) 12];
- impacts on air quality, including fugitive dust, would be largely limited to areas immediately around active construction. We searched for other projects and actions that overlap in time and are located within 0.25 mile of construction activities; and
- impacts to land use within 1 mile of the Project.

The actions considered in our cumulative impact analysis may vary from the Project in nature, magnitude, and duration. These actions are included based on the likelihood of their impacts coinciding with the Project, meaning the other actions have current or ongoing impacts or are "reasonably foreseeable." The actions we considered are those that could affect similar resources during the same timeframe as the Project. Multiple projects were identified as possible contributors to cumulative impacts in the area, these are listed in appendix G. Most projects are upgrades and additions to existing facilities such as the Grandin Sand Mine Expansion, Florida Gas's Jacksonville Expansion Project, FDOT roadway expansion, and minor site development projects such as private docks and stormwater management system improvements. The anticipated cumulative impacts of the Project and these other actions are discussed below.

*Groundwater*

Construction of Project facilities would result in minor impacts on groundwater infiltration due to vegetation clearing. No large groundwater withdrawals are proposed as part of the Project. Therefore, cumulative impacts on groundwater would be limited to the construction of other projects overlapping construction workspace. The constructed Jacksonville Expansion Project overlaps with the proposed construction footprint for the Project, but it was completed prior to the proposed construction timeline for the Project. The FDOT projects are still in the planning and development phase, with timeframes extending years before the start of construction. For FDOT projects to result in a cumulative impact on groundwater, construction would have to overlap or occur within days of the proposed schedule of the Project. If this occurs, the impacts would be temporary and minor. We also conclude that through adherence to the FERC Plan, Florida Gas would prevent impacts from spills of fuels or other hazardous materials and the opportunity for cumulative impacts if other projects also result in spills. Additionally, the other projects identified would be required to adhere to permitting requirements of the regulating agencies that have jurisdiction over those projects. For these reasons, we conclude that any cumulative impact on groundwater would be negligible.

*Surface Water and Wetlands*

For the analysis of cumulative impacts on waterbodies and wetlands, we identified projects occurring within the HUC-12 watersheds crossed by the Project. Other projects identified within the geographic scope (HUC-12) that are known or likely to impact waterbodies or wetlands to some extent include Coral Farms Solar Energy Center, multiple minor site developments, Grandin Sand Mine Expansion, Highway 100 Widening and Reconstruction, Jacksonville Expansion Project, Oak Meadow Well Houses, Old Wire Road, SeaCoast Palatka Lateral Pipeline, Putnam Burrow Area, SeaCoast Interconnect, and Silver Bait Peat Mine.

The Project would cross a total of 8 waterbodies, four of which would be crossed by either HDD or bore. The remaining four waterbodies are minor crossings which would be completed within 24 hours. We were unable to find quantitative data for the extent of impacts on water resources from the projects listed in appendix G, but we assume that some level of impacts would occur. However, all projects would be required to obtain permits for erosion and sediment control and water use and discharge and would implement their various erosion control plans as mandated by permit requirements. Therefore, cumulative impacts on waterbodies would be temporary and mostly limited to construction activities associated with the projects.

Construction impacts on wetlands range from short-term to permanent depending on the type of wetlands impacted and the type of facility being constructed. Emergent wetlands would revert back to similar preconstruction community and functionality within about 1 to 3 years. Permanent impacts on forested wetlands would occur due to conversion to a different type of wetland; however, these wetlands would retain hydrologic function as a wetland. Three of the other projects identified in the same HUC-12 watershed as the Project are known to impact wetlands. The Grandin Sand Mine Expansion would permanently impact about 49 acres of wetlands. The SeaCoast Palatka Pipeline Lateral would temporarily impact about 30 acres of wetland (of which about 5 acres would result in permanent conversion to another land use type). Finally, the Silver Bait Peat Mine would permanently impact 111 acres of wetlands. Of the approximate 6 acres of wetlands that would be affected by construction of the Project, less than one acre forested wetland would be converted to palustrine emergent wetland. Florida Gas would implement the Procedures to minimize the temporary and permanent impacts on wetlands disturbed by the Project. For other projects, we anticipate that similar erosion control measures and mitigation would occur in accordance with local or state permitting authorities. Based on the minimal amount of wetland impact overall in the context of existing wetlands in the area and the requirement for mitigation for impacts, we conclude that the temporary impact and limited permanent impact on wetlands from the Project would be cumulatively minor when considered in the context of other projects' wetland impacts. Therefore, we conclude that the Project would not contribute to adverse cumulative impacts on wetland resources.

*Vegetation and Wildlife*

We also used the HUC-12 watershed as the geographic scope for impacts on vegetation and wildlife. The construction activities associated with removal of vegetation and the potential for the establishment of invasive plant species occurring during the same timeframe and area can result in cumulative impacts. Changes in the vegetation can impact wildlife habitat and cause other secondary effects such as forest fragmentation.

The facilities associated with the Project involve construction adjacent to existing pipeline facilities, which minimizes the effects of vegetation clearing, particularly forest clearing and fragmentation. Similarly, the other projects identified in the geographic scope would be required to implement mitigation measures to minimize the potential for erosion, revegetate temporarily disturbed areas, and control the spread of noxious weeds. If federal or state-listed threatened and endangered species might be affected, these impacts would be addressed in permits or clearances issued for each project and appropriate mitigation to minimize these impacts would be implemented as needed. Given the minor, temporary impacts on vegetation and wildlife from the Project, we conclude that the Project would not contribute significant cumulative impacts on vegetation or wildlife.

*Land Use*

Impacts on land use would be confined to the construction workspaces and surrounding areas. Land use impacts are negligible as all impacts for CS 18 would occur on paved, industrial, or previously used areas. East and West Loops would be within or collocated with existing Florida Gas owned facilities and situated belowground. For properties along the Project that would have multiple pipelines crossing, the primary impact from the Project would be restriction on building overtop the easement. Additionally, Florida Gas would coordinate construction to minimize the

total time a tract of land is disturbed. The new Union and Putnam Receiver Stations would be located within view of residential areas, but they are on existing Florida Gas property and shielded by trees from the nearest residents. Other projects identified in the project area are located within currently developed areas.

The Project would not result in a significant change in the physical characteristics of the existing environment, therefore, we conclude that there would not be cumulative impacts to land use due to the Project.

*Air Quality - Construction*

Multiple projects were identified within the vicinity of the Project with the potential contribute to cumulative impacts to air quality during construction. Construction of these projects would involve the use of heavy equipment that would generate emissions of air pollutants and fugitive dust. Fugitive dust emissions would settle quickly and dust suppression measures would be implemented at the Project site as necessary to ensure the Project-related effects from fugitive dust are intermittent and temporary and would occur within or very near the construction area. The potential cumulative impacts from the Project and recently completed, current, and reasonably foreseeable projects in the vicinity would be temporary and minor. Due to the timing of construction, minimization of fugitive dust as a result of the dust suppression measures, and the highly localized nature of construction emissions, there would be no significant cumulative impacts on air quality during construction.

*Conclusion*

The cumulative impacts review as part of the NEPA process evaluates the incremental effects of a proposed project and multiple similar projects in the same region at the same time, or in a similar timeframe, to determine whether the additive effect of those projects would result in significant impacts to the regional environment. As discussed previously, the Project and other projects in the area would have or have had minimal cumulative impacts because the other projects are predominately outside the cumulative impact area and those projects in the area are likely to occur in areas that are already developed. As a result, no significant cumulative impacts are anticipated when combining the Project with other identified projects.

Additionally, we identified planned activities in the Project area that met the criteria for inclusion in the cumulative impact analysis. Implementation of BMPs and proposed mitigation plans would minimize environmental impacts and when the impacts of the Project are added to the impacts from the other identified projects, the cumulative impacts would be minimal. We conclude that impacts would be temporary in nature and no significant cumulative impacts would be incurred from the Project.

## C. ALTERNATIVES

In accordance with NEPA and Commission policy, we considered and evaluated alternatives to the proposed action, including the no-action alternative and system alternatives. These alternatives were evaluated using a specific set of criteria. The evaluation criteria applied to each alternative include a determination whether the alternative:

- meets the objective of the proposed project;
- is technically and economically feasible and practical; and
- offers a significant environmental advantage over the proposed project.

Through environmental comparison and application of our professional judgment, each alternative is considered to a point where it becomes clear if the alternative could or could not meet the three evaluation criteria. To ensure a consistent environmental comparison and to normalize the comparison factors, we generally use desktop sources of information (e.g., publicly available data, geographic information system data, aerial imagery) and assume the same general workspace requirements. Where appropriate, we also use site-specific information (e.g., field surveys or detailed designs). Our environmental analysis and this evaluation consider quantitative data (e.g., acreage) and uses common comparative factors such as total length, amount of collocation, and land requirements.

The alternatives were reviewed against the evaluation criteria in the sequence presented above. The first consideration for including an alternative in our analysis is whether or not it could satisfy the stated purpose of the project. An alternative that cannot achieve the purpose for the project cannot be considered as an acceptable replacement for the project. Many alternatives are technically and economically feasible. Technically practical alternatives, with exceptions, would generally require the use of common construction methods. An alternative that would require the use of a new, unique or experimental construction method may not be technically practical because the required technology is not available or is unproven. Economically practical alternatives would result in an action that generally maintains the price competitive nature of the proposed action. Generally, we do not consider the cost of an alternative as a critical factor unless the added cost to design, permit, and construct the alternative would render a project economically impractical.

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

One of the goals of an alternatives analysis is to identify alternatives that avoid significant impacts. In section B, we evaluated each environmental resource potentially affected by the Project and concluded that constructing and operating the Project would not significantly impact these resources. Consistent with our conclusions, the value gained by further reducing the (not

significant) impacts of the Project when considered against the cost of relocating the facilities to a new set of landowners was also factored into our evaluation.

*No Action Alternative*

The no-action alternative would consist of not constructing the Project and continuing with the facilities as-is. If the proposed facilities are not constructed, the impacts identified would be avoided. The no action alternative does not meet the purpose and need of the Project to provide necessary natural gas capacity to meet existing customer demand in Florida.

If the purpose and need of the Project is not met under the no-action alternative, other projects and activities would be needed to meet the market energy needs and these projects could result in their own environmental impacts that could be equal to or greater than the proposed action and might not meet the Project's objectives. Therefore, we do not recommend the no-action

*System Alternatives*

The purpose of identifying and evaluating system alternatives is to determine whether the environmental impacts associated with the construction and operation of the Project could be avoided or reduced by using existing, modified, or other proposed facilities rather than constructing new facilities. System alternatives are alternatives that are able to meet the objectives of the Project, but use a different facility (existing or proposed), or are able to otherwise use existing infrastructure to eliminate the need for the proposed facility. However, a viable system alternative must be technically and economically feasible and practicable and must satisfy interconnect requirements and the anticipated in-service date to fulfill commitments made to the Project customers.

*Modifications to Other Pipeline Systems*

No pipeline systems were identified for modification that have the ability to provide the incremental supply that is to be provided under the Project without the construction of additional facilities, which would create greater environmental impacts. Therefore, we do not recommend the use of any other existing systems.

Locations of the proposed facilities were chosen to produce minimum environmental impacts. The modifications are limited to modifications to the existing facilities, to be constructed within the existing fence lines or co-located to the extent possible with existing utility and Florida Gas property. Alternatives identified would not fulfill the purpose and need of the project and would result in greater environmental impacts than anticipated by the Project. In summary, we have determined that Florida Gas's proposed Project would be the preferred alternative that can meet the Project objectives.

## D. CONCLUSIONS AND RECOMMENDATIONS

Based on the analysis in this EA, we have determined that if Florida Gas constructs and operates the proposed facilities in accordance with its application and supplements, approval of this proposal would not constitute a major federal action significantly affecting the quality of the human environment. We recommend that the Commission's Order contain a finding of no significant impact and include the mitigation measures listed below as conditions to any Certificate the Commission may issue.

1. Florida Gas shall follow the construction procedures and mitigation measures described in its application and supplements (including responses to staff data requests) and as identified in the EA, unless modified by the Order. Florida 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 the Office of Energy Projects (OEP) **before using that modification.**

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

    a. the modification of conditions of the Order;

    b. stop-work authority; and

    c. the imposition of any additional measures deemed necessary to ensure continued compliance with the intent of the conditions of the Order as well as the avoidance or mitigation of unforeseen adverse environmental impact resulting from project construction and operation.

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

4. The authorized facility locations shall be as shown in the EA, as supplemented by filed Project figures. **As soon as they are available, and before the start of construction**, Florida Gas shall file with the Secretary any revised detailed survey alignment maps/figures at a scale not smaller than 1:6,000 with station positions for all facilities

approved by the Order. All requests for modifications of environmental conditions of the Order or site-specific clearances must be written and must reference locations designated on these Project figures.

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

5. Florida 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, 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/figures/aerial photographs. Each area must be approved in writing by the Director of OEP **before construction in or near that area**.

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

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

   a. implementation of cultural resources mitigation measures;

   b. implementation of endangered, threatened, or special concern species mitigation measures;

   c. recommendations by state regulatory authorities; and

   d. agreements with individual landowners that affect other landowners or could affect sensitive environmental areas.

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

a. how Florida Gas will implement the construction procedures and mitigation measures described in its application and supplements (including responses to staff data requests), identified in the EA, and required by the Order;

b. how Florida 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 onsite construction and inspection personnel;

c. the number of EIs assigned, and how the company will ensure that sufficient personnel are available to implement the environmental mitigation;

d. company personnel, including EIs and contractors, who will receive copies of the appropriate material;

e. the location and dates of the environmental compliance training and instructions Florida Gas will give to all personnel involved with construction and restoration (initial and refresher training as the project progresses and personnel change);

f. the company personnel (if known) and specific portion of Florida Gas's organization having responsibility for compliance;

g. the procedures (including use of contract penalties) Florida Gas will follow if noncompliance occurs; and

h. for each discrete facility, a Gantt or PERT chart (or similar project scheduling diagram), and dates for:

i. the completion of all required surveys and reports;

ii. the environmental compliance training of onsite personnel;

iii. the start of construction; and

iv. the start and completion of restoration.

7. Florida Gas shall employ at least one EI for the project. The EI shall be:

a. responsible for monitoring and ensuring compliance with all mitigation measures required by the Order and other grants, permits, certificates, or other authorizing documents;

b. responsible for evaluating the construction contractor's implementation of the environmental mitigation measures required in the contract (see condition 6 above) and any other authorizing document;

c. empowered to order correction of acts that violate the environmental conditions of the Order, and any other authorizing document;

d. a full-time position, separate from all other activity inspectors;

e. responsible for documenting compliance with the environmental conditions of the Order, as well as any environmental conditions/permit requirements imposed by other federal, state, or local agencies; and

f. responsible for maintaining status reports.

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

a. an update on Florida Gas's efforts to obtain the necessary federal authorizations;

b. the construction status of the project, work planned for the following reporting period and any scheduled changes for stream crossings or work in other environmentally-sensitive areas;

c. a listing of all problems encountered and each instance of noncompliance observed by the EI during the reporting period (both for the conditions imposed by the Commission and any environmental conditions/permit requirements imposed by other federal, state, or local agencies);

d. a description of the corrective actions implemented in response to all instances of noncompliance;

e. the effectiveness of all corrective actions implemented;

f. a description of any landowner/resident complaints which may relate to compliance with the requirements of the Order, and the measures taken to satisfy their concerns; and

g. copies of any correspondence received by Florida Gas from other federal, state, or local permitting agencies concerning instances of noncompliance, and Florida Gas's response.

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

10. Florida Gas must receive written authorization from the Director of OEP **before placing the pipeline loops and modified facilities into service**. Such authorization will only be granted following a determination that rehabilitation and restoration of the right-of-way and other areas affected by the Project are proceeding satisfactorily.

11. **Within 30 days of placing the authorized facilities in service**, Florida 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 conditions in the Order Florida 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.

12. Florida Gas shall file with the Secretary, **for review and written approval** by the Director of OEP, a revised HDD Contingency Plan removing the following unapproved HDD fluid additives: Lubra-Star Plus and DMD Clay Star HDD fluid additives.

