SABAL TRAIL PROJECT

RESOURCE REPORT 7

Soils

FERC Docket No. CP15-___-000

November 2014

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Filing Requirement	**Location in Environmental Report**
☒ Identify, describe, and group by milepost the soils affected by the proposed pipeline and aboveground facilities. *(§380.12 (i) (1))*	Section 7.2.2; Tables 7.2-1, 7.2-2, and 7.2-3
☒ For aboveground facilities that would occupy sites over 5 acres, determine the acreage of prime farmland soils that would be affected by construction and operation. *(§380.12 (i) (2))*	Section 7.4.1 and Table 7.2-3
☒ Describe, by milepost, potential impacts on soils. *(§§ 380.12 (i)(3) and (4))*	Sections 7.2 and 7.4; Tables 7.2-1 and 7.2-2
☒ Identify proposed mitigation to minimize impact on soils, and compare with the staff's Upland Erosion Control, Revegetation, and Maintenance Plan. *(§380.12(i)(5))*	Section 7.5

FERC COMMENTS ON DRAFT RESOURCE REPORT 7	**LOCATION OR RESPONSE TO COMMENT**
Resource Report 7 – Soils	
September 26, 2014 COMMENTS	
1. Clarify and consistently describe soil mapping units and soil series in section 7.2. Also, include the following items: a. clarify that the data presented in section 7.2.1 are general descriptions of soil resources, rather than descriptions of soil series; b. change "soil types" to "soil map units" in section 7.2.2.1; and clarify that soil map units are described in appendix 7A, rather than soil series.	Section 7.2 has been updated accordingly.
2. Include a discussion of soil map unit types as either complexes, consociations, associations, undifferentiated groups, or inclusions. Describe how the data provided in tables 7.2-1 and 7.2-2 are related to consociations and complexes. Describe methods to evaluate soil properties for soil map units that contain 2 to 3 contrasting (soils with strongly differing properties) component soil series and address applicable construction and operation effects in section 7.4.	Sections 7.2 and 7.4 have been updated accordingly.
3. For consistency, use the U.S. Department of Agriculture (USDA), Natural Resources Conservation Service (NRCS) Handbook 296 "Land Resource Regions and Major Land resource Areas of the United States, the Caribbean, and the Pacific Basin." http://www.nrcs.usda.gov/wps/portal/nrcs/detail/soils/home/?cid=nrcs142p2_053624 as the baseline resource for general descriptions of soil resources by state in section 7.2.1.	Section 7.2.1 has been updated accordingly.

FERC COMMENTS ON DRAFT RESOURCE REPORT 7	LOCATION OR RESPONSE TO COMMENT
4. Include a table in section 7.2.1 that summarizes the range of slopes that would be crossed by the pipeline facilities by milepost.	Provided in Tables 7.2-1 and 7.2-2.
5. Revise table 7.2-1 to include the following items: a. present each map unit in the county as only one record, and provide subtotals of crossing length and acreage impact by county crossed, state, and total; b. ensure that temporary workspaces (described in section 7.3) are included with pipeline facilities; and c. include a column that shows slope classes by soil map unit.	Provided in Tables 7.2-1 and Table 7.2-2. Section 7.3 has been updated accordingly.
6. Include a table in the same format as table 7.2-1 for major aboveground facilities, access roads, and pipe and contractor yards. Provide impacts by acreage.	Provided in Table 7.2-3.
7. In section 7.4, include summary tables of the following soil properties/conditions, including mileage crossed and acreage that would be impacted, by pipeline facility, county, state, and total. a. Prime farmland; b. Soil erosion (water and wind); c. Hydric soils (hydric, predominantly hydric, predominantly non-hydric, non-hydric); d. Soil compaction; e. Rocky soils; and Ensure that applicable explanatory footnotes are provided for the soil features referenced in all tables similar to the footnotes provided in table 7.2-2.	Provided in Tables 7.2-1, 7.2-2, and 7.2-3. Footnotes on Table 7.2-2 have been revised.
8. Revise the assessments of construction and operation effects in section 7.4 for the following soil properties: a. *Soil Erosion by Water*. Incorporate slope and land capability class and subclass (lcs) into the erodible soils (water) determination. As applicable, explain exactly how the K values accurately reflect soil erodibility in the determination of mileage and acreage of highly erodibile soils, or justify how K values alone can be used to determine soil erodibility. b. *Hydric Soils*. Clarify how the acreage and mileage values in section 7.4.3 were obtained from the values provided in table 7.2.1. The rankings tabulated in 7.2.1 and 7.2.2 should be consistent with the ranges provided in the NRCS Soil Survey, i.e., • Hydric (>99%) • Predominantly Hydric (66-99%) • Partially Hydric (33 to 65%) • Predominantly Nonhydric (1-32%) • Nonhydric (0-1%)	Section 7.4 has been updated accordingly.

FERC COMMENTS ON DRAFT RESOURCE REPORT 7	LOCATION OR RESPONSE TO COMMENT
Correct the footnote provided for hydric soil in table 7.2-2 to explain how exact values for hydric soils were determined to be consistent with values referenced in section 7.4.3. Add an applicable footnote to table 7.2-1. c. *Soil Compaction*. Include texture as a component of soil compaction, i.e., sandy soils would generally not be considered highly compactible regardless of the drainage class; compactible soils would be limited to sandy loams and finer soils in very poor, poor and somewhat poor drainage classes. d. *Rock Material in the Topsoil*. Include soils that have rock material in the topsoil (e.g., those soils with stony, channery, cobbley, and bouldery modifiers), even if their descriptions have bedrock greater than 60 inches from the soil surface (e.g., Pacolet-Rion complex 15-25 percent slopes, stony; Louisberg-Rion-Rock outcrop complex 15-35 percent slopes, very boulder). In addition, clarify why the Louisberg-Rion-Rock outcrop complex has rock listed as greater than 60 inches from the soil surface but has rock outcrop identified as a component.	
9. Reference in section 7.5 the specific section(s) of Sabal Trail's ESCP where applicable impact minimization measures are described, and clarify the following specific soil impact minimization items: a. *Section 7.5.2. Prime Farmland.* Define "as needed" to describe when Sabal Trail would perform topsoil segregation. If topsoil segregation would be performed in all permanent or rotated cropland, hayfields, or improved pastures) as well as where landowners request topsoil segregation, delete "as needed." b. *Section 7.5.3. Soil Erosion.* State who would determine when and where erosion control devices would be installed and reference the applicable section(s) of the ESCP where erosion control measures are described. c. *Section 7.5.4. Hydric and Droughty Soils.* Clarify how the ESCP addresses revegetation under droughty conditions. d. *Section 7.5.5. Soil Structure and Compaction*. Describe how a "stress-free state" would be measured when mitigating identified subsidence. e. *Section 7.5.6. Rock Material in the Subsoil.* Confirm that native rock encountered in the soil profile would be treated similarly to bedrock and blast rock generated during construction.	Section 7.5 has been updated accordingly.

FERC COMMENTS ON DRAFT RESOURCE REPORT 7	LOCATION OR RESPONSE TO COMMENT
10. Discuss in section 7.5 any measures of the FERC's Plan that Sabal Trail considers unnecessary, technically infeasible, or unsuitable due to local conditions, and describe any alternative measures to be used. As part of this discussion, address the deviation from sections V.C.1 and V.C.3 of the FERC Plan (identified in section 1.3 of Sabal Trail's ESCP) relating to soil compaction testing and mitigation in residential areas. Explain how Sabal Trail's proposed deviations would achieve a comparable level of mitigation. Confirm whether "freeze-thaw" cycles would naturally mitigate residential soils that may become compacted along the pipeline route.	Freeze-thaw cycles are not relevant in the Project area.
11. In response to comments received during scoping, clarify: a. if PCB contamination from the proposed facilities would be likely to occur; b. whether any certified organic farms would be crossed and, if so, describe any specialized measures Sabal Trail would use to minimize soil impacts on those farms; c. how Sabal Trail would monitor highly erodible areas that may be subject to erosion over time, potentially resulting in reduced burial depth; d. how Sabal Trail would determine the pipeline burial depth in any areas planned for conversion from forest to irrigated agriculture; and e. whether the proposed pipeline facilities would cross soils with potential trench failure issues, and how Sabal Trail would avoid or reduce the potential for trench failure to occur.	a. Provided in Section 7.5.7. b. Provided in Section 7.5.2. c. Provided in Section 7.5. d. Provided in Section 7.5.1. e. Provided in Section 7.5.1.

ACRONYMS AND ABBREVIATIONS

BMP	Best Management Practices
Certificate	Certificate of Public Convenience and Necessity
DEF	Duke Energy Florida, Inc.
EI	Environmental Inspector
E&SCP	Erosion and Sediment Control Plan
EDR	Environmental Data Resources, Inc.
FERC Plan	Upland Erosion Control, Revegetation and Maintenance Plan
FERC Procedures	Wetland and Waterbody Construction and Mitigation Procedures
FERC	Federal Energy Regulatory Commission
FGT	Florida Gas Transmission Company, LLC
GIS	Geographic Information System
Gulfstream	Gulfstream Natural Gas System, LLC
LRR	Land Resource Region
M&R	metering and regulating
MLRA	Major Land Resource Area
MP	milepost
NextEra	NextEra Energy, Inc
NOP	National Organic Program
NRCS	Natural Resource Conservation Service
O&M	Operations and Maintenance
Project	Sabal Trail Project
ROW	right-of-way
Sabal Trail	Sabal Trail Transmission, LLC
SPCC Plan	Spill Prevention, Control and Countermeasure Plan
SSURGO	Soil Survey Geographic Database
Transco	Transcontinental Gas Pipe Line Company, LLC
U.S.	United States
USACE	U.S. Army Corps of Engineers
USDA	U.S. Department of Agriculture
USFWS	U.S. Fish and Wildlife Service
WEG	Wind Erodibility Group

7.0 RESOURCE REPORT 7 – SOILS

7.1 Introduction

Sabal Trail Transmission, LLC ("Sabal Trail"), a joint venture between affiliates of Spectra Energy Partners, LP and NextEra Energy, Inc. ("NextEra"), is seeking a Certificate of Public Convenience and Necessity ("Certificate") from the Federal Energy Regulatory Commission ("FERC") pursuant to Section 7 (c) of the Natural Gas Act authorizing the construction and operation of the Sabal Trail Project ("Project").

