United States
Department of
Agriculture

Natural
Resources
Conservation
Service

In cooperation with
United States Department of
Agriculture, Forest Service;
Virginia Polytechnic Institute
and State University; Virginia
Department of Conservation
and Recreation, Division of Soil
and Water Conservation; Craig
County Board of Supervisors; and
Mountain Castles Soil and Water
Conservation District

Soil Survey of Craig County, Virginia

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How To Use This Soil Survey

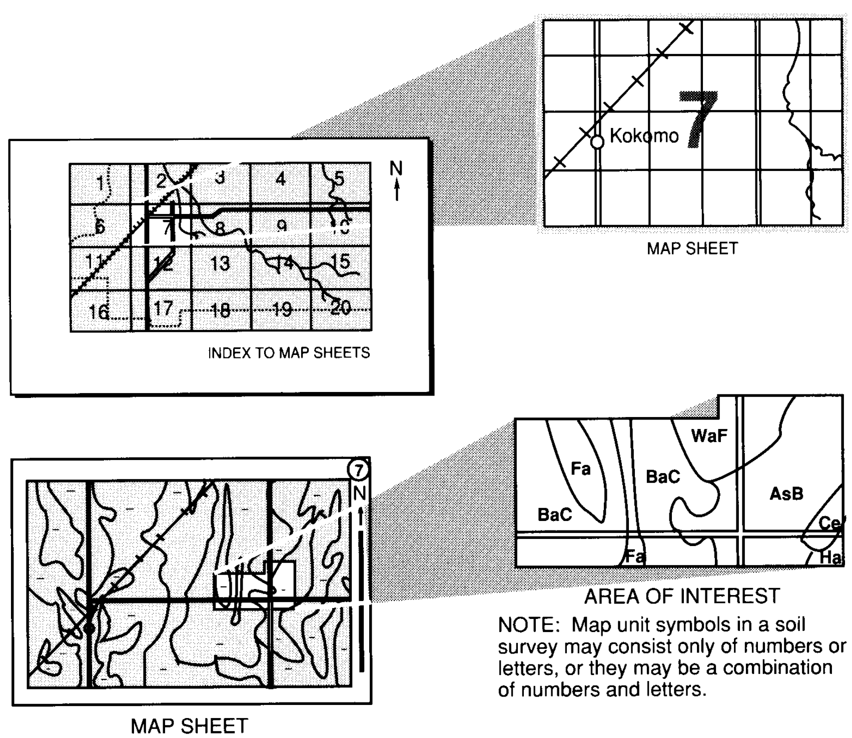
Detailed Soil Maps

The detailed soil maps can be useful in planning the use and management of small areas.

To find information about your area of interest, locate that area on the **Index to Map Sheets**. Note the number of the map sheet and turn to that sheet.

Locate your area of interest on the map sheet. Note the map unit symbols that are in that area. Turn to the **Contents**, which lists the map units by symbol and name and shows the page where each map unit is described.

The **Contents** shows which table has data on a specific land use for each detailed soil map unit. Also see the **Contents** for sections of this publication that may address your specific needs.



National Cooperative Soil Survey

This soil survey is a publication of the National Cooperative Soil Survey, a joint effort of the United States Department of Agriculture and other Federal agencies, State agencies including the Agricultural Experiment Stations, and local agencies. The Natural Resources Conservation Service (formerly the Soil Conservation Service) has leadership for the Federal part of the National Cooperative Soil Survey. This survey was made cooperatively by the Natural Resources Conservation Service; the United States Department of Agriculture, Forest Service; the Virginia Polytechnic Institute and State University; the Virginia Department of Conservation and Recreation, Division of Soil and Water Conservation; the Craig County Board of Supervisors; and the Mountain Castles Soil and Water Conservation District. The survey is part of the technical assistance furnished to the Mountain Castles Soil and Water Conservation District.

Major fieldwork for this soil survey was completed in 2009. Soil names and descriptions were approved in 2010. Unless otherwise indicated, statements in this publication refer to conditions in the survey area in 2010. The most current official data are available at http://websoilsurvey.nrcs.usda.gov/app/.

Soil maps in this survey may be copied without permission. Enlargement of these maps, however, could cause misunderstanding of the detail of mapping. If enlarged, maps do not show the small areas of contrasting soils that could have been shown at a larger scale.

Literature Citation

The correct citation for this survey is as follows:

United States Department of Agriculture, Natural Resources Conservation Service. 2015. Soil survey of Craig County, Virginia. (Accessible online at: http://soils.usda.gov/survey/printed_surveys/)

Cover Caption

A view of the New Castle, Virginia area from the overlook on the rim of Sinking Creek Mountain. Alonzville, Nicelytown, and Jefferson are some of the common soils in the lower lying areas. Schaffenaker, Dekalb, and Berks are some of the common soils on the smaller mountains in the middle ground. Larger mountains in the northern and southern areas in the background are in the Jefferson National Forest within Craig County. Larger mountains in the far eastern distance are in Botetourt County, Virginia.

Contents

Issued 2015

Foreword

Soil surveys contain information that affects land use planning in survey areas. They include predictions of soil behavior for selected land uses. The surveys highlight soil limitations, improvements needed to overcome the limitations, and the impact of selected land