



MVP Southgate Project

Docket No. CP19-XX-000

Resource Report 2 – Water Use and Quality

Appendix 2-I

MVP Southgate Project Wetland Delineation Report

VIRGINIA

November 2018



MVP Southgate Project

NAO-2018-1574

Virginia

Wetland and Waters Delineation Report

November 2018

TABLE OF CONTENTS

1.0	INTRODUCTION.....	1
1.1	Project Description	1
1.2	Survey Area	1
2.0	REGULATORY AUTHORITIES.....	2
2.1	Waters of the United States.....	2
2.2	Waters of the State of Virginia	4
3.0	PROJECT SETTING	4
3.1	Background Data Collection and Desktop Review.....	4
3.2	Topography and Physiographic Region.....	5
3.3	Soils	5
3.4	Floodplains.....	7
3.5	Watersheds and Basins	7
4.0	FIELD DELINEATION METHODS.....	7
4.1	Naming Scheme and Flagging.....	8
4.2	Wetlands	8
4.2.1	Hydrophytic Vegetation.....	8
4.2.2	Hydric Soils	9
4.2.3	Wetland Hydrology.....	10
4.3	Waterbodies	10
5.0	FIELD DELINEATION RESULTS.....	11
5.1	Wetlands	11
5.1.1	Vegetation and Cowardin Classifications	14
5.1.2	Soils	15
5.1.3	Hydrology	15
5.2	Waterbodies	15
5.3	Upland Plant Communities.....	18
6.0	SUMMARY	18
7.0	REFERENCES.....	19

LIST OF TABLES

Table 1	Federal Jurisdictional Status by Type of Water	2
Table 2	Soils Mapped in the Virginia Southgate Project Survey Area	5
Table 3	Watersheds within the Virginia Southgate Project Survey Area	7
Table 4	Wetlands Identified During Desktop Review within the Virginia Southgate Project Survey Area a/.....	11
Table 5	Summary of Wetlands Delineated in the Virginia Southgate Project Survey Area by Sub-watershed a/.....	12
Table 6	Wetlands Delineated within the Virginia Southgate Project Survey Area.....	14
Table 7	Waterbodies Identified during Desktop Review within the Virginia Southgate Project Survey Area a/.....	15
Table 8	Summary of Waterbodies Delineated in the Virginia Project Survey Area by Sub-watershed a/.....	16
Table 9	Waterbodies Delineated in the Virginia Southgate Project Survey Area.....	17

LIST OF FIGURES

Figure 1	Southgate Project Overview Map
Figure 2	USGS Quadrangle Maps
Figure 3	NRCS Soils, NWI, NHD, and Floodplain Maps
Figure 4	Wetland and Waterbody Delineation Maps

LIST OF APPENDICES

Appendix A1	Wetlands Delineated in the Virginia Southgate Project Survey Area
Appendix A2	Waterbodies Delineated in the Virginia Southgate Project Survey Area
Appendix B	Figures
Appendix C	USACE Wetland and Upland Data Forms and Photographs
Appendix D	Waterbody Data Forms and Photographs

LIST OF ACRONYMS AND ABBREVIATIONS

1987 Manual	Corps of Engineers Wetlands Delineation Manual
CBD	Cannot Be Determined
CFR	Code of Federal Regulations
FAC	Facultative
FACU	Facultative Upland
FACW	Facultative Wetland
FEMA	Federal Emergency Management Agency
ft.	Feet
GPS	Global Positioning System
Guidebook	USACE Jurisdictional Determination Form Instructional Guidebook
HUC	Hydrologic Unit code
M&R	Metering and Regulating
MLRA	Major Land Resource Area
MP	Mile Post
MVP	Mountain Valley Pipeline
NAD	North American Datum
NGA	Natural Gas Act
NI	No Indicator
No.	Number
NOAA	National Oceanic and Atmospheric Administration
NRPW	Non-relatively Permanent Water
NRCS	Natural Resources Conservation Service
NWI	National Wetlands Inventory
NWS	National Weather Service
OBL	Obligate
PAB	Palustrine Aquatic Bed
PEM	Palustrine Emergent
PFO	Palustrine Forested
Project	MVP Southgate Project
PSS	Palustrine Scrub-Shrub
PUB	Palustrine Unconsolidated Bottom
Regional Supplement	Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Eastern Mountains and Piedmont Region
RPW	Relatively Permanent Water
TNW	Traditional Navigable Water
U.S.	United States
USC	United States Code
UPL	Upland
USACE	U.S. Army Corps of Engineers
USDA	U.S. Department of Agriculture
USEPA	U.S. Environmental Protection Agency
USFWS	U.S. Fish and Wildlife Service
USGS	U.S. Geological Survey
VADEQ	Virginia Department of Environmental Quality
VWP	Virginia Water Protection Program

1.0 INTRODUCTION

Mountain Valley Pipeline, LLC (“Mountain Valley”) is proposing to construct and operate the MVP Southgate Project (“Southgate Project” or “Project”). The Southgate Project will provide timely, cost-effective access to new natural gas supplies to meet the growing needs of natural gas users in the southeastern United States (“U.S.”), including for the Project’s anchor shipper, a local distribution company serving customers in North Carolina. The Southgate Project is expected to be in service by late 2020 and is a separate project from the 303-mile Mountain Valley Pipeline that is currently under construction.

The Southgate Project includes an approximate 0.4-mile-long 24-inch-diameter pipeline (H-605), 73 miles of 24- and 16-inch-diameter natural gas pipeline (H-650), a new 28,915 nominal horsepower (“hp”) compressor station (Lambert Compressor Station), meter stations and other ancillary facilities (e.g. contractor yards and access roads) required for the safe and reliable operation of the pipeline. The Project facilities will be located in Pittsylvania County, Virginia and Rockingham and Alamance counties, North Carolina. A location map (Figure 1) illustrates the proposed Project facilities.

A wetland and waterbody delineation was conducted for the Southgate Project area to support state and federal permitting. This report summarizes the methods employed and results of the wetland and waterbody field surveys in Virginia. The Virginia portion of the Project is within the U.S. Army Corps of Engineers (“USACE”) Norfolk District. A separate wetlands and waterways delineation report has been prepared for the North Carolina portion of the Project, which is in the USACE – Wilmington District.

1.1 Project Description

The Virginia portion of the Southgate Project is located in Pittsylvania County (Figure 1) and is collocated with an existing Transcontinental Gas Pipeline Company natural gas pipeline corridor for the majority (80 percent) of its length. The Project originates at a new interconnection tap with the Mountain Valley Pipeline located at MP 0.0, approximately 3.0 miles east of the Town of Chatham, Virginia. The proposed 24-inch H-605 pipeline will interconnect with and receive gas from the Mountain Valley Project at MP 0.0 and tie-in to the northwest corner of the Lambert Compressor Station site at MP 0.44. Construction of both facilities is proposed on a parcel owned by Mountain Valley. From the Lambert Compressor Station, the H-650 pipeline will traverse Pittsylvania County, Virginia in a southwest direction for approximately 26.1 miles to the North Carolina state line in Rockingham County, North Carolina. Coordinates for the Project crossing from Virginia to North Carolina are 36.541694° N, 79.632613° W. Figure 2 shows the Virginia Project limits overlain on U.S. Geological Survey (“USGS”) topographic maps and Figure 3 depicts the mapped soils, National Wetland Inventory (“NWI”), National Hydrography Data (“NHD”), and 100-year floodplains overlain on a recent aerial photo.

1.2 Survey Area

The survey area within Virginia generally consists of a 300 foot-wide corridor along the approximately 26.5 miles of proposed pipeline. The survey corridor was expanded to 400 feet in two areas: milepost (“MP”) 14.7 to MP 15.2 and MP 17.2 to MP 17.5. The survey area also includes limits of additional temporary workspaces, above ground facilities, construction yards, staging areas, and access roads. A 50-foot wide corridor centered over the proposed access road was surveyed for all access roads. To date, the survey area of the Southgate Project encompasses 1,153.5 acres in Virginia.

2.0 REGULATORY AUTHORITIES

2.1 Waters of the United States

As defined by the USACE under 40 Code of Federal Regulations (“CFR”) 230.3, Waters of the United States (“WOTUS”) includes rivers, lakes, ponds, streams (intermittent and perennial), and wetlands regulated under Sections 401 and 404 of the Clean Water Act (33 United States Code (“U.S.C.”) §1251 et seq., as amended). The extent of federal jurisdictional limits over WOTUS is generally defined in Table 1.

Table 1	
Federal Jurisdictional Status by Type of Water	
Jurisdictional Status	Water Type
Jurisdictional	Traditional navigable waterways
	Wetlands adjacent to traditional navigable waterways
	Non-navigable tributaries of traditional navigable waters that are relatively permanent where the tributaries typically flow year-round or have continuous flow at least seasonally (e.g., typically three months)
	Wetlands that directly abut such tributaries
	Adjacent waters, which means bordering, contiguous, or neighboring, including waters separated from other “waters of the United States” by constructed dikes or barriers, natural river berms, beach dunes and the like. Further, waters that connect segments of, or are at the head of, a stream or river are “adjacent” to that stream or river. “Adjacent waters” include wetlands, ponds, lakes, oxbows, impoundments, and similar water features.
	Ditches that are constructed in tributaries or are relocated tributaries or, in certain circumstances drain wetlands, or that science clearly demonstrates are functioning as a tributary
	Waters located in whole or in part within 100 feet of the ordinary high-water mark of a traditional navigable water, interstate water, the territorial seas, an impoundment of a jurisdictional water, or a tributary, as defined in the rule.
Jurisdiction decided based on fact-specific analysis to determine whether they have a significant nexus with a traditional navigable waterway	Waters located in whole or in part in the 100-year floodplain and that are within 1,500 feet of the ordinary high-water mark of a traditional navigable water, interstate water, the territorial seas, an impoundment, or a tributary, as defined in the rule (“floodplain waters”).
	Non-navigable tributaries that are not relatively permanent
	Wetlands adjacent to non-navigable tributaries that are not relatively permanent
	Waters within the 100-year floodplain of a traditional navigable water, interstate water, or the territorial seas and waters within 4,000 feet of the high tide line or the ordinary high-water mark of a traditional navigable water, interstate water, the territorial seas, impoundments, or covered tributary
	Prairie potholes, Carolina and Delmarva bays, pocosins, western vernal pools in California, and Texas coastal prairie wetlands.
	Wetlands adjacent to but that do not directly abut a relatively permanent non-navigable tributary.

Table 1	
Federal Jurisdictional Status by Type of Water	
Jurisdictional Status	Water Type
Generally, not considered jurisdictional	Swales or erosional features (e.g., gullies, small washes characterized by low volume, infrequent, or short duration flow)
	Ditches (including roadside ditches) excavated wholly in and draining only uplands and that do not carry a relatively permanent flow of water
	Wet areas that are not tributaries or open waters and do not meet the agencies' regulatory definition of "wetlands"
	Ditches with ephemeral flow that are not a relocated tributary or excavated in a tributary, and ditches with intermittent flow that are not a relocated tributary, or excavated in a tributary, or drain wetlands.
	Artificial lakes or ponds created by excavating and/or diking dry land and used exclusively for such purposes as stock watering, irrigation, settling basins, or rice growing
	Water-filled depressions created incidental to construction activity
	Groundwater drained through subsurface drainage systems and
	Erosional features (gullies and rills), and swales and ditches that are not tributaries or wetlands.
Source: USACE & USEPA, 2015	

Wetlands are defined as “those areas that are inundated or saturated by surface or ground water at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions” (40 CFR 230.3). In order for an area to be classified as wetland, hydrophytic vegetation, hydric soils, and wetland hydrology indicators must be present.

Permits are required by the USACE for activities that involve construction of any structure in or over any jurisdictional WOTUS, as well as any proposed action that would alter or disturb these waters such as such as excavation/dredging or deposition of materials. The regulatory authorities and responsibilities of the USACE are based on the following laws.

- Section 10 of the Rivers and Harbors Act of 1899 (33 U.S.C. 403): prohibits the obstruction or alteration of navigable waters of the United States without a permit from the Corps of Engineers.
- Section 404 of the Clean Water Act (33 U.S.C. 1344): section 301 of this Act prohibits the discharge of dredge or fill material into waters of the United States without a permit from the USACE.
- Section 103 of the Marine Protection, Research, and Sanctuaries Act of 1972, as amended (33 U.S.C. 1413): authorizes the USACE to issue permits for the transportation of dredge material for the purpose of dumping it into ocean waters.

2.2 Waters of the State of Virginia

Authority to enact Virginia Water Protection (“VWP”) permit regulations is given by section 62.1-44.15:20 of the Code of Virginia. The jurisdictional regulatory authority under the Virginia State Statutes and Administrative Code (“VAC”) lies with the Virginia Department of Environmental Quality (“VADEQ”). The VADEQ’s VWP permit program serves as Virginia’s Section 401 certification program for federal Section 404 permits authorized by the USACE and issued under the authority of the Clean Water Act. A 401 Water Quality Certification is required for any federally permitted or licensed activity that may result in a discharge to or filling of streams, wetlands or open waters. The over-arching regulation for the permit program is the Virginia Water Protection (VWP) Permit Program Regulation, 9 VAC 25-210.

State Water Control Law (§ 62.1-44.3) and VWP program regulations (9 VAC 25-210-10) define “State waters” as “all water, on the surface and under the ground, wholly or partially within or bordering the Commonwealth or within its jurisdiction, including wetlands.” Further, “wetlands” are defined as “those areas that are inundated or saturated by surface or groundwater at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions. Wetlands generally include swamps, marshes, bogs, and similar areas.” The definition of “wetlands” in state law mirrors the definition in the federal Clean Water Act (VADEQ 2012).

If a proposed structure or activity affects the course, location, condition, or capacity of a water of the state, a permit from the VADEQ is required. The type of permit required is specific to the type, location and amount of impacts. Stormwater management plans and/or mitigation for proposed impacts could be a requirement of the permit approval process. The determination that a wetland or waterway is subject to regulatory jurisdiction is made independently by the federal, state and local agencies.

3.0 PROJECT SETTING

3.1 Background Data Collection and Desktop Review

Desktop analysis of potential wetlands and surface waters was evaluated prior to conducting field delineations by reviewing a variety of available existing data and maps for the Southgate Project survey area. These resources include:

- USGS, 7.5-minute series quadrangle topographical maps including:
 - Spring Garden Quadrangle in Pittsylvania County, Virginia (USGS,2016)
 - Chatham Quadrangle in Pittsylvania County, Virginia (USGS, 2016)
 - Mount Hermon Quadrangle in Pittsylvania County, Virginia (USGS, 2016)
 - Whitmell Quadrangle in Pittsylvania County, Virginia (USGS, 2016)
 - Brosville Quadrangle in Pittsylvania County, Virginia (USGS, 2016)
- U.S. Department of Agriculture – Natural Resource Conservation Service (“USDA – NRCS”) Web Soil Survey Application (USDA – NRCS, 2018)
- USDA, Current NRCS Soil Survey for Pittsylvania County, Virginia (USDA-NRCS, 2018)
- USDA, Official Soil Survey manuscript and maps for Pittsylvania County (USDA, 1994)
- U.S. Fish and Wildlife Service (“USFWS”) NWI Wetlands Mapper Application (USFWS, 2014)

- NHD Set
- Watershed Basins/Hydrologic Unit Code (“HUC”) Maps
- Federal Emergency Management Administration (“FEMA”) floodplain maps
- LIDAR Data
- Southgate Flown Over Aerial Imagery (MVP Southgate, April 2018)
- Google Earth imagery (Google Earth, 2018)

Results of the background data review are included in the following sections.

3.2 Topography and Physiographic Region

The Southgate Project is in the Piedmont physiographic region, the middle region of the state, located between the Coastal Plain and the Mountain regions. The region is characterized by gently rolling topography, deeply weathered bedrock, and thick soils. Rocks are strongly weathered in the Piedmont’s humid climate, and bedrock is generally buried under a thick blanket of saprolite. Outcrops are commonly restricted to stream valleys where saprolite has been removed by erosion (College of William & Mary 2018). The general slope is eastward toward the Coastal Plain. Elevations within the Virginia Project survey area range from 580 to 880 feet above mean sea level.

Typical Piedmont habitats include old fields, rock outcrops, streams and deciduous and mixed deciduous/coniferous woodlands, which contain a relatively high diversity of animals such as reptiles, amphibians, and birds (Diemer and Bobyarchick, 2005; NCWRC, 2018).

3.3 Soils

Soils mapped in the Virginia portion of the survey area were identified using the USDA-NRCS National Cooperative Soil Survey (USDA – NRCS 2016) and are shown on Figure 3 and listed below in Table 2.

Table 2			
Soils Mapped in the Virginia Southgate Project Survey Area			
Map Unit Symbol	Map Unit Name	Percent Hydric	Drainage Class
Hydric Soils			
7A	Chenneby loam, 0 to 2 percent slopes, occasionally flooded	2	Somewhat poorly drained
8A	Chenneby-Toccoa complex, 0 to 2 percent slopes, frequently flooded	2	Somewhat poorly drained
9B	Creedmoor fine sandy loam, 2 to 7 percent slopes	2	Moderately well drained
9C	Creedmoor fine sandy loam, 7 to 15 percent slopes	2	Moderately well drained
41A	Wehadkee silt loam, 0 to 2 percent slopes, frequently flooded	85	Poorly drained
Nonhydric Soils			
1B	Appling sandy loam, 2 to 7 percent slopes	0	Well drained
1C	Appling sandy loam, 7 to 15 percent slopes	0	Well drained

Table 2			
Soils Mapped in the Virginia Southgate Project Survey Area			
Map Unit Symbol	Map Unit Name	Percent Hydric	Drainage Class
3B	Bolling fine sandy loam, 2 to 7 percent slopes	0	Moderately well drained
4B	Clifford sandy loam, 2 to 7 percent slopes	0	Well drained
4C	Cecil sandy loam, 7 to 15 percent slopes	0	Well drained
5B3	Cecil sandy clay loam, 2 to 7 percent slopes, severely eroded	0	Well drained
5C3	Cecil sandy clay loam, 7 to 15 percent slopes, severely eroded	0	Well drained
10B	Cullen loam, 2 to 7 percent slopes	0	Well drained
11B3	Cullen clay loam, 2 to 7 percent slopes, severely eroded	0	Well drained
11C3	Cullen clay loam, 7 to 15 percent slopes, severely eroded	0	Well drained
16B	Helena sandy loam, 2 to 7 percent slopes	0	Moderately well drained
16C	Helena sandy loam, 7 to 15 percent slopes	0	Moderately well drained
17B	Hiwassee loam, 2 to 7 percent slopes	0	Well drained
18C3	Hiwassee clay loam, 7 to 15 percent slopes, severely eroded	0	Well drained
21D	Madison fine sandy loam, 15 to 25 percent slopes	0	Well drained
21E	Madison fine sandy loam, 25 to 45 percent slopes	0	Well drained
22B	Mattaponi sandy loam, 2 to 7 percent slopes	0	Moderately well drained
22C	Mattaponi sandy loam, 7 to 15 percent slopes	0	Moderately well drained
23B	Mayodan fine sandy loam, 2 to 7 percent slopes	0	Well drained
23C	Mayodan fine sandy loam, 7 to 15 percent slopes	0	Well drained
23D	Mayodan fine sandy loam, 15 to 25 percent slopes	0	Well drained
26D	Fairview fine sandy loam, 15 to 25 percent slopes	0	Well drained
28C	Pinkston cobbly sandy loam, 7 to 15 percent slopes	0	Excessively drained
29C	Pinkston-Mayodan complex, 7 to 15 percent slopes, very stony	0	Excessively drained
29D	Pinkston-Mayodan complex, 15 to 35 percent slopes, very stony	0	Excessively drained
29E	Pinkston-Mayodan complex, 35 to 50 percent slopes, very stony	0	Excessively drained
34B	Sheva fine sandy loam, 2 to 7 percent slopes	0	Moderately well drained
38A	Toccoa fine sandy loam, 0 to 2 percent slopes, occasionally flooded	0	Well drained
39	Udorthents, loamy	0	Unknown

Source: USDA-NRCS, 2017

There are 34 soil types mapped within the survey area in Virginia. They range in texture from fine sandy loam to clay loam. A review of the USDA-NRCS national hydric soil list (USDA – NRCS, 2016) indicates five of the soil types have a hydric rating. However, only one of these soils (Wehadkee silt loam) is predominantly hydric (85 percent of map unit). The others have very small inclusions of hydric soils (2

percent). Soils with a hydric rating range from moderately well drained to poorly drained and occur in depressions or along floodplains. The nonhydric soils range in drainage class from moderately well drained to excessively drained and occur in interfluves between drainages.

3.4 Floodplains

Approximately 19 acres of the Southgate Project survey area are within the 100-year flood zones Zone A and Zone AE. Zone A is defined as Special Flood Hazard Areas Subject to Inundation by the 1 percent Annual Chance Flood with No Base Flood Elevations determined. Zone AE is defined as Special Flood Hazard Areas subject to inundation by the 1 percent annual chance flood event determined by detailed methods. The location of mapped flood zones is shown on Figure 3.

3.5 Watersheds and Basins

The Southgate Project lies within the Banister River and Upper Dan River watersheds. Both drain into the Roanoke River, which drains east through the Coastal Plain and empties into the Albemarle Sound in northeastern North Carolina. The northern part of the Project [milepost (“MP”) MP 0 to 10.5] drains into the Banister River and the southern part (MP 10.5 to 26.1) drains into the Upper Dan River. Table 3 identifies the watersheds crossed by the Project by milepost.

Table 3		
Watersheds within the Virginia Southgate Project Survey Area		
Milepost	Sub-basin (8-digit HUC)	Watershed (10-digit HUC)
0 to 10.5	Banister River (03010105)	Cherrystone Creek-Banister River (0301010501)
10.5 to 19.5	Upper Dan (03010103)	Wolf Island Creek-Dan River (0301010310)
19.5 to 26.1	Upper Dan (03010103)	Cascade Creek-Dan River (0301010309)

Source: VADEQ, 2018

4.0 METHODS

Wetland and waterbody assessments were conducted using a combination of desktop and field surveys. Field surveys were conducted for approximately 93 percent of the Southgate Project’s currently proposed route filed with the Federal Energy Regulatory Commission. In areas where survey access was not available, or the area of impact changed, a detailed desktop analysis was conducted to estimate the limits of wetlands and waterbodies. The desktop analysis included the use of existing data resources and maps (e.g. NWI maps, NHD, soil survey) and site-specific aerial photography and Lidar data flown for the Southgate Project area in 2018. Project scientists made observations of the estimated resources from adjacent tracts where survey access was available, to the extent possible. Wetland and waterbody limits estimated using desktop analysis will be field delineated when survey access is available.

4.1 Naming Scheme and Flagging

Wetlands, streams, and waterbodies (lakes or ponds) were named according to resource type (wetland, stream, or waterbody), team identifier (team A, B, C, etc.), year (18 for 2018), and a unique sequential resource number (e.g., W-A14-50 is the fiftieth wetland delineated by Team A completed in 2014). Each individual resource number is used to identify a particular resource. Each individual resource was assigned a number, for example Team A's first resource (wetland, stream or waterbody) would be identified as W-A18-1 (wetland), or S-A18-1 (stream), or WB-A18-1 (waterbody). Team A's second resource (wetland, stream or waterbody) would be identified as W-A18-2 (wetland), or S-A18-2 (stream), or WB-A18-2 (waterbody).

Except where landowners or land agents have asked for flags to not be placed, pink flagging with the words "wetland delineation" were used by the field survey teams to mark the boundaries of all wetlands, and blue-and-white striped flagging were used to mark ordinary high water mark ("OHWM") boundaries in streams. The field teams wrote the wetland identifier (as outlined above) and the individual flag number (e.g., W-A18-1-1) on the flags. Field teams also wrote "start open", "end open", "start closed", or "end closed", as appropriate.

4.2 Wetlands

The wetland determination and delineation was performed by qualified wetland scientists using the routine on-site determination methods described in the Corps of Engineers Wetlands Delineation Manual (USACE Environmental Laboratory, 1987), hereafter referred to as the "1987 Manual," and is consistent with the methods, guidelines, and indicators present in the Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Eastern Mountains and Piedmont Region ("Regional Supplement") (USACE, 2012). The on-site determination and delineation of WOTUS was conducted for the portions of the Southgate Project survey where there was available survey permission between May 2018 and September 2018 that is included in this report. Surveys will continue in an effort to collect data for all of the Project's workspace.

Data points and wetland boundary points collected by environmental scientists were recorded using a Juniper Systems Geode Real-Time Sub-Meter Global Positioning System ("GPS") Receiver unit. GPS data were recorded in the North American Datum ("NAD") 1983, US Foot, UTM Zone 17. Data points and wetland boundary survey locations collected by environmental scientists were established using either conventional survey techniques (total station) or survey grade GPS (1-cm) accuracy, depending on field conditions. Soil pit sampling was conducted to determine the presence of hydric soil indicators. Plant communities were identified and characterized for hydrophytic properties, indicator status, and percent cover. Particular wetland hydrology indicators were also identified.

Vegetation, soil, and hydrologic information for each sample plot was recorded on digital data forms using the Fulcrum App on Samsung Tab E tablets and used to determine wetland boundaries.

4.2.1 Hydrophytic Vegetation

According to the 1987 Manual (USACE, 1987) hydrophytic vegetation is defined as, "the sum total of macrophytic plant life that occurs in areas where the frequency and duration of inundation or soil saturation produce permanently or periodically saturated soils of sufficient duration to exert a controlling influence on the plant species present." Plant species are further categorized according to their probability of occurrence in wetlands, using the most current National Wetland Plant Indicator List ("NWPL") (Lichvar et al., 2016). The five indicator statuses are defined, as follows:

- Obligate (“OBL”) – greater than 99 percent occurrence in wetlands (a hydrophyte);
- Facultative Wetland (“FACW”) – greater than 67 to 99 percent occurrence in wetlands (a hydrophyte);
- Facultative (“FAC”) – 33 to 67 percent chance occurrence in wetlands (a hydrophyte);
- Facultative Upland (“FACU”) – 1 to 33 percent chance occurrence wetlands (a non-hydrophyte); and
- Upland (“UPL”) – greater than 99 percent occurrence in uplands (a non-hydrophyte).

“Dominant” plants were classified using the 50/20 rule, under which any plant species either individually or collectively equaled or exceeded 50 percent of the total absolute percent coverage for each stratum, and any additional species that, by itself, comprised at least 20 percent of the total absolute coverage of the same stratum, was classified as a dominant plant. Stratums were classified as follows:

- Tree stratum – woody plants, excluding vines, approximately 6 meters in height and 3 inches or greater in diameter at breast height (“DBH”),
- Sapling stratum – woody plants, excluding vines, approximately 6 meters in height and less than 3 inches DBH,
- Shrub stratum – woody plants, excluding vines, approximately 1 to 6 meters in height,
- Herb stratum – herbaceous plants, regardless of size, and woody plants, except vines, less than 1 meter in height, and/or
- Woody vine stratum – all woody vines, regardless of height.

Vegetation was re-evaluated using the prevalence index in cases where indicators of hydric soil and wetland hydrology were present, but the percentage of dominant species did not exceed 50 percent utilizing the dominance test. The prevalence index utilizes a weighted-average wetland indicator based on the status of all dominant plant species utilized in the 50/20 rule procedure. Each indicator status category (e.g., OBL, FACW, FAC, FACU, UPL) is given a numeric code (ranging from 1 to 5) which is then multiplied by the sum of the absolute percent cover, across all stratum, for that indicator status category. The weighted sum of all the indicator status categories is then divided by the unweighted sum to obtain the prevalence index. A site scoring less than 3 on the prevalence index meets the wetland hydrophytic vegetation criterion. The prevalence indices are used in the Regional Supplements to determine whether hydrophytic vegetation is present on sites where indicators of hydric soil and wetland hydrology are present, but the vegetation initially fails the dominance test.

4.2.2 Hydric Soils

According to the 1987 Manual, a hydric soil is defined as “a soil that is saturated, flooded or ponded long enough during the growing season to develop anaerobic conditions that favor the growth and regeneration of hydrophytic vegetation.” (USACE 1987; USDA-NRCS, 2016).

Hydric soil indicators within the Eastern Mountains and Piedmont Region were used (USACE 2012). The presence or absence of hydric soils was determined by pit sampling to a depth of twelve inches or more,

and characterization of soil profile layers using the Munsell Color System (X-Rite Incorporated 2009). The presence of hydric indicators was recorded on the wetland determination data forms.

4.2.3 Wetland Hydrology

Guidance in the 1987 Manual indicates that wetland hydrology is found in areas in which “the presence of water has an overriding influence on characteristics of vegetation and soils due to anaerobic and reducing conditions, respectively.” The frequency of soil inundation or saturation is dependent on a variety of factors, including topography, soil stratigraphy and soil permeability, in conjunction with the water source(s) of precipitation, runoff, stormwater, and groundwater discharge. Wetland hydrology is classified according to the extent of soil saturation or inundation and ranges from permanently inundated to irregularly inundated or saturated. Those areas which are either intermittently or never inundated or saturated are not considered to have wetland hydrology. Wetland hydrology indicators within the Eastern Mountains and Piedmont Region were used (USACE, 2012). One primary indicator or two secondary indicators are required to confirm that wetland hydrology is present or occurs at some time during the growing season.

4.3 Waterbodies

During the field review, the following categories of waterbodies were evaluated for the Southgate Project:

- Perennial Stream – A waterbody expected to have continuous year-round flow, with a well-defined OHWM, and sometimes (but not always) indicated on the USGS Quadrangle as a solid blue line;
- Intermittent Stream – A waterbody expected to have seasonal flow with seasonal flow defined as continuous flow for a consecutive period of at least three months, with a defined OHWM, and sometimes (but not always) indicated on the USGS Quadrangle as a dashed blue line;
- Ephemeral Stream – A waterbody expected to only have flow of short duration after a rainfall event, often with an ill-defined OHWM and channel, usually not indicated on the USGS Quadrangles;
- Drainage – A linear conveyance that exhibits little or no signs of sinuosity, expected to only have flow of short duration after a rainfall event, with an ill-defined OHWM, in many cases man-made or altered (e.g., roadside ditch or agricultural ditch), usually not indicated on the USGS Quadrangles;
- Pond – A basin or area of non-flowing water where water is expected to pool on at least a seasonal basis defined as pooling for a consecutive period of at least three months, with a well-defined OHWM, hydrophilic vegetation may be present, in some cases man-made or altered, and may be indicated on the USGS Quadrangles; and
- Upland swales encountered in the proposed survey area were not delineated, but a data point was taken and labeled as a non-jurisdictional drainage (“NJD”) feature.

Waterbodies were delineated at their OHWM and boundaries were flagged using blue and white striped flagging tape, with sequential numbering. Streams were characterized using the North Carolina Division of Water Quality (NCDWQ) Methodology for Identification of Intermittent and Perennial Streams and their Origins (Version 4.11) (NCDWQ, 2010). The Unified Stream Methodology developed by the USACE and the VADEQ was also used to characterize streams (USACE and VADEQ, 2007).

The top of bank or the centerline of the channels or edge of ponds, as well as a stream data plot location, were geographically located by Project field scientists using a Juniper Systems Geode Real-Time Sub-Meter GPS Receiver unit, survey grade GPS (1-cm) accuracy or conventional survey techniques (total station), depending on field conditions. GPS data were recorded in the North American Datum (NAD) 1983, US Foot, UTM Zone 17. Substrate type (mud/silt, sand, gravel, large rock, boulder, and/or bedrock), and channel width and depth were noted for each waterbody. A downstream, upstream, and two across stream photos were taken for each waterbody. All data and photos were filled out using digital data forms on the Fulcrum app on Samsung Tab E tablets.

5.0 RESULTS

5.1 Wetlands

During desktop reviews, a total of 13 wetlands (189.7 acres) were located within the Virginia Southgate Project survey area (Table 4). During the field surveys, ninety-eight wetlands covering 53.02 acres were delineated within the survey area (Table 5). These wetlands are identified in Appendix A-1, by resource identification (“ID”), milepost, and vegetative wetland community type. A map showing the limits of the delineated wetlands are included in Appendix B and USACE wetland and upland data forms and photographs are provided in Appendix C. The majority of wetlands within the survey area are associated with stream and river floodplains.

ID	Milepost	Covertypes	Approximate Acres within Survey Area
AW-F18-5	2.2	PEM	0.03
AW-D18-5	3.6	PFO	0.05
AW-D18-1	5.2	PFO	0.55
AW-E18-13	8.6	PFO	0.003
AW-F18-18	9.9	PFO	0.82
AW-F18-21	10.9	PFO	0.0005
AW-C18-84	11.6	PFO	0.01
AW-D18-23	14.3	PFO	0.03
AW-G18-11	16.2	PFO	0.01
AW-D18-32	18.5	PFO	0.003
AW-F18-51	19.8	PFO	0.003
AW-D18-41	21.2	PFO	0.02
AW-D18-39	21.9	PFO	0.004
AW-C18-91	25.8	PFO	0.01
Total acres of desktop reviewed wetlands			189.7
^{a/} Based on desktop reviews conducted by the Southgate Project in April-May 2018.			

Table 4			
Wetlands Identified During Desktop Review within the Virginia Southgate Project Survey Area <i>a/</i>			
ID	Milepost	Covertypes	Approximate Acres within Survey Area
<i>b/</i> Classification of Wetlands and Deepwater Habitats of the United States (Cowardin, 1979). PEM=Palustrine Emergent, PSS= Palustrine Scrub-Shrub, PFO=Palustrine Forested			

Table 5			
Summary of Wetlands Delineated in the Virginia Southgate Project Survey Area by Sub-watershed <i>a/</i>			
Milepost (MP) / Watershed	Cowardin Classification <i>b/</i>	Number of Resources	Acres of Wetland Type Delineated within Survey Area
MP: 0.0 to 2.94 HUC 8: Banister River (3010105) HUC 10: Cherrystone Creek-Banister River (301010501) HUC 12: Cherrystone Creek (030101050104)	PEM	6	17.91
	PSS	1	4.92
	PFO	6	9.66
	Subtotal	13	32.50
MP: 2.94 to 10.74 HUC 8: Banister River (3010105) HUC 10: Cherrystone Creek-Banister River (301010501) HUC 12: White Oak Creek-Banister River (030101050103)	PEM	10	1.90
	PSS	1	0.10
	PFO	16	12.00
	Subtotal	27	14.01
MP: 10.74 to 14.9 HUC 8: Upper Dan (3010103) HUC 10: Wolf Island Creek-Dan River (301010310) HUC 12: Sandy Creek (West)-Dan River (030101031004)	PEM	2	0.02
	PSS	0	0
	PFO	10	2.13
	Subtotal	12	2.15
MP: 14.9 to 19.94 HUC 8: Upper Dan (3010103) HUC 10: Wolf Island Creek-Dan River (301010310) HUC 12: Lower Sandy River (030101031003)	PEM	5	0.40
	PSS	2	0.17
	PFO	11	0.57
	Subtotal	18	1.14
MP: 19.94 to MP 26.08 HUC 8: Upper Dan (3010103) HUC 10: Cascade Creek - Dan River (301010309) HUC 12: Trotters Creek-Dan River (030101030903)	PEM	12	1.28
	PSS	1	0.02
	PFO	15	1.93
	Subtotal	28	3.23
Total	PEM	35	21.51
	PSS	5	5.21
	PFO	58	26.29
	Total	98	53.02

Table 5			
Summary of Wetlands Delineated in the Virginia Southgate Project Survey Area by Sub-watershed <u>a/</u>			
Milepost (MP) / Watershed	Cowardin Classification <u>b/</u>	Number of Resources	Acres of Wetland Type Delineated within Survey Area
<u>a/</u> Based on field surveys conducted by the Southgate Project from May 2018 to September 2018 <u>b/</u> Classification of Wetlands and Deepwater Habitats of the United States (Cowardin, 1979). PEM=Palustrine Emergent, PSS= Palustrine Scrub-Shrub, PFO=Palustrine Forested			

Table 6			
Wetlands Delineated within the Virginia Southgate Project Survey Area			
Cowardin Cover Type	Number of Delineated Resources	Delineated Acres within Survey Area	Percent of Total Delineated Wetland Area
PEM	35	26.29	49.6
PSS	5	5.21	9.8
PFO	58	21.51	40.6
Total	98	53.02	100

5.1.1 Vegetation and Cowardin Classifications

During the field investigations, three vegetative wetland community types were observed within the survey area: palustrine emergent (“PEM”), palustrine scrub-shrub (“PSS”), and palustrine forested (“PFO”). Palustrine systems include all nontidal wetlands dominated by trees, shrubs, persistent emergents, emergent mosses or lichens, and all such wetlands that occur in tidal areas where salinity due to ocean-derived salts is below 0.5 ppm. Table 5 identifies the number and acreage of wetlands by Cowardin vegetative type delineated in the Virginia Southgate Project survey area. The majority of the wetlands were either PEM or PFO. Only five PSS wetlands were delineated. A description of the delineated wetland resources is provided below.

PEM Wetlands

PEM wetlands are dominated by erect, herbaceous vegetation with little or no woody vegetation sub-canopy or canopy species (Cowardin et.al. 1979). Approximately 26 acres (50 percent) of the wetlands delineated in the Virginia Project survey area were PEM wetlands. Common vegetation species within the PEM wetlands recorded during environmental surveys include common rush (*Juncus effusus*), sallow sedge (*Carex lurida*), rice cutgrass (*Leersia oryzoides*), green bulrush (*Scirpus atrovirens*), boneset (*Eupatorium perfoliatum*), and Joe-Pye weed (*Eupatorium fistulosum*).

PSS Wetlands

PSS wetlands are dominated by woody vegetation less than six meters tall. This includes true shrubs, young trees, and trees that are small due to environmental conditions. PSS wetlands may represent a successional stage leading to forested wetlands or they can be stable communities (Cowardin et. al.1979). Approximately 5 acres of PSS wetlands were delineated within the Project survey area. Common plants found in these wetlands include sweetgum, red maple, loblolly pine, black willow (*Salix nigra*), common buttonbush (*Cephalanthus occidentalis*), peppervine (*Ampelopsis arborea*), common elderberry (*Sambucus canadensis*), spicebush (*Lindera benzoin*), and southern arrowwood (*Viburnum dentatum*).

PFO Wetlands

PFO wetlands are dominated by woody vegetation that is six meters tall or taller. Forested wetlands possess an overstory of trees, an understory of shrubs or young trees, and an herbaceous layer (Cowardin et.al. 1979). Approximately 21.5 acres (41 percent) of the wetlands delineated within the Virginia portion of the Project survey area were forested. In general, forested wetlands in the Project survey area were dominated by red maple (*Acer rubrum*), sweetgum (*Liquidambar styraciflua*), tulip poplar (*Liriodendron tulipifera*), slippery elm (*Ulmus rubra*), loblolly pine (*Pinus taeda*) and willow oak (*Quercus phellos*). Other common

plants in forested wetlands included: river birch (*Betula nigra*), sycamore (*Platanus occidentalis*), green ash (*Fraxinus pennsylvanica*), box elder (*Acer negundo*), black gum (*Nyssa sylvatica*), jewelweed (*Impatiens capensis*), and false nettle (*Boehmeria cylindrica*).

