EQUITRANS

Equitrans Expansion Project

Docket No. PF15-22

Resource Report 7 – Soils

Draft

July 2015

Equitrans Expansion Project
Draft Resource Report 7 – Soils

Resource Report 7 Filing Requirements	
Information	**Location in Resource Report**
Minimum Filing Requirements	
1. Identify, describe, and group by milepost the soils affected by the proposed pipeline and aboveground facilities. (§ 380.12(I)(1)) • List the soil associations by milepost and describe their characteristics.	Section 7.2 Section 7.3 Appendix 7-A Appendix 7-B
2. 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)) • List the soil series, describe their characteristics and percentages within the site. • Indicate the onsite percentage of each series that would be permanently affected. • Indicate which series are considered “prime or unique farmland.”	Section 7.2.3 Appendix 7-B
3. Describe by milepost potential impacts on soils. (§ 380.12(I)(3,4))	Section 7.2.2 Appendix 7-A
4. 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)) • Identify any measures of the Plan that are deemed unnecessary, technically infeasible, or unsuitable and describe alternative measures that will ensure an equal or greater level of protection.	Section 7.3

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LIST OF ACRONYMS AND ABBREVIATIONS

E&SCP	Erosion and Sediment Control Plan
ECD	erosion control device
Equitrans	Equitrans, L.P.
FERC	Federal Energy Regulatory Commission
GIS	Geographic Information System
HDD	horizontal directional drilling
MLRA	Major Land Resource Area
MVP	Mountain Valley Pipeline
NRCS	Natural Resources Conservation Service
Plan	FERC's May 2013 version of the Upland Erosion Control, Revegetation, and Maintenance Plan
Procedures	FERC's May 2013 version of the Wetland and Waterbody Construction and Mitigation Procedures
Project	Equitrans Expansion Project
SSURGO	Soil Survey Geographic database
USDA	U.S. Department of Agriculture

DRAFT RESOURCE REPORT 7
SOILS

Introduction

Equitrans, L.P. (Equitrans) is seeking a Certificate of Public Convenience and Necessity from the Federal Energy Regulatory Commission (FERC) pursuant to Section 7(c) of the Natural Gas Act authorizing it to construct and operate the proposed Equitrans Expansion Project (Project) located in three counties in Pennsylvania and one county in West Virginia. In addition, Equitrans is seeking authorization to abandon an existing compressor station (which will be replaced by a new compressor station) pursuant to Section 7(b) of the Natural Gas Act. Equitrans plans to construct approximately 7.4 miles of pipeline (at two separate locations), a new compressor station, an interconnect with the proposed Mountain Valley Pipeline (MVP), and ancillary facilities to provide timely, cost-effective access to the growing demand for natural gas for use by local distribution companies, industrial users and power generation in northeastern, Mid-Atlantic and southeastern markets, as well as potential markets in the Appalachian region.

The Project is designed to transport natural gas from the northern portion of the Equitrans system south to the interconnection with the proposed MVP, as well as to existing interconnects with Texas Eastern Transmission, LP and Dominion Transmission, Inc. The Project will provide shippers with the flexibility to transport additional natural gas produced in the central Appalachian Basin to meet the growing demand by local distribution companies, industrial users, and power generation facilities located in local, northeastern, Mid-Atlantic and southeastern regions of the United States. The Project will also increase system reliability, efficiency and operational flexibility for the benefit of all Equitrans customers. The Project is designed to add up to 600,000 dekatherms per day of north-south firm capacity on the Equitrans system.

In order to minimize impacts on soils along the pipeline route, Equitrans is committed to implementing the best management practices and mitigation measures included in the May 2013 version of the FERC Upland Erosion Control, Revegetation and Maintenance Plan (Plan) and FERC Wetland and Waterbody Construction and Mitigation Procedures (Procedures). Any specific deviations from the FERC Procedures are described in Section 1.4 of Resource Report 1.

Environmental Resource Report Organization

Resource Report 7 was prepared and organized according to the FERC *Guidance Manual for Environmental Report Preparation* (August 2002). This report provides a description and supporting information regarding soils that will be crossed or underlain by the Project. A description of the methods used to identify which soils are crossed or underlain by the proposed pipelines and aboveground and ancillary facilities, and descriptions of important soil attributes are included in Section 7.1. A summary of the existing soil resources that will be crossed by the proposed pipelines or underlain by the proposed aboveground and ancillary facilities is provided in Section 7.2. Potential soil impacts and limitations due to the construction and operation of the Project are discussed in Section 7.3. Section 7.3 also includes a description of the measures that Equitrans will implement to avoid, minimize, and mitigate those impacts. A discussion of agency consultation is included in Section 7.4. Lastly, Section 7.5 includes a list of the references cited for this report.

7.1 IDENTIFICATION OF SOILS

7.1.1 Identification of Soils from SSURGO Database Queries and GIS Analysis

This resource report identifies the soil types (i.e., soil map units) that will be crossed or underlain by the Project facilities; and describes the soil attributes, potential impacts, and mitigation measures that will be used by the Project.

The soil types that will be crossed or underlain by the Project's facilities were identified by using ArcGIS, a computerized Geographic Information System (GIS), to overlay a digital version of the proposed pipeline routes and other Project facility footprints over the Soil Survey Geographic (SSURGO) spatial database of soils data developed by the U.S. Department of Agriculture (USDA) Natural Resources Conservation Service (NRCS) (Soil Survey Staff 2015a).

A GIS overlay analysis was used to identify and list the sequential beginning and ending mileposts where the proposed pipelines cross each soil map unit. A similar GIS overlay analysis was used to query the soil types and areas that underlie the proposed aboveground facilities.

A GIS analysis and associated soils data for the additional temporary workspaces, access roads, and temporary work sites were not available for this draft resource report, so that information is not included in the discussion. The information will be included in the final Resource Report 7 for the Project.

7.1.2 Descriptions and Methodologies for Assessing Soil Resources

Each soil map unit identified by the GIS analysis relates to a specific "soil series," which is the lowest, most homogeneous class in the soil taxonomy system. Each soil series has distinct soil attributes that are defined by the NRCS and included in the SSURGO and Web Soil Survey online databases (Soil Survey Staff 2015a, 2015b). These online databases provide soil series level information, similar to what is provided in traditional county soil surveys. The soil attributes include physical and chemical properties and interpretive groupings produced by the NRCS, including attributes that relate to construction, right-of-way restoration, or potential soil impacts. Examples of those soil attributes include the topographic setting and average slope, hydric soil conditions, drainage characteristics, susceptibility to water and wind erosion, suitability for use as farmland, etc.