13. Florida Gas shall **not begin** construction of facilities and/or use of staging, storage, or temporary work areas and new or to-be-improved access roads **until:**

    a) Florida Gas files with the Secretary the final cultural resources report for the Project;

    b) Florida Gas files with the Secretary comments on the cultural resources reports and plans from the Florida State Historic Preservation Office;

    c) the Advisory Council on Historic Preservation is afforded an opportunity to comment if historic properties would be adversely affected; and

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

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

14. **Prior to construction of the West Loop**, Florida Gas shall file with the Secretary, for review and written approval by the Director of OEP, evidence of landowner concurrence with the site-specific construction plan for the property at MP 8.77 or file a revised site-specific construction plan that maintains a 10 foot buffer between the residence and the temporary workspace.

## REFERENCES


Brown and Caldwell. November 14, 2019. Technical Memorandum, Florida Gas Karst Geological Analysis. Prepared for GeoEngineers, Inc.

FDOT. 2019. 5-Year Work Program (2019-2023). Available online at: https://fdotewp1.dot.state.fl.us/fmsupportapps/WorkProgram/WorkProgram.aspx. Accessed January 2019.

Federal Energy Regulatory Commission (FERC). 2016. Jacksonville Expansion Project – Environmental Assessment (Docket No. CP15-144-000). Available online at: https://www.ferc.gov/industries/gas/enviro/eis/2016/CP15-144-000-EA.pdf. Accessed January 2019.

FERC. 2019a. Major Pipeline Projects Pending (Onshore). Available online at: https://www.ferc.gov/industries/gas/indus-act/pipelines/pending-projects.asp. Accessed April 2019.

FERC. 2019b. Approved Major Pipeline Projects (2009-Present). Available online at: https://www.ferc.gov/industries/gas/indus-act/pipelines/approved-projects.asp. Accessed April 2019.

Florida Department of Environmental Protection (FDEP). 2019. Map Direct. Available online at: https://ca.dep.state.fl.us/mapdirect/. Accessed April 2019.

Florida Department of Transportation (FDOT). 2015. Programmatic Agreement for Categorical Exclusions Between FHWA and FDOT. Available online at: https://fdotwww.blob.core.windows.net/sitefinity/docs/default-source/environment/pubs/fhwa-fdotpce-agreement-executed_on-10-30-2015.pdf?sfvrsn=9ce32bb6_0. Accessed January 2019.

Florida Power and Light (FPL). 2018. Ten Year Power Plant Site Plan 2018 – 2027. Available online at: https://www.fpl.com/company/pdf/10-year-site-plan.pdf. Accessed January 2019.

FPL. 2019a. FPL Coral Farms Solar Energy Center. Available online at: https://www.fpl.com/cleanenergy/solar/energy-centers/coral-farms.html. Accessed January 2019.

FPL. 2019b. Partners for a Brighter Future. Available online at: https://www.fpl.com/cleanenergy/pdf/coral-farms-fact.pdf . Accessed January 2019.

Hilton, Jacob, Michael Quennoz and Jim Hughey Florida Gas Putnam Expansion Survey in Columbia, Union, Clay, and Putnam Counties, Florida. Prepared by Gray & Pape for Florida Gulf Transmission. June 14, 2019.

Scott, T.M., 1983. The Hawthorn Formation of Northeastern Florida. Florida Geological Survey Report of Investigation No. 94.

Seminole Electric Cooperative. *Seminole 10-Year Site Plan*. Apr. 2019, www.psc.state.fl.us/Files/PDF/Utilities/Electricgas/TenYearSitePlans/2019/Seminole%20Electric%20Cooperative.pdf.

United States Army Corps of Engineers (USACE). 2019. Public Notices. Available online at: https://www.saj.usace.army.mil/Missions/Regulatory/Public-Notices/ . Accessed April 2019.

United States Geological Survey. Land Subsidence in the United States. "Sinkholes." Accessed November 8, 2019. https://www.usgs.gov/special-topic/water-science-school/science/sinkholes?qt-science_center_objects=0#qt-science_center_objects.

Universal Pegasus International. 2019. "Pipeline Span Calculation." UPI Doc. Number: 24468-24343-506-CAL-00003. August 7, 2019.

Upchurch S.B., 2007. An Introduction to the Cody Escarpment, North-Central Florida. Suwannee River Water Management District, 2007.

White, W.A., 1970, The Geomorphology of the Florida Peninsula: Florida Bureau of Geology, Bulletin no. 51.