5.1.2 Soils

The most common hydric soil field indicators identified during the field delineation included depleted matrix (F3), redox dark surface (F6), and redox depressions (F8) (USACE, 2012; USDA-NRCS, 2016).

5.1.3 Hydrology

Localized hydrological conditions for each of the delineated resources is detailed on the data forms in Appendix C. Typical primary hydrologic indicators observed in the wetlands include the presence of surface water (2 to 6 inches deep), soil saturation, high water table, and water-stained leaves. Commonly observed secondary indicators include drainage patterns, geomorphic position, microtopographic relief, and crayfish burrows.

5.2 Waterbodies

During desktop reviews, a total of 26 waterbodies were identified within the Virginia Southgate Project survey area (Table 7). During the field surveys, 100 waterbodies were delineated within the Virginia Southgate Project survey area; including 5 ponds and 95 streams (Table 8). None of the delineated resources are classified as Section 10 waterways by the USACE-Norfolk District. Appendix A-2 provides a summary of each delineated waterbody, including resource ID, milepost, stream name, flow type, watershed, and area/linear feet within the Virginia Project survey area. Each of these resources is depicted on Figure 4. Waterbody data sheets and photographs are included in Appendix D.

ID	Milepost	Name	Calculated Stream Type
AS-E18-19	0	Trib. To Little Cherrystone Creek	Intermittent
AS-F18-6	0.1	Trib. To Little Cherrystone Creek	Intermittent
AS-D18-6	3.6	Trib. To Banister River	Intermittent
AS-D18-10	4	Trib. To Banister River	Intermittent
AS-F18-67	4	Trib. To Banister River	Intermittent
AS-D18-9	4.1	Trib. To Banister River	Intermittent
AS-D18-2	5	White Oak Creek	Perennial
AS-F18-17	9.9	White Oak Creek	Perennial
AS-F18-20	10.9	Trib. To Sandy Creek	Perennial
AS-C18-85	11.6	Trib. To Sandy Creek	Perennial
AS-C18-86	11.9	Trib. To Sandy Creek	Perennial
AS-D18-22	14.3	Trib. To Sandy Creek	Perennial

Table 7			
Waterbodies Identified during Desktop Review within the Virginia Southgate Project Survey Area <u>a/</u>			
ID	Milepost	Name	Calculated Stream Type
AS-NHD-2357	14.3	Trib. To Sandy Creek	Perennial
AS-E18-47	14.7	Trib. To Sandy Creek	Perennial
AS-A18-195	16.2	Trib. To Sandy Creek	Perennial
AS-B18-202	16.9	Trib. To Silver Creek	Perennial
AS-E18-48	17.7	Trib. To Sandy River	Intermittent
AS-E18-44	17.7	Sandy River	Perennial
AS-D18-40	21.2	Trib. To Trayner Branch	Perennial
AS-A18-205	21.9	Trib. To Trotters Creek	Intermittent
AS-A18-203	22.1	Trib. To Trotters Creek	Intermittent
AS-A18-206	22.2	Trib. To Trotters Creek	Intermittent
AS-F18-43	23	Trib. To Trotters Creek	Intermittent
AS-F18-33	24.8	Trib. To Dan River	Perennial
AS-C18-89	25.1	Trib. To Dan River	Perennial
AS-C18-90	25.7	Trib. To Dan River	Perennial
AS-C18-92	25.8	Trib. To Dan River	Intermittent

a/ Based on desktop reviews conducted by the Southgate Project in April-May 2018.

Table 8				
Summary of Waterbodies Delineated in the Virginia Project Survey Area by Sub-watershed <u>a/</u>				
Milepost (MP) / Watershed	Resource Type	Number of Waterbodies	Linear Feet of Waterbody	Acres of Waterbody
MP: 0.0 to 2.94 HUC 8: Banister River (3010105) HUC 10: Cherrystone Creek-Banister River (301010501) HUC 12: Cherrystone Creek (030101050104)	Ephemeral	1	94	-
	Intermittent	6	3,154	-
	Perennial	2	1,061	-
	Pond	0	-	0
	Subtotal	9	4,309	0
MP: 2.94 to 10.74 HUC 8: Banister River (3010105) HUC 10: Cherrystone Creek-Banister River (301010501) HUC 12: White Oak Creek-Banister River (030101050103)	Ephemeral	2	727	-
	Intermittent	16	4,990	-
	Perennial	6	3,424	-
	Pond	2	-	1.14
	Subtotal	25	9,142	1.14

Table 8				
Summary of Waterbodies Delineated in the Virginia Project Survey Area by Sub-watershed ^{a/}				
Milepost (MP) / Watershed	Resource Type	Number of Waterbodies	Linear Feet of Waterbody	Acres of Waterbody
MP: 10.74 to 14.9 HUC 8: Upper Dan (3010103) HUC 10: Wolf Island Creek-Dan River (301010310) HUC 12: Sandy Creek (West)-Dan River (030101031004)	Ephemeral	0	0.00	-
	Intermittent	2	144	-
	Perennial	9	6,287	-
	Pond	0	-	0
	Subtotal	11	6,431	0
MP: 14.9 to 19.94 HUC 8: Upper Dan (3010103) HUC 10: Wolf Island Creek-Dan River (301010310) HUC 12: Lower Sandy River (030101031003)	Ephemeral	4	331	-
	Intermittent	9	3,209	-
	Perennial	9	5,346	-
	Pond	2	-	0.21
	Subtotal	24	8,886	0.21
MP: 19.94 to MP 26.08 HUC 8: Upper Dan (3010103) HUC 10: Cascade Creek - Dan River (301010309) HUC 12: Trotters Creek-Dan River (030101030903)	Ephemeral	4	937	-
	Intermittent	14	3,697	-
	Perennial	10	4,523	-
	Pond	1	-	0.05
	Subtotal	29	9,157	0.05
Grand Totals	Ephemeral	11	2,089	-
	Intermittent	47	15,195	-
	Perennial	37	20,642	-
	Pond	5	-	1.40
	Total	99	37,927	1.40

^{a/} Based on field surveys conducted between May 2018 and September 2018 by the Southgate Project

Table 9			
Waterbodies Delineated in the Virginia Southgate Project Survey Area			
Type	Number of Delineated Resources	Linear Feet	Acres
Pond	5		1.40
Ephemeral Stream	11	2,089	0.210
Intermittent Stream	47	15,195	1.53
Perennial Stream	37	20,642	4.81
Total	100	37,927	7.95

5.3 Upland Plant Communities

The upland areas found in the survey area typically consisted of agricultural fields, improved pastureland, shrub dominated areas, mesic mixed hardwood forests, and commercial pine plantations. Agricultural fields in the survey area were commonly planted with corn, tobacco and soybeans. Active pasture areas were dominated by typical pasture grasses, including Bahia grass (*Paspalum notatum*) and crabgrass. Shrub species observed included saplings of red maple, tulip poplar, and sweetgum as well as blackberry (*Rubus* spp.). Dominant upland forest canopy species included white oak (*Quercus alba*), red oak (*Quercus rubra*), black walnut (*Juglans nigra*), American beech (*Fagus grandiflora*), black cherry (*Prunus serotina*), several species of hickory (*Carya* spp.), tulip poplar, sweetgum, red maple, elms (*Ulmus* spp.), and loblolly pine (*Pinus taeda*). Dominant pine species in the commercial pine plantations included loblolly pine (*Pinus taeda*) and Virginia pine (*Pinus virginiana*).

6.0 SUMMARY

The Southgate Project conducted a desktop and field survey of the 1,154-acre Project survey area to identify the presence and delineate the boundaries of wetlands and other waters potentially subject to regulation by the USACE and Virginia. Resources identified and delineated in the field include 98 wetlands, totaling approximately 53 acres, and 100 waterbodies consisting of 5 ponds, and 95 streams. No isolated wetlands or waterbodies were delineated. A request for a preliminary jurisdictional determination was submitted to the USACE- Norfolk District to review the delineated resources. Field visits with USACE Environmental Scientists occurred on November 1, and 2. The need and timing for further evaluation in the Project area will be at the discretion of the agencies.

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Appendix A-1
Wetlands Delineated in the Virginia MVP Southgate Project
Survey Area

Appendix A-1					
Field Delineated Wetlands in the Virginia Southgate Project Survey Area					
Milepost	Wetland ID	Cowardin Type	Acres	Latitude	Longitude
0.1	W-F18-7	PEM	0.00	36.829023	-79.344542
0.1	W-F18-7	PFO	0.02	36.82909	-79.344787
0.2	W-F18-11	PFO	0.79	36.825482	-79.343412
0.4	W-F18-66	PEM	0.71	36.82341	-79.347048
0.4	W-F18-66	PFO	2.21	36.822931	-79.346775
0.5	W-F18-64	PFO	0.77	36.821664	-79.347865
0.6	W-F18-64	PEM	0.65	36.820911	-79.349632
1	W-G18-2	PEM	0.07	36.816242	-79.35425
1	W-G18-2	PFO	0.00	36.816248	-79.353997
1.1	W-F18-57	PEM	0.01	36.815072	-79.355614
1.4	W-F18-5	PFO	5.88	36.809533	-79.361184
1.5	W-F18-5	PEM	16.47	36.806575	-79.364893
1.8	W-F18-5	PSS	4.92	36.808258	-79.362626
3.6	W-D18-4	PFO	0.01	36.787239	-79.380289
3.6	W-D18-5	PFO	0.30	36.787933	-79.384232
3.9	W-F18-68	PFO	0.01	36.783623	-79.387336
4	W-D18-11	PFO	0.02	36.783233	-79.388876
4.9	W-D18-7	PEM	0.57	36.774786	-79.399103
4.9	W-D18-7	PFO	1.43	36.774692	-79.398682
5.2	W-D18-1	PFO	4.71	36.771958	-79.400852
5.2	W-F18-2	PFO	0.01	36.769321	-79.399981
5.2	W-F18-1	PSS	0.10	36.766504	-79.400169
6.6	W-D18-10	PEM	0.30	36.757877	-79.41888
6.6	W-D18-10	PFO	2.90	36.757613	-79.418244
7	W-D18-8	PEM	0.01	36.753489	-79.423195
7	W-D18-8	PFO	0.18	36.752502	-79.422992
7.6	W-D18-14	PEM	0.01	36.746247	-79.430024
7.6	W-D18-14	PFO	0.00	36.745893	-79.429877
8	W-F18-14	PEM	0.11	36.74124	-79.433688
8	W-F18-14	PFO	0.11	36.741284	-79.433695
8.4	W-E18-17	PEM	0.32	36.73649	-79.438846
8.6	W-E18-13	PEM	0.35	36.734993	-79.44042
8.6	W-E18-13	PFO	1.40	36.734563	-79.44003
9	W-E18-24	PFO	0.01	36.729121	-79.445713
9.1	W-E18-24	PEM	0.22	36.729002	-79.446006
9.7	W-F18-58	PEM	0.00	36.72328	-79.453499

Appendix A-1					
Field Delineated Wetlands in the Virginia Southgate Project Survey Area					
Milepost	Wetland ID	Cowardin Type	Acres	Latitude	Longitude
9.9	W-F18-16	PFO	0.06	36.720752	-79.454895
9.9	W-F18-18	PFO	0.84	36.720216	-79.454787
10.1	W-E18-23	PEM	0.01	36.719203	-79.457251
10.1	W-E18-23	PFO	0.01	36.719083	-79.457223
10.9	W-F18-21	PFO	0.02	36.708767	-79.465776
11	W-F18-24	PFO	0.03	36.707845	-79.466842
11.4	W-F18-27	PFO	0.02	36.703833	-79.470249
11.4	W-F18-29	PFO	0.13	36.704321	-79.470154
11.6	W-C18-84	PFO	0.25	36.701475	-79.473312
12.8	W-F18-53	PFO	0.02	36.68883	-79.486143
13.4	W-E18-28	PFO	1.28	36.68047	-79.489859
13.7	W-D18-27	PFO	0.19	36.676156	-79.491181
13.7	W-D18-29	PFO	0.04	36.676448	-79.491352
14.2	W-F18-62	PEM	0.02	36.671886	-79.498907
14.2	W-D18-23	PFO	0.13	36.673494	-79.501231
14.7	W-E18-45	PEM	0.01	36.66815	-79.5065
15.3	W-A18-189	PFO	0.03	36.661354	-79.511632
15.7	W-F18-59	PFO	0.09	36.657527	-79.51632
15.9	W-A18-191	PSS	0.07	36.654974	-79.518367
16.2	W-A18-198	PEM	0.04	36.651877	-79.522194
16.2	W-A18-198	PFO	0.05	36.651905	-79.521897
16.2	W-G18-11	PFO	0.02	36.651078	-79.522285
16.5	W-C18-100	PFO	0.07	36.647351	-79.525057
16.7	W-C18-98	PFO	0.07	36.644843	-79.526236
16.7	W-A18-200	PSS	0.11	36.645225	-79.526557
16.8	W-A18-201	PEM	0.17	36.64432	-79.527183
17.1	W-F18-46	PFO	0.00	36.636646	-79.52879
17.6	W-F18-49	PFO	0.03	36.637232	-79.537811
18	W-E18-43	PEM	0.08	36.632798	-79.543297
18	W-E18-43	PFO	0.01	36.631837	-79.543361
18.6	W-D18-32	PFO	0.03	36.62628	-79.548848
19.4	W-D18-42	PEM	0.10	36.617272	-79.559731
19.7	W-F18-51	PEM	0.01	36.613912	-79.561992
19.7	W-F18-51	PFO	0.16	36.613684	-79.562815
20.4	W-E18-53	PEM	0.25	36.605633	-79.567957
20.5	W-F18-54	PEM	0.01	36.600449	-79.563297

Appendix A-1					
Field Delineated Wetlands in the Virginia Southgate Project Survey Area					
Milepost	Wetland ID	Cowardin Type	Acres	Latitude	Longitude
20.6	W-E18-55	PEM	0.08	36.602772	-79.570078
21	W-D18-35	PEM	0.08	36.598801	-79.574439
21	W-D18-35	PFO	0.13	36.598623	-79.574217
21.2	W-D18-41	PEM	0.38	36.595895	-79.577186
21.2	W-D18-41	PFO	0.41	36.595586	-79.576871
21.7	W-C18-95	PEM	0.18	36.590368	-79.583396
21.9	W-D18-39	PFO	0.07	36.588157	-79.584595
22	W-A18-204	PFO	0.29	36.587265	-79.5865
22.1	W-A18-204	PEM	0.12	36.586977	-79.587
22.6	W-E18-37	PFO	0.02	36.583775	-79.599817
23	W-F18-44	PEM	0.08	36.576667	-79.597394
23	W-F18-44	PFO	0.02	36.576204	-79.597243
23.2	W-F18-41	PFO	0.01	36.573494	-79.599148
23.2	W-F18-41	PSS	0.02	36.573606	-79.599404
23.5	W-G18-16	PEM	0.04	36.570483	-79.603488
23.5	W-F18-37	PFO	0.00	36.570216	-79.603228
23.8	W-F18-36	PEM	0.02	36.567397	-79.606561
23.8	W-E18-36	PFO	0.03	36.567465	-79.605707
23.8	W-F18-36	PFO	0.00	36.567377	-79.60629
23.9	W-E18-31	PFO	0.05	36.561872	-79.602513
23.9	W-E18-33	PFO	0.13	36.565794	-79.607323
24.7	W-F18-60	PEM	0.02	36.557255	-79.616441
25	W-C18-87	PFO	0.32	36.551107	-79.615925
25.8	W-C18-91	PFO	0.36	36.544251	-79.629557
26.1	W-C18-96	PEM	0.03	36.541862	-79.632558
26.1	W-C18-96	PFO	0.09	36.54177	-79.632466

Appendix A-2
Waterbodies Delineated in the Virginia Southgate Project
Survey Area

Appendix A-2
Waterbodies Delineated in the Virginia MVP Southgate Project Survey Area

Milepost	Resource ID	HUC8	Stream Name	Flow type	Length (ft)	Acres	Latitude	Longitude
0.1	S-F18-6	Banister - 03010105	Trib to Little Cherrystone Creek	Intermittent	436	0.05	36.828939	-79.344659
0.2	S-F18-10	Banister - 03010105	Trib to Little Cherrystone Creek	Intermittent	1162	0.09	36.825586	-79.343182
0.4	S-F18-65	Banister - 03010105	Little Cherrystone Creek	Perennial	576	0.28	36.82243	-79.34742
0.5	S-F18-63	Banister - 03010105	Trib to Sandy Creek	Intermittent	561	0.10	36.821101	-79.348779
0.8	S-A18-186	Banister - 03010105	Trib to Cherrystone Creek	Ephemeral	94	0.02	36.817866	-79.351856
1.1	S-E18-18	Banister - 03010105	Trib to Cherrystone Creek	Intermittent	441	0.04	36.814536	-79.355422
1.4	S-F18-56	Banister - 03010105	Trib to Cherrystone Creek	Intermittent	417	0.05	36.811395	-79.359172
1.7	S-D18-18	Banister - 03010105	Cherrystone Creek	Perennial	485	0.28	36.808435	-79.362534
2.2	S-D18-20	Banister - 03010105	Trib to Cherrystone Creek	Intermittent	137	0.01	36.801887	-79.367302
3.2	S-E18-2	Banister - 03010105	Trib to Banister River	Intermittent	547	0.08	36.791725	-79.380899
3.6	S-D18-3	Banister - 03010105	Trib to Banister River	Intermittent	87	0.00	36.787294	-79.380179
3.6	S-D18-6	Banister - 03010105	Trib to Banister River	Intermittent	421	0.07	36.787983	-79.384482
3.9	S-F18-67	Banister - 03010105	Trib to Banister River	Intermittent	263	0.03	36.783512	-79.387419
4	S-D18-10	Banister - 03010105	Trib to Banister River	Intermittent	441	0.03	36.783317	-79.388889
4.1	S-D18-9	Banister - 03010105	Trib to Banister River	Intermittent	582	0.06	36.78239	-79.390229
4.5	S-D18-12	Banister - 03010105	Trib to Banister River	Intermittent	114	0.01	36.779115	-79.393907
4.8	S-E18-4	Banister - 03010105	Trib to Banister River	Intermittent	167	0.02	36.775505	-79.398579
4.9	S-E18-3	Banister - 03010105	Banister River	Perennial	388	0.40	36.77414	-79.39895
4.9	S-D18-8	Banister - 03010105	Trib to Banister River	Intermittent	131	0.02	36.774487	-79.398334
5	S-D18-2	Banister - 03010105	White Oak Creek	Perennial	969	0.01	36.773049	-79.399823
6	S-D18-15	Banister - 03010105	Trib to White Oak Creek	Ephemeral	299	0.02	36.763459	-79.412617
6.2	S-D18-16	Banister - 03010105	Trib to White Oak Creek	Ephemeral	428	0.05	36.761554	-79.414379
6.5	S-E18-12	Banister - 03010105	Trib to White Oak Creek	Intermittent	466	0.04	36.757744	-79.417979
6.6	S-D18-36	Banister - 03010105	Trib to White Oak Creek	Intermittent	326	0.03	36.75681	-79.419172

Appendix A-2
Waterbodies Delineated in the Virginia MVP Southgate Project Survey Area

Milepost	Resource ID	HUC8	Stream Name	Flow type	Length (ft)	Acres	Latitude	Longitude
7	S-E18-6	Banister - 03010105	Trib to White Oak Creek	Intermittent	492	0.06	36.752985	-79.423104
7	S-E18-7	Banister - 03010105	Trib to White Oak Creek	Intermittent	258	0.02	36.753365	-79.423247
7.6	S-D18-13	Banister - 03010105	Trib to White Oak Creek	Perennial	559	0.05	36.745689	-79.429696
8	S-F18-13	Banister - 03010105	Trib to White Oak Creek	Intermittent	445	0.04	36.74146	-79.433883
8	WB-F18-12	Banister - 03010105	Trib to White Oak Creek	Pond		0.08	36.741198	-79.433311
8.5	S-E18-16	Banister - 03010105	Trib to White Oak Creek	Intermittent	177	0.03	36.734811	-79.440149
8.6	S-E18-14	Banister - 03010105	Trib to White Oak Creek	Perennial	440	0.09	36.734568	-79.440057
8.6	S-E18-15	Banister - 03010105	Trib to White Oak Creek	Intermittent	75	0.01	36.734456	-79.440003
9	WB-E18-24	Banister - 03010105	Trib to White Oak Creek	Pond		1.06	36.729063	-79.444912
9.9	S-F18-15	Banister - 03010105	Trib to White Oak Creek	Perennial	449	0.01	36.721144	-79.454904
9.9	S-F18-17	Banister - 03010105	White Oak Creek	Perennial	621	0.16	36.720496	-79.455081
11	S-F18-22	Upper Dan - 03010103	Trib to Sandy Creek	Intermittent	45	< 0.01	36.707921	-79.466806
11.4	S-F18-20	Upper Dan - 03010103	Trib to Sandy Creek	Perennial	3673	0.43	36.706315	-79.468849
11.4	S-F18-28	Upper Dan - 03010103	Trib to Sandy Creek	Intermittent	100	0.01	36.704063	-79.470322
11.6	S-C18-85	Upper Dan - 03010103	Trib to Sandy Creek	Perennial	369	0.03	36.701404	-79.473314
11.9	S-C18-86	Upper Dan - 03010103	Trib to Sandy Creek	Perennial	353	0.26	36.69843	-79.47635
12.8	S-D18-21	Upper Dan - 03010103	Sandy Creek	Perennial	458	0.24	36.68856	-79.486023
13.4	S-E18-27	Upper Dan - 03010103	Trib to Sandy Creek	Perennial	456	0.11	36.680541	-79.490234
13.7	S-D18-26	Upper Dan - 03010103	Trib to Sandy Creek	Perennial	140	0.03	36.676278	-79.491258
13.7	S-D18-28	Upper Dan - 03010103	Trib to Sandy Creek	Perennial	97	0.01	36.676446	-79.491337
14.3	S-D18-22	Upper Dan - 03010103	Trib to Sandy Creek	Perennial	353	0.08	36.673209	-79.501366
14.3	S-F18-61	Upper Dan - 03010103	Trib to Sandy Creek	Perennial	165	0.02	36.671962	-79.498801
14.7	S-E18-47	Upper Dan - 03010103	Trib to Sandy Creek	Perennial	223	0.02	36.66817	-79.506651
15.2	S-A18-188	Upper Dan - 03010103	Trib to Silver Creek	Perennial	392	0.04	36.661886	-79.511249

Appendix A-2
Waterbodies Delineated in the Virginia MVP Southgate Project Survey Area

Milepost	Resource ID	HUC8	Stream Name	Flow type	Length (ft)	Acres	Latitude	Longitude
15.2	WB-A18-187	Upper Dan - 03010103	Trib to Silver Creek	Pond		0.08	36.662521	-79.51132
15.7	S-A18-192	Upper Dan - 03010103	Trib to Silver Creek	Intermittent	136	0.01	36.657449	-79.516907
15.7	S-D18-37	Upper Dan - 03010103	Trib to Silver Creek	Perennial	1288	0.25	36.657899	-79.516464
15.9	S-A18-190	Upper Dan - 03010103	Trib to Silver Creek	Intermittent	445	0.06	36.655217	-79.518833
16	S-A18-194	Upper Dan - 03010103	Trib to Silver Creek	Perennial	428	0.04	36.653764	-79.520246
16	WB-D18-31	Upper Dan - 03010103	Trib to Silver Creek	Pond		0.12	36.653362	-79.519483
16.1	S-A18-196	Upper Dan - 03010103	Trib to Silver Creek	Intermittent	38	< 0.01	36.651778	-79.521327
16.1	S-A18-197	Upper Dan - 03010103	Trib to Silver Creek	Intermittent	46	0.01	36.651846	-79.521515
16.2	S-A18-195	Upper Dan - 03010103	Trib to Silver Creek	Perennial	358	0.03	36.651824	-79.521828
16.2	S-G18-10	Upper Dan - 03010103	Trib to Silver Creek	Intermittent	509	0.02	36.651161	-79.52225
16.7	S-C18-99	Upper Dan - 03010103	Trib to Sandy River	Ephemeral	40	0.00	36.644383	-79.526702
16.8	S-C18-97	Upper Dan - 03010103	Trib to Sandy River	Intermittent	1115	0.00	36.643977	-79.527289
17	S-B18-202	Upper Dan - 03010103	Trib to Sandy River	Perennial	364	0.04	36.642068	-79.52907
17.2	S-F18-47	Upper Dan - 03010103	Trib to Sandy River	Intermittent	146	0.01	36.638506	-79.531519
17.3	S-E18-51	Upper Dan - 03010103	Trib to Sandy River	Perennial	838	0.05	36.639918	-79.534229
17.5	S-E18-45	Upper Dan - 03010103	Trib to Silver Creek	Ephemeral	84	0.01	36.638898	-79.537875
17.6	S-E18-48	Upper Dan - 03010103	Trib to Sandy River	Intermittent	488	0.05	36.636502	-79.538705
17.6	S-E18-50	Upper Dan - 03010103	Trib to Sandy River	Ephemeral	124	0.01	36.636937	-79.538163
17.6	S-F18-48	Upper Dan - 03010103	Trib to Sandy River	Intermittent	287	0.03	36.637328	-79.53781
17.7	S-E18-44	Upper Dan - 03010103	Sandy River	Perennial	568	1.14	36.635348	-79.539722
18	S-E18-42	Upper Dan - 03010103	Trib to Hardys Creek	Perennial	458	0.02	36.631994	-79.543285
19.4	S-D18-38	Upper Dan - 03010103	Trib to Sandy River	Ephemeral	83	0.01	36.617479	-79.559864
19.7	S-F18-50	Upper Dan - 03010103	Trib to Sandy River	Perennial	652	0.01	36.613637	-79.562889
20.4	S-E18-52	Upper Dan - 03010103	Trib to Trayner Branch	Perennial	761	0.10	36.605612	-79.567906

Appendix A-2
Waterbodies Delineated in the Virginia MVP Southgate Project Survey Area

Milepost	Resource ID	HUC8	Stream Name	Flow type	Length (ft)	Acres	Latitude	Longitude
20.6	S-E18-54	Upper Dan - 03010103	Trib to Trayner Branch	Perennial	478	0.05	36.603023	-79.57019
21	S-D18-34	Upper Dan - 03010103	Trayner Branch	Perennial	448	0.09	36.598616	-79.574052
21.2	S-D18-40	Upper Dan - 03010103	Trib to Trayner Branch	Perennial	481	0.02	36.595819	-79.577009
21.7	S-C18-94	Upper Dan - 03010103	Trib to Trotters Creek	Intermittent	22	< 0.01	36.590339	-79.583122
21.9	WB-C18-93	Upper Dan - 03010103	Trib to Trotters Creek	Pond		0.05	36.588386	-79.58499
22	S-A18-205	Upper Dan - 03010103	Trib to Trotters Creek	Intermittent	728	0.12	36.587538	-79.586017
22.1	S-A18-203	Upper Dan - 03010103	Trib to Trotters Creek	Intermittent	352	0.03	36.586741	-79.586687
22.2	S-A18-206	Upper Dan - 03010103	Trib to Trotters Creek	Intermittent	335	0.05	36.58546	-79.588017
22.5	S-E18-38	Upper Dan - 03010103	Trib to Trotters Creek	Intermittent	95	< 0.01	36.585171	-79.598409
22.6	S-E18-39	Upper Dan - 03010103	Trib to Trotters Creek	Intermittent	124	0.01	36.584697	-79.598869
22.7	S-E18-40	Upper Dan - 03010103	Trib to Trotters Creek	Intermittent	99	< 0.01	36.58389	-79.59946
22.7	S-E18-41	Upper Dan - 03010103	Trib to Trotters Creek	Ephemeral	54	< 0.01	36.583116	-79.60027
23	S-F18-43	Upper Dan - 03010103	Trib to Trotters Creek	Intermittent	361	0.03	36.576112	-79.597194
23.2	S-F18-42	Upper Dan - 03010103	Trib to Trotters Creek	Ephemeral	345	0.03	36.574203	-79.599165
23.2	S-F18-40	Upper Dan - 03010103	Trotters Creek	Perennial	484	0.21	36.573782	-79.599437
23.4	S-F18-39	Upper Dan - 03010103	Trib to Trotters Creek	Ephemeral	191	0.02	36.571926	-79.600678
23.5	S-F18-38	Upper Dan - 03010103	Trib to Dan River	Intermittent	543	0.04	36.569915	-79.602872
23.8	S-F18-35	Upper Dan - 03010103	Trib to Dan River	Ephemeral	348	0.04	36.567265	-79.606052
23.9	S-E18-34	Upper Dan - 03010103	Trib to Dan River	Perennial	332	0.03	36.565814	-79.607391
23.9	S-E18-35	Upper Dan - 03010103	Trib to Dan River	Intermittent	41	0.00	36.565761	-79.607644
24	S-E18-32	Upper Dan - 03010103	Trib to Dan River	Intermittent	100	0.01	36.561753	-79.60258
24.4	S-F18-34	Upper Dan - 03010103	Trib to Dan River	Perennial	343	0.04	36.560565	-79.612666
24.7	S-F18-32	Upper Dan - 03010103	Trib to Dan River	Intermittent	354	0.04	36.55673	-79.61654
24.8	S-F18-33	Upper Dan - 03010103	Trib to Dan River	Perennial	445	0.05	36.556118	-79.617529

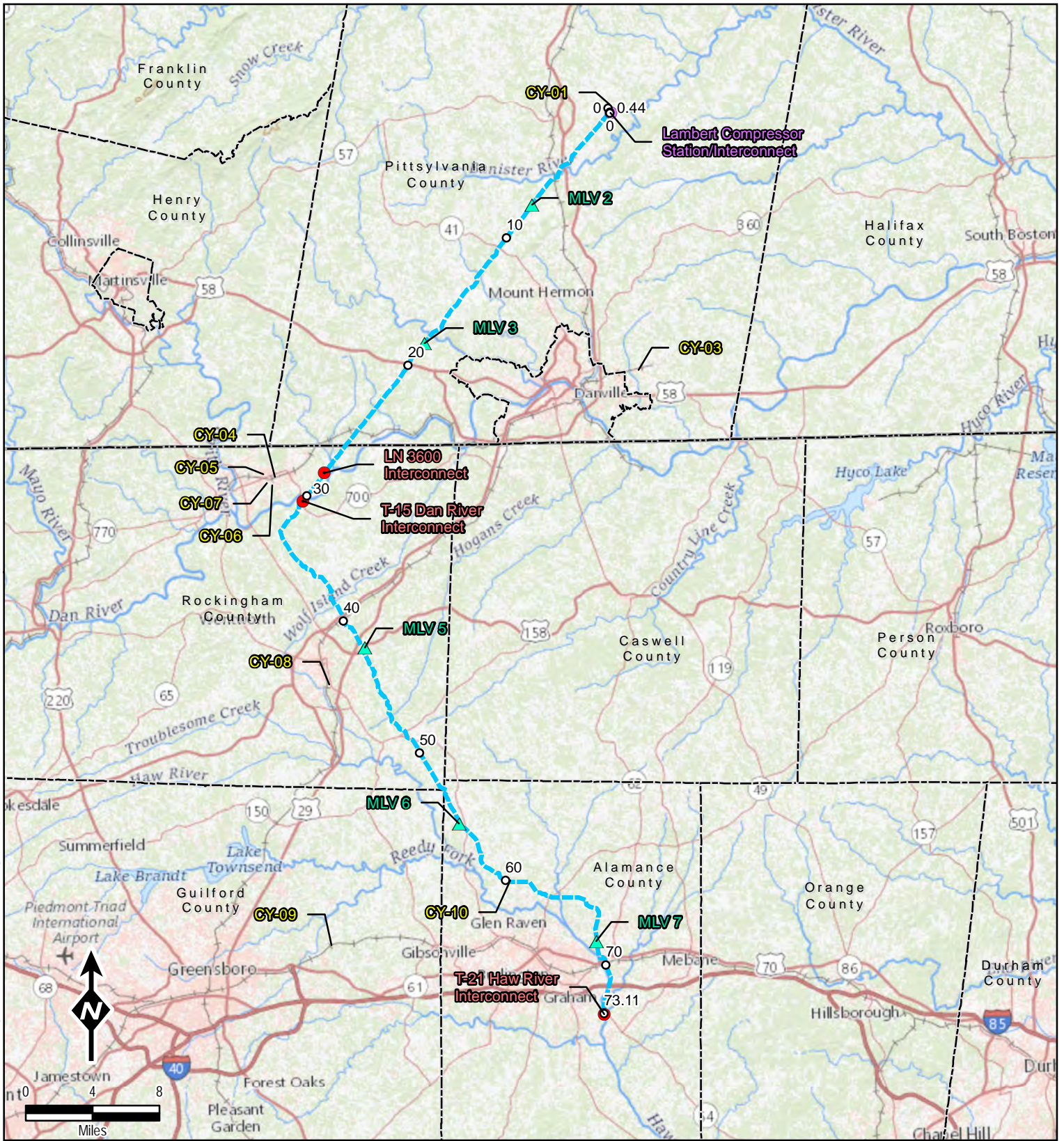
Appendix A-2
Waterbodies Delineated in the Virginia MVP Southgate Project Survey Area

Milepost	Resource ID	HUC8	Stream Name	Flow type	Length (ft)	Acres	Latitude	Longitude
25	S-C18-88	Upper Dan - 03010103	Trib to Dan River	Intermittent	172	0.01	36.551139	-79.615916
25.1	S-C18-89	Upper Dan - 03010103	Trib to Dan River	Perennial	379	0.01	36.552331	-79.62157
25.7	S-C18-90	Upper Dan - 03010103	Trib to Dan River	Perennial	373	0.07	36.545914	-79.628025
25.8	S-C18-92	Upper Dan - 03010103	Trib to Dan River	Intermittent	371	0.08	36.544227	-79.629466

Appendix B

Figures

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Legend

- Proposed Pipeline Route
- Compressor Station
- Contract Yard
- Meter Station
- ▲ Valve Site
- State Boundary
- County Boundary

Data Sources: ESRI, USGS, TRC, EQT

1 inch = 8 miles
When Printed 8.5x11

Mountain Valley
PIPELINE, LLC

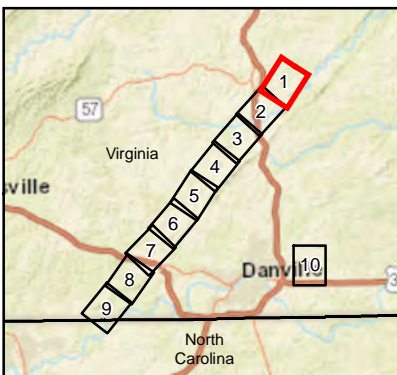
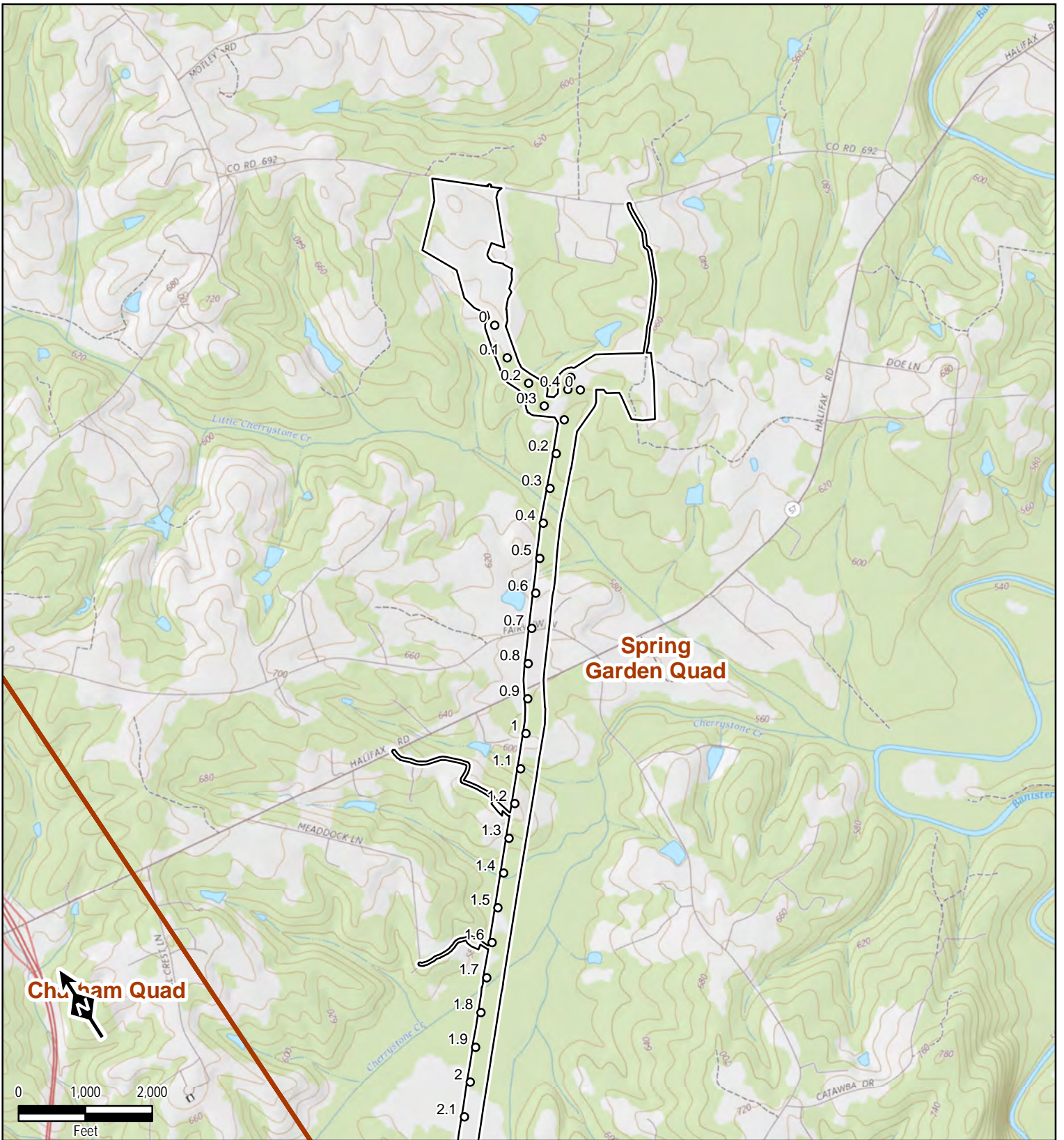
Figure 1