The Project is a new natural gas transmission pipeline comprised of a combination of lease capacity and new greenfield pipeline construction that will provide approximately 1,075,000 dekatherms per day ("Dth/d") of new firm natural gas transportation capacity. Sabal Trail will acquire the capacity created by Transcontinental Gas Pipe Line Company, LLC's ("Transco") Hillabee Expansion Project (FERC Docket Nos. PF14-6-000 and CP15-16-000) pursuant to a capacity lease, which extends from Transco's Compressor Station 85 in Choctaw County, Alabama to an interconnection with the new greenfield pipeline in Tallapoosa County, Alabama. Sabal Trail will construct, own and operate the greenfield pipeline, which will extend from Tallapoosa County, Alabama to a new interconnection hub ("the Central Florida Hub") in Osceola County, Florida. At the Central Florida Hub, the Project will connect with the Florida Southeast Connection Pipeline Project, currently being proposed by Florida Southeast Connection, LLC ("FSC") (FERC Docket No. PF14-2-000 and CP14-554-000). In addition, at or near the Central Florida Hub, the Project will interconnect with Gulfstream Natural Gas System, LLC ("Gulfstream") and Florida Gas Transmission Company, LLC ("FGT"). The greenfield portion of the Project will have an initial capacity of 830,000 Dth/day with a proposed in-service date of May 1, 2017. Through a series of phased compressor station expansions to meet the future capacity needs of Sabal Trail's customers, the Project capacity will increase to approximately 999,000 Dth/day by 2020 and 1,075,000 Dth/day by 2021.

Pipeline Facilities

The Project includes construction of approximately 474.4 miles of new 36-inch diameter natural gas transmission pipeline (the "Mainline Route"), approximately 13.1 miles of new 36-inch diameter natural gas pipeline (the "Hunters Creek Line"), and approximately 21.4 miles of new 24-inch diameter natural gas pipeline (the "Citrus County Line"). A summary of the Project pipeline facilities is provided in Table 1.1-1 of Resource Report 1 (*see* Tables section). A location map of the Project pipeline facilities is provided as Figure 1.1-1 of Resource Report 1 (*see* Figures section).

- Mainline Route – Originates in Tallapoosa County, Alabama near Transco milepost ("MP") 944 and ends at an interconnection with the Florida Southeast Connection Pipeline Project at the Central Florida Hub in Osceola County, Florida;
- Hunters Creek Line – Connects at the proposed Reunion Compressor Station located at approximately MP 474.4 to FGT's existing 24-inch diameter mainline natural gas pipeline in Orange County, Florida; and
- Citrus County Line – Located in Marion and Citrus Counties, Florida, extending from Sabal Trail's facilities at approximately MP 389.8 to a new electric generation plant proposed by Duke Energy Florida, Inc. ("DEF") to be located in Citrus County, Florida.

Aboveground Facilities

Five new compressor stations are proposed to be constructed along the Mainline Route. Three compressor stations (Alexander City, Hildreth, and Reunion) would have a 2017 in-service date, followed by two additional compressor stations (Dunnellon and Albany) with a 2020 in-service date. Expansion work (i.e., additional compression) at two of these five new compressor stations (Hildreth and Albany) would then be completed with an in-service date of 2021. Natural gas will be the proposed fuel source for the facilities

within each compressor station. A summary of the Project aboveground facilities is provided in Table 1.1-2. Aboveground facility plot plans are provided in Appendix 1A, Volume II-B of Resource Report 1. United States ("U.S.") Geological Survey ("USGS") topographic location excerpts and aerial photography are provided as Figures 1.1-2 and 1.1-3 of Resource Report 1.

- Compressor Stations
    - Alexander City Compressor Station (approximate MP 0.0) – In service 2017. Construction of a new compressor station near Alexander City in Tallapoosa County, Alabama. The compressor station will include two Solar Titan 130 and one Solar Titan 250 compressor units;
    - Albany Compressor Station (approximate MP 159.3) – In service 2020. Construction of a new compressor station near Albany in Dougherty County, Georgia after the initial Project in-service date. The compressor station will include one Solar Titan 130 compressor unit. An additional Solar Titan 130 compressor unit will be constructed in a later phase of the Project with an in-service date of 2021;
    - Hildreth Compressor Station (approximate MP 296.3) – In service 2017. Construction of a new compressor station near Lake City in Suwannee County, Florida, consisting of one Solar Titan 130 compressor unit. An additional Solar Titan 130 compressor unit will be constructed in a later phase of the Project with an in-service date of 2021;
    - Dunnellon Compressor Station (approximate MP 389.8) – In service 2020. Construction of a new compressor station near Ocala in Marion County, Florida after the initial in-service date. The compressor station will include one Solar Titan 130 compressor unit; and
    - Reunion Compressor Station (approximate MP 474.4) – In service 2017. Construction of a new compressor station near Intercession City in Osceola County, Florida, consisting of one Titan 130 compressor unit and one Solar Mars 100 compressor unit.

In addition, six meter and regulating ("M&R") stations are proposed for the Project.

- M&R Stations
    - Mainline Route M&R Stations
        - Transco Hillabee M&R Station in Tallapoosa County, Alabama (MP 0.0)
        - FGT Suwannee M&R Station in Suwannee County, Florida (MP 299.7)
        - FSC M&R Station in Osceola County, Florida (MP 474.4)
        - Gulfstream M&R Station in Osceola County, Florida (MP 474.4)
    - Hunters Creek Line M&R Station
        - FGT Hunters Creek M&R Station in Orange County, Florida (MP 13.1)
    - Citrus County Line M&R Station
        - DEF Citrus County M&R Station in Citrus County, Florida (MP 21.4)

A total of 39 mainline valves ("MLVs"), five "pig" launcher, and five "pig" receiver facilities are also proposed for the Project. Thirty-three MLVs would be located along the Mainline Route, four of which would be located within the site of proposed compressor stations. Three MLVs would be located along the Hunters Creek Line, one of which would be located within the Reunion Compressor Station (MP 0.0 on the Hunters Creek Line) and one within the FGT Hunters Creek M&R Station (MP 13.1 on the Hunters Creek

Line). Three MLVs would be located along the Citrus County Line, one of which would be located within the Dunnellon Compressor Station (MP 0.0 on the Citrus County Line) and one within the DEF Citrus County M&R Station (MP 21.4 on the Citrus County Line). All MLVs will have blow down capabilities, however four MLVs along the Mainline Route (MLVs 2, 18, 23, and 24) will be equipped with remote blow down facilities where the right-of-way ("ROW") is located next to an electric transmission line corridor. The locations of proposed MLV sites are listed in Table 1.1-2 and shown on the aerial-based alignment sheets in Appendix 1A, Volume II-B of Resource Report 1.

Proposed Mainline Capacity Lease

Transco Lease – Mainline capacity lease on Transco's existing pipeline facilities extending from Transco's Zone 4 Pool and Transco's interconnections with Midcontinent Express Pipeline, LLC and Gulf South Pipeline Company, LP, all located at Transco Compressor Station 85 near Transco MP 784 in Choctaw County, Alabama to the point of interconnection with the proposed Sabal Trail facilities to be located near Transco MP 944 in Tallapoosa County, Alabama. The facilities associated with the Transco Lease will be addressed in a separate certificate application filed by Transco.

This Resource Report 7 describes the soil resources of the Sabal Trail Project area for the pipeline facilities and the new aboveground facilities. Tables for this resource report are provided in the Tables section appended to this report.

Refer to Resource Report 1, Appendix 1A for the Sabal Trail Project drawings, maps, alignment sheets, and aerials.

The descriptions and characteristics of soils discussed in this Resource Report were compiled from a variety of data sources including soil surveys published by the U.S. Department of Agriculture ("USDA") – Natural Resource Conservation Service ("USDA-NRCS" or "NRCS") and website databases maintained by the USDA-NRCS. Soil surveys referenced in this Resource Report are included in Section 7.6.

7.2 Soils in the Sabal Trail Project Area

According to the USDA-NRCS, four separate kinds of map units are used in soil surveys to show the relationships between the size and shape of the mapped soil area and, the degree of contrast with adjacent soils and geographic relations: consociations, complexes, associations and undifferentiated groups. In a consociation, delineated areas are dominated by a single soil taxon (or miscellaneous area) and similar soils. As a rule, at least one-half of the pedons in each delineation of a soil consociation are of the same soil components that provide the name for the map unit. Most of the remainder of the delineation consists of soil components so similar to the named soil that major interpretations are not affected significantly. Complexes and associations each consist of two or more dissimilar components occurring in a regularly repeating pattern. The major components are sufficiently different in morphology or behavior that the map unit cannot be called a consociation. In each delineation of either a complex or an association, each major component is normally present, though their proportions may vary appreciably from one delineation to another. Undifferentiated groups consist of two or more taxa components that are not consistently associated geographically and, therefore, do not always occur together in the same map delineation. These taxa are included as the same named map unit because use and management are the same or very similar for common uses. Generally, they are included together because some common feature such as steepness, stoniness, or flooding determines use and management. In all soil surveys, virtually every delineation of a map unit includes areas of soil components or miscellaneous areas that are not identified in the name of the map unit these areas are inclusions. Many areas of these components are too small to be delineated separately.

