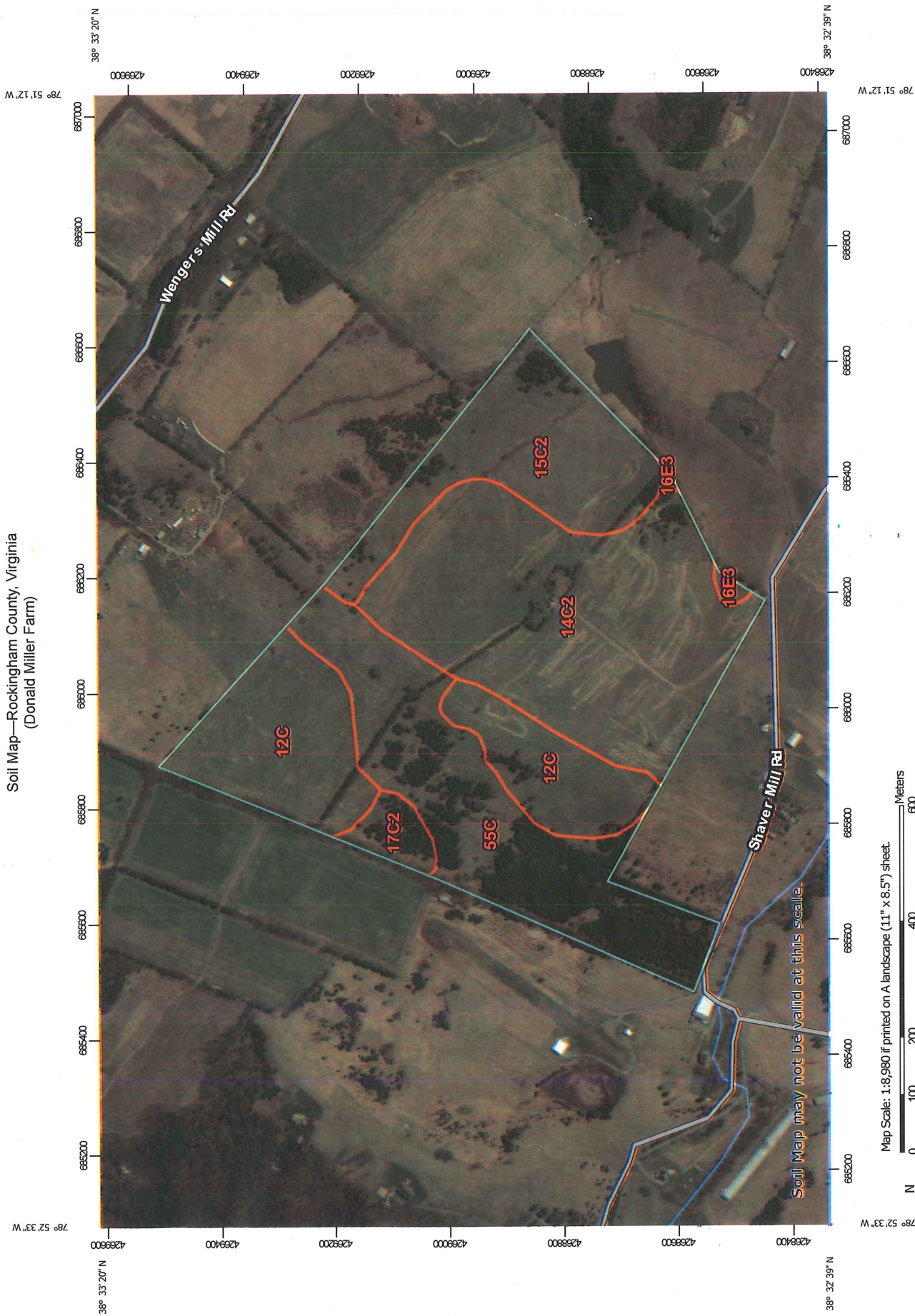








































































Soil Map—Rockingham County, Virginia
(Donald Miller Farm)



Map Scale: 1:8,980 if printed on A landscape (11" x 8.5") sheet.

Map projection: Web Mercator Corner coordinates: WGS84 Edge ties: UTM Zone 17N WGS84

MAP LEGEND

Area of Interest (AOI)		Area of Interest (AOI)	
Soils		Soils	
Soil Map Unit Polygons		Soil Map Unit Polygons	
Soil Map Unit Lines		Soil Map Unit Lines	
Soil Map Unit Points		Soil Map Unit Points	
Special Point Features		Special Point Features	
Blowout		Blowout	
Borrow Pit		Borrow Pit	
Clay Spot		Clay Spot	
Closed Depression		Closed Depression	
Gravel Pit		Gravel Pit	
Gravelly Spot		Gravelly Spot	
Landfill		Landfill	
Lava Flow		Lava Flow	
Marsh or swamp		Marsh or swamp	
Mine or Quarry		Mine or Quarry	
Miscellaneous Water		Miscellaneous Water	
Perennial Water		Perennial Water	
Rock Outcrop		Rock Outcrop	
Saline Spot		Saline Spot	
Sandy Spot		Sandy Spot	
Severely Eroded Spot		Severely Eroded Spot	
Sinkhole		Sinkhole	
Slide or Slip		Slide or Slip	
Sodic Spot		Sodic Spot	
Water Features		Water Features	
Streams and Canals		Streams and Canals	
Transportation		Transportation	
Rails		Rails	
Interstate Highways		Interstate Highways	
US Routes		US Routes	
Major Roads		Major Roads	
Local Roads		Local Roads	
Background		Background	
Aerial Photography		Aerial Photography	

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:20,000.

Warning: Soil Map may not be valid at this scale.

Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL:
Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Rockingham County, Virginia
Survey Area Data: Version 10, Oct 11, 2017

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: May 9, 2011—Mar 26, 2017

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Map Unit Legend

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
12C	Carbo-Endcav-Rock outcrop complex, 7 to 15 percent slopes	30.2	20.7%
14C2	Chilhowie silty clay, 7 to 15 percent slopes, eroded	53.2	36.4%
15C2	Chilhowie silty clay, 7 to 15 percent slopes, rocky, eroded	23.5	16.0%
16E3	Chilhowie clay, 25 to 45 percent slopes, rocky, severely eroded	0.7	0.5%
17C2	Chilhowie-Edom silty clay loams, 7 to 15 percent slopes, eroded	3.4	2.3%
55C	Rock outcrop-Carbo complex, 0 to 20 percent slopes	35.3	24.1%
Totals for Area of Interest		146.3	100.0%



Map Unit Description (Brief, Generated)

The map units delineated on the detailed soil maps in a soil survey represent the soils or miscellaneous areas in the survey area. The map unit descriptions in this report, along with the maps, provide information on the composition of map units and properties of their components.

A map unit delineation on a soil map represents an area dominated by one or more major kinds of soil or miscellaneous areas. A map unit is identified and named according to the taxonomic classification of the dominant soils. Within a taxonomic class there are precisely defined limits for the properties of the soils. On the landscape, however, the soils are natural phenomena, and they have the characteristic variability of all natural phenomena. Thus, the range of some observed properties may extend beyond the limits defined for a taxonomic class. Areas of soils of a single taxonomic class rarely, if ever, can be mapped without including areas of other taxonomic classes. Consequently, every map unit is made up of the soils or miscellaneous areas for which it is named and some minor components that belong to taxonomic classes other than those of the major soils.

The Map Unit Description (Brief, Generated) report displays a generated description of the major soils that occur in a map unit. Descriptions of non-soil (miscellaneous areas) and minor map unit components are not included. This description is generated from the underlying soil attribute data.

Additional information about the map units described in this report is available in other Soil Data Mart reports, which give properties of the soils and the limitations, capabilities, and potentials for many uses. Also, the narratives that accompany the Soil Data Mart reports define some of the properties included in the map unit descriptions.

Report—Map Unit Description (Brief, Generated)

Rockingham County, Virginia

Map Unit: 12C—Carbo-Endcav-Rock outcrop complex, 7 to 15 percent slopes

Component: Carbo (30%)

The Carbo component makes up 30 percent of the map unit. Slopes are 7 to 15 percent. This component is on hills on uplands. The parent material consists of residuum weathered from limestone and calcareous shale. Depth to a root restrictive layer, bedrock (lithic), is 20 to 40 inches. The natural drainage class is well drained. Water movement in the most restrictive layer is moderately low. Available water to a depth of 60 inches is low. Shrink-swell potential is high. This soil is not flooded. It is not ponded. There is no zone of water saturation within a depth of 72 inches. Organic matter content in the surface horizon is about 2 percent. Nonirrigated land capability classification is 3e. This soil does not meet hydric criteria.

Component: Endcav (30%)

The Endcav component makes up 30 percent of the map unit. Slopes are 7 to 15 percent. This component is on hills on uplands. The parent material consists of residuum weathered from limestone and calcareous shale. Depth to a root restrictive layer, bedrock (lithic), is 40 to 60 inches. The natural drainage class is well drained. Water movement in the most restrictive layer is moderately low. Available water to a depth of 60 inches is moderate. Shrink-swell potential is high. This soil is not flooded. It is not ponded. There is no zone of water saturation within a depth of 72 inches. Organic matter content in the surface horizon is about 1 percent. Nonirrigated land capability classification is 3e. This soil does not meet hydric criteria.

Component: Rock outcrop (25%)

Generated brief soil descriptions are created for major soil components. The Rock outcrop is a miscellaneous area.

Map Unit: 14C2—Chilhowie silty clay, 7 to 15 percent slopes, eroded**Component: Chilhowie (80%)**

The Chilhowie component makes up 80 percent of the map unit. Slopes are 7 to 15 percent. This component is on hills on uplands. The parent material consists of residuum from interbedded calcareous shale and limestone. Depth to a root restrictive layer, bedrock (lithic), is 20 to 40 inches. The natural drainage class is well drained. Water movement in the most restrictive layer is moderately low. Available water to a depth of 60 inches is very low. Shrink-swell potential is high. This soil is not flooded. It is not ponded. There is no zone of water saturation within a depth of 72 inches. Organic matter content in the surface horizon is about 1 percent. Nonirrigated land capability classification is 4e. This soil does not meet hydric criteria.

Map Unit: 15C2—Chilhowie silty clay, 7 to 15 percent slopes, rocky, eroded**Component: Chilhowie (80%)**

The Chilhowie component makes up 80 percent of the map unit. Slopes are 7 to 15 percent. This component is on hills on uplands. The parent material consists of residuum from interbedded calcareous shale and limestone. Depth to a root restrictive layer, bedrock (lithic), is 20 to 40 inches. The natural drainage class is well drained. Water movement in the most restrictive layer is moderately low. Available water to a depth of 60 inches is very low. Shrink-swell potential is high. This soil is not flooded. It is not ponded. There is no zone of water saturation within a depth of 72 inches. Organic matter content in the surface horizon is about 1 percent. Nonirrigated land capability classification is 4e. This soil does not meet hydric criteria.

Map Unit: 16E3—Chilhowie clay, 25 to 45 percent slopes, rocky, severely eroded

Component: Chilhowie (80%)

The Chilhowie component makes up 80 percent of the map unit. Slopes are 25 to 45 percent. This component is on hills on uplands. The parent material consists of residuum from interbedded calcareous shale and limestone. Depth to a root restrictive layer, bedrock (lithic), is 20 to 40 inches. The natural drainage class is well drained. Water movement in the most restrictive layer is moderately low. Available water to a depth of 60 inches is very low. Shrink-swell potential is high. This soil is not flooded. It is not ponded. There is no zone of water saturation within a depth of 72 inches. Organic matter content in the surface horizon is about 1 percent. Nonirrigated land capability classification is 7e. This soil does not meet hydric criteria.

Map Unit: 17C2—Chilhowie-Edom silty clay loams, 7 to 15 percent slopes, eroded

Component: Chilhowie (40%)

The Chilhowie component makes up 40 percent of the map unit. Slopes are 7 to 15 percent. This component is on hills on uplands. The parent material consists of residuum from interbedded calcareous shale and limestone. Depth to a root restrictive layer, bedrock (lithic), is 20 to 40 inches. The natural drainage class is well drained. Water movement in the most restrictive layer is moderately low. Available water to a depth of 60 inches is very low. Shrink-swell potential is high. This soil is not flooded. It is not ponded. There is no zone of water saturation within a depth of 72 inches. Organic matter content in the surface horizon is about 1 percent. Nonirrigated land capability classification is 4e. This soil does not meet hydric criteria.

Component: Edom (40%)

The Edom component makes up 40 percent of the map unit. Slopes are 7 to 15 percent. This component is on hills on uplands. The parent material consists of residuum from interbedded calcareous shale and limestone. Depth to a root restrictive layer is greater than 60 inches. The natural drainage class is well drained. Water movement in the most restrictive layer is moderately high. Available water to a depth of 60 inches is moderate. Shrink-swell potential is moderate. This soil is not flooded. It is not ponded. There is no zone of water saturation within a depth of 72 inches. Organic matter content in the surface horizon is about 3 percent. Nonirrigated land capability classification is 3e. This soil does not meet hydric criteria.

Map Unit: 55C—Rock outcrop-Carbo complex, 0 to 20 percent slopes

Component: Rock outcrop (40%)

Generated brief soil descriptions are created for major soil components. The Rock outcrop is a miscellaneous area.

Component: Carbo (35%)

The Carbo component makes up 35 percent of the map unit. Slopes are 0 to 20 percent. This component is on hills on uplands. The parent material consists of residuum from limestone. Depth to a root restrictive layer, bedrock (lithic), is 20 to 40 inches. The natural drainage class is well drained. Water movement in the most restrictive layer is moderately low. Available water to a depth of 60 inches is low. Shrink-swell potential is high. This soil is not flooded. It is not ponded. There is no zone of water saturation within a depth of 72 inches. Organic matter content in the surface horizon is about 2 percent. Nonirrigated land capability classification is 3e. This soil does not meet hydric criteria.

Data Source Information

Soil Survey Area: Rockingham County, Virginia
Survey Area Data: Version 10, Oct 11, 2017



Nonirrigated Yields by Map Unit Component

The average yields per acre that can be expected of the principal crops under a high level of management are shown in this table. In any given year, yields may be higher or lower than those indicated in the table because of variations in rainfall and other climatic factors.

The yields are based mainly on the experience and records of farmers, conservationists, and extension agents. Available yield data from nearby counties and results of field trials and demonstrations also are considered.

The management needed to obtain the indicated yields of the various crops depends on the kind of soil and the crop. Management can include drainage, erosion control, and protection from flooding; the proper planting and seeding rates; suitable high-yielding crop varieties; appropriate and timely tillage; control of weeds, plant diseases, and harmful insects; favorable soil reaction and optimum levels of nitrogen, phosphorus, potassium, and trace elements for each crop; effective use of crop residue, barnyard manure, and green manure crops; and harvesting that ensures the smallest possible loss.

If yields of irrigated crops are given, it is assumed that the irrigation system is adapted to the soils and to the crops grown, that good-quality irrigation water is uniformly applied as needed, and that tillage is kept to a minimum.

Pasture yields are expressed in terms of animal unit months. An animal unit month (AUM) is the amount of forage required by one mature cow of approximately 1,000 pounds weight, with or without a calf, for 1 month.

The estimated yields reflect the productive capacity of each soil for each of the principal crops. Yields are likely to increase as new production technology is developed. The productivity of a given soil compared with that of other soils, however, is not likely to change.

Crops other than those shown in the table are grown in the survey area, but estimated yields are not listed because the acreage of such crops is small. The local office of the Natural Resources Conservation Service or of the Cooperative Extension Service can provide information about the management and productivity of the soils for those crops.

The land capability classification of map units in the survey area is shown in this table. This classification shows, in a general way, the suitability of soils for most kinds of field crops (United States Department of Agriculture, Soil Conservation Service, 1961). Crops that require special management are excluded. The soils are grouped according to their limitations for field crops, the risk of damage if they are used for crops, and the way they respond to management. The criteria used in grouping the soils do not include major and generally expensive landforming that would change slope, depth, or other characteristics of the soils, nor do they include possible but unlikely major reclamation projects. Capability classification is not a substitute for interpretations designed to show suitability and limitations of groups of soils for rangeland, for forestland, or for engineering purposes.

In the capability system, soils are generally grouped at three levels: capability class, subclass, and unit.

Capability classes, the broadest groups, are designated by the numbers 1 through 8. The numbers indicate progressively greater limitations and narrower choices for practical use. The classes are defined as follows:

- Class 1 soils have slight limitations that restrict their use.
- Class 2 soils have moderate limitations that restrict the choice of plants or that require moderate conservation practices.
- Class 3 soils have severe limitations that restrict the choice of plants or that require special conservation practices, or both.
- Class 4 soils have very severe limitations that restrict the choice of plants or that require very careful management, or both.
- Class 5 soils are subject to little or no erosion but have other limitations, impractical to remove, that restrict their use mainly to pasture, rangeland, forestland, or wildlife habitat.
- Class 6 soils have severe limitations that make them generally unsuitable for cultivation and that restrict their use mainly to pasture, rangeland, forestland, or wildlife habitat.
- Class 7 soils have very severe limitations that make them unsuitable for cultivation and that restrict their use mainly to grazing, forestland, or wildlife habitat.
- Class 8 soils and miscellaneous areas have limitations that preclude commercial plant production and that restrict their use to recreational purposes, wildlife habitat, watershed, or esthetic purposes.

Capability subclasses are soil groups within one class. They are designated by adding a small letter, e, w, s, or c, to the class numeral, for example, 2e. The letter e shows that the main hazard is the risk of erosion unless close-growing plant cover is maintained; w shows that water in or on the soil interferes with plant growth or cultivation (in some soils the wetness can be partly corrected by artificial drainage); s shows that the soil is limited mainly because it is shallow, droughty, or stony; and c, used in only some parts of the United States, shows that the chief limitation is climate that is very cold or very dry.

In class 1 there are no subclasses because the soils of this class have few limitations. Class 5 contains only the subclasses indicated by w, s, or c because the soils in class 5 are subject to little or no erosion.

Capability units are soil groups within a subclass. The soils in a capability unit are enough alike to be suited to the same crops and pasture plants, to require similar management, and to have similar productivity. Capability units are generally designated by adding an Arabic numeral to the subclass symbol, for example, 2e-4 and 3e-6. These units are not given in all soil surveys.

Reference:

United States Department of Agriculture, Soil Conservation Service. 1961. Land capability classification. U.S. Department of Agriculture Handbook 210.

Report—Nonirrigated Yields by Map Unit Component



Nonirrigated Yields by Map Unit Component--Rockingham County, Virginia			
Map symbol and soil name	Land capability	Corn silage	Grass-legume hay
		<i>Tons</i>	<i>Tons</i>
12C—Carbo-Endcav-Rock outcrop complex, 7 to 15 percent slopes			
Carbo	3e	—	—
Endcav	3e	—	—
Rock outcrop	8s	—	—
14C2—Chilhowie silty clay, 7 to 15 percent slopes, eroded			
Chilhowie	4e	15.00	2.50
15C2—Chilhowie silty clay, 7 to 15 percent slopes, rocky, eroded			
Chilhowie	4e	15.00	2.50
16E3—Chilhowie clay, 25 to 45 percent slopes, rocky, severely eroded			
Chilhowie	7e	—	—
17C2—Chilhowie-Edom silty clay loams, 7 to 15 percent slopes, eroded			
Chilhowie	4e	15.00	2.50
Edom	3e	18.00	3.00
55C—Rock outcrop-Carbo complex, 0 to 20 percent slopes			
Rock outcrop	8s	—	—
Carbo	3e	—	3.00

Data Source Information

Soil Survey Area: Rockingham County, Virginia
 Survey Area Data: Version 10, Oct 11, 2017