Project Overview
OCT 2018

TRC
Results you can rely on

600 Willowbrook Ln
West Chester, PA 19382

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Legend

- Mileposts
- ▭ Survey Area
- ▭ USGS Topo Quad Boundary
- - - State Boundary
- - - County Boundary

Data Sources: ESRI, USGS, TRC, EQT

1 inch = 2,000 feet
When Printed 8.5x11

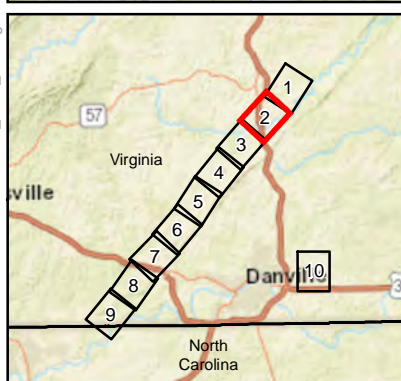
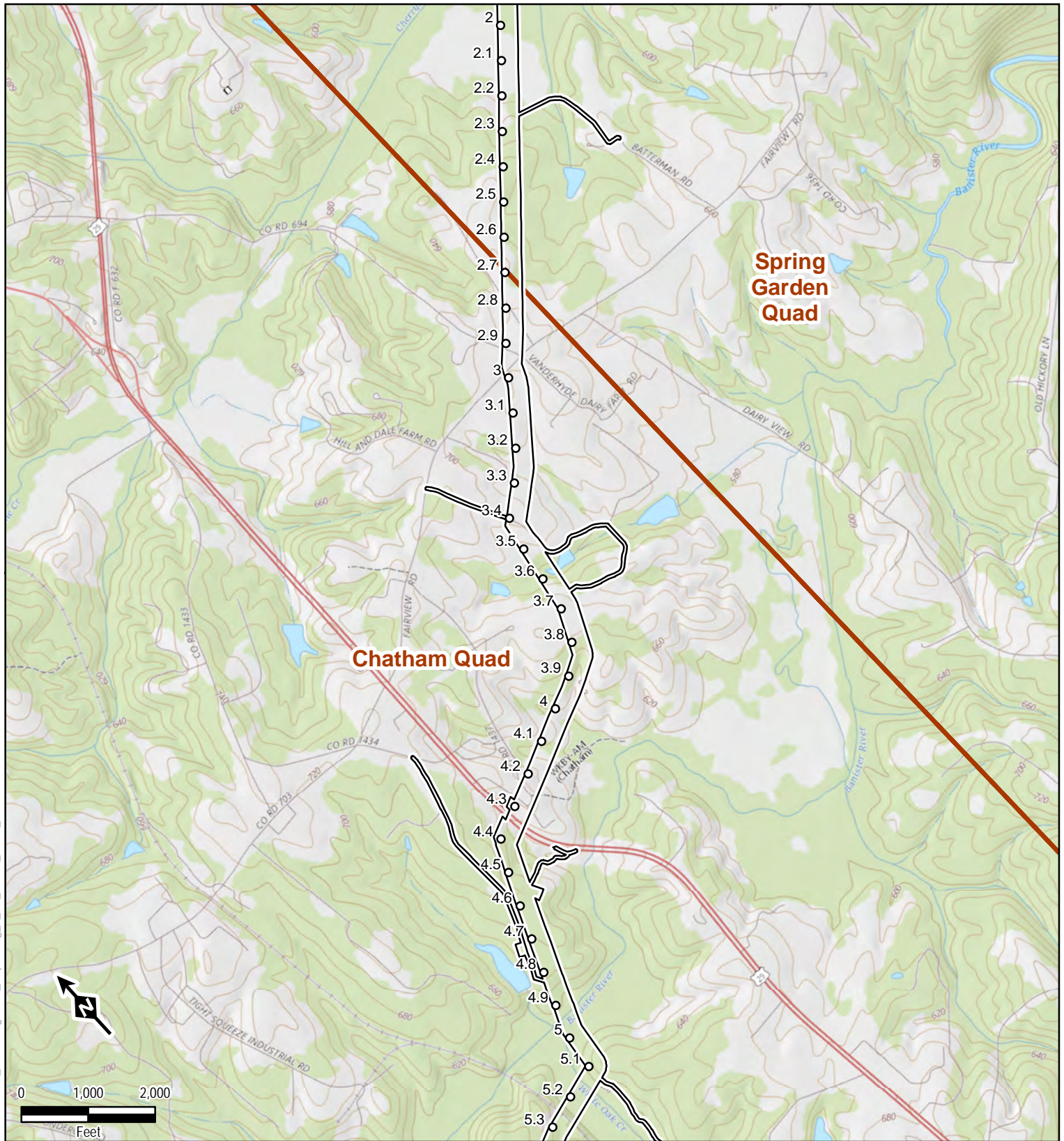
Mountain Valley
PIPELINE LLC

Figure 2
USGS Quad Maps
Pittsylvania County, VA

TRC
Results you can rely on

600 Willowbrook Ln
West Chester, PA 19382
October 2018

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Legend

- Mileposts
- ▭ Survey Area
- ▭ USGS Topo Quad Boundary
- ▭ State Boundary
- ▭ County Boundary

Data Sources: ESRI, USGS, TRC, EQT

1 inch = 2,000 feet
When Printed 8.5x11

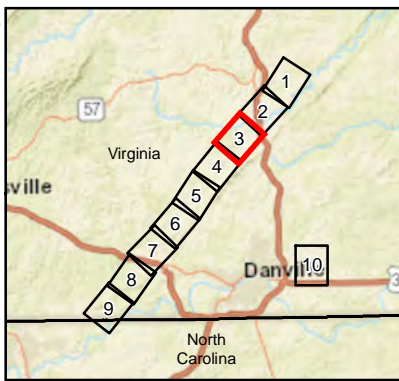
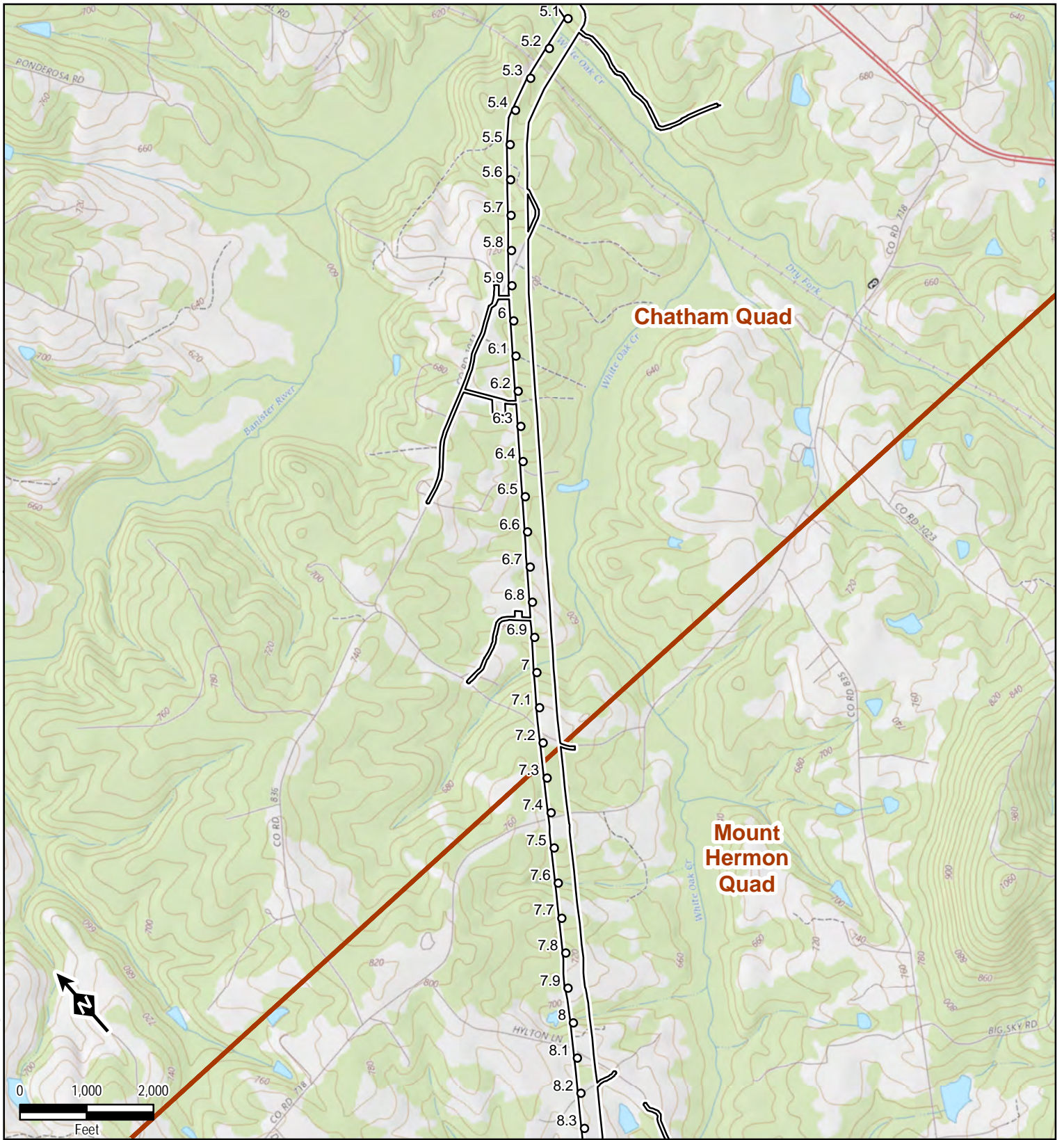
Mountain Valley
PIPELINE LLC

Figure 2
USGS Quad Maps
Pittsylvania County, VA

TRC
Results you can rely on

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October 2018

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- Legend**
- Mileposts
 - ▭ Survey Area
 - ▭ USGS Topo Quad Boundary
 - ▭ State Boundary
 - ▭ County Boundary

Data Sources: ESRI, USGS, TRC, EQT

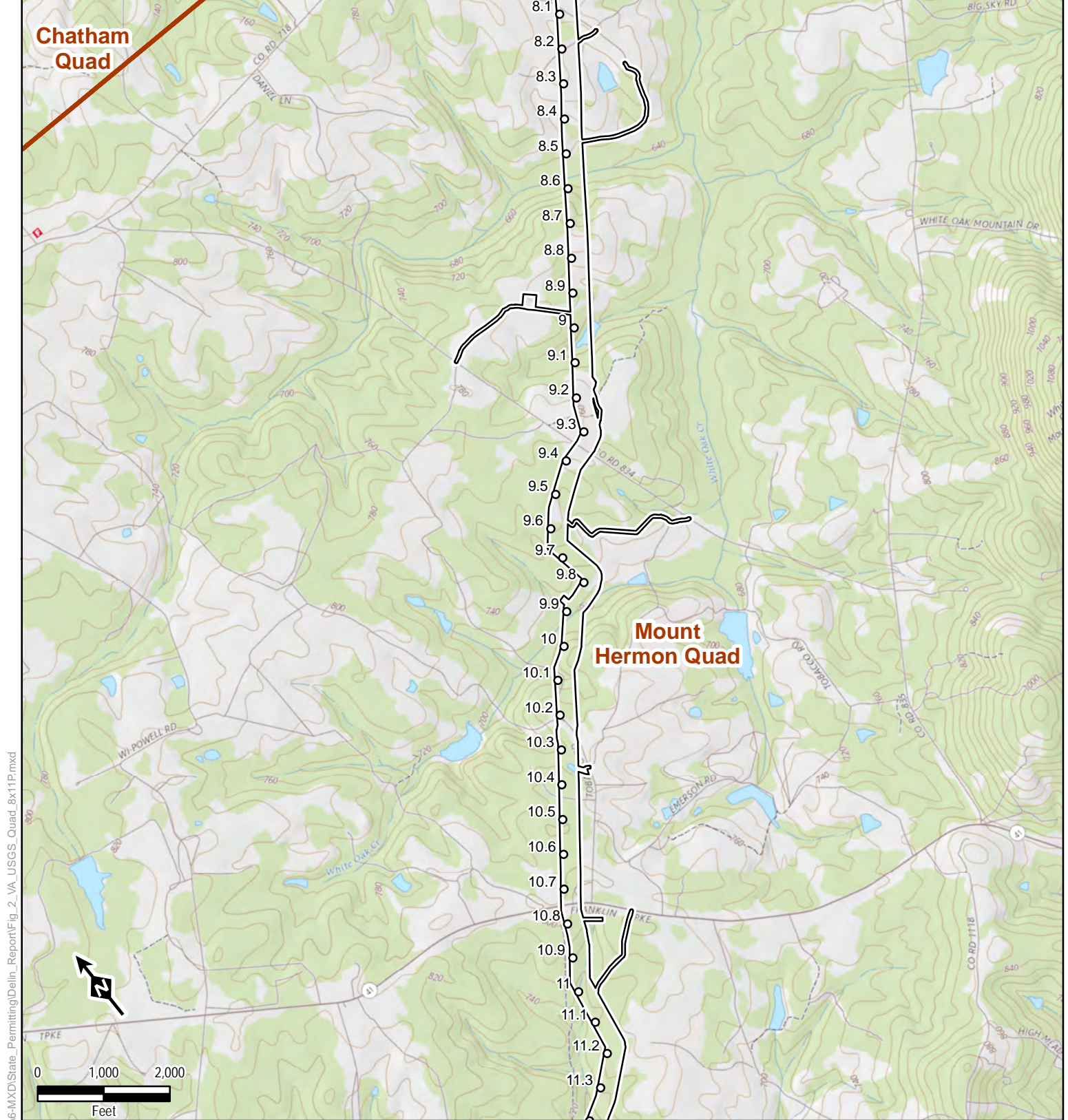
1 inch = 2,000 feet
When Printed 8.5x11

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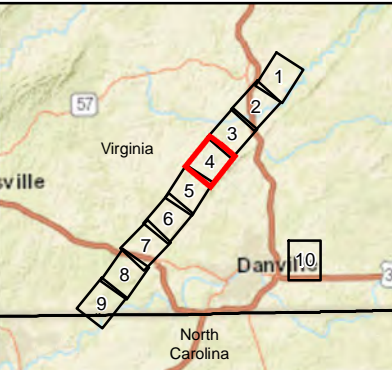
Figure 2
USGS Quad Maps
Pittsylvania County, VA

TRC
Results you can rely on

600 Willowbrook Ln
West Chester, PA 19382
October 2018



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Legend

- Mileposts
- ▭ Survey Area
- ▭ USGS Topo Quad Boundary
- ▭ State Boundary
- ▭ County Boundary

Data Sources: ESRI, USGS, TRC, EQT

1 inch = 2,000 feet
When Printed 8.5x11

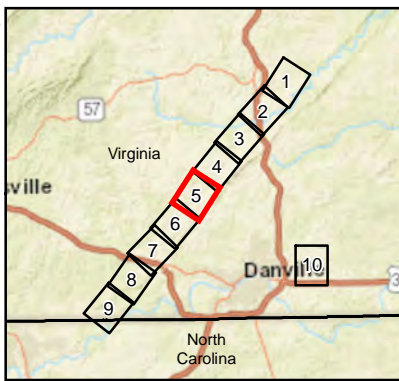
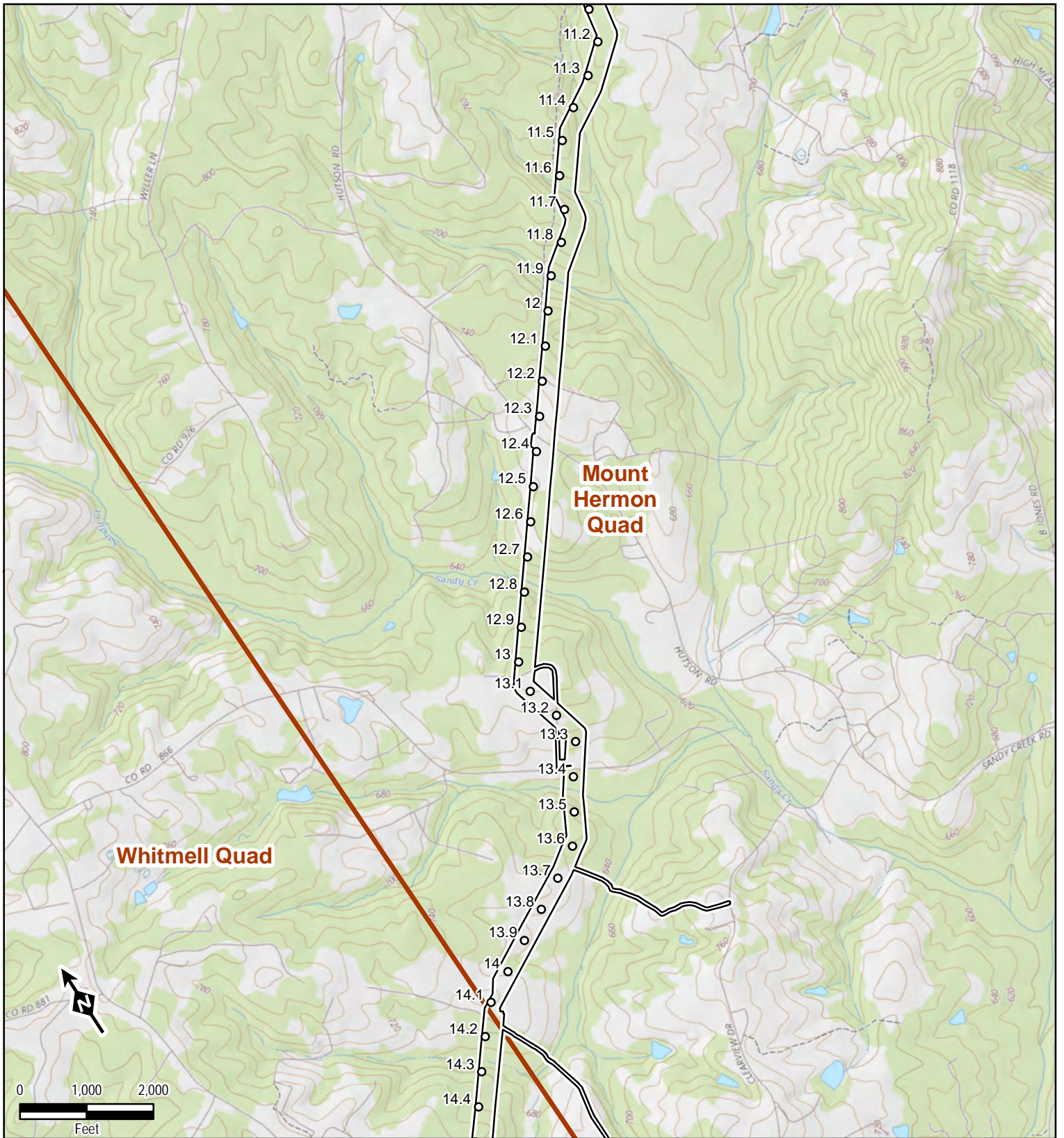
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Figure 2
USGS Quad Maps
Pittsylvania County, VA

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Legend

- Mileposts
- ▭ Survey Area
- ▭ USGS Topo Quad Boundary
- - - State Boundary
- - - County Boundary

Data Sources: ESRI, USGS, TRC, EQT

1 inch = 2,000 feet
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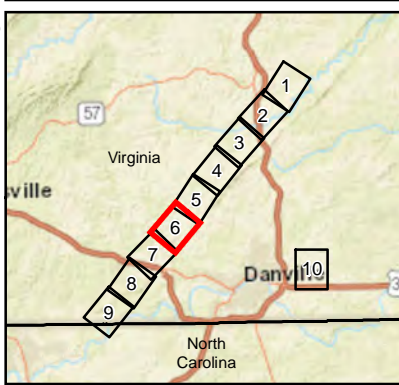
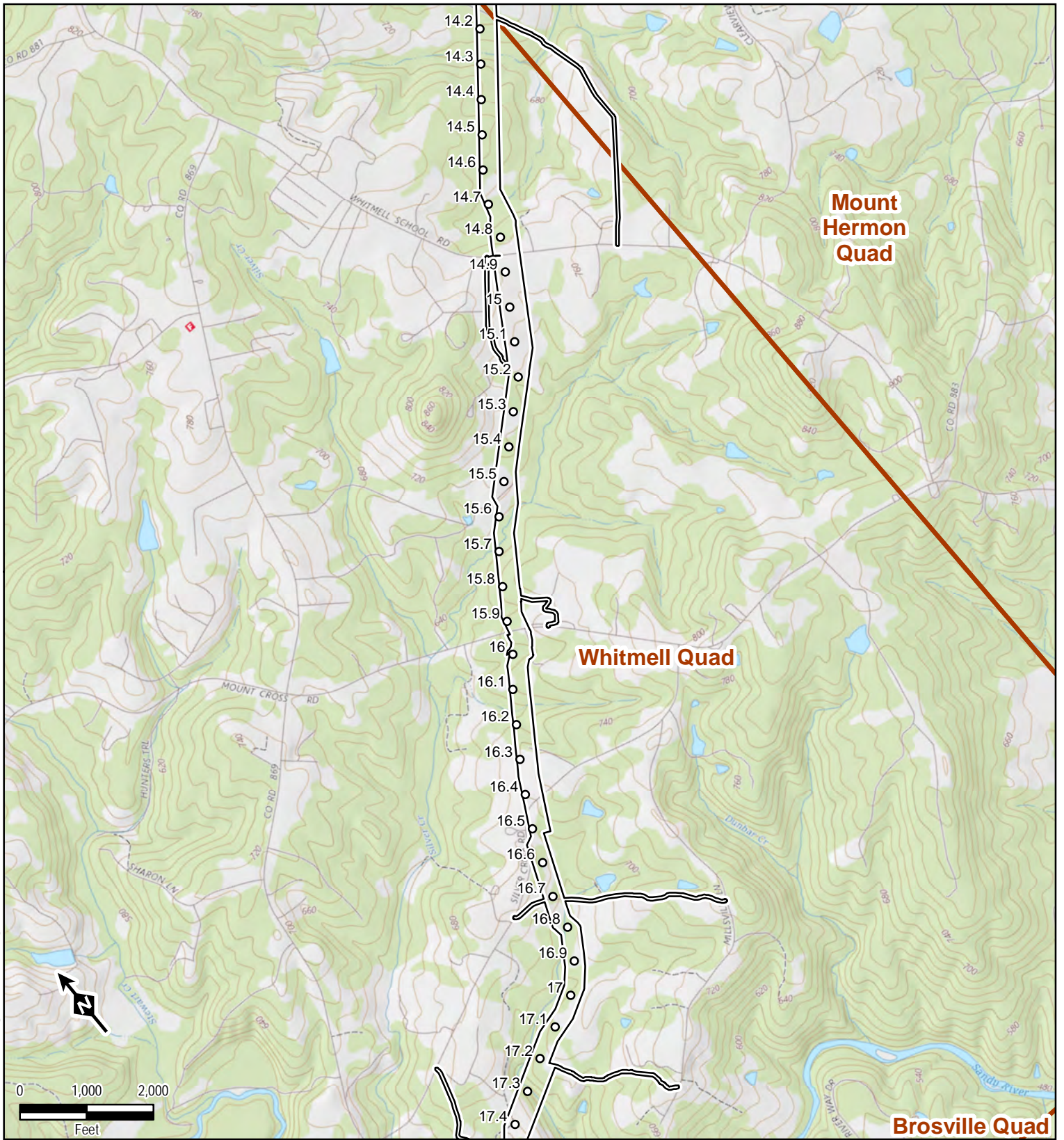
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Figure 2
USGS Quad Maps
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- Legend**
- Mileposts
 - ▭ Survey Area
 - ▭ USGS Topo Quad Boundary
 - ▭ State Boundary
 - ▭ County Boundary

Data Sources: ESRI, USGS, TRC, EQT

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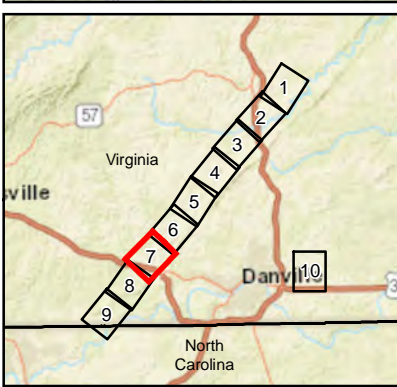
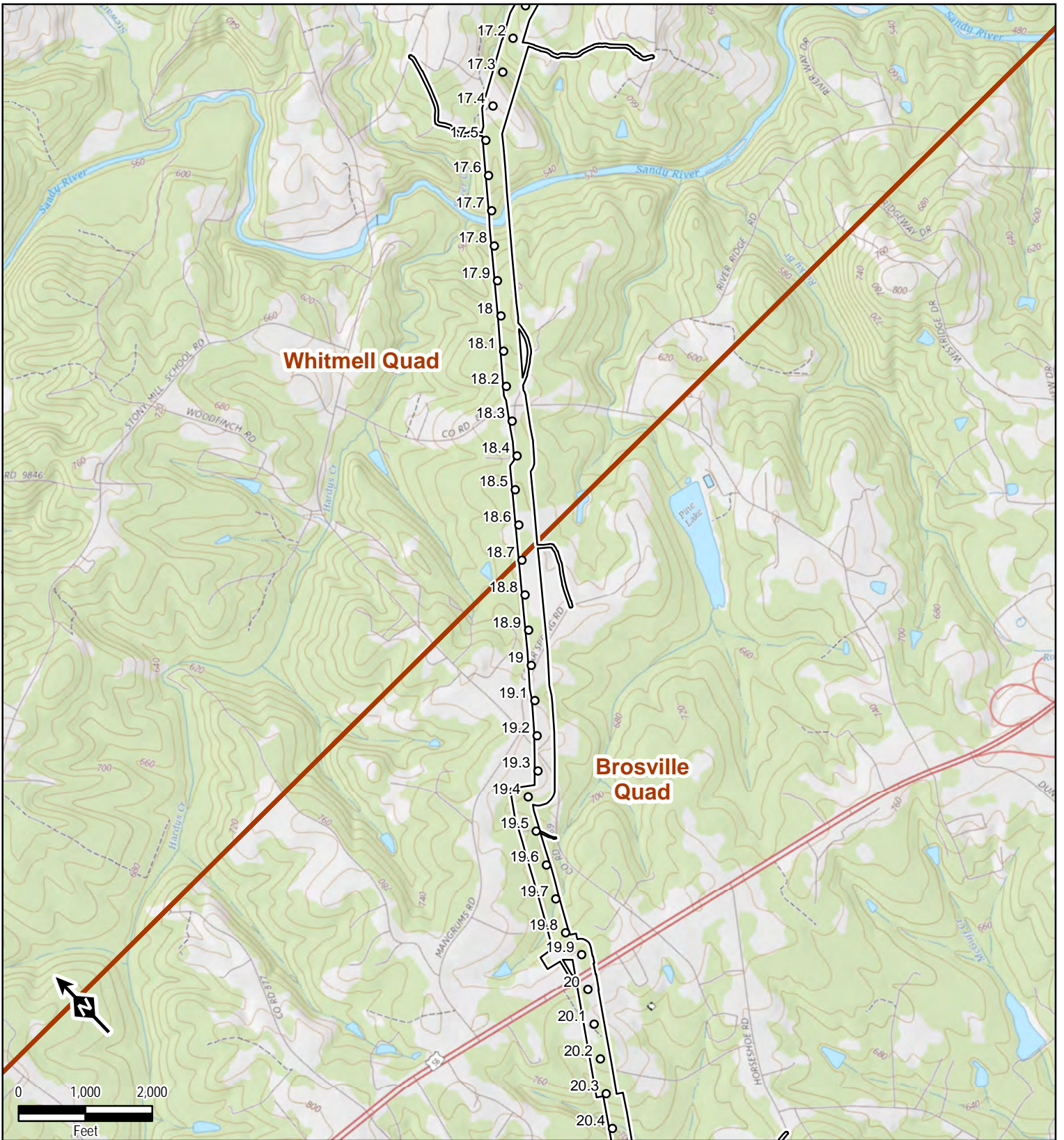


Figure 2
USGS Quad Maps
Pittsylvania County, VA



600 Willowbrook Ln
West Chester, PA 19382
October 2018

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Legend

- Mileposts
- ▭ Survey Area
- ▭ USGS Topo Quad Boundary
- ▭ State Boundary
- ▭ County Boundary

Data Sources: ESRI, USGS, TRC, EQT

1 inch = 2,000 feet
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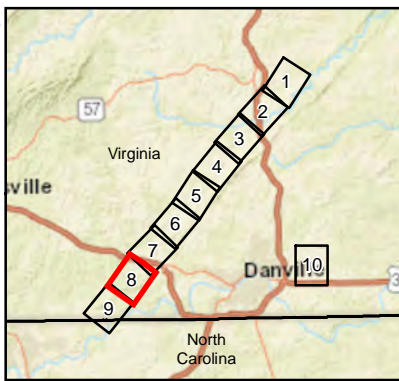
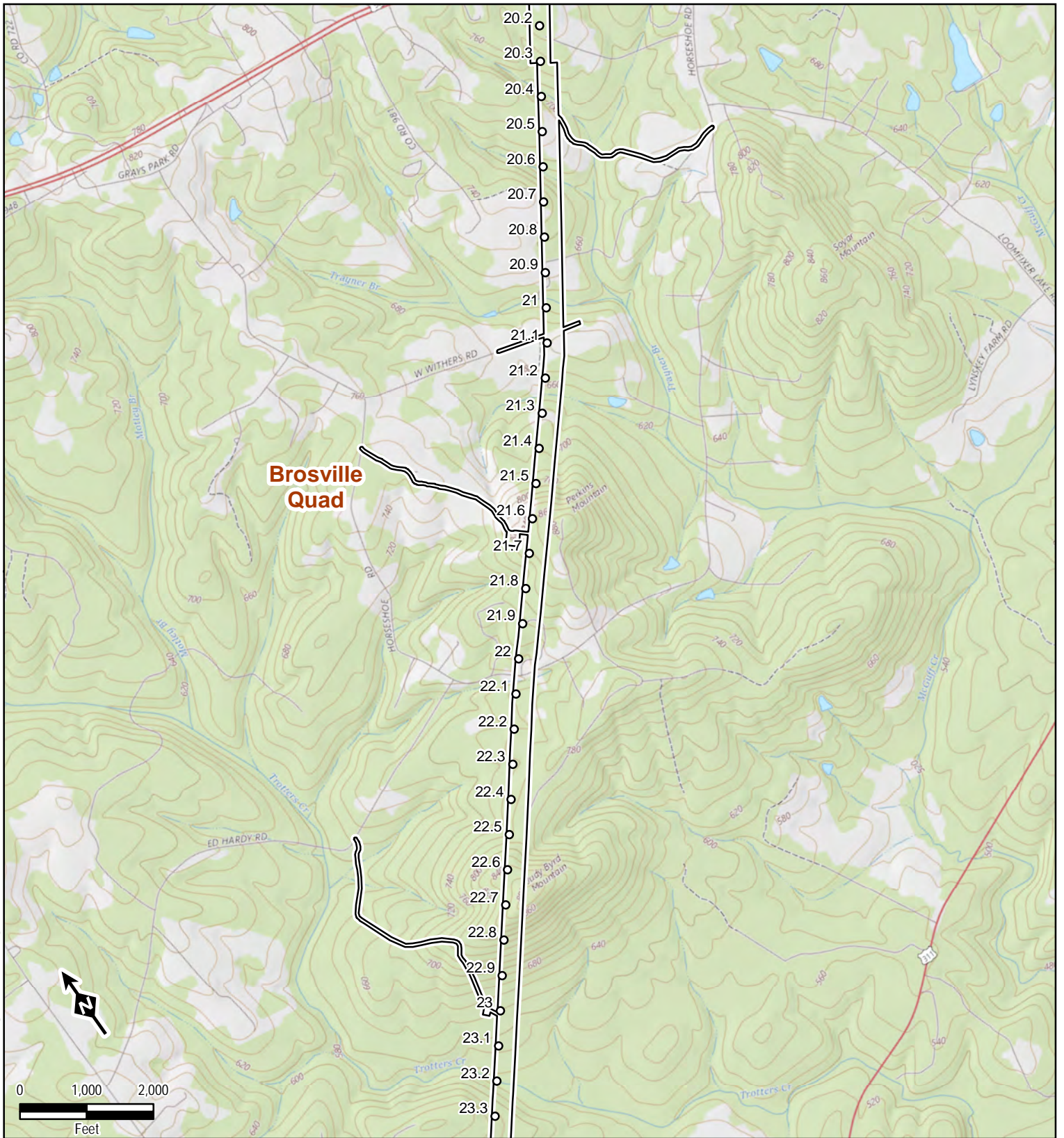
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Figure 2
USGS Quad Maps
Pittsylvania County, VA

TRC
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Legend

- Mileposts
- ▭ Survey Area
- ▭ USGS Topo Quad Boundary
- ▭ State Boundary
- ▭ County Boundary

Data Sources: ESRI, USGS, TRC, EQT

1 inch = 2,000 feet
When Printed 8.5x11

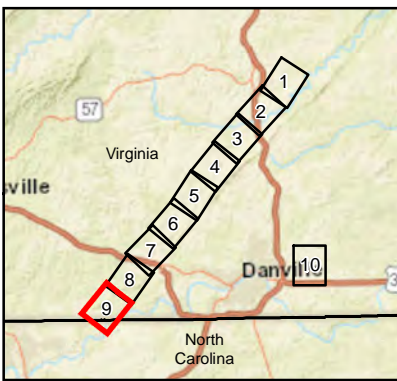
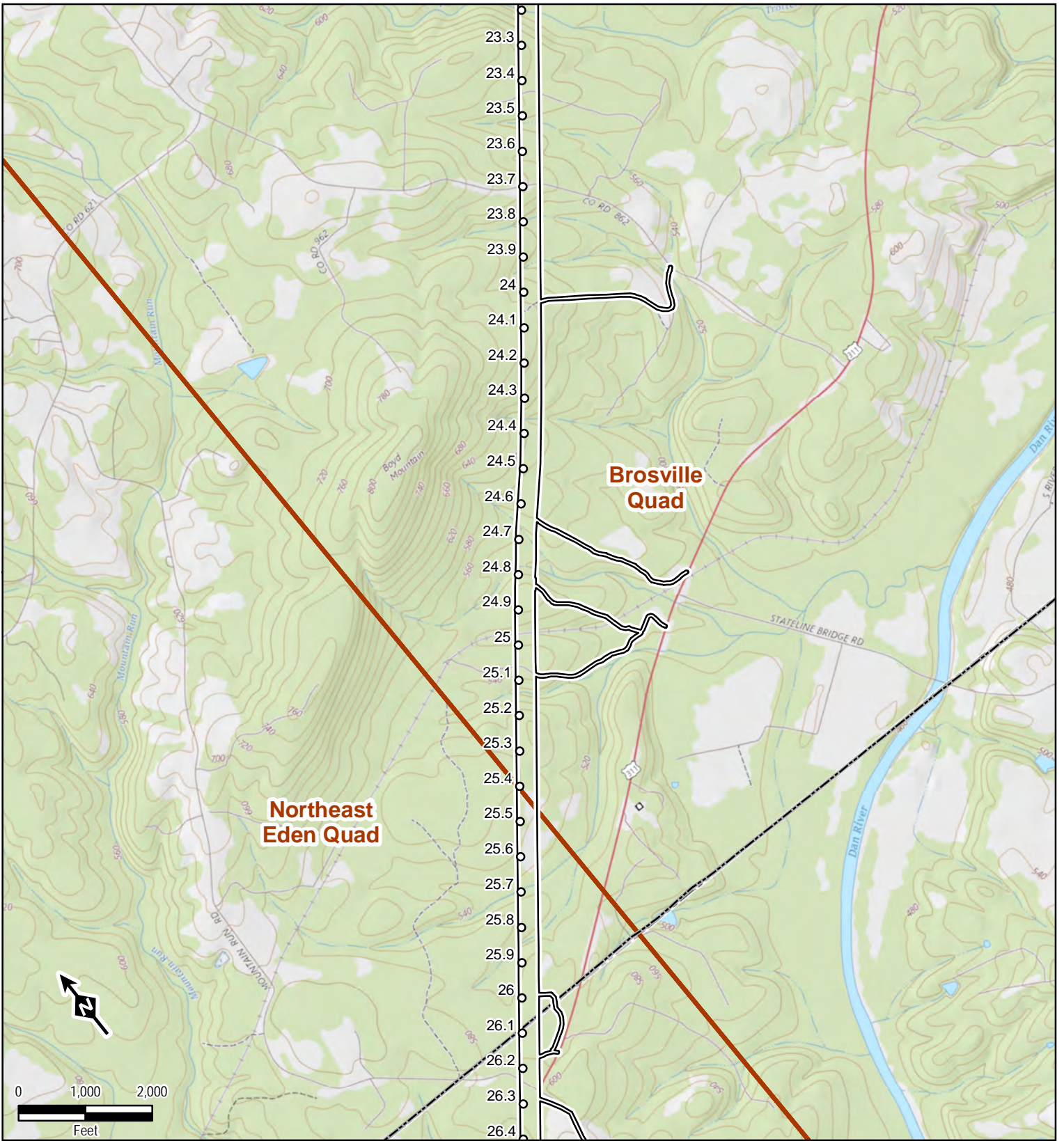
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Figure 2
USGS Quad Maps
Pittsylvania County, VA

TRC
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600 Willowbrook Ln
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- Legend**
- Mileposts
 - ▭ Survey Area
 - ▭ USGS Topo Quad Boundary
 - ▭ State Boundary
 - ▭ County Boundary

