ROVER PIPELINE
An ENERGY TRANSFER Company

ROVER PIPELINE LLC

Rover Pipeline Project

RESOURCE REPORT 7
Soils

FERC Docket No. CP15-___-000

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LIST OF ACRONYMS

AIM Plan	Agricultural Impact Mitigation Plan
ATWS	Additional temporary workspace
CDL	USDA CropScape Cropland Data Layer
FERC or Commission	Federal Energy Regulatory Commission
HDD	horizontal directional drill
hp	Horsepower
MLRA	Major Land Resource Areas
MP	Milepost
NRCS	Natural Resource Conservation Service
Project	Rover Pipeline Project
Rover	Rover Pipeline LLC
Rover Plan	*Rover's Upland Erosion Control, Revegetation, and Maintenance Plan*
Rover Procedures	Rover's *Waterbody and Wetland Construction and Mitigation Procedures*
SPR Procedures	Spill Prevention and Response Procedures
SSURGO	NRCS Soil Survey Geographic Database
U.S.	United States
USDA	U.S. Department of Agriculture
WEG	Wind Erodibility Group

RESOURCE REPORT 7—SOILS	
Filing Requirement	**Location in Environmental Report**
• List, by milepost, the soil associations that would be crossed and describe the erosion potential, fertility, and drainage characteristics of each association. (§ 380.12 (i) (1))	Sections 7.1 and 7.2 Table 7A-1 and 7A-2 in Appendix 7A Volume II, Attachments 7A and 7B
• If an aboveground facility site is greater than 5 acres: (§ 380.12 (i) (2)) (i) List the soil series within the property and the percentage of the property comprised of each series; (ii) List the percentage of each series which would be permanently disturbed; (iii) Describe the characteristics of each soil series; and (iv) Indicate which are classified as prime or unique farmland by the U.S. Department of Agriculture, Natural Resources Conservation Service.	Sections 7.1 and 7.2 Table 7A-3 in Appendix 7A Volume II, Attachment 7A, Table 7A-2; Attachment 7B, Section 7.3.1
• Identify, by milepost, potential impact from: Soil erosion due to water, wind, or loss of vegetation; soil compaction and damage to soil structure resulting from movement of construction vehicles; wet soils and soils with poor drainage that are especially prone to structural damage; damage to drainage tile systems due to movement of construction vehicles and trenching activities; and interference with the operation of agricultural equipment due to the probability of large stones or blasted rock occurring on or near the surface as a result of construction. (§ 380.12 (i) (3))	Section 7.2 Table 7A-4 in Appendix 7A
• Identify, by milepost, cropland and residential areas where loss of soil fertility due to trenching and backfilling could occur. (5) Describe proposed mitigation measures to reduce the potential for adverse impact to soils or agricultural productivity. Compare proposed mitigation measures with the staff's current "Upland Erosion Control, Revegetation and Maintenance Plan"', which is available from the Commission Internet home page or from the Commission staff, and explain how proposed mitigation measures provide equivalent or greater protections to the environment. (§ 380.12 (i) (4))	Sections 7.3 and 7.4 Table 7A-5 in Appendix 7A

7.0 SOILS

Rover Pipeline LLC (Rover) is seeking authorization from the Federal Energy Regulatory Commission (FERC) pursuant to Section 3 and Section 7(c) of the Natural Gas Act to construct, own, and operate the proposed Rover Pipeline Project (Project). The Rover Pipeline Project is a new natural gas pipeline system that will consist of approximately 711.2 miles of Supply Laterals and Mainlines, 10 compressor stations, and associated meter stations and other aboveground facilities that will be located in parts of West Virginia, Pennsylvania, Ohio, and Michigan. The Project will include approximately 509.1 miles of proposed right-of-way, extending from the vicinity of New Milton, Doddridge County, West Virginia to the vicinity of Howell, Livingston County, Michigan.

The Project will consist of the following components and facilities:

- Supply Laterals:
  - eight supply laterals consisting of approximately 199.7 miles of 24-, 30-, 36-, and 42-inch-diameter pipeline in West Virginia, Pennsylvania, and Ohio,
  - two parallel supply laterals, each consisting of approximately 18.8 miles (for a total of approximately 37.6 miles) of 42-inch-diameter pipeline (Supply Connector Lateral Line A and Line B) in Ohio,
  - approximately 72,645 horsepower (hp) at six new compressor stations to be located in Doddridge and Marshall counties, West Virginia; Washington County, Pennsylvania; and Noble, Monroe, and Harrison counties, Ohio, and
  - two new delivery, 11 new receipt, and two bidirectional meter stations on the Supply Laterals.

- Mainlines A and B:
  - approximately 190.6 miles of 42-inch-diameter pipeline (Mainline A) in Ohio,
  - approximately 183.3 miles of parallel 42-inch-diameter pipeline (Mainline B) in Ohio,
  - approximately 114,945 hp at three new compressor stations to be located in Carroll, Wayne, and Crawford counties, Ohio, and
  - two new delivery meter stations in Defiance County, Ohio.

- Market Segment:
  - approximately 100.0 miles of 42-inch diameter pipeline in Ohio and Michigan,
  - approximately 25,830 hp at one new compressor station to be located in Defiance County, Ohio, and
  - two new delivery meter stations in Washtenaw and Livingston counties, Michigan.

7.1 SOILS IN THE PROJECT AREA

The descriptions and characteristics of soils discussed in this resource report were compiled from the U.S. Department of Agriculture (USDA) Natural Resource Conservation Service (NRCS) website databases maintained by the NRCS. Soils within the affected counties were analyzed using the NRCS digital Soil Survey Geographic Database (SSURGO), which includes geospatially referenced Geographic Information System soil map unit polygons at a 1:24,000 scale (USDA, 2014a).

7.1.1 Major Land Resource Areas

Soils, surficial geologic deposit, and physiography are broadly described by their location within a Major Land Resource Area (MLRA) of the U.S. as provided by the NRCS (USDA, 2006). These three elements illustrate the general development and soil environment of the Project area. The Project is within seven MLRAs as shown in Figure 7.1-1 and listed in Table 7A-1 in Appendix 7A.

7.1.1.1 West Virginia

The Project crosses five counties in West Virginia, all of which are within the Central Allegheny Plateau MLRA (126).

Central Allegheny Plateau MLRA (126)
This area is in the Kanawha Section of the Appalachian Plateaus Province of the Appalachian Highlands. It is on a dissected plateau that is underlain mainly by horizontally bedded sedimentary rocks. The narrow level valleys and narrow sloping ridge tops are separated by long, steep and very steep side slopes. Elevation ranges from 650 feet (200 meters) on the lowest valley floors to 1,310 feet (400 meters) or more on the highest ridge tops. Local relief is about 330 feet (100 meters).