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# Appendix A
# Project Maps

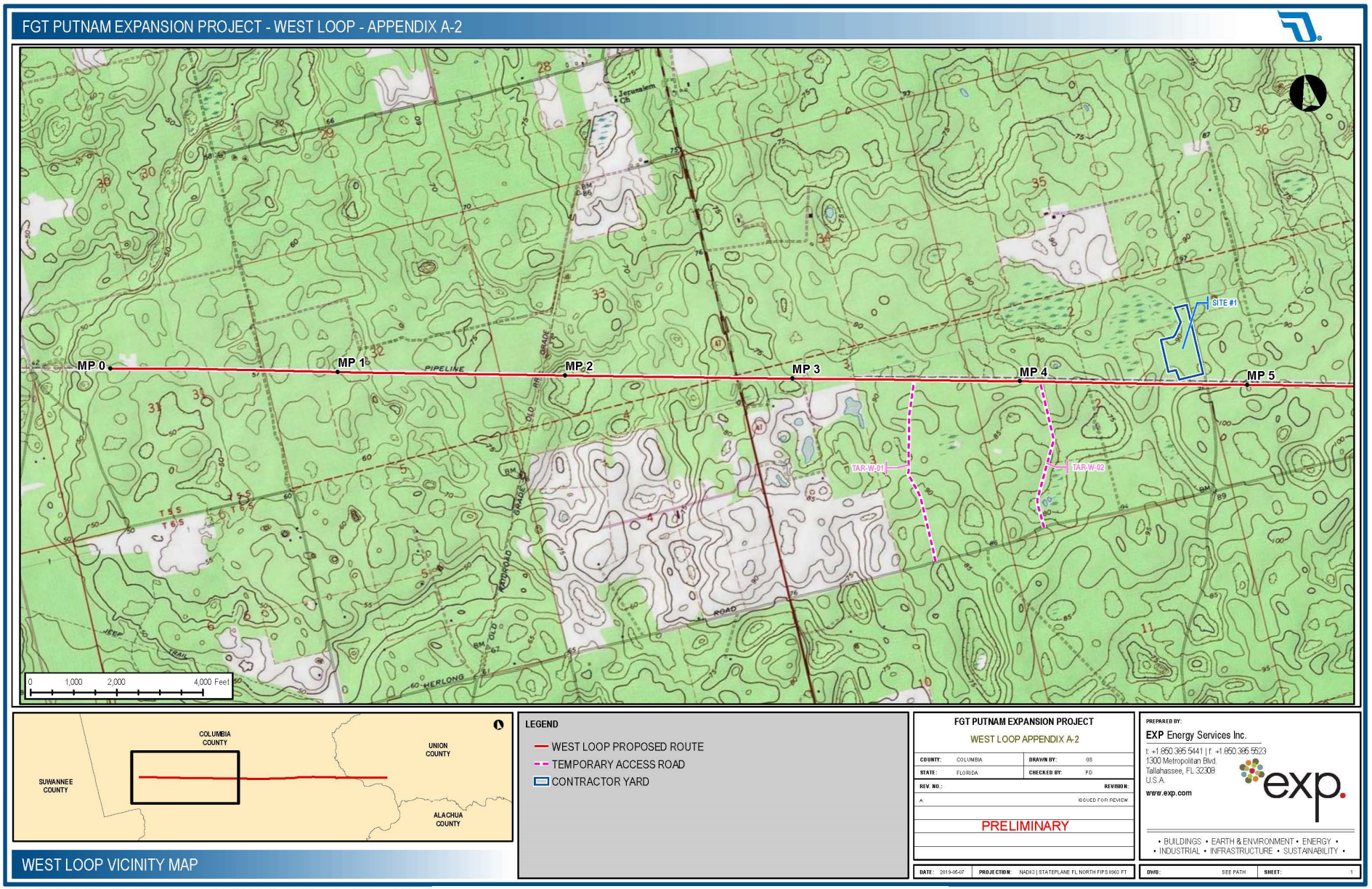


**Figure 2**
**Alignment**

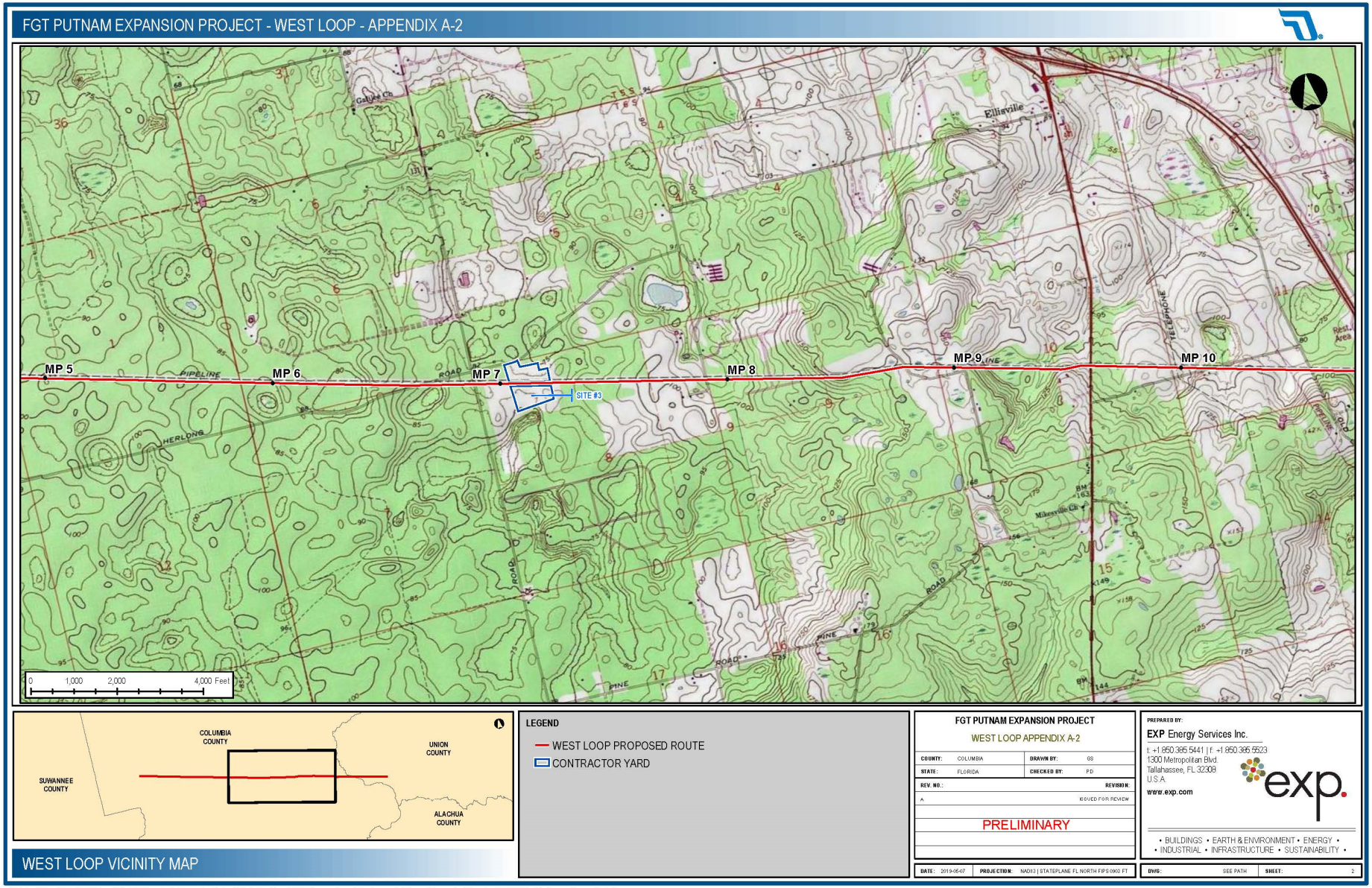


**Figure 3**
**Alignment**

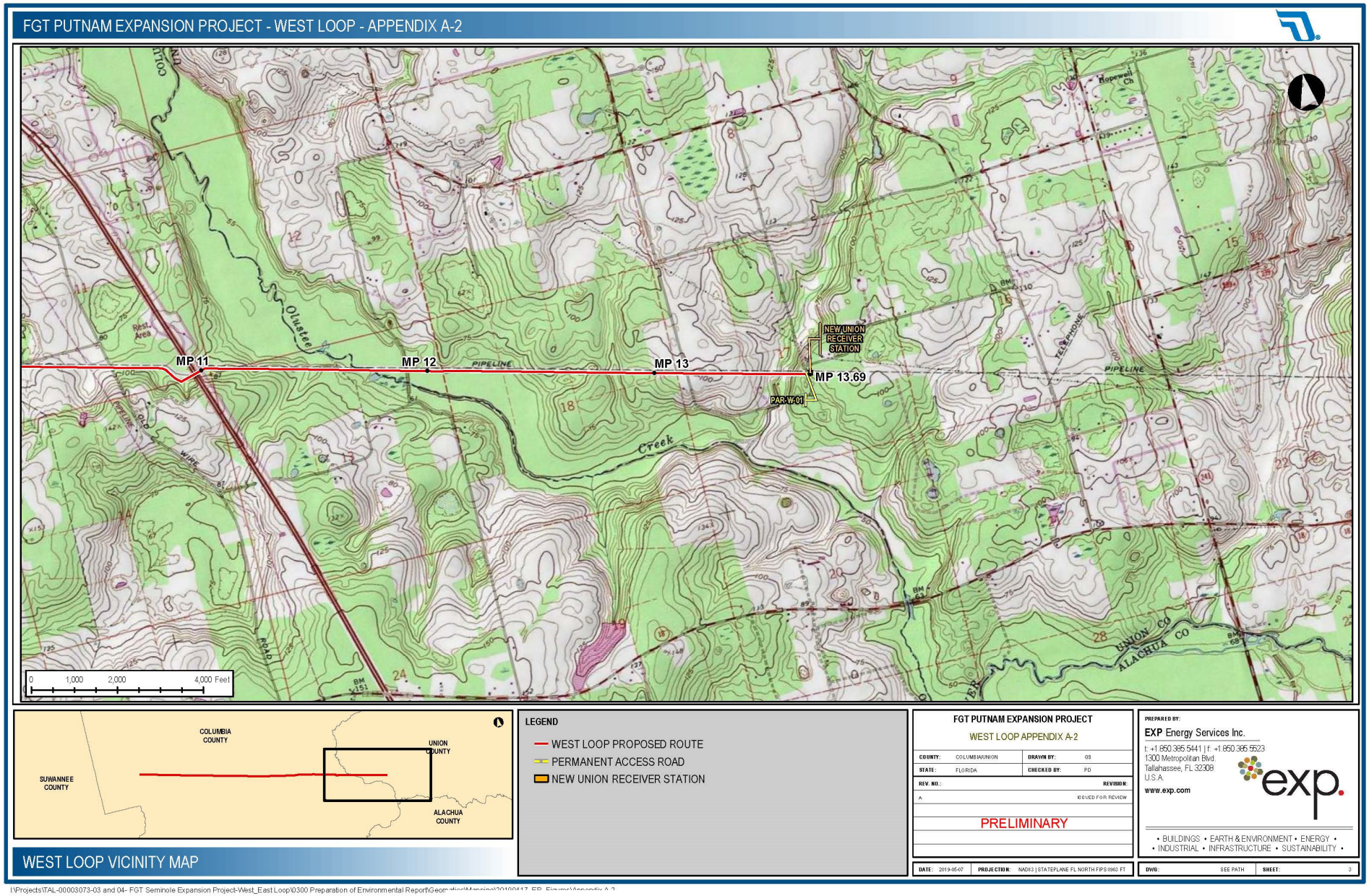


**Figure 4**
**Alignment**

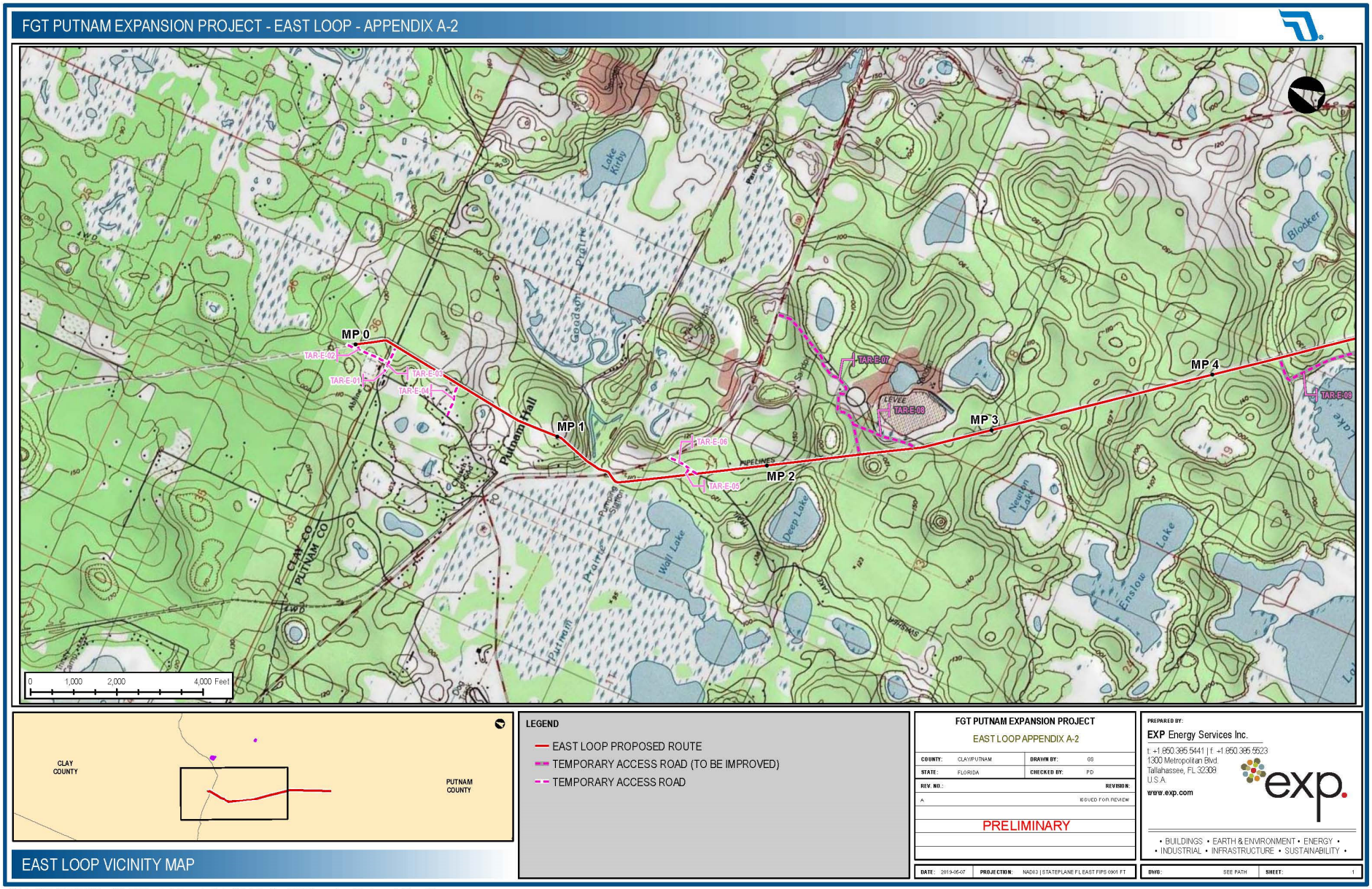


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**Figure 5**
**Alignment**

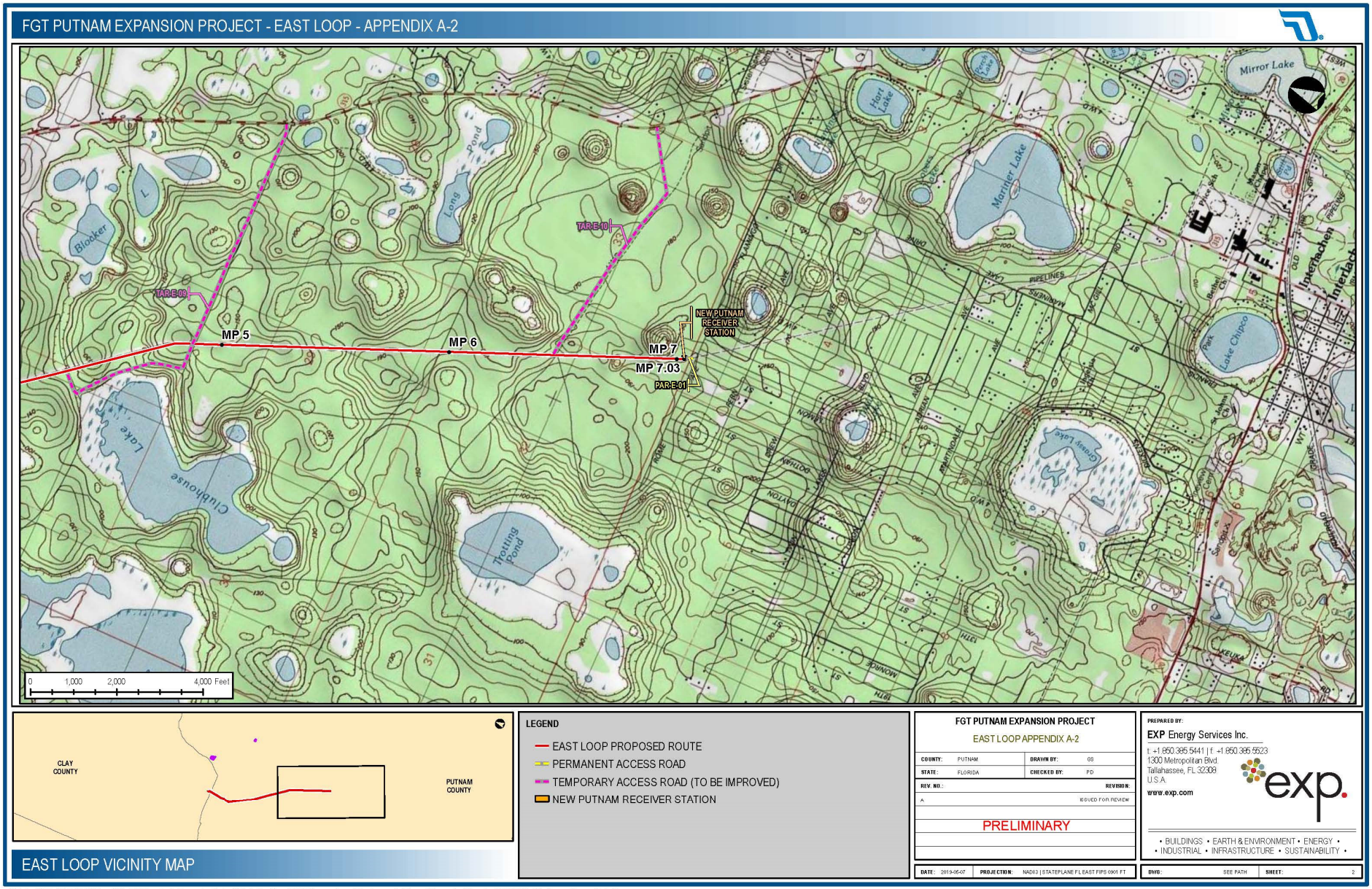


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**Figure 6**
**Alignment**

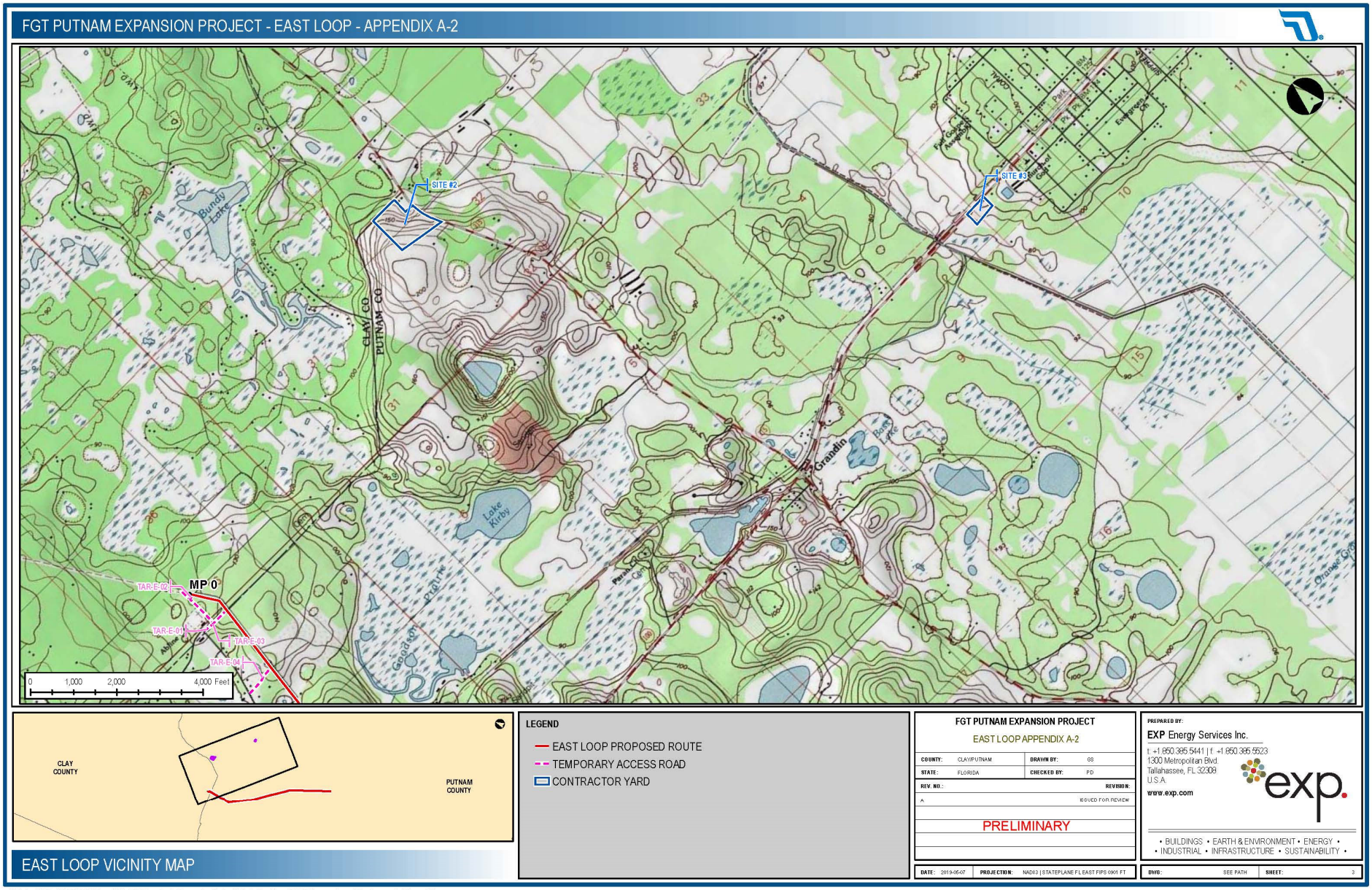


**Figure 7**
**Alignment**

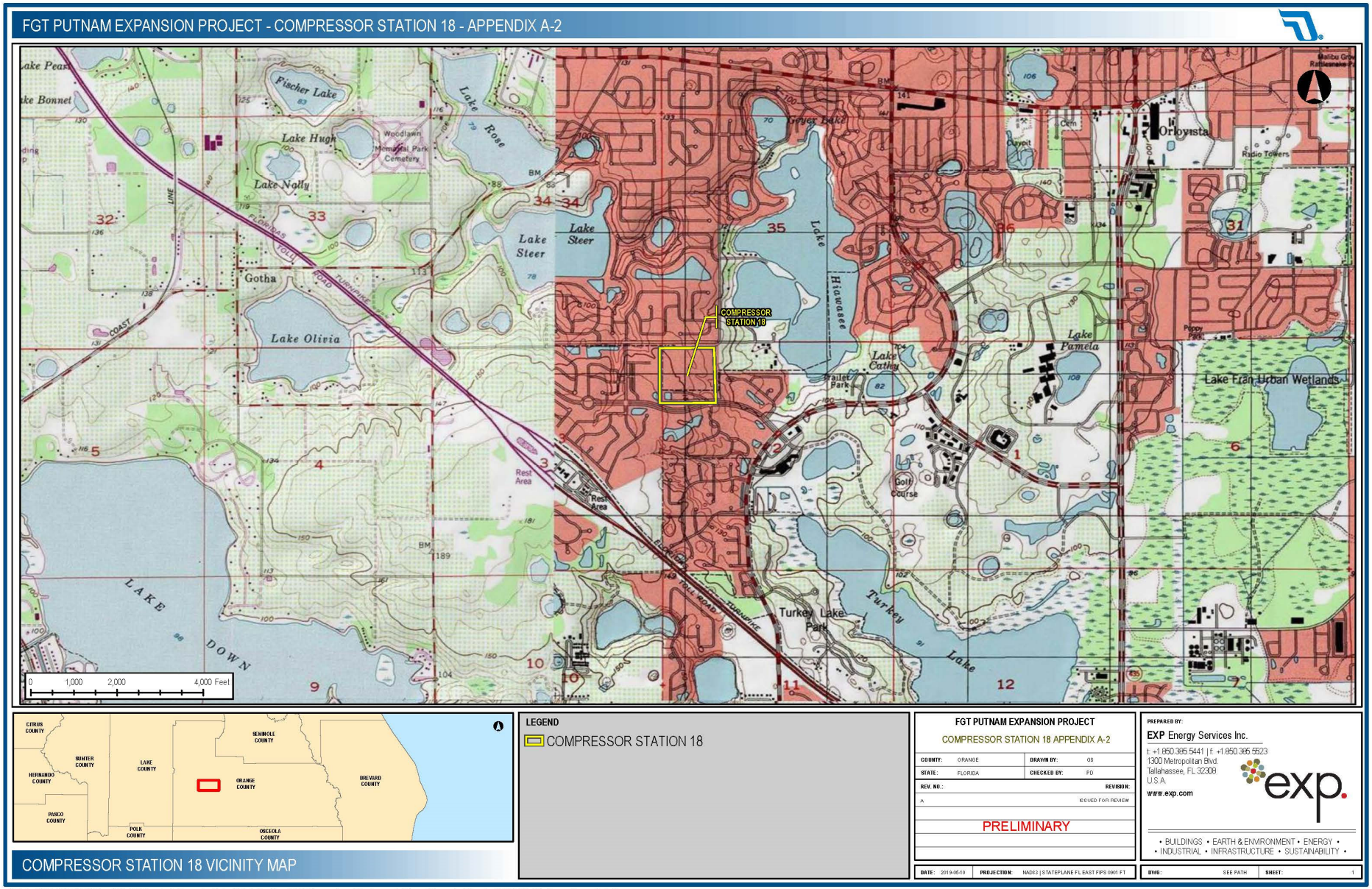


**Figure 8**
**Alignment**

# Appendix B
# Additional Temporary Workspace

| Appendix B<br>ATWS Required for Putnam Expansion Project Pipeline Construction | | | | | | | |
|---|---|---|---|---|---|---|---|
| **ATWS I.D.** | **Milepost** | **County** | **Purpose of ATWS** | **Dimensions [a] (feet)** | **Total Acres** | **Predominant Existing Land Use** | **Located within 50 feet of a Wetland or Waterbody** |
| **West Loop** | | | | | | | |
| WL-001 | 0.0 | Columbia | Access | 1,577 x 90 | 3.2 | ROW | Yes |
| WL-002 | 0.0 | Columbia | Laydown area | 400 x 276 | 2.0 | ROW and upland forest | No |
| WL-003 | 0.2 | Columbia | Road crossing | 76 x 50 | 0.1 | Upland forest | No |
| WL-004 | 0.2 | Columbia | Road crossing | 51 x 50 | 0.1 | Open land | No |
| WL-005 | 0.7 | Columbia | Road crossing | 68 x 50 | 0.1 | Residential | No |
| WL-006 | 0.7 | Columbia | Road crossing | 63 x 50 | 0.1 | Silviculture | No |
| WL-007 | 2.7 | Columbia | Road crossing | 140 x 50 | 0.2 | Silviculture | No |
| WL-008 | 2.8 | Columbia | Road crossing | 134 x 50 | 0.2 | Residential | No |
| WL-009 | 3.5 | Columbia | Road crossing | 72 x 50 | 0.1 | Upland forest | No |
| WL-010 | 3.5 | Columbia | Road crossing | 69 x 50 | 0.1 | Upland forest | No |
| WL-011 | 4.1 | Columbia | Road crossing | 93 x 50 | 0.1 | Upland forest | No |
| WL-012 | 4.1 | Columbia | Road crossing | 68 x 50 | 0.1 | Upland forest | No |
| WL-013 | 4.6 | Columbia | Wetland crossing | 100 x 50 | 0.1 | Upland forest | No |
| WL-014 | 4.7 | Columbia | Wetland crossing | 100 x 50 | 0.1 | Silviculture | No |
| WL-015 | 4.8 | Columbia | Road crossing | 131 x 50 | 0.2 | Silviculture | No |
| WL-016 | 4.8 | Columbia | Road crossing | 129 x 50 | 0.2 | Upland forest | No |
| WL-017 | 5.6 | Columbia | Avoidance | 100 x 50 | 0.1 | Upland forest and residential | No |
| WL-018 | 5.7 | Columbia | Avoiding residence and road crossing | 266 x 50 | 0.3 | Residential | No |
| WL-019 | 5.8 | Columbia | Avoiding residence and road crossing | 100 x 50 | 0.1 | Residential | No |
| WL-020 | 6.1 | Columbia | Drive-way crossing | 110 x 50 | 0.1 | Residential | No |
| WL-021 | 6.4 | Columbia | Wetland crossing | 100 x 50 | 0.1 | Upland forest | No |
| WL-022 | 6.7 | Columbia | Road crossing | 100 x 50 | 0.1 | Upland forest | No |
| WL-023 | 6.9 | Columbia | Road crossing | 152 x 50 | 0.2 | Upland forest | No |
| WL-024 | 6.9 | Columbia | Road crossing | 125 x 50 | 0.2 | Upland forest | No |
| WL-025 | 7.9 | Columbia | Road crossing | 154 x 50 | 0.2 | Agricultural | No |
| WL-026 | 8.1 | Columbia | Avoidance | 50 x 50 | 0.1 | Residential | No |
| WL-027 | 8.2 | Columbia | Road crossing | 50 x 50 | 0.1 | Residential | No |
| WL-028 | 8.7 | Columbia | Wetland crossing | 100 x 50 | 0.1 | Upland forest | No |
| WL-029 | 8.7 | Columbia | Wetland crossing | 100 x 50 | 0.1 | Open land | No |
| WL-030 | 8.8 | Columbia | Road crossing | 57 x 50 | 0.1 | Open land and residential | No |
| WL-031 | 9.0 | Columbia | Wetland crossing | 100 x 50 | 0.1 | Rangeland | No |
| WL-032 | 9.1 | Columbia | Wetland crossing | 100 x 50 | 0.1 | Upland forest | No |

| Appendix B<br>ATWS Required for Putnam Expansion Project Pipeline Construction | | | | | | | |
|---|---|---|---|---|---|---|---|
| **ATWS I.D.** | **Milepost** | **County** | **Purpose of ATWS** | **Dimensions [a] (feet)** | **Total Acres** | **Predominant Existing Land Use** | **Located within 50 feet of a Wetland or Waterbody** |
| WL-033 | 9.3 | Columbia | Wetland crossing | 98 x 50 | 0.1 | Upland forest | No |
| WL-034 | 9.4 | Columbia | Wetland and waterbody crossing | 50 x 50 | 0.1 | Upland forest | No |
| WL-035 | 9.4 | Columbia | Wetland and waterbody crossing | 50 x 50 | 0.1 | Upland forest | No |
| WL-036 | 9.6 | Columbia | Road crossing | 138 x 50 | 0.2 | Agricultural | No |
| WL-037 | 9.6 | Columbia | Road crossing | 100 x 50 | 0.1 | Agricultural | No |
| WL-038 | 10.0 | Columbia | Road/waterbody crossing | 302 x 50 | 0.3 | Rangeland | No |
| WL-039 | 10.1 | Columbia | Road/waterbody crossing | 100 x 50 | 0.1 | Residential | No |
| WL-040 | 10.6 | Columbia | Road crossing | 75 x 50 | 0.1 | Upland forest | No |
| WL-041 | 10.6 | Columbia | Road crossing | 97 x 50 | 0.1 | Upland forest | No |
| WL-042 | 10.8 | Columbia | Point of Inflection (PI) (i.e., bend) | 881 x 50 | 1.0 | Upland forest | No |
| WL-043 | 10.9 | Columbia | Direct pipe road crossing | 609 x 50 | 0.9 | Forested upland and wetland (PFO) | Yes |
| WL-044 | 10.9 | Columbia | Direct pipe road crossing | 106 x 50 | 0.1 | Upland forest | No |
| WL-045 | 11.0 | Columbia | Direct pipe road crossing | 244 x 56 | 0.2 | Silviculture | No |
| WL-046 | 11.4 | Columbia | HDD waterbody/ wetland crossing | 300 x 50 | 0.3 | Silviculture | No |
| WL-047 | 12.1 | Union | HDD waterbody/ wetland crossing | 354 x 50 | 0.1 | ROW | No |
| WL-048 | 12.1 | Union | HDD waterbody/ wetland crossing | 354 x 12 | 0.1 | Forested upland and wetland | Yes |
| WL-049 | 12.4 | Union | Wetland crossing | 100 x 50 | 0.1 | Upland forest | No |
| WL-050 | 13.1 | Union | Road crossing | 74 x 50 | 0.1 | Residential | No |
| WL-051 | 13.1 | Union | Road crossing | 71 x 50 | 0.1 | Agricultural and residential | No |
| WL-052 | 13.7 | Union | Laydown area | 174 x 50 | 0.2 | Upland forest | No |
| WL-053 | 13.7 | Union | Laydown area | 140 x 25 | 0.1 | ROW | No |
| WL-054 | 13.7 | Union | Laydown area | 75 x 25 | 0.1 | Upland forest | No |
| **East Loop** | | | | | | | |
| EL-001 | 0.0 | Clay | Laydown area and access | 201 x 284 | 0.4 | ROW and open land | No |
| EL-002 | 0.0 | Clay | Laydown and road crossing | 109 x 50 | 0.1 | Upland forest | No |
| EL-003 | 0.1 | Clay | PI and road crossing | 350 x 50 | 0.4 | Upland forest | No |

| Appendix B<br>ATWS Required for Putnam Expansion Project Pipeline Construction | | | | | | | |
|---|---|---|---|---|---|---|---|
| **ATWS I.D.** | **Milepost** | **County** | **Purpose of ATWS** | **Dimensions [a] (feet)** | **Total Acres** | **Predominant Existing Land Use** | **Located within 50 feet of a Wetland or Waterbody** |
| EL-004 | 0.2 | Clay/ Putnam | Road crossing | 154 x 50 | 0.2 | Rangeland | No |
| EL-005 | 0.3 | Putnam | Avoidance | 100 x 50 | 0.1 | Rangeland | No |
| EL-006 | 0.5 | Putnam | Road crossing | 55 x 50 | 0.1 | Residential | No |
| EL-007 | 0.5 | Putnam | Road crossing | 55 x 50 | 0.1 | Residential and upland forest | No |
| EL-008 | 0.7 | Putnam | Road crossing | 50 x 50 | 0.1 | Open land | No |