Data Sources: ESRI, USGS, TRC, EQT

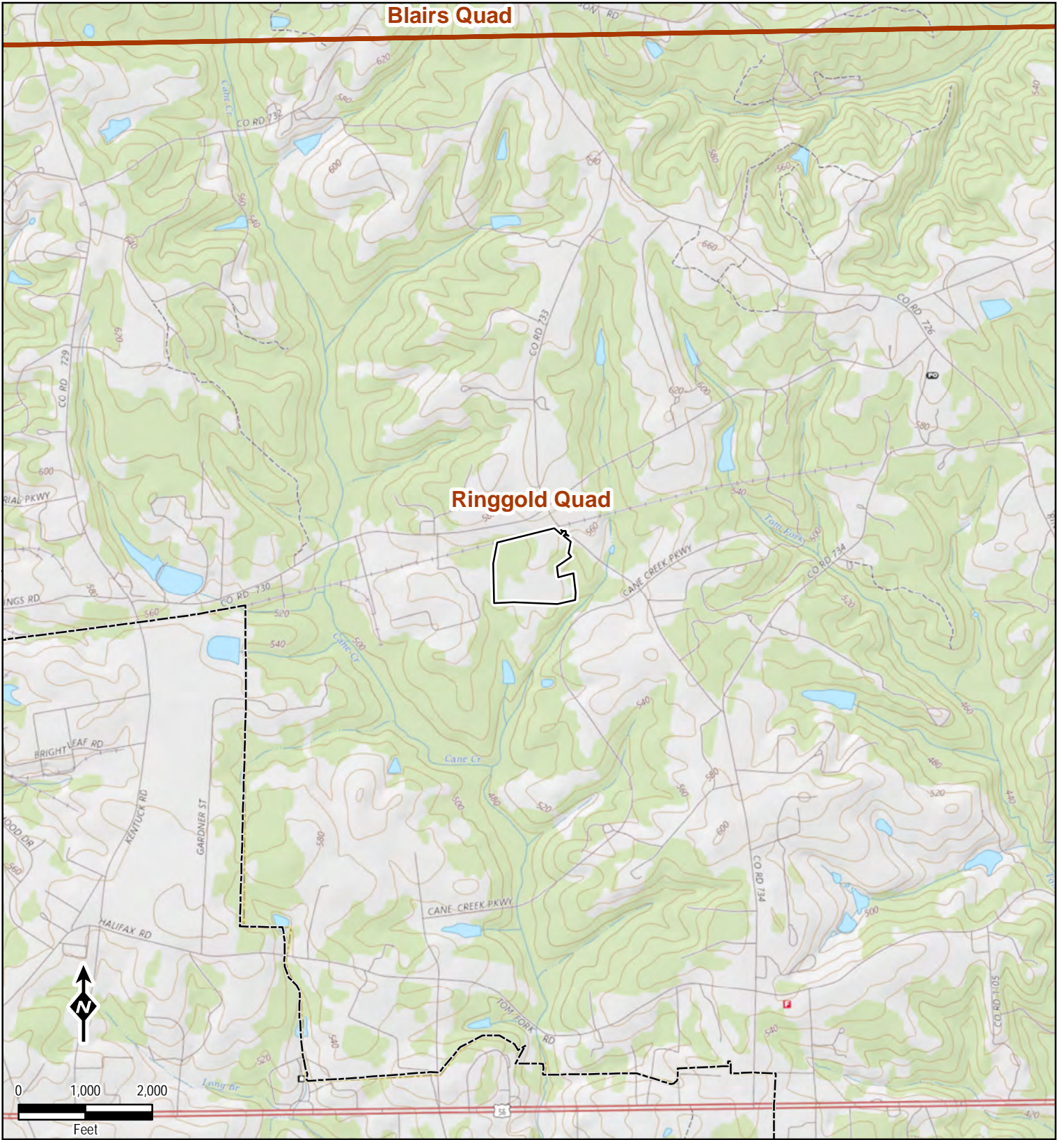
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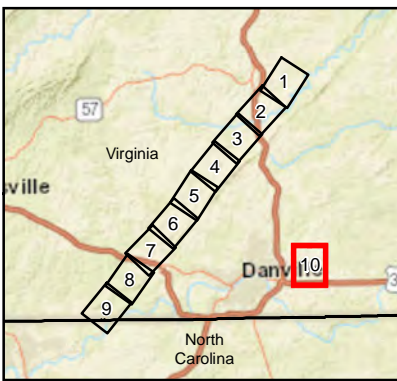
Figure 2
USGS Quad Maps
Pittsylvania County, VA

Blairs Quad

Ringgold Quad



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Legend

- Mileposts
- ▭ Survey Area
- ▭ USGS Topo Quad Boundary
- ▭ State Boundary
- ▭ County Boundary

Data Sources: ESRI, USGS, TRC, EQT

1 inch = 2,000 feet
When Printed 8.5x11

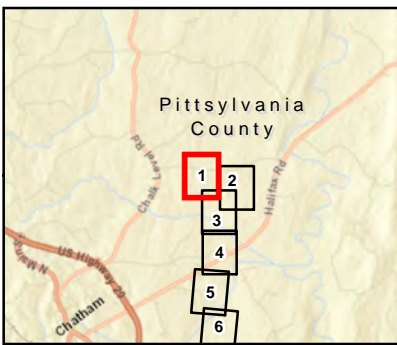
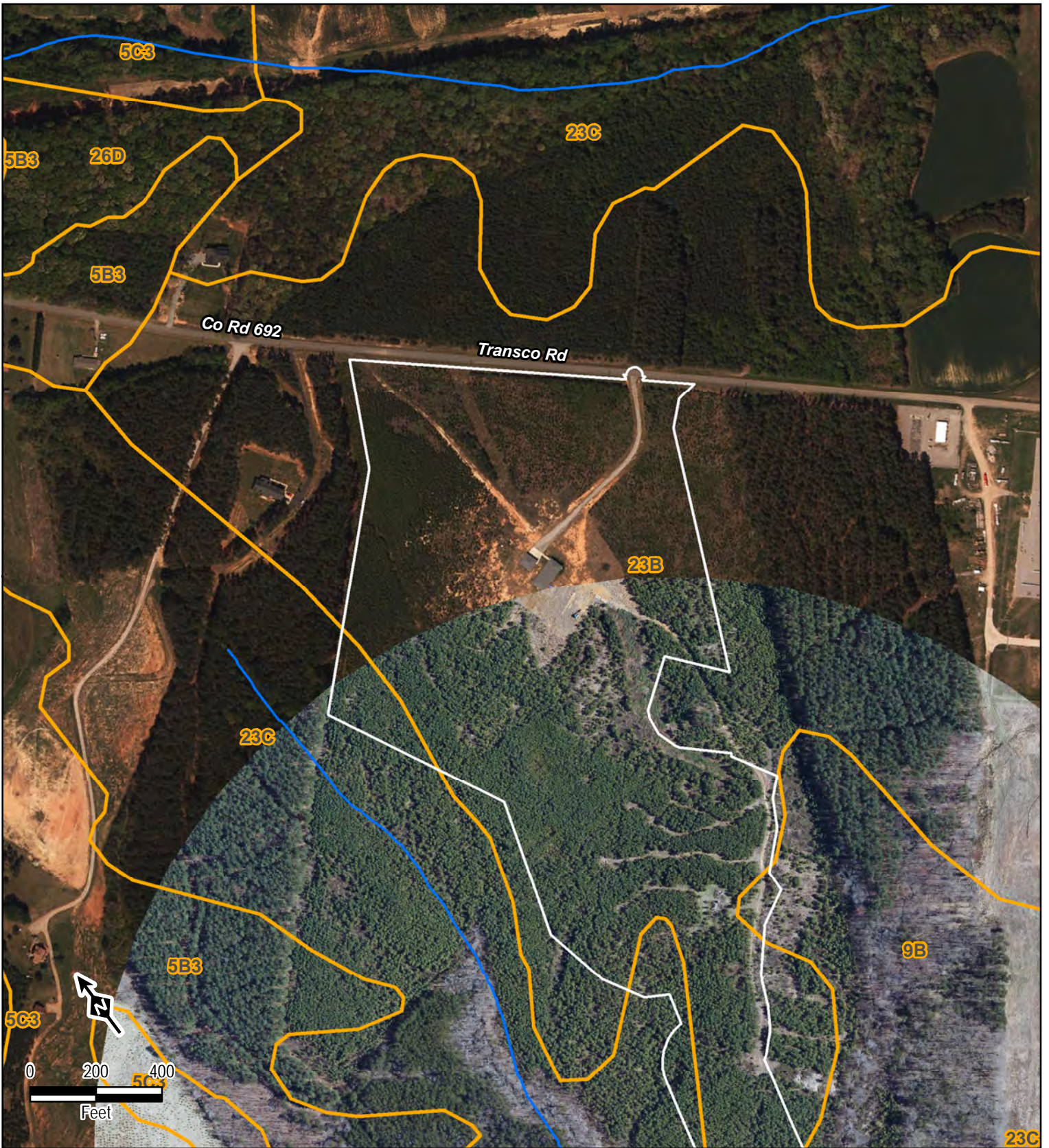


Figure 2
USGS Quad Maps
Pittsylvania County, VA



600 Willowbrook Ln
West Chester, PA 19382
October 2018

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Legend

Survey Area	NHD Flowline
State Boundary	NHD Waterbody
County Boundary	NWI Wetland
FEMA 100yr Flood Hazard Area	SSURGO Soils

Note: Soil types can be found in the "SSURGO Soil Types within the Survey Area" table.
 NWI types can be found in the "NWI Types within the Survey Area" table.

Data Sources: ESRI, USGS, USDA, USFWS, FEMA, EQT

1 inch = 400 feet
 When Printed 8.5x11

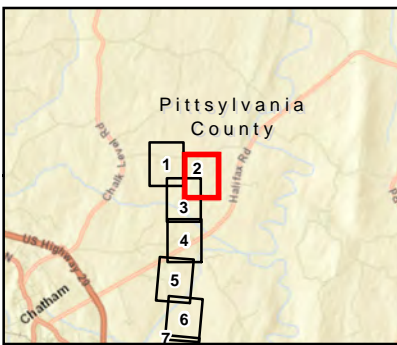
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Figure 3
 Soils, NWI, NHD Aerial Maps
 Pittsylvania County, Virginia
 Sheet 1 of 54

TRC
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Legend

Survey Area	NHD Flowline
State Boundary	NHD Waterbody
County Boundary	NWI Wetland
FEMA 100yr Flood Hazard Area	SSURGO Soils

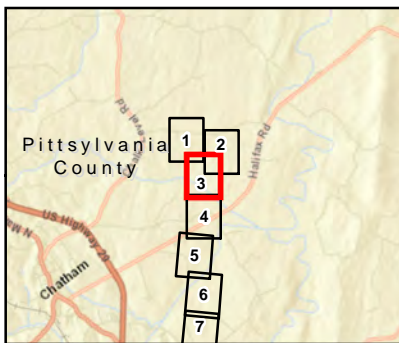
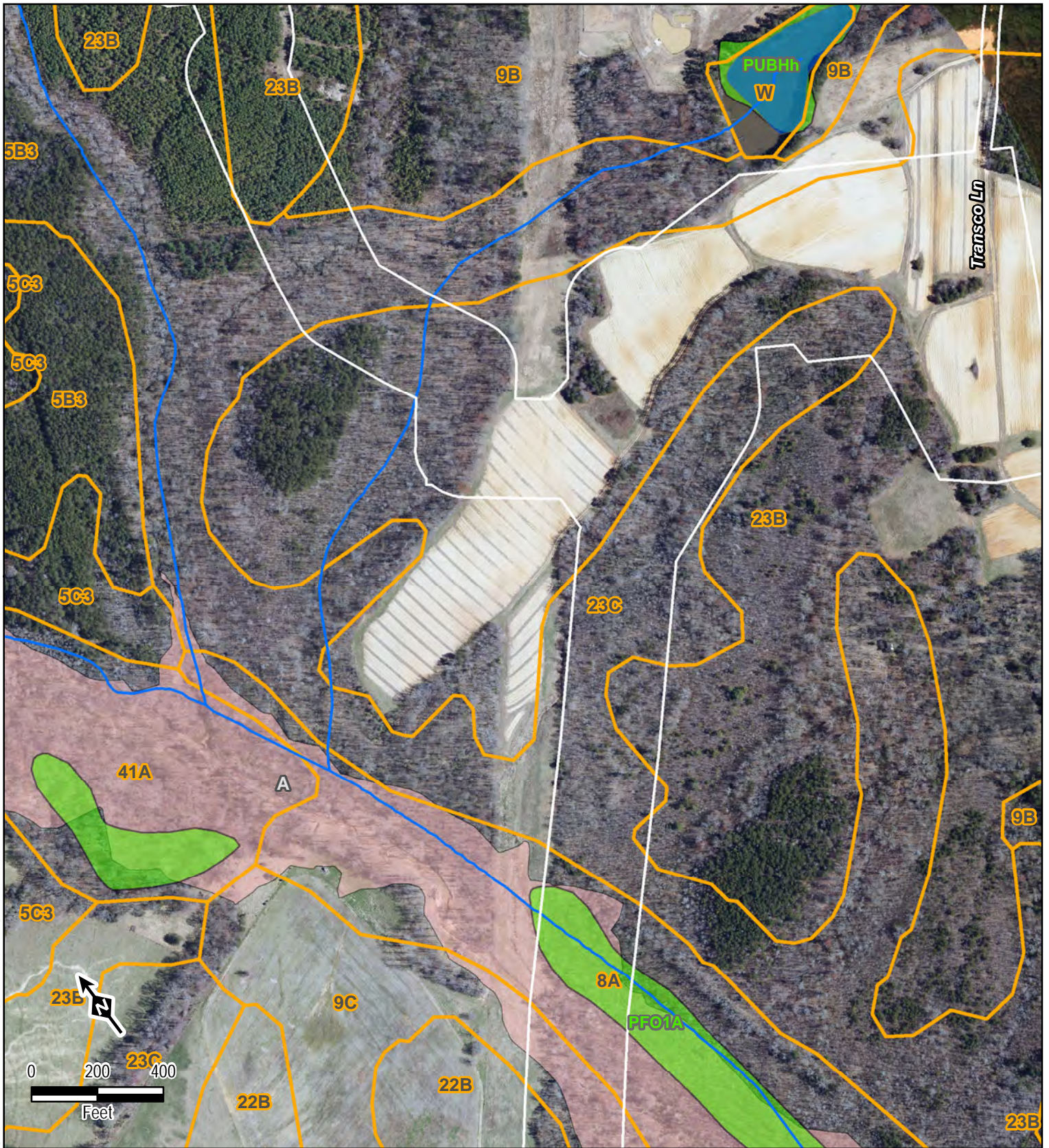
Note: Soil types can be found in the "SSURGO Soil Types within the Survey Area" table.
 NWI types can be found in the "NWI Types within the Survey Area" table.

Data Sources: ESRI, USGS, USDA, USFWS, FEMA, EQT

1 inch = 400 feet
 When Printed 8.5x11

Figure 3
 Soils, NWI, NHD Aerial Maps
 Pittsylvania County, Virginia
 Sheet 2 of 54

600 Willowbrook Ln
 West Chester, PA 19382
 October 2018



Legend

Survey Area	NHD Flowline
State Boundary	NHD Waterbody
County Boundary	NWI Wetland
FEMA 100yr Flood Hazard Area	SSURGO Soils

Note: Soil types can be found in the "SSURGO Soil Types within the Survey Area" table.
 NWI types can be found in the "NWI Types within the Survey Area" table.

Data Sources: ESRI, USGS, USDA, USFWS, FEMA, EQT

1 inch = 400 feet
 When Printed 8.5x11

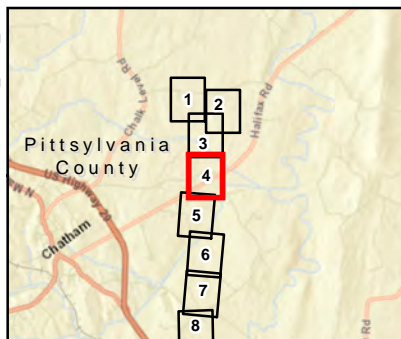
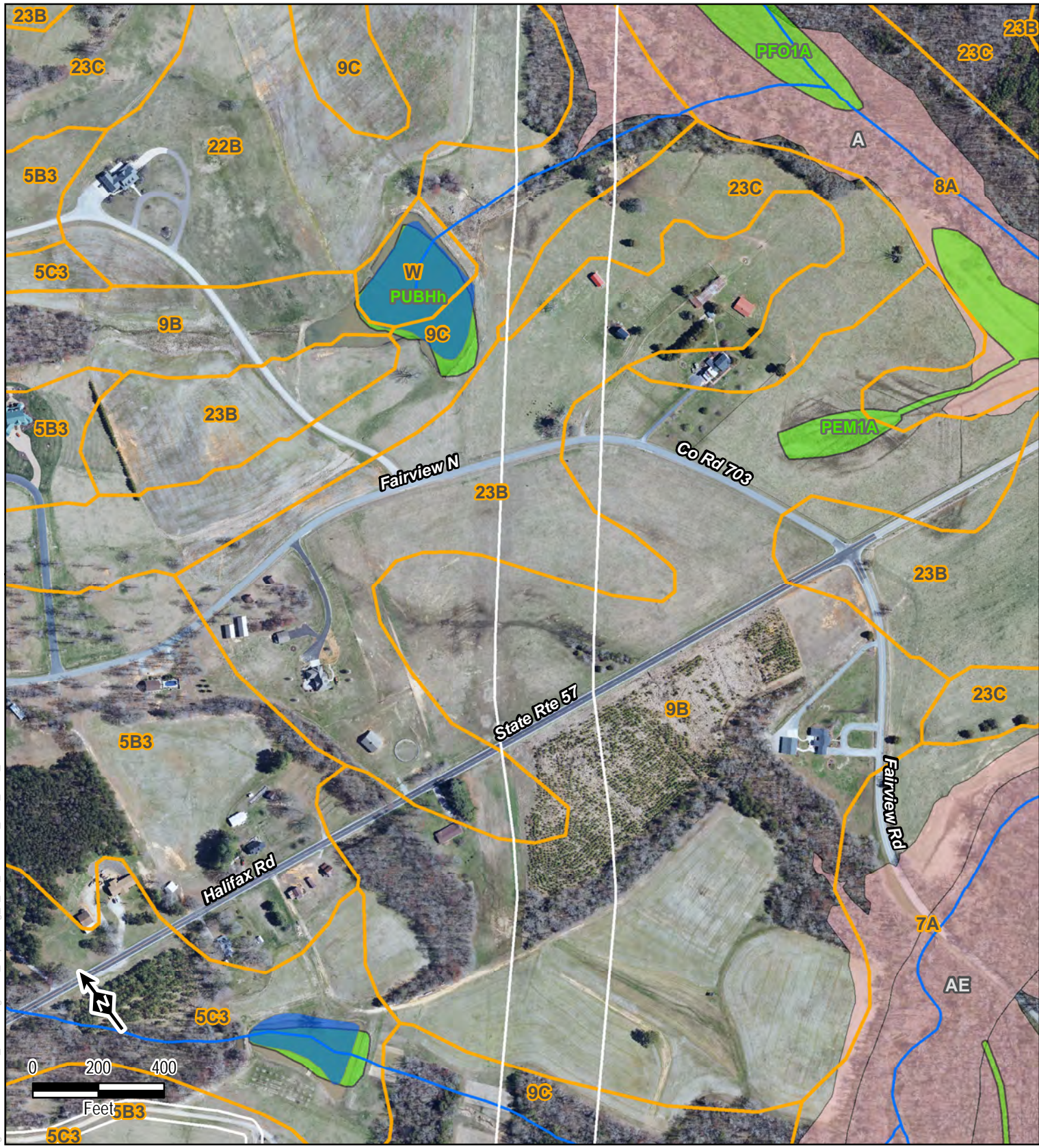
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Figure 3
 Soils, NWI, NHD Aerial Maps
 Pittsylvania County, Virginia
 Sheet 3 of 54

TRC
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600 Willowbrook Ln
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 October 2018

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Legend

Survey Area	NHD Flowline
State Boundary	NHD Waterbody
County Boundary	NWI Wetland
FEMA 100yr Flood Hazard Area	SSURGO Soils

Note: Soil types can be found in the "SSURGO Soil Types within the Survey Area" table.
 NWI types can be found in the "NWI Types within the Survey Area" table.

Data Sources: ESRI, USGS, USDA, USFWS, FEMA, EQT

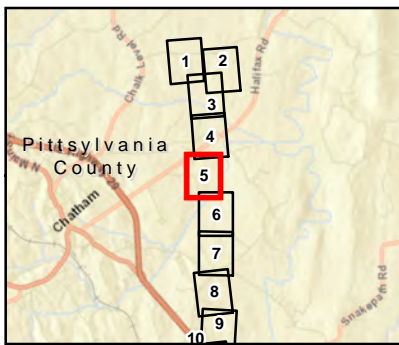
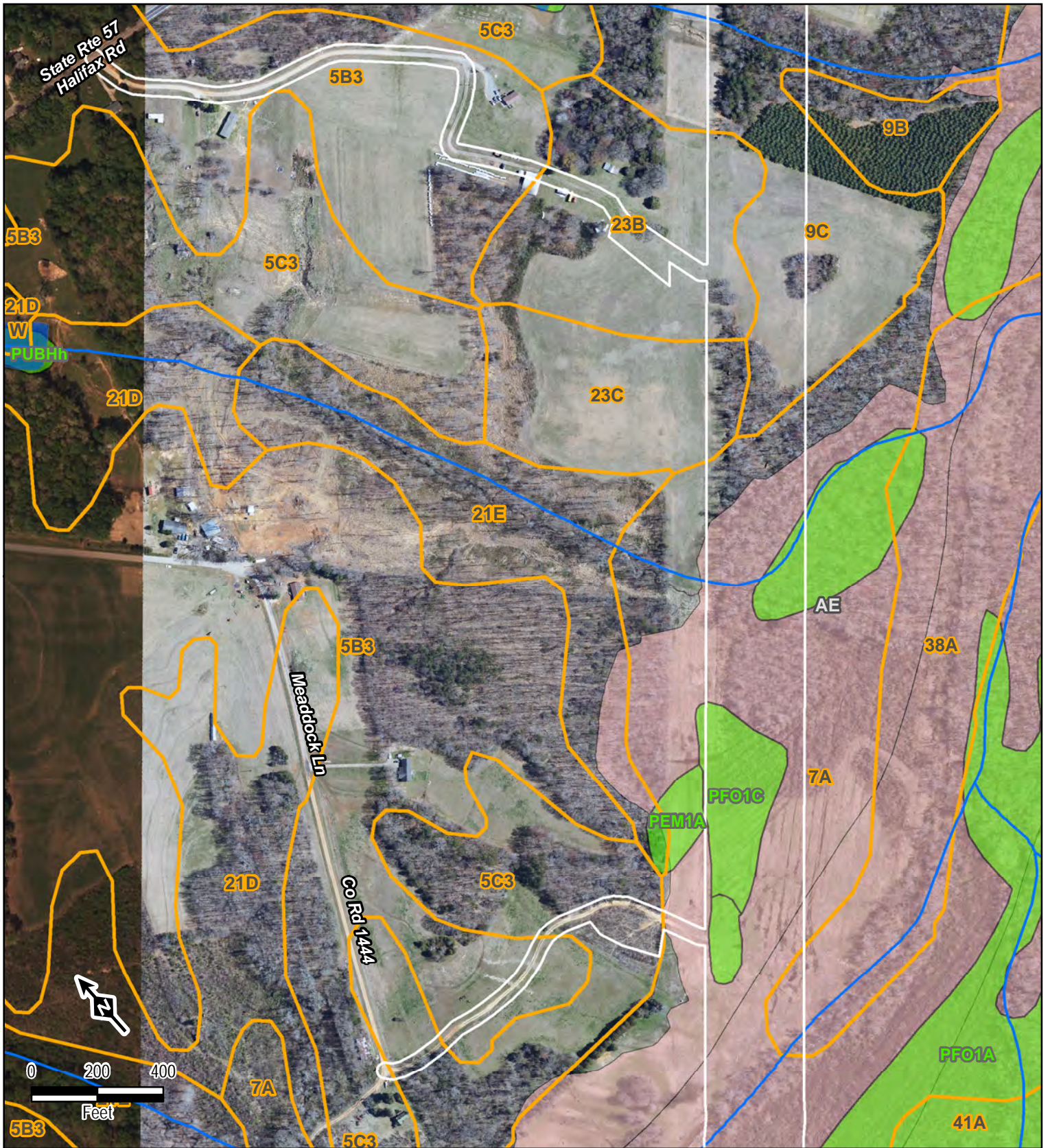
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Figure 3
 Soils, NWI, NHD Aerial Maps
 Pittsylvania County, Virginia
 Sheet 4 of 54

TRC
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600 Willowbrook Ln
 West Chester, PA 19382
 October 2018



Legend

Survey Area	NHD Flowline
State Boundary	NHD Waterbody
County Boundary	NWI Wetland
FEMA 100yr Flood Hazard Area	SSURGO Soils

Note: Soil types can be found in the "SSURGO Soil Types within the Survey Area" table.
 NWI types can be found in the "NWI Types within the Survey Area" table.

Data Sources: ESRI, USGS, USDA, USFWS, FEMA, EQT

1 inch = 400 feet
 When Printed 8.5x11

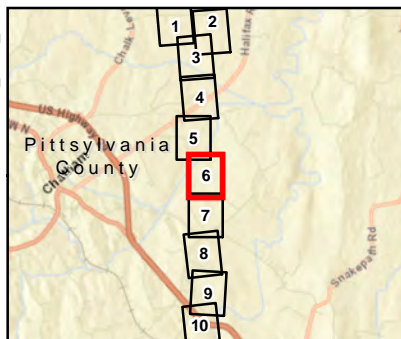
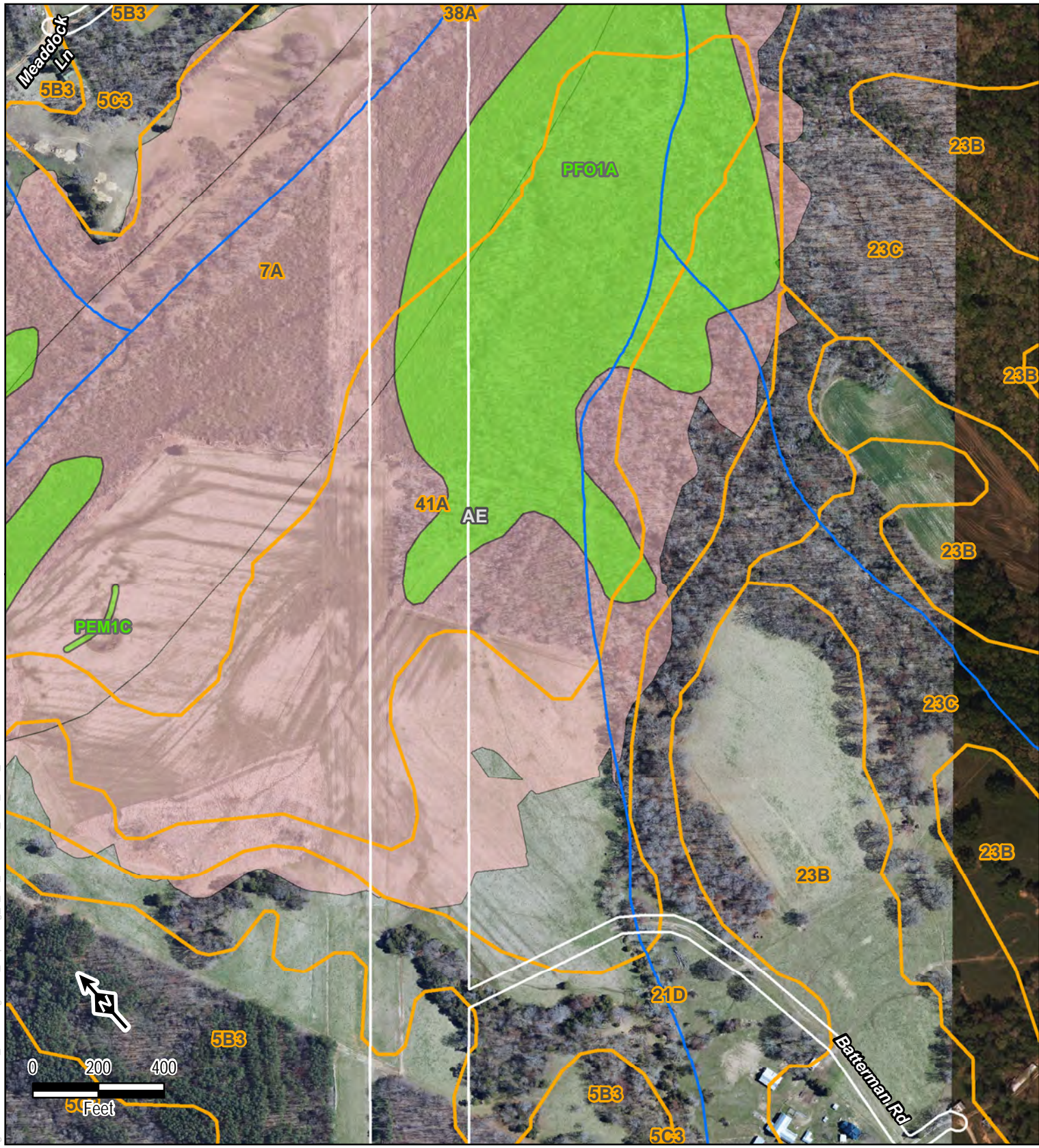
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Figure 3
 Soils, NWI, NHD Aerial Maps
 Pittsylvania County, Virginia
 Sheet 5 of 54

TRC
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600 Willowbrook Ln
 West Chester, PA 19382
 October 2018

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Legend

Survey Area	NHD Flowline
State Boundary	NHD Waterbody
County Boundary	NWI Wetland
FEMA 100yr Flood Hazard Area	SSURGO Soils

Note: Soil types can be found in the "SSURGO Soil Types within the Survey Area" table.
 NWI types can be found in the "NWI Types within the Survey Area" table.

Data Sources: ESRI, USGS, USDA, USFWS, FEMA, EQT

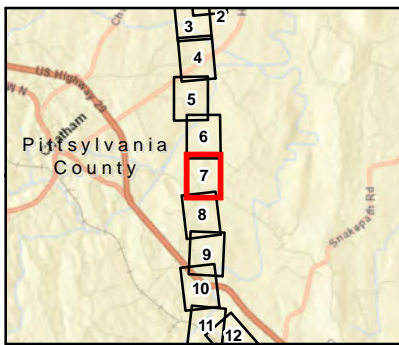
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Figure 3
 Soils, NWI, NHD Aerial Maps
 Pittsylvania County, Virginia
 Sheet 6 of 54

TRC
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600 Willowbrook Ln
 West Chester, PA 19382
 October 2018



Legend

Survey Area	NHD Flowline
State Boundary	NHD Waterbody
County Boundary	NWI Wetland
FEMA 100yr Flood Hazard Area	SSURGO Soils

Note: Soil types can be found in the "SSURGO Soil Types within the Survey Area" table.
 NWI types can be found in the "NWI Types within the Survey Area" table.

Data Sources: ESRI, USGS, USDA, USFWS, FEMA, EQT

1 inch = 400 feet
 When Printed 8.5x11

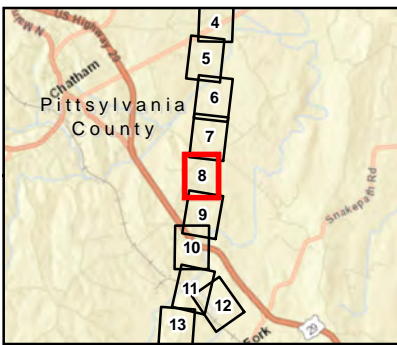
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Figure 3
 Soils, NWI, NHD Aerial Maps
 Pittsylvania County, Virginia
 Sheet 7 of 54

TRC
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 October 2018

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Legend

Survey Area	NHD Flowline
State Boundary	NHD Waterbody
County Boundary	NWI Wetland
FEMA 100yr Flood Hazard Area	SSURGO Soils

Note: Soil types can be found in the "SSURGO Soil Types within the Survey Area" table.
 NWI types can be found in the "NWI Types within the Survey Area" table.

Data Sources: ESRI, USGS, USDA, USFWS, FEMA, EQT

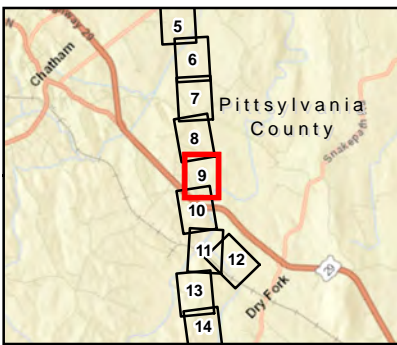
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Figure 3
 Soils, NWI, NHD Aerial Maps
 Pittsylvania County, Virginia
 Sheet 8 of 54

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 West Chester, PA 19382
 October 2018



Legend

Survey Area	NHD Flowline
State Boundary	NHD Waterbody
County Boundary	NWI Wetland
FEMA 100yr Flood Hazard Area	SSURGO Soils

Note: Soil types can be found in the "SSURGO Soil Types within the Survey Area" table.
 NWI types can be found in the "NWI Types within the Survey Area" table.

Data Sources: ESRI, USGS, USDA, USFWS, FEMA, EQT

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 When Printed 8.5x11

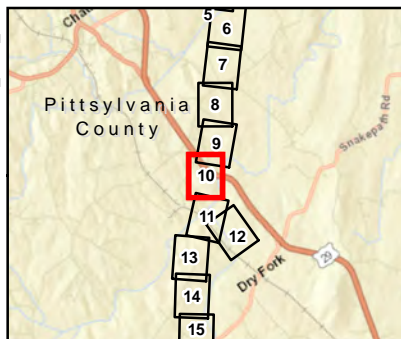
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Figure 3
 Soils, NWI, NHD Aerial Maps
 Pittsylvania County, Virginia
 Sheet 9 of 54

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Legend

Survey Area	NHD Flowline
State Boundary	NHD Waterbody
County Boundary	NWI Wetland
FEMA 100yr Flood Hazard Area	SSURGO Soils

Note: Soil types can be found in the "SSURGO Soil Types within the Survey Area" table.
 NWI types can be found in the "NWI Types within the Survey Area" table.

Data Sources: ESRI, USGS, USDA, USFWS, FEMA, EQT

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 When Printed 8.5x11

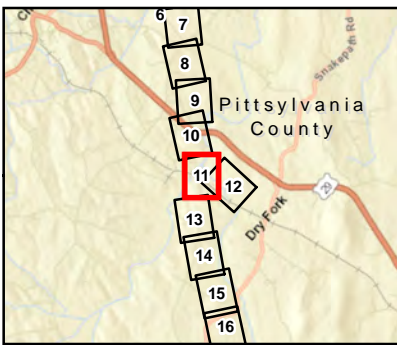
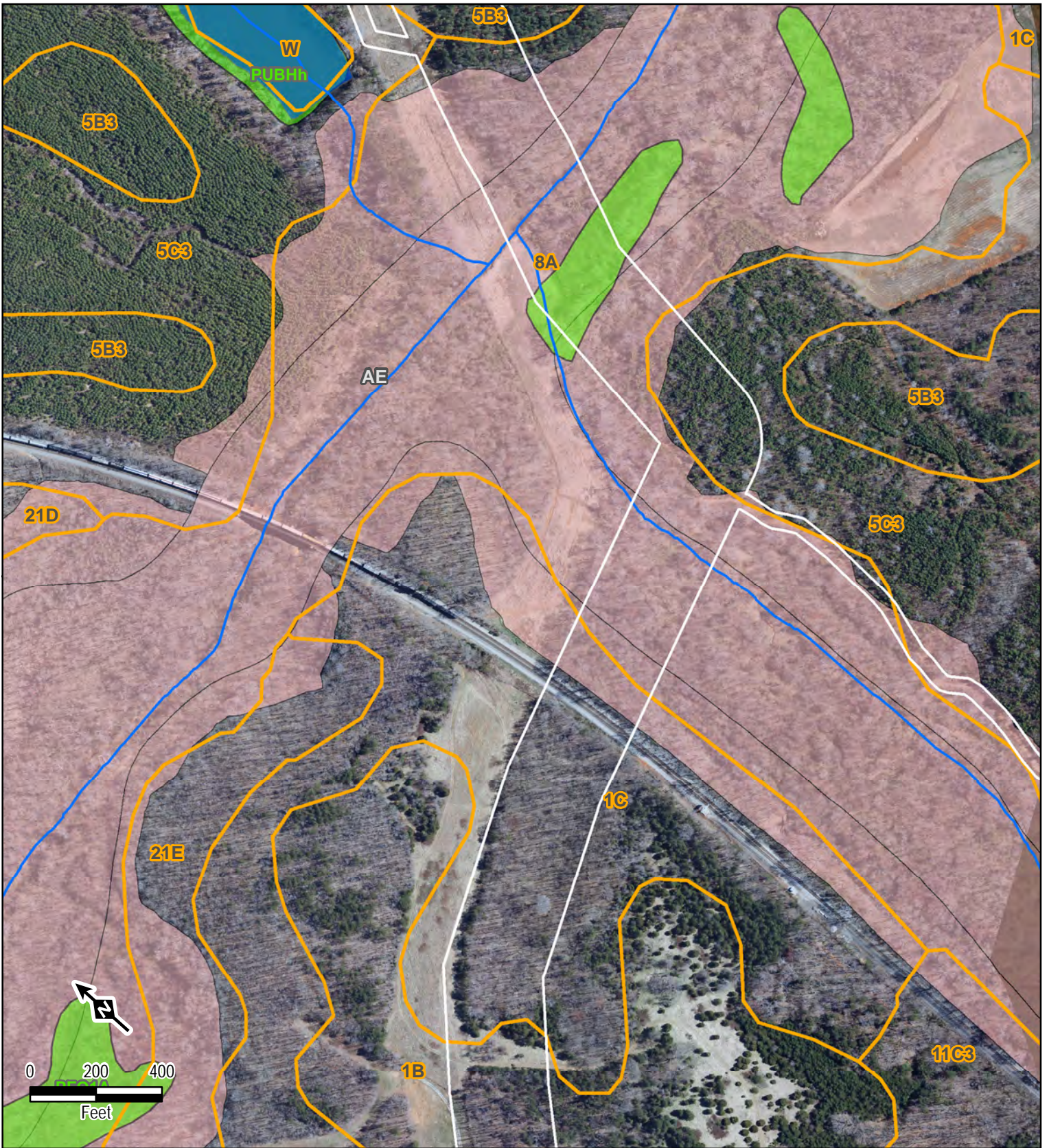
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Figure 3
 Soils, NWI, NHD Aerial Maps
 Pittsylvania County, Virginia
 Sheet 10 of 54

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Legend

Survey Area	NHD Flowline
State Boundary	NHD Waterbody
County Boundary	NWI Wetland
FEMA 100yr Flood Hazard Area	SSURGO Soils

Note: Soil types can be found in the "SSURGO Soil Types within the Survey Area" table.
 NWI types can be found in the "NWI Types within the Survey Area" table.

