

# WETLAND AND WATERBODY ACCESS CONSTRUCTION CRITERIA MANUAL



**Gulf Power®**

*Company:* Gulf Power Company

*Project:* North Florida Resiliency Connection Project

*Location:* Columbia, Suwannee, Madison, Jefferson, Leon,  
Gadsden and Jackson Counties

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Effective Date: Prior to and during construction

Version: March 18, 2020

Revisions:

# Table of Contents

<b>1. INTRODUCTION .....</b>	<b>1</b>
1.1 Project Description .....	1
1.2 Purpose of this Manual .....	2
1.3 Inquiries .....	2
<b>2. SUPERVISION AND INSPECTION.....</b>	<b>2</b>
2.1 Responsibilities of the Environmental Inspector (EI).....	3
2.2 Environmental Training for Construction .....	4
<b>3. CONSTRUCTION OF THE NFRC TRANSMISSION LINE .....</b>	<b>4</b>
3.1 Construction Sequence .....	4
3.2 R/W Restoration and Final Cleanup .....	100
3.3 Revegetation and Seeding .....	11
3.4 Typical R/W Requirements .....	11
3.5 Access.....	12
3.6 Off-R/W Disturbance.....	13
3.7 Unauthorized Vehicle Access to R/W .....	13
<b>4. SPECIAL CONSTRUCTION AREAS.....</b>	<b>133</b>
4.1 Agricultural Areas.....	133
4.2 Residential Areas.....	13
4.3 Staging Areas.....	144
4.4 Repeater Station.....	16
<b>5. WATERBODY CROSSINGS.....</b>	<b>17</b>
5.1 Waterbody Definition.....	17
5.2 Procedures for Crossing Navigable and Non-Navigable Waterbodies .....	177
5.3 Public Health / Safety.....	21
5.4 Protection of Water Quality.....	22
5.5 Restoration of Shorelines.....	233
<b>6. WETLAND CROSSINGS.....</b>	<b>23</b>
6.1 Wetland Definition .....	233
6.2 Working In & Access Through Wetlands .....	233
6.3 Public Health / Safety.....	244
6.4 Protection of Water Quality.....	244
6.5 Clearing & Ground Disturbance .....	255
6.6 Restoration of Wetlands .....	25
<b>7. SPILL CONTROL PLAN .....</b>	<b>266</b>

## **LIST OF APPENDICES**

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### **APPENDIX A Overall Project Map**

### **APPENDIX B Figures**

- Figure 1 – 15’ Easement Clearing Detail**
- Figure 2 – 60’ Easement Clearing Detail**
- Figure 3 – Equipment used for clearing.**
- Figure 4 – BMP – Silt Fence Installation**
- Figure 5- BMP – Floating Turbidity Barrier**
- Figure 6 – BMP – Hay Bale Installation**
- Figure 7 – BMP – Geotextile Fabric for Bank Stabilization – Slope**
- Figure 8 – BMP – Geotextile Fabric for Bank Stabilization – Navigable Waterway**
- Figure 9 – BMP - Typical 60’ Easement Isometric**
- Figure 10 – Upland Construction R/W Profile – Typical**
- Figure 11 – Upland Construction R/W Profile – Incline / Side Slope**
- Figure 12 – Road Crossing – Aerial Transmission**
- Figure 13 – RR Crossing – Aerial Transmission**
- Figure 14 – Navigable Waterbody Crossing – Aerial Transmission**
- Figure 15 – FGT Crossing w/ Matting– Vehicular**
- Figure 16 – FGT Crossing w/ Air Bridge – Vehicular**
- Figure 17 – Non Flowing Waterbody Crossing**
- Figure 18 – Waterbody Crossing – Temporary Bridge (Short)**
- Figure 19 – Waterbody Crossing – Temporary Bridge (Medium)**
- Figure 20 – 60’ Easement Matting Detail – Wetland Minor**
- Figure 21 – 60’ Easement Matting Detail – Wetland Major**
- Figure 22 – 60’ Easement Matting Detail - Turnaround**
- Figure 23 – Wetland Crossing General Procedures**

### **APPENDIX C – Sovereign and Submerged Lands (SSL’s) Figures**

- SSL #1 – Rocky Creek**
- SSL #2 – Suwannee River**
- SSL #3 – Aucilla River**
- SSL #4 – Cocksey Branch**
- SSL #5 – St. Marks River**
- SSL #6 – Munson Slough**
- SSL #7 – Ochlocknee River**
- SSL #8 – Midway Branch**
- SSL #9 – Midway Branch**
- SSL #10 – Little River**
- SSL #11 – Crooked Creek**
- SSL #12 – Apalachicola River**
- SSL #13 – Spring Branch**

### **APPENDIX D – Spill Control Plan**

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## ACRONYMS AND ABBREVIATIONS

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BMPs	Best Management Practices
EMF	Electric and Magnetic Field
FDEP	Florida Department of Environmental Protection
FDOT	Florida Department of Transportation
GPC	Gulf Power Company
IFAS	University of Florida Institute of Food and Agricultural Sciences
MP	Milepost
NESC	National Electrical Safety Code
NFRC	North Florida Resiliency Connection
NRCS	Natural Resources Conservation Service
NextEra	NextEra Energy Resources, Inc.
NOI	Notice of Intent
WWACCM	Wetland and Waterbody Access Construction Criteria Manual
Project	North Florida Resiliency Connection Project
R/W	Right-of-Way
SCP	Spill Control Plan
SSL	Sovereignty Submerged Lands
SWPPP	Stormwater Pollution Prevention Plan
U.S.	United States
USACE	U.S. Army Corps of Engineers
USGS	U.S. Geological Survey

# 1. INTRODUCTION

## 1.1 Project Description

Gulf Power Company (GPC) is planning the construction of the new North Florida Resiliency Connection (NFRC) 161kV Transmission Line. The new 176-mile, single circuit transmission line will route from FPL’s Raven Substation (Lake City) to GPC’s Sinai Cemetery Substation (Chattahoochee).

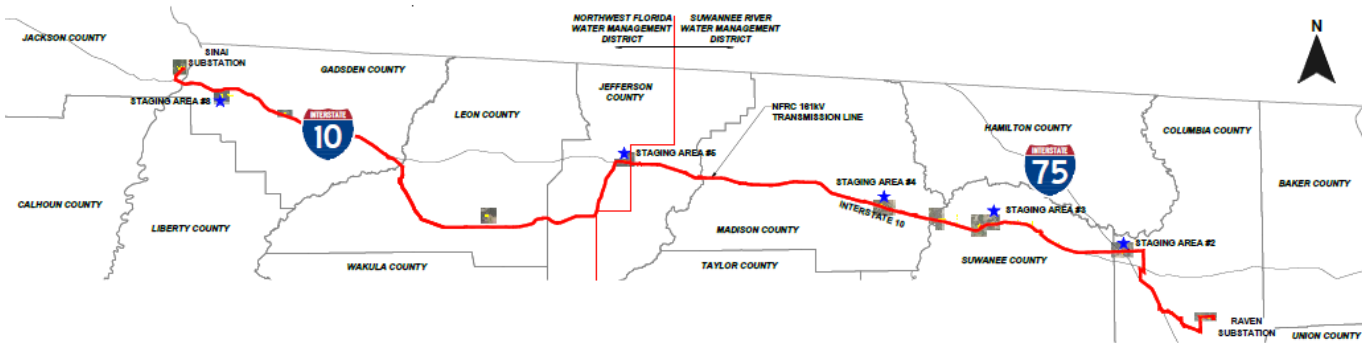
This Project is located in North Florida and traverses the following seven counties: Columbia, Suwannee, Madison, Jefferson, Leon, Gadsden, and Jackson. (See below and Appendix A for a Location Map)

Generally, the new NFRC 161kV Transmission Line will generally follow existing linear facilities including FDOT (I-75, I-10, US90, US41), local rural roads, and other utility corridors (Clay Electric Co-Op, City of Tallahassee, FGT). A 15 foot wide easement is contemplated where the line is adjacent to non-limited access rights of way. A 60 foot wide easement is contemplated where the line is overland or adjacent to limited access rights of way.