In a few instances, some soil attribute data published by the NRCS (Soil Survey Staff 2015b) was not rated or included for every soil mapping unit. Therefore, some percentages are based on the known ratings or values divided by the total acreage for each facility.

7.1.2.1 Topographic Setting and Representative Slope

The NRCS distinguishes soils based in part on their topographic setting (e.g., hillslopes, flood plains) and range of slope. The topographic setting indicates where the soil is likely to be found (e.g., in floodplains, hillslopes), how it was formed, and may indicate information about other soil properties that can affect interpretive groupings. Information about the topographic setting was taken from the Landform category in the Web Soil Survey attribute data, which included the Hydric Soil List – All Components soil data.

Slope is an important feature to consider for soil impacts and mitigation. Soil series are typically divided into soil map units largely based on slope. For instance, the Dormont soil series is divided into five soil map units: 0 to 3 percent slopes (DoA), 3 to 8 percent slopes (DoB), 8 to 15 percent slopes (DoC), 15 to 25 percent slopes (DoD), and 25 to 35 percent slopes (DoE). Steeper slopes can indicate a greater

susceptibility to erosion, or greater difficulty in re-establishing vegetation. The Web Soil Survey data includes a Representative Slope attribute, which is a single number that represents the range of the slope percentages associated with a soil map unit. For example, the Representative Slope for Dormont silt loam, 8 to 15 percent slopes is 12. The Representative Slope was further categorized for the purposes of this resource report by following the FERC Plan. Thus, Representative Slopes of 0 to 5 percent are characterized as "slight," Representative Slopes of 5 to 15 percent are characterized as "moderate," slopes greater than 15 to 30 percent are characterized as "steep," and anything listed as greater than 30 percent is characterized as "very steep."

7.1.2.2 Prime Farmland and Farmland of Statewide Importance

Prime Farmland is defined by the NRCS as "land that has the best combination of physical and chemical characteristics for producing food, feed, forage, fiber, and oilseed crops and is available for these uses" (Soil Survey Staff 2015c). Prime Farmland typically contains few or no rocks, is permeable to water and air, is not excessively erodible or saturated with water for long periods, and is not subject to frequent, prolonged flooding during the growing season. Soils that do not meet the above criteria may be considered Prime Farmland if the limiting factor is mitigated (e.g., artificial drainage in bottomlands). This designation relates to soil characteristics and not necessarily the existing land use; hence, it includes cultivated land, pasture, woodland, or other lands that are either used for food or fiber crops or vacant land that could be made available for these uses. Developed land and open water are excluded from Prime Farmland designation.

In addition to Prime Farmland, some states (including Pennsylvania and West Virginia) have designated certain soils as Farmland of Statewide Importance. These lands and soils are also important for agricultural production. The NRCS states that "Generally, [Farmland of Statewide Importance] includes areas of soils that nearly meet the requirements for prime farmland and that economically produce high yields of crops when treated and managed according to acceptable farming methods. Some areas may produce as high a yield as prime farmland if conditions are favorable" (Soil Survey Staff 2015c). The NRCS database (Soil Survey Staff 2015b) includes a specific attribute which identifies the farmland designation of a soil as Prime Farmland, Farmland of Statewide Importance, or Not Prime Farmland.

7.1.2.3 Hydric Soils

Hydric soils are soils that are saturated, flooded, or ponded long enough during the growing season to develop anaerobic conditions in the upper portion of the soil column (Soil Survey Staff 2015b). Generally, hydric soils are those soils that are poorly drained or very poorly drained. Hydric soils may indicate the presence of wetlands, high water tables, or buried agricultural drain tiles. The NRCS databases include a hydric soils attribute that specifies whether a soil is classified as hydric or not, as well as flooding frequency (Soil Survey Staff 2015a, 2015b). The hydric rating of each soil map unit was taken from the Hydric Soil – All Components attribute. The flooding frequency attribute included in the NRCS databases was also reviewed.

7.1.2.4 Soil Erosion Due to Water or Wind

Soil erosion is an ongoing natural process due primarily to the action of water or wind. It involves the disturbance, transport, and deposition of soil particles – most often by water or wind. Three factors were examined for this resource report to determine which soil types are likely to be highly erodible due to water

(susceptibility to wind erosion was assessed separately): the erosion factor for the whole soil (Kw), the representative slope, and the nonirrigated land capability rating.

The NRCS characterizes the relative susceptibility of each soil type to sheet and rill erosion by water, and determines an erosion factor. This resource report examined the erodibility of the whole soil (Kw), rather than just the soil particles of a certain soil layer. The erosion factor is based primarily on the percentage of silt, sand, and organic matter and on soil structure and saturation. Soils most susceptible to erosion by water are typified by bare or sparse vegetative cover, non-cohesive soil particles with low infiltration rates, and moderate to steep slopes. The NRCS ranks soils on a scale of 0.02 to 0.69. Other factors being equal, the higher the value, the more susceptible the soil is to sheet and rill erosion by water (Soil Survey Staff 2012). This number was further ranked into three categories: "slight" (0.02 to 0.24), "moderate" (0.25 to 0.46), and "high" (0.47 to 0.69). The Kw ranking was elevated from "moderate" to "highly erodible" when associated with steep slopes and when the Nonirrigated Capability Subclass included an "e," which indicates that erosion is a potential hazard for the soil type.

Wind can also be a significant driver of soil erosion. An analysis of the susceptibility to wind erosion was based on the wind erodibility group attribute, which the NRCS has specifically assigned to each soil type. Wind erodibility is listed on a scale of 1 to 8, where 1 is for soils that are the most highly susceptible to wind erosion (Soil Survey Staff 2012). Soils with a wind erodibility group of 1 to 4 were ranked with a high potential for erosion due to wind.

7.1.2.5 Soil Compaction

Soil compaction is the compression of the soil that leads to the loss or decrease of soil structure and porosity. It is often caused by the pressure or weight of heavy machinery and equipment that compresses the soil, particularly when the soil is wet. The degree of compaction depends on moisture content and soil texture. Fine-textured soils (i.e., a high clay content) with poor internal drainage that are moist or saturated during construction are the most susceptible to compaction and rutting. Soil compaction can also be caused by the loss of soil organic matter, or the loss of soil structure from agricultural or construction practices.

Soil compaction can reduce soil productivity and lead to poor soil aeration, poor plant rooting, decreased infiltration, increased runoff and erosion potential, and rutting.

Soil compaction can be measured in the field, but susceptibility to soil compaction cannot be accurately determined based on the generalized characteristics of a soil type. Soil compaction is influenced by physical characteristics (e.g., soil texture, soil moisture, water table depth), as well as current and historic activities (e.g., how and when vehicles and equipment were used, plowing and decompaction activities, etc.). Therefore, the relative susceptibility of soil compaction can be approximated by identifying 1) soils with poor drainage (somewhat poorly drained to poorly drained), 2) a high clay content (greater than 20 percent), or 3) a surface soil texture characterized as sandy clay loam or dominated by finer particles. Soils with any of these characteristics were flagged as potentially susceptible to soil compaction.