Data Sources: ESRI, USGS, USDA, USFWS, FEMA, EQT

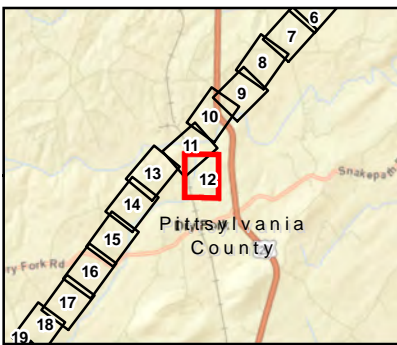
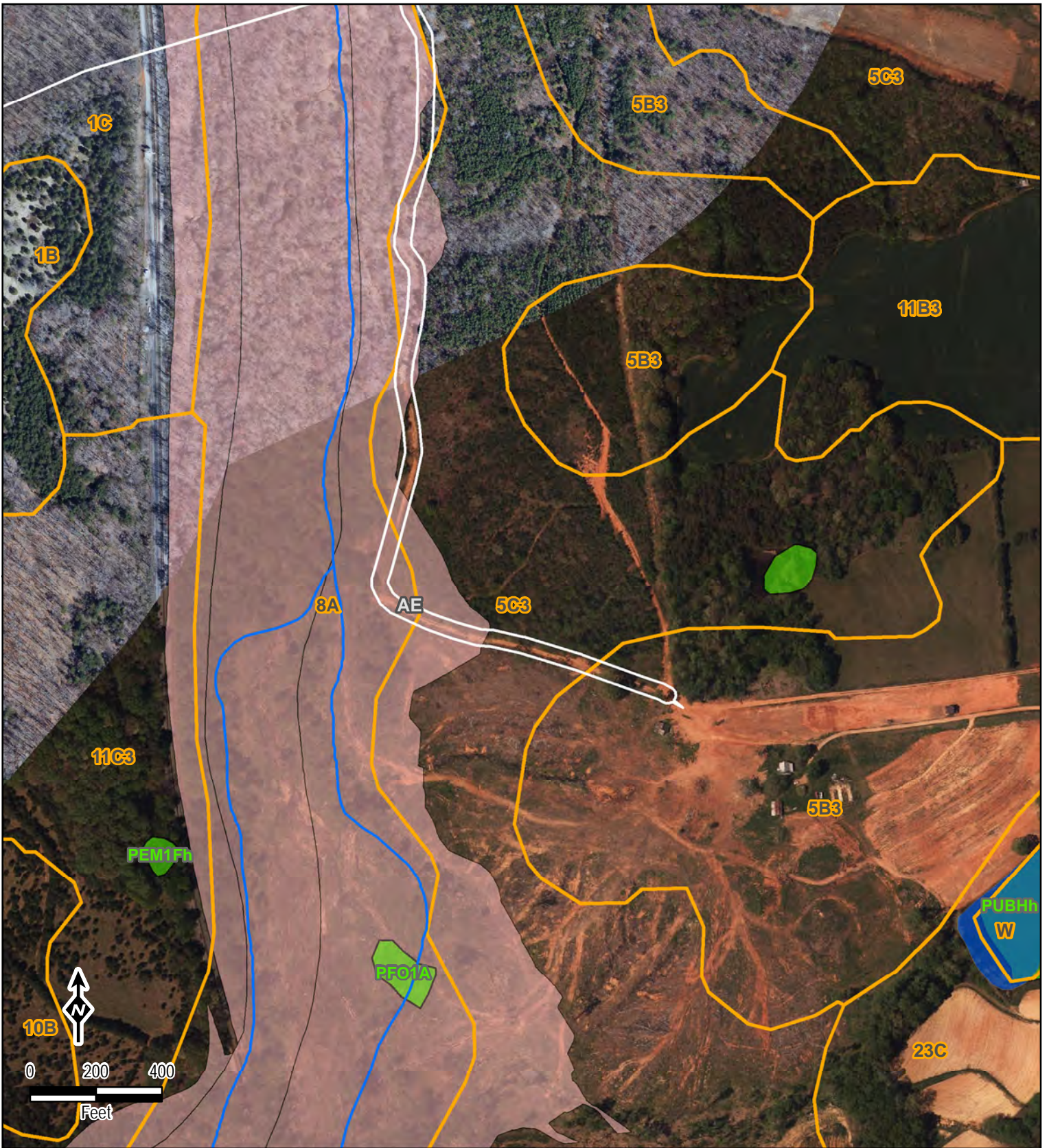
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Figure 3
 Soils, NWI, NHD Aerial Maps
 Pittsylvania County, Virginia
 Sheet 11 of 54

TRC
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 October 2018



Legend

Survey Area	NHD Flowline
State Boundary	NHD Waterbody
County Boundary	NWI Wetland
FEMA 100yr Flood Hazard Area	SSURGO Soils

Note: Soil types can be found in the "SSURGO Soil Types within the Survey Area" table.
 NWI types can be found in the "NWI Types within the Survey Area" table.

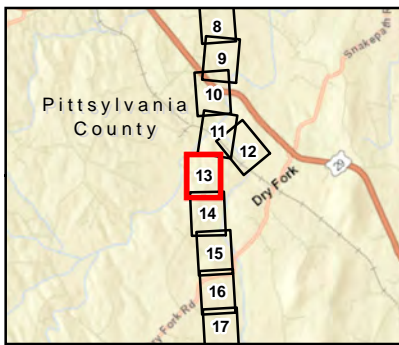
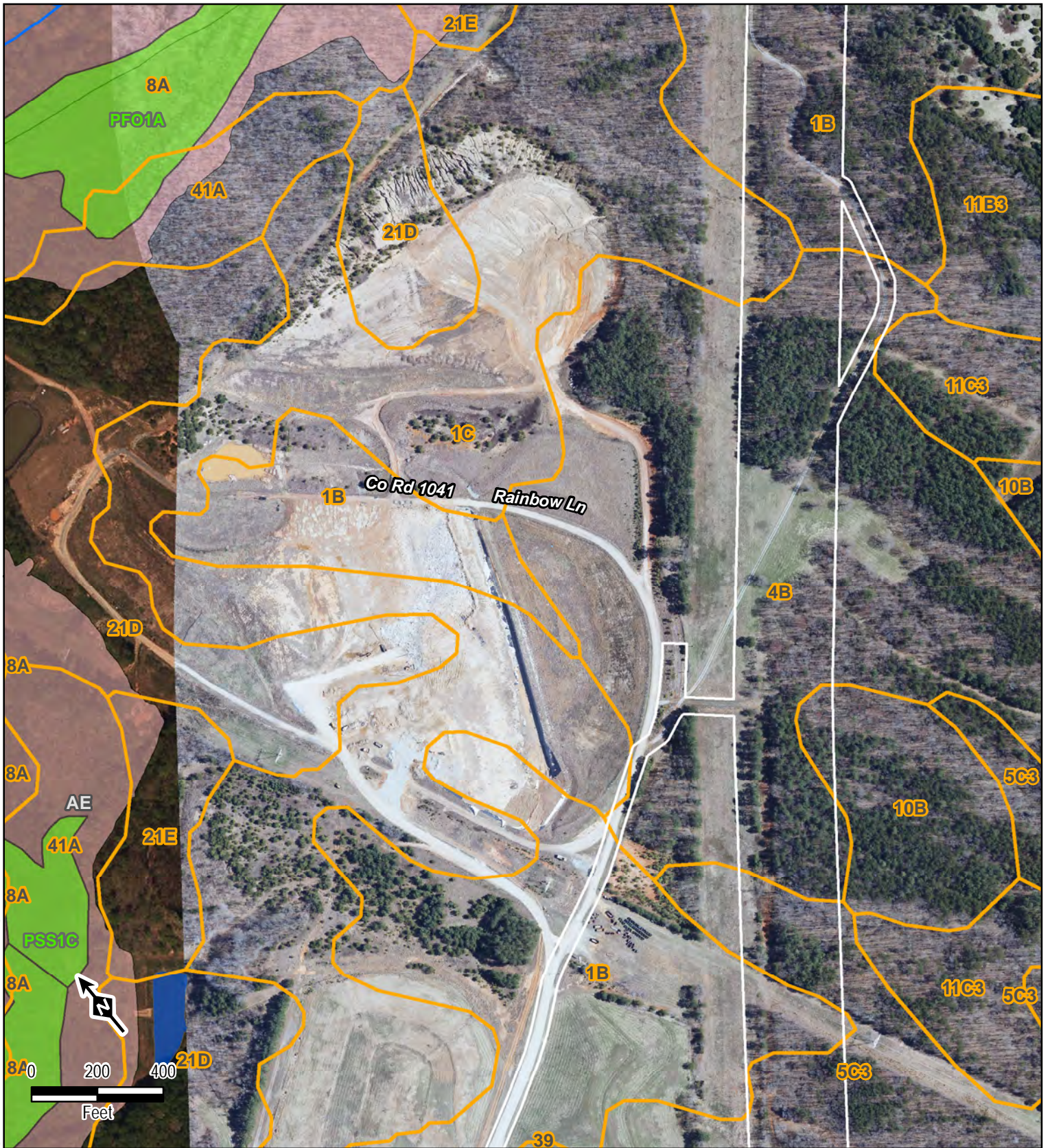
Data Sources: ESRI, USGS, USDA, USFWS, FEMA, EQT

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Figure 3
 Soils, NWI, NHD Aerial Maps
 Pittsylvania County, Virginia
 Sheet 12 of 54

600 Willowbrook Ln
 West Chester, PA 19382
 October 2018

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Legend

Survey Area	NHD Flowline
State Boundary	NHD Waterbody
County Boundary	NWI Wetland
FEMA 100yr Flood Hazard Area	SSURGO Soils

Note: Soil types can be found in the "SSURGO Soil Types within the Survey Area" table.
 NWI types can be found in the "NWI Types within the Survey Area" table.

Data Sources: ESRI, USGS, USDA, USFWS, FEMA, EQT

1 inch = 400 feet
 When Printed 8.5x11

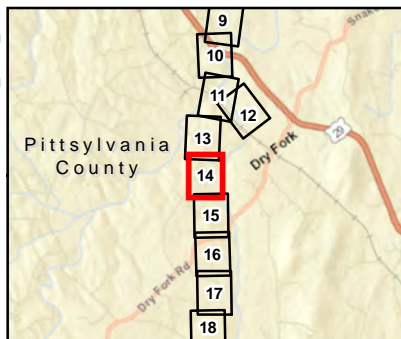
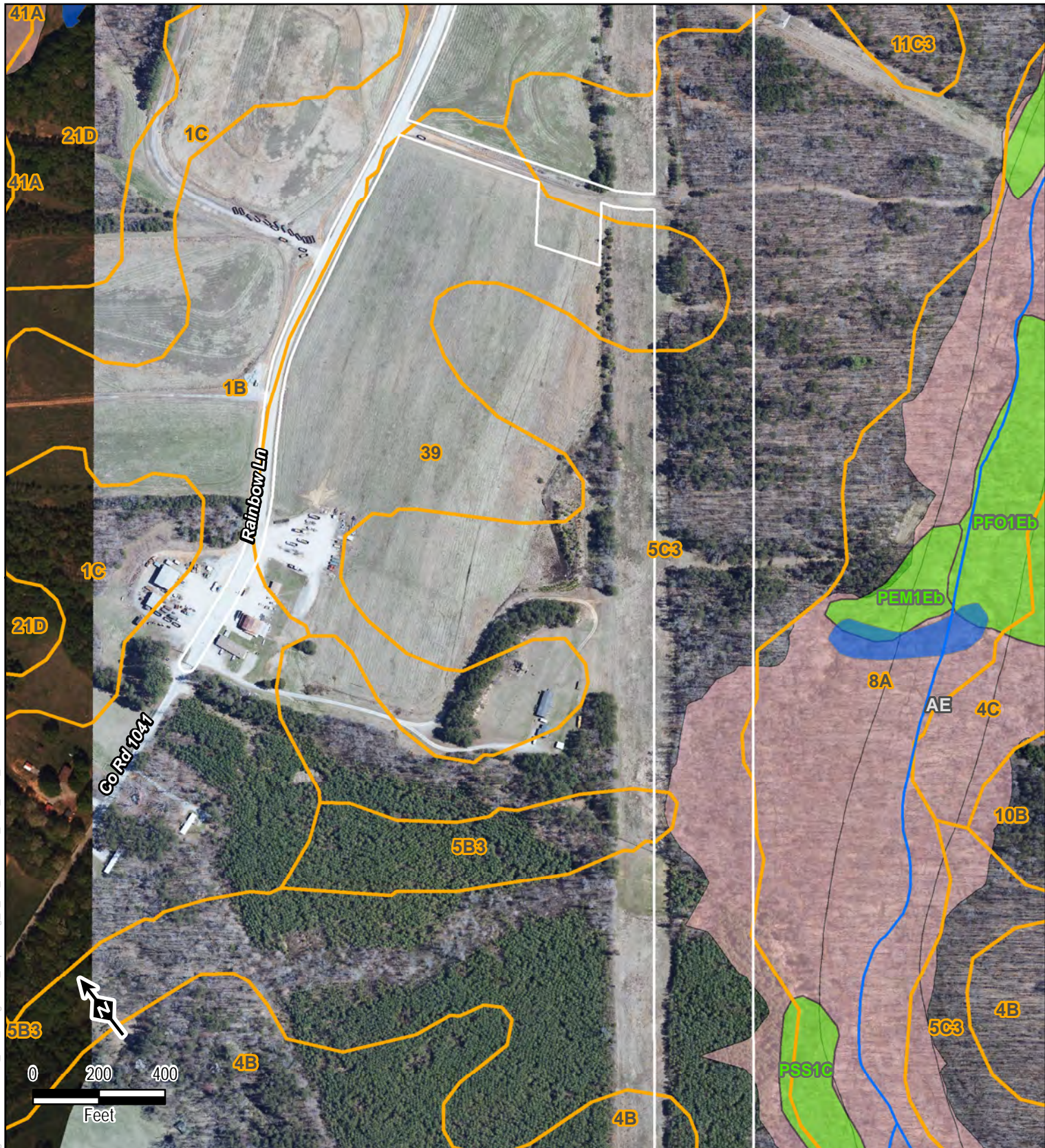
Mountain Valley
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Figure 3
 Soils, NWI, NHD Aerial Maps
 Pittsylvania County, Virginia
 Sheet 13 of 54

TRC
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 West Chester, PA 19382
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Legend

Survey Area	NHD Flowline
State Boundary	NHD Waterbody
County Boundary	NWI Wetland
FEMA 100yr Flood Hazard Area	SSURGO Soils

Note: Soil types can be found in the "SSURGO Soil Types within the Survey Area" table.
 NWI types can be found in the "NWI Types within the Survey Area" table.

Data Sources: ESRI, USGS, USDA, USFWS, FEMA, EQT

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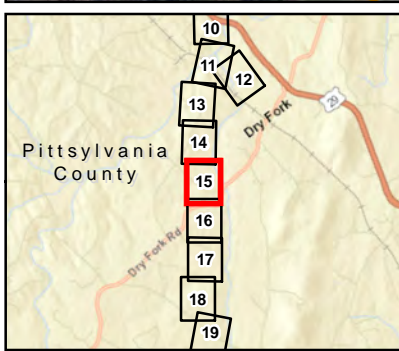
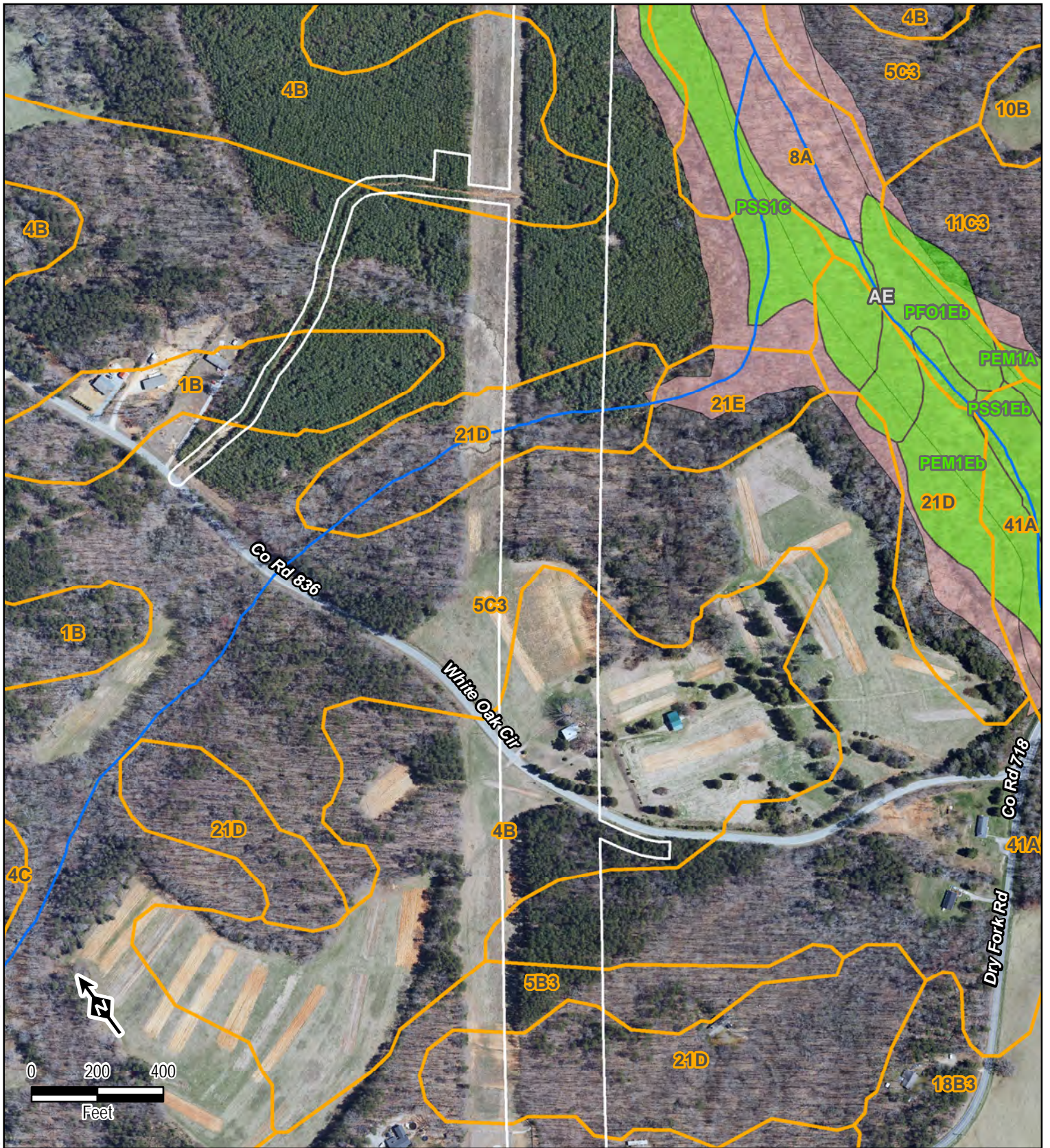
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Figure 3
 Soils, NWI, NHD Aerial Maps
 Pittsylvania County, Virginia
 Sheet 14 of 54

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 West Chester, PA 19382
 October 2018

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Legend

Survey Area	NHD Flowline
State Boundary	NHD Waterbody
County Boundary	NWI Wetland
FEMA 100yr Flood Hazard Area	SSURGO Soils

Note: Soil types can be found in the "SSURGO Soil Types within the Survey Area" table.
 NWI types can be found in the "NWI Types within the Survey Area" table.

Data Sources: ESRI, USGS, USDA, USFWS, FEMA, EQT

1 inch = 400 feet
 When Printed 8.5x11

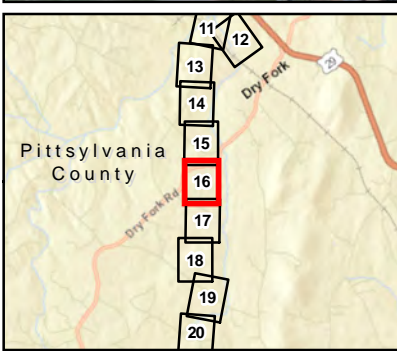
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Figure 3
 Soils, NWI, NHD Aerial Maps
 Pittsylvania County, Virginia
 Sheet 15 of 54

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600 Willowbrook Ln
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 October 2018

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Legend

Survey Area	NHD Flowline
State Boundary	NHD Waterbody
County Boundary	NWI Wetland
FEMA 100yr Flood Hazard Area	SSURGO Soils

Note: Soil types can be found in the "SSURGO Soil Types within the Survey Area" table.
 NWI types can be found in the "NWI Types within the Survey Area" table.

Data Sources: ESRI, USGS, USDA, USFWS, FEMA, EQT

1 inch = 400 feet
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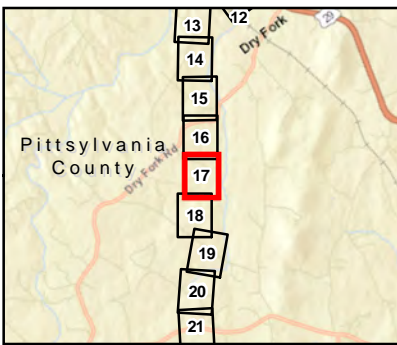
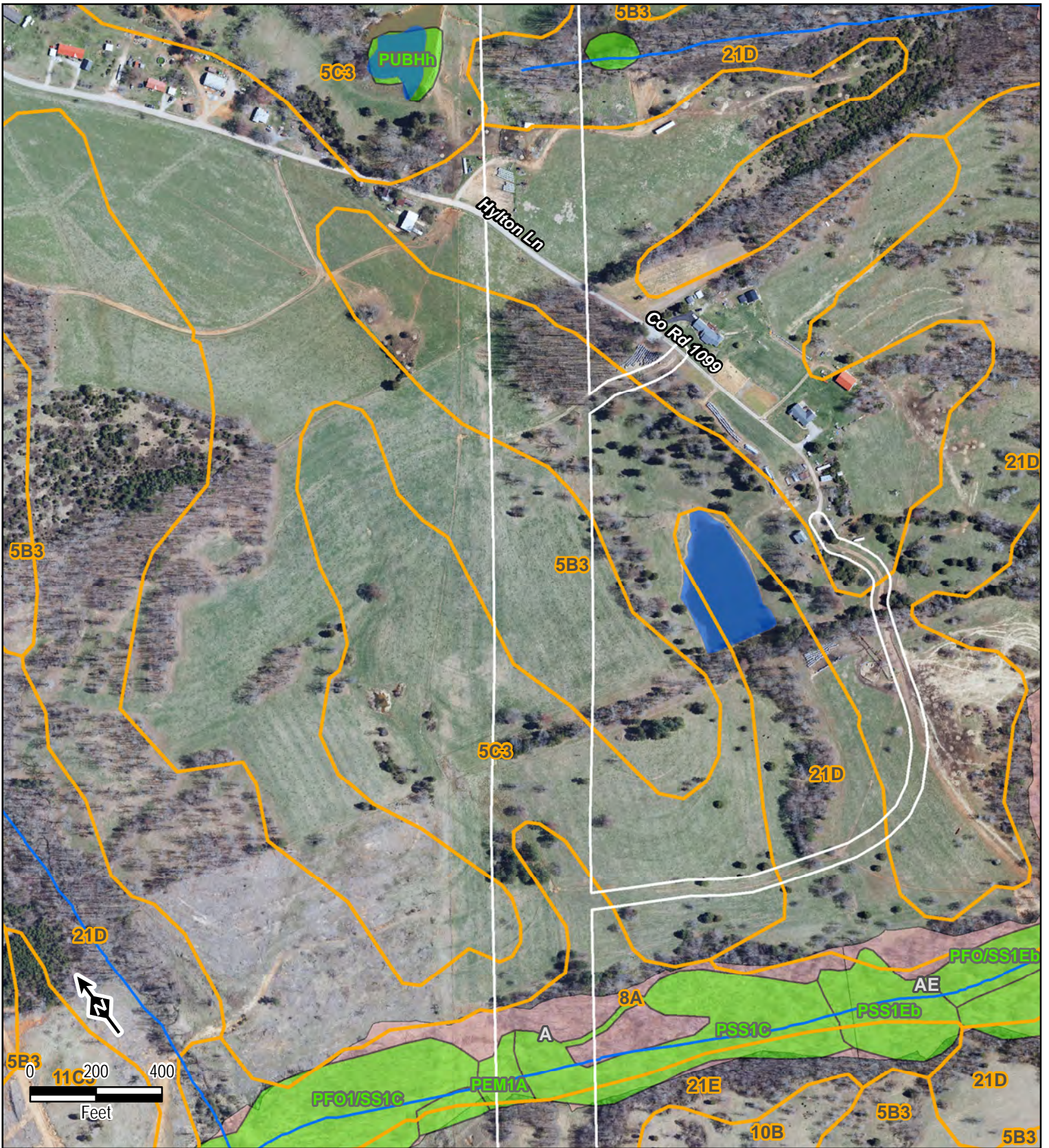
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Figure 3
 Soils, NWI, NHD Aerial Maps
 Pittsylvania County, Virginia
 Sheet 16 of 54

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 October 2018

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Legend

Survey Area	NHD Flowline
State Boundary	NHD Waterbody
County Boundary	NWI Wetland
FEMA 100yr Flood Hazard Area	SSURGO Soils

Note: Soil types can be found in the "SSURGO Soil Types within the Survey Area" table.
 NWI types can be found in the "NWI Types within the Survey Area" table.

Data Sources: ESRI, USGS, USDA, USFWS, FEMA, EQT

1 inch = 400 feet
 When Printed 8.5x11

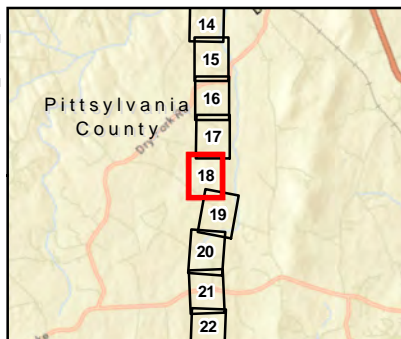
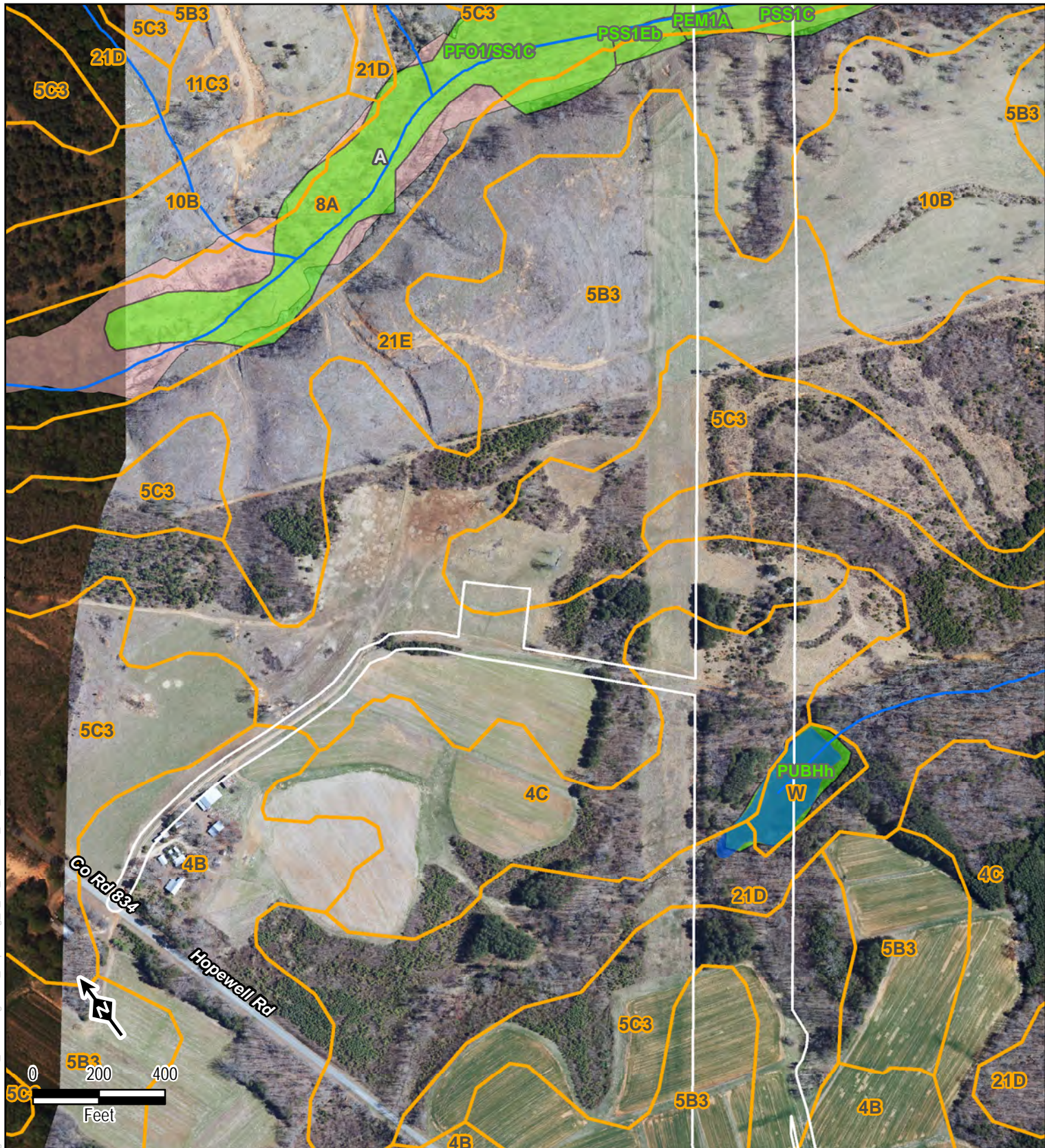
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Figure 3
 Soils, NWI, NHD Aerial Maps
 Pittsylvania County, Virginia
 Sheet 17 of 54

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 October 2018

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Legend

Survey Area	NHD Flowline
State Boundary	NHD Waterbody
County Boundary	NWI Wetland
FEMA 100yr Flood Hazard Area	SSURGO Soils

Note: Soil types can be found in the "SSURGO Soil Types within the Survey Area" table.
 NWI types can be found in the "NWI Types within the Survey Area" table.

Data Sources: ESRI, USGS, USDA, USFWS, FEMA, EQT

1 inch = 400 feet
 When Printed 8.5x11

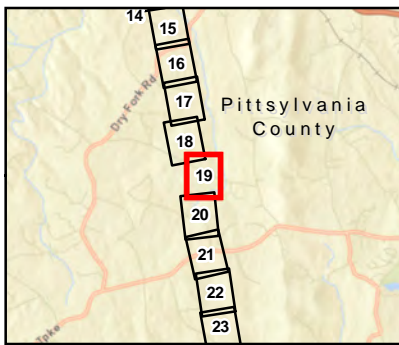
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Figure 3
 Soils, NWI, NHD Aerial Maps
 Pittsylvania County, Virginia
 Sheet 18 of 54

TRC
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 West Chester, PA 19382
 October 2018

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Legend

Survey Area	NHD Flowline
State Boundary	NHD Waterbody
County Boundary	NWI Wetland
FEMA 100yr Flood Hazard Area	SSURGO Soils

Note: Soil types can be found in the "SSURGO Soil Types within the Survey Area" table.
 NWI types can be found in the "NWI Types within the Survey Area" table.

Data Sources: ESRI, USGS, USDA, USFWS, FEMA, EQT

1 inch = 400 feet
 When Printed 8.5x11

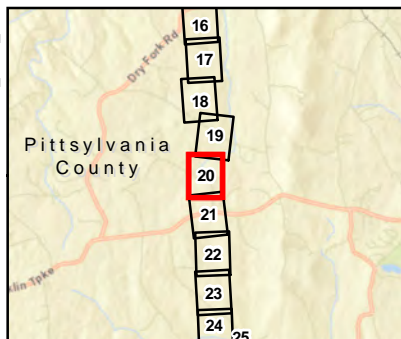
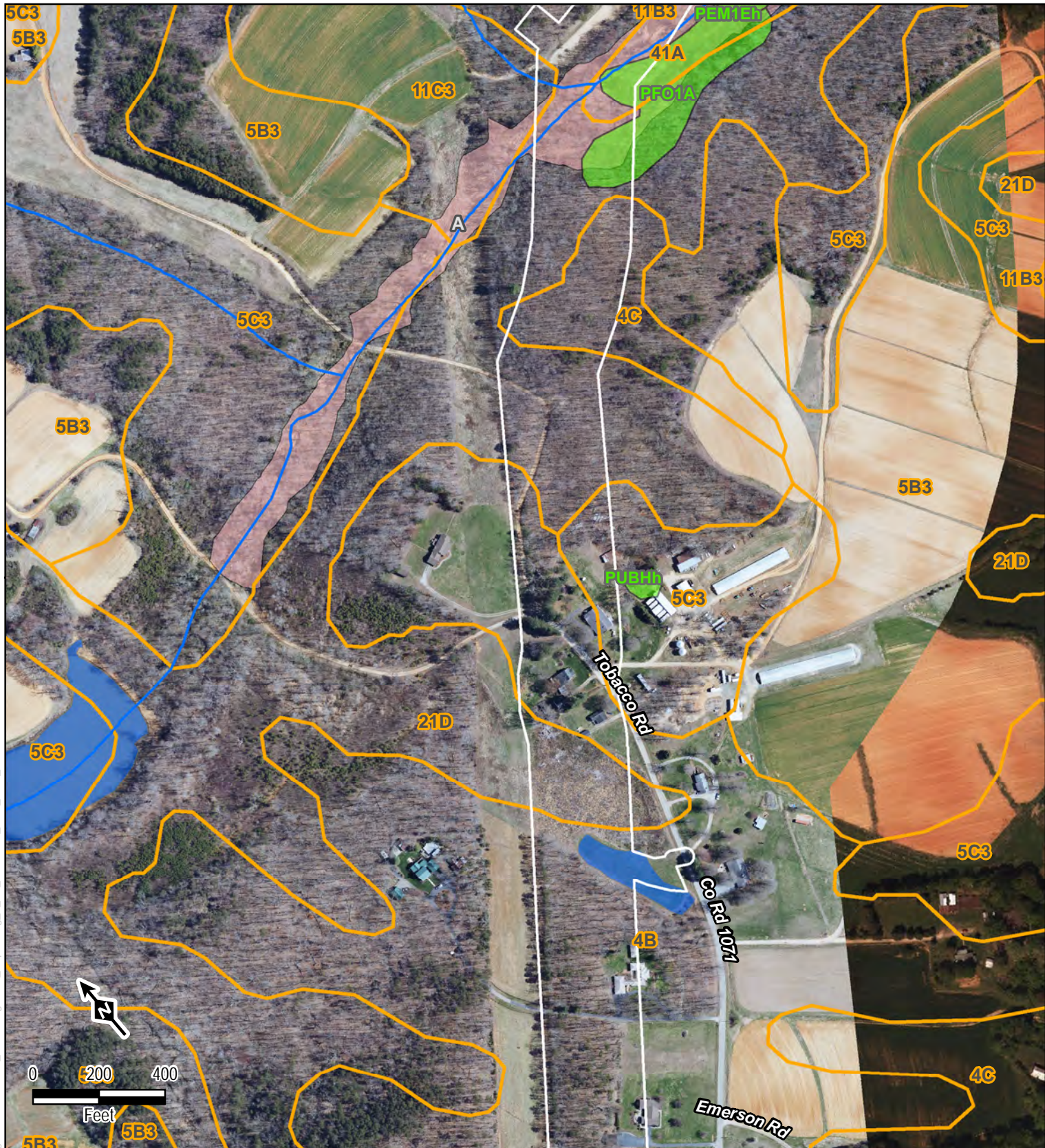
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Figure 3
 Soils, NWI, NHD Aerial Maps
 Pittsylvania County, Virginia
 Sheet 19 of 54

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600 Willowbrook Ln
 West Chester, PA 19382
 October 2018

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Legend

Survey Area	NHD Flowline
State Boundary	NHD Waterbody
County Boundary	NWI Wetland
FEMA 100yr Flood Hazard Area	SSURGO Soils

Note: Soil types can be found in the "SSURGO Soil Types within the Survey Area" table.
 NWI types can be found in the "NWI Types within the Survey Area" table.

Data Sources: ESRI, USGS, USDA, USFWS, FEMA, EQT

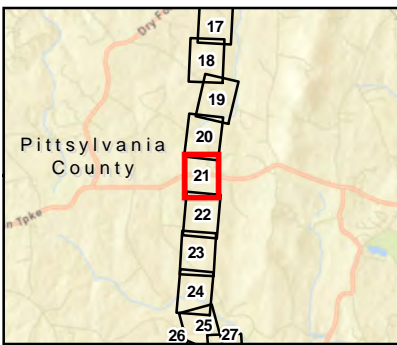
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Figure 3
 Soils, NWI, NHD Aerial Maps
 Pittsylvania County, Virginia
 Sheet 20 of 54

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600 Willowbrook Ln
 West Chester, PA 19382
 October 2018



Legend

Survey Area	NHD Flowline
State Boundary	NHD Waterbody
County Boundary	NWI Wetland
FEMA 100yr Flood Hazard Area	SSURGO Soils

Note: Soil types can be found in the "SSURGO Soil Types within the Survey Area" table.
 NWI types can be found in the "NWI Types within the Survey Area" table.