The proposed line includes:

- o 176-mile new build of NRFC 161kV transmission line.
- o 11.5-mile rebuild of existing FPL Suwannee-Columbia 115kV transmission line, (double circuit).
- o 14-miles rebuild of existing City of Tallahassee 230kV transmission lines L-31N and L-33 through the Apalachicola National Forest.
- o 13 sovereign and submerged lands water crossings
- o 24 major FDOT crossings

The NFRC 161kV line will be installed with two (2) bundled 1272 ACSR “Pheasant” conductor rated at 3210 Amps (850 MW). The line will have a single 0.646 96 SMF OPGW shield wire.



**Project Area Map**

## 1.2 Purpose of this Manual

This Wetland and Waterbody Access Construction Criteria Manual (“WWACCM”) has been prepared for use by Gulf Power Company and its contractors as a guide for construction techniques in wetlands and waterbodies. Impacts to navigation, public health / safety, water quality and restoration are also discussed. The Manual also serves as a guide for minimizing erosion of disturbed soils and transportation of sediments off the R/W and into sensitive resources (wetlands, streams, and residential areas) during transmission line construction.

The procedures developed in this Manual, which represent GPC’s best management practices (BMP’s), are designed to accommodate varying field conditions while maintaining rigid minimum standards for the protection of environmentally sensitive areas. This Manual is designed to provide specifications for the installation and implementation of construction techniques in wetlands and waterbodies while permitting adequate flexibility to use the most appropriate measures based on site-specific conditions. This Manual provides general information on the transmission line construction process and describes specific measures that will be employed during and following construction to minimize effects on the environment from the construction of the Project facilities.

The purpose of this Manual is to preserve the integrity of environmentally sensitive areas and to maintain existing water quality by implementing the following objectives:

- Minimize the extent and duration of disturbance;
- Maintain existing overland flow patterns;
- Install temporary erosion control measures; and
- Establish an effective inspection and maintenance program.

## 1.3 Inquiries

Inquiries regarding this Manual should be addressed to Mr. Benny Luedike, Environmental Manager.

For field conditions requiring immediate response, contact Jessica Ireton-Hewitt, Senior Project Manager.

Additional contact information will be provided upon request.

## 2. SUPERVISION AND INSPECTION

To effectively mitigate Project-related effects, the Manual must be properly implemented in the field. Quick and appropriate decisions in the field regarding critical issues such as stream and wetland crossings, placement of erosion controls and other construction related items are essential.

To ensure that the Manual is properly implemented, at least one Lead Environmental Inspector and several Environmental Inspectors (EI) will be designated by GPC for each construction phase during active construction or restoration. In addition to the EI’s, a stormwater pollution prevention team will be identified by the contractor. The EI’s will have peer status with all other activity inspectors and will report directly to the Environmental Manager who has overall environmental authority on the construction spread. The EI’s will have the authority to stop activities that violate the environmental conditions of the federal and state permits, or landowner requirements, and to order corrective action.

<b><u>24 Hour Emergency Contact:</u></b>	To Be Determined
<b><u>Key Project Contacts:</u></b>	To Be Determined
<b><u>Gulf Power Company:</u></b>	Benny Luedike, Environmental Manager
<b><u>Transmission Line Contractor:</u></b>	To Be Determined
<b><u>Project Engineer:</u></b>	Mike Leahy, P.E., P.S.M. Pickett and Associates, Inc. 5010 W. Nassau Street Tampa, FL 33607 813 404 1555 mleahy@pickettusa.com

## **2.1 Responsibilities of the Environmental Inspector (EI)**

At a minimum, the EI will be responsible for:

1. Inspecting construction activities for compliance with the requirements of this Manual, the construction drawings, and ensuring Federal or State environmental permits and conditions therein are adhered to;
2. Identifying, documenting, and overseeing corrective actions, as necessary to ensure activities remain in compliance;
3. Verifying that the limits of authorized construction work areas and locations of access are visibly marked before clearing and maintained throughout construction;
4. Verifying the location of signs and highly visible flagging marking the boundaries of sensitive resource areas, waterbodies, wetlands, or areas with special requirements at or near the construction work area;
5. Identifying erosion/sediment control and soil stabilization needs in all areas;
6. Advising the Construction Lead when environmental conditions (such as wet weather) make it advisable to restrict or delay construction;
7. Ensuring restoration of the project area;
8. Ensuring that erosion control devices are properly installed to prevent sediment flow into environmental resource areas (e.g. wetlands, waterbodies, cultural resource sites, and sensitive species habitats) and onto roads, and determining the need for additional erosion control devices;
9. Inspecting, reporting, and ensuring the maintenance of temporary erosion control measures at least:
  - i. On a daily basis in areas of active construction or equipment operation;
  - ii. On a weekly basis in areas with no construction or equipment operation; and
  - iii. Within 24 hours of the end of a storm event producing 0.5 inch of rainfall or greater.
  - iv. As often as necessary until any poorly functioning erosion controls or sediment controls, non-compliant discharges, or any other deficiencies observed during a prior inspection are corrected and documented.

10. Ensuring the repair of all ineffective temporary erosion control measures within 24 hours of identification, or as soon as conditions allow if compliance with this time frame would result in greater environmental effects;
11. Keeping records of compliance with the environmental conditions of Federal or State environmental permits during active construction and restoration;
12. Identifying areas that should be given special attention to ensure stabilization and restoration after the construction phase;
13. Verifying that locations for any disposal of excess construction materials for beneficial reuse comply with Section 3.6.3.2 and 3.6.3.3 of this Manual;
14. Ensuring that the Contractor implements and complies with an approved Stormwater Pollution Prevention Plan (SWPPP);

## **2.2 Environmental Training for Construction**

All personnel working on the jobsite are required to understand the environmental requirements and work restrictions noted in environmental reports and they must understand all permit conditions. Pre-construction environmental training will be conducted with all contractors and subcontractors. Contractors and subcontractors will be encouraged to include environmental topics in their daily scheduled safety meetings.

# **3. CONSTRUCTION OF THE NFRC TRANSMISSION LINE**

## **3.1 Construction Sequence**

Transmission Lines are installed using conventional overland Transmission Line construction techniques. These activities are necessary for the installation of a stable, safe, and reliable transmission facility consistent with GPC requirements and regulations. This section provides an overview of the equipment and operations necessary for the installation of the NFRC Transmission Line, describes potential effects that may occur from each operation, and identifies the measures that will be implemented to control these potential effects. This section also discusses in detail the erosion and sediment control techniques that apply to each construction activity including clearing, foundation installation, structure installation, and conductor installation. It is the responsibility of the Contractor to provide a detailed outline of the proposed construction sequence. R/W restoration is addressed in Sections 3.1.8 and 3.3.

Installation of the Transmission Line is anticipated to proceed with multiple crews from one end of the construction spread to the other in an assembly line or "mainline" fashion. The spacing between the individual crews responsible for each interdependent activity is based on anticipated rate of progress. The activities listed below are normally performed in the following sequence:

- Survey and Flag the R/W;
- Clearing the R/W;
- Installing temporary erosion control;
- Delivering the poles to each proposed location
- Installation of the foundation / pole base
- Installation of the mid and top sections
- Framing of the structures
- Installation of the overhead conductor and shield wire
- R/W restoration and clean-up.