| EL-009 | 0.7 | Putnam | Road crossing | 50 x 50 | 0.1 | Open land | No |
| EL-010 | 1.0 | Putnam | Point of inflection | 300 x 50 | 0.4 | Residential | No |
| EL-011 | 1.2 | Putnam | Boring under Palatka Lake Butler State Trail | 100 x 56 | 0.1 | Upland forest | No |
| EL-012 | 1.2 | Putnam | Boring under Palatka Lake Butler State Trail | 310 x 56 | 0.4 | Open land, upland forest, and herbaceous wetland | Yes |
| EL-013 | 1.3 | Putnam | Wetland and road crossing | 445 x 50 | 0.6 | Upland forest, and herbaceous wetland (PEM) | Yes |
| EL-014 | 1.6 | Putnam | Avoidance | 100 x 50 | 0.1 | Upland forest | No |
| EL-015 | 1.6 | Putnam | Avoidance | 100 x 50 | 0.1 | Upland forest | No |
| EL-016 | 1.6 | Putnam | Road crossing | 100 x 50 | 0.1 | Upland forest | No |
| EL-017 | 1.7 | Putnam | Road crossing | 100 x 50 | 0.2 | Upland forest | No |
| EL-018 | 1.7 | Putnam | Road crossing | 156 x 50 | 0.2 | Silviculture | No |
| EL-019 | 4.8 | Putnam | Point of inflection | 350 x 50 | 0.4 | Upland forest | No |
| EL-020 | 4.8 | Putnam | Road crossing | 50 x 50 | 0.1 | Upland forest | No |
| EL-021 | 4.9 | Putnam | Road crossing | 50 x 50 | 0.1 | Upland forest | No |
| EL-022 | 7.0 | Putnam | Laydown area | 160 x 25 | 0.1 | Open land and residential | No |
| EL-023 | 7.0 | Putnam | Laydown area | 30 x 51 | 0.1 | Upland forest and residential | No |
| EL-024 | 7.0 | Putnam | Laydown area | 13 x 5 | <0.1 | Residential | No |

Notes:
[a] General dimensions, does not account for irregular shapes.

# Appendix C
# Special Status Species Potentially Occurring within the Project Area

| Appendix C<br><br>Special Status Species Potentially Occurring within the Project Area | | | | | |
|---|---|---|---|---|---|
| **Species** | **Federal Status** | **State Status** | **Facility** | **Habitat** | **Comments/*Determination of Effect*** |
| **Birds** | | | | | |
| Eastern black rail | PT | -- | West Loop, East Loop | Salt and brackish marshes with dense cover. | No suitable habitat identified.<br><br>*No effect* |
| Florida scrub jay | T | T | East Loop | Optimal habitat includes sand pine scrub, xeric oak scrub, scrubby flatwoods, and scrubby coastal strand habitats. | No suitable habitat. The Project does not encompass suitable habitat identified by the Florida Wildlife Commission survey and no populations/nests have been identified in or near the Project area.<br><br>*No effect* |
| Red-cockaded woodpecker | E | E | West Loop, East Loop | Require mature pine forests where they excavate cavities in living pine trees generally over 80 years old. Prefer longleaf pine, but also inhabit slash and loblolly pines in Florida. | Although the East Loop contains sandhill habitat and pine trees, no red-cockaded woodpecker current or historic cavity trees or individuals were observed during field surveys.<br><br>*No effect* |
| Wood stork | T | T | West Loop, East Loop | Mixed hardwood swamps, sloughs, mangroves and cypress domes. Nesting trees range from low shrubs to cypress as tall as 100 feet. Typical foraging sites include freshwater marshes, ponds, hardwood and cypress swamps, and artificial wetlands such as stock ponds, seasonally flooded roadside | Wetlands impacted by the Project no not support suitable foraging habitat criteria and no wood storks or wood stork nests were identified during field surveys.<br><br>*No effect* |

| Appendix C<br><br>Special Status Species Potentially Occurring within the Project Area | | | | | |
|---|---|---|---|---|---|
| **Species** | **Federal Status** | **State Status** | **Facility** | **Habitat** | **Comments/*Determination of Effect*** |
| | | | | ditches and agricultural ditches, and managed impoundments. | |
| **Mussels** | | | | | |
| Suwanee Moccasinshell | T | -- | West Loop | Endemic to the Suwanee River Basin. Historical range includes the lower and middle Suwanee River main stem, and two large tributary rivers-the Santa Fe River subbasin and the lower Withlacoochee River main stem. Small to larger river with moderate flows and swift current on grave, gravel-sand, and sand bottoms. | No suitable habitat present.<br><br>*No effect* |
| **Fish** | | | | | |
| Atlantic sturgeon | T | E | West Loop | Anadromous species where adults live in saltwater and migrate into medium to large coastal rivers. | The Project occurs well inland and there is no marine or estuarine fisheries habitat present.<br><br>*No effect* |

| Appendix C<br><br>Special Status Species Potentially Occurring within the Project Area | | | | | |
|---|---|---|---|---|---|
| **Species** | **Federal Status** | **State Status** | **Facility** | **Habitat** | **Comments/*Determination of Effect*** |
| **Mammals** | | | | | |
| West Indian manatee | T | E | West Loop | Gulf and bay system. | The Project occurs well inland and there is no marine or estuarine habitat present.<br><br>*No effect* |
| **Reptiles and Amphibians** | | | | | |
| Eastern indigo snake | T | T | West Loop, East Loop | Species prefers xeric longleaf pine sandhills with gopher tortoise burrows and requires very large tracts of land. | Suitable habitat is present; however, potential presence in the Project area is low. Gopher tortoise burrows were observed along the West Loop and East Loop.<br><br>*May affect, but is not likely to adversely affect* |
| Gopher tortoise | C | T | West Loop, East Loop | Inhabits well drained soil types with sparse canopy such as pine flatwoods, longleaf pine/xeric oak and xeric oak scrub. | Gopher tortoise burrows were confirmed along the West Loop, East Loop, and Ease Loop temporary access roads (TAR-E-09 and TAR-E-10).<br><br>*Not likely to jeopardize the continued existence* |
| Sand skink | T | T | East Loop | Widespread in xeric uplands with sandy substrates. Also found in rosemary scrub, turkey oak barrens, or sandy areas of the high pine community. | Although the East Loop is located within the FWS sand skink and Blue-tailed mole skink consultation area, no sand skinks or evidence thereof was observed during the field survey. |

| Appendix C<br><br>Special Status Species Potentially Occurring within the Project Area | | | | | |
|---|---|---|---|---|---|
| **Species** | **Federal Status** | **State Status** | **Facility** | **Habitat** | **Comments/*Determination of Effect*** |
| | | | | | *May affect, but is not likely to adversely affect* |
| **Plants** | | | | | |
| Chapman's rhododendron | E | E | East Loop | Wet, mesic, or dry scrubby flatwoods. | No suitable habitat present.<br><br>*No effect* |
| Etonia rosemary | E | E | East Loop | Inhabits deep white sand scrub dominated by sand pine and shrubby oaks. Species is most abundant in natural openings or artificial clearings rather than in the scrub and responds positively to disturbance, which historically was probably fire. | The East Loop passes through sandhill with some Florida rosemary balds that may be suitable habitat for Etonia rosemary. However, no individuals were observed during field surveys.<br><br>*No effect* |
| E – Endangered T – Threatened C – Candidate PT – Proposed Threatened | | | | | |