Data Sources: ESRI, USGS, USDA, USFWS, FEMA, EQT

1 inch = 400 feet
 When Printed 8.5x11

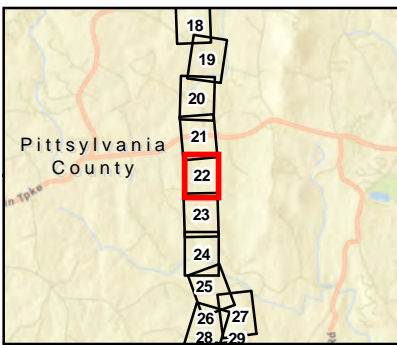
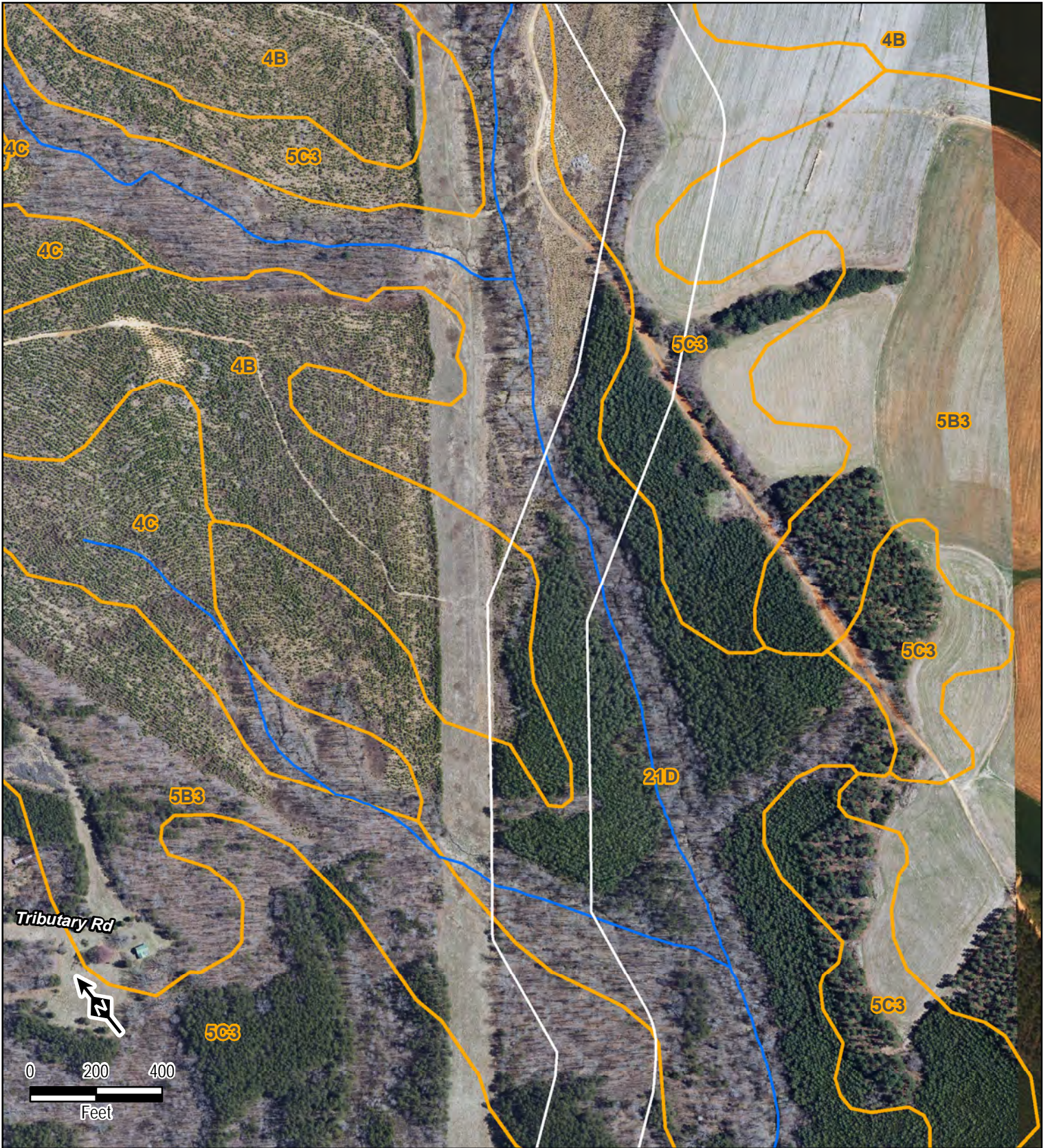
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Figure 3
 Soils, NWI, NHD Aerial Maps
 Pittsylvania County, Virginia
 Sheet 21 of 54

TRC
 Results you can rely on

600 Willowbrook Ln
 West Chester, PA 19382
 October 2018

S:\1-PROJECTS\NEXTERA\300423_MVP_Southgate6-MXD\State_Permitting\Delin_Report\Fig_3_VA_SSURGO_NWI_NHD_8x11P.mxd



Legend

Survey Area	NHD Flowline
State Boundary	NHD Waterbody
County Boundary	NWI Wetland
FEMA 100yr Flood Hazard Area	SSURGO Soils

Note: Soil types can be found in the "SSURGO Soil Types within the Survey Area" table.
 NWI types can be found in the "NWI Types within the Survey Area" table.

Data Sources: ESRI, USGS, USDA, USFWS, FEMA, EQT

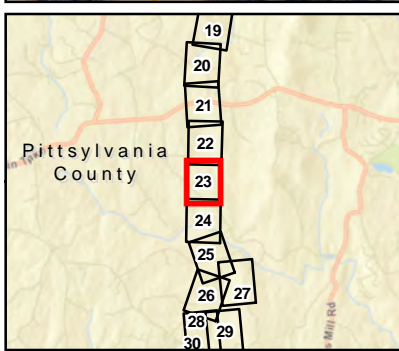
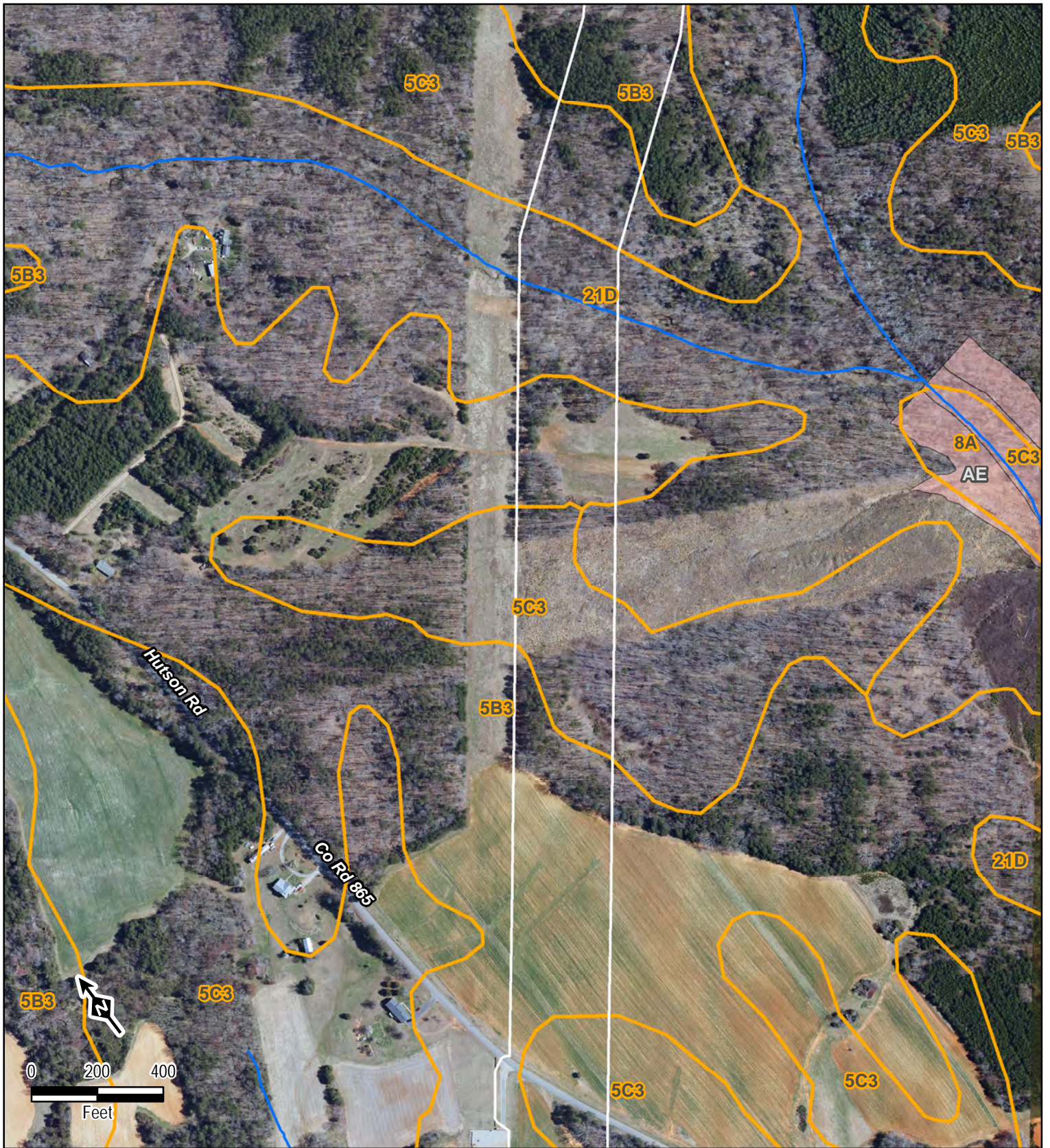
1 inch = 400 feet
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Figure 3
 Soils, NWI, NHD Aerial Maps
 Pittsylvania County, Virginia
 Sheet 22 of 54

TRC
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600 Willowbrook Ln
 West Chester, PA 19382
 October 2018



Legend

Survey Area	NHD Flowline
State Boundary	NHD Waterbody
County Boundary	NWI Wetland
FEMA 100yr Flood Hazard Area	SSURGO Soils

Note: Soil types can be found in the "SSURGO Soil Types within the Survey Area" table.
 NWI types can be found in the "NWI Types within the Survey Area" table.

Data Sources: ESRI, USGS, USDA, USFWS, FEMA, EQT

1 inch = 400 feet
 When Printed 8.5x11

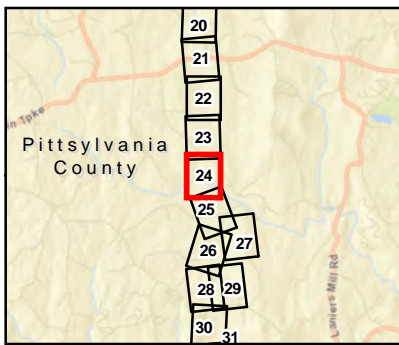
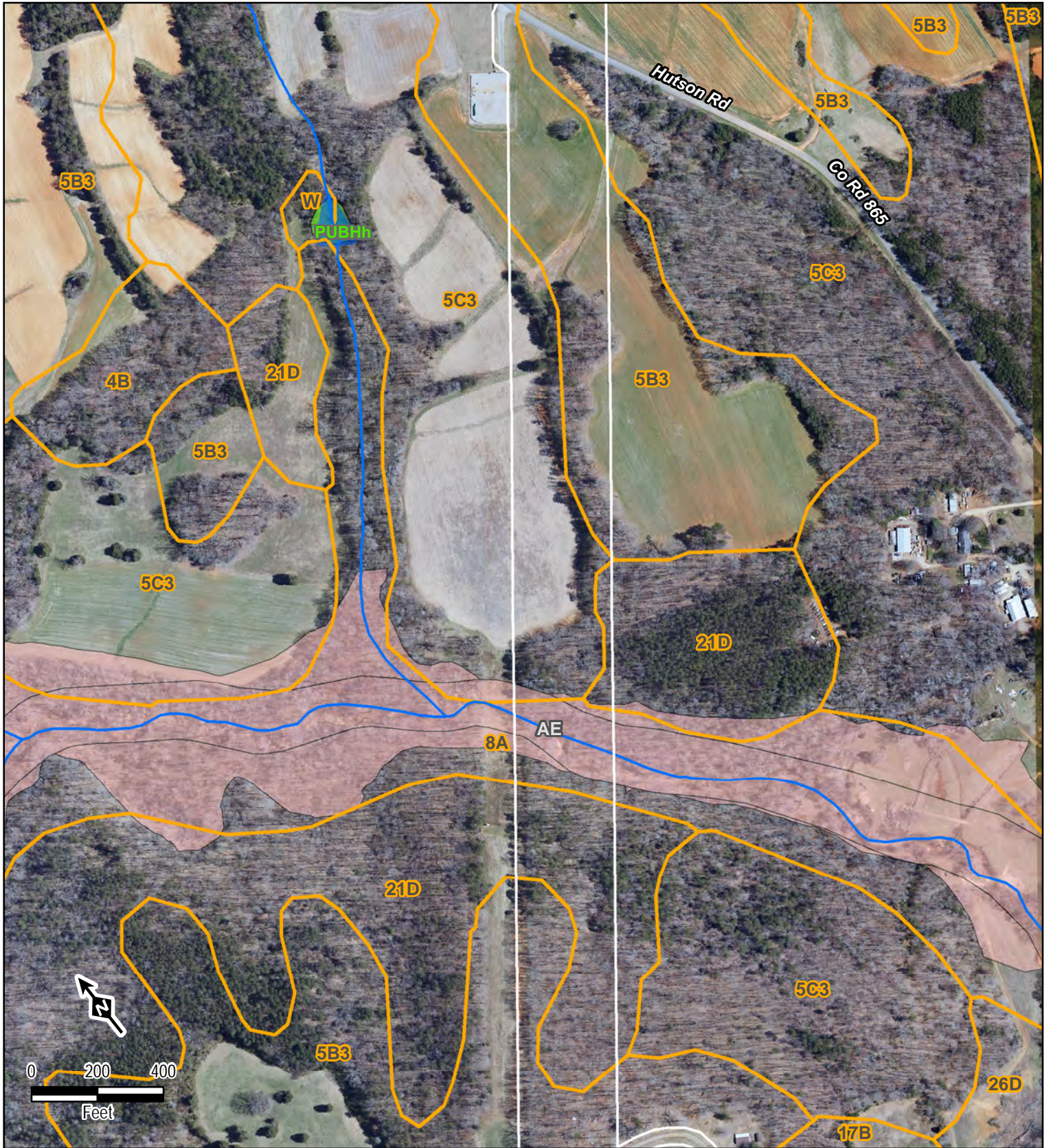
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Figure 3
 Soils, NWI, NHD Aerial Maps
 Pittsylvania County, Virginia
 Sheet 23 of 54

TRC
 Possible you can rely on

600 Willowbrook Ln
 West Chester, PA 19382
 October 2018

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Legend

Survey Area	NHD Flowline
State Boundary	NHD Waterbody
County Boundary	NWI Wetland
FEMA 100yr Flood Hazard Area	SSURGO Soils

Note: Soil types can be found in the "SSURGO Soil Types within the Survey Area" table.
 NWI types can be found in the "NWI Types within the Survey Area" table.

Data Sources: ESRI, USGS, USDA, USFWS, FEMA, EQT

1 inch = 400 feet
 When Printed 8.5x11

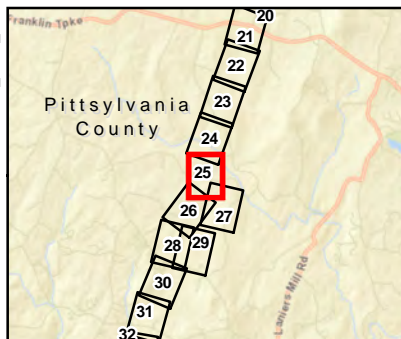
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Figure 3
 Soils, NWI, NHD Aerial Maps
 Pittsylvania County, Virginia
 Sheet 24 of 54

TRC
 Results you can rely on

600 Willowbrook Ln
 West Chester, PA 19382
 October 2018

S:\1-PROJECTS\NEXTERA\300423_MVP_Southgate6-MXD\State_Permitting\Delin_Report\Fig_3_VA_SSURGO_NWI_NHD_8x11P.mxd



Legend

Survey Area	NHD Flowline
State Boundary	NHD Waterbody
County Boundary	NWI Wetland
FEMA 100yr Flood Hazard Area	SSURGO Soils

Note: Soil types can be found in the "SSURGO Soil Types within the Survey Area" table.
 NWI types can be found in the "NWI Types within the Survey Area" table.

Data Sources: ESRI, USGS, USDA, USFWS, FEMA, EQT

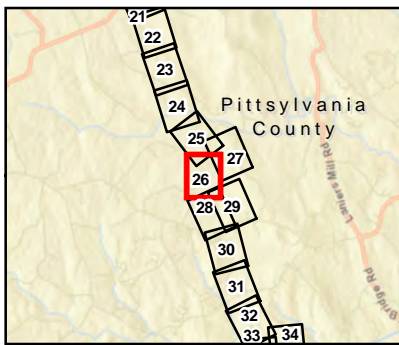
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Figure 3
 Soils, NWI, NHD Aerial Maps
 Pittsylvania County, Virginia
 Sheet 25 of 54

TRC
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600 Willowbrook Ln
 West Chester, PA 19382
 October 2018



Legend

Survey Area	NHD Flowline
State Boundary	NHD Waterbody
County Boundary	NWI Wetland
FEMA 100yr Flood Hazard Area	SSURGO Soils

Note: Soil types can be found in the "SSURGO Soil Types within the Survey Area" table.
 NWI types can be found in the "NWI Types within the Survey Area" table.

Data Sources: ESRI, USGS, USDA, USFWS, FEMA, EQT

1 inch = 400 feet
 When Printed 8.5x11

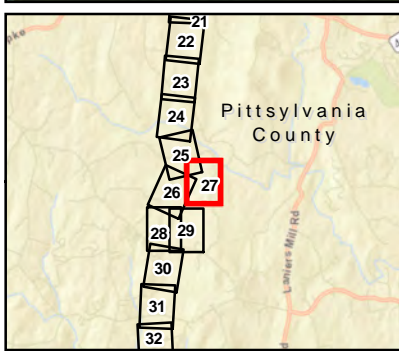
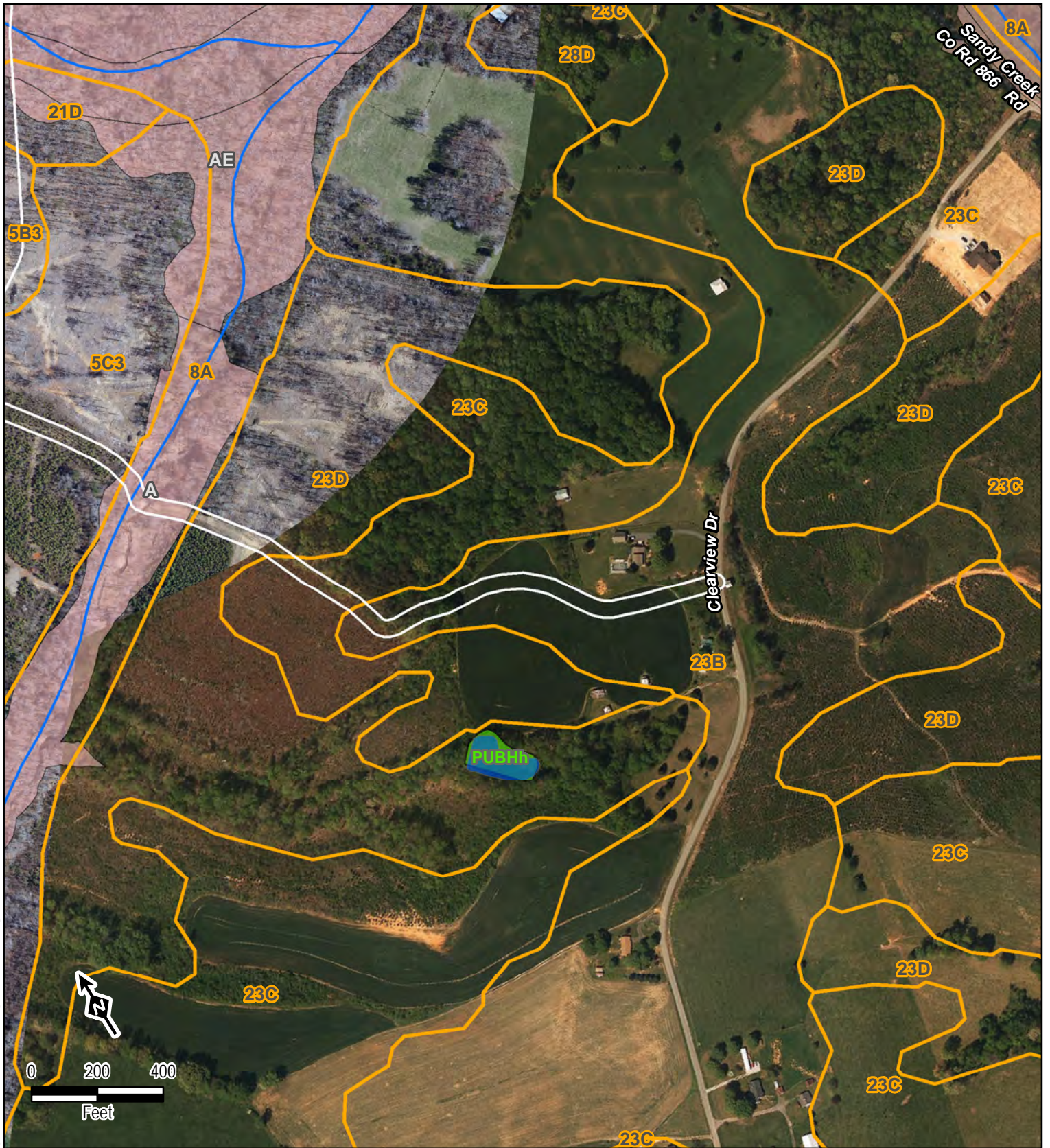
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Figure 3
 Soils, NWI, NHD Aerial Maps
 Pittsylvania County, Virginia
 Sheet 26 of 54

TRC
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600 Willowbrook Ln
 West Chester, PA 19382
 October 2018

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Legend

Survey Area	NHD Flowline
State Boundary	NHD Waterbody
County Boundary	NWI Wetland
FEMA 100yr Flood Hazard Area	SSURGO Soils

Note: Soil types can be found in the "SSURGO Soil Types within the Survey Area" table.
 NWI types can be found in the "NWI Types within the Survey Area" table.

Data Sources: ESRI, USGS, USDA, USFWS, FEMA, EQT

1 inch = 400 feet
 When Printed 8.5x11

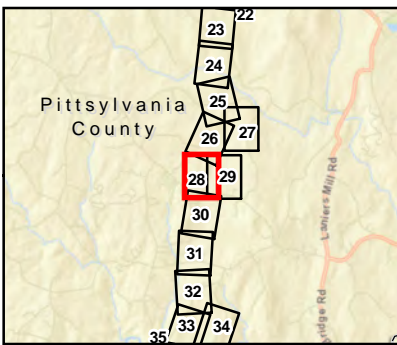
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Figure 3
 Soils, NWI, NHD Aerial Maps
 Pittsylvania County, Virginia
 Sheet 27 of 54

TRC
 Possible you can rely on

600 Willowbrook Ln
 West Chester, PA 19382
 October 2018

S:\1-PROJECTS\NEXTERA\300423_MVP_Southgate6-MXD\State_Permitting\Delin_Report\Fig_3_VA_SSURGO_NWI_NHD_8x11P.mxd



Legend

Survey Area	NHD Flowline
State Boundary	NHD Waterbody
County Boundary	NWI Wetland
FEMA 100yr Flood Hazard Area	SSURGO Soils

Note: Soil types can be found in the "SSURGO Soil Types within the Survey Area" table.
 NWI types can be found in the "NWI Types within the Survey Area" table.

Data Sources: ESRI, USGS, USDA, USFWS, FEMA, EQT

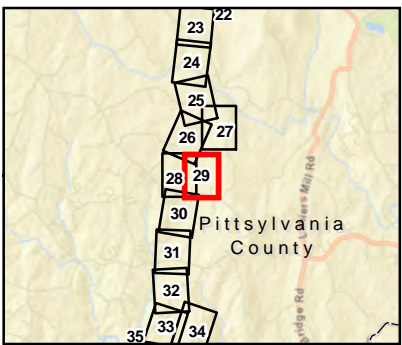
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Figure 3
 Soils, NWI, NHD Aerial Maps
 Pittsylvania County, Virginia
 Sheet 28 of 54

TRC
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600 Willowbrook Ln
 West Chester, PA 19382
 October 2018



Legend

Survey Area	NHD Flowline
State Boundary	NHD Waterbody
County Boundary	NWI Wetland
FEMA 100yr Flood Hazard Area	SSURGO Soils

Note: Soil types can be found in the "SSURGO Soil Types within the Survey Area" table.
 NWI types can be found in the "NWI Types within the Survey Area" table.

Data Sources: ESRI, USGS, USDA, USFWS, FEMA, EQT

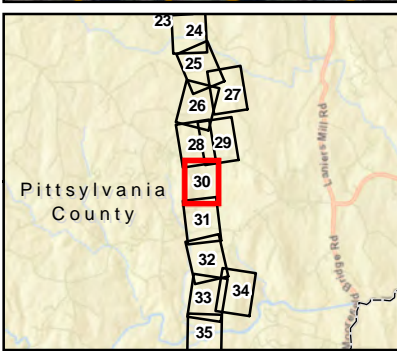
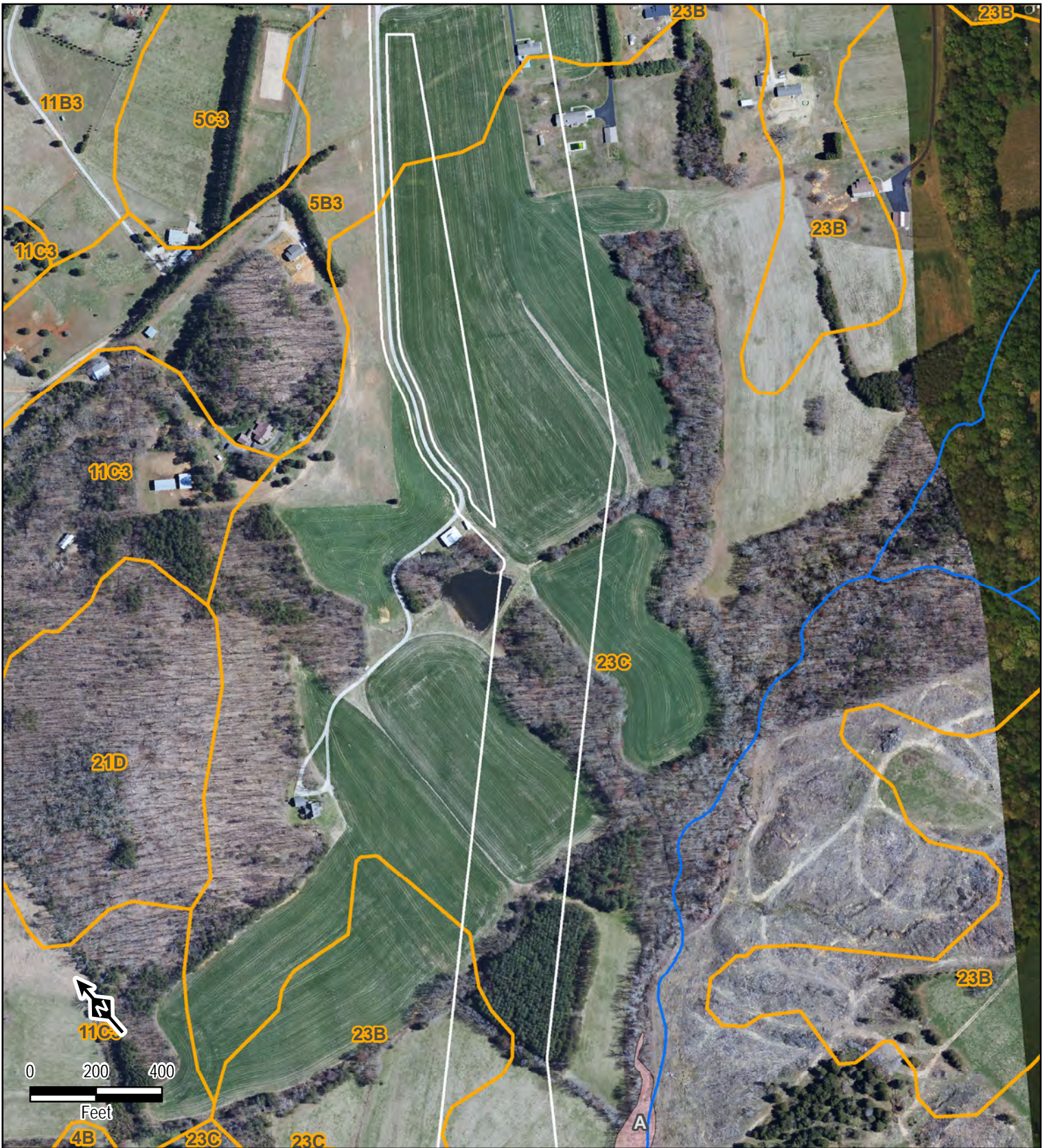
1 inch = 400 feet
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Figure 3
 Soils, NWI, NHD Aerial Maps
 Pittsylvania County, Virginia
 Sheet 29 of 54

TRC
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600 Willowbrook Ln
 West Chester, PA 19382
 October 2018



Legend

Survey Area	NHD Flowline
State Boundary	NHD Waterbody
County Boundary	NWI Wetland
FEMA 100yr Flood Hazard Area	SSURGO Soils

Note: Soil types can be found in the "SSURGO Soil Types within the Survey Area" table.
 NWI types can be found in the "NWI Types within the Survey Area" table.

Data Sources: ESRI, USGS, USDA, USFWS, FEMA, EQT

1 inch = 400 feet
 When Printed 8.5x11

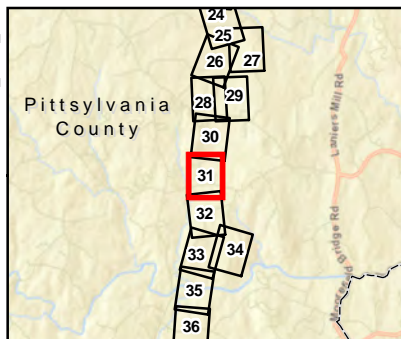
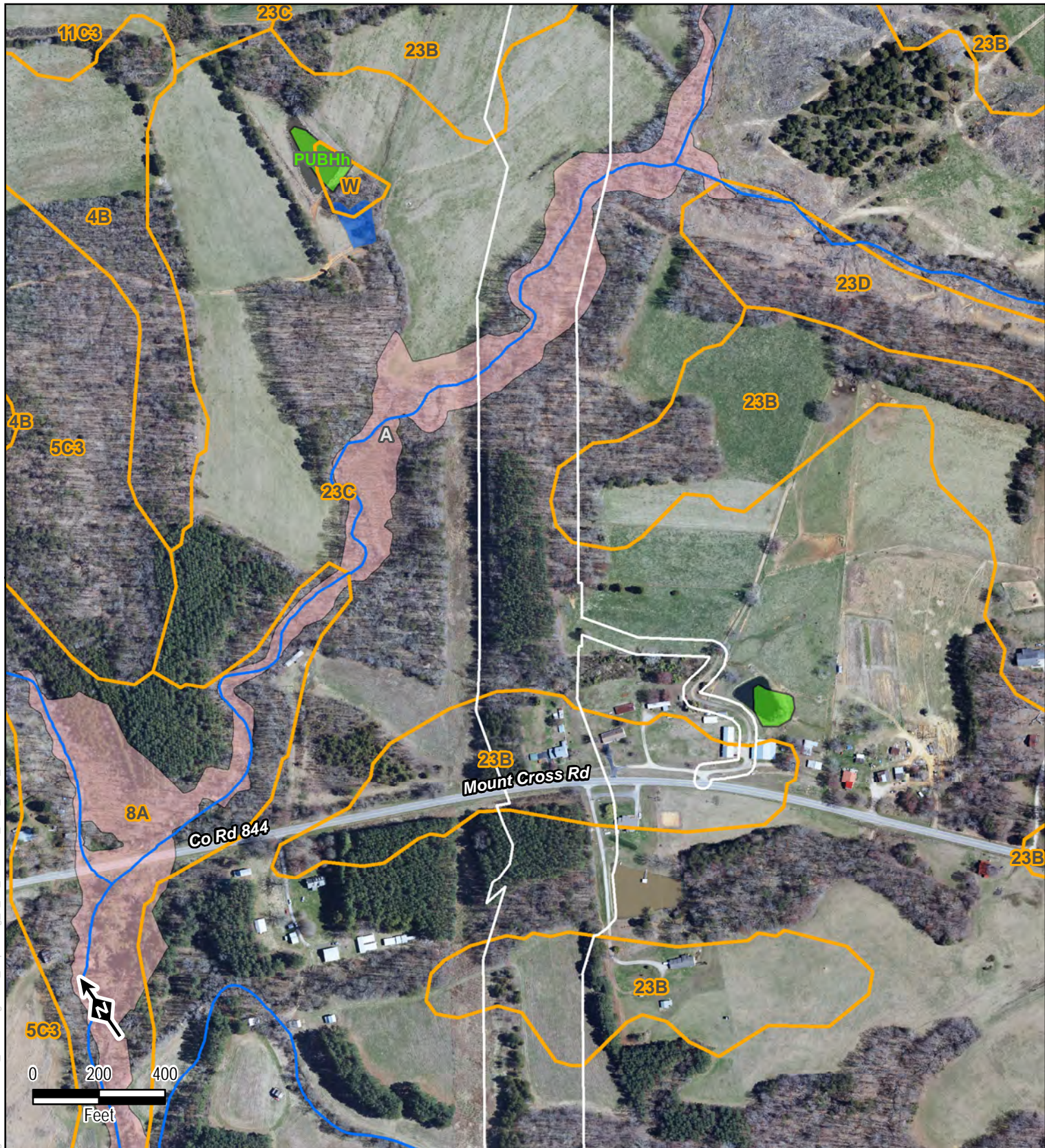
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Figure 3
 Soils, NWI, NHD Aerial Maps
 Pittsylvania County, Virginia
 Sheet 30 of 54

TRC
 Possible you can rely on

600 Willowbrook Ln
 West Chester, PA 19382
 October 2018

S:\1-PROJECTS\NEXTERA\300423_MVP_Southgate6-MXD\State_Permitting\Delin_Report\Fig_3_VA_SSURGO_NWI_NHD_8x11P.mxd



Legend

Survey Area	NHD Flowline
State Boundary	NHD Waterbody
County Boundary	NWI Wetland
FEMA 100yr Flood Hazard Area	SSURGO Soils

Note: Soil types can be found in the "SSURGO Soil Types within the Survey Area" table.
 NWI types can be found in the "NWI Types within the Survey Area" table.

Data Sources: ESRI, USGS, USDA, USFWS, FEMA, EQT

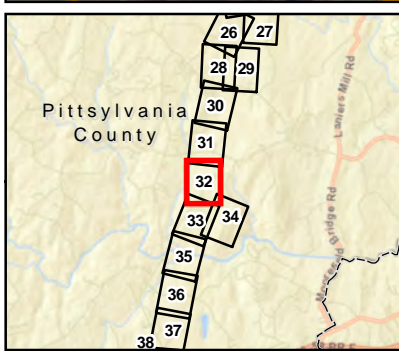
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Figure 3
 Soils, NWI, NHD Aerial Maps
 Pittsylvania County, Virginia
 Sheet 31 of 54

TRC
 Results you can rely on

600 Willowbrook Ln
 West Chester, PA 19382
 October 2018



Legend

Survey Area	NHD Flowline
State Boundary	NHD Waterbody
County Boundary	NWI Wetland
FEMA 100yr Flood Hazard Area	SSURGO Soils

Note: Soil types can be found in the "SSURGO Soil Types within the Survey Area" table.
 NWI types can be found in the "NWI Types within the Survey Area" table.

Data Sources: ESRI, USGS, USDA, USFWS, FEMA, EQT

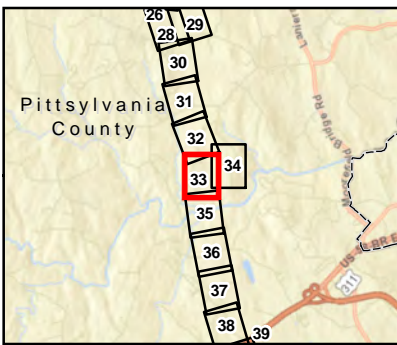
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Figure 3
 Soils, NWI, NHD Aerial Maps
 Pittsylvania County, Virginia
 Sheet 32 of 54

TRC
 Possible you can rely on

600 Willowbrook Ln
 West Chester, PA 19382
 October 2018



Legend

Survey Area	NHD Flowline
State Boundary	NHD Waterbody
County Boundary	NWI Wetland
FEMA 100yr Flood Hazard Area	SSURGO Soils

Note: Soil types can be found in the "SSURGO Soil Types within the Survey Area" table.
 NWI types can be found in the "NWI Types within the Survey Area" table.

Data Sources: ESRI, USGS, USDA, USFWS, FEMA, EQT

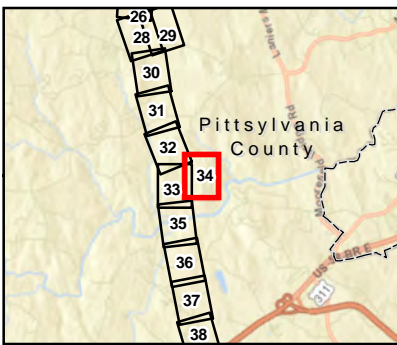
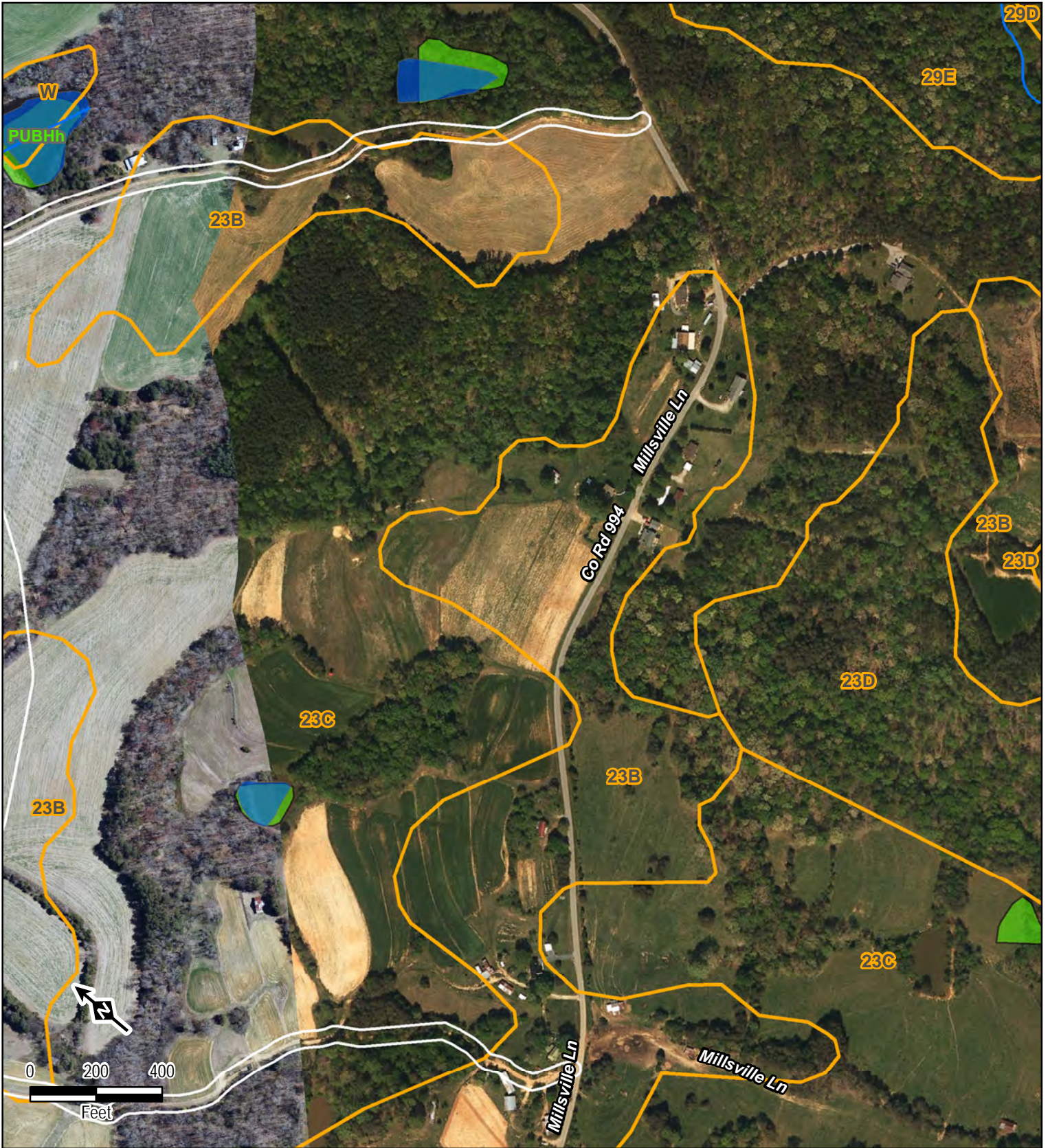
1 inch = 400 feet
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Figure 3
 Soils, NWI, NHD Aerial Maps
 Pittsylvania County, Virginia
 Sheet 33 of 54

TRC
 Results you can rely on

600 Willowbrook Ln
 West Chester, PA 19382
 October 2018



Legend

Survey Area	NHD Flowline
State Boundary	NHD Waterbody
County Boundary	NWI Wetland
FEMA 100yr Flood Hazard Area	SSURGO Soils

Note: Soil types can be found in the "SSURGO Soil Types within the Survey Area" table.
 NWI types can be found in the "NWI Types within the Survey Area" table.