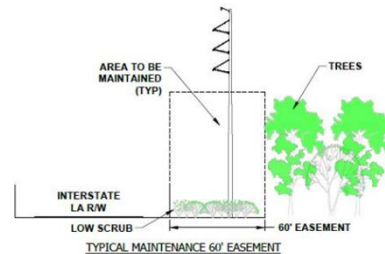
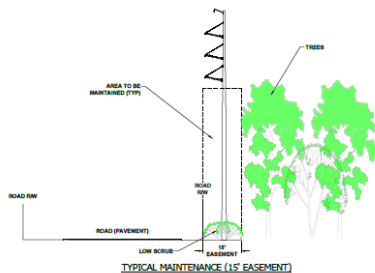
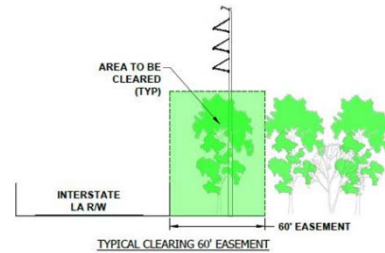
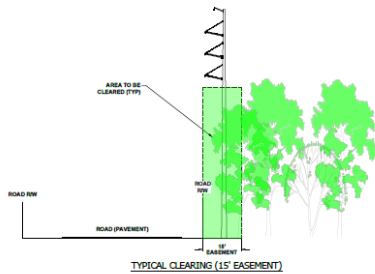


Obstacles to the mainline technique are often encountered and are not considered to be out of the ordinary. These obstacles, which include rock, wetlands, streams, roads, and residential areas, do not normally interrupt the assembly line flow.

### 3.1.1 Clearing

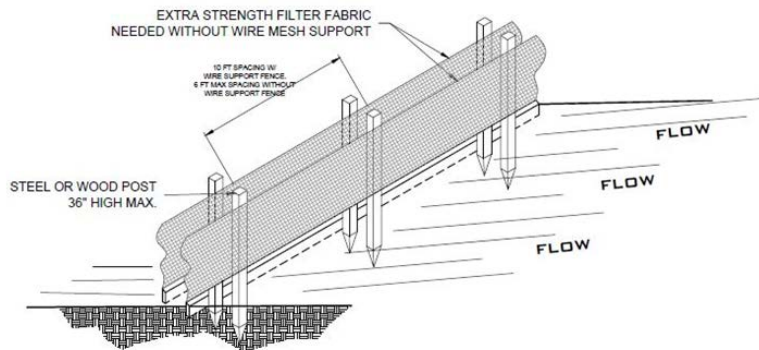
Clearing operations will include the removal of vegetation within the construction R/W. Various clearing methods will be employed depending on tree size, contour of the land, and the ability of the ground to support clearing equipment. Vegetative clearing will either be accomplished by hand or by cutting equipment. The following procedures will be standard practice during clearing: See Figures 1-3 in Appendix B.

1. Prior to beginning the removal of vegetation, the limits of clearing will be established and identified in accordance with the construction drawings;
2. All construction activities and ground disturbance will be confined to within the R/W shown on the construction drawings;
3. Clearly mark and protect trees to be saved as per landowner requests or as otherwise required;
4. All brush and trees will be felled into the construction R/W to minimize damage to trees and structures adjacent to the R/W. Trees that inadvertently fall beyond the edge of the R/W will be immediately moved onto the R/W and disturbed areas will be immediately stabilized;
5. Trees will be chipped or cut into lengths and then removed;
6. Brush and limbs may be disposed of in approved upland locations and according to State or local restrictions. Vegetative debris/waste cannot be stored or stockpiled in wetlands.



### 3.1.2 Installing Temporary Erosion Control

Temporary erosion controls intended to minimize the flow of sediment and to prevent the deposition of sediments beyond approved workspaces or into sensitive resources, will be installed following vegetative clearing operations. They may be constructed of materials such as silt fence, hay bales, floating turbidity barriers or an equivalent material as identified by the EI. See Figures 4 – 9 in Appendix B.



**Typical Silt Fence Detail**

Temporary stabilization of the disturbed R/W will be initiated immediately whenever work toward project completion and final stabilization has temporarily ceased on any portion of the disturbed R/W and will not resume for a period exceeding thirteen calendar days.

Install temporary erosion control at the base of slopes adjacent to road crossings and at waterbody and wetland crossings in accordance with Figures 4-9.

1. Temporary erosion control will be designed and maintained to minimize erosion and maximize sediment removal resulting from a 2-year, 24-hour storm event.
2. Inspect temporary erosion control daily in areas of active construction to ensure proper functioning and maintenance. In other areas, erosion control will be inspected and maintained on a weekly basis throughout construction, and within 24 hours following storm events. (See State-specific monitoring requirements in Section 2.1)
3. Maintain all temporary erosion control in place until permanent revegetation measures are successful or the upland areas adjacent to wetlands, waterbodies, or access areas are stabilized.
4. Remove temporary erosion control from an area when the area has been successfully restored as specified in Sections 3.2 and 3.2.

### 3.1.3 Delivering the poles to each proposed location

Generally, the poles will be initially delivered to each staging area and stored until needed to be installed. There are approximately 2,000 poles needed for the project, so roughly 400 poles / staging area. The concrete poles are generally single piece poles as shown below.



The steel poles will be generally 3 piece poles consisting of a base, mid-section (mid) and top section (top).



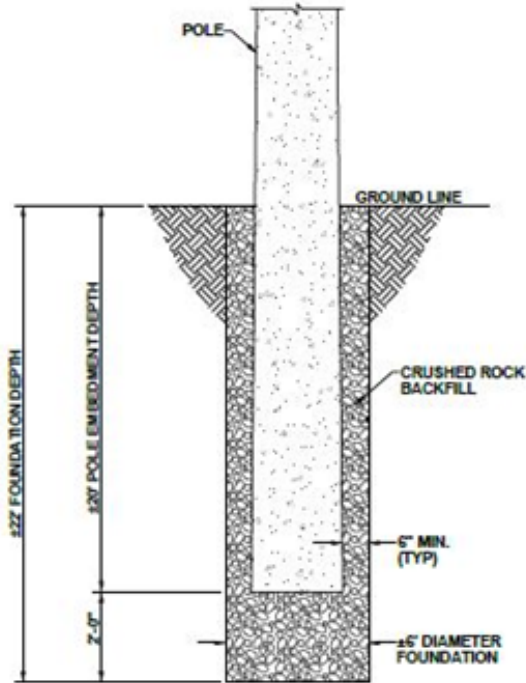
***Example of a Base, Mid and Top staged at a proposed pole location***

The concrete structures are typically hauled to each location using a pole hauler:

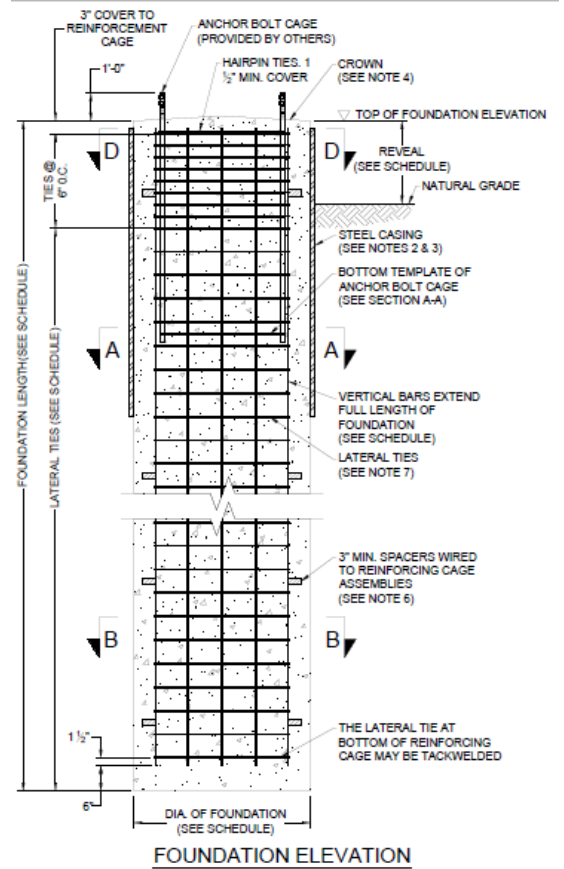


### 3.1.4 Installation of the foundation / pole base

The foundation for each pole is dependent on whether the pole is concrete or steel and whether it is a tangent or angle structure.