# Appendix D
# State Listed Species Potentially Occurring in the Project Area

| Appendix D<br>State Listed Species Potentially Occurring in the Project Area | | | | |
|---|---|---|---|---|
| **Species** | **State Status** | **Facility** | **Habitat** | **Potential Impact** |
| **Birds** | | | | |
| Florida burrowing owl | SSC | West Loop | The species frequents several habitat types and could utilize the Project area. | No individuals or burrows were observed during field surveys. |
| Florida sandhill crane | ST | East Loop | The species frequents several habitat types and could utilize the Project area. | No individuals or nests were identified during field surveys. |
| Southeastern American kestrel | T | East Loop | Found in open pine habitats, woodland edges, prairies, and pastures throughout much of Florida. | Field surveys identified five American kestrel, but it could not be determined of it was the rarer Southeastern American kestrel or a more common species. No active nests observed. Florida Gas would conduct pre-construction surveys and coordinate with the FWC if Southeastern American kestrel nests are identified in the construction workspace. |
| **Mammals** | | | | |
| Sherman's fox squirrel | SSC | West Loop, East Loop | Sandhills, pine flatwoods, and open piney woods. | Four adult fox squirrels and three fox squirrel nest identified in the East Loop field survey. One fox squirrel nest observed along East Loop temporary access road (TAR-E-09). No fox squirrels observed along the West Loop survey corridor. Florida Gas would conduct pre-construction surveys and coordinate with the FWC of any Sherman's fox squirrel nests are identified in the construction area. |
| Florida mouse | SSC | West Loop, East Loop | The nests of Florida mice have been found only in the burrows of gopher tortoises, where they often construct several tunnels and nest chambers off the main tortoise burrow, typically with chimney "escape hatches" near the surface. | Gopher tortoise commensal species. Several burrows had "chimneys" into gopher tortoise burrows along the East Loop. Any commensal species observed during the FWC permitted gopher tortoise burrow excavations would be relocated in accordance with Appendix 9 of the FWC *Gopher Tortoise Permitting Guidelines*. |
| **Reptiles and Amphibians** | | | | |
| Florida pine snake | SSC | West Loop, East Loop | Inhabits large tracts of land comprised of sandhill, scrub, or xeric pine savanna habitat that contain high densities of pocket gophers and gopher tortoises. | Suitable habitat is present in the Project area and evidence of pine snake activity was recorded along the East Loop. Any commensal species observed during the FWC permitted gopher tortoise burrow excavations would be relocated in accordance with Appendix 9 of the FWC *Gopher Tortoise Permitting Guidelines*. |

| Appendix D<br>State Listed Species Potentially Occurring in the Project Area | | | | |
|---|---|---|---|---|
| **Species** | **State Status** | **Facility** | **Habitat** | **Potential Impact** |
| Gopher frog | SSC | West Loop, East Loop | Upland areas within the species' range where gopher tortoise burrows (or other refugia) are found with nearby wetlands meeting the breeding requirements for the species. | Gopher tortoise commensal species. One individual was observed at the entrance to a juvenile gopher tortoise burrow within the East Loop and one individual was observed along a temporary access road (TAR-R-09). Any commensal species observed during the FWC permitted gopher tortoise burrow excavations would be relocated in accordance with Appendix 9 of the FWC *Gopher Tortoise Permitting Guidelines*. |
| Short-tailed snake | ST | West Loop | Inhabits areas with loose, sandy soils including longleaf pine-turkey oak forests, scrub, and dry oak hammocks. The short-tailed snake is uncommon and rarely encountered as it spends the majority of its time underground. | No suitable or preferred habitat in the Project area. No individuals were identified during field surveys. |
| Suwanee cooter | SSC | West Loop | Inhabits rivers and large streams, including alluvial, blackwater, and spring-run streams, often with dense aquatic vegetation upon which species feeds; occasionally enters estuaries at river mouths; basks extensively on logs and floating vegetation mats; nests on high banks and bars above floodplain. | No suitable or preferred habitat present in the Project area. |
| **Plants** | | | | |
| Bartram's ixia | E | West Loop, East Loop | Wet to mesic flatwoods. Although 60 or more populations have been reported since the early1900s, most have not been seen recently. Only a few populations are known on conservation areas. | No suitable or preferred habitat present in the Project area. No individuals observed during field surveys. |
| Celestial lily | E | East Loop | Wet flatwoods, prairies, marshes, cabbage palm hammocks edges – locally abundant if its habitat is frequently burned. | No suitable or preferred habitat present in the Project area. No individuals observed during field surveys. |

| Appendix D<br>State Listed Species Potentially Occurring in the Project Area | | | | |
|---|---|---|---|---|
| **Species** | **State Status** | **Facility** | **Habitat** | **Potential Impact** |
| Florida beargrass | T | East Loop | Inhabits wet pine flatwoods; deeply rooted in black, sandy-peaty high hydroperiod soil; fire tolerant and probably fire dependent. | No suitable or preferred habitat present in the Project area. No individuals observed during field surveys. |
| Florida toothache grass | E | West Loop, East Loop | Inhabits sandhills and other dry pinelands. | Due to collocation with existing facilities, ideal suitable habitat is not present. No individuals were identified in field surveys. |
| Florida mountain-mint | T | West Loop, East Loop | Wet swales/depressions in pine flatwoods; wet prairies, floodplain forest, soils are typically black sandy peats. | Due to collocation with existing facilities, ideal suitable habitat is not present. No individuals were identified in field surveys. |
| Florida spiny-pod | E | West Loop, East Loop | Inhabits upland sites; open woodlands, sandhills and open fields. | Observed in 5 areas within the West Loop field survey corridor between MP 10.6 and MP 11.6; however, only 2 of the areas are within the construction workspace. Florida Gas would consult with the FWC to determine the appropriate measures to minimize impacts during construction such as relocating the plants to suitable habitat or other protected lands, if permitted by the landowner. |
| Florida willow | E | West Loop, East Loop | Inhabits springheads, edges of spring runs, hydric hammocks, and floodplains. | No suitable or preferred habitat present in the Project area. No individuals observed during field surveys. |
| Flyr's Brickell-bush | E | West Loop, Ease Loop | Dry, upland pine-oak woods, often with southern red oak and loblolly pine; ravine slopes with spruce pine, white oak, and southern magnolia. Usually in sunny openings or along edges of trails, but may persist in shady, overgrown woods. | No suitable or preferred habitat present in the Project area. No individuals observed during field surveys. |
| Giant orchid | T | West Loop, East Loop | Inhabits sand pine scrub and sandhills. | No suitable or preferred habitat present in the Project area. No individuals observed during field surveys. |
| Godfrey's swampprivet | E | West Loop | Upland hardwood forests with limestone at or near the surface, often on slopes above lakes and rivers. | Due to collocation with existing facilities, ideal suitable habitat is not present. No individuals were identified in field surveys. |

| Appendix D<br>State Listed Species Potentially Occurring in the Project Area | | | | |
|---|---|---|---|---|
| **Species** | **State Status** | **Facility** | **Habitat** | **Potential Impact** |
| Hartwrightia | T | West Loop, East Loop | Inhabits seepage slopes, edges of baygalls and springheads, wet prairies, and flatwoods with wet, peaty soils with hooded pitcher plants. | Due to collocation with existing facilities, ideal suitable habitat is not present. No individuals were identified in field surveys. |
| Incised groove-bur | T | West Loop, East Loop | Sandy, dry-mesic habitats dominated by longleaf pine, deciduous scrub oak. Open pine woods or mixed pine oak woods, bluffs, small clearings and old roads, sometimes at the edge of more mesic habitats. Most commonly found in the fire maintained longleaf pine-oak community. | Due to collocation with existing facilities, ideal suitable habitat (fire-maintained communities) is not present. No individuals were identified during field surveys. |
| Many-flowered grass-pink | T | West Loop, East Loop | Inhabits dry to moist flatwoods with wiregrass, longleaf pine, and saw palmetto. Its habitat also includes mesic pine savannahs on flat or gently-sloping terrain. Requires prescribed annual winter fires for its appearance. | No suitable or preferred habitat present (i.e., fire managed flatwoods). No individuals observed during field surveys. |
| Piedmont jointgrass | T | East Loop | Inhabits karst areas in Florida margins or shallow of lakes and ponds. | No lakes or ponds crossed; therefore, no suitable habitat is present. |
| Pinewoods dainties | E | West Loop | Hydric hammock. | Due to collocation with existing facilities, ideal suitable habitat is not present. The majority of PFO associated with Olustee Creek will be avoided via HDD. No individuals were identified in field surveys. |
| Pinkroot | E | East Loop | Floodplain forests, upland and hydric hardwood hammocks over limestone. | Due to collocation with existing facilities, ideal suitable habitat is not present. The majority of PFO associated with Olustee Creek will be avoided via HDD. No individuals were identified in field surveys. |
| Pondspice | E | West Loop, East Loop | On peaty soils in edges of baygalls, flatwoods ponds, and cypress. | Due to collocation with existing facilities, ideal suitable habitat (i.e., peaty soils) is not present. No individuals were identified in field surveys. |

| Appendix D<br>State Listed Species Potentially Occurring in the Project Area | | | | |
|---|---|---|---|---|
| **Species** | **State Status** | **Facility** | **Habitat** | **Potential Impact** |
| | | | domes. May form thickets around edges of ponds. | |
| Purple honeycomb-head | E | East Loop | Wet pine flatwoods and savannas, seepage slopes, and pitcher plant bogs. Seven populations are known in Florida, 3 in state forests, the remainder on timber company lands. | Due to collocation with existing facilities, ideal suitable habitat is not present. No individuals were identified in field surveys. |
| Pygmy pipes | E | East Loop | Upland mixed hardwood forest, mesic and xeric hammock, sand pine, and oak scrub. Only 6 populations are known, most on conservation lands. | Due to collocation with existing facilities, ideal suitable habitat is not present. No individuals were identified in field surveys. |
| Showy dawnflower | E | East Loop | Inhabits open sandy areas of the sand pine scrub, turkey oak, scrub oak, and bluejack oak woods. | Observed within the field survey corridor at MP 5.5 and MP 6.7. Florida Gas would consult with the FWC to determine appropriate measures to minimize impacts during construction such as relocating this listed plant species to suitable adjacent habitat or other protected lands, if permitted by the landowner. |
| Silver buckthorn | E | East Loop | Upland hardwood forests around lime-sinks and on shell mounds. Only 4 populations are known in the wild in Florida, with fewer than 30 plants, most in conservation areas. | No suitable or preferred habitat present in the Project area. No individuals observed during field surveys. |
| Small-flowered meadowbeauty | E | West Loop | Inhabits forested wetlands along margins of ponds and shallow depressions associated with pine-palmetto flatwoods and savannas of the Gulf Coastal Plain. | Due to collocation with existing facilities, ideal suitable habitat is not present. The majority of PFO associated with Olustee Creek will be avoided via HDD. No individuals were identified in field surveys. |
| Spoon-leaved sundew | T | East Loop | Inhabits low spots on bogs, sandy shores, and shallow water. | No suitable or preferred habitat present in the Project area. No individuals observed during field surveys. |
| St. John's blackeyed susan | E | East Loop | Inhabits wet flatwoods. | No suitable or preferred habitat present in the Project area. No individuals observed during field surveys. |

| Appendix D<br><br>State Listed Species Potentially Occurring in the Project Area | | | | |
|---|---|---|---|---|
| **Species** | **State Status** | **Facility** | **Habitat** | **Potential Impact** |
| Variable-leaf crownbeard | E | Ease Loop | On sandy peat in fire-maintained savannahs or in open stands of slash pine-palmetto flatwoods where wiregrass dominates | No suitable or preferred habitat present in the Project area. No individuals observed during field surveys. |
| Variable-leaved Indian-plantain | T | East Loop | Openings in floodplain forests over limestone with clayey, basic soils and a canopy of hardwood trees and bald cypress. | Due to collocation with existing facilities, ideal suitable habitat is not present. The majority of PFO associated with Olustee Creek will be avoided via HDD. No individuals were identified in field surveys. |
| West's Flax | E | East Loop | Wet flatwoods, depression ponds, and edges of pond cypress swamps. | Due to collocation with existing facilities, ideal suitable habitat is not present. The majority of PFO associated with Olustee Creek will be avoided via HDD. No individuals were identified in field surveys. |
| E – Endangered T – Threatened SSC – Species of Special Concern | | | | |

# Appendix E
# Site Specific Construction Plans for Residences within 50 feet of Project Site

# RESIDENTIAL MITIGATION PLAN NOTES

1. CONTRACTOR SHALL COMPLY WITH THE FOLLOWING REQUIREMENTS FOR RESIDENCES WITHIN 50 FEET OF THE CONSTRUCTION WORK AREA.

   A. SAFETY FENCE THE EDGE OF THE CONSTRUCTION AREA ADJACENT TO THE RESIDENCE FOR A DISTANCE OF 100 FEET EITHER SIDE OF THE RESIDENCE.
   B. LEAVE AS MANY TREES AS POSSIBLE ON THE RESIDENCE PROPERTY. TREE BRANCES MAY BE TRIMMED ON THE WORKING SIDE TO ALLOW FOR SAFE OPERATION AND PASSAGE OF CONSTRUCTION EQUIPMENT. VEGETATION REMOVED WILL BE DISPOSED OF AS NEGOTIATED BY LANDOWNER AND COMPANY.
   C. RESTORE OR REPLACE LAWNS TO PRECONSTRUCTION CONDITIONS AND REPAIR WALLS AND OTHER STRUCTURES WITHIN THE CONSTRUCTION WORK AREAS OR AS NEGOTIATED BY LANDOWNER AND COMPANY. THIS WORK IS TO BE COMPLETED IN A REASONABLE TIME AFTER THE TRENCH IS BACKFILLED AND CLEANUP IS COMPLETE.
   D. TOP SOIL IS TO BE SEGREGATED WHERE APPROPRIATE OR AS NEGOTIATED WITH LANDOWNER AND COMPANY.
   E. UTILITIES ARE NOT TO BE INTERRUPTED DURING CONSTRUCTION ACTIVITIES.
   F. CONSTRUCTION ACTIVITIES ARE NOT TO TAKE PLACE DURING NIGHT TIME HOURS EXCEPT FOR AREA WHERE JACK AND BORE, HORIZONTAL DIRECTIONAL DRILL ACTIVITIES AND / OR WELL POINT ACIVITIES ARE TAKING PLACE.
   G. CLEANUP AND BACKFILL WILL TAKE PLACE IMMEDIATELY AFTER THE PIPELINE IS INSTALLED.
   H. REVEGETATION WILL TAKE PLACE AT THE FIRST SEASONAL OPPORTUNITY.
   I. ALL TRASH AND DEBRIS WILL BE CLEANED UP DAILY FROM THE CONSTRUCTION SITE.
   J. CONSTRUCTION BY THE STOVEPIPE OR DRAG SECTION TECHNIQUES WILL BE USED WHERE FEASIBLE AND APPROPRIATE.
   K. THE RIGHT OF WAY DEPARTMENT IS TO NOTIFY THE AFFECTED LANDOWNERS AND ADJACENT LANDOWNER PRIOR TO THE START OF CONSTRUCTION.
   L. TRAFFIC FLOW AND EMERGENCY VEHICLE ACCESS WILL BE ON RESIDENTIAL ROADWAYS. TRAFFIC DETAIL PERSONNEL AND / OR DETOUR SIGNS ARE TO BE USED WHEN APPROPRIATE.
   M. ANY SECTION OF TRENCH LEFT OPEN AT THE END OF THE WORKDAY IS TO BE FENCED OFF OR COVERED WITH STEEL PLATE.
   N. INSPECT ROAD SURFACES NEAR RESIDENCES ON A PERIODIC BASIS AND, IF NECESSARY, CLEAN THE STREET SURFACE AND WET EXPOSED SOIL.

2. CONTRACTOR SHALL COMPLY WITH THE ABOVE REQUIREMENTS AND THE FOLLOWING REQUIREMENTS FOR RESIDENCES WITHIN 25 FEET OF THE CONSTRUCTION WORK AREA.

   A. THE CONSTRACTOR SHALL COMPLY WITH THE WORKSPACE LIMITATIONS AND THE CONSTRUCTION TECHNIQUES SHOWN ON THE RESIDENTIAL IMPLEMENTATION PLAN SITE-SPECIFIC DRAWINGS THAT ARE REFERENCED ON THE CONSTRUCTION DRAWINGS.
   B. THE CONTRACTOR SHALL NOT OPEN THE TRENCH UNTIL THE PIPE IS READY FOR INSTALLATION AND SHALL BACKFILL THE TRENCH IMMEDIATELY AFTER INSTALLATION IS COMPLETE.
   C. ACCESS TO HOUSE BY CAR SHALL BE MAINTANED AT ALL TIMES.