7.1.2.6 Poor Revegetation Potential

Most of the areas disturbed by construction will be restored through revegetation. However, some physical and chemical conditions can make revegetation more challenging, so these areas can be identified and additional mitigation measures can be planned to improve revegetation success. Four factors were assessed to evaluate the potential for revegetation problems. Soils were assessed as potentially susceptible to

revegetation problems if they 1) have a surface texture of sandy loam or coarser, 2) they are somewhat excessively drained to excessively drained, 3) have slopes greater than 15 percent, or 4) have severe limitations (i.e., a Nonirrigated Capability Class of 3 or higher).

7.2 EXISTING SOIL RESOURCES

This section identifies the broad geographic setting of the Project and summarizes the soils that will be crossed or which underlie the proposed facilities.

Based on a review of the SSURGO database, the Project will cross a total of 21 soil series and 40 soil map units. Appendix 7-A lists the soil types (i.e., soil map units) crossed by the proposed pipelines. Appendix 7-A provides similar information for the soils that will underlie proposed aboveground facilities. However, it is important to note that: 1) most of the potential impacts will be temporary (i.e., soils will only be exposed or impacted for a short period of time during construction); and 2) Equitrans will implement the FERC Plan and Procedures to properly restore the temporarily disturbed soils as part of the construction process.

7.2.1 Central Allegheny Plateau Major Land Resource Area

Soil interpretations at the broadest scale in the United States are based on Major Land Resource Areas (MLRAs). MLRAs are geographically associated land resource units, usually encompassing several thousand square miles, characterized by a particular pattern of soils, geology, climate, water resources, and land use (Soil Survey Staff 2006). MLRAs are a useful tool for describing the general soils crossed by the proposed pipeline and the natural and anthropomorphic features affecting those soils.

The proposed pipelines and aboveground Project facilities are located in the Central Allegheny Plateau MLRA (Soil Survey Staff 2006). The Central Allegheny Plateau MLRA stretches approximately 18,040 square miles (46,750 square kilometers) across portions of West Virginia (49 percent), Ohio (28 percent), Pennsylvania (22 percent), and Kentucky (1 percent) (Soil Survey Staff 2006). The cities of Huntington, Charleston, Parkersburg, Clarksburg, Fairmont, Morgantown, and Wheeling, West Virginia; and Pittsburgh, Uniontown, and Indiana, Pennsylvania, are in this MLRA. Steubenville, Marietta, and Athens, Ohio, also are located in this MLRA.

The Central Allegheny Plateau is a dissected plateau that is underlain mainly by horizontally bedded sedimentary rocks. The characteristic narrow, level valleys and narrow, sloping ridgetops are separated by long, steep and very steep side slopes. Elevation throughout the Central Allegheny Plateau generally range from 650 feet on the lowest valley floors to 1,310 feet or more on the highest ridgetops. Local relief is approximately 330 feet.

The major Hydrologic Unit Areas, or watersheds, that make up this MLRA are identified here in percentage: Upper Ohio, 48 percent; Monongahela, 19 percent; Kanawha, 10 percent; Muskingum, 9 percent; Middle Ohio, 6 percent; Allegheny, 5 percent; and Big Sandy-Guyandotte, 3 percent.

Precipitation in the Central Allegheny Plateau MLRA is unevenly distributed throughout the year. Maximum precipitation generally occurs in midsummer, and the minimum occurs in autumn and early winter. Most rainfall occurs during high-intensity, convective thunderstorms in summer. The freeze-free period averages 190 days.

The dominant soil orders in the Central Allegheny Plateau MLRA are Alfisols, Ultisols, and Inceptisols. The soils in the area have a mesic soil temperature regime, a udic soil moisture regime, and mixed mineralogy. They are generally shallow to very deep, excessively drained to somewhat poorly drained, and skeletal to clayey. Dystrudepts (Dekalb and Hazleton series) formed in sandstone residuum that caps the ridges. Hapludults (Wharton series) formed on the broader summits. Hapludalfs (Culleoka, Dormont, Lowell, Peabody, Upshur, and Westmoreland series), Hapludults (Gilpin series), and Dystrudepts (Weikert series) formed on the hillsides of red shale, limestone, calcareous shale, and acid shale. The Dystrudepts on these hillsides are less extensive than the Hapludalfs and Hapludults. Hapludalfs (Guernsey, Vandalia, and Beech series) formed in colluvium on footslopes. Fragiudults (Monongahela series), Dystrudepts (Philo series), Endoaquepts (Newark series), and Eutrudepts (Chagrin and Sensabaugh series) formed in alluvium along the major streams. Udorthents (Bethesda, Fairpoint, and Morristown series) formed in material derived from the surface mining of coal.

Most of the Central Allegheny Plateau MLRA consists of farms, but less than one-half of the MLRA consists of income-producing farms. Farm income is predominantly from beef cattle operations and dairy farms associated with hay, grassland, and cultivated crops. More than one-half of the area is forested, and the production of timber is important in some areas. Urban expansion, including industrial and residential development, is increasing along the Ohio River and its major tributaries. Much of the cropland has been converted to urban uses. In addition, large acreages are owned or leased for surface mining of coal.

The major soil resource concerns in the Central Allegheny Plateau MLRA are sheet and rill erosion on pasture, land slippage, subsidence resulting from mining, stream bank erosion, gullying, surface compaction caused by livestock trampling, and a reduced content of organic matter on cropland. Conservation practices on cropland generally include crop rotations, contour farming, nutrient management, grassed and forested riparian buffers, cover crops, hayland planting, diversions, and grassed waterways. Conservation practices for pasture land typically include rotational grazing, watering systems, fencing, managed livestock access to streams, pasture planting, and nutrient management. Forest management conservation practices include forest harvest trails, critical area planting, and water bars on trails.

7.2.2 Soil Types Crossed by Proposed Pipeline Facilities

A total of 40 soil types (i.e., soil map units) are crossed by the proposed pipeline routes (comprised of 21 soil series). The proposed 2.99-mile-long H-316 pipeline crosses 17 soil map units in Greene County, Pennsylvania; and the proposed 4.09-mile-long H-318 pipeline crosses 28 soil map units in Washington and Allegheny Counties, Pennsylvania. The 0.22-mile-long combined pipeline corridor for the H-158/M-80 pipelines cross six soil map units. These soil map units are listed and described in Appendix 7-A.