**TYPICAL FOUNDATION DETAIL**  
**DIRECT EMBEDDED POLE WITH ROCK BACKFILL**  
 AREA = 50.3 SQUARE FEET (0.001 ACRES)  
 VOLUME = 1509 CUBIC FEET (55.9 CUBIC YARDS)



Concrete poles will be direct embedded. The bottom part of the pole is set into an augered hole (typically 4' – 6' diameter) which is then backfilled with #57 crushed stone. The depth depends on the overall height and function, but typically range from 20' to 30' deep.

Steel pole foundations will consist of poured concrete caisson foundations. The caissons will have anchor bolts that will accept the steel pole base plate.



*Typical Installation of a steel pole base*



### 3.1.5 Installation of the mid and top sections

The mids and tops will be installed using a crane. Typically, the insulators will be framed on the ground and lifted into place with the top section.



*Framing the tops in the staging area*

### 3.1.6 Framing of the structures

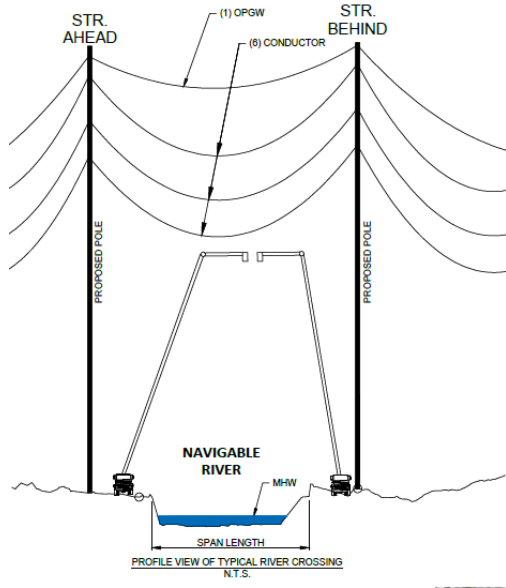


*Completed steel structure with insulators*

### 3.1.7 Installation of the conductor and shield wire

The wire stringing process is generally accomplished in four steps:

1. The wire stringing operation begins with placing blocks (rollers) on the structures.
2. Installation of a progression of ropes starting with a small (1/2" diameter) rope referred to as a p-line.
3. The p-line is then used to pull in a larger rope (1" diameter) referred to as a bull rope.
4. The bull rope is then used to pull in the actual conductor. Wire pulling / tensioning equipment will be set up to facilitate the wire pulling operation. Lift vehicles may also be used during the conductor pulling operation.



**Wire Tensioning Equipment**

**Conductors and OPGW (Refer to Figure 14 and 14.1)**

**3.2 R/W Restoration and Final Cleanup**

Restoration of the R/W will begin after Transmission Line construction activities have been completed. Restoration measures include the re-establishment of final grades and drainage patterns as well as the removal of temporary erosion and sedimentation control devices. Residential areas will be restored in accordance with Section 4.2.2. Property will be restored as close to its original condition as practical.

1. Final cleanup of the disturbed R/W will be initiated immediately following and grade restoration activities, and the Contractor shall make every reasonable effort to complete final cleanup of an area within 20 days after completion in that area (within 10 days in residential areas). If seasonal or other weather conditions prevent compliance with these time frames, maintain temporary erosion controls until conditions allow completion of cleanup.
2. The disturbed R/W will be seeded within six working days of final grading, weather and soil conditions permitting.
3. Grade the R/W to pre-construction contours.
4. Spread segregated topsoil back across the graded R/W to its original profile.
5. Remove excess rock from at least the top 12 inches of soil to the extent practical in all rotated and cultivated cropland, hayfields, managed pastures, residential areas, and other areas at the landowner's request. The size, density, and distribution of rock on the construction R/W should be similar to adjacent areas not disturbed by construction. The landowner or land management agency may approve other provisions in writing.
6. A travel lane may be left open temporarily to allow access by construction traffic if the temporary erosion control structures are installed, regularly inspected and maintained. When access is no longer required, the travel lane must be removed and the R/W restored.
7. Remove all construction debris from all construction work areas unless the landowner or land managing agency approves leaving materials onsite for beneficial reuse, stabilization, or habitat restoration.
8. Remove temporary erosion control when revegetation is successful.

### 3.3 Revegetation and Seeding

Successful revegetation of soils disturbed by Project-related activities is essential. Seeding will be conducted using the following requirements:

1. Incorporate recommended soil pH modifier and fertilizer into the top two inches of soil as soon as practical after application;
2. Seed all disturbed areas within six working days of final grading, weather and soil conditions permitting;
3. Prepare seedbed in disturbed areas to a depth of three to four inches to provide a firm seedbed. When hydroseeding, scarify the seedbed to facilitate lodging and germination of seed;
4. Seed disturbed areas in accordance with the seed mixes, rates, and dates based on site specific seed mixture recommendations to be obtained from the landowner, NRCS or local IFAS Extension Office, as required.
5. Base seeding rates on Pure Live Seed (“PLS”). Use seed within 12 months of seed testing;
7. Treat legume seed with an inoculant specific to the species using the manufacturer’s recommended rate of inoculant appropriate for the seeding method (broadcast, drill, or hydroseeding); and
8. Uniformly apply and cover seed in accordance the above criteria. In the absence of any recommendations from the local Natural Resource Conservation Service offices, landowner, or land managing agency to the contrary. A seed drill equipped with a cultipacker is preferred for application, but broadcast or hydroseeding can be used at double the recommended seeding rates. Where seed is broadcast, firm the seedbed with a cultipacker or roller after seeding. In rocky soils, or where site conditions may limit the effectiveness of this equipment, other alternatives may be appropriate (e.g., use of a chain drag) to lightly cover seed after application, as approved by the EI’s.

### 3.4 Typical R/W Requirements

Transmission Line construction workspace requirements are a function of structure type, equipment size, topography, location of construction such as at road crossings or river crossings, Transmission Line crossovers, methods of construction such as direct embedded or poured caisson construction, or existing soil conditions encountered during construction. As shown in Figures 10 and 11, and described further below, there are two typical R/W Requirements:

- a) A 15-foot wide easement is being utilized along non Limited Access Roadways. This 15-foot easement is adjacent to the road R/W line. Access along these sections (approximately 16 miles) will utilize existing paved roads (city and county roads, etc.).
- b) A 60-foot wide easement is being utilized along Limited Access Roadways (I-75 and I-10) as well as cross country. Access along these sections (approximately 160 miles) will generally be along and within the 60-foot wide easement. The 60-foot wide easement runs along the north side of I-10 and along the west side of I-75. Where the easement intersects a roadway (County, City, etc.) or Railroad, additional access easements will be utilized to provide turnarounds or access from the easement to the intersected road. See Figures 12 and 13 in Appendix B for typical details.