ADDITIONAL LEGEND

CL ROAD — P — O/H POWERLINE
CL RAILROAD — X — FENCE
FOREIGN PIPELINE — ACCESS ROAD (PAR/TAR)
PROPERTY BOUNDARY

| NO | REVISION | DATE | DRAWN | CHKD | APPD |
|---|---|---|---|---|---|
| A | ISSUE FOR REVIEW | 05/21/2019 | CRS | EWU | JO |

| | | | |
|---|---|---|---|
| DRAWN | CRS | DATE | 05/21/2019 |
| CHKD | EWU | DATE | 05/21/2019 |
| APPD | JO | DATE | 05/21/2019 |
| SCALE | NTS | SHEET | 1 OF 1 |
| JOB NO. | 24468 | | |
| CLIENT | FLORIDA GAS TRANSMISSION | | |
| CLIENT JOB NO. | | | |

Florida Gas Transmission Company
UniversalPegasus INTERNATIONAL

PUTNAM EXPANSION 30" WEST LOOP PROJECT

RESIDENTIAL MITIGATION PLAN NOTES

COLUMBIA & UNION — FLORIDA

DRAWING NO. 24468-24343-507-PLN-19001 — REV. A

Document Path: P:\24468\24343\50\0_ENG-DSN\507_GEOMATICS_DSN\PLN-Plans\24468-24343-507-PLN-19001_RevA_ImplementationNotes.mxd