Data Sources: ESRI, USGS, USDA, USFWS, FEMA, EQT

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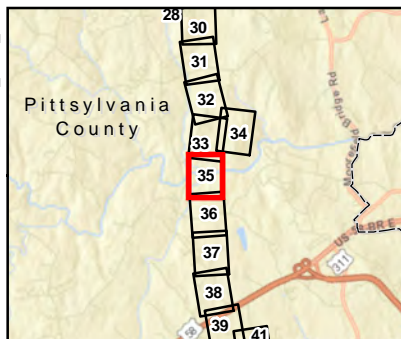
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Figure 3
 Soils, NWI, NHD Aerial Maps
 Pittsylvania County, Virginia
 Sheet 34 of 54

TRC
 Possible you can rely on

600 Willowbrook Ln
 West Chester, PA 19382
 October 2018

S:\1-PROJECTS\NEXT\TERRA\300423_MVP_SouthernGate6-MXD\State_Permitting\Delin_Report\Fig_3_VA_SSURGO_NWI_NHD_8x11P.mxd



Legend

Survey Area	NHD Flowline
State Boundary	NHD Waterbody
County Boundary	NWI Wetland
FEMA 100yr Flood Hazard Area	SSURGO Soils

Note: Soil types can be found in the "SSURGO Soil Types within the Survey Area" table.
 NWI types can be found in the "NWI Types within the Survey Area" table.

Data Sources: ESRI, USGS, USDA, USFWS, FEMA, EQT

1 inch = 400 feet
 When Printed 8.5x11

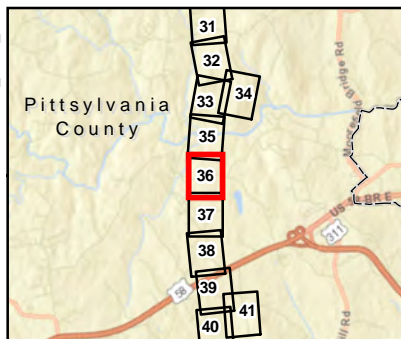
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Figure 3
 Soils, NWI, NHD Aerial Maps
 Pittsylvania County, Virginia
 Sheet 35 of 54

TRC
 Results you can rely on

600 Willowbrook Ln
 West Chester, PA 19382
 October 2018

S:\1-PROJECTS\NEXTERA\300423_MVP_SouthernGate6-MXD\State_Permitting\Delin_Report\Fig_3_VA_SSURGO_NWI_NHD_8x11P.mxd



Legend

Survey Area	NHD Flowline
State Boundary	NHD Waterbody
County Boundary	NWI Wetland
FEMA 100yr Flood Hazard Area	SSURGO Soils

Note: Soil types can be found in the "SSURGO Soil Types within the Survey Area" table.
 NWI types can be found in the "NWI Types within the Survey Area" table.

Data Sources: ESRI, USGS, USDA, USFWS, FEMA, EQT

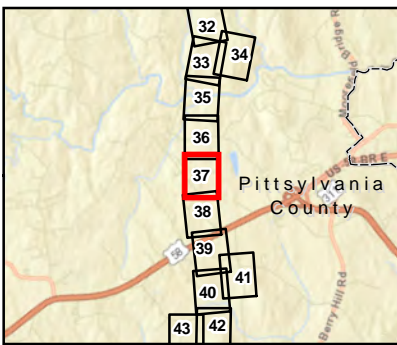
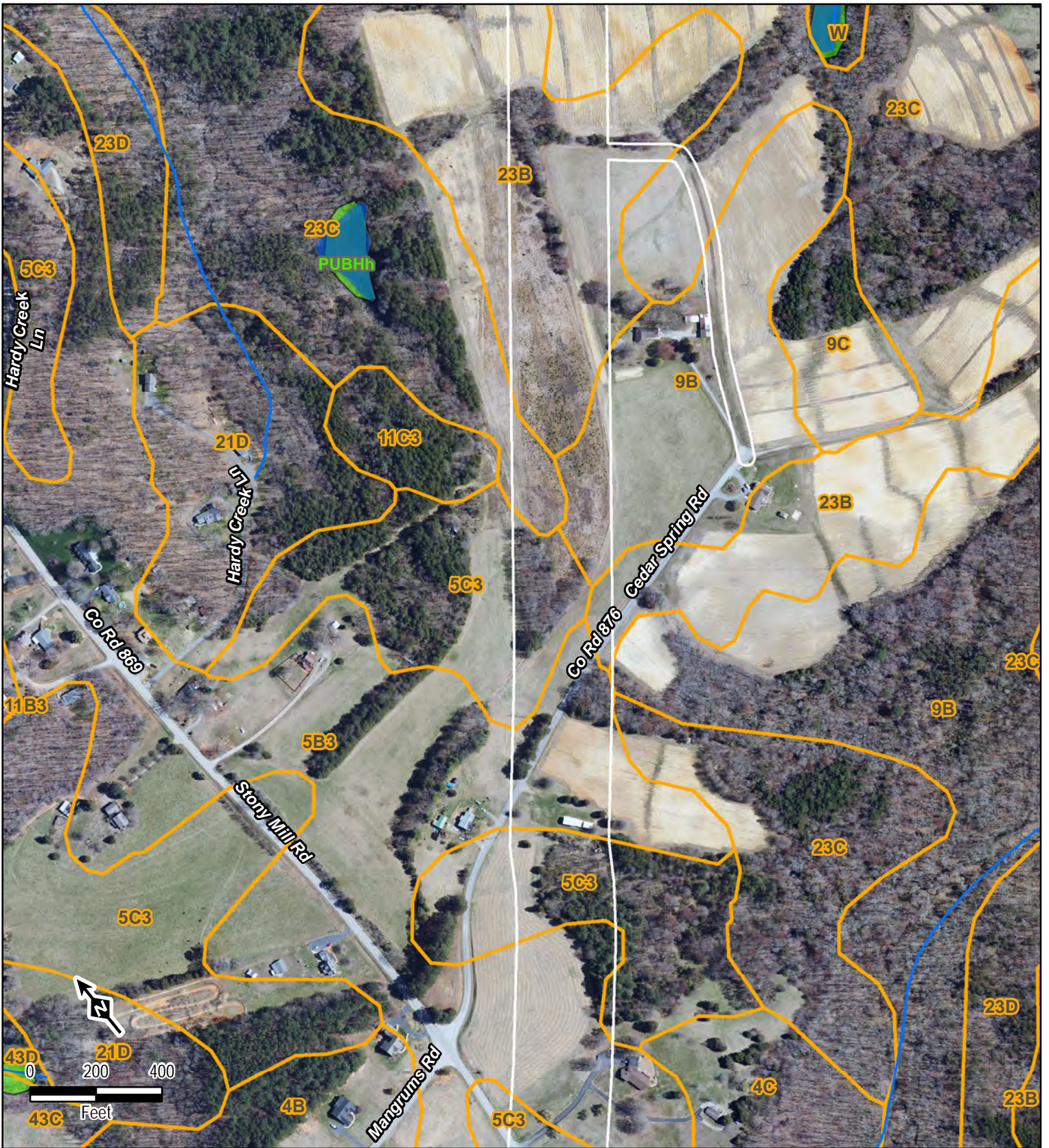
1 inch = 400 feet
 When Printed 8.5x11

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Figure 3
 Soils, NWI, NHD Aerial Maps
 Pittsylvania County, Virginia
 Sheet 36 of 54

TRC
 Results you can rely on

600 Willowbrook Ln
 West Chester, PA 19382
 October 2018



Legend

Survey Area	NHD Flowline
State Boundary	NHD Waterbody
County Boundary	NWI Wetland
FEMA 100yr Flood Hazard Area	SSURGO Soils

Note: Soil types can be found in the "SSURGO Soil Types within the Survey Area" table.
 NWI types can be found in the "NWI Types within the Survey Area" table.

Data Sources: ESRI, USGS, USDA, USFWS, FEMA, EQT

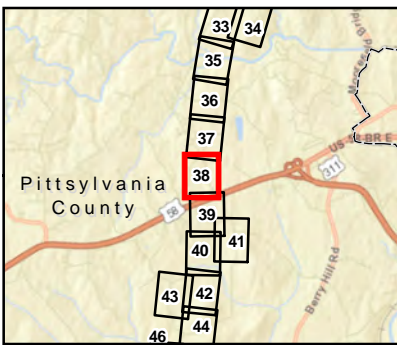
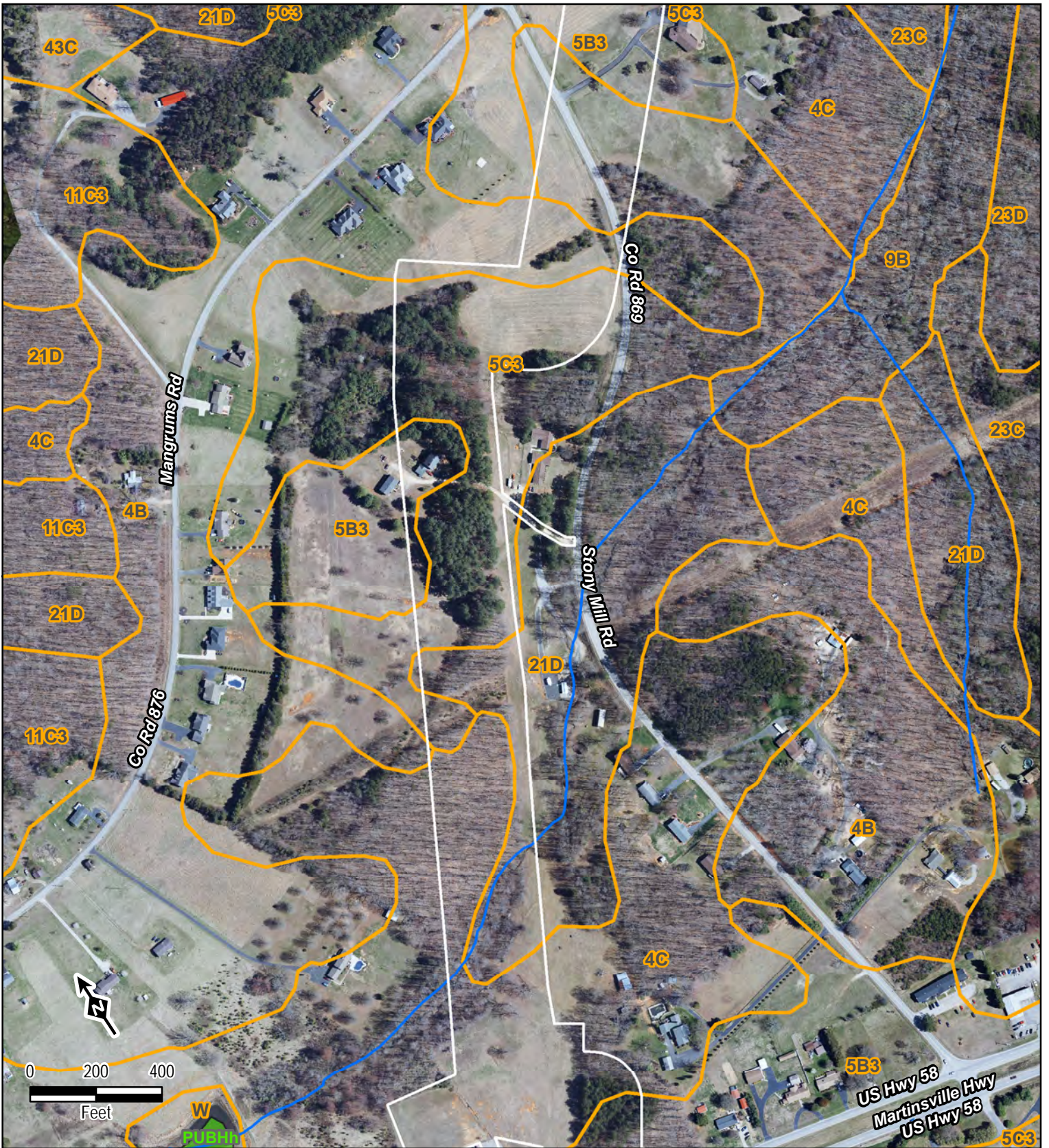
1 inch = 400 feet
 When Printed 8.5x11

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Figure 3
 Soils, NWI, NHD Aerial Maps
 Pittsylvania County, Virginia
 Sheet 37 of 54

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600 Willowbrook Ln
 West Chester, PA 19382
 October 2018



Legend

Survey Area	NHD Flowline
State Boundary	NHD Waterbody
County Boundary	NWI Wetland
FEMA 100yr Flood Hazard Area	SSURGO Soils

Note: Soil types can be found in the "SSURGO Soil Types within the Survey Area" table.
 NWI types can be found in the "NWI Types within the Survey Area" table.

Data Sources: ESRI, USGS, USDA, USFWS, FEMA, EQT

1 inch = 400 feet
 When Printed 8.5x11

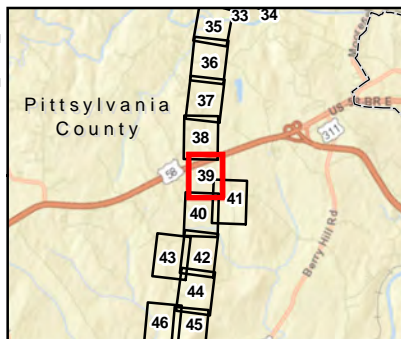
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Figure 3
 Soils, NWI, NHD Aerial Maps
 Pittsylvania County, Virginia
 Sheet 38 of 54

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 October 2018

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Legend

Survey Area	NHD Flowline
State Boundary	NHD Waterbody
County Boundary	NWI Wetland
FEMA 100yr Flood Hazard Area	SSURGO Soils

Note: Soil types can be found in the "SSURGO Soil Types within the Survey Area" table.
 NWI types can be found in the "NWI Types within the Survey Area" table.

Data Sources: ESRI, USGS, USDA, USFWS, FEMA, EQT

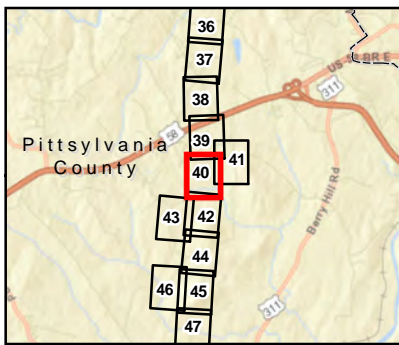
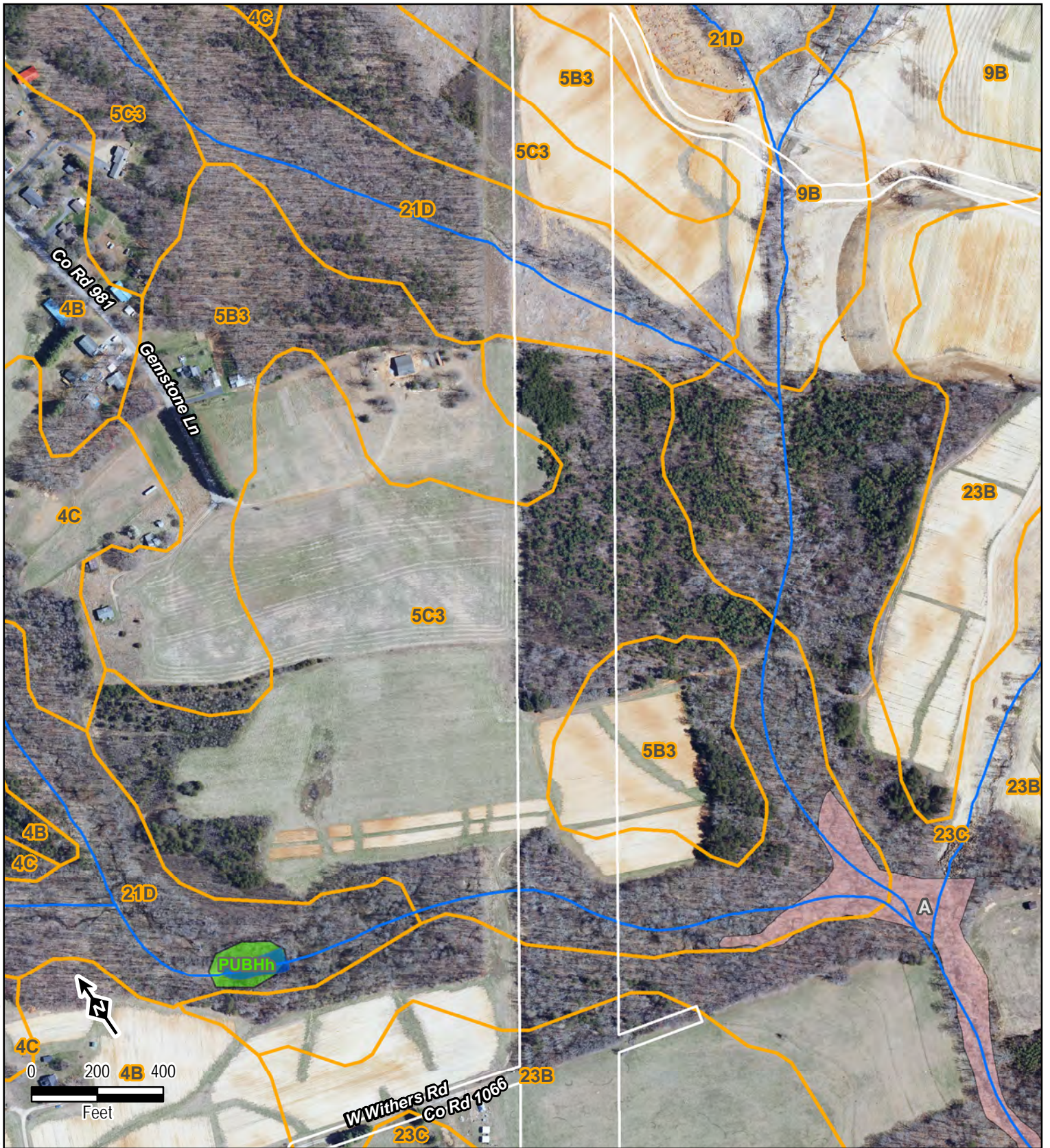
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Figure 3
 Soils, NWI, NHD Aerial Maps
 Pittsylvania County, Virginia
 Sheet 39 of 54

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600 Willowbrook Ln
 West Chester, PA 19382
 October 2018



Legend

Survey Area	NHD Flowline
State Boundary	NHD Waterbody
County Boundary	NWI Wetland
FEMA 100yr Flood Hazard Area	SSURGO Soils

Note: Soil types can be found in the "SSURGO Soil Types within the Survey Area" table.
 NWI types can be found in the "NWI Types within the Survey Area" table.

Data Sources: ESRI, USGS, USDA, USFWS, FEMA, EQT

1 inch = 400 feet
 When Printed 8.5x11

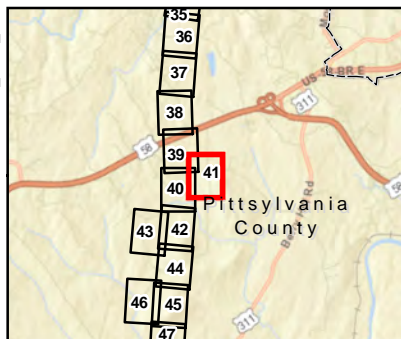
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Figure 3
 Soils, NWI, NHD Aerial Maps
 Pittsylvania County, Virginia
 Sheet 40 of 54

TRC
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 West Chester, PA 19382
 October 2018

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Legend

Survey Area	NHD Flowline
State Boundary	NHD Waterbody
County Boundary	NWI Wetland
FEMA 100yr Flood Hazard Area	SSURGO Soils

Note: Soil types can be found in the "SSURGO Soil Types within the Survey Area" table.
 NWI types can be found in the "NWI Types within the Survey Area" table.

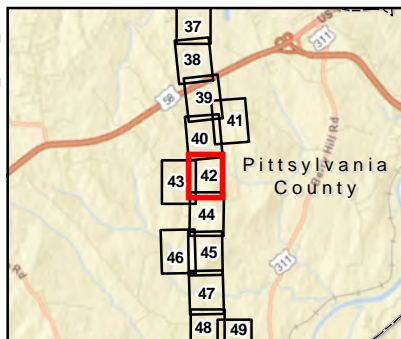
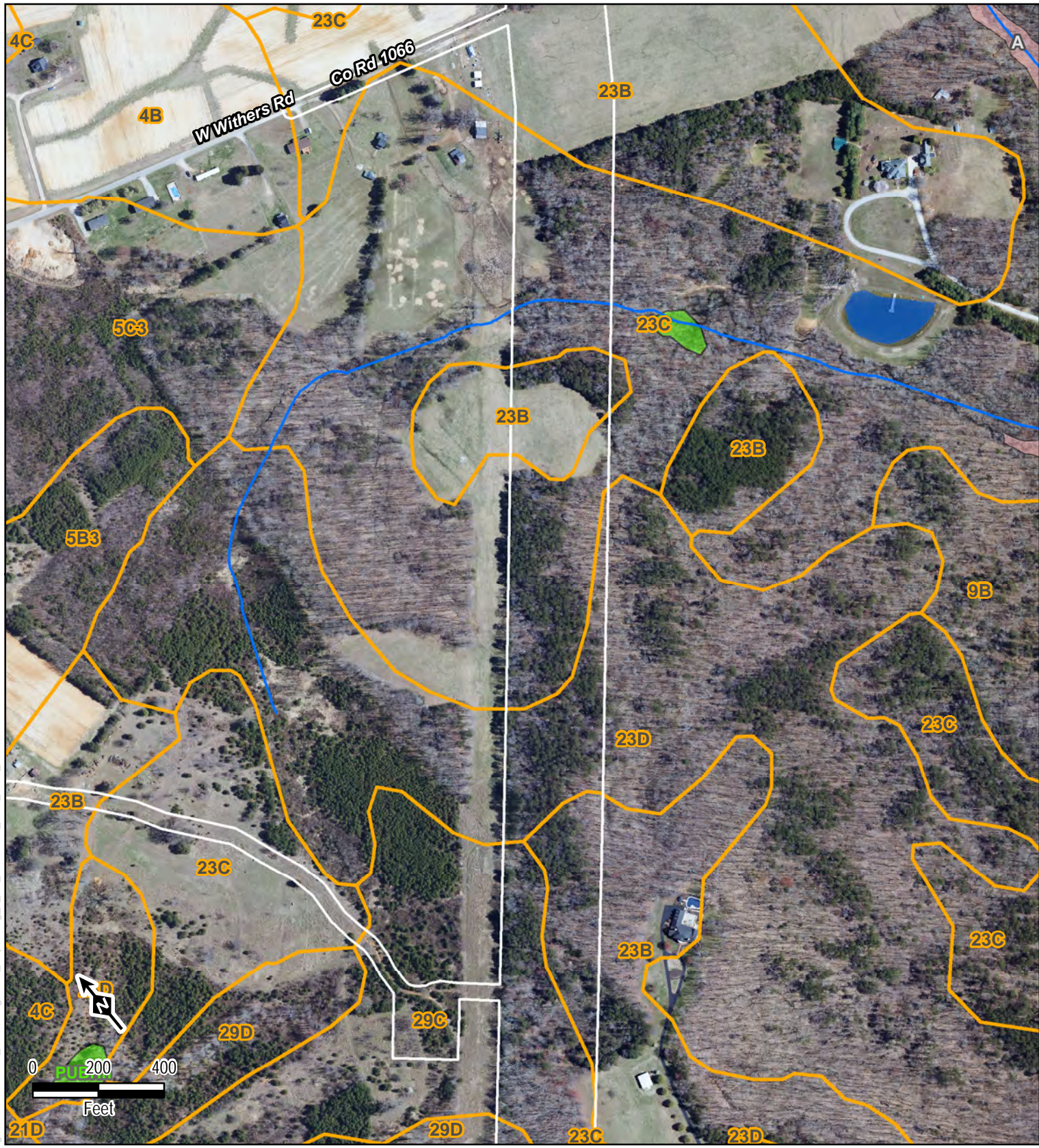
Data Sources: ESRI, USGS, USDA, USFWS, FEMA, EQT

1 inch = 400 feet
 When Printed 8.5x11

Figure 3
 Soils, NWI, NHD Aerial Maps
 Pittsylvania County, Virginia
 Sheet 41 of 54

600 Willowbrook Ln
 West Chester, PA 19382
 October 2018

S:\1-PROJECTS\NEXTERA\300423_MVP_Southgate6-MXD\State_Permitting\Delin_Report\Fig_3_VA_SSURGO_NWI_NHD_8x11P.mxd



Legend

Survey Area	NHD Flowline
State Boundary	NHD Waterbody
County Boundary	NWI Wetland
FEMA 100yr Flood Hazard Area	SSURGO Soils

Note: Soil types can be found in the "SSURGO Soil Types within the Survey Area" table.
 NWI types can be found in the "NWI Types within the Survey Area" table.

Data Sources: ESRI, USGS, USDA, USFWS, FEMA, EQT

1 inch = 400 feet
 When Printed 8.5x11

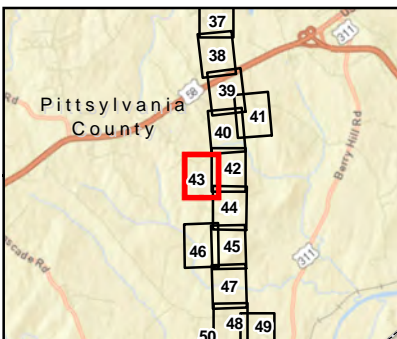
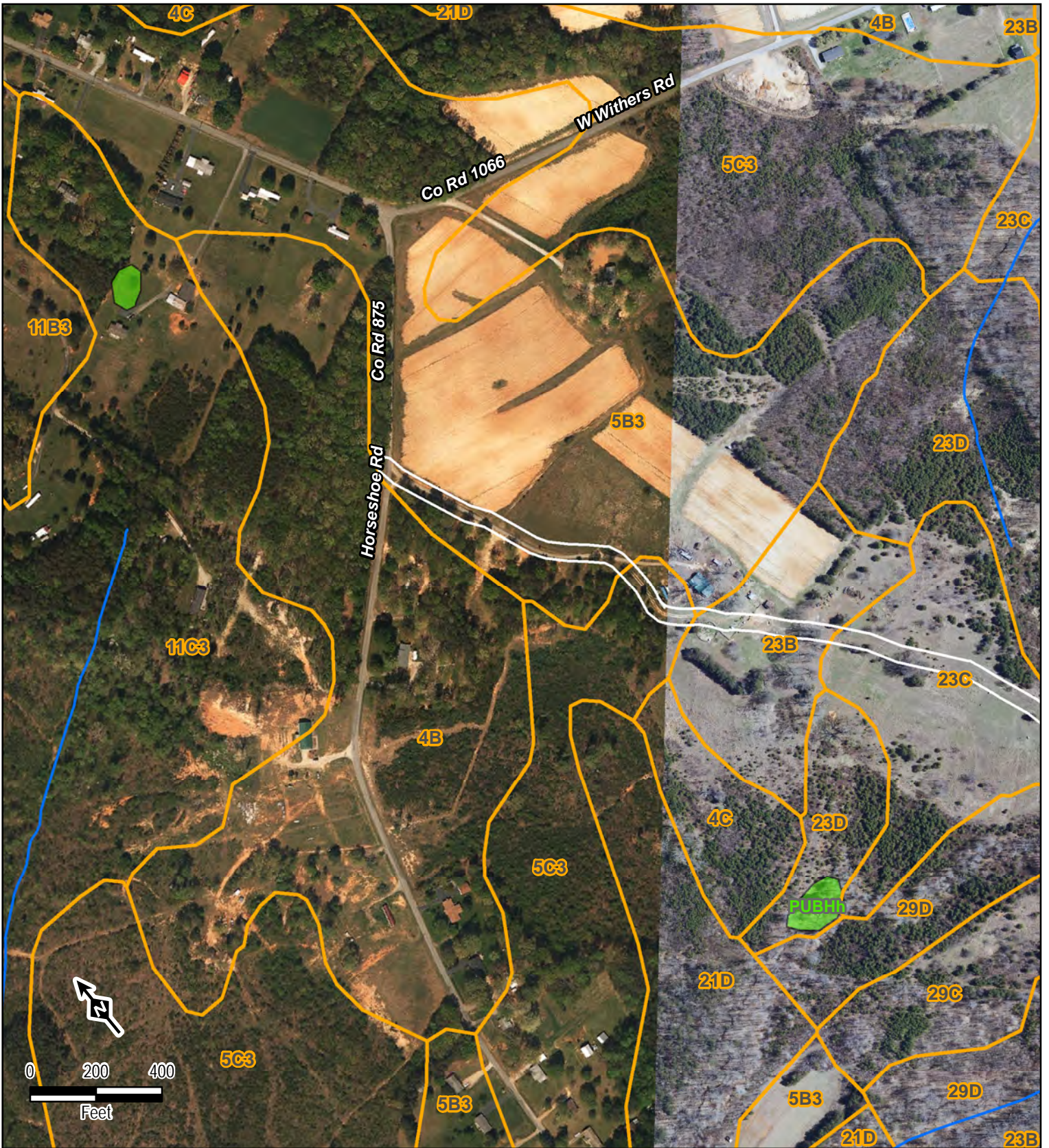
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Figure 3
 Soils, NWI, NHD Aerial Maps
 Pittsylvania County, Virginia
 Sheet 42 of 54

TRC
 Results you can rely on

600 Willowbrook Ln
 West Chester, PA 19382
 October 2018

S:\1-PROJECTS\NEXTERA\300423_MVP_Southgate6-MXD\State_Permitting\Delin_Report\Fig_3_VA_SSURGO_NWI_NHD_8x11P.mxd



Legend

Survey Area	NHD Flowline
State Boundary	NHD Waterbody
County Boundary	NWI Wetland
FEMA 100yr Flood Hazard Area	SSURGO Soils

Note: Soil types can be found in the "SSURGO Soil Types within the Survey Area" table.
 NWI types can be found in the "NWI Types within the Survey Area" table.

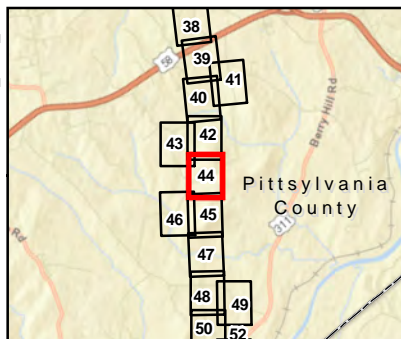
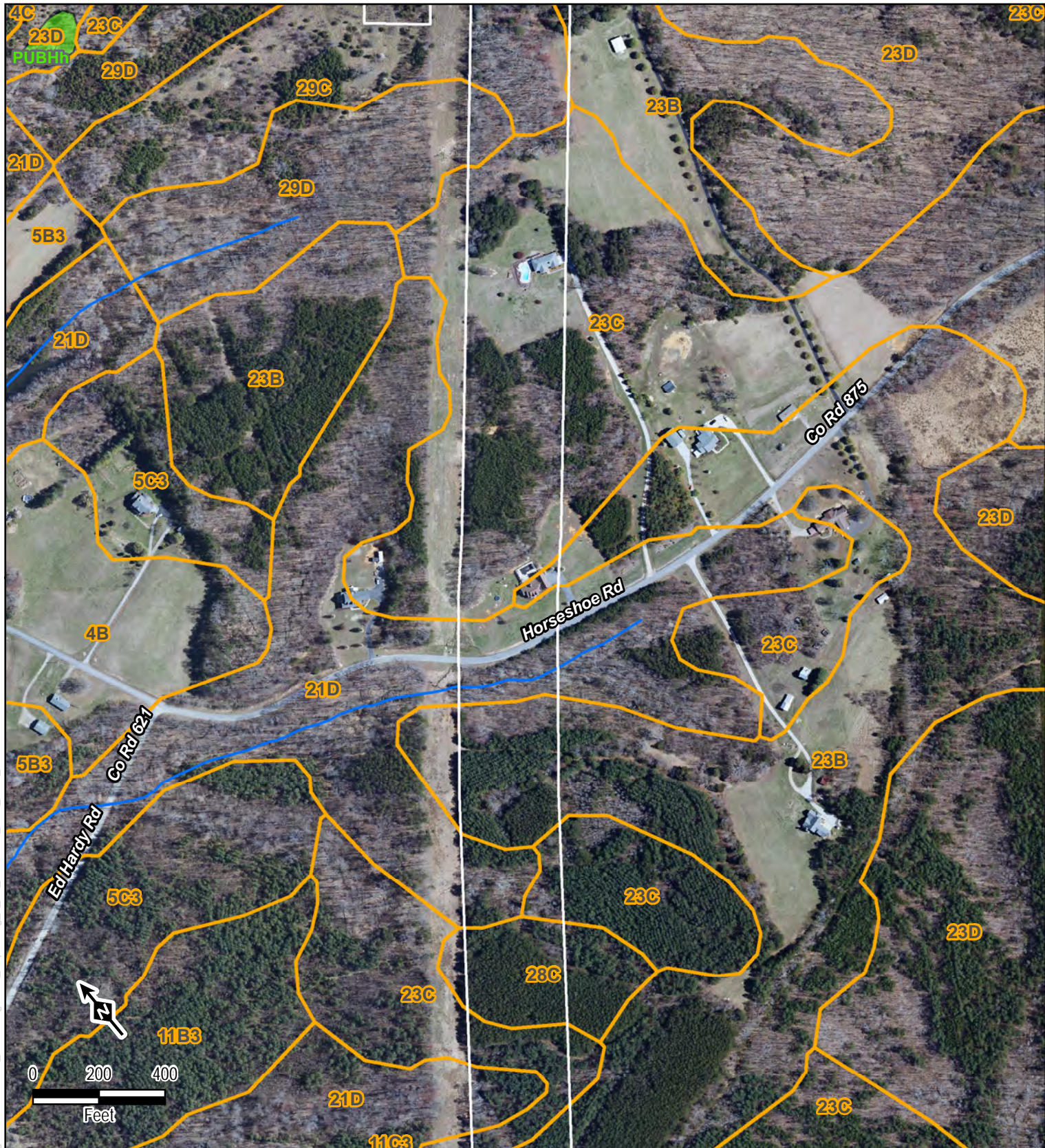
Data Sources: ESRI, USGS, USDA, USFWS, FEMA, EQT

1 inch = 400 feet
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Figure 3
 Soils, NWI, NHD Aerial Maps
 Pittsylvania County, Virginia
 Sheet 43 of 54

600 Willowbrook Ln
 West Chester, PA 19382
 October 2018

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Legend

Survey Area	NHD Flowline
State Boundary	NHD Waterbody
County Boundary	NWI Wetland
FEMA 100yr Flood Hazard Area	SSURGO Soils

Note: Soil types can be found in the "SSURGO Soil Types within the Survey Area" table.
 NWI types can be found in the "NWI Types within the Survey Area" table.

Data Sources: ESRI, USGS, USDA, USFWS, FEMA, EQT

1 inch = 400 feet
 When Printed 8.5x11

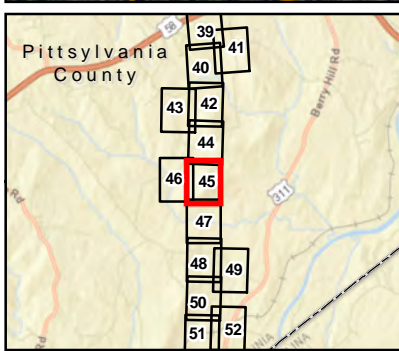
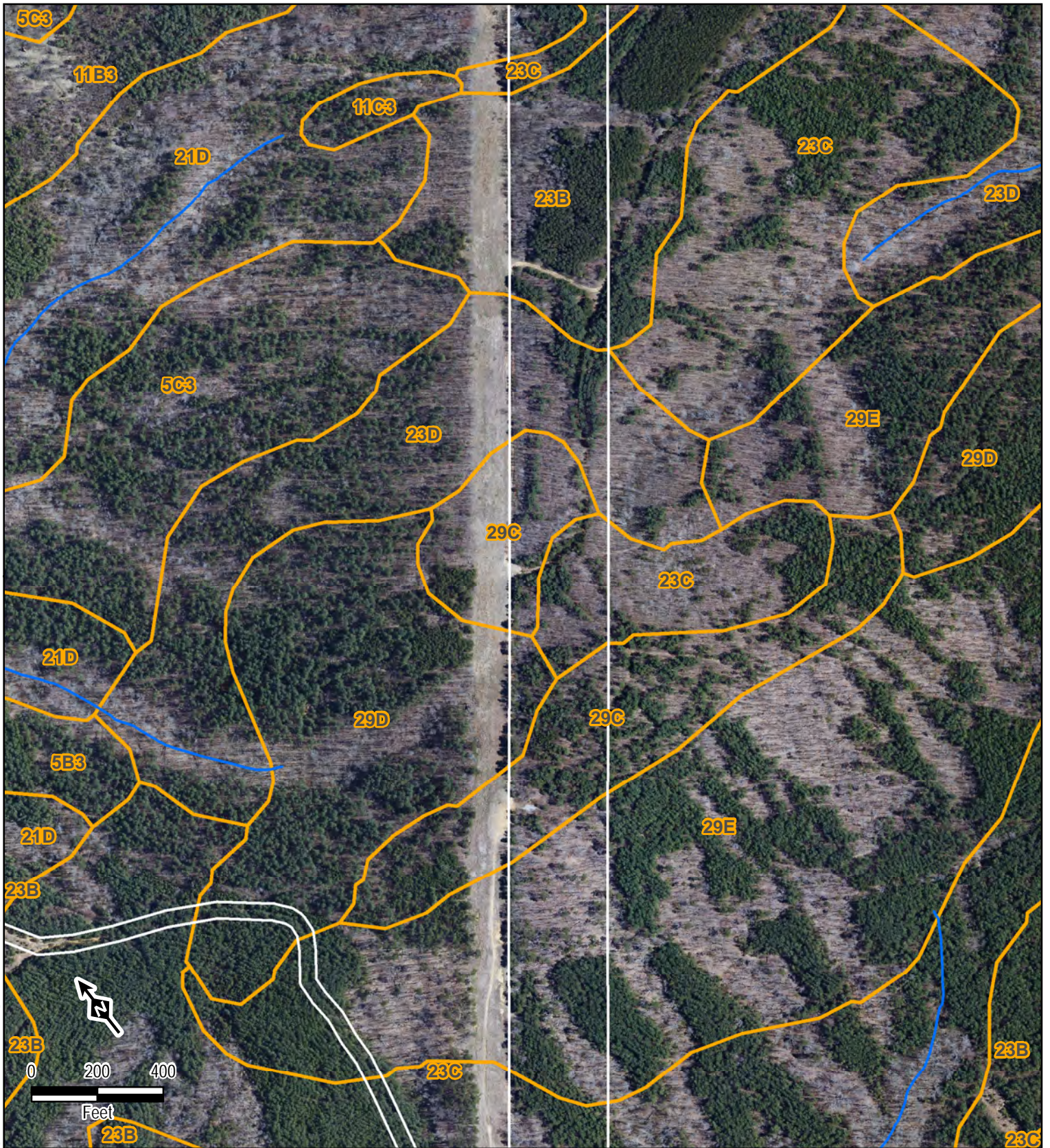
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Figure 3
 Soils, NWI, NHD Aerial Maps
 Pittsylvania County, Virginia
 Sheet 44 of 54

TRC
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600 Willowbrook Ln
 West Chester, PA 19382
 October 2018

S:\1-PROJECTS\NEXTERA\300423_MVP_Southgate\6-MXD\State_Permitting\Delin_Report\Fig_3_VA_SSURGO_NWI_NHD_8x11P.mxd



Legend

Survey Area	NHD Flowline
State Boundary	NHD Waterbody
County Boundary	NWI Wetland
FEMA 100yr Flood Hazard Area	SSURGO Soils

Note: Soil types can be found in the "SSURGO Soil Types within the Survey Area" table.
 NWI types can be found in the "NWI Types within the Survey Area" table.