Easement widths are determined by compliance with:

- a) National Electrical Safety Code (NESC)
- b) Electric and Magnetic Field (EMF) requirements
- c) Conductor Blowout (movement) requirements
- d) Vegetation clearance requirements
- e) Safe Working Practices requirements,
- f) Construction Means and Methods

All construction activities are restricted to the R/W limits identified on the construction drawings.

### 3.5 Access

All access to the construction R/W will be limited to existing roads and minimized in wetlands to the extent practical. Additional access to the R/W are required at various points along the project R/W where other road crossings (paved or gravel/state/local roads) do not exist. Examples of types of access used include railroad R/W's, powerline service roads, logging roads and farm roads. Improvements to access (matting) may be required due to the size and nature of the equipment that would utilize the road See Figures 15 and 16 in Appendix B for typical FGT Crossing Details.

- Access to the R/W during construction and restoration activities is permitted only by the new or existing access easements identified on the construction drawings.
- Contractor will maintain safe conditions at all road crossings and access points during construction and restoration. All access will be maintained during construction by light grading and the addition of gravel or stone when necessary in uplands.
- Contractor will implement all appropriate erosion and sedimentation control measures for construction/improvement of access easements.
- Contractor will ensure that all paved road surfaces utilized during construction are kept free of mud and debris to the extent practical.
- The use of tracked equipment will be minimized on public roadways. Remove any soil or gravel spilled or tracked onto roadways daily or more frequent as necessary to maintain safe road conditions. Repair any damages to roadway surfaces, shoulders, and bar ditches.
- All access across a wetland or non-navigable waterbody will use matting or an equipment bridge in accordance with Figures 17-22.
- The only access, other than the construction R/W, which can be used in wetlands are those existing roads that can be used with no modifications or improvements, other than routine repair, and no impact on the wetland.
- Limit construction equipment operating in wetland areas to that needed to clear the R/W, auger the foundation, fabricate and install the Transmission structure, backfill the foundation, and restore the R/W. All other construction equipment will use access located in upland areas to the maximum extent practical. Where access in upland areas do not provide reasonable access, all other construction equipment usage will be limited to matting through the wetland using the R/W.
- Timber mats or an equivalent will be used for access through a wetland, unless otherwise authorized by agency permits. See Figures 20 – 23 for typical wetland matting details.



### 3.6 Off-R/W Disturbance

All construction activities are restricted to within the limits identified on the construction drawings. However, in the event that off-R/W disturbance occurs, the following measures will be implemented:

- The EI's will immediately report the occurrence to the Construction Lead and R/W Agent;
- The conditions that caused the disturbance will be evaluated by the Construction Lead and the EI's, and they will determine whether work at the location can proceed under those conditions; and
- If deemed necessary by the Construction Lead and EI's, one or more of the following corrective actions will be taken: immediate restoration of the original contours, seeding and mulching of the disturbed area, and/or installation of erosion control devices. GPC's Environmental Project Manager will be notified as soon as practical.

### 3.7 Unauthorized Vehicle Access to R/W

Gulf Power Company will offer to install and maintain measures to control unauthorized vehicle access to the R/W based on requests by the land manager or landowner of forested lands. These measures may include:

- Signs;
- Fences with locking gates

## 4. SPECIAL CONSTRUCTION AREAS

Gulf Power Company will utilize the following specialized construction procedures for agricultural areas and residential areas along the Project. The Project construction drawings, Line Lists, and Construction Contract will indicate the locations where specialized construction methods will be used.

### 4.1 Agricultural Areas

#### 4.1.1 Irrigation

- Attempt to locate existing drain tiles and irrigation systems.
- Develop procedures for constructing through agricultural areas, maintaining irrigation systems during construction, and repairing drain tiles and irrigation systems after construction.
- Engage qualified drain tile and irrigation specialists, as needed, to conduct or monitor repairs to irrigation systems affected by construction. Use specialists from the Project area, if available.
- Probe all drainage tile and irrigation systems within the area of disturbance to check for damage.
- Repair damaged systems to their original condition.
- Maintain water flow in crop irrigation systems, unless shutoff is coordinated with affected parties.
- Repair any damage to the systems as soon as practical.

## 4.2 Residential Areas

### 4.2.1 Construction Procedures

Specialized construction procedures will be utilized in areas of heavy residential or commercial/ industrial congestion where residences or business establishments are located within 50 feet of construction work areas.

- Install safety fence at the edge of the construction R/W for a distance of 100 feet on either side of the residence or business establishment.
- Attempt to maintain a minimum distance of 25 feet between any residence/business establishment and the edge of the construction work area for a distance of 100 feet on either side of the residence/business establishment.
- Avoid removal of mature trees and landscaping within the construction work area unless necessary for safe operation of construction equipment,
- Restore all lawn areas and landscaping immediately following cleanup operations,
- If seasonal or other weather conditions prevent compliance with these time frames, maintain and monitor temporary erosion controls (erosion control and mulch) until conditions allow completion of restoration.

### 4.2.2 Cleanup and Restoration

- Reseed all disturbed lawns with a seed mixture acceptable to landowner or comparable to the adjoining lawn.
- Landowners will be compensated for damages to ornamental shrubs and other landscape plantings based on the appraised value as set forth in the Guide for Plant Appraisal, authored by the Council of Tree and Landscape Appraisers, 10th Edition and published in 2018 by the International Society of Arboriculture.
- Landowners will be compensated for damages in a fair and reasonable manner, and as specified in the damage provision within the controlling easement on each property.

## 4.3 Staging Areas

The following five (5) staging areas will be used for the project.

**Staging Area #2** – Columbia County – SRWMD  
Suwannee Valley Road, Lake City, FL  
PID 25-2S-15-00093-000

**Staging Area #3** – Suwannee County – SRWMD  
153rd Road, Live Oak, FL  
PID 36-01S-12E-0981400.0000

**Staging Area #4** – Madison County – SRWMD  
S. Dale Leslie Dr., Madison, FL  
PID 21-1S-10-1290-001-000

**Staging Area #5** – Jefferson County - NFWWMD  
Campground Road, Monticello, FL  
PID 14-1N-4E-0000-0042-0000

**Staging Area #8** – Gadsden County – NFWWMD  
Flat Creek Road, Chattahoochee, FL  
PID 2-35-3N-6W-0000-00220-0000

Temporary Staging Areas are required to stage and store construction materials (poles, conductor, insulators, etc.) and equipment (drill rigs, line trucks, cranes, etc.) along the project. The 176 mile length of the corridor was broken up into approximately 20 mile segments initially resulting in the need for eight (8) temporary staging areas. GPC was able to negotiate five of the eight staging areas, and are going forward with the five staging areas noted above. Each staging area is sized to be able to store its pro-rata share of the material. The average site selection criteria for each staging area is to be approximately 16.0 acres total with approximately 12.6 acres of developed area. The developed area will consist of an at grade #57 crushed limerock surface to facilitate the storage of poles and equipment along with a perimeter road to facilitate access. Each site has been reviewed to ensure that existing surface water flow will not be impeded. Additionally, each site will have a berm / swale along the low side(s) along with dry retaining ponds to ensure that no runoff from the site will impact any neighboring properties. The staging areas will remain in place for the duration of the project. At the conclusion of the project, each staging area will be returned to its pre-construction state. The anticipated duration is approximately 12 – 18 months.

Staging Areas are contingent upon land negotiations. GPC was able to negotiate five of the eight staging areas, and are going forward with the five staging areas noted above.