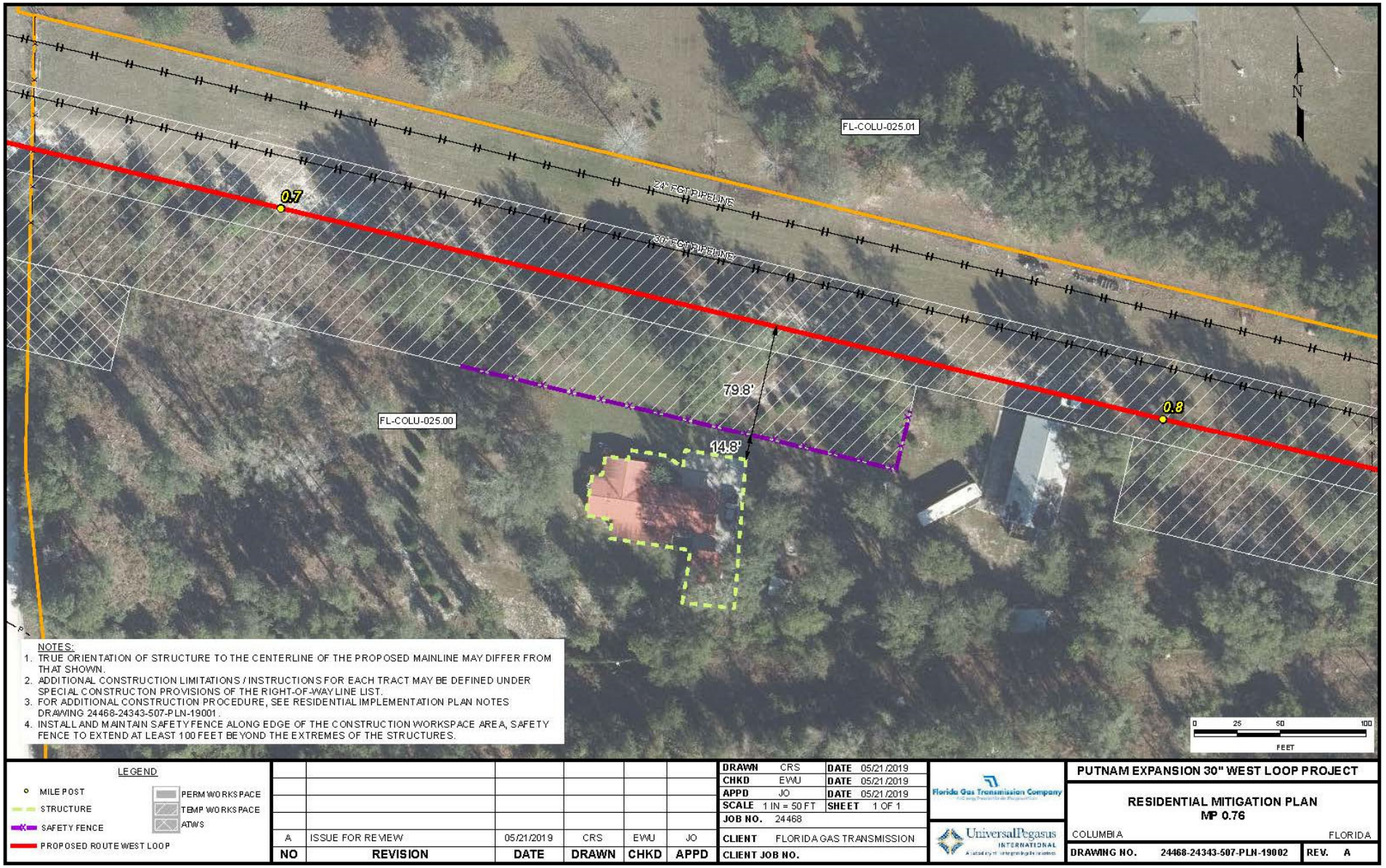


**Figure 9**
**Site Specific Residential Mitigation Plan**

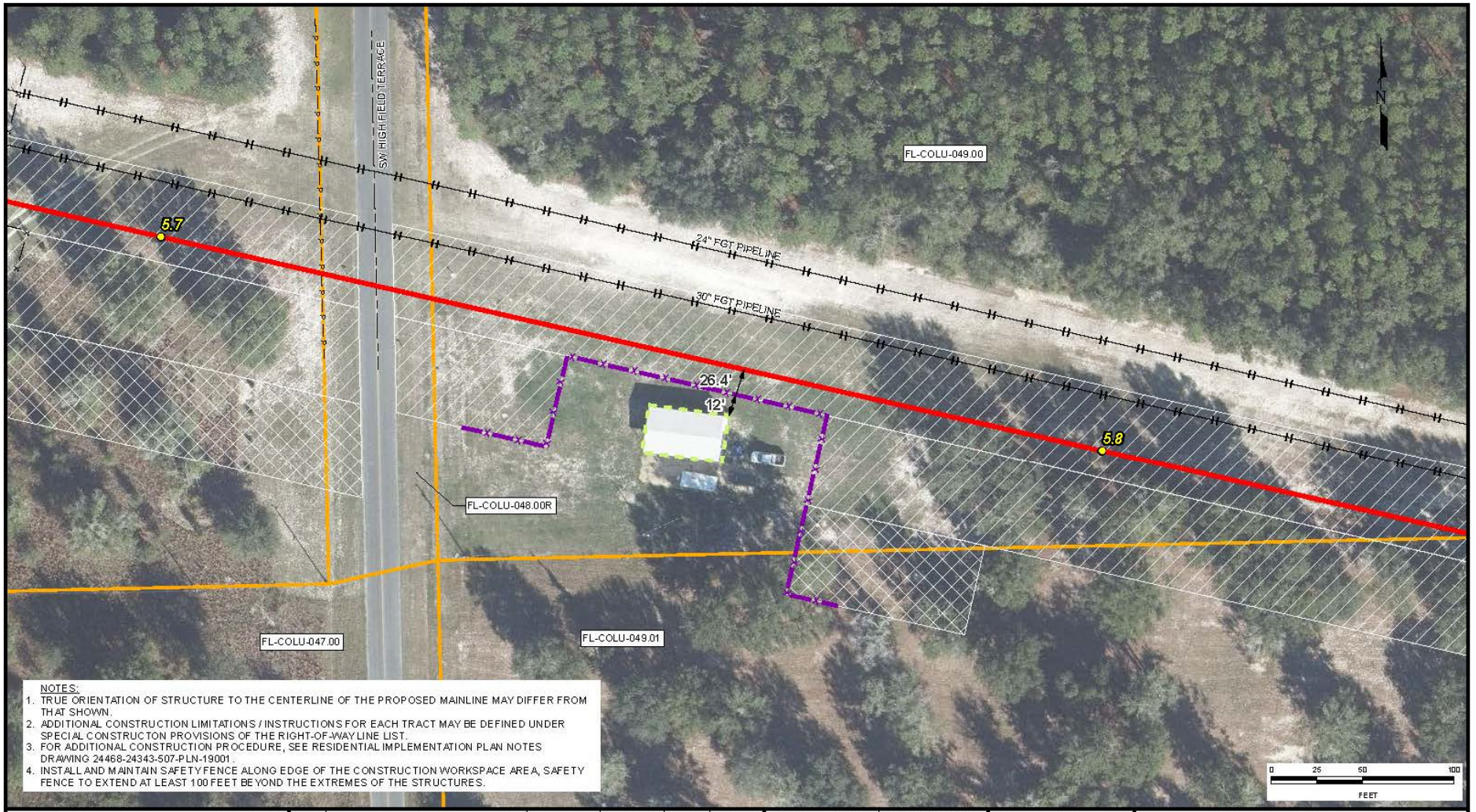


**Figure 10**
**Site Specific Residential Mitigation Plan**

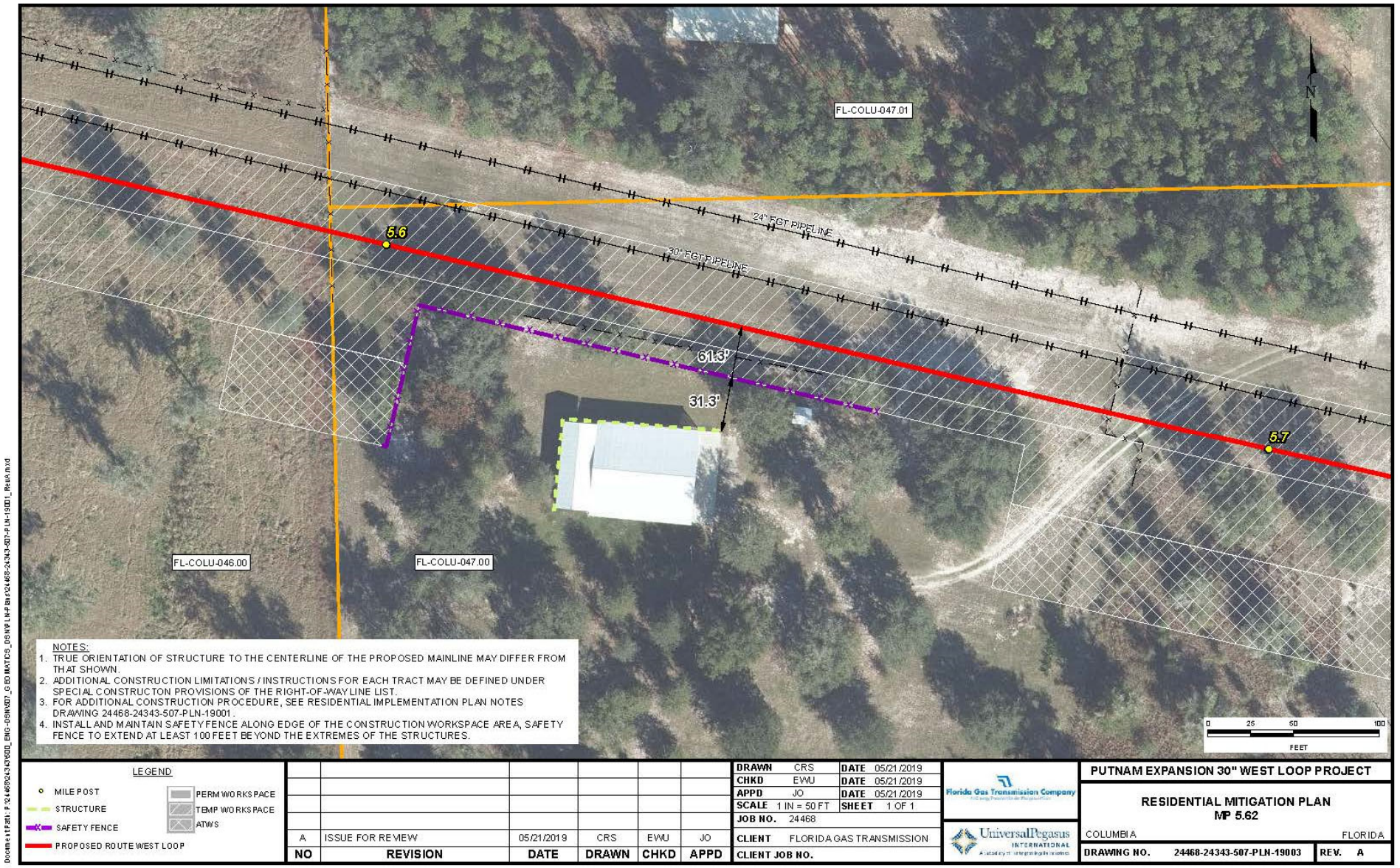


**Figure 11**
**Site Specific Residential Mitigation Plan**

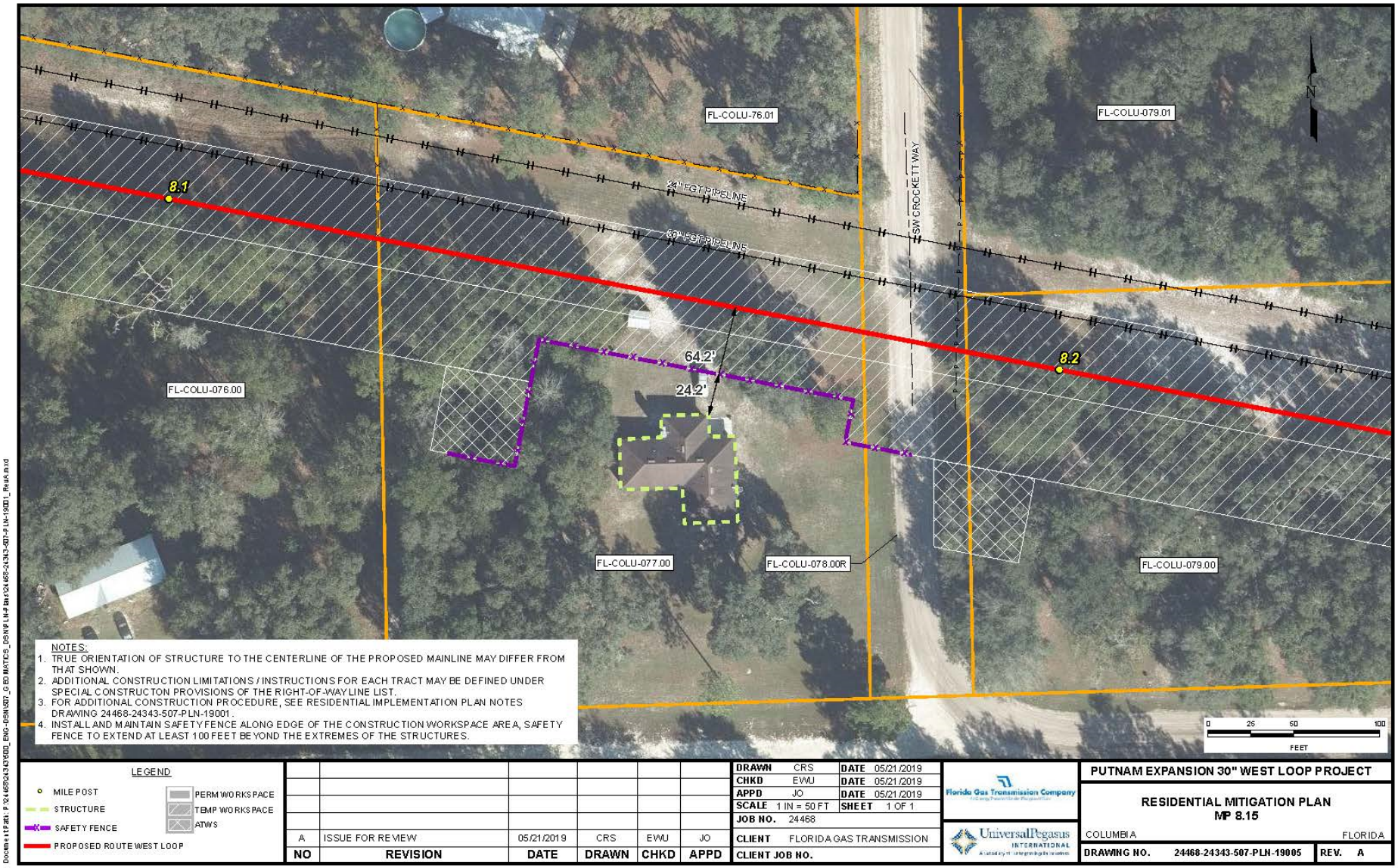


**Figure 12**
**Site Specific Residential Mitigation Plan**

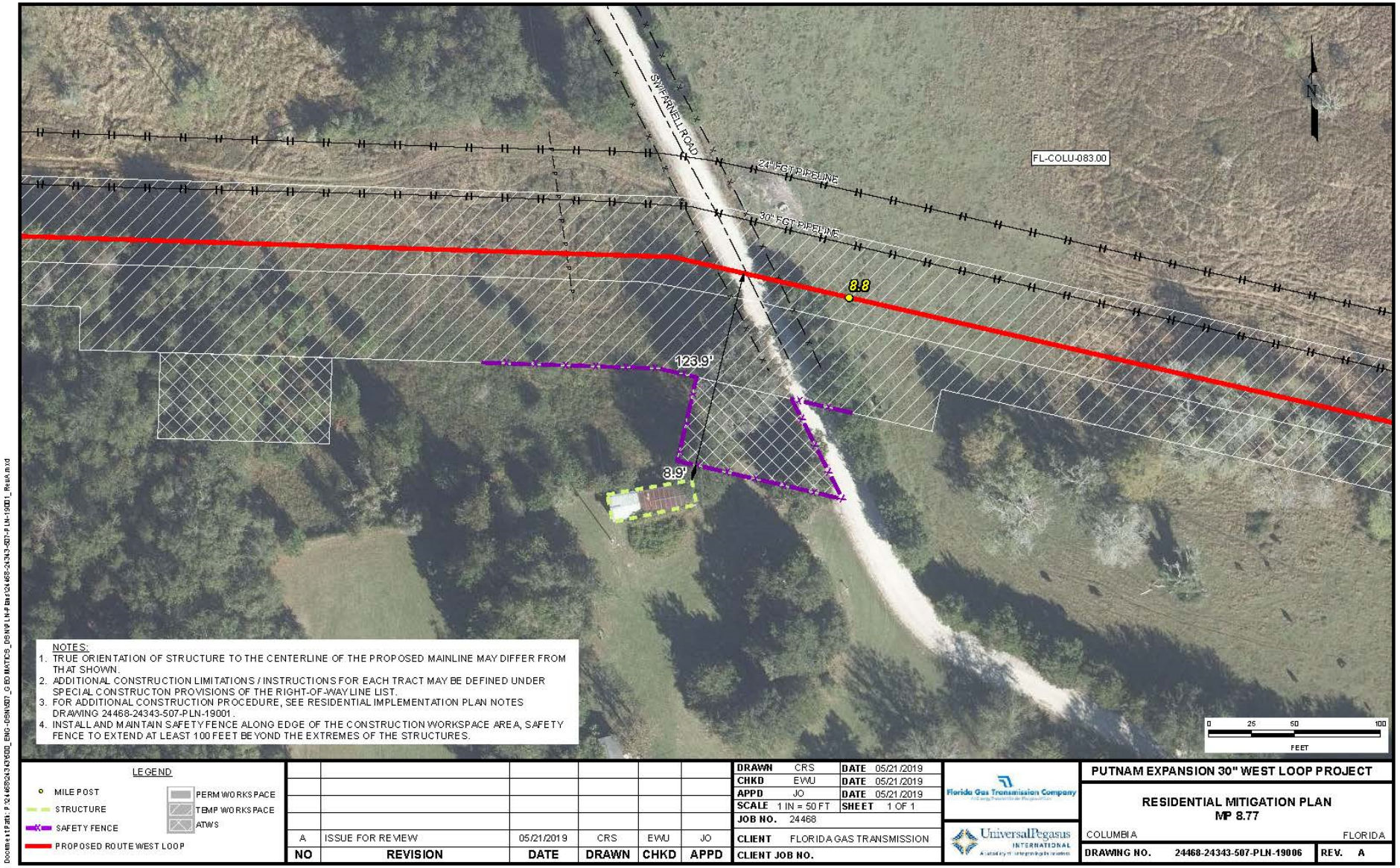


**Figure 13**
**Site Specific Residential Mitigation Plan**

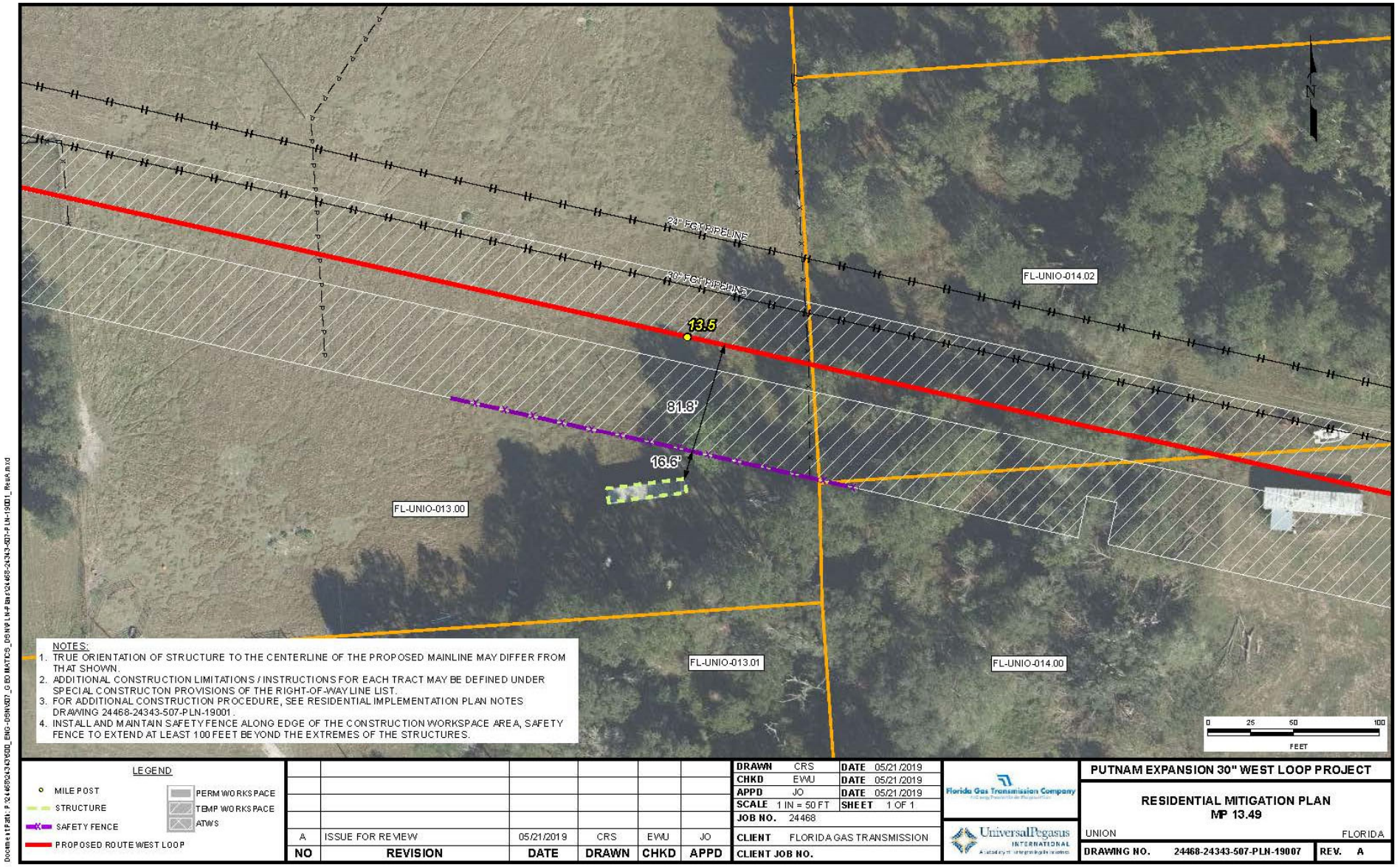


**Figure 14**
**Site Specific Residential Mitigation Plan**

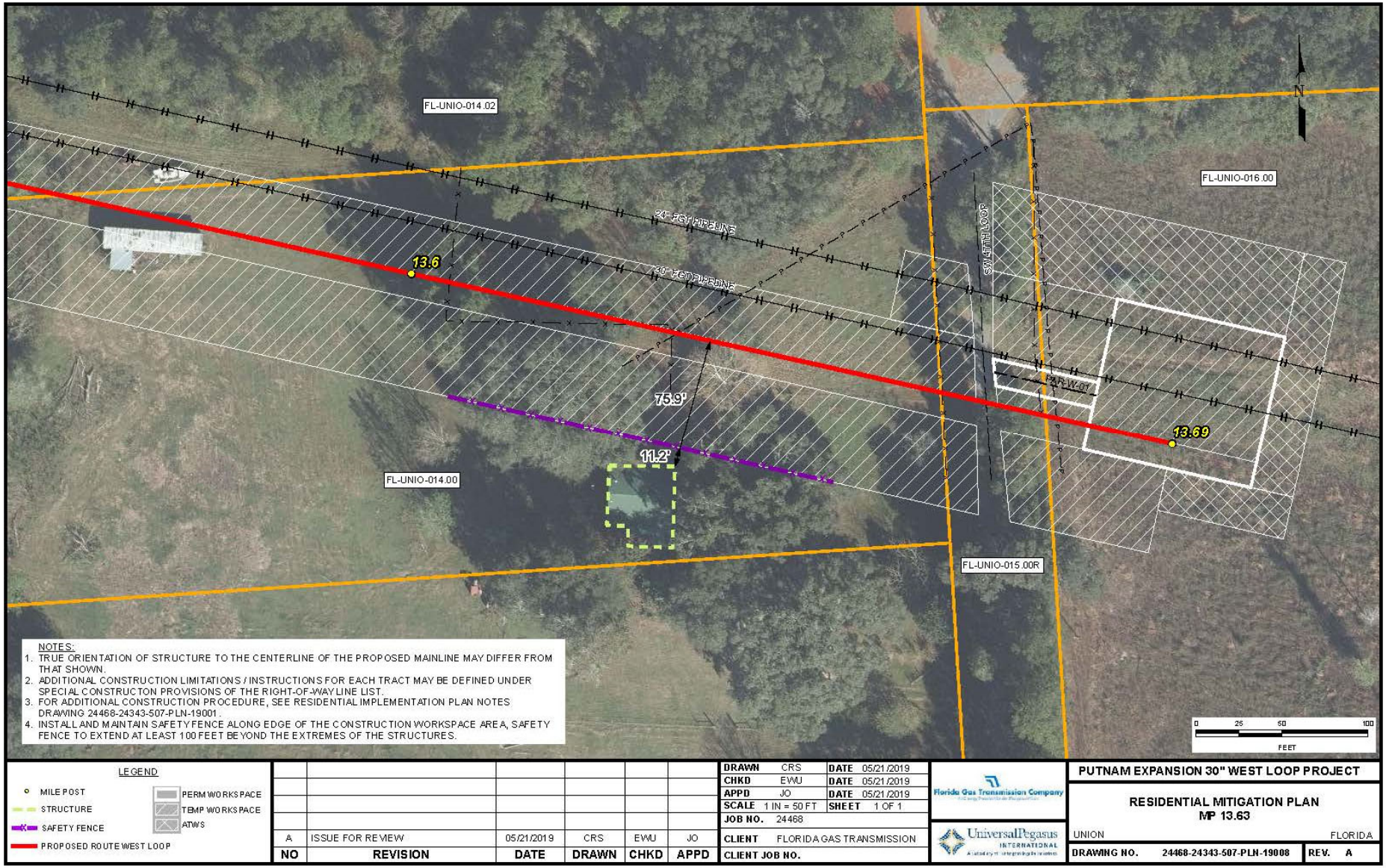


**Figure 15**
**Site Specific Residential Mitigation Plan**

# Appendix F
# Temporary and Permanent Land Use for the Putnam Expansion Project

| Appendix F<br>Temporary and Permanent Land Use for the Putnam Expansion Project | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| **Facility** | **Land Use Category** | | **Temporary Impacts** | | | **Permanent Impacts** | | **Project Total (acres)** |
| | | | **Acres** | | | **Acres** | | |
| | | | **Outside Existing ROW [a]** | **Within Existing ROW [b]** | **Total** | **Outside Existing ROW [a]** | **Within Existing ROW [b]** | **Total** |
| **Pipeline Loops** | | | | | | | | |
| West Loop [c] | Agricultural Land | | 7.6 | 5.2 | 12.8 | 1.0 [k] | | 13.8 |
| | Forest/Woodland | | 36.1 | 7.7 | 43.8 | 1.9 [k] (Note: 0.5 acre to be avoided by HDD) | | 45.7 (2.4 acres will be maintained in the existing and new operations ROW used by the West Loop) [m] |
| | Silviculture | | 12.2 | 2.3 | 14.5 | <0.1 [k] | | 14.5 (0.7 acre will be maintained in the existing and new operations ROW used by the West Loop) [m] |
| | Rangeland | | 5.7 | 4.9 | 10.6 | 0.5 [k] | | 11.1 |
| | Open Land | | 2.3 | 0.7 | 3.0 | 0.1 [k] | | 3.1 |
| | Residential Land | | 11.4 | 6.3 | 17.7 | 0.2 [k] | | 17.9 |
| | Industrial/ Commercial Land | | 0.0 | 0.0 | 0.0 | 0.0 [k] | | 0.0 |
| | Open Water [d] | | <0.1 | <0.1 | <0.1 | <0.1 [k] (Note: with HDD impacts will be < 0.005 acre) | | 0.1 |
| | Wetlands [d,e] | PEM | 0.5 | 1.7 | 2.2 | <0.01 [k] (Note: avoided by HDD) | | 2.2 |
| | | PSS | 0.0 | 0.0 | 0.0 | 0.0 [k] | | 0.0 |

| Appendix F<br>Temporary and Permanent Land Use for the Putnam Expansion Project | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| **Facility** | **Land Use Category** | | **Temporary Impacts** | | | **Permanent Impacts** | | | **Project Total (acres)** |
| | | | **Acres** | | | **Acres** | | | |
| | | | **Outside Existing ROW [a]** | **Within Existing ROW [b]** | **Total** | **Outside Existing ROW [a]** | **Within Existing ROW [b]** | **Total** | |
| | | PFO | 1.7 | 1.8 | 3.5 | 0.7 [k] (Note: with HDD impacts will be 0.01 acre) | | | 4.2 (0.5 acre will be maintained in the existing and new operations ROW used by the West Loop) [m] |
| | ROW | | 6.3 | 49.3 | 55.6 | 0.5 [k] | | | 56.1 |
| East Loop [c] | Agricultural Land | | 0.0 | 0.0 | 0.0 | 0.0 [k] | | | 0.0 |
| | Forest/Woodland | | 40.4 | 21.3 | 61.7 | 9.4 [k] | | | 71.1 (6.5 acres will be maintained in the existing and new operations ROW used by the East Loop) [m] |
| | Silviculture | | 1.7 | 0.1 | 1.8 | 0.0 [k] | | | 1.8 (0.1 acre will be maintained in the existing and new operations ROW used by the East Loop) [m] |
| | Rangeland | | 1.0 | 0.0 | 1.0 | 0.2 [k] | | | 1.2 |
| | Open Land | | 1.9 | 0.1 | 2.0 | 0.2 [k] | | | 2.2 |
| | Residential Land | | 1.4 | 0 | 1.4 | <0.1 [k] | | | 1.4 |
| | Industrial/ Commercial Land | | 0.0 | 0.0 | 0.0 | 0.0 [k] | | | 0.0 |
| | Open Water [d] | | 0.0 | 0.0 | 0.0 | 0.0 [k] | | | 0.0 |
| | Wetlands [d,e] | PEM | 0.3 | 0.0 | 0.3 | <0.1 [k] | | | 0.3 |
| | | PSS | 0.0 | 0.0 | 0.0 | 0.0 [k] | | | 0.0 |
| | | PFO | 0.0 | 0.0 | 0.0 | 0.0 [k] | | | 0.0 |
| | ROW | | 0.3 | 9.3 | 9.6 | 1.0 [k] | | | 10.6 |