7.2.3 Soil Types Underlain by Proposed Aboveground Facilities

The proposed aboveground facilities are underlain by a total of ten soil map units (comprised of eight soil series). The proposed 17.75-acre Redhook Compressor Station includes six soil map units in Greene County, Pennsylvania, which is near the existing Pratt Compressor Station. That existing station currently occupies 7.68 acres and three map units. The Webster Interconnect will encompass 1.37 acres in Wetzel County, West Virginia, including two soil map units. The soil map units that underlie the proposed aboveground facilities are listed in Appendix 7-B.

The two compressor stations are each larger than 5 acres. The proposed Redhook Compressor Station has a total of 14.58 acres of soils that are designated as farmland soils – 8.58 acres are listed as Prime Farmland, and 6 acres are listed as Farmland of Statewide Importance. Although approximately 6 acres are mapped as farmland soil at the Pratt Compressor Station (5.96 acres of Prime Farmland and 0.1 acre of Farmland of Statewide Significance), this site was constructed in the 1950's and the soils there were permanently impacted during its construction. The proposed Webster Interconnect includes 0.23 acre of Farmland of Statewide Importance; there are no soils listed as Prime Farmland.

7.3 GENERAL IMPACTS AND MITIGATION

This section discusses various soil attributes, special designations, and limiting characteristics relevant to construction of the Project; and also includes the general ways that Equitrans plans to avoid, minimize, and mitigate potential impacts.

Table 7.3-1 summarizes the special designations and limiting characteristics of soils affected by the Project (in acres), including slope, designated farmland, hydric soils, soils that are highly erodible due to water or wind, soils prone to compaction, and soils that may have poor revegetation. Table 7.3-1 includes major Project components, totaling 215 acres. A GIS analysis and associated soils data for the additional temporary workspaces and temporary work sites were not available for this draft resource report; therefore, that information is not included in the discussion.

The soils crossed by the Project do not pose any severe limitations for construction, and Equitrans' best management practices will avoid or minimize soil impacts and mitigate limiting soil characteristics. Equitrans is committed to following best management practices, and at a minimum, will implement soil mitigation measures outlined in the FERC Plan and Procedures.

The FERC Plan and Procedures address project planning, construction, and right-of-way restoration. Additional Project-specific measures for minimizing soil impacts may also be followed as a result of other federal, state, and local permits and consultation, and will be identified when final permits and plans are developed. Project-specific mitigation measures and controls will be developed for the Project prior to construction, and included in erosion and sediment control plans and construction alignment sheets or drawings. Equitrans will provide environmental training to the contractors, and will employ environmental inspectors to direct and monitor the implementation of best management practices as specified in Project environmental plans and permits.

Furthermore, only a small portion of the total area disturbed during construction will be needed for operations of the various aboveground facilities—most areas along the proposed pipelines and around smaller aboveground facilities will be revegetated or otherwise restored.

Table 7.3-1

Characteristics of Soils Affected by the Project*

Facility a/	County	Total Area (acres)	Slopes ≥15 percent b/ (acres)	Designated Farmland c/		Hydric Soils d/ (acres)	Soils Prone to Erosion		Soils Prone to Soil Compaction g/ (acres)	Poor Revegetation Potential h/ (acres)
				Prime (acres)	Statewide Importance (acres)		By Water e/ (acres)	By Wind f/ (acres)		
H-316 Pipeline	Greene	56.11	15.39	0.66	13.15	1.08	25.22	0	32.32	43.83
H-318 Pipeline	Allegheny, Washington	122.74	13.76	19.40	35.71	0.75	53.80	0	72.61	99.23
H-158/M-80 Pipelines	Greene	10.26	2.63	1.82	3.47	0	2.63	0	8.82	8.44
Pratt Compressor Station	Greene	7.67	1.61	5.96	0.10	0.30	1.61	0	6.06	1.71
Redhook Compressor Station	Greene	17.74	1.82	8.58	6.00	0	7.82	0	11.64	9.16
Webster Interconnect	Wetzel	1.37	1.13	0	0.23	0	1.13	0	1.13	1.13
Total Acres		**214.52**	**35.21**	**36.42**	**58.43**	**2.13**	**91.08**	**0**	**131.45**	**162.37**
Percent of Total Acres			**16%**	**17%**	**27%**	**<0.01%**	**42%**	**0%**	**61%**	**76%**

* The values in each row do not necessarily add up to the total acreage for each facility, because of minor rounding or mapping inconsistencies.

a/ The list of facilities does not include additional temporary workspaces, contractor yard, or staging areas.

b/ Soils characterized by the NRCS as having representative slopes of 15 percent or greater.

c/ As designated by the NRCS.

d/ As designated by the NRCS.

e/ Based on K factor for the whole soil (Kw), the representative slope, and the nonirrigated land capability rating; a Kw rating of "moderate" was elevated to "high" when associated with steep slopes and when the Nonirrigated Capability Subclass included an "e," which indicates that erosion is a potential hazard for the soil type.

f/ Based on the Wind Erodibility Group scale; soils with a rating of 1 to 4 were ranked with a high potential for erosion due to wind.

g/ Based on 1) soils with poor drainage (somewhat poorly drained to poorly drained), 2) a high clay content (greater than 20 percent), or 3) a surface soil texture characterized as sandy clay loam or dominated by finer particles.

h/ Based on soils 1) that have a surface texture of sandy loam or coarser, 2) are somewhat excessively drained to excessively drained, 3) have slopes greater than 15 percent, or 4) have severe limitations (i.e., a Nonirrigated Capability Class of 3 or higher).

Sources: Soil Survey Staff 2015a, 2015b

7.3.1 Topographic Setting and Representative Slope

The Project facilities are located in the Central Allegheny Plateau MLRA. Typical of the Central Allegheny Plateau MLRA, facilities are located among a mix of landforms including floodplains, stream terraces, upland terraces, hillslopes, hills, and plateaus.

Slopes range from slight to moderate to steep and very steep. An analysis of the total Project area found that 35.21 acres (16 percent) are located on soils with slopes rated steep or very steep (15 percent slopes or greater). Most of this total (32 acres) is associated with the three pipelines. Table 7.3-1 lists the acreages of steep and very steep slopes for each of the Project facilities.

The Pratt Compressor Station is an existing facility, so the site has been graded and stabilized (despite what the typical soil type may indicate). The other proposed aboveground facilities are on sites that may have slopes, but site grading and stabilization is expected to address any potential long-term slope issues of these sites.

Steep slopes can increase the susceptibility to erosion by water and can potentially make revegetation more difficult by increasing potential soil erosion, affecting available sunlight, etc. Steep slopes may also have shallower or rockier soils that can reduce or limit soil productivity and revegetation; or may be more prone to slipping or slope failure.