This plateau is underlain mostly by horizontal layers of Pennsylvanian-age sandstone, siltstone, shale, coal, and some limestone. The valleys along the Ohio, Muskingum, and Kanawha Rivers have significant deposits of river alluvium (unconsolidated silt, sand, and gravel).

The dominant soil orders in this 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 generally are 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.

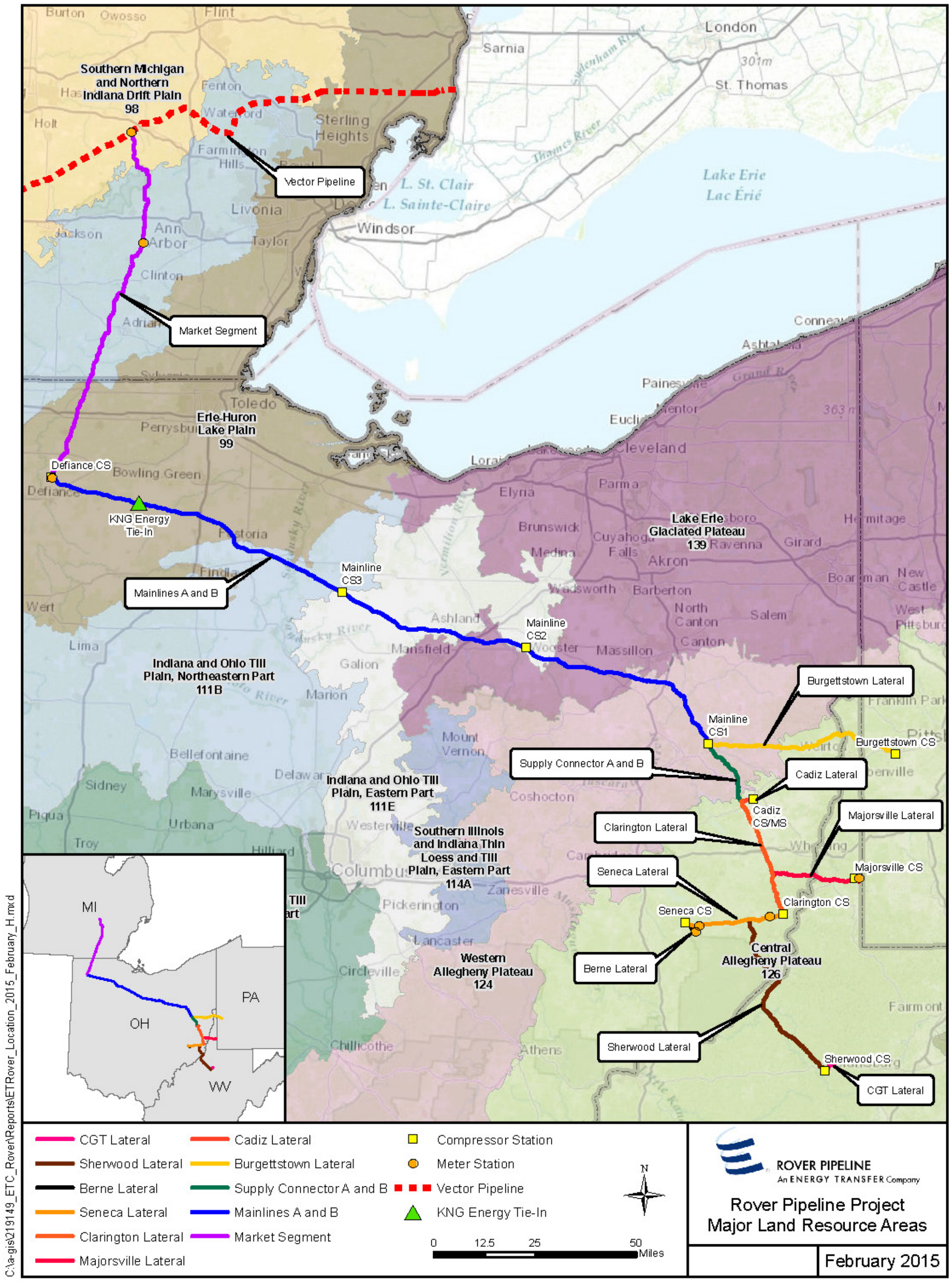

Figure 7.1-1 Major Land Resource Areas

The Dystrudepts on these hillsides are less extensive than the Hapludalfs and Hapludults. Hapludalfs (Guernsey, Vandalia, and Beech series) formed in colluvium on foot slopes. 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.

7.1.1.2 Pennsylvania

The Project (i.e., Burgettstown Lateral) crosses one county in Pennsylvania, which is within the Central Allegheny Plateau MLRA (126) as described in Section 7.1.1.1.

7.1.1.3 Ohio

The Project crosses 18 counties within six MLRAs spanning from the southeastern portion of Ohio to the central-northwest part of the state. The majority of the Supply Laterals are within the Central Allegheny Plateau MLRA (126) as described in Section 7.1.1.1. The westernmost segment of the Burgettstown Lateral, most of the Supply Connector Lines A and B, Mainlines A and B, and the southern Market Segment are within the other five MLRAs as described below, proceeding generally from the southeast to the northwest along the Project route.

<u>Western Allegheny Plateau MLRA (124)</u>
This area is primarily in the Kanawha Section of the Appalachian Plateaus Province of the Appalachian Highlands. The southern edge is in the Cumberland Plateau Section of the same province and division. The southwestern edge is in the Lexington Plain Section of the Interior Low Plateaus Province of the Interior Plains. This MLRA is on a dissected plateau that has narrow, level valley floors, rolling ridge tops, and hilly to steep ridge slopes. Elevation ranges from 660 feet (200 meters) on the lowest valley floors to 1,310 feet (400 meters) on the highest ridge tops. Local relief is about 160 to 330 feet (50 to 100 meters).

Cyclic beds of sandstone, siltstone, clay, shale, and coal of Pennsylvanian age form the bedrock in this area. Similar rocks of Mississippian age occur along the southwest edge of the area in Kentucky and southern Ohio. This MLRA is on the east side of the Cincinnati Arch, so the bedrock is tilted to the east in Kentucky and Ohio. Old glacial drift deposits are in some of the major river valleys. Wisconsin-age glacial outwash deposits of unconsolidated sand and gravel are near the surface in river valleys in Pennsylvania and Ohio. Wisconsin-age glacial drift covers the surface in areas to the east and north of this MLRA.