- Construction and maintenance access to each staging area will be gained via existing road right-of-way. Connector aprons will be constructed in accordance with county / state requirements.
- Staging Areas will conform with all federal, state, and local ordinances and regulations for long term storage materials.
- Deliveries and active use of staging areas will be consistent with construction hours.
- All proposed semi-pervious material will be installed at the existing natural ground elevation throughout the site to prevent impedance of the existing watershed.
- When the proposed activities occur adjacent to wetlands, appropriate sediment control methods will be used, as required. Sediment controls include the installation of staked silt fences along proposed fill in wetlands.
- No tree removal will be necessary to facilitate construction of the staging areas.
- Each staging area will use the void space between the #57 crushed limerock for storage for the first 1" of runoff. GPC has done extensive testing on this void ratio and has determined that a 35% void ratio provides a good conservative value. In addition to utilizing the voids for storage, each site will have a swale / berm constructed on the low side(s) of each to ensure no stormwater runoff escapes to adjacent properties. Each site will also have a dry retention pond to account for attenuation. The ponds have been designed to recover within 72 hours. Soil Borings and Double Ring Infiltrometer Testing have been performed at each site to facilitate the design of each dry pond

The Contractor will perform the following measures at the five staging areas:

- Install erosion control structures ("BMP's") as directed by the EI's, outlined in this Manual, or identified on the construction drawings, and maintain them throughout construction and restoration activities;
- Construct each staging area per the approved / permitted plans;
- Implement and comply with the SWPPP; and

- Restore and revegetate all disturbed areas in accordance with the measures outlined in this Manual and as directed by the EI's.



***Typical Staging Area***

#### **4.4 Repeater Station**

The NFRC 161kV transmission line has fiber communications along the entire length and will require a Fiber Regeneration (Repeater) Station. A 12-foot wide x 36-foot long prefabricated building will be utilized. The perimeter (40-foot x 60-foot) of the repeater station area will be fenced. The site is designed to contain storm water volume as well as treatment volume by on site pond (dry) and berms. The remaining area internal to the site will be at grade #57 crushed limerock. The following activities are associated with the development of the repeater station:



***Example repeater station***

- site preparation including all civil development, grading and drainage, aggregate surfacing, fencing and security, foundation install, grounding installation, conduit installation, station service, AC and DC battery systems, and provide all exterior connections as required to complete the installation, including lightning protection and grounding.

The Contractor will perform the following measures at the repeater station:

- Install erosion control structures and implement BMP's as directed by the EI's, outlined in this Manual, or identified on the construction drawings, and maintain them throughout construction and restoration activities;
- Construct the repeater station per the approved / permitted plans;

- Implement and comply with the SWPPP; and
- Restore and revegetate all disturbed areas in accordance with the measures outlined in this Manual and as directed by the EI's.

## 5. WATERBODY CROSSINGS

The following section describes the construction procedures and best management practices that will be implemented during construction of the transmission line in and adjacent to waterbodies. The intent of these procedures is to minimize the extent and duration of project related disturbances within waterbodies.

### 5.1 Waterbody Definition

Waterbody – Any natural or artificial creek, stream, river, or drainage with perceptible flow at the time of crossing, and other permanent waterbodies such as ponds and lakes. Waterbodies can be state jurisdictional or federally jurisdictional (Section 10 Waters)

- Minor Waterbody – includes all waterbodies less than or equal to 40 feet wide at the water's edge at the time of crossing;
- Intermediate Waterbody – includes all waterbodies greater than 40 feet wide but less than 80 feet wide at the water's edge at the time of crossing;
- Navigable Waterbody – includes all navigable waterbodies as determined sovereign by the State, and those Section 10 waters regulated by the USACE.

### 5.2 Procedures for Crossing Navigable and Non-Navigable Waterbodies

Transmission line construction across waterbodies (minor and intermediate) may result in short term water quality impacts, which will be localized and fully contained within proper turbidity control devices. Mobilization of construction equipment will be performed in a manner that will minimize the potential for erosion and sedimentation within the waterbody. Erosion control measures will be implemented to confine water quality impacts within the immediate construction area and to eliminate impacts to downstream areas. The length of the crossing, the sensitivity of the area, existing conditions at the time of the crossing, and permit requirements will determine the most appropriate measures to be used. This manual sets forth the anticipated methods for crossing each type of waterbody, but field and weather conditions at the time of construction will direct proper crossing techniques at the time of construction. The Environmental Inspector will provide direction based on field conditions during construction.

#### 5.2.1 Navigable Waterbodies

Construction equipment will not cross any of the five navigable waterbodies listed below. For navigable waters, GPC will utilize Type B stringing methods as describe below and in Appendix B, Figures 14 and 14.1. Final heights of the conductors over navigable waters will conform to USACE height clearances prescribed for Section 10 Waters.

**TABLE 5-1: LIST OF NAVIGABLE WATERBODIES**

SSL #	Phase	MM	Structure Behind	Structure Ahead	River	County	Distance Shore to Shore (feet)	Designation	Matting / Bridge	Wire Stringing Type
2	I / II	51.2	580	601	Suwannee River	Suwannee / Madison	300	Navigable	No	B
3	IIA	84.5	913	914	Aucilla River	Jefferson / Madison	150	Navigable	No	B
7	III	139.7	1618	1619	Ochlocknee River	Gadsden / Leon	210	Navigable	No	B
10	III	147.5	1695	1696	Little River	Gadsden	120	Navigable	No	B
12	III	172.8	1938	1939	Apalachicola River	Jackson / Gadsden	700	Navigable	No	B

### 5.2.1.1 Wire Stringing Over Waterbodies

The wire stringing process is generally accomplished in four steps:

1. The wire stringing operation begins with placing blocks (rollers) on the structures on each side of the crossing.
2. Installation of a progression of ropes starting with a small (1/2" diameter) rope referred to as a p-line.
3. The p-line is then used to pull in a larger rope (1" diameter) referred to as a bull rope.
4. The bull rope is then used to pull in the actual conductor. Wire pulling / tensioning equipment will be set up to facilitate the wire pulling operation. Lift vehicles may also be used during the conductor pulling operation.

#### Wire Stringing Type A

Eight of the thirteen crossings fall into this category. Since the shore to shore distance is fairly short, 100 feet or less, the p-line can be passed from bucket truck to bucket truck with no impact on the water body to be crossed. Once the p-line is in place in the blocks, the rest of the wire pulling activity is completed in the air with no further impact to the navigability of the crossing.

#### Wire Stringing Type B

Five of the thirteen crossings fall into this category as further discussed below:

- Suwannee River; 300-foot span
- Aucilla River; 150-foot span
- Ochlocknee River; 210-foot span
- Little River; 120-foot span
- Apalachicola River; 700-foot span

There are three primary methods used to get the p-line across these distances:

- 1) Cross Bow
- 2) John Boat
- 3) Helicopter

The Cross Bow method involves attaching the p-line to an arrow in the cross bow and shooting it across the body of water. This method would work well for spans equal to or less than 300 feet. i.e. four out of five of the crossings.

Use of a John boat would be an option for the Apalachicola River. This would involve towing the p-line from shore to shore and then lifting it into the rollers.

A helicopter is often used to pull in the p-line for longer crossings. The helicopter flies along the line and sets the p-line into the roller by use of a mechanical guide. Once the p-line is in the rollers, the rest of the wire stringing will occur as listed in Wire Stringing Type A.

### **Impacts to Navigation**

With the exception of brief disruptions that may be required to ensure public safety, the procedures described above will ensure that construction of the project will have no impact to navigation. It should be noted that the eight (8) type A crossings are not navigable. Proper notification will be made with all applicable agencies during the conductor installation process for all crossings that are navigable. Prior to initiating work at a crossing, GPC will work with applicable agencies regarding any brief disruptions and deploy vessels upstream and downstream of each crossing in order to notify local boaters of any disruption, which are expected to take no longer than 1 to 2 hours per crossing.