There are several ways to mitigate for steep slopes during construction, such as installing temporary slope breakers, trench breakers, silt fence, compost filter sock and other erosion control devices (ECDs), to reduce potential erosion and prevent the transport of sediment down the slope or off the right-of-way. During restoration, permanent slope breakers or erosion control blankets can be installed to reduce potential erosion. Alternate seeding methods (e.g., hydroseeding) can be used if mechanical seeding equipment cannot access steep slopes. Equitrans will follow these and other measures discussed in the FERC Plan as well as its state earth disturbance permits during construction and restoration.

7.3.2 Prime Farmland and Farmland of Statewide Importance

The Project includes a total of 94.85 acres (44 percent) of soil designated as Prime Farmland or Farmland of Statewide Importance. Approximately 36 acres is designated as Prime Farmland and 58 acres listed as Farmland of Statewide Importance. Table 7.3-1 lists the acreages of Prime Farmland and Farmland of Statewide Significance for each of the Project facilities.

Much of the designated farmland is located along the proposed pipeline routes, which will be restored and available for agricultural use once the pipeline trench is backfilled; therefore, no significant or permanent impacts on these farmland soils are anticipated.

Approximately 6 acres are mapped as farmland soil at the Pratt Compressor Station. However, this site was constructed in the 1950's and the soils there were permanently impacted during its construction. The proposed Redhook Compressor Station and Webster Interconnect will include approximately 15 acres and 0.23 acre of farmland soil, respectively, effectively removing this acreage from possible agricultural production.

Equitrans will follow the FERC Plan to mitigate potential temporary impacts on farmland soils, conserve agriculturally important soils during construction, and ensure that agricultural productivity is successfully restored. This includes segregating topsoil from subsoil in agricultural and residential areas up to a depth

of 12 inches. Where topsoil is less than 12 inches deep, the actual depth of the topsoil will be removed and segregated. Equitrans will also conserve topsoil in residential areas and at waterbody and wetland crossings. The topsoil will be segregated from subsoil to minimize potential mixing with subsoil and rocks, and help with subsequent restoration. During construction, the segregated topsoil will be stockpiled in separate windrows along the construction right-of-way and temporarily seeded and stabilized (e.g., with mulch and ECDs where necessary) to help prevent topsoil loss due to water or wind erosion. Topsoil will not be used for filling the trench.

During restoration, the topsoil will be restored. In addition, the soil will be decompacted and fertilizer and lime will be added, where necessary and in coordination with landowners and local natural resource agencies, to help ensure the successful restoration and agricultural productivity of the soils.

Equitrans will also take steps to compensate landowners for the temporary loss of agricultural lands during construction.

7.3.3 Hydric Soils

Almost no hydric soils will be crossed by the Project. A review of hydric soils found that only 2.13 acres of hydric soil (less than 0.01 percent of the Project total) may be crossed, and impacts to these soil types may be avoided as Equitrans has proposed a horizontal directional drill (HDD) to cross the Monongahela River and the South Fork of Tenmile Creek. Table 7.3-1 lists the acreages of hydric soils for each of the Project facilities.

Several of the soil types (totaling 7.87 acres) were noted for occasional or frequent flooding, and approximately 6 acres of this total is at the existing Pratt Station.

It should be noted that this data is based on soil mapping units from the NRCS, which do not capture or describe small inclusions of soils, such as smaller wetland crossings. Anticipated field surveys may find hydric soils not included in the NRCS data.

Due to extended periods of saturation, hydric soils are potentially susceptible to compaction and rutting. Equitrans will take proactive measures in wetland soils to minimize compaction and rutting, typically by installing temporary equipment mats to allow passage of equipment with minimal disturbance of the surface and vegetation. Following these measures and the FERC Plan and Procedures, it is expected to result in minimal impact on soil resources.

Construction in wetlands will follow the measures included in the FERC Procedures, as further described in Resource Report 2.

Surface and subsurface drainage systems (e.g., drain tiles) may exist, particularly in areas with hydric soils. Pipeline construction could disrupt these drainage systems; therefore, to avoid or minimize this impact, Equitrans will question landowners and local agricultural agency personnel regarding the potential presence of drain tiles and irrigation systems in affected agricultural fields. In addition, observations will be made before and during construction for evidence of the presence of drain tiles and irrigation systems. Except in rare circumstances, the pipe will be installed below agricultural drainage lines and irrigation systems. If irrigation or drainage features must be modified during pipeline installation, these features will be restored to pre-construction condition or repositioned, if necessary, in a manner consistent with drainage orientation.

Should drainage tiles or irrigation piping be damaged during construction, Equitrans will repair or restore their function. Equitrans will carefully mark the location of the damage in a prominent manner, such as a securely staked lath with survey tape attached. Drain tile used for replacement shall be of the same size and quality as the original tile encountered on site. If original tile is not available, replacement tiles will be of appropriate size and materials to connect with the existing line without loss of function. Operation of the pipeline following construction and repair of damaged tiles and irrigation lines is not expected to affect operation of drainage and irrigation systems.

7.3.4 Soil Erosion Due to Water or Wind

Soil erosion and sedimentation are two of the primary limitations and potential impacts on soil resources from pipeline construction. An analysis of the NRCS rankings of soil erosion susceptibility identified 91.08 acres (42 percent) of the Project area that may be highly susceptible to erosion due to water, but no soils that are highly susceptible to wind erosion. Table 7.3-1 lists the acreages of highly erodible soils due to water and wind for each of the Project facilities.

The majority of the soils along the H-316 and H-318 pipelines are highly susceptible to erosion, but less than one-third of the soils along the H-158/M-80 pipelines are considered susceptible to erosion. The existing Pratt Compressor Station has 21 percent of soils that are considered at risk for erosion, while 44 percent of the soils at the proposed Redhook Compressor Station are considered at risk for erosion and over 80 percent of the soils at the proposed Webster Interconnect are susceptible to erosion.

Removal of vegetation and disturbance of the soil by construction activities can increase erosion potential and, without adequate protection, may result in the transport of sediment off the approved right-of-way limits or into waterbodies and wetlands. Soil loss due to erosion can also reduce soil fertility and impair revegetation.

Any impacts created during construction are expected to be temporary, and will be actively mitigated during construction and restoration. Equitrans will implement a variety of measures to mitigate the risks of erosion, and will act proactively to control sedimentation.