The dominant soil orders in this MLRA are Ultisols and Inceptisols. The soils in the area have a mesic soil temperature regime, a udic soil moisture regime, and mixed mineralogy. They generally are moderately deep to very deep, excessively drained to somewhat poorly drained, and loamy. Fragiudults and Hapludults (Ernest and Shelocta series) formed in colluvium on foot slopes and alluvial fans. Hapludults (Gilpin, Latham, Rayne, and Wharton series) and Dystrudepts (Berks, Steinsburg, and Weikert series) formed in residuum on hills and ridges. Dystrudepts (Pope series), Endoaquepts (Stendal series), Eutrudepts (Chagrin series), and Hapludalfs (Chavies series) formed in alluvium along the major streams. Udorthents (Bethesda, Sewell, Fairpoint, and Kaymine series) formed in material derived from surface mining of coal.

Lake Erie Glaciated Plateau MLRA (139)

Almost all of this area is in the Southern New York Section of the Appalachian Plateaus Province of the Appalachian Highlands. The southern edge of the area is in the Kanawha Section of the same province and division. The western suburbs of Cleveland, in the western tip of the area, are in the Till Plains Section of the Central Lowland Province of the Interior Plains. A narrowband along the shore of Lake Erie is in the Eastern Lake Section of the same province and division. Most of this MLRA is a gently rolling to strongly rolling, dissected glaciated plateau. The narrowband along Lake Erie is fairly flat. Stream valleys are narrow and are not deeply incised, but the valley walls are typically steep. In some areas the interfluves are broad and nearly level. Elevation ranges from 660 to 1,000 feet (200 to 305 meters), increasing gradually from north to south. Local relief is about 7 to 50 feet (2 to 15 meters).

The bedrock in this area consists mostly of alternating beds of sandstone, siltstone, and shale of upper Devonian, Mississippian, and Pennsylvanian age. Shale units are dominant closer to the surface along Lake Erie and the western edge of the area. The surface is mantled with glacial till, outwash of unconsolidated sand and gravel, glacial lake sediments, and stratified drift deposits (kames and eskers). The outwash, lake sediments, and stratified drift deposits that fill valleys are important sources of ground water. Younger stream deposits cover the glacial deposits in some of the river valleys.

The dominant soil order in this MLRA is Alfisols. The soils in the area dominantly have a mesic soil temperature regime, an aquic or udic soil moisture regime, and mixed or illitic mineralogy. They are very deep, well drained to poorly drained, and loamy or clayey. Epiaqualfs (Mahoning series) formed in till on till plains. Hapludalfs formed in outwash deposits on outwash plains, terraces, kames, and beach ridges (Chili series) and in till on till plains (Ellsworth series). Fragiudalfs formed in till (Canfield and Rittman series) and loess over till (Wooster series) on till plains and moraines. Fragiaqualfs (Frenchtown, Platea, Ravenna, Sheffield, Venango, and Wadsworth series) formed in till on till plains and moraines.

Indiana and Ohio Till Plain, Eastern Part MLRA (111E)

Most of this area is in the Till Plains Section of the Central Lowland Province of the Interior Plains. The northeast tip of the area is in the Southern New York Section of the Appalachian Plateaus Province of the Appalachian Highlands. The entire area has been glaciated. It is dominated by ground moraines that are broken in places by kames, lake plains, outwash plains, terraces, and stream valleys. Narrow, shallow valleys commonly are along the few large streams in the area. Elevation ranges from 580 to 1,400 feet (175 to 425 meters), increasing gradually from west to east. Relief is mainly a few meters, but in some areas hills rise as much as 100 feet (30 meters) above the adjoining plains.

This MLRA is underlain by late Devonian shale and sandstone. Surficial materials include glacial deposits of till, glaciolacustrine sediments, and outwash from Wisconsin and older glacial periods.

The dominant soil orders in this MLRA are Alfisols, Inceptisols, and Mollisols. The MLRA also has small areas of Histosols. The soils in the area have a mesic soil temperature regime, anaquic or udic soil moisture regime, and dominantly mixed mineralogy. They are predominantly very deep, very poorly drained to well drained, and loamy or silty. The dominant kinds of parent material are till, glaciolacustrine sediments, outwash, loess, and alluvium. Hapludalfs (Amanda, Cardington, and Centerburg series), Epiaqualfs (Bennington and Condit series), and Endoaquolls (Marengo series) are on till plains. Argiaquolls (Luray and Pewamo series) and Epiaqualfs (Haskins and Tiro series) are on till plains and lake plains. Hapludalfs (Chili, Gallman, and Ockleyseries) and Endoaqualfs (Sleeth series) are on terraces and outwash plains. Hapludalfs (Glenfordand Mentor series) and Endoaqualfs (Fitchville and Sebring series) are on lake plains and terraces. Endoaquolls (Patton series) are in depressions on terraces and outwash plains. Haplosaprists (Carlisle series) are in deep depressions and potholes. Eutrudepts (Eel series), Endoaquepts (Shoalsseries), and Endoaquolls (Sloan series) are on flood plains.

<u>Indiana and Ohio Till Plain, Northeastern Part MLRA (111B)</u>

This area is in the Eastern Lake and Till Plains Sections of the Central Lowland Province of the Interior Plains. The entire MLRA is glaciated, and most areas are dominated by ground moraines that are broken in places by lake plains, outwash plains, flood plains, and many recessional moraines. The ground moraines and lake plains in front of the recessional moraines are flat to undulating. In many places, stream valleys occur at the leading edge of the recessional moraines. Narrow, shallow valleys commonly are along the large streams in this MLRA, and some areas along the major rivers and streams have deposits of sand. Elevation ranges from 630 to 1,550 feet (190 to 470 meters), increasing gradually from west to east. Relief is mainly a few meters, but in some areas hills rise as much as 100 feet (30 meters) above the adjoining plains.

The surficial materials in this area include glacial deposits of till, outwash, and lacustrine sediments from Wisconsin and older glacial periods. A thin mantle of loess occurs in some areas. Most of this MLRA is underlain by Silurian and Devonian limestone and dolostone. Middle Devonian to Early Mississippian black shale and Early to Middle Mississippian siltstone and shale are in some areas of the northern part of the MLRA.