Soils within the Project area were mapped utilizing the USDA-NRCS digital Soil Survey Geographic Database ("SSURGO"), which includes geospatially referenced Geographic Information System ("GIS") soil map unit polygons at a 1:24,000 scale (USDA, 2010b). The SSURGO contains the most detailed level

of soil mapping performed by the NRCS, and corresponds with or supersedes the original county soil survey mapping. The SSURGO data maps are linked in the database to information about the component soils and their properties for each map unit. Each map unit may contain one to three major components (i.e., differing properties) and some minor components. Appendix 7A, Tables 7.2-1, 7.2-2 and 7.2-3 were created using this SSURGO data.

All soil map units in a soil survey are named. Different conventions are used for each of the four kinds of map units so that the kind of soil map unit (e.g., consociation, complex, *etc.*) can be determined easily. Descriptions of each of the soil map units affected by the Project pipeline facilities are provided in Appendix 7A, using the appropriate naming convention. Tabular summaries of relevant characteristics of these soils are provided in Tables 7.2-1 and 7.2-2 for underground facilities and Table 7.2-3 for aboveground facilities using the appropriate naming conventions. Specific soil characteristics listed in these tables include: wind and water erosion potential, USDA farmland designation, hydric soil status, drought potential, compaction potential, range of slope crossed and depth to bedrock.

7.2.1 Soil Series Descriptions

This section describes in general, soil resource characteristics for each state crossed by the Project, followed by descriptions of each soil type crossed. The United States was subdivided into a number of Land Resource Regions ("LRR") that were made up of many Major Land Resource Areas ("MLRA"). The similar climate, soils, and land use activities in each land resource region helped natural resource planners to target efforts in education, financial, and technical assistance (USDA, 2006). Tabular summaries of relevant characteristics of these soils are provided in Tables 7.2-1, 7.2-2, and 7.2-3. Specific soil characteristics listed in these tables include: wind and water erosion potential, USDA farmland designation, hydric soil status, drought potential, compaction potential, range of slope crossed and depth to bedrock.

7.2.1.1 Alabama

The Sabal Trail pipeline facilities cross MLRA 136 (Southern Piedmont) in LRR P (South Atlantic and Gulf Slope Cash Crops, Forest, and Livestock) in Alabama. The dominant soil orders in this MLRA are Ultisols, Inceptisols, and Alfisols. The soils in the area dominantly have a thermic soil temperature regime, a udic soil moisture regime, and kaolinitic or mixed mineralogy. They are shallow to very deep, generally well drained, and loamy or clayey. Hapludalfs (Enon and Wilkes series), Hapludults (Badin, Nason, and Tatum series), and Kanhapludults (Appling, Cecil, Georgeville, Herndon, Madison, Pacolet, and Wedowee series) formed in residuum on hills and ridges. Dystrudepts (Chewacla series) formed in alluvium on flood plains. Udults in the Rhodic subgroup (Davidson, Hiwassee, and Lloyd series) formed in old alluvium on stream terraces or in residuum derived from mafic rocks. For more detailed geology information, refer to Section 6.2.2.1 of Resource Report 6.

7.2.1.2 Georgia

The Project pipeline facilities cross MLRA 136 (Southern Piedmont) and MLRA 133A (Southern Coastal Plain) both in LRR P (South Atlantic and Gulf Slope Cash Crops, Forest, and Livestock) in Georgia. The description of MLRA 136 was provided above for Alabama.

The dominant soil orders in MLRA 133A are Ultisols, Entisols, and Inceptisols. The soils in the area dominantly have a thermic soil temperature regime, a udic or aquic soil moisture regime, and siliceous or kaolinitic mineralogy. They generally are very deep, somewhat excessively drained to poorly drained, and loamy. Hapludults formed in marine sediments (Luverne and Sweatman series) and mixed marine sediments and alluvium (Smithdale series) on hills and ridges. Kandiudults formed in marine sediments (Dothan, Fuquay, Norfolk, and Orangeburg series) and mixed marine and fluvial sediments (Troup series) on hills and ridges. Fragiudults (Ora and Savannah series) and Paleudults (Ruston series) formed in mixed marine and fluvial sediments on uplands and stream terraces. Fluvaquents (Bibb series) and Endoaquepts

(Mantachie series) formed in alluvium on flood plains. Quartzipsamments (Lakeland series) formed in sandy eolian or marine material on uplands. Paleaquults (Rains series) formed in marine and fluvial sediments on terraces. For more detailed geology information, refer to Section 6.2.2.2 of Resource Report 6.

7.2.1.3 Florida

The Project pipeline facilities cross the MLRA 136 (Southern Piedmont) in LRR P (South Atlantic and Gulf Slope Cash Crops, Forest, and Livestock); MLRA 152A (the Eastern Gulf Coast Flatwoods) in LLR T (Atlantic and Gulf Coast Lowland Forest and Crop); MLRA 154 (South Central Florida Ridge) in LLR U (Florida Subtropical Fruit, Truck Crop, and Range); and MLRA 155 (the South Florida Flatwoods) in LRR U (Florida, Subtropical Fruit, Truck Crop, and Range) in Florida. The description of MLRA 136 was provided above for Alabama.

The dominant soil orders in MLRA 152A are Alfisols, Ultisols, Entisols, Spodosols, and Histosols. The soils in the area dominantly have a thermic or hyperthermic soil temperature regime, an aquic or udic soil moisture regime, and siliceous mineralogy. They generally are deep or very deep; are somewhat poorly drained to very poorly drained; and are loamy, mucky, or sandy. Alaquods (Chaires and Leon series) and sammaquents (Scranton series) formed in sandy marine sediments on flats and in depressions. Haplosaprists formed in organic deposits in swamps and depressions (Dorovan and Pamlico series) and in marshes and swamps (Lafitte and Maurepas series). Sulfihemists (Handsboro series) and Sulfaquents (Axis series) formed in saltwater and brackish water marshes. Quartzipsamments (Newhan and Corolla series) and Psammaquents (Duckston series) formed on dunes and in interdunal swales on barrier islands. Glossaqualfs (Guyton series) and Hydraquents (Arat and Levy series) formed in alluvium on flood plains. Endoaqualfs (Meadowbrook and Wekiva series) and Albaqualfs (Tooles series) formed in loamy marine sediments on flats and flood plains and in depressions. Endoaquults (Myatt series) and Paleudults (Stough series) formed in mixed fluvial and marine sediments on flats and stream terraces. Paleaquults (Plummer and Bayou series) and Paleudults (Escambia and Ocilla series) formed in loamy and sandy sediments on marine terraces.

The dominant soil orders in MLRA 154 are Entisols and Ultisols. The soils in the area dominantly have a hyperthermic soil temperature regime, a udic soil moisture regime, and siliceous mineralogy. They generally are very deep, excessively drained to somewhat poorly drained, and loamy or sandy. Paleudults (Arredondo, Millhopper, and Sparr series) formed in loamy marine sediments on uplands. Quartzipsamments (Astatula, Candler, Lake, and Tavares series) formed in mixed sandy eolian and marine sediments on uplands.

The dominant soil orders MLRA 155 are Alfisols, Entisols, and Spodosols. The soils in the area dominantly have a hyperthermic soil temperature regime, an aquic soil moisture regime, and siliceous mineralogy. They generally are deep or very deep, poorly drained or very poorly drained, and loamy or sandy. Endoaqualfs (Holopaw and Malabar series) and Glossaqualfs (Pineda and Riviera series) formed in loamy marine sediments on flats and flood plains and in depressions. Alaquods (Eaugallie, Immokalee, Myakka, Oldsmar, Smyrna, and Wabasso series) and Psammaquents (Basinger series) formed in sandy marine deposits on flats and flood plains and in depressions. For more detailed geology information, refer to Section 6.2.2.3 of Resource Report 6.

7.2.2 Soils Crossed by the Sabal Trail Project

7.2.2.1 Pipeline Facilities

Approximately 518 soil map units are crossed by the Project pipeline facilities. Of that amount, 465 are crossed by the Mainline Route (119 in Alabama, 146 in Georgia, and 200 in Florida); 23 are crossed by the

Hunters Creek Line; and 30 are crossed by the Citrus County Line. Soils map unit descriptions and their associated map unit symbols are provided in Appendix 7A. These soil map units are also included in Tables 7.2-1 and 7.2-2, which identifies specific characteristics of each soil type by milepost.

7.2.2.2 Aboveground Facilities

Soil map unit descriptions and their associated map unit symbols at the proposed compressor stations are provided below. Descriptions of these soil types are provided in Table 7.2-3.

Alexander City Compressor Station

Cecil sandy loam, 2 to 6 percent slopes, moderately eroded (CeB2)

The Cecil component makes up 80 percent of the map unit. Slopes are 2 to 6 percent. This component is found on ridges. The parent material consists of saprolite derived from gneiss saprolite derived from granite. Depth to a root restrictive layer is greater than 60 inches. The natural drainage class is well drained. Water movement in the most restrictive layer is moderately high. Available water to a depth of 60 inches is moderate. Shrink-swell potential is low. This soil is not flooded or ponded. There is no zone of water saturation within a depth of 72 inches. Organic matter content in the surface horizon is about 1 percent. This soil does not meet hydric criteria.

Cecil sandy loam, 6 to 10 percent slopes, moderately eroded (CeC2)

The Cecil component makes up 80 percent of the map unit. Slopes are 6 to 10 percent. This component is on hillslopes. Refer to the previously provided description for this soil map unit.

Albany Compressor Station

Albany sand, 0 to 2 percent slopes (AdA)

The Albany component makes up 95 percent of the map unit. Slopes are 0 to 2 percent. This component is found on depressions on coastal plains. The parent material consists of marine deposits. Depth to a root restrictive layer is greater than 60 inches. The natural drainage class is somewhat poorly drained. Water movement in the most restrictive layer is moderately high. Available water to a depth of 60 inches is very low. Shrink-swell potential is low. This soil is not flooded or ponded. A seasonal zone of water saturation is at 21 inches during January, February, March, and December. Organic matter content in the surface horizon is about 2 percent. This soil does not meet hydric criteria.