Data Sources: ESRI, USGS, USDA, USFWS, FEMA, EQT

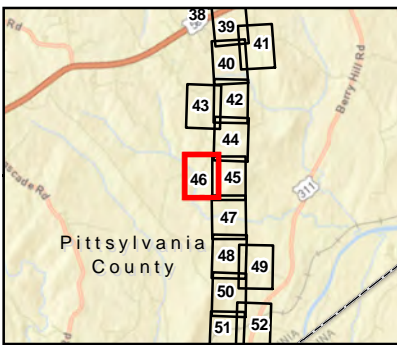
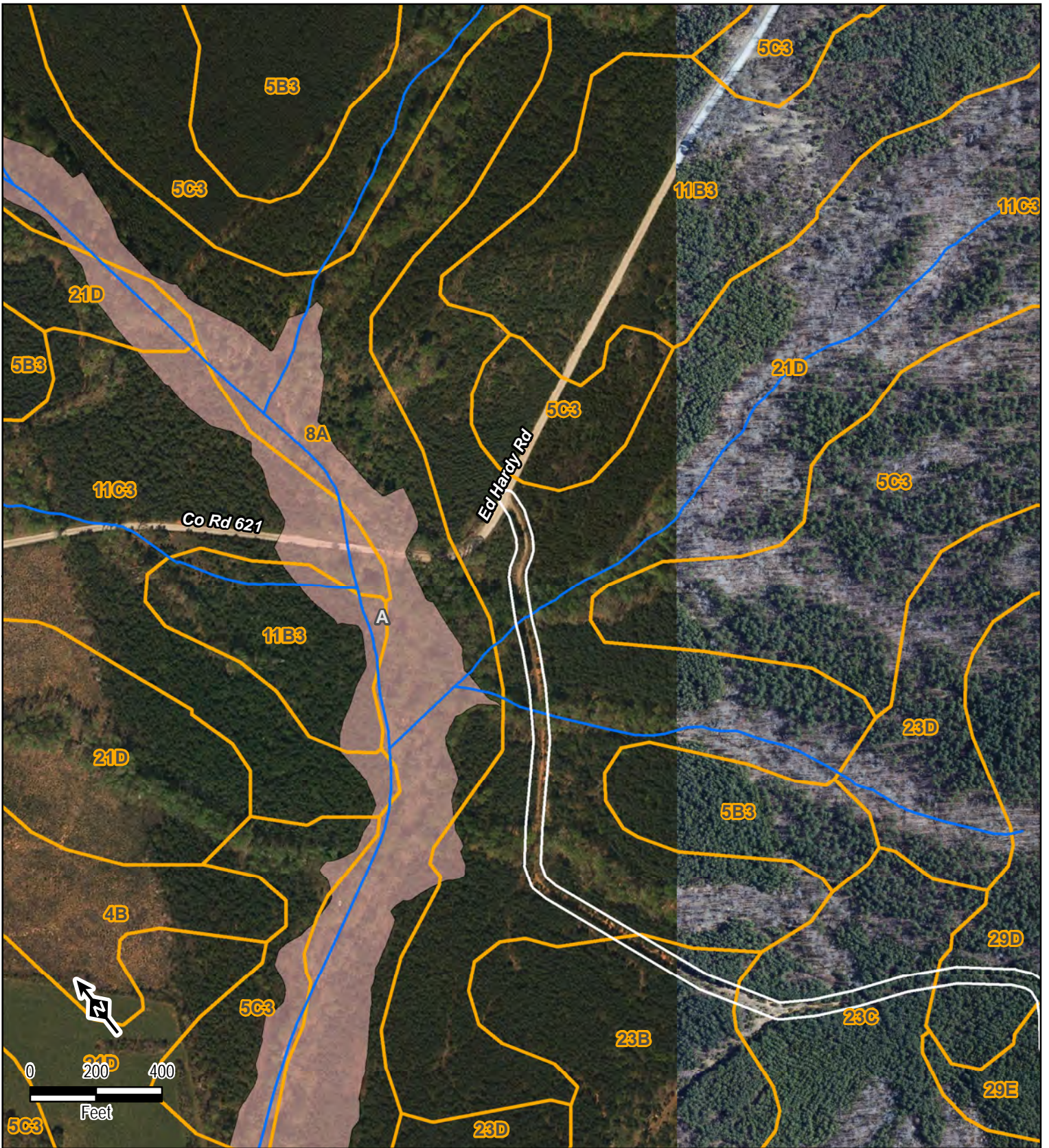
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Figure 3
 Soils, NWI, NHD Aerial Maps
 Pittsylvania County, Virginia
 Sheet 45 of 54

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600 Willowbrook Ln
 West Chester, PA 19382
 October 2018



Legend

Survey Area	NHD Flowline
State Boundary	NHD Waterbody
County Boundary	NWI Wetland
FEMA 100yr Flood Hazard Area	SSURGO Soils

Note: Soil types can be found in the "SSURGO Soil Types within the Survey Area" table.
 NWI types can be found in the "NWI Types within the Survey Area" table.

Data Sources: ESRI, USGS, USDA, USFWS, FEMA, EQT

1 inch = 400 feet
 When Printed 8.5x11

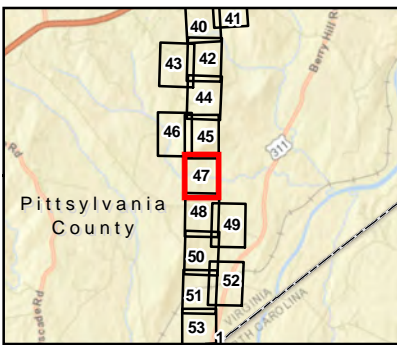
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Figure 3
 Soils, NWI, NHD Aerial Maps
 Pittsylvania County, Virginia
 Sheet 46 of 54

TRC
 Possible you can rely on

600 Willowbrook Ln
 West Chester, PA 19382
 October 2018

S:\1-PROJECTS\NEXTERA\300423_MVP_Southgate6-MXD\State_Permitting\Delin_Report\Fig_3_VA_SSURGO_NWI_NHD_8x11P.mxd



Legend

Survey Area	NHD Flowline
State Boundary	NHD Waterbody
County Boundary	NWI Wetland
FEMA 100yr Flood Hazard Area	SSURGO Soils

Note: Soil types can be found in the "SSURGO Soil Types within the Survey Area" table.
 NWI types can be found in the "NWI Types within the Survey Area" table.

Data Sources: ESRI, USGS, USDA, USFWS, FEMA, EQT

1 inch = 400 feet
 When Printed 8.5x11

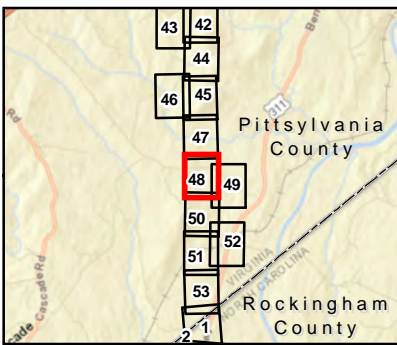
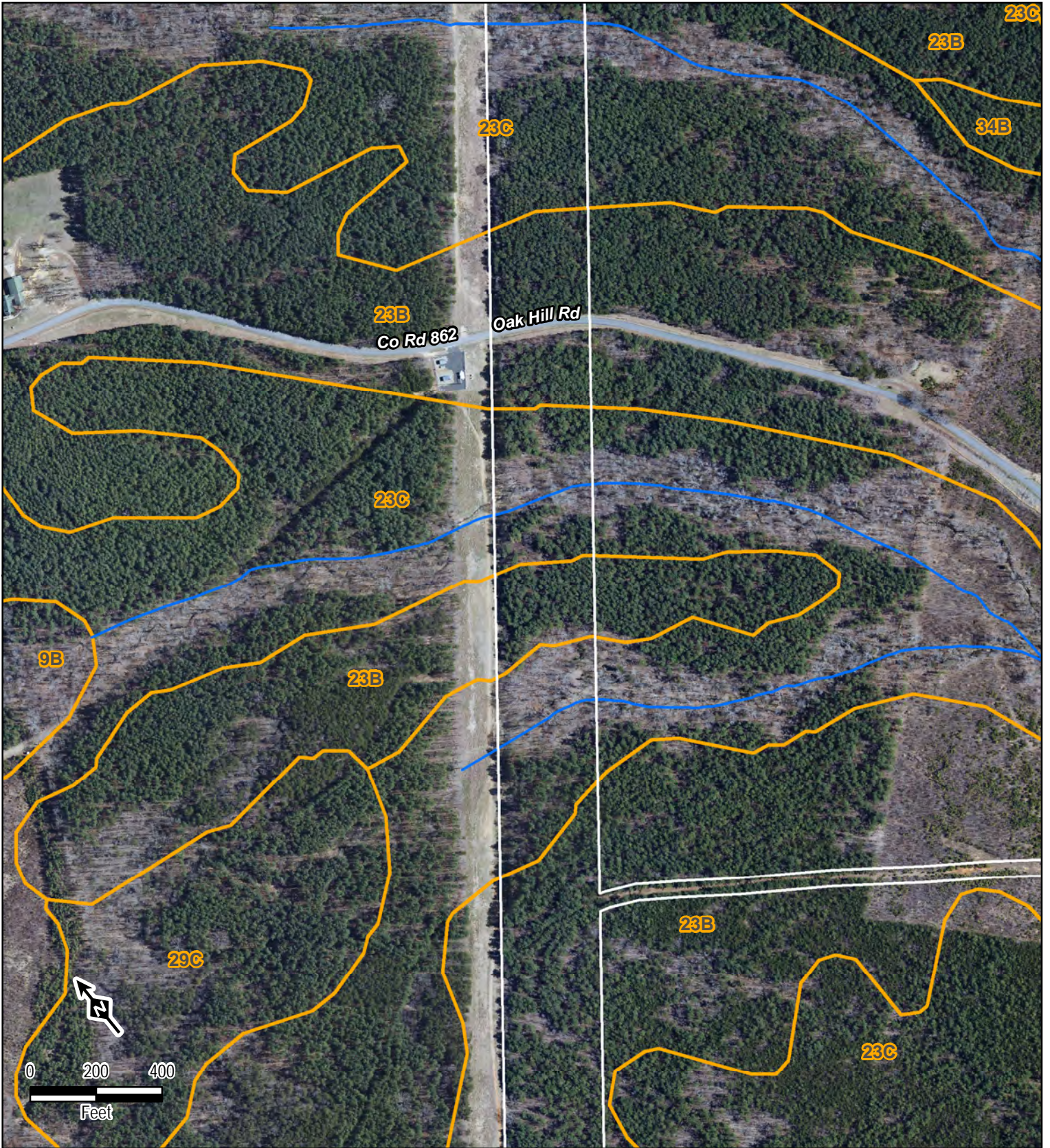
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Figure 3
 Soils, NWI, NHD Aerial Maps
 Pittsylvania County, Virginia
 Sheet 47 of 54

TRC
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600 Willowbrook Ln
 West Chester, PA 19382
 October 2018

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Legend

Survey Area	NHD Flowline
State Boundary	NHD Waterbody
County Boundary	NWI Wetland
FEMA 100yr Flood Hazard Area	SSURGO Soils

Note: Soil types can be found in the "SSURGO Soil Types within the Survey Area" table.
 NWI types can be found in the "NWI Types within the Survey Area" table.

Data Sources: ESRI, USGS, USDA, USFWS, FEMA, EQT

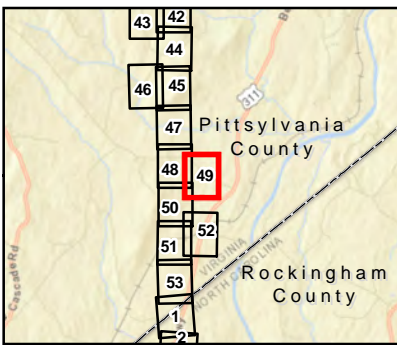
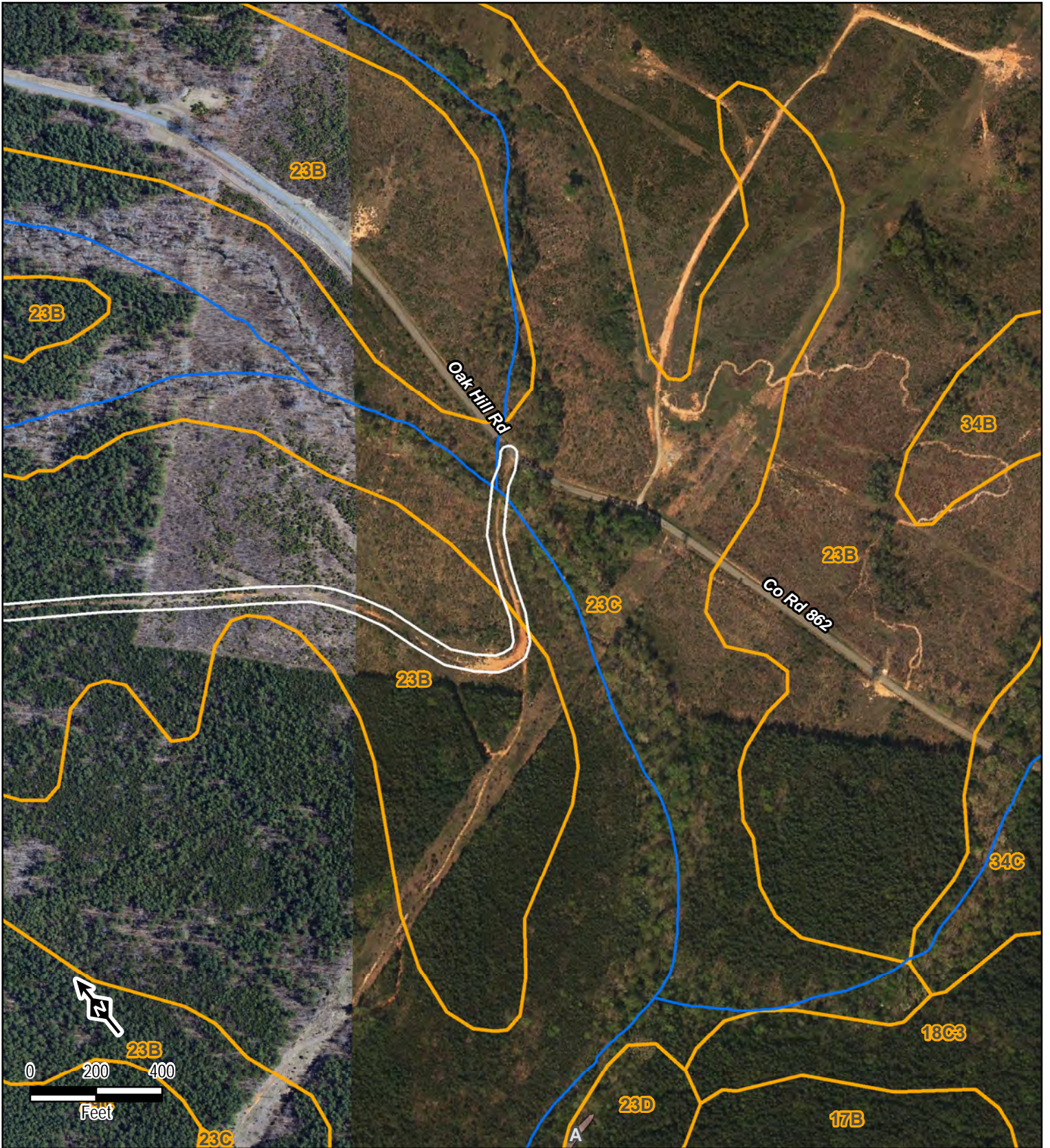
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Figure 3
 Soils, NWI, NHD Aerial Maps
 Pittsylvania County, Virginia
 Sheet 48 of 54

TRC
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600 Willowbrook Ln
 West Chester, PA 19382
 October 2018



Legend

Survey Area	NHD Flowline
State Boundary	NHD Waterbody
County Boundary	NWI Wetland
FEMA 100yr Flood Hazard Area	SSURGO Soils

Note: Soil types can be found in the "SSURGO Soil Types within the Survey Area" table.
 NWI types can be found in the "NWI Types within the Survey Area" table.

Data Sources: ESRI, USGS, USDA, USFWS, FEMA, EQT

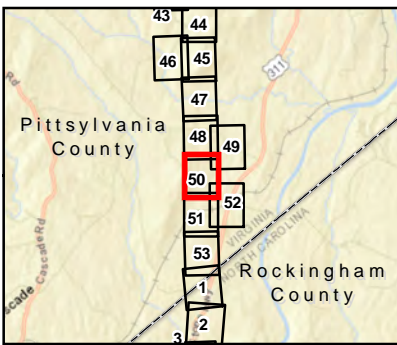
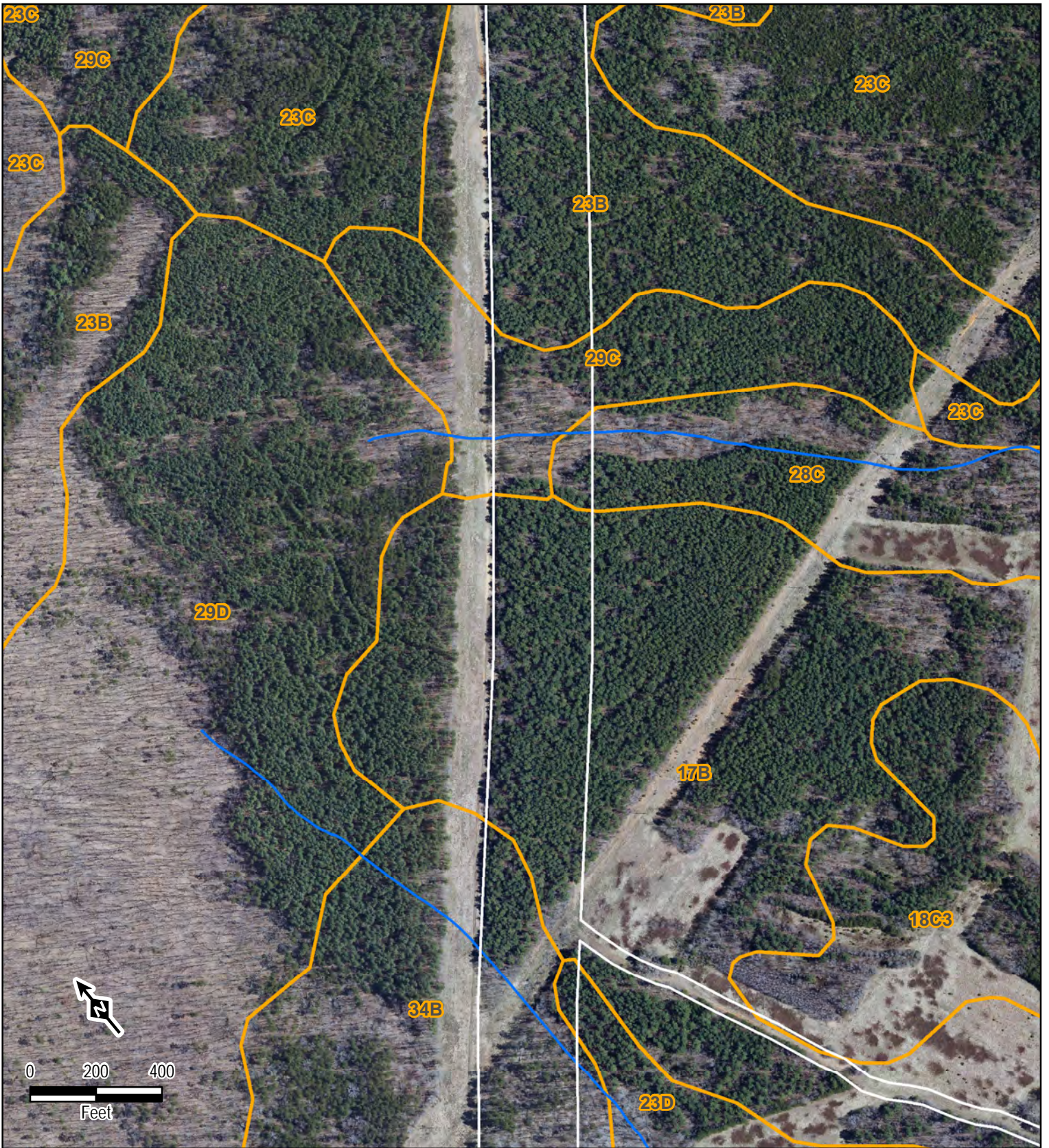
1 inch = 400 feet
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Figure 3
 Soils, NWI, NHD Aerial Maps
 Pittsylvania County, Virginia
 Sheet 49 of 54

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 West Chester, PA 19382
 October 2018



Legend

Survey Area	NHD Flowline
State Boundary	NHD Waterbody
County Boundary	NWI Wetland
FEMA 100yr Flood Hazard Area	SSURGO Soils

Note: Soil types can be found in the "SSURGO Soil Types within the Survey Area" table.
 NWI types can be found in the "NWI Types within the Survey Area" table.

Data Sources: ESRI, USGS, USDA, USFWS, FEMA, EQT

1 inch = 400 feet
 When Printed 8.5x11

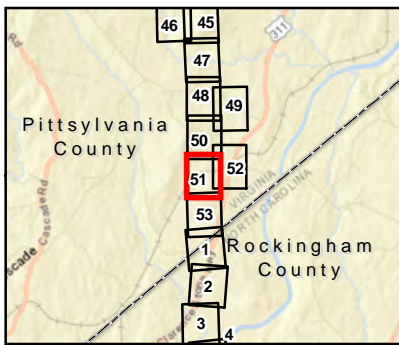
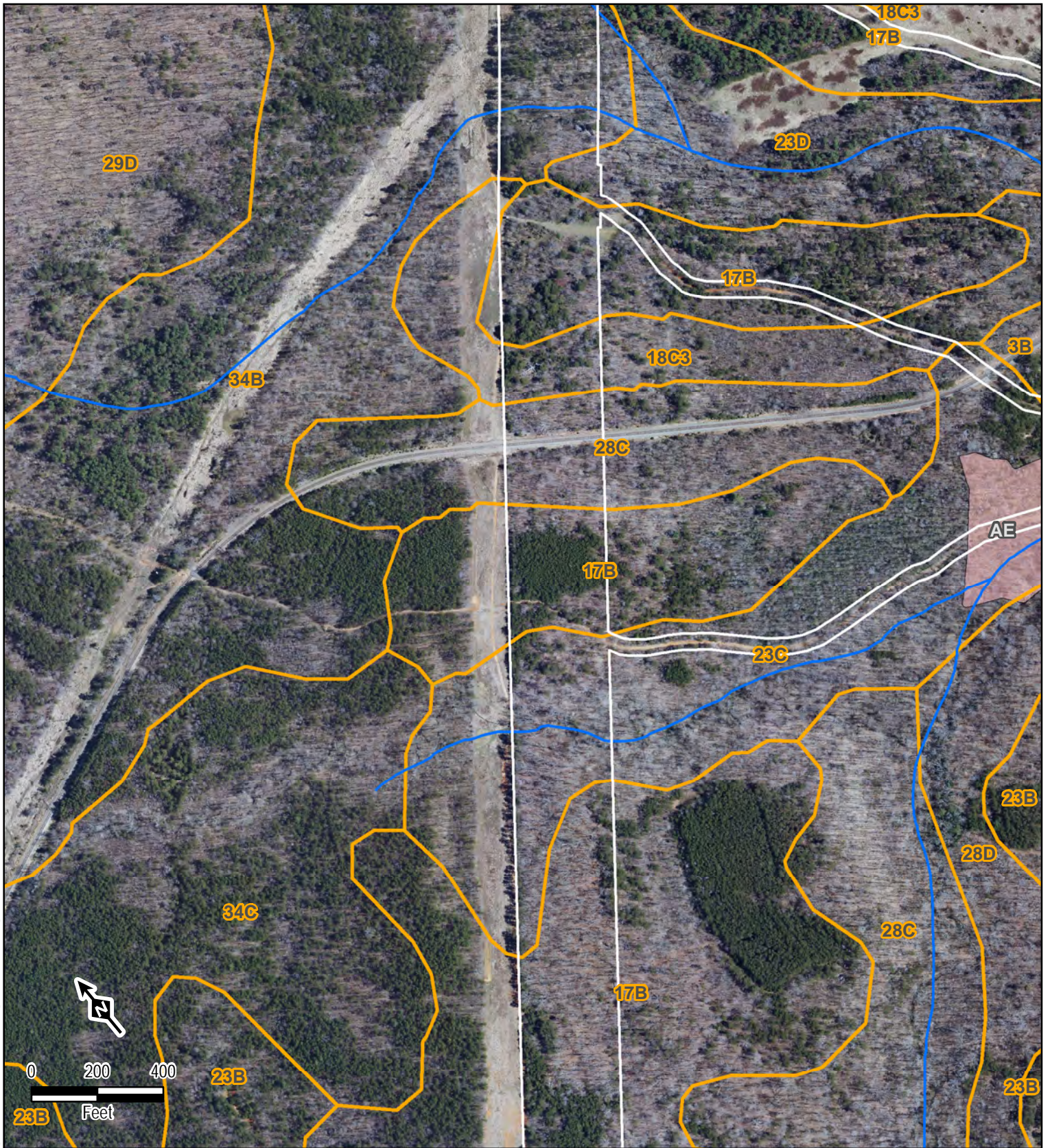
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Figure 3
 Soils, NWI, NHD Aerial Maps
 Pittsylvania County, Virginia
 Sheet 50 of 54

TRC
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 October 2018

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Legend

Survey Area	NHD Flowline
State Boundary	NHD Waterbody
County Boundary	NWI Wetland
FEMA 100yr Flood Hazard Area	SSURGO Soils

Note: Soil types can be found in the "SSURGO Soil Types within the Survey Area" table.
 NWI types can be found in the "NWI Types within the Survey Area" table.

Data Sources: ESRI, USGS, USDA, USFWS, FEMA, EQT

1 inch = 400 feet
 When Printed 8.5x11

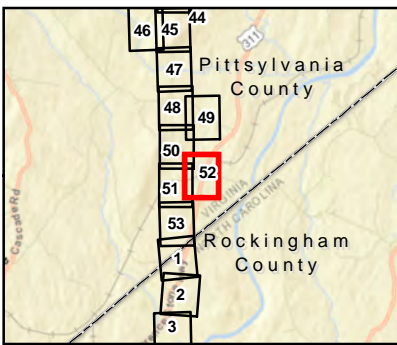
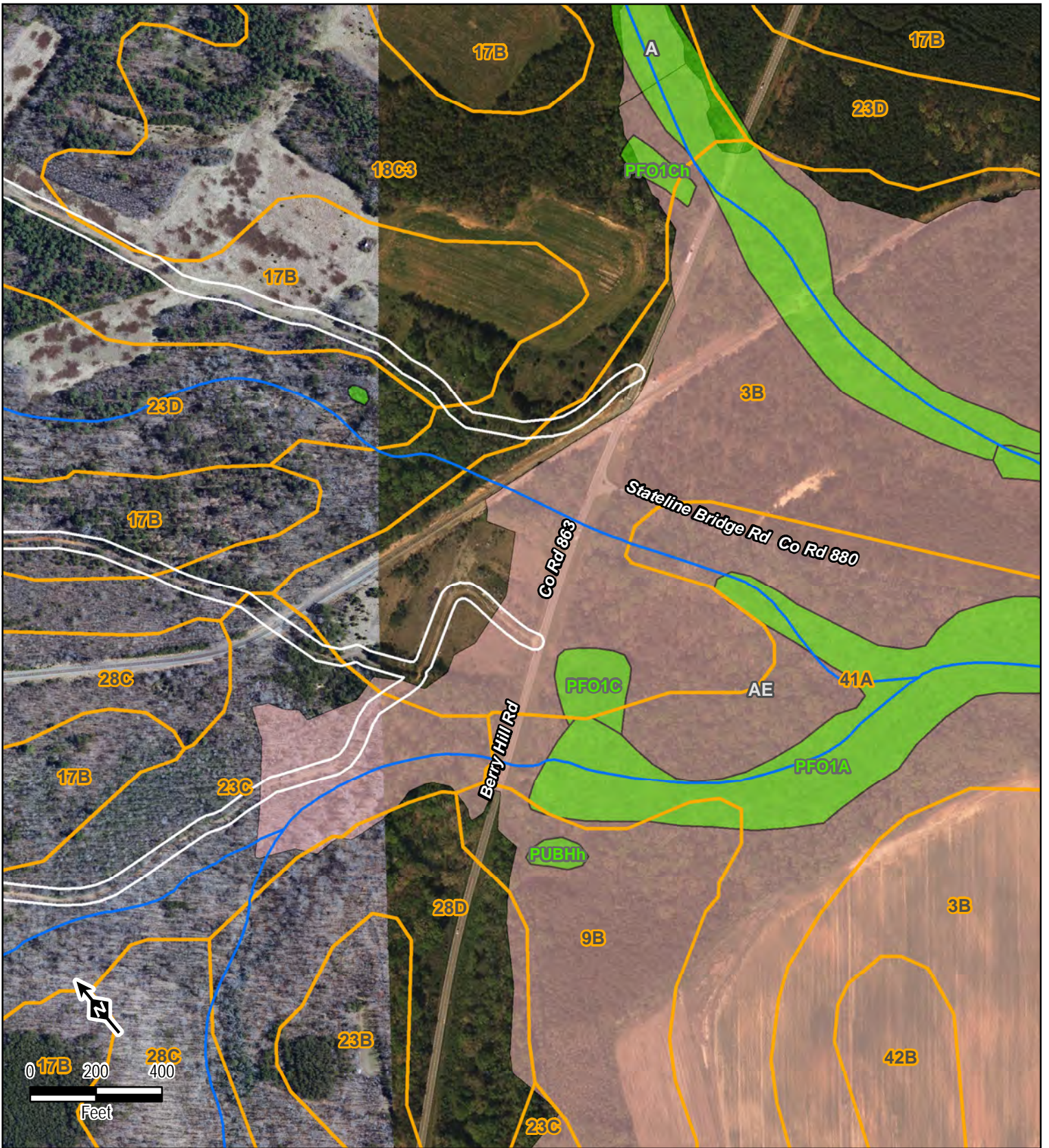
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Figure 3
 Soils, NWI, NHD Aerial Maps
 Pittsylvania County, Virginia
 Sheet 51 of 54

TRC
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600 Willowbrook Ln
 West Chester, PA 19382
 October 2018

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Legend

Survey Area	NHD Flowline
State Boundary	NHD Waterbody
County Boundary	NWI Wetland
FEMA 100yr Flood Hazard Area	SSURGO Soils

Note: Soil types can be found in the "SSURGO Soil Types within the Survey Area" table.
 NWI types can be found in the "NWI Types within the Survey Area" table.

Data Sources: ESRI, USGS, USDA, USFWS, FEMA, EQT

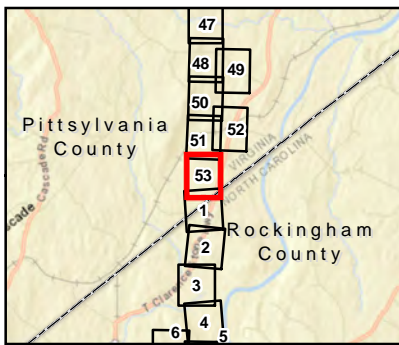
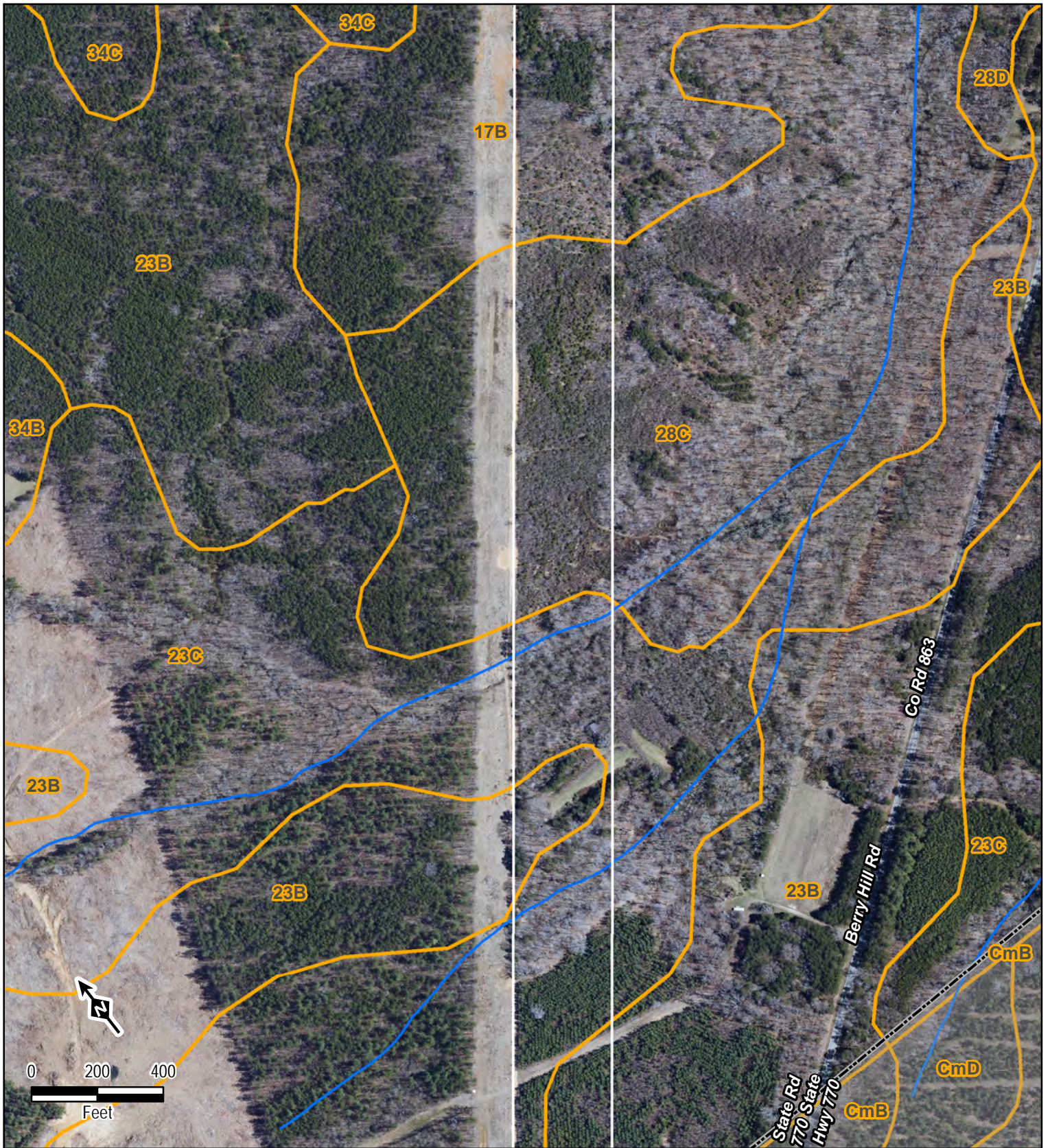
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Figure 3
 Soils, NWI, NHD Aerial Maps
 Pittsylvania County, Virginia
 Sheet 52 of 54

TRC
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600 Willowbrook Ln
 West Chester, PA 19382
 October 2018



Legend

Survey Area	NHD Flowline
State Boundary	NHD Waterbody
County Boundary	NWI Wetland
FEMA 100yr Flood Hazard Area	SSURGO Soils

Note: Soil types can be found in the "SSURGO Soil Types within the Survey Area" table.
 NWI types can be found in the "NWI Types within the Survey Area" table.

Data Sources: ESRI, USGS, USDA, USFWS, FEMA, EQT

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Figure 3
 Soils, NWI, NHD Aerial Maps
 Pittsylvania County, Virginia
 Sheet 53 of 54

TRC
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600 Willowbrook Ln
 West Chester, PA 19382
 October 2018

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Legend

Survey Area	NHD Flowline
State Boundary	NHD Waterbody
County Boundary	NWI Wetland
FEMA 100yr Flood Hazard Area	SSURGO Soils

Note: Soil types can be found in the "SSURGO Soil Types within the Survey Area" table.
 NWI types can be found in the "NWI Types within the Survey Area" table.

Data Sources: ESRI, USGS, USDA, USFWS, FEMA, EQT

1 inch = 400 feet
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Figure 3
 Soils, NWI, NHD Aerial Maps
 Pittsylvania County, Virginia
 Sheet 54 of 54

TRC
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 West Chester, PA 19382
 October 2018