The dominant soil orders in this MLRA are Alfisols, Inceptisols, and Mollisols. The soils in the area have a mesic soil temperature regime, an aquic or udic soil moisture regime, and mixed orillitic mineralogy. They are very deep, generally are very poorly drained to somewhat poorly drained, and are loamy or clayey. The dominant kinds of parent material are clayey till and lacustrine sediments. Others include outwash, alluvium, loess, and organic deposits. Hapludalfs (Glynwood and Morley series), Epiaqualfs (Blount, Nappanee, and Pandora series), Endoaqualfs (Wetzel series), and Argiaquolls (Pewamo series) are on till plains. Endoaquolls (Milford and Montgomery series) and Epiaqualfs (Del Rey series) are on lake plains. Haplosaprists (Houghtonand Linwood series), Humaquepts (Roundhead and Wallkill series), and Endoaquepts (Wunabuna series) are in deep depressions or potholes. Hapludalfs (Belmore, Eldean, and Fox series), Endoaqualfs (Sleeth series), and Argiaquolls (Millgrove, Rensselaer, and Westland series) are on terraces and outwash plains. Eutrudepts (Genesee series), Endoaquepts (Shoals series), and Endoaquolls (Saranac and Sloan series) are on flood plains.

Erie-Huron Lake Plain MLRA (99)
This area is in the Eastern Lake Section of the Central Lowland Province of the Interior Plains. It is a nearly level glacial lake plain with a few scattered ridges of sandy soils that represent past shorelines and moraines. Elevation is about 660 feet (200 meters), increasing gradually from the lakeshore inland. Local relief generally is only about 6 feet (2 meters), but some beach ridges and low moraines rise almost 30 feet (9 meters) above the general level of the landscape. Remnant marshes are near the Lake Erie shore.

The southern half of this area is covered with glacial deposits of till, lake sediments, and outwash from the Wisconsin and older glacial periods. The area also has some low moraines. Mississippian- to Silurian-age shale, limestone, and dolomite rocks are at the surface in the northern half of this area, along the shores of Lake Erie and Lake Huron in Michigan. These rocks underlie the glacial deposits in the southern half of the area.

The dominant soils in this MLRA are Alfisols, Inceptisols, Mollisols, and Spodosols. The soils in the area dominantly have a mesic soil temperature regime, an aquic soil moisture regime, and mixed or illitic mineralogy. They are very deep, generally somewhat poorly drained to very poorly drained, and loamy or clayey. Epiaqualfs (Blount, Hoytville, Nappanee, and Shebeon series) and Glossudalfs (Capac series) formed in till (some of which is dense) on till plains, moraines, and lake plains. Epiaquepts formed in loamy till on till plains and moraines (Kilmanagh series) and in lacustrine deposits on lake plains (Lenawee and Paulding series). Endoaquepts formed in lacustrine deposits on lake plains (Latty and Toledo series) and in loamy till on moraines (Parkhill series). Endoaquolls formed in outwash deposits on outwash plains and lake plains and in drainageways (Granby series) and in loamy till on till plains and moraines (Tappan series). Endoaquods (Pipestone series) formed in outwash deposits on outwash plains, lake plains, and beach ridges. Epiaquods (Wixom series) formed in sandy sediments over till or lacustrine deposits on till plains, outwash plains, and lake plains.

7.1.1.4 Michigan

The Project crosses three counties in southeastern Michigan within two MLRAs. One of these, the Indiana and Ohio Till Plain - Northeastern Part MLRA (111B), is also crossed in Ohio and described in Section 7.1.1.3.

Southern Michigan and Northern Indiana Drift Plain MLRA (98)
This area is in the Eastern Lake Section of the Central Lowland Province of the Interior Plains. It is a broad, glaciated plain that is deeply mantled by till and outwash. Much of the area is nearly level to gently rolling. Elevation generally ranges from 570 to 1,100 feet (175 to 335 meters) but is more than 1,200 feet (365 meters) on some hills. Local relief is generally less than 15 feet (5 meters). It is 80 to 165 feet (25 to 50 meters) or more, however, in belts of hills (glacial moraines), which have stronger slopes.

The surface of this area is covered with glacial drift deposits that are 100 to 500 feet (30 to 150 meters) thick in most areas. In a few areas in the central part of the MLRA, the deposits are less than 10 feet (3 meters) thick. At the northern edge of the area, the drift is more than 600 feet (185 meters) thick. Most of the drift consists of till, but there are significant deposits of unconsolidated sand and gravel outwash throughout the area. Some lake sediments are in the northwest corner of the area, near the shoreline of Lake Michigan. The bedrock beneath the glacial deposits in this area is deformed in the shape of a basin. The center of this basin is in the north-central part of the area. Jurassic-age shale (red beds) and Pennsylvanian-age sandstone are in the center of the basin, and Mississippian-age sandstone and shale beds form the outer rings of the basin.

The dominant soil orders in this MLRA are Alfisols, Histosols, and Mollisols. The soils in the area dominantly have a mesic soil temperature regime, an aquic or udic soil moisture regime, and mixed mineralogy. They are very deep, well drained to very poorly drained, and loamy or sandy. Hapludalfs formed in outwash or glacial drift over outwash on outwash plains, kames, terraces, and deltas (Boyer, Oshtemo, and Spinks series) or in till (Hillsdale and Riddles series) or loess over till (Miami series) on till plains and moraines. Glossudalfs (Capac and Marlette series) and Endoaqualfs (Conover series) formed in till on till plains and moraines. Haplosaprists (Houghton series) formed in organic deposits in depressions on lake plains, till plains, and outwash plains. Argiaquolls (Sebewa series) and Endoaquolls (Gilford and Maumee series) formed in outwash in depressions on outwash plains, flood plains, and lake plains. Argiaquolls (Brookston series) also formed in silty material over till in depressions on till plains and moraines.

7.1.2 Soils

The NRCS "Official Series Description" website (USDA, 2014b) was used to compile the soils series and soil characteristics of each of the soils affected by the Project pipelines and aboveground facilities. A summary of soil characteristics affected by the Project pipelines, aboveground facilities, Project workspace, access roads, and contractor yards are provided in Appendix 7A.

Soil characteristics are tabulated by milepost (MP) and linear length for the Rover pipelines in Volume IIB, Attachment 7A. Soil characteristics are tabulated by acreage impact for each aboveground facility in Volume II, Attachment 7A, Table 7AA-2. Tables 7A-5 and Table 7A-6 Appendix 7A, Table 7A-3 list impact lengths and acreages of access roads and contractor yards, respectively. Volume II, Attachment 7B provides a description of each soil series.

Tabulated soil characteristics include:

- map unit name,
- range of slope,
- water erosion potential,
- wind erosion potential,
- USDA prime farmlands and farmlands of statewide importance,
- hydric soils,
- compaction potential,
- depth to bedrock, includes lithic or paralithic material notation, if recorded in SSURGO database,

- revegetation potential,
- stony/rocky soils,
- droughty soils, and
- drainage class.