Equitrans will follow accepted best management practices to prevent or minimize both soil erosion and the transport and deposition of eroded soil off the right-of-way or into wetlands, waterbodies, and other sensitive resources. Equitrans' plans and efforts will also be designed to minimize or mitigate impacts, and to ensure the acceptably restoration of the right-of-way to conditions similar to pre-construction conditions. Equitrans will take appropriate actions to correct identified problems as necessary. Equitrans will accomplish this by performing all construction and restoration activities in compliance with the FERC Plan and Procedures, and in accordance with state and local permit requirements. In addition, Equitrans will implement best management practices included in the Project's Erosion and Sedimentation Control Plan (E&SCP). This includes the installation and maintenance of temporary and permanent erosion and sediment controls to help prevent erosion and control sedimentation (e.g., compost filter sock, silt fence, slope breakers, rock-lined construction entrances), stabilizing disturbed soils with seed and mulch to minimize erosion, and wetting roads to minimize dust.

Although portions of the proposed aboveground facilities are underlain by soils that are potentially erodible, Equitrans will take steps to minimize potential erosion and sedimentation. Erosion control devices will be installed around the site perimeter before ground-disturbing activities begin. Site grading and temporary stabilization will begin almost immediately after the start of construction, and spoils will be properly

managed in accordance with the FERC Plan and Procedures and the E&SCP. Stormwater management systems may also be developed for the sites, which may include temporary and/or permanent measures to control stormwater and sediment during construction and operations.

Equitrans will also implement specific measures to avoid significant adverse impacts on wetland soils. Wetland and waterbody crossings will follow applicable state regulations and guidelines, as well as the FERC Procedures, which includes using equipment mats and segregating topsoil to help protect and restore sensitive resources. Resource Report 2, Water Use and Quality, discusses wetland and waterbody crossings in more detail.

Equitrans will make best efforts to ensure the rapid, successful establishment of vegetation on areas requiring revegetation, which will generally include all areas disturbed by construction with the exception of agricultural lands where requested otherwise by the landowner. Following final grading and cleanup, Equitrans will condition the construction workspace for planting, including the preparation of a seedbed and application and incorporation of soil amendments at rates specified by state regulations or agreed to by the landowner. Equitrans will seed areas to be revegetated in accordance with written recommendations for seed mixes, rates, and dates obtained from the appropriate soil conservation authorities or as requested by landowners.

Except in active agricultural areas and some residential areas, temporary erosion control devices will be maintained until the right-of-way is successfully revegetated. Following successful revegetation of construction areas, temporary erosion control devices will be removed.

During construction and right-of-way restoration and revegetation, the effectiveness of temporary ECDs will be monitored by one or more Environmental Inspectors hired by Equitrans. ECDs will be maintained as necessary while in use.

Although not anticipated, Equitrans would develop a Winter Stabilization Plan if construction and adequate revegetation and stabilization are not completed in time for the winter.

Equitrans will consult with the appropriate county conservation district to develop a restoration plan that addresses seed mixes, application rates for fertilizer and lime, and noxious weed controls.

7.3.5 Soil Compaction

Soils may be prone to soil compaction caused by the repeated movement and pressure of machinery across the soil surface. There are no direct measures of soil compaction, and the NRCS does not provide any direct interpretive categories that rate soil compaction risk. Therefore, the potential risk was evaluated based on the presence of one or more soil attributes. However, these are not directly related, and the risk of soil compaction can vary significantly depending on soil moisture content and efforts taken to mitigate potential risks. However, based on an analysis of available indicators, approximately 131 acres (61 percent) of the soils in the Project are potentially prone to soil compaction. Table 7.3-1 lists the acreages of soils that may be prone to compaction for each of the Project facilities.

Most soils crossed by the Project are at least somewhat susceptible. Therefore, Equitrans will conduct full ROW top soil segregation as a means to mitigate the potential for soil compaction during construction.

Equitrans will adhere to the specific soil compaction mitigation conditions in the FERC Plan. This includes using equipment mats and wide tires or tracks that disperse equipment weight, monitoring soil compaction, and tilling to decompact soil as part of final restoration – particularly in agricultural and residential areas.

In order to minimize compaction, Equitrans will also limit construction traffic within the pipeline construction right-of-way to only that required to accomplish the construction.

Since impacts related to mechanical compaction are expected to be limited to the upper soil horizon or the contact between the upper horizons, tilling is expected to effectively mitigate the impact. If tilling is not effective, Equitrans will identify mechanical (such as deep tilling) or other methods to restore the area.

7.3.6 Poor Revegetation Potential

Most soils crossed by the Project have some attribute that may indicate potential challenges to revegetation. Such attributes include steep slopes, a surface texture of sandy loam or coarser, rapid drainage, or some other limitation (i.e., slope, acidity, salinity). Overall, 162 acres (76 percent) of the soils associated with the Project have one or more indicators of possible revegetation issues. Table 7.3-1 lists the acreages of soils that may have poor revegetation potential for each of the Project facilities.

Equitrans will follow the guidelines in the FERC Plan and Procedures to help ensure adequate and acceptable revegetation of temporarily disturbed areas, which, among other methods, may include the addition of fertilizers and/or lime, where appropriate, or use of erosion control blankets or mulch to help stabilize the ground while seed germinates. Equitrans will monitor revegetation success for at least two growing seasons, and take action where revegetation is not acceptable (e.g., re-seeding, soil testing). Equitrans will conduct soil testing and develop an amendment and seeding plan based on results of soil fertility tests, which will be incorporated into the earth disturbance permits. If post-construction grading is completed after the end of the growing season, the area will be mulched and seeding will take place during the next growing season. If necessary, a winterization plan will be prepared to address how restoration and revegetation would proceed if seeding could not be completed before the onset of winter. Unless requested by a landowner, areas will be seeded by the next available seeding season. Post-construction inspections will be conducted in accordance with the FERC Plan and Procedures as well as applicable state regulations and guidelines to ensure that revegetation is adequate.

Other areas, particularly within aboveground facilities or at road crossings, etc. may be repaved or stabilized with gravel, rather than revegetated.

7.4 AGENCY CONSULTATION

Equitrans will consult with other federal, state, and local agencies, including the local offices of the NRCS, regarding permits, erosion and sediment control, stormwater runoff, seeding and restoration, and other soil conservation issues. Equitrans will document these consultations as part of its filings to the FERC.