Eustis loamy sand, 0 to 5 percent slopes (EqB)

The Eustis component makes up 100 percent of the map unit. Slopes are 0 to 5 percent. This component is on hills on coastal plains. The parent material consists of marine deposits. Depth to a root restrictive layer is greater than 60 inches. The natural drainage class is somewhat excessively drained. Water movement in the most restrictive layer is high. Available water to a depth of 60 inches is low. Shrink-swell potential is low. This soil is not flooded or ponded. There is no zone of water saturation within a depth of 72 inches. Organic matter content in the surface horizon is about 1 percent. This soil does not meet hydric criteria.

Grady soils (Grd)

The Grady component makes up 100 percent of the map unit. Slopes are 0 to 2 percent. This component is found on depressions on coastal plains. The parent material consists of marine deposits. Depth to a root restrictive layer is greater than 60 inches. The natural drainage class is poorly drained. Water movement in the most restrictive layer is moderately low. Available water to a depth of 60 inches is moderate. Shrink-swell potential is moderate. This soil is not flooded, but it is frequently ponded. A seasonal zone of water saturation is at 0 inches during January, February, March, April, May, June, and December. Organic matter content in the surface horizon is about 2 percent. This soil meets hydric criteria.

Orangeburg loamy sand, 0 to 2 percent slopes (OeA)

The Orangeburg component makes up 90 percent of the map unit. Slopes are 0 to 2 percent. This component is on broad interstream divides on coastal plains. The parent material consists of marine deposits. Depth to a root restrictive layer is greater than 60 inches. The natural drainage class is well drained. Water movement in the most restrictive layer is moderately high. Available water to a depth of 60 inches is moderate. Shrink-swell potential is low. This soil is not flooded or ponded. There is no zone of water saturation within a depth of 72 inches. Organic matter content in the surface horizon is about 1 percent. Irrigated land capability classification is 1. This soil does not meet hydric criteria.

Wagram loamy sand, 0 to 2 percent slopes (WeA)

The Wagram component makes up 100 percent of the map unit. Slopes are 0 to 2 percent. This component is on interfluves on coastal plains. The parent material consists of marine deposits. Depth to a root restrictive layer is greater than 60 inches. The natural drainage class is well drained. Water movement in the most restrictive layer is moderately high. Available water to a depth of 60 inches is moderate. Shrink-swell potential is low. This soil is not flooded or ponded. There is no zone of water saturation within a depth of 72 inches. Organic matter content in the surface horizon is about 1 percent. This soil does not meet hydric criteria.

Hildreth Compressor Station

Alpin fine sand, 0 to 5 percent slopes (29)

The Alpin component makes up 80 percent of the map unit. Slopes are 0 to 5 percent. This component is on ridges on marine terraces on coastal plains. The parent material consists of eolian deposits or sandy marine deposits. Depth to a root restrictive layer is greater than 60 inches. The natural drainage class is excessively drained. Water movement in the most restrictive layer is high. Available water to a depth of 60 inches is low. Shrink-swell potential is low. This soil is not flooded or ponded. There is no zone of water saturation within a depth of 72 inches. Organic matter content in the surface horizon is about 1 percent. This soil does not meet hydric criteria. There are no saline horizons within 30 inches of the soil surface. The soil has a slightly sodic horizon within 30 inches of the soil surface.

Alpin fine sand, 5 to 12 percent slopes (30)

The Alpin component makes up 85 percent of the map unit. Slopes are 5 to 12 percent. Please refer to the previously provided description for this soil map unit.

Blanton-Alpin-Bonneau complex, 0 to 5 percent slopes (13)

The Blanton component makes up 42 percent of the map unit. Slopes are 0 to 5 percent. This component is on ridges on marine terraces on coastal plains. The parent material consists of sandy and loamy marine deposits. Depth to a root restrictive layer is greater than 60 inches. The natural drainage class is moderately well drained. Water movement in the most restrictive layer is moderately high. Available water to a depth of 60 inches is low. Shrink-swell potential is low. This soil is not flooded or ponded. A seasonal zone of water saturation is at 57 inches during March, April, May, June, July, August, September, October, and November. Organic matter content in the surface horizon is about 1 percent. This soil does not meet hydric criteria. There are no saline horizons within 30 inches of the soil surface. The soil has a slightly sodic horizon within 30 inches of the soil surface.

The Alpin component makes up 33 percent of the map unit. Slopes are 0 to 5 percent. This component is on ridges on marine terraces on coastal plains. The parent material consists of eolian deposits or sandy marine deposits. Depth to a root restrictive layer is greater than 60 inches. The natural drainage class is excessively drained. Water movement in the most restrictive layer is high. Available water to a depth of 60 inches is low. Shrink-swell potential is low. This soil is not flooded or ponded. There is no zone of

water saturation within a depth of 72 inches. Organic matter content in the surface horizon is about 1 percent. This soil does not meet hydric criteria. There are no saline horizons within 30 inches of the soil surface. The soil has a slightly sodic horizon within 30 inches of the soil surface.

The Bonneau component makes up 16 percent of the map unit. Slopes are 0 to 5 percent. This component is on knolls on marine terraces on coastal plains. The parent material consists of sandy and loamy marine deposits. Depth to a root restrictive layer is greater than 60 inches. The natural drainage class is well drained. Water movement in the most restrictive layer is moderately high. Available water to a depth of 60 inches is low. Shrink-swell potential is low. This soil is not flooded or ponded. A seasonal zone of water saturation is at 51 inches during March, April, May, June, July, August, September, October, and November. Organic matter content in the surface horizon is about 1 percent. This soil does not meet hydric criteria. There are no saline horizons within 30 inches of the soil surface. The soil has a slightly sodic horizon within 30 inches of the soil surface.

Dunnellon Compressor Station

Eaton loamy sand (25)

The Eaton, non-hydric component makes up 70 percent of the map unit. Slopes are 0 to 2 percent. This component is on flatwoods on marine terraces on coastal plains. The parent material consists of loamy and clayey marine deposits. Depth to a root restrictive layer is greater than 60 inches. The natural drainage class is poorly drained. Water movement in the most restrictive layer is moderately low. Available water to a depth of 60 inches is moderate. Shrink-swell potential is moderate. This soil is not flooded or ponded. A seasonal zone of water saturation is at 15 inches during July, August, September, and October. Organic matter content in the surface horizon is about 1 percent. This soil does not meet hydric criteria. There are no saline horizons within 30 inches of the soil surface.

The Eaton, hydric component makes up 15 percent of the map unit. Slopes are 0 to 2 percent. This component is on flats on marine terraces on coastal plains. The parent material consists of loamy and clayey marine deposits. Depth to a root restrictive layer is greater than 60 inches. The natural drainage class is poorly drained. Water movement in the most restrictive layer is moderately low. Available water to a depth of 60 inches is moderate. Shrink-swell potential is moderate. This soil is not flooded or ponded. A seasonal zone of water saturation is at 6 inches during June, July, August, and September. Organic matter content in the surface horizon is about 1 percent. This soil meets hydric criteria. There are no saline horizons within 30 inches of the soil surface.

Pamona sand (61)

The Pomona, non-hydric component makes up 60 percent of the map unit. Slopes are 0 to 2 percent. This component is on flatwoods on marine terraces on coastal plains. The parent material consists of sandy and loamy marine deposits. Depth to a root restrictive layer is greater than 60 inches. The natural drainage class is poorly drained. Water movement in the most restrictive layer is moderately high. Available water to a depth of 60 inches is low. Shrink-swell potential is low. This soil is not flooded or ponded. A seasonal zone of water saturation is at 12 inches during May, June, July, August, September, October, and November. Organic matter content in the surface horizon is about 3 percent. Non-irrigated land capability classification is 4w. This soil does not meet hydric criteria. There are no saline horizons within 30 inches of the soil surface.

The Pomona, hydric component makes up 20 percent of the map unit. Slopes are 0 to 2 percent. This component is on flats on marine terraces on coastal plains. The parent material consists of sandy and loamy marine deposits. Depth to a root restrictive layer is greater than 60 inches. The natural drainage class is poorly drained. Water movement in the most restrictive layer is moderately high. Available water to a depth of 60 inches is low. Shrink-swell potential is low. This soil is not flooded or ponded. A seasonal zone of water saturation is at 6 inches during May, June, July, August, September, October, and November. Organic

matter content in the surface horizon is about 3 percent. Nonirrigated land capability classification is 4w. This soil meets hydric criteria. There are no saline horizons within 30 inches of the soil surface.

Jumper fine sand, 0 to 5 percent slopes (42)

The Jumper component makes up 85 percent of the map unit. Slopes are 0 to 5 percent. This component is on flats on marine terraces on coastal plains. The parent material consists of sandy and loamy marine deposits. Depth to a root restrictive layer is greater than 60 inches. The natural drainage class is somewhat poorly drained. Water movement in the most restrictive layer is moderately high. Available water to a depth of 60 inches is low. Shrink-swell potential is low. This soil is not flooded or ponded. A seasonal zone of water saturation is at 42 inches during July, August, September, and October. Organic matter content in the surface horizon is about 2 percent. This soil does not meet hydric criteria. There are no saline horizons within 30 inches of the soil surface.

Reunion Compressor Station

Immokalee fine sand (16)

The Immokalee component makes up 90 percent of the map unit. Slopes are 0 to 2 percent. This component is on flatwoods on marine terraces on coastal plains. The parent material consists of sandy marine deposits. Depth to a root restrictive layer is greater than 60 inches. The natural drainage class is poorly drained. Water movement in the most restrictive layer is moderately high. Available water to a depth of 60 inches is low. Shrink-swell potential is low. This soil is not flooded or ponded. A seasonal zone of water saturation is at 12 inches during June, July, August, and September. Organic matter content in the surface horizon is about 2 percent. This component is in the R155XY003FL South Florida Flatwoods ecological site. This soil does not meet hydric criteria. There are no saline horizons within 30 inches of the soil surface. The soil has a maximum sodium adsorption ratio of 1 within 30 inches of the soil surface.

Placid fine sand, depressional (32)

The Placid, depressional component makes up 85 percent of the map unit. Slopes are 0 to 1 percent. This component is on depressions on marine terraces on coastal plains. The parent material consists of sandy marine deposits. Depth to a root restrictive layer is greater than 60 inches. The natural drainage class is very poorly drained. Water movement in the most restrictive layer is high. Available water to a depth of 60 inches is moderate. Shrink-swell potential is low. This soil is not flooded. It is frequently ponded. A seasonal zone of water saturation is at 0 inches during June, July, August, September, October, November, and December. Organic matter content in the surface horizon is about 3 percent. This component is in the R155XY010FL Freshwater Marshes and Ponds ecological site. This soil meets hydric criteria. There are no saline horizons within 30 inches of the soil surface. The soil has a maximum sodium adsorption ratio of 1 within 30 inches of the soil surface.

Transco Hillabee M&R Station

Cecil sandy loam, 2 to 6 percent slopes, moderately eroded (CeB2)

The Cecil component makes up 80 percent of the map unit. Slopes are 2 to 6 percent. This component is on ridges. The parent material consists of saprolite derived from gneiss saprolite derived from granite. Depth to a root restrictive layer is greater than 60 inches. The natural drainage class is well drained. Water movement in the most restrictive layer is moderately high. Available water to a depth of 60 inches is moderate. Shrink-swell potential is low. This soil is not flooded or ponded. There is no zone of water saturation within a depth of 72 inches. Organic matter content in the surface horizon is about 1 percent. This soil does not meet hydric criteria.

FGT Suwannee M&R Station

Alpin fine sand, 0 to 5 percent slopes (29)

The Alpin component makes up 80 percent of the map unit. Slopes are 0 to 5 percent. This component is on ridges on marine terraces on coastal plains. The parent material consists of eolian deposits or sandy marine deposits. Depth to a root restrictive layer is greater than 60 inches. The natural drainage class is excessively drained. Water movement in the most restrictive layer is high. Available water to a depth of 60 inches is low. Shrink-swell potential is low. This soil is not flooded. It is not ponded. There is no zone of water saturation within a depth of 72 inches. Organic matter content in the surface horizon is about 1 percent. This soil does not meet hydric criteria. There are no saline horizons within 30 inches of the soil surface. The soil has a slightly sodic horizon within 30 inches of the soil surface.

Alpin fine sand, 5 to 12 percent slopes (30)

The Alpin component makes up 85 percent of the map unit. Slopes are 5 to 12 percent. Please refer to the previously provided description for this soil map unit.

FSC M&R Station

Immokalee fine sand (16)

The Immokalee component makes up 90 percent of the map unit. Slopes are 0 to 2 percent. This component is on flatwoods on marine terraces on coastal plains. The parent material consists of sandy marine deposits. Depth to a root restrictive layer is greater than 60 inches. The natural drainage class is poorly drained. Water movement in the most restrictive layer is moderately high. Available water to a depth of 60 inches is low. Shrink-swell potential is low. This soil is not flooded or ponded. A seasonal zone of water saturation is at 12 inches during June, July, August, and September. Organic matter content in the surface horizon is about 2 percent. This component is in the R155XY003FL South Florida Flatwoods ecological site. This soil does not meet hydric criteria. There are no saline horizons within 30 inches of the soil surface. The soil has a maximum sodium adsorption ratio of 1 within 30 inches of the soil surface.

Gulfstream M&R Station

Immokalee fine sand (16)

The Immokalee component makes up 90 percent of the map unit. Slopes are 0 to 2 percent. This component is on flatwoods on marine terraces on coastal plains. The parent material consists of sandy marine deposits. Depth to a root restrictive layer is greater than 60 inches. The natural drainage class is poorly drained. Water movement in the most restrictive layer is moderately high. Available water to a depth of 60 inches is low. Shrink-swell potential is low. This soil is not flooded or ponded. A seasonal zone of water saturation is at 12 inches during June, July, August, and September. Organic matter content in the surface horizon is about 2 percent. This component is in the R155XY003FL South Florida Flatwoods ecological site. This soil does not meet hydric criteria. There are no saline horizons within 30 inches of the soil surface. The soil has a maximum sodium adsorption ratio of 1 within 30 inches of the soil surface.

FGT Hunters Creek M&R Station

Smyrna fine sand (44)

The Smyrna, non-hydric component makes up 70 percent of the map unit. Slopes are 0 to 2 percent. This component is on flats on marine terraces on coastal plains. The parent material consists of sandy marine deposits. Depth to a root restrictive layer is greater than 60 inches. The natural drainage class is poorly drained. Water movement in the most restrictive layer is moderately high. Available water to a depth of 60 inches is low. Shrink-swell potential is low. This soil is not flooded. It is not ponded. A seasonal zone of water saturation is at 12 inches during June, July, August, and September. Organic matter content in the

surface horizon is about 3 percent. This soil does not meet hydric criteria. There are no saline horizons within 30 inches of the soil surface. The soil has a maximum sodium adsorption ratio of 1 within 30 inches of the soil surface.

The Smyrna, hydric component makes up 26 percent of the map unit. Slopes are 0 to 2 percent. This component is on flats on marine terraces on coastal plains. The parent material consists of sandy marine deposits. Depth to a root restrictive layer is greater than 60 inches. The natural drainage class is poorly drained. Water movement in the most restrictive layer is moderately high. Available water to a depth of 60 inches is low. Shrink-swell potential is low. This soil is not flooded or ponded. A seasonal zone of water saturation is at 6 inches during June, July, August, and September. Organic matter content in the surface horizon is about 3 percent. This soil meets hydric criteria. There are no saline horizons within 30 inches of the soil surface. The soil has a maximum sodium adsorption ratio of 1 within 30 inches of the soil surface.

DEF Citrus County M&R Station

Boca fine sand (53)

The Boca, non-hydric component makes up 55 percent of the map unit. Slopes are 0 to 2 percent. This component is on flats on marine terraces on coastal plains. The parent material consists of sandy and loamy marine deposits over limestone. Depth to a root restrictive layer, bedrock, lithic, is 24 to 40 inches. The natural drainage class is poorly drained. Water movement in the most restrictive layer is moderately high. Available water to a depth of 60 inches is low. Shrink-swell potential is low. This soil is not flooded or ponded. A seasonal zone of water saturation is at 12 inches during January, February, June, July, August, September, October, November, and December. Organic matter content in the surface horizon is about 1 percent. This component is in the R154XY005FL Cabbage Palm Flatwoods ecological site. This soil does not meet hydric criteria. There are no saline horizons within 30 inches of the soil surface. The soil has a slightly sodic horizon within 30 inches of the soil surface.

The Boca, hydric component makes up 20 percent of the map unit. Slopes are 0 to 2 percent. This component is on flats on marine terraces on coastal plains. The parent material consists of sandy and loamy marine deposits over limestone. Depth to a root restrictive layer, bedrock, lithic, is 24 to 40 inches. The natural drainage class is poorly drained. Water movement in the most restrictive layer is moderately high. Available water to a depth of 60 inches is low. Shrink-swell potential is low. This soil is not flooded or ponded. A seasonal zone of water saturation is at 6 inches during January, February, June, July, August, September, October, November, and December. Organic matter content in the surface horizon is about 1 percent. This component is in the R154XY005FL Cabbage Palm Flatwoods ecological site. This soil meets hydric criteria. There are no saline horizons within 30 inches of the soil surface. The soil has a slightly sodic horizon within 30 inches of the soil surface.

7.2.3 Access Roads

To the extent feasible, in order to reduce affects to existing soils and prevent soil loss and erosion, existing public and private roads crossed by the Project will be used as the primary means of accessing the Mainline Route, Hunters Creek Line, and Citrus County Line ROWs. Sabal Trail will also use existing public and private roads to the extent possible to access the proposed aboveground facilities. Sabal Trail has identified proposed temporary access roads to access the ROW for construction of the Mainline Route, Hunters Creek Line, and Citrus County Line, and proposed permanent access roads. These roads will be maintained by Sabal Trail's operations personnel.

Proposed access roads are shown on USGS Quadrangle mapping and Project alignment sheets located in Appendix 1A, Volume II-B of Resource Report 1. Some upgrades (tree trimming, addition of gravel, backblading, *etc*.) may be required in selected areas to improve the existing condition of degraded access roads or to restore access roads after use. The existing access roads are generally built on fill materials and

have previously been developed for other land uses. Therefore existing access roads are not described further in this Resource Report.

In Alabama, temporary access roads will affect approximately 14.7 acres and permanent access roads will affect approximately 41.0 acres. In Georgia, temporary access roads will affect approximately 73.2 acres and permanent access roads will affect approximately 29.1 acres. In Florida, temporary access roads will affect approximately 152.0 acres and permanent access roads will affect approximately 6.8 acres. Any soil disturbance related to proposed access road improvements will be minimized and mitigated through the implementation of measures described in the Project Erosion and Sediment Control Plan ("E&SCP").

7.2.4 Pipe Yards and Contractor Ware Yards

Land requirements for the proposed pipe/contractor ware yards are provided in Table 1.5-4 of Resource Report 1. In Alabama, 47.9 acres will be affected by the pipe yards and contractor ware yards. In Georgia, 118.9 acres will be affected by the pipe yards and contractor ware yards. In Florida, 97.7 acres will be affected by the pipe yards and contractor ware yards. Any soil disturbance related to these proposed facilities will be minimized and mitigated through the implementation of measures described in the Project E&SCP.

7.2.5 Other Aboveground Facilities

Soil disturbance will also occur at new, small aboveground facilities that will be located along the Project route. Any soil disturbance related to these proposed facilities located within the pipeline permanent easement will be minimized and mitigated through the implementation of measures described in the Project E&SCP. Therefore, new areas of soil disturbance related to these facilities have already been addressed for the Project pipeline facilities.

7.3 Temporary Easements and Workspaces

A limited amount of grading and vegetation clearing may be needed in certain temporary easements and work spaces as needed to facilitate pipeline construction. Since these areas are predominantly existing open areas or industrial/commercial areas adjacent to the Sabal Trail pipeline ROW or new aboveground facilities, there will be no significant effects to existing soil properties at the temporary easements and work spaces. The temporary easements and work spaces will be restored upon completion of the Project. Disturbance associated with construction activities will be minimized and mitigated through the application of the Project E&SCP. Effects to soil types within the temporary easements and work spaces during construction are included in the calculations of total area effects on soils in Table 7.2-1, 7.2-2 and 7.2-3.

7.4 Construction and Operation Effects

Land clearing and grading, aboveground facility construction, and installation of the Project pipeline will affect soils within the Sabal Trail Project area. Soil disturbance related to these activities will be minimized and mitigated through the implementation of the provisions of the Project E&SCP, as further discussed below. The following sections discuss potential soil effects associated with Project activities including: prime farmland and farmland of unique importance, soil erosion, hydric soils, droughty soils, soil structure and compaction, stony/rock soils, introduction of rock into topsoil, and contaminated soil. Refer to Appendix 7A for a listing of soil properties pertinent to potential soil effects for each soil map unit crossed by the Project pipeline facilities and Section 7.2.2.2 above for the Project aboveground facilities.

7.4.1 Prime Farmland, Farmland of State Importance and Farmland of Unique Importance

The Project crosses lands considered prime farmland, which is defined as: land that has the best combination of physical and chemical characteristics for producing food, feed, forage, fiber, and oilseed crops, and is also available for these uses (the land could be cropland, pastureland, rangeland, forest land,

or other land, but not urban built-up land or water). Prime farmland has the soil quality, growing season, and moisture supply needed to economically produce sustained high yields of crops when treated and managed, including water management, according to acceptable farming methods. In general, prime farmlands have an adequate and dependable water supply from precipitation or irrigation, a favorable temperature and growing season, acceptable acidity or alkalinity, acceptable salt and sodium content, and few or no rocks. Prime farmlands are not excessively erodible or saturated with water for a long period of time, and they either do not flood frequently or are protected from flooding. The Project route is also located on farmland of state importance in Georgia, and farmland of unique importance in Florida; both of which are defined as: land other than prime farmland that is used for production of specific high-value food and fiber crops. Farmland of unique importance has the special combination of soil quality, location, growing season, and moisture supply needed to economically produce sustained high quality or high yields of specific crops when treated and managed according to acceptable farming methods. Examples of such crops include citrus, tree nuts, olives, fruits, and vegetables (USDA-NRCS, 2000). The soil classifications along the Project pipeline that are within prime farmland, farmland of state importance or within farmland of unique importance are listed in Tables 7.2-1, 7.2-2, and 7.3-2. The soil classifications along the Project pipeline that are prime farmland, farmland of state importance or within farmland of unique importance are listed by milepost order in Tables 7.2-1 and 7.2-2. The soil classifications associated with Project aboveground facilities that are prime farmland, farmland of state importance or within farmland of unique importance are listed in Table 7.2-3.

Soil disturbance associated with construction activities will be minimized and mitigated through the application of BMPs, as provided in the Project E&SCP (Appendix 1B of Resource Report 1). Measures to be implemented to minimize and mitigate soil erosion and sedimentation are discussed below.

7.4.1.1 Pipeline Facilities

The Project pipeline facilities will cross approximately 151.8 miles (approximately 4,930.6 acres for construction and 1,662.4 acres for operation) of soils classified as prime farmland or farmland of unique importance. Of that amount, approximately 148.3 miles (approximately 2,335.3 acres for construction and 871.6 acres for operations) are crossed by the Mainline Route. In Alabama, the mainline crosses 19.2 miles (331.6 acres for construction and 111.4 acres for operations). In Georgia, the mainline crosses 120.7 miles (1,880.2 acres for construction and 712.7 acres for operations). In Florida, the mainline crosses 8.4 miles (123.5 acres for construction and 47.5 acres for operations). The Hunters Creek line crosses 3.5 miles (55.1 acres for construction and 14.3 acres for operations) and none are crossed by the Citrus County Line.

7.4.1.2 Compressor Station Sites

The Alexander City Compressor Station in Alabama has approximately 34.9 acres of mapped prime farmland that will be temporarily affected during construction. Approximately 16.4 acres will be permanently affected. The dominant existing land use type is open land. The surrounding properties consist of open land and forest/woodland. The Albany Compressor Station in Georgia has approximately 34.4 acres of mapped prime farmland soil that will be temporarily affected during construction. Approximately 28.2 acres of mapped prime farmland soil will be permanently impacted. The dominant existing land use type is open land. The surrounding properties consist of open land, agricultural, and forest/woodland. No soil types at any of the compressor station sites in Florida are classified as prime farmland or farmland of unique importance.

7.4.1.3 M&R Station Sites

The Transco Hillabee M&R Station in Alabama has approximately 1.3 acres of mapped prime farmland soil, all of which will be permanently affected. The dominant existing land use type is open land. No soil types at any of the M&R station sites in Florida are classified as prime farmland or farmland of unique importance.

7.4.2 Soil Erosion

Erosion potential in areas affected by construction will increase due to clearing, grading, trenching, and backfilling. Sabal Trail's Project E&SCP, which details construction and restoration measures for the upland and adjacent waterbody and wetland areas, will be utilized to minimize potential effects to soil resources.

As required under the Clean Water Act, Sabal Trail will develop a Stormwater Pollution Prevention Plan ("SWPPP") to address issues related to soil erosion during construction and operation. The SWPPP will include a discussion of the methods to be used for erosion and sediment control associated with the Sabal Trail Project, including typical erosion control device drawings, inspection procedures, and the requirements for record keeping.

Temporary erosion controls will be installed after initial disturbance of the soils, where necessary to minimize erosion, and will be maintained throughout construction. All temporary erosion and sediment controls will be installed in accordance with the Project E&SCP.

The terrain of the Project area is mostly flat, but major rainfall events could result in significant runoff. Sabal Trail will minimize these effects by implementing the provisions of the Project E&SCP, and by adhering to the stipulations of any state or local stormwater permits that may be required. Measures typically would include installation of sediment filtration devices and permanent revegetation of disturbed areas.

7.4.2.1 Water Erodibility

The potential for soils to be eroded by water may be evaluated using the soil's "K factor." The K factor represents a relative quantitative index of the susceptibility of bare soil to particle detachment and transport by water. K factor values are primarily based upon soil texture, although organic matter content, structure size class, and permeability are also pertinent factors (MEPAS, 2010). The higher the K factor value the more susceptible the soil is to water erosion (MEPAS, 2010).

The soil erodibility factor K is a measure of erodibility for a standard condition. The soil erodibility factor K represents both susceptibility of soil to erosion and the amount and rate of runoff, as measured under the standard unit plot condition. Fine textured soils high in clay have low K values, about 0.02 to 0.15, because they are resistant to detachment. Coarse texture soils, such as sandy soils, have low K values, about 0.05 to 0.2, because of low runoff even though these soils are easily detached. Medium textured soils, such as silt loam soils, have moderate K values, about 0.25 to 0.40, because they are moderately susceptible to detachment and they produce moderate runoff (USDA-NRCS, 2006).

The potential for soils in the Project area to be eroded by water was determined by averaging K factor values for all soil horizons for each soil type. K factors were obtained from the USDA-NRCS Soil Data Mart (USDA, 2010c). Based on the average K factor, each soil type was grouped into a water erosion class of "Low," "Moderate," and "High." Low values ranged from 0.02 - 0.20, moderate values ranged from 0.20 to 0.40, and high values ranged from 0.40 to 0.69. For map units comprised of a complex of different soil types, the soil type with the most limiting average K factor was used to categorize the map unit into a low, medium, or high class.

A summary of the water erosion classification of the soils affected by the Project can be found in Tables 7.2-1, 7.2-2, and 7.2-3.

The Project pipeline facilities will not affect any soils with a high potential for water erosion.

7.4.2.2 Wind Erodibility

Wind Erodibility Groups ("WEG") for soil types within the Project area were obtained from the NRCS Soil Data Mart (USDA, 2010c). WEGs are primarily based upon soil texture, clay content, and rock fragment content (USDA, 2010c). WEGs may range from 1 to 8, with one being the highest potential for wind erosion, and 8 the lowest (USDA, 2010c). WEG data were not available for some map units comprised of paved/developed areas, fill soils, and some tidal marsh soils. Where WEG data was not available, a WEG of 8 was assigned to map units comprised entirely or principally of paved areas or tidal marshes, and a WEG of 5 was assigned to map units comprised of fill materials and natural soils. This is consistent with the WEGs assigned by the NRCS to the other comparable map units in the Project area.

A summary of the WEG values of the soils affected by the Project pipeline facilities can be found in Tables 7.2-1 and 7.2-2 and 7.2-3.

7.4.3 Hydric Soils

Hydric soils include soils developed under sufficiently wet conditions to support the growth and regeneration of hydrophytic vegetation (USDA-NRCS, 2010c). Soils that are sufficiently wet because of artificial measures are included in hydric soils (USDA-NRCS, 2010c). Also, soils in which the hydrology has been artificially modified are hydric if the soil, in an unaltered state, was hydric (UDSA-NRCS, 2010c). Some series designated as hydric have phases that are not hydric depending on water table, flooding, and ponding characteristics (USDA-NRCS, 2010c). Hydric soil data provided is summarized in Tables 7.2-1, 7.2-2 and 7.2-3 and discussed below.

7.4.3.1 Pipeline Facilities

The Project pipeline facilities will cross approximately 206.2 miles (approximately 2,940.1 acres for construction and 1,211.7 acres for operations) of hydric, predominantly hydric, or partially hydric soils. Of that amount, approximately 190.9 miles (approximately 2,747.8 acres for construction and 1,125.7 acres for operations) are crossed by the Mainline Route. The mainline route through Alabama crosses 74.2 miles (1,213.1 acres for construction and 434.1 acres for operations), 28.1 miles in Georgia (357.1 acres for construction and 163.2 acres for operations), and 88.6 miles in Florida (1,177.6 acres for construction and 528.4 acres for operations). The Hunters Creek line crosses 9.5 miles (120.6 acres for construction and 53.8 acres for operations) and the Citrus County line crosses 5.8 miles (71.7 acres for construction and 32.3 acres for operations).

7.4.3.2 Compressor Station Sites

The Alexander City Compressor Station will temporarily affect 36.6 acres of partially hydric soil during construction and will permanently affect approximately 16.7 acres of partially hydric soil. The Albany Compressor Station will temporarily affect 8.20 acres of hydric soils and will permanently affect approximately 7.0 acres of hydric soil. The Dunnellon Compressor Station will permanently affect 12.4 acres of partially hydric soil. The Reunion Compressor Station will temporarily affect 18.4 acres of hydric soil and will permanently affect 17.80 acres. No hydric soils were identified at the Hildreth Compressor Station.

7.4.3.3 M&R Station Sites

The Transco Hillabee M&R Station will have no permanent effect on hydric soils. The FSC M&R Station will permanently affect 1.5 acres of predominantly non-hydric soil. The Gulfstream station&R Station in Osceola County, Florida will permanently affect 1.4 acres of predominantly non-hydric soil. The FGT Hunters Creek M&R Station will permanently impact 2.2 acres of predominantly non-hydric soil and the DEF Citrus County M&R Station will permanently impact 5.2 acres.

7.4.4 Droughty Soils

Droughty Soils include those that have a texture of sandy loam or coarser and are moderately to excessively well drained. Droughty soils for all Project facilities are identified in Tables 7.2-1, 7.2-2, and 7.2-3.

7.4.4.1 Pipeline Facilities

The Mainline Route will cross approximately 164.2 miles (approximately 2,594.5 acres for construction and 975.1 acres for operations) of droughty soils consisting of approximately 36.6 miles (583.3 acres for construction and 217.8 acres for operation) in Alabama, 119.6 miles (1,893.0 acres for construction and 709.6 acres for operation) in Georgia, and 8.0 miles (118.2 acres for construction and 47.7 acres for operation) in Florida. No droughty soils are crossed by the Hunters Creek Line or the Citrus County Line.

7.4.4.2 Compressor Station Sites

The Alexander City Compressor Station site will temporarily impact 71.5 acres of droughty soil during construction and will permanently affect 33.0 acres. The Albany Compressor Station in Georgia will temporarily affect 21.2 acres of droughty soil and will permanently affect 17.5 acres. No droughty soils will be affected by the compressor station sites in Florida.

7.4.4.3 M&R Station Sites

The Transco Hillabee M&R Station in Alabama will permanently affect 2.3 acres of droughty soils. No droughty soils are located at any of the other proposed M&R sites.

7.4.5 Soil Structure and Compaction

Compaction and associated damage to soil structure can inhibit infiltration of rainwater, increase runoff, and impede vegetation root establishment. Given the land use context of much of the area crossed by the Project, many soils along the Project pipeline route have probably been compacted to some extent due to proximity to existing roadways, utility corridors, poor farming practices and other disturbed areas that are currently paved. The potential for soils in the Project area to become compacted was evaluated based on NRCS SUURGO data using texture and drainage class data. Soils that are compactable soils are limited to sandy loams and finer soils and that were classified as very poorly drained, poorly drained and somewhat poorly drained.

The soil compaction potential for each soil type within the Project area is listed in Tables 7.2-1 and 7.2-2. Section 7.5.5 provides a description of the measures that will be taken to avoid and minimize damage to soil structure and prevent soil compaction.

Based on the NRCS data, the Project pipeline mainline will cross approximately 1.8 miles of soil with a high potential for compaction with approximately 0.1 miles in Russell County, Alabama and approximately 1.7 miles in Dougherty County, Georgia. Approximately 0.9 acres of soils with a high potential for compaction will occur at the Albany Compressor Station site in Dougherty County, Georgia.

7.4.6 Introduction of Rock into the Topsoil

The potential for introducing rock into the topsoil was evaluated based on bedrock depth, and the presence of fill materials and disturbed soils. SSURGO data was used to identify soil map units where depth to bedrock is generally anticipated to be less than 5 feet (60 inches) from the soil surface (USDA, 2010c).

A discussion of minimization and mitigation measures for rock material in the topsoil is provided in Section 7.5.6. The depth to bedrock for each soil type within the Project area is listed in Tables 7.2-1, 7.2-2, and 7.2-3. These soils included soils that are stony, channery, cobbley and boulder modifiers. Some soil map units that the facilities pass through may have soils with map unit names including these features (e.g., Louisberg-Rion-Rock Outcrop) however, given the scale used by the NRCS to determine a mapping unit, it is expected that these features will not be present throughout. Therefore, although the pipeline may pass

through the Louisberg-Rion-Rock Outcrop map unit, it does not necessarily mean the pipeline is passing through a rock outcrop.

Based on available NRCS soils data, the Project mainline pipeline will cross approximately 21.8 miles of soil with a shallow depth to bedrock, in Tallapoosa and Chambers Counties, Alabama. The Citrus County Line will cross approximately 2.2 miles of soil with a shallow depth to bedrock. The only proposed aboveground facility that will affect soils with shallow depth to bedrock is the DEF Citrus County M&R Station, which will permanently affect approximately 5.8 acres of soil with a shallow depth to bedrock.

7.4.7 Contaminated Soil

Soil contamination along the Project pipeline may result from at least two sources: hazardous material or fuel spills during construction; and/or those occurring prior to construction in pre-existing contaminated areas that are encountered during construction. Contamination from spills or leaks of fuels, lubricants, and coolant from construction equipment could adversely affect soils. The effects of such contamination are typically minor because of the low frequency and volumes of spills and leaks. Sabal Trail has developed a Spill Prevention, Control and Countermeasure ("SPCC") Plan, in compliance with Environmental Protection Agency regulations at 40 C.F.R. Part 112, that specifies cleanup procedures in the event of soil contamination from spills or leaks of fuel, lubricants, coolants, or solvents (*see* Appendix 1B in Resource Report 1). Sabal Trail and its contractors will implement the SPCC Plan to minimize the potential effects of accidental spills of materials that may contaminate soils, and to ensure that inadvertent spills of fuels, lubricants, or solvents are contained, cleaned up, and disposed of as quickly as possible and in an appropriate manner to minimize potentially adverse effects.

Sabal Trail conducted a corridor database search using Environmental Data Resources, Inc., ("EDR") to identify various facilities with potential and/or actual sources of contamination that may affect nearby soil along the proposed pipeline and aboveground facilities. The search identified various facilities with potential and/or actual sources of contamination that may affect nearby soil along the proposed pipeline and aboveground facilities in Alabama, Georgia, and Florida. Information in the EDR report includes a compilation of data from a variety of available federal, state, and local government databases detailed further in Resource Report 8. The EDR report provides a detailed list of potentially contaminated sites within one mile of the pipeline centerline; however, only sites within 0.25 mile of the pipelines were reviewed for their potential to affect pipeline construction.

The review of these databases and files resulted in the identification of numerous sites with documented soil effects. Numerous soil effects were identified in the vicinity of the Project pipeline facilities. Information relevant to documented effected areas that the pipeline will transect, or that the pipeline will be in close proximity to, is provided in Section 8.4.2.3 of Resource Report 8. See Table 8.4-4 for a listing of environmental sites listed by milepost. Of the 94 reported occurrences along the Project pipeline in the databases queried by EDR, approximately 27 sites are less than 500 feet from the pipeline and 5 are less than 100 feet from the pipeline which suggests that the likelihood of encountering contaminated soils along the Project route is low. The only aboveground facility located in close proximity to a known site identified by EDR is the FGT Hunters Creek M&R Station, which is less than 100 feet from the identified site.

7.5 Impact Minimization and Mitigation

7.5.1 Existing Conditions

It is Sabal Trail's goal to minimize soil impacts by locating the Project facilities adjacent to existing utility ROWs to the maximum extent feasible. Utilizing existing ROWs will limit new soil disturbance by working within previously developed or disturbed soils and minimizing land use change. The access roads that will be used during construction and operations of the pipeline facilities already exist. These paved, dirt, and gravel municipal and private roadways will not require substantial clearing, grading, or excavation. Some

maintenance may be necessary to existing access roads in order to minimize potential safety and erosion issues.

The Project will be constructed in compliance with applicable federal and state regulations and guidelines including the Occupational Safety and Health Administration Part 1926 Subpart P – Excavations, which cover requirements for protective systems in excavations. In general, the pipeline burial depth will provide a minimum of three feet of cover over the pipeline as required by 49 CFR Part 192.327 of the USDOT regulations. In agricultural lands, the pipeline burial depth will provide a minimum of four feet of cover. Deeper burial may be effected in specific areas such as under waterbodies, railroad crossing, and to meet the requirements of the landowner.

Techniques that will be used to mitigate potential adverse effects on soils are described in the Project E&SCP in Appendix 1B of Resource Report 1, which will be used by Sabal Trail and its contractors as guidance for minimizing soil disturbance and transportation of sediments off the ROW or into sensitive resources (wetlands, streams, and residential areas) during pipeline construction. Pursuant to changes in the FERC regulations, interstate pipeline companies are now required to comply with the FERC's Upland Erosion Control, Revegetation, and Maintenance Plan ("FERC Plan", May 2013 Version) and the FERC's Wetland and Waterbody Construction and Mitigation Procedures ("FERC Procedures", May 2013 Version), unless approval to deviate from the FERC Plan and Procedures is received from FERC and the appropriate state agency.

The following identifies the differences between the Project E&SCP and the FERC's Plan and Procedures as well as the reasons behind the differences:

1. FERC Plan (Section V.C.1 and V.C.3): Perform compaction testing in residential areas disturbed by construction activities and perform appropriate soil compaction mitigation in severely compacted residential areas.

   Project E&SCP: Compaction testing and mitigation are not required in residential areas.

   Reason to Deviate: The Project E&SCP requires that topsoil either be segregated or replaced in residential areas. Topsoil that is segregated or replaced results in little compaction and provides a suitable medium for grass. Most yard areas that are sown in grass do not require deep root penetration.

2. FERC Procedures (Section VI.B.2.d): Do not trench the wetland until the pipeline is assembled and ready for lowering in.

   Project E&SCP: Normal cross-country construction practices will be used in wetlands when conditions allow, such as low flow or unsaturated soils.

   Reason to Deviate: If conditions allow, such as low flow or unsaturated soils, normal cross-country construction practices will be used in wetlands. In these instances, Sabal Trail requests a deviation from Section VI.B.2.d of the FERC Procedures to excavate the trench prior to the pipeline assembly. Otherwise, after the pipeline is assembled, equipment will not be able to access the area where trenching will occur nor would there be sufficient construction workspace to safely excavate the trench.

7.5.2 USDA Designated Farmland Soils

7.5.2.1 Pipeline Facilities

As determined from SSURGO soil survey mapping, Project facilities will cross prime farmland soils, soils designated as statewide importance, and soils designated as unique significance (*see* Tables 7.2-1, 7.2-2, and 7.2-3). To the extent possible, when located on these soil types, the Project will be primarily within or along existing utility ROW's and will use access roads that have been previously disturbed or developed.

Sabal Trail performed a database search of the National Organic Program ("NOP") 2013 list of certified USDA organic operations in Alabama, Georgia, and Florida. The NOP oversees USDA-accredited certifying agents and their certification of organic production and handling operations (USDA, 2013). Organic is a labeling term that indicates that the food or other agricultural product has been produced through approved methods that meet standards of the Organic Foods Production Act of 1990, which provides guidelines to integrate cultural, biological, and mechanical practices that foster cycling of resources, promote ecological balance, and conserve biodiversity. A review of the NOP database did not identify any certified organic farms in the vicinity of the Project in Alabama, Georgia or Florida. One landowner identified an organic cabbage crop, however no certification has been identified to date. Sabal Trail will continue to consult with this landowner through the easement process regarding the cabbage crop.

If further landowner consultation identifies organic farm operations certified under an accredited program, Sabal Trail will work with individual affected landowners and associated regulatory and/or certifying agencies to ensure continued enrollment of the properties in certification programs during construction and operation of the Project. These issues will be discussed with landowners during the negotiations. Any special conditions will be included in the construction line list, and Sabal Trail will have land representatives on-site during construction to ensure these conditions are met. Sabal Trail will ensure that landowners are adequately compensated for any damages that may arise.

In addition, the Sabal Trail pipeline has been sited along property lines to the extent possible to minimize the amount of soil disturbance in agricultural and other land uses. Agricultural activities, aside from those associated with tree production which are not allowed in the pipeline permanent ROW are not precluded within the permanent pipeline ROW. Therefore, impacts on farmland of unique importance crossed by the proposed Sabal Trail Project will be limited to the construction phase, and would be relatively minor and short-term.

7.5.2.2 Compressor Stations

The Alexander City Compressor Station will permanently affect approximately 16.4 acres of farmland of unique importance. The Albany Compressor Station will permanently impact approximately 28.2 acres of farmland of unique importance. Areas of farmland of unique importance that will be outside of the permanent ROW will be allowed to revert back to their pre-construction land uses.

7.5.2.3 M&R Station Sites

The proposed Transco Hillabee M&R Station will permanently all 1.3 acres of farmland of unique importance identified within the permanent ROW.Proposed Access Roads

The proposed permanent access roads will cross approximately 19.4 acres of farmland of unique importance. Temporary access roads which cross farmland of unique importance will revert to their original function following construction. Therefore effects to farmland of unique importance due to temporary access road crossings are not anticipated.

7.5.3 Soil Erosion

Sabal Trail has developed a Project E&SCP that provides detailed descriptions and schematics of BMPs that will be used to control soil erosion caused by water and wind and complies with each State' specific erosion and sediment control rules and regulations. Specific BMPs and procedures are summarized below:

- An Environmental Inspector will monitor all phases of Project construction to ensure BMPs outlined in the Project E&SCP are followed;
- Personnel involved in Project construction will undergo environmental training in principles and techniques outlined in the Project E&SCP;
- ROW, temporary and permanent slope breakers will be constructed to reduce runoff velocities and direct water off of the ROW;
- Temporary and permanent trench plugs will be constructed to reduce runoff velocities in the trench during construction and reduce subsurface groundwater movement after the trench is backfilled;
- Erosion controls will be placed at dike and drainage swale outlets, on steep slopes, and adjacent to roads and waterbodies as necessary;
- Surface contours and drainage patterns will be returned as nearly as possible to original conditions, except at access roads that requires improvement, and at other aboveground facilities;
- All disturbed grounds (except wetlands) will be seeded and mulched to encourage revegetation;
- Temporary winter vegetation cover will be established if Project construction is completed too late in the growing season to facilitate permanent vegetation re-establishment;
- Wetland and waterbody crossing procedures designed to minimize direct stream channel disturbance, minimize hydric soil rutting and compaction, and contain temporary trench spoil piles will be followed; and
- Post-construction monitoring will identify areas in need of remedial soil stabilization and vegetation re-establishment.

Therefore, significant soil erosion is not expected during or after Project construction.

7.5.4 Hydric and Droughty Soils

Hydric soils occur primarily within wetlands and other wet areas along the Project route while droughty soils occur in drier areas. Adhering to the Project E&SCP will avoid and minimize significant impacts to hydric and droughty soils where they occur. Sabal Trail will monitor revegetated areas for growth. In the event of droughty conditions that allow for little growth, Sabal Trail will follow the guidelines for revegetation outlined in the Erosion and Sedimentation manuals for each individual state (*see* Appendix G for Alabama, Appendix H for Georgia, and Appendix I for Florida of the E&SCP).

7.5.5 Soil Structure and Compaction

Construction of the Project could result in loss of soil productivity due to compaction, or damage to soil structure from heavy equipment. Soil structural damage and compaction could also result from pipeline construction during excessively wet periods. In order to minimize potential impact to soil resources, Sabal Trail will utilize the measures contained in the Project E&SCP, which provides detailed construction and restoration measures for the upland and adjacent waterbody and wetland areas that could be affected by the Project.

The Project is sited parallel, as much as practical, to existing linear facilities, roads, and highways, where soils have been previously affected and this will limit the amount of new soil disturbance. Where the Project does not parallel linear facilities, road, or highways, the construction of these segments will result in greater soil disturbance. The construction through agricultural land will involve special procedures such as topsoil stripping and segregation prior to construction, and decompaction and removal of rock following installation of the pipeline during restoration.

Upon completion of pipeline installation, route surveillance as required by 49 CFR Part 192.613 will be used to monitor the pipeline rights of way. Sabal Trail will ensure that personnel are trained to identify signs of soil movement or subsidence. Should subsidence occur, the affected area of the pipeline will be exposed, repositioned or replaced to a stress-free state, and then properly bedded and backfilled. Should a segment of the pipeline need replacement, the segment will be properly welded in place, hydrostatically tested and have a pig device passed through it to ensure that it has been returned to a stress – free state.

7.5.6 Rock Material in the Topsoil

As indicated above, soils with shallow bedrock may be encountered along the Project route. Where residential land will be crossed by the Project pipeline facilities, several measures to prevent incorporation of rock into the topsoil will be implemented in the event that bedrock is encountered within the trench depth. These measures include segregation and protection of topsoil along the trenchline, rock backfill in residential land only to the top of bedrock, and disposal of excess rock fragments in an approved manner so as to not incorporate rock fragments into topsoil layers. Should native rock be encountered in the pipeline trench, it will be segregated and disposed of in an approved manner, similarly to bedrock and generated blast rock. Through adherence to these measures, no significant increase to the rock content of the topsoil is anticipated.

7.5.7 Contaminated Soil

Sabal Trail has extensive experience managing contaminated soils and groundwater during construction activities. Sabal Trail's Waste Management Plan is provided in Appendix 1B of Resource Report 1. All soil excavated during construction will be managed in accordance with the Project E&SCP. Sabal Trail continues to evaluate the EDR database results and federal and state files to determine if field sampling will be required prior to construction along any of the Project areas. If contaminated soils are encountered during construction, measures will be implemented to transport and manage excavated soil in designated soil staging areas, to characterize the soils for waste disposal, and to ensure that all soils are managed in accordance with state and federal regulations. As discussed in Resource Report 12, the pipe is to be built out of new material and therefore it is expected that there will be no PCB contamination.

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TABLES

APPENDIX 7A

Description of Soil Series Impacted by the Sabal Trail Pipeline Facilities