7.2 SOIL IMPACTS AND MITIGATION

Table 7A-4 in Appendix 7A summarizes acres of each soil characteristic affected by construction and operation of the Rover pipelines, including those on slopes 8 to 25 percent and greater than 25 percent. Acreages are provided by temporary construction right-of-way and by permanent right-of-way. Table 7A-3 provides the same information in acres for the aboveground facilities with respect to construction and operational impacts. Impacts numbers and mitigation for soils crossed by pipelines as tabulated in Table 7A-2 is provided in this discussion Section.

7.2.1 Hydric Soil Impacts and Mitigation

Hydric soils are defined as “soils that formed under conditions of saturation, flooding, or ponding long enough during the growing season to develop anaerobic conditions in the upper part” (Federal Register, July 13, 1994). Soils that are artificially drained or protected from flooding (e.g., by levees) are still considered hydric if the soil in its undisturbed state would meet the definition of a hydric soil. Generally, hydric soils are those soils that are poorly and very poorly drained and are typically found in wetland areas.

Hydric soils were identified by querying the SSURGO database for those soils with a hydric rating. Approximately 101.1 miles or 19.9 percent of soils crossed by the Rover pipelines are considered hydric (Table 7A-2). Individual wetlands containing hydric soils may not have been identified by the soil mapping due to the minimum delineation size of the soil map units. Information about the wetlands for the Project area is provided in Resource Report 2.

Due to extended periods of saturation, hydric soils can be prone to compaction and rutting as discussed below. In addition, high groundwater levels associated with some hydric soils could create situations where construction procedures for wet areas will need to be employed. Rover will minimize rutting of hydric soils and protect wetland areas by implementing the measures in the Project-specific *Wetland and Waterbody Construction and Mitigation Procedures* (Rover Procedures) (see Resource Report 1, Appendix 1B).

There may be areas where high water may produce a buoyancy hazard. If required, special construction methods such as concrete coating of pipe and other weighting methods will be used as necessary to overcome potential buoyancy hazards during operation of the pipeline.

7.2.2 Soil Compaction Impacts and Mitigation

Soil compaction modifies the structure and reduces the porosity and moisture-holding capacity of soils. Construction equipment traveling over wet soils could disrupt the soil structure, reduce pore space, increase runoff potential, and cause rutting. The degree of compaction depends on moisture content and soil texture. Fine-textured soils with poor internal drainage that are moist or saturated during construction are the most susceptible to compaction and rutting.

Compaction-prone soils along the proposed pipeline segments were identified by querying the SSURGO database for soil series that have soils with both of the following characteristics: 1) soils with clay loam or finer texture, and 2) a drainage class of somewhat poorly drained through very poorly drained. Approximately 85.0 miles or 16.7 percent of the soils that will be crossed by the Rover pipeline are prone to compaction (Table 7A-2).

Minimization of compaction and rutting impacts will be accomplished by using measures outlined in the Rover Procedures and Rover's Project specific *Upland Erosion Control, Revegetation and Maintenance Plan* (Rover Plan) (see Resource Report 1, Appendix 1B). Penetrometers (or other devices) will be used to test topsoil and subsoil for compaction at regular intervals in agricultural and residential areas disturbed by construction activities. Tests will be conducted on the same soil type under similar moisture conditions in undisturbed areas to approximate preconstruction conditions.

Mitigation will occur with deep tillage operations during restoration activities using a paraplow or similar implement. In areas where topsoil segregation occurs, plowing with a paraplow or other deep tillage implement to alleviate subsoil compaction will be conducted before replacement of the topsoil.

7.2.3 Erosion by Water and Wind Impacts and Mitigation

7.2.3.1 Erosion by Water

Factors that influence the degree of erosion include soil texture, structure, length and percent of slope, vegetative cover, and rainfall or wind intensity. 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. Highly erodible land by water is sometimes available in the SSURGO database, but was not available for soils in the Project area. Water erosion was therefore determined by slope and K factor values for each soil type. If soils have slopes greater than 5% and a K factor greater than 0.32, or if all slopes are greater than 15% regardless of K factor, then soil erosion by water is rated as high.

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. Soils having a high silt content are the most erodible of all soils. They are easily detached and they tend to crust and produce large amounts and rates of runoff. Values of K for these soils tend to be greater than 0.4.

Many soils encountered in the Project area are highly susceptible to water erosion due to finer soil textures but also due to steep slopes. Approximately 209.9 miles, or 41.2 percent, of the soils along the Rover pipelines are considered highly water erodible (Table 7A-2).

Clearing and grading associated with construction of the Project could accelerate the soil erosion process and, without adequate protection, could result in discharge of sediment to adjacent waterbodies and wetlands. Rover has developed an *Agricultural Impact Mitigation Plan* (AIM Plan) that will be implemented for agricultural lands in Ohio and Michigan where cropland is the predominant use of lands crossed (see Table 7A-7 in Appendix 7A, and Resource Report 1, Appendix 1B for the AIM Plans for Ohio and Michigan). Rover does not propose to develop state-specific AIM Plans for West Virginia or Pennsylvania where most land classified as agriculture is used for pasture or hay due to the terrain. Instead, Rover will implement the AIM Plan to minimize the potential for erosion as a result of water or wind action, and to segregate topsoil and remove excess rock in managed pastures and hayfields.

As noted in the AIM Plan, temporary erosion controls will be installed immediately after initial disturbance and may include:

- Temporary Slope Breakers – Temporary slope breakers are intended to reduce runoff velocity and divert water off the construction right-of-way. Temporary slope breakers may be constructed of materials such as soil, silt fence, staked hay or straw bales, or sand bags.
- Temporary Trench Plugs – Temporary trench plugs are intended to segment a continuous open trench prior to backfill. Temporary trench plugs may consist of unexcavated portions of the trench, compacted subsoil, sandbags, or some functional equivalent.
- Sediment Barriers – Sediment barriers are intended to stop the flow of sediments and to prevent the deposition of sediments beyond approved workspaces or into sensitive resources. Sediment barriers may be constructed of materials such as silt fence, staked hay or straw bales, compacted earth (e.g., driveable berms across travelways), sand bags, or other appropriate materials.
- Mulch – Mulch will be applied on all slopes (except in cultivated cropland) concurrent with, or immediately after seeding, where necessary to stabilize the soil surface and to reduce wind and water erosion. Mulch will be spread uniformly over the area to cover at least 75 percent of the ground surface at a rate of 2 tons/acre of straw or its equivalent, unless the local soil conservation authority, landowner, or land managing agency approves otherwise in writing. Mulch can consist of weed-free straw or hay, wood fiber hydromulch, erosion control fabric, or some functional equivalent.
- Permanent erosion control devices will include permanent slope and trench breakers where necessary.