#### **5.2.2 Non-Navigable Waterbodies**

Construction at waterbodies (Figures 17-19) will be conducted using two principal crossing methods, a “matted” crossing and a “bridge” crossing. Both are temporary.

The “matted” crossing consists of utilizing temporary matting (timber or composite) to cross the waterbody. Deployed with safety in mind, the matted method is designed to maintain downstream flow at all times and allow water flow over and through the matting. The overall objective is to minimize siltation of the waterbody and to facilitate construction traffic. The matted crossing method is applicable to waterbodies up to 3 feet deep at the at the time of construction. “Matted” crossings are further described below.

The “bridge” crossing procedure involves spanning the waterbody by isolating the construction zone from the stream flow. The objective of this method is to complete the waterbody crossing as quickly and safely as practical in order to minimize the duration of temporary impacts to aquatic resources. All streams, their classifications, and crossing procedures are identified on the construction drawings. Table 5-1 outlines the general procedures to be followed at all waterbody crossings. The “bridge” crossing is further broken down into small, intermediate and large.

#### **5.2.3 General Crossing Procedures of Non-Navigable Waterbodies**

See the below Table 5-1 for crossing procedures at each named waterbody. Crossing of waterbodies when they are dry and not flowing (Figure 17) may proceed using standard upland construction techniques, provided that the EI verifies that water is unlikely to flow during construction or restoration activities at the location. In the event of perceptible



flow, GPC and its contractors will comply with all applicable crossing procedure requirements for “waterbodies” as defined in Section 5.1 of this Manual.

**TABLE 5-2: GENERAL WATERBODY CROSSING PROCEDURES**

SSL #	Phase	MM	Structure Behind	Structure Ahead	River	County	Distance Shore to Shore (feet)	Designation	Matting / Bridge	Wire Stringing Type
1	I	29.6	350	351	Rocky Creek	Suwanee	30	Minor	Matting	A
2	I / II	51.2	580	601	Suwanee River	Suwanee / Madison	300	Navigable	No	B
3	IIA	84.5	913	914	Aucilla River	Jefferson / Madison	150	Navigable	No	B
4	IIB	99.4	1132	1133	Cooksey Branch	Jefferson	30	Minor	No	A
5	IIB	111.4	1246	1247	Saint Marks River	Jefferson	30	Minor	Matting	A
6	IIB	127.1	1395	1395A	Munson Slough	Leon	60	Intermediate	Bridge	A
7	III	139.7	1618	1619	Ochlocknee River	Gadsden / Leon	210	Navigable	No	B
8	III	140.3	1623	1624	Midway Branch	Gadsden	30	Minor	No	A
9	III	142.1	1644	1645	Midway Branch	Gadsden	30	Minor	Matting	A
10	III	147.5	1695	1696	Little River	Gadsden	120	Navigable	No	B
11	III	171.4	1921	1922	Crooked Creek	Gadsden	20	Minor	Matting	A
12	III	172.8	1938	1939	Apalachicola River	Jackson / Gadsden	700	Navigable	No	B
13	III	174.8	1958	1959	Spring Branch	Jackson	30	Minor	Matting	A

**5.2.3.1 Matted Crossing of Non-Navigable Waterbodies**

The matted crossing method utilizes composite or timber matting to facilitate construction traffic (Figure 17). This method is utilized for waterbodies (minor and intermediate) up to 3 feet deep.



**Composite Matting**



**Timber Matting**

The matted crossing shall be installed as follows:

- Install floating turbidity barriers according to an approved SWPPP.
- Lay mats to maintain existing flow patterns
- Inspect mats at the end of each day to ensure that there’s no blockage of flow in the event of overnight rains.



### 5.2.3.2 Bridge Crossings of Non-Navigable Waterbodies

A temporary equipment bridge is a structure that may be installed across a waterbody to provide a means for construction equipment to cross the stream while minimizing impacts to the channel bottom or banks. This construction technique is used to cross waterbodies with substantial flows (greater than 3 feet deep) that cannot be effectively matted. Temporary bridges will not be used to cross navigable waterbodies. Refer to Figure 18 for small bridges (less than 40 feet) and refer to Figure 19 for intermediate bridges (40 feet – 80 feet)

The bridge crossings shall be installed and operated as follows:

- Limit the use of equipment operating in and adjacent to the waterbody to that needed to install the temporary bridge at the crossing.
- Limit the number of trips and vehicles that cross the bridge to those that are essential to the safe construction of the transmission line.
- If practicable, construct crossings perpendicular to the axis of the waterbody.
- Design and maintain each equipment bridge to withstand the highest flows that would occur.
- Design and maintain equipment bridges to prevent soil from entering the waterbody.
- Remove temporary equipment bridges as soon as practicable.

## 5.3 Public Health / Safety

At GPC, the safety of all personnel on site is of utmost importance. GPC is committed to achieving and maintaining an injury free workplace for employees and employees of its contractors. Additionally, GPC is committed to protecting the health and safety of the public. GPC expects its contractors to be committed and responsible for the safety of their employees, their subcontractors and others who are on or near the job site. Contractors must review and adhere to stringent safety policies that are outlined in pertinent contract documents.

It is expected that all work on or in the vicinity of de-energized and energized facilities will be planned to a level of detail that ensures the safety of personnel and the public. Following energization of the transmission line, GPC will operate and maintain the line in accordance with established best practices and local, state & federal regulations.

To ensure the safety of the public during construction, GPC will:

- Actively seal off the areas of construction by using gates / locks / barriers
- Utilize dedicated, on-site staff to prohibit/regulate any public intrusion into each work area- especially during potentially hazardous operations
- Use guard structures when pulling conductor over roadways / railroads and navigable bodies of water; Final heights of the conductors will conform to USACE height clearances prescribed for Section 10 Waters
- Coordination with local officials as necessary

## 5.4 Protection of Water Quality

As stated in the sections above, water quality will be maintained by the use of turbidity and erosion control measures, through BMP's, and adherence to the attached Spill Control Plan (SCP) and SWPPP (to be created by the selected contractor and approved by GPC). Additionally, Florida Stormwater, Erosion and Sedimentation Control Inspector's Manual will serve as a guide in forming the BMP's.

- The SCP describes planning, prevention and control measures to minimize impacts resulting from spill off fuels, petroleum products, or other regulated substances. These measures will be implemented by the Contractor working on the Project.
- The SWPPP is a document, that identifies all of the activities and conditions at the site (overall project sites) that could cause water pollution, and details the steps GPC and the Contractors will take to prevent the discharge of any unpermitted pollution.

Additionally, the below BMP's will be implemented throughout the entire project:

- Best management practices for erosion control shall be implemented prior to construction commencement and shall be maintained at all times during construction to prevent siltation and turbid discharges in excess of State water quality standards. Methods shall include, but are not limited to, the use of staked hay bales, water exclusion bladders, floating turbidity curtains, staked filter cloth, sodding, and seeding. Depending on site conditions at the time of construction, double layered erosion control protection measures or water exclusion bladders may be required to prevent turbid discharge.
- Waterbodies outside the specific limits of construction authorized by permits, must be protected from erosion, siltation, scouring and dewatering. There shall be no discharge in violation of state water quality standards. Turbidity/erosion controls shall be installed prior to clearing or excavation, shall be maintained until construction is completed, disturbed areas are stabilized, and turbidity levels have fallen to less than 29 NTU's above background in Non-Outstanding Florida Water locations or 0 NTU' s above background in locations that are hydrologically connected to Outstanding Florida Waters. Turbidity Sampling will be completed as required by environmental permits
- Erosion control devices shall be maintained during all phases of construction until areas disturbed during construction are sufficiently stabilized to prevent erosion, siltation, and turbid discharges. The turbidity and erosion control devices shall be removed within 14 days once these conditions are met.
- Environmental Inspectors will inspect the work site each day and report directly to the Construction Lead, and the EI will have the authority to stop activities that violate the environmental conditions within the issued Federal and State permits.
- Storage or stockpiling of tools and materials (i.e., lumber, pilings, debris,) along the shoreline, within the littoral zone, or elsewhere within other surface waters will not be allowed. All vegetative material and debris shall be removed to a self-contained upland disposal area with no stockpiling of debris within waterbodies.