7.5 REFERENCES

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Equitrans Expansion Project

Docket No. PF15-22

Resource Report 7

Appendix 7-A
Soil Map Units by Milepost

Appendix 7-A Soil Map Units by Milepost				
Milepost Start	**Milepost End**	**Map Unit Symbol**	**Map Unit Name**	**Distance Crossed (miles)**
H-316 Pipeline				
0.00	0.00	DoC	Dormont silt loam, 8 to 15 percent slopes	0.00
0.00	0.05	GdB	Guernsey silt loam, 3 to 8 percent slopes	0.04
0.05	0.06	DaB	Dekalb channery loam, 3 to 8 percent slopes	0.01
0.06	0.11	DaD	Dekalb channery loam, 15 to 25 percent slopes	0.05
0.11	0.15	Du	Dunning silt loam	0.05
0.15	0.20	DtF	Dormont-Culleoka complex, 25 to 50 percent slopes	0.05
0.20	0.24	DtD	Dunmore channery silt loam, 15 to 25 percent slopes	0.04
0.24	0.26	DaD	Dekalb channery loam, 15 to 25 percent slopes	0.02
0.26	0.45	DtD	Dunmore channery silt loam, 15 to 25 percent slopes	0.18
0.45	0.49	WeB	Westmoreland silt loam, 3 to 8 percent slopes	0.04
0.49	0.58	DtD	Dunmore channery silt loam, 15 to 25 percent slopes	0.09
0.58	0.92	DoC	Dormont silt loam, 8 to 15 percent slopes	0.34
0.92	0.96	DaD	Dekalb channery loam, 15 to 25 percent slopes	0.04
0.96	1.00	UdB	Udorthents, smoothed, gently sloping	0.05
1.00	1.09	DaD	Dekalb channery loam, 15 to 25 percent slopes	0.08
1.09	1.18	DaB	Dekalb channery loam, 3 to 8 percent slopes	0.10
1.18	1.21	DaC	Dekalb channery loam, 8 to 15 percent slopes	0.03
1.21	1.25	DaD	Dekalb channery loam, 15 to 25 percent slopes	0.04
1.25	1.32	DtF	Dormont-Culleoka complex, 25 to 50 percent slopes	0.07
1.32	1.33	W	Water	0.01
1.33	1.33	Nw	Newark silt loam	0.01
1.33	1.37	GdB	Guernsey silt loam, 3 to 8 percent slopes	0.04
1.37	1.43	DaD	Dekalb channery loam, 15 to 25 percent slopes	0.06
1.43	1.47	DaC	Dekalb channery loam, 8 to 15 percent slopes	0.04
1.47	1.52	DaF	Dekalb channery loam, 35 to 65 percent slopes	0.05
1.52	1.63	AgB	Allegheny silt loam, 3 to 8 percent slopes	0.11
1.63	1.67	AgC	Allegheny silt loam, 8 to 15 percent slopes	0.04
1.67	1.72	DaF	Dekalb channery loam, 35 to 65 percent slopes	0.05
1.72	1.75	AgC	Allegheny silt loam, 8 to 15 percent slopes	0.04
1.75	1.80	DtF	Dormont-Culleoka complex, 25 to 50 percent slopes	0.04
1.80	1.82	DaC	Dekalb channery loam, 8 to 15 percent slopes	0.02
1.82	1.85	DaF	Dekalb channery loam, 35 to 65 percent slopes	0.03
1.85	1.97	AgB	Allegheny silt loam, 3 to 8 percent slopes	0.12
1.97	2.04	DaB	Dekalb channery loam, 3 to 8 percent slopes	0.07
2.04	2.08	DtF	Dormont-Culleoka complex, 25 to 50 percent slopes	0.03

Appendix 7-A Soil Map Units by Milepost				
Milepost Start	**Milepost End**	**Map Unit Symbol**	**Map Unit Name**	**Distance Crossed (miles)**
2.08	2.13	GdB	Guernsey silt loam, 3 to 8 percent slopes	0.05
2.13	2.18	WeD	Westmoreland silt loam, 15 to 25 percent slopes	0.05
2.18	2.26	DtF	Dormont-Culleoka complex, 25 to 50 percent slopes	0.09
2.26	2.28	W	Water	0.02
2.28	2.37	DtF	Dormont-Culleoka complex, 25 to 50 percent slopes	0.09
2.37	2.46	DoC	Dormont silt loam, 8 to 15 percent slopes	0.09
2.46	2.56	DtF	Dormont-Culleoka complex, 25 to 50 percent slopes	0.10
2.56	2.57	DtD	Dunmore channery silt loam, 15 to 25 percent slopes	0.01
2.57	2.61	BoB	Brooke silty clay loam, 3 to 8 percent slopes	0.04
2.61	2.73	DtD	Dunmore channery silt loam, 15 to 25 percent slopes	0.12
2.73	2.79	DtF	Dormont-Culleoka complex, 25 to 50 percent slopes	0.06
2.79	2.83	GdB	Guernsey silt loam, 3 to 8 percent slopes	0.04
2.83	2.99	DtF	Dormont-Culleoka complex, 25 to 50 percent slopes	0.16
H-318 Pipeline				
0.00	0.07	GuB	Guernsey silt loam, 3 to 8 percent slopes	0.07
0.07	0.09	CuD	Culleoka-Dormont-Urban land complex, 15 to 25 percent slopes	0.02
0.09	0.10	DoB	Dormont silt loam, 3 to 8 percent slopes	0.01
0.10	0.11	CuD	Culleoka-Dormont-Urban land complex, 15 to 25 percent slopes	0.01
0.11	0.22	GuC	Guernsey silt loam, 8 to 15 percent slopes	0.11
0.22	0.29	GuD	Guernsey silt loam, 15 to 25 percent slopes	0.07
0.29	0.36	CuD	Culleoka-Dormont-Urban land complex, 15 to 25 percent slopes	0.07
0.36	0.61	GuC	Guernsey silt loam, 8 to 15 percent slopes	0.25
0.61	0.70	GuD	Guernsey silt loam, 15 to 25 percent slopes	0.09
0.70	0.75	GuC	Guernsey silt loam, 8 to 15 percent slopes	0.05
0.75	1.07	GSF	Gilpin, Weikert, and Culleoka shaly silt loams, very steep	0.32
1.07	1.16	DoC	Dormont silt loam, 8 to 15 percent slopes	0.09
1.16	1.20	CuD	Culleoka-Dormont-Urban land complex, 15 to 25 percent slopes	0.04
1.20	1.26	DoC	Dormont silt loam, 8 to 15 percent slopes	0.06
1.26	1.32	CwD	Culleoka-Westmoreland silt loams, 15 to 25 percent slopes	0.06
1.32	1.36	DoB	Dormont silt loam, 3 to 8 percent slopes	0.04
1.36	1.39	DoD	Dormont silt loam, 15 to 25 percent slopes	0.03
1.39	1.49	DoB	Dormont silt loam, 3 to 8 percent slopes	0.11
1.49	1.53	DoC	Dormont silt loam, 8 to 15 percent slopes	0.04
1.53	1.59	DoD	Dormont silt loam, 15 to 25 percent slopes	0.05
1.59	1.65	DoE	Dormont silt loam, 25 to 35 percent slopes	0.07
1.65	1.72	GSF	Gilpin, Weikert, and Culleoka shaly silt loams, very steep	0.07