7.2.3.2 Erosion by Wind

Wind erodibility was assessed based on Wind Erodibility Group (WEG) designations included in the SSURGO database. A WEG is a grouping of soils that have similar surface-soil properties affecting their resistance to soil blowing, including texture, organic matter content, and aggregate stability. The soils assigned to group 1 are the most susceptible to wind erosion, and those assigned to group 8 are the least susceptible.

Wind erosion processes are less affected by slope angles. Clearing, grading, and equipment movement could accelerate the erosion process and, without adequate protection, can result in discharge of sediment to waterbodies and wetlands. Soil loss due to erosion could also reduce soil fertility and impair revegetation.

Parent materials of soils were examined by extracting parent material groups from the SSURGO database. There are no soils crossed by the Rover pipelines where loess is classed as the primary parent material. There are, however, soils with mixed loess inclusions appearing within the soil profile, mostly in the southeastern Ohio area. WEGs classed as 1 or 2 were designated as highly erodible by wind. Most soils along the Rover pipelines have high WEG ratings. Approximately 16.8 miles, or 3.3 percent, of soils crossed are considered to be highly wind erodible due to low WEG ratings. Potential erosion by wind is therefore minimal (Table 7A-2).

Rover will reduce impacts associated with fugitive dust and in areas prone to wind erosion during construction by reducing vehicle speeds on unpaved access roads, and by the application of water when necessary to active construction areas. The amount and timing of water applied will be dependent on site-specific conditions and the frequency of precipitation during construction.

7.2.4 Droughty Soil Impacts and Mitigation

Droughty soils having poor revegetation potential based on their surface texture and drainage class will be affected by construction of the Project. These droughty soils have coarse-textured surface layers, are moderately well to excessively drained, and can be difficult to revegetate. The drier soils have less water to aid in the germination and eventual establishment of new vegetation. The coarser textured soils also have a lower water holding capacity following precipitation, which could result in moisture deficiencies in the root zone, creating unfavorable conditions for many plants. In addition, steep slopes along the pipeline segments may make the establishment of vegetation difficult.

Droughty soils along the proposed pipeline segments were identified by querying the SSURGO database for component soil series that have: 1) a surface texture of sandy loam or coarser; and 2) are moderately well to excessively drained. Approximately 454.13 acres, or 1.7 percent, of the soils crossed are considered to be droughty. In accordance with the Rover Plan, Rover will conduct follow-up inspections, as necessary, of all disturbed areas for a minimum of two growing seasons following construction. Any areas where revegetation in the disturbed area is not similar to adjacent undisturbed lands will be reseeded or additional measures will be implemented to achieve revegetation success.

7.2.5 Stony/Rocky Soil Impacts and Mitigation

Introducing stones and other rock fragments to surface soil layers may reduce soil moisture-holding capacity, resulting in a reduction of soil productivity. Additionally, some agricultural equipment may be damaged by contact with large rocks and stones. Rock fragments at the surface and in the surface layer may be encountered during grading, trenching, and backfilling.

Soils with significant quantities of stones in the surface were identified by querying the SSURGO database for soils with a cobbley, stony, bouldery, shaly, channery, very gravelly, or extremely gravelly modifier to the textural class of the surface layer and/or those that have a surface layer that contains greater than 5 percent by weight rock fragments larger than 3 inches. Approximately 88.6 miles, or 17.4percent, of the soils crossed by the Rover pipelines are considered to be stony/rocky soils.

Excess rock will be removed from at least the top 12 inches of soil in all cultivated or rotated cropland, managed pastures, hayfields, and residential areas, as well as other areas at the landowner's request. The size, density, and distribution of rock on the construction work area shall be similar to adjacent areas not disturbed by construction.

7.2.6 Shallow Bedrock Impacts and Mitigation

Construction through soils with shallow bedrock could result in the incorporation of rock fragments into surface soils. Queries of the SSURGO database when bedrock was recorded, identified soils with bedrock that are within 60 inches of the surface. Data queries for lithic or paralithic (soft) bedrock were additionally made to help identify those areas that may require ripping. Based on the analysis of the SSURGO database, approximately 640.3 acres, or 2.5 percent, of the soils crossed contain bedrock within 60 inches of the surface. Approximately 48.4 miles of this bedrock is considered paralithic (soft) bedrock and 123.6 miles have a lithic contact (hard bedrock) within 60 inches of the surface that may require other special construction techniques during installation of the pipelines. Approximately 7.0 miles of pipeline are underlain by shallow bedrock that have no material designation in the SSURGO database.

Rock excavated from the trench may be used to backfill the trench only to the top of the existing bedrock profile, after rocks greater than 4 inches have been removed. Large rock not suitable for use as backfill material will be windrowed along the edge of the right-of-way in upland areas (with landowner permission). Rock that is not returned to the trench shall be considered construction debris and transported to a re-use facility or disposed of on the landowner's property at a location that is mutually acceptable to the landowner and Rover.

7.2.7 Soil Contamination Impacts and Mitigation

Soil contamination along the Project 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. Rover has developed *Spill Prevention and Response Procedures* (SPR Procedures) that will be employed during construction of the Project (see Resource Report 1, Appendix 1Bc). The SPR Procedures specify measures to be implemented to reduce the likelihood of spills and cleanup procedures in the event of a spill or leaks of fuel, lubricants, coolants, or solvents.

If contaminated or suspect soils (e.g., hydrocarbon contamination) are identified during trenching operations, work in the area of the suspected contamination will be halted until the type and extent of the contamination is determined. The type and extent of contamination and local, state, and federal regulations will determine the appropriate mitigation for these areas. Rover conducted a database search to identify to the extent feasible, properties within 0.5 mile of the Project facilities that may have been previously impacted with hazardous materials. Resource Report 8 Section 8.1.3.5 provides a discussion of the results of the search results and database sources that were reviewed.

7.2.8 Restoration and Revegetation

Restoration and reseeding of the construction work areas will be done in accordance with the Rover Plan, the Rover Procedures, and the AIM Plans, as supplemented with recommendations from the local conservation authority, farm bureau, or landowners. Volume II, Attachment 7C includes general seeding and revegetation guidelines for West Virginia, Pennsylvania, Ohio, and Michigan. These guidelines include options for seed mixes suitable for warm or cold weather planting, seeding planting time ranges, and seed planting rates as provided by the NRCS (Dierberger, 2014).