## 5.5 Restoration of Shorelines

Native grass seed, or sod shall be installed and maintained on exposed slopes and disturbed soil areas within 48 hours of completing final grade, and at other times as necessary, to prevent erosion, sedimentation or turbid discharges into waterbodies and adjacent wetlands. A vegetative cover that stabilizes and prevents erosion of the exposed sediments shall be established prior to removing turbidity barriers/erosion control devices. Additional restoration details can be found in Section 3.3 above. Site specific seed mixture recommendations will be obtained from NRCS or local IFAS Extension Office.

## 6. WETLAND CROSSINGS

The following section describes the construction procedures and best management practices that will be implemented during construction of the transmission line in wetlands. The intent of these procedures is to minimize the extent and duration of project related disturbances within wetlands.

### 6.1 Wetland Definition

**Wetland** – Delineated areas that meet the definition of a wetland pursuant to Chapter 62-340, FAC, and also including federally jurisdictional wetlands. Wetland areas have been delineated prior to construction and have been identified on impact maps submitted to both the FDEP and USACE.

### 6.2 Working In & Access Through Wetlands

Transmission line construction across wetlands may result in short term water quality impacts, which will be localized and fully contained within proper turbidity control devices. Mobilization of construction equipment will be performed in a manner that will minimize the potential for erosion and sedimentation within the wetland. Erosion control measures will be implemented to confine water quality impacts within the immediate construction area and to eliminate impacts to areas outside the contained work area. The length of the crossing, the sensitivity of the area, existing conditions at the time of the crossing, and permit requirements will determine the most appropriate measures to be used. As part of the SWPPP (to be developed by selected Contractor), maps indicating the locations of appropriate BMPs will be developed to reflect site specific conditions at a time closer to construction.

Access through wetlands will require the use of equipment with tracks or low ground pressure tires, the temporary placement of mats over wetland areas, or the lifting of equipment over the wetland areas into the sites. No dredging or filling, other than placement of temporary construction mats, will be used for access.

Temporary construction access mats may be used within the authorized construction corridor. If temporary mats are used, they shall be placed no more than 48 hours before access through the wetland area, and shall be removed within 48 hours of completion of construction in the wetland area in which they were used. Refer to Revised Figure 5- Wetland Impact Maps that are part of the Environmental Resource Permit application, for locations where matting is anticipated. Additionally, refer to Section 6.5 below for details on ground disturbance within the access areas, corridor and structure locations.



***Composite Matting***



***Timber Matting***

### **6.3 Public Health / Safety**

At GPC, the safety of all personnel on site is of utmost importance. GPC is committed to achieving and maintaining an injury free workplace for employees and employees of its contractors. Additionally, GPC is committed to protecting the health and safety of the public. GPC expects its contractors to be committed and responsible for the safety of their employees, their subcontractors and others who are on or near the job site. Contractors must review and adhere to stringent safety policies that are outlined in pertinent contract documents.

It is expected that all work on or in the vicinity of de-energized and energized facilities will be planned to a level of detail that ensures the safety of personnel and the public. Following energization of the transmission line, GPC will operate and maintain the line in accordance with established best practices and local, state & federal regulations.

To ensure the safety of the public during construction, GPC will:

- Actively seal off the areas of construction by using gates / locks / barriers
- Utilize dedicated, on-site staff to prohibit/regulate any public intrusion into each work area- especially during potentially hazardous operations
- Use guard structures when pulling conductor over roadways / railroads and navigable bodies of water; Final heights of the conductors will conform to USACE height clearances prescribed for Section 10 Waters
- Coordination with local officials as necessary

### **6.4 Protection of Water Quality**

As stated in the sections above, water quality will be maintained by the use of turbidity and erosion control measures, through BMP's, and adherence to the enclosed SCP and SWPPP (to be created by the selected contractor and approved by GPC).

- This SCP describes planning, prevention and control measures to minimize impacts resulting from spills of fuels, petroleum products, or other regulated substances. These measures will be implemented by the Contractor working on the Project.

- The SWPPP is a document, that identifies all of the activities and conditions at the site (overall project sites) that could cause water pollution, and details the steps GPC will take to prevent the discharge of any unpermitted pollution.

Additionally, the below BMP's will be implemented throughout the entire project:

- Best management practices for erosion control shall be implemented prior to construction commencement and shall be maintained at all times during construction to prevent siltation and turbid discharges in excess of State water quality standards. Methods shall include, but are not limited to, the use of staked hay bales, water exclusion bladders, floating turbidity curtains, staked filter cloth, sodding, and seeding. Depending on site conditions at the time of construction, double layered erosion control protection measures or water exclusion bladders may be required to prevent turbid discharge.
- Wetlands outside the specific limits of construction authorized by permits, shall be protected from erosion, siltation, scouring and dewatering. There shall be no discharge in violation of state water quality standards. Turbidity/erosion controls shall be installed prior to clearing or excavation, shall be maintained until construction is completed, disturbed areas are stabilized, and turbidity levels have fallen to less than 29 NTU's above background in Non-Outstanding Florida Water locations or 0 NTU' s above background in locations that are hydrologically connected to Outstanding Florida Waters. Turbidity Sampling will be completed as required by environmental permits
- Erosion control devices shall be maintained during all phases of construction until areas disturbed during construction are sufficiently stabilized to prevent erosion, siltation, and turbid discharges. The turbidity and erosion control devices shall be removed within 14 days once these conditions are met.
- Environmental Inspectors will inspect the work site each day and report directly to the Construction Lead, and the EI will have the authority to stop activities that violate the environmental conditions within the issued Federal and State permits.
- Storage or stockpiling of tools and materials (i.e., lumber, pilings, debris,) within wetlands will not be allowed. All vegetative material and debris shall be removed to a self-contained upland disposal area with no stockpiling of debris within wetlands.

## **6.5 Clearing & Ground Disturbance**

To minimize ground and soil disturbance in wetlands, the introduction of invasive plant species, and destruction of potential refugia for wildlife, clearing of forested and scrub/shrub vegetation within will be limited to mowing or cutting stumps to ground level without removing stumps or root balls from the ground. Stump removal within wetlands will be limited to only those areas necessary to install structures. Once vegetation is cut, there will be no stockpiling of debris within wetlands, and all cut vegetation will be removed to an approved upland location

## **6.6 Restoration of Wetlands**

Native grass seed, or sod will be installed and maintained on exposed slopes and disturbed soil areas within 48 hours of restoring any wetlands to pre-construction grades, and at other times as necessary, to prevent erosion, sedimentation or turbid discharges into waterbodies and adjacent wetlands. A vegetative cover that stabilizes and prevents erosion of the exposed sediments shall be established prior



to removing turbidity barriers/erosion control devices. Additional restoration details can be found in Section 3.3 above.

## **7. SPILL CONTROL PLAN**

The Contractor awarded the project will be responsible for adhering to a site specific Spill Control Plan. GPC will review and approve the SCP, which at a minimum will include the information detailed in Appendix D.