| Appendix F<br>Temporary and Permanent Land Use for the Putnam Expansion Project | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| **Facility** | **Land Use Category** | **Temporary Impacts** | | | **Permanent Impacts** | | | **Project Total (acres)** |
| | | **Acres** | | | **Acres** | | | |
| | | **Outside Existing ROW [a]** | **Within Existing ROW [b]** | **Total** | **Outside Existing ROW [a]** | **Within Existing ROW [b]** | **Total** | |
| **Aboveground Facilities** | | | | | | | | |
| Existing Columbia Receiver Station Relocation (West Loop) | Industrial/ Commercial Land | 0.0 | 0.4 | 0.4 | 0.0 | N/A [l] | 0.0 | 0.4 |
| New Union Receiver Station (West Loop) | ROW | 0.0 | 0.0 | 0.0 | <0.1 | 0.2 | 0.2 | 0.2 |
| Existing Clay Receiver Station Relocation (East Loop) | Industrial/ Commercial Land | 0.0 | 0.2 | 0.2 | 0.0 | N/A [l] | 0.0 | 0.2 |
| New Putnam Receiver Station (East Loop) | ROW | 0.0 | 0.0 | 0.0 | 0.0 | 0.2 | 0.2 | 0.2 |
| | Open Land | 0.0 | 0.0 | 0.0 | <0.1 | 0.0 | <0.1 | <0.1 |
| Compressor Station 18 [f] | Industrial/ Commercial Land | 0.0 | 37.7 | 37.7 | 0.0 | N/A [l] | 0.0 | 37.7 |
| **Pipe and Contractor Yards [g]** | | | | | | | | |
| West Loop – Yard 1 | Agricultural Land | 18.7 | 0.0 | 18.7 | 0.0 | 0.0 | 0.0 | 18.7 |
| | Open Land | 2.2 | 0.0 | 2.2 | 0.0 | 0.0 | 0.0 | 2.2 |
| West Loop – Yard 3 [h] | Rangeland | 17.7 | 0.0 | 17.7 | 0.0 | 0.0 | 0.0 | 17.7 |
| | Forested | 0.2 | 0.0 | 0.2 | 0.0 | 0.0 | 0.0 | 0.2 |
| East Loop – Yard 2 | Rangeland | 20.1 | 0.0 | 20.1 | 0.0 | 0.0 | 0.0 | 20.1 |
| | Forested | 0.5 | 0.0 | 0.5 | 0.0 | 0.0 | 0.0 | 0.5 |
| East Loop – Yard 3 | Rangeland | 4.0 | 0.0 | 4.0 | 0.0 | 0.0 | 0.0 | 4.0 |
| **Access Roads** | | | | | | | | |
| Temporary Access Road (TAR)-W-01 [i] | ROW | 1.9 | 0.0 | 1.9 | 0.0 | 0.0 | 0.0 | 1.9 |

| Appendix F<br>Temporary and Permanent Land Use for the Putnam Expansion Project | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| **Facility** | **Land Use Category** | **Temporary Impacts** | | | **Permanent Impacts** | | | **Project Total (acres)** |
| | | **Acres** | | | **Acres** | | | |
| | | **Outside Existing ROW [a]** | **Within Existing ROW [b]** | **Total** | **Outside Existing ROW [a]** | **Within Existing ROW [b]** | **Total** | |
| TAR-W-02 i | ROW | 1.6 | 0.0 | 1.6 | 0.0 | 0.0 | 0.0 | 1.6 |
| Permanent Access Road (PAR)-W-01 | ROW | 0.0 | 0.0 | 0.0 | 0.0 | <0.1 | <0.1 | <0.1 |
| TAR-E-01 i | ROW | 0.6 | 0.0 | 0.6 | 0.0 | 0.0 | 0.0 | 0.6 |
| TAR-E-02 i | ROW | <0.1 | 0.0 | <0.1 | 0.0 | 0.0 | 0.0 | <0.1 |
| TAR-E-03 [i] | ROW | 0.2 | 0.0 | 0.2 | 0.0 | 0.0 | 0.0 | 0.2 |
| TAR-E-04 i | ROW | 0.2 | 0.0 | 0.2 | 0.0 | 0.0 | 0.0 | 0.2 |
| TAR-E-05 i | ROW | 0.1 | 0.0 | 0.1 | 0.0 | 0.0 | 0.0 | 0.1 |
| TAR-E-06 i | ROW | 0.3 | 0.0 | 0.3 | 0.0 | 0.0 | 0.0 | 0.3 |
| TAR-E-07 [j] | ROW | 2.0 | 0.0 | 2.0 | 0.0 | 0.0 | 0.0 | 2.0 |
| TAR-E-08 [j] | ROW | 0.7 | 0.0 | 0.7 | 0.0 | 0.0 | 0.0 | 0.7 |
| TAR-E-09 [j] | ROW | 4.2 | 0.0 | 4.2 | 0.0 | 0.0 | 0.0 | 4.2 |
| TAR-E-10 [j] | ROW | 2.8 | 0.0 | 2.8 | 0.0 | 0.0 | 0.0 | 2.8 |
| PAR-E-01 | ROW | 0.0 | 0.0 | 0.0 | 0.0 | 0.1 | 0.1 | 0.1 |

Notes:

[a] Does not overlap the existing Florida Gas system's right-of-way (ROW).

[b] Overlaps the existing Florida Gas system's ROW.

[c] Pipeline temporary impact acreages include the Additional Temporary Workspace (ATWS) that is listed in Resource Report 8, Table 8.1-5.

[d] Based on field survey results.

[e] Palustrine Emergent (PEM), Palustrine Scrub Shrub Wetlands (PSS), Palustrine Forested (PFO).

[f] The proposed modification to Compressor Station 18 will be entirely located within the existing fence line of the station.

[g] West Loop Yard 2 and East Loop Yard 1 were eliminated during the alternative analysis process (see Resource Report No. 10).

[h] The yard crosses the ROW. Acreage within the construction ROW was included in the West Loop acreages.

[i] No planned improvements are anticipated to be required to this existing access road.

[j] Temporary access road is an existing road and will be returned to pre-construction conditions or per landowner agreement following construction.

[k] Acreage reflects new permanent ROW to be acquired.

[l] No new land will be affected during operations, existing facility with no planned changes in footprint.

[m] In open-cut areas, the FERC Plan and Procedures require that 10 feet of the permanent ROW (centered on the pipeline) be maintained in an herbaceous state and trees be restricted to less than 15 feet high within 15 feet of the pipeline. The maintained ROW in this table reflects the 10 feet area to be maintained within a herbaceous state. Maintained ROW excludes areas which will be avoided by bore, Direct Pipe, or HDD.

# Appendix G
# Cumulative Impact Table

| Appendix G<br>Projects Potentially Contributing to Cumulative Impacts to the Putnam Expansion Project | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| ID No. | Project Name (Sponsor) | Description | Location | | | Status | | Driver for Cumulative Effect (Resources within Geographic Scope [c]) |
| | | | County | Distance (miles) | Direction | Past, Present, Reasonably Foreseeable | Timeline and Permitting | |
| 1 | City Center West | Construction of a stormwater management system | Orange | 3.5 | NW | Past [b] | Permit received January 2017 | Same HUC 12 Watershed (GW, SW, WE, FW, VG) |
| 2 | Coral Farms Solar Energy Center (Florida Power and Light [FPL]) | Development of a megawatt solar photovoltaic energy facility | Putnam | 3.6 | ENE | Present (operations) | Currently in operation | Same HUC 12 Watershed and timeframe (operations) (GW, SW, WE, FW, VG) |
| 3 | Dunkin Donuts | Facility development requiring an uplands stormwater management system | Columbia | 1.1 | NNE | Past [b] | Self-certification submitted October 2018, assumed to be constructed prior to Putnam Expansion | Same HUC 12 Watershed (GW, SW, WE, FW, VG) |
| 4 | G.M. Marshalling Yard & FL Auto Auction | Addition of structures and open-air canopies/awnings | Orange | 4.9 | NW | Past [b] | Permit received January 2018 | Same HUC 12 Watershed (GW, SW, WE, FW, VG) |
| 5 | Gotcha 7-11 | Facility development requiring an uplands stormwater management system | Orange | 2.6 | NW | Past [b] | Self-certification submitted October 2017, assumed to be constructed prior to Putnam Expansion | Same HUC 12 Watershed (GW, SW, WE, FW, VG) |
| 6 | Grandin Sand Mine Expansion (Vulcan) | Currently in the permitting process to expand mining at the existing Grandin Mine site. All of the expansion tracts are adjacent to the existing mine | Putnam | 0 | N/A | Present | Existing mine site is in operation. The planned expansion is currently in the permitting process | Overlapping the Project footprint and timeframe (GW, SW, WE, FW, VG, CR, GS, LU, VS, NS, AQ) |
| 7 | FDOT Highway 100 Widening and Reconstruction | Widening and reconstruction of SR 100 from County Road 216 to State Route 26 | Putnam | 0 | N/A | Reasonably foreseeable | Scheduled for approval in 2021 | Overlap of the Project footprint and construction timeframe (GW, SW, WE, FW, VG, CR, GS, LU, VS, NS, AQ) |

| Appendix G<br>Projects Potentially Contributing to Cumulative Impacts to the Putnam Expansion Project | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| ID No. | Project Name (Sponsor) | Description | Location | | | Status | | Driver for Cumulative Effect (Resources within Geographic Scope [c]) |
| | | | County | Distance (miles) | Direction | Past, Present, Reasonably Foreseeable | Timeline and Permitting | |
| 8 | Jacksonville Expansion Project (Florida Gas) | Approximately 3.0 miles of looping pipeline and associated facilities; One new compressor unit, re-wheeling of an existing turbine compressor unit at Compressor Station 16 in Bradford County; Approximately 5.7 miles of looping pipeline in Bradford and Clay Counties; and one new regulation station in Bradford County | Bradford, Clay, Columbia, Suwannee | 0 | N/A | Present (operations) | Constructed | Overlapping the Project footprint (GW, SW, WE, FW, VG, CR, GS, LU, VS, NS, AQ) |
| 9 | Keane Dock | Private residential single-family dock | Suwannee | 5.6 | SW | Past [b] | Permit received May 2018, assumed to be constructed prior to Putnam Expansion | Same HUC 12 Watershed (GW, SW, WE, FW, VG) |
| 10 | Nettles Sausage | Addition of a process building and modification of existing stormwater outfall structure. | Columbia | 5.7 | NNE | Present | Permit received February 2019 | Same HUC 12 Watershed (GW, SW, WE, FW, VG) |
| 11 | Oak Meadows Well Houses | Construction of a new well house and retention pond | Orange | 1.6 | NNE | Present | Permit application submitted March 2019 | Same HUC 12 Watershed (GW, SW, WE, FW, VG) |
| 12 | Ocoee Business Park | Site modification, including the existing stormwater system. | Orange | 5.0 | NW | Past [b] | Permit received October 2018 | Same HUC 12 Watershed (GW, SW, WE, FW, VG) |
| 13 | Ocoee Hill | Construction of a building, parking lot, and modification of an existing stormwater system. | Orange | 3.3 | NW | Past [b] | Permit received October 2018 | Same HUC 12 Watershed (GW, SW, WE, FW, VG) |
| 14 | Ocoee Lakefront Park, Phase 1B | Facility development requiring an uplands stormwater management system | Orange | 4.8 | NW | Past [b] | Self-certification submitted October 2018, assumed to be constructed prior to Putnam Expansion | Same HUC 12 Watershed (GW, SW, WE, FW, VG) |

| Appendix G<br>Projects Potentially Contributing to Cumulative Impacts to the Putnam Expansion Project | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| ID No. | Project Name (Sponsor) | Description | Location | | | Status | | Driver for Cumulative Effect (Resources within Geographic Scope [c]) |
| | | | County | Distance (miles) | Direction | Past, Present, Reasonably Foreseeable | Timeline and Permitting | |
| 15 | Ocoee Storage Facility | Facility development requiring an uplands stormwater management | Orange | 4.2 | NW | Past [b] | Self-certification submitted January 2018, assumed to be constructed prior to Putnam Expansion | Same HUC 12 Watershed (GW, SW, WE, FW, VG) |
| 16 | Old Wire Road | new road construction and two storm water management facilities | Columbia | 0.5 | SSW | Past [b] | Permit received April 2017 | Same HUC 12 Watershed (GW, SW, WE, FW, VG, LU) |
| 17 | Olympus Dr. Dock | Private residential single-family dock | Orange | 3.8 | NNW | Past [b] | Self-certification submitted January 2017, assumed to be constructed prior to Putnam Expansion | Same HUC 12 Watershed (GW, SW, WE, FW, VG) |
| 18 | Palatka Lateral Pipeline (SeaCoast) | Construction of an approx. 21.3-mile 30-inch-diameter natural gas pipeline terminating at the Seminole Combined Cycle Facility Power Plant in Palatka | Putnam | 0 | N/A | Present (operations) | USACE public notice published in December 2018 | Overlapping the Project footprint and timeframe (operations) (GW, SW, WE, FW, VG, CR, GS, LU, VS, NS, AQ) |
| 19 | Palm Coast Collision | Facility development requiring an uplands stormwater management system | Orange | 5.0 | WNW | Past [b] | Self-certification submitted April 2017, assumed to be constructed prior to Putnam Expansion | Same HUC 12 Watershed (GW, SW, WE, FW, VG) |
| 20 | Putnam Borrow Area | Excavation of a borrow area in four phases | Putnam | 7.0 | SW | Present | Permit received October 2018 | Same HUC 12 Watershed and timeframe (operations) (GW, SW, WE, FW, VG) |

| Appendix G<br>Projects Potentially Contributing to Cumulative Impacts to the Putnam Expansion Project | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| ID No. | Project Name (Sponsor) | Description | Location | | | Status | | Driver for Cumulative Effect (Resources within Geographic Scope [c]) |
| | | | County | Distance (miles) | Direction | Past, Present, Reasonably Foreseeable | Timeline and Permitting | |
| 21 | River Run Dock | Two private residential single-family docks | Suwannee | 5.6 | SW | Past [b] | Self-certification submitted February 2017, assumed to be constructed prior to Putnam Expansion | Same HUC 12 Watershed (GW, SW, WE, FW, VG) |
| 22 | SeaCoast Lateral Gate Station | Installed connection to the Florida Gas pipeline system | Putnam | 0 | N/A | Present (operations) | Self-certification submitted February 2019, constructed in 2019 | Overlapping the Project footprint and timeframe (operations) (GW, SW, WE, FW,VG, CR, GS, LU, VS, NS, AQ) |
| 24 | Silver Bait Peat Mine | Peat mine site which began mining in 2017 | Putnam | 4.3 | NE | Present (operations) | FEP ERP received March 2017, currently in operation | Same HUC 12 Watershed and timeframe (operations) (GW, SW, WE, FW, VG) |
| 25 | SR50 Car Wash | Facility development requiring an uplands stormwater management system | Orange | 2.3 | NNE | Past [b] | Self-certification submitted May 2018, assumed to be constructed prior to Putnam Expansion | Same HUC 12 Watershed (GW, SW, WE, FW, VG) |
| 26 | Storage Facility | Facility development requiring an uplands stormwater management system | Orange | 4.1 | NW | Past [b] | Self-certification submitted January 2017, assumed to be constructed prior to Putnam Expansion | Same HUC 12 Watershed (GW, SW, WE, FW, VG) |
| 27 | Sunbelt Rental | Addition of a 7,800- square foot building, parking lot, and a gravel lay down yard for storage. Modification of an existing stormwater system | Orange | 4.9 | NW | Past [b] | Permit received July 2017 | Same HUC 12 Watershed (GW, SW, WE, FW, VG) |
| 28 | Sysco | Addition of buildings and parking with conversion of a wet detention system into an underground chamberized system | Orange | 4.5 | NW | Past [b] | Permit received December 2018 | Same HUC 12 Watershed (GW, SW, WE, FW, VG) |

| Appendix G<br>Projects Potentially Contributing to Cumulative Impacts to the Putnam Expansion Project | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| ID No. | Project Name (Sponsor) | Description | Location | | | Status | | Driver for Cumulative Effect (Resources within Geographic Scope [c]) |
| | | | County | Distance (miles) | Direction | Past, Present, Reasonably Foreseeable | Timeline and Permitting | |
| 29 | Winter Garden Promenade | Installation of buildings, parking lot, and a stormwater retention pond | Orange | 4.6 | WNW | Past [b] | Permit received October 2017 | Same HUC 12 Watershed (GW, SW, WE, FW, VG) |

Notes:
[a] To the closest component of the Putnam Expansion Project.
[b] Estimated to have been built by the time of construction of the Putnam Expansion Project based on the current permitting status of the project.
[c] GW – Groundwater; SW – Surface Water; WE – Wetlands; FW – Fish and Wildlife; VG – Vegetation; CR – Cultural Resources; GS – Geology and Soils; LU – Land Use; VS – Visual; NS – Noise; AQ – Air Quality