7.2.8.1 Restoration

In accordance with the Rover Plan and Procedures, the following will be conducted:

- Construction Work Areas – Post-construction restoration activities will be undertaken in accordance with the applicable measures in the Rover Plan and Rover Procedures, other permit or agency requirements, and requirements in the landowner easement agreements. After a segment of pipe has been installed, backfilled, and successfully tested, the right-of-way, and other disturbed areas will be finish-graded to match original contours and be compatible with surrounding drainage patterns, except at those locations where permanent changes in drainage will be required to prevent erosion, scour, and possible exposure of the pipeline. Segregated topsoil will be returned to its original horizon, unless otherwise requested by the landowner. Temporary and permanent erosion and sediment control measures, including silt fencing, diversion terraces, and vegetation, will be installed at that time. Complete final grading, topsoil replacement, and installation of permanent erosion control structures within 20 days after backfilling the trench (10 days in residential areas).

- In the absence of written recommendations from the local soil conservation authorities, all disturbed soils will be seeded within 6 working days of final grading, weather and soil conditions permitting. Broadcast or hydroseeding can be used in lieu of drilling at double the recommended seeding rates. Where seed is broadcast, firm the seedbed with a cultipacker or roller after seeding. In rocky soils or where site conditions may limit the effectiveness of this equipment, other alternatives may be appropriate (e.g., use of a chain drag) to lightly cover seed after application, as approved by the Environmental Inspector. Fertilizer and soil pH modifiers will be added to the top 2 inches of soil as soon as practicable in accordance with written recommendations obtained from the local soil conservation authority, land management agencies, or landowner.

- If seasonal or other weather conditions prevent compliance with these time frames, temporary erosion controls (i.e., temporary slope breakers, sediment barriers, and mulch) will be maintained until conditions allow completion of cleanup. If construction or restoration unexpectedly continues into the winter season when conditions could delay successful decompaction, topsoil replacement, or seeding then Rover will follow the *Winter Construction Plan* as noted in Section 7.2.8.2. Dormant seeding or temporary seeding of annual species may also be used, if necessary, to establish cover, as approved by the Environmental Inspector.

- Uplands – In most upland locations, excluding actively cultivated cropland, an herbaceous vegetative cover will be re-established by seeding disturbed areas using seed mixes appropriate to the Project area as recommended by the local soil conservation districts, landowner, or land management agency. Depending upon the time of year, a seasonal variety, such as ryegrass, may be used until a more permanent cover can be established. Steep slopes and stream banks may require erosion control fabric or revetments to prevent erosion until a vegetative cover is established. In accordance with the Rover Plan, revegetation success will be monitored, and reseeding, fertilizing, and other measures will be employed until a cover equivalent to approximately 80 percent of similar, adjacent areas is achieved. Temporary and interim erosion control measures will be removed once 80 percent cover is achieved. Actively cultivated cropland may be left unseeded at the request of the landowner. Pasture will be reseeded with a similar species or mixture. Residential and commercial lawns will be reseeded or sodded, depending upon the original grass variety. Shrubs and small trees on residential properties will be temporarily transplanted and replaced, where practicable, and where allowed within the permanent easement. Forested areas will be allowed to recover within the temporary work areas.

- Wetlands – Original surface hydrology will be re-established in wetlands by backfilling the pipe trench and grading the surface with backhoes or similar equipment operating from the equipment mats, or low-ground-pressure tracked vehicles, depending upon the ambient water level, degree of soil saturation, and the bearing capacity of the soils. Segregated topsoil from the trench will be replaced. Roots and stumps will not be removed in the areas outside of the pipe trench during construction unless required for safety, thus allowing the wetland to recover more rapidly. Generally, wetlands disturbed by construction will be allowed to revegetate naturally.

- Aboveground Facilities – The areas inside the fence at the aboveground facility sites that are required for operation will be permanently converted to industrial use. Most areas in and around the buildings, meters, and associated piping and equipment will be covered with crushed rock (or equivalent) to minimize the amount of maintenance required. Roads and parking areas may be crushed rock, concrete, or asphalt. Other ground surfaces will be seeded with a grass that is compatible with the climate and easily maintained. Disturbed areas not needed for operation will be restored as described above for the pipeline right-of-way.

7.2.8.2 Winter Restoration

Construction activities may occur during colder weather and will be accomplished in accordance with Rover's *Winter Construction Plan* (see Resource Report 1, Appendix 1B). Based on consultations with the NRCS, mulching disturbed areas is recommended in addition to seeding with a hardy annual cold weather species, such as winter rye, just after construction in the event temperatures might be favorable for germination (Dierberger, 2014). In the following spring, reseeding should occur again using the seed mixes and rates recommended for the spring season.

7.2.8.3 Revegetation

According to the Rover Plan, prior to reseeding, soil additives or pH modifiers may be incorporated into the top 2 inches of soil as soon as practicable. Seeding activities will include:

- A seedbed will be prepared in disturbed areas to a depth of 3 to 4 inches using appropriate equipment to provide a firm seedbed. When hydroseeding, scarify the seedbed to facilitate lodging and germination of seed. Seeding is not required in cultivated croplands unless requested by the landowner.
- Seeding of permanent vegetation will occur within the recommended seeding dates. If seeding cannot be done within those dates, appropriate temporary erosion control measures will be used and seeding of permanent vegetation will occur at the beginning of the next recommended seeding season. Dormant seeding or temporary seeding of annual species may also be used, if necessary, to establish cover, as approved by the Environmental Inspector. Lawns may be seeded on a schedule established with the landowner.
- In the absence of written recommendations from the local soil conservation authorities, all disturbed soils will be seeded within 6 working days of final grading, weather and soil conditions permitting.
- Seeding rates will be based on Pure Live Seed and seed will be used within 12 months of seed testing.
- Legume seed will be treated with an inoculant specific to the species using the manufacturer's recommended rate of inoculant appropriate for the seeding method (broadcast, drill, or hydro).
- In the absence of written recommendations from the local soil conservation authorities, landowner, a seed drill equipped with a cultipacker is preferred for seed application.
- Broadcast or hydroseeding can be used in lieu of drilling at double the recommended seeding rates. Where seed is broadcast, the seedbed will be firmed with a cultipacker or roller after seeding. In rocky soils or where site conditions may limit the effectiveness of this equipment,

other alternatives may be appropriate (e.g., use of a chain drag) to lightly cover seed after application.

7.3 AGRICULTURAL LAND AND IMPACTS

7.3.1 Prime Farmland

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 fact that a particular soil is considered prime farmland does not mean that it is currently in agricultural use. Some prime farmland soils may be located in forested or open uncultivated or non-pasture areas. These areas will be mitigated using standard best management practices included in the Rover Plan and Rover Procedures.

7.3.1.1 Prime Farmlands – Pipeline

Prime farmlands and farmlands of statewide importance locations were identified using the SSURGO database. Approximately 344.4 miles or 67.6 percent of the soils crossed by the Project are considered prime farmland or farmlands of statewide importance (see Table 7A-2 in Appendix 7A). There are no farmlands of unique importance listed along the Project.

7.3.1.2 Prime Farmlands – Aboveground Facilities

The Project involves construction of 10 new compressor stations, 19 new meter stations, and 6 receiver/tie-in sites. Total property acres along with the acres of construction and operational impacts to prime farmlands for above ground facilities are tabulated in Table 7A-3 in Appendix 7A. Of the compressor stations, approximately 59.23 acres (12.69%) and 104.44 acre (22.37%) of soils are prime farmlands impacted by operation and construction, respectively. Operation and construction prime farmland impacts by meter stations are 15.00 acres (40.38%) and 19.18 acres (51.63%), respectively. Receiver site operation prime farmland impacts are 4.79 acres (35.99%) and construction impacts are 5.94 acres (44.63%).

7.3.2 Cropland

Croplands crossed by the Project were obtained from the 2013 USDA CropScape - Cropland Data Layer (CDL) (USDA, 2014c) and are listed by MP in Table 7A-7 in Appendix 7. The CDL was created by the USDA, National Agricultural Statistics Service, Research and Development Division, Geospatial Information Branch, Spatial Analysis Research Section. The data are derived from satellite imagery at 30-meter resolution to provide acreage estimates to the Agricultural Statistics Board for the state's major commodities and to produce digital, crop-specific, categorized geo-referenced output products. Table 7.3-1 summarizes the CDL croplands crossed by pipeline segment. Approximately 195.69 miles (or 38.43 percent) of the pipelines cross cropland (see Table 8A-1, Land Uses Crossed by the Pipeline Facilities).

Rover will conserve topsoil in actively cultivated and rotated cropland, and improved pastureland, and in other areas at the specific request of the landowner or land management agency. In compliance with the Rover Plan and the AIM Plans in Ohio and Michigan, at least 12 inches of topsoil will be segregated in agricultural areas where the topsoil is greater than 12 inches deep. Where topsoil is less than 12 inches deep, the actual depth of the topsoil will be determined by visual inspection and the entire topsoil layer will be removed, and segregated. Topsoil segregation will be performed in consultation with the landowner and may include the entire construction right-of-way or the ditch plus spoil side.

TABLE 7.3-1
Summary of Cropland Crossed by the Project

Facility	County, State	Total Miles (% of Facility)
Supply Laterals		
Sherwood Lateral	Monroe, OH	0.1
Clarington Lateral	Belmont, OH	0.1
Burgettstown Lateral	Carroll, OH	1.3
	Jefferson, OH	0.1
Supply Lateral Lines A and B	Carroll, OH	0.1
	Harrison, OH	0.7
	Subtotal	*2.4 (1.1%)*
Mainlines		
Mainlines A and B	Ashland, OH	8.3
	Carroll, OH	0.4
	Crawford, OH	19.1
	Defiance, OH	7.9
	Hancock, OH	5.6
	Henry, OH	19.1
	Richland	12.1
	Seneca, OH	21.8
	Stark, OH	3.9
Mainlines		
Mainlines A and B	Tuscarawas	4.4

TABLE 7.3-1
Summary of Cropland Crossed by the Project

Facility	County, State	Total Miles (% of Facility)
	Wayne, OH	8.9
	Wood, OH	21.9
	Subtotal	*133.4 (70.0%)*
Market Segment	Defiance, OH	4.3
	Fulton, OH	14.6
	Henry, OH	4.3
	Lenawee, MI	20.1
	Livingston, MI	3.9
	Washtenaw, MI	12.8
	Subtotal	*60.0 (60.0%)*
	Total	**195.8 (38.5)**

Rover has assumed, and is committed to using, full right-of-way topsoil segregation in all agricultural areas, and temporarily stockpiling all topsoil in a separate windrow on the construction right-of-way. Rover will install the pipe at a minimum depth of 4 feet to accommodate deep tilling (e.g., using parabolic plows), and to maintain/repair existing water or drainage tile systems that are prevalent in the Project area. Rock will not be used as upper backfill in rotated or permanent cropland. A 150-foot-wide construction right-of-way will be used to accommodate full right-of-way topsoil segregation, the increased pipeline depth, and allow for restoration of water supply and drainage systems. Some additional temporary workspace (ATWS) will be required, primarily to stage HDD crossings.

7.3.3 Agricultural Drain Tiles

As noted in Section 7.2.3.1, Rover will implement their AIM Plans in Ohio and Michigan for mitigation of agricultural drain tiles. To date, no drain tiles have been identified in West Virginia or Pennsylvania and restoration procedures in these two states will progress according to the Rover Plan and Procedures.

In addition to implementation of the AIM Plans, Rover has employed a subcontractor to work with landowners of cultivated fields to develop plans for the crossing of each property to address site-specific concerns including replacement and repair of drainage tiles. This subcontractor is a consulting group of agricultural engineers, drainage contractors, agronomists, and conservation planners who will lend their expertise to the discussions between landowners and Rover, and will develop plans to mitigate any impacts and restore agriculture lands.

Rover has requested meetings with all landowners who have agricultural land that will be affected by the Project to identify drain tile systems, management programs, or surface drainage systems on their lands, as well as information on topsoil depth that can be utilized to determine topsoil separation plans. Rover's goal is to generate site-specific construction plans to minimize any impact to agricultural fields or associated drainage tile systems.

Drain tile contractors employed by Rover, unless otherwise specified in the AIM Plans or in an easement negotiated with an individual Landowner, will implement drain tile repair within 120 days of completion of the pipeline facilities on any affected property, weather and landowner permitting. Temporary repairs will be made by Rover during the construction process as needed to minimize the risk of additional property damage that may result from an extended construction time period. If weather delays the completion of any mitigative action beyond the 120 day period, Rover will provide the affected Landowner(s) with a written estimate of the time needed for completion of the mitigative action.

Rover's Environmental Complaint Resolution Procedure outlines a clear stepwise plan for landowners should a complaint or concern arise (see Resource Report 1, Appendix 1B). These procedures detail three levels of contact and specifies phone numbers and anticipated response times from Rover representatives as well as indicating the type of information needed by Rover to adequately resolve issues.

7.4 RESIDENTIAL AREAS

Where residences are located in close proximity to the edge of the construction right-of-way, Rover will reduce construction workspace areas as practicable to minimize inconvenience to property owners. In residential yards, topsoil will either be conserved or imported as an alternative to topsoil segregation and conservation. If construction requires the removal of private property features, such as gates or fences, the landowner or tenant will be notified prior to the action. Following completion of major construction, the property will be restored. Property restoration will be in accordance with any agreements between Rover and the landowner. Resource Report 8, Section 8.1.3.4, provides additional discussion on residential lands crossed by the pipelines.

7.5 REFERENCES

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