Appendix 7-A Soil Map Units by Milepost				
Milepost Start	**Milepost End**	**Map Unit Symbol**	**Map Unit Name**	**Distance Crossed (miles)**
1.72	1.79	SmF	Strip mines, 25 to 75 percent slopes	0.07
1.79	1.87	CwC	Culleoka-Westmoreland silt loams, 8 to 15 percent slopes	0.08
1.87	1.97	RaB	Rayne silt loam, 3 to 8 percent slopes	0.10
1.97	2.14	AgB	Allegheny silt loam, 3 to 8 percent slopes	0.17
2.14	2.18	SmF	Strip mines, 25 to 75 percent slopes	0.05
2.18	2.24	RaB	Rayne silt loam, 3 to 8 percent slopes	0.05
2.24	2.34	SmF	Strip mines, 25 to 75 percent slopes	0.10
2.34	2.60	SmD	Strip mines, 8 to 25 percent slopes	0.26
2.60	2.64	SmF	Strip mines, 25 to 75 percent slopes	0.04
2.64	2.71	GQF	Gilpin-Upshur complex, very steep	0.07
2.71	2.76	RaB	Rayne silt loam, 3 to 8 percent slopes	0.06
2.76	2.77	GQF	Gilpin-Upshur complex, very steep	0.01
2.77	2.82	URB	Urban land-Rainsboro complex, gently sloping	0.05
2.82	2.86	RaB	Rayne silt loam, 3 to 8 percent slopes	0.04
2.86	2.92	RaA	Rainsboro silt loam, 0 to 3 percent slopes	0.06
2.92	2.99	W	Water	0.07
2.99	3.08	W	Water	0.10
3.08	3.18	Us	Udorthents, smoothed	0.09
3.18	3.21	DtF	Dormont-Culleoka complex, 25 to 50 percent slopes	0.04
3.21	3.34	CaC	Calvin silt loam, 8 to 15 percent slopes	0.12
3.34	3.46	DtF	Dormont-Culleoka complex, 25 to 50 percent slopes	0.12
3.46	3.58	DoC	Dormont silt loam, 8 to 15 percent slopes	0.13
3.58	3.61	DtF	Dormont-Culleoka complex, 25 to 50 percent slopes	0.03
3.61	3.67	WeB	Westmoreland silt loam, 3 to 8 percent slopes	0.06
3.67	3.70	WeC	Westmoreland silt loam, 8 to 15 percent slopes	0.03
3.70	3.73	DtF	Dormont-Culleoka complex, 25 to 50 percent slopes	0.03
3.73	3.74	CaC	Calvin silt loam, 8 to 15 percent slopes	0.01
3.74	3.79	DoC	Dormont silt loam, 8 to 15 percent slopes	0.06
3.79	3.80	DtF	Dormont-Culleoka complex, 25 to 50 percent slopes	0.00
3.80	3.85	CaC	Calvin silt loam, 8 to 15 percent slopes	0.06
3.85	3.87	CaD	Calvin silt loam, 15 to 25 percent slopes	0.02
3.87	3.92	DoC	Dormont silt loam, 8 to 15 percent slopes	0.05
3.92	3.97	CaD	Calvin silt loam, 15 to 25 percent slopes	0.06
3.97	4.04	CaB	Calvin silt loam, 3 to 8 percent slopes	0.06
4.04	4.16	CaD	Calvin silt loam, 15 to 25 percent slopes	0.12
4.16	4.20	Fa	Fairplay (marl) silt loam	0.04

Appendix 7-A Soil Map Units by Milepost				
Milepost Start	**Milepost End**	**Map Unit Symbol**	**Map Unit Name**	**Distance Crossed (miles)**
4.20	4.21	WeD	Westmoreland silt loam, 15 to 25 percent slopes	0.00
H-158/M-80 Pipelines				
0.00	0.00	CaD	Culleoka channery silt loam, 15 to 25 percent slopes	0.00
0.00	0.04	DtF	Dormont-Culleoka complex, 25 to 50 percent slopes	0.03
0.04	0.07	Nw	Newark silt loam	0.03
0.07	0.10	DtF	Dormont-Culleoka complex, 25 to 50 percent slopes	0.03
0.10	0.16	DaD	Dekalb channery loam, 15 to 25 percent slopes	0.06
0.16	0.22	DaB	Dekalb channery loam, 3 to 8 percent slopes	0.06
Sources: Soil Survey Staff 2015a, 2015b				

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Appendix 7-B
Soil Map Units at Aboveground Facilities

Appendix 7-B

Soil Map Units at Aboveground Facilities

Soil Map Unit Symbol	Soil Map Unit Name	Anticipated Temporary Impact		Anticipated Permanent Impact		Designated Farmland
		Acres	Percent of Site	Acres	Percent of Site	
Pratt Compressor Station						
DaD	Dekalb channery loam, 15 to 25 percent slopes	1.61	21	TBD	TBD	Not Prime Farmland
Hu	Huntington silt loam	5.96	78	TBD	TBD	Prime Farmland
Nw	Newark silt loam	0.10	1	TBD	TBD	Farmland of Statewide Importance
W	Water	0.01	<0.01	TBD	TBD	-
	Pratt CS Total (acres)	**7.68**				
Redhook Compressor Station						
DaB	Dekalb channery loam, 3 to 8 percent slopes	3.08	17	TBD	TBD	Farmland of Statewide Importance
DaD	Dekalb channery loam, 15 to 25 percent slopes	1.68	9	TBD	TBD	Not Prime Farmland
DoC	Dormont silt loam, 8 to 15 percent slopes	6.00	34	TBD	TBD	Farmland of Statewide Importance
DtD	Dunmore channery silt loam, 15 to 25 percent slopes	0.14	1	TBD	TBD	Not Prime Farmland
DtF	Dormont-Culleoka complex, 25 to 50 percent slopes	1.35	8	TBD	TBD	Not Prime Farmland
GdB	Glenford silt loam, 3 to 8 percent slopes	5.50	31	TBD	TBD	Prime Farmland
	Redhook CS Total (acres)	**17.75**				
Webster Interconnect						
GpF	Gilpin-Peabody complex, 35 to 70 percent slopes	1.13	83	TBD	TBD	Not Prime Farmland
Sk	Skidmore gravelly loam	0.23	17	TBD	TBD	Farmland of Statewide Importance
	Webster Interconnect Total (acres)	**1.37**				

a/ Data that indicates which soils will be permanently impacted were not available at the time this draft resource report was written.
Sources: Soil Survey Staff 2015a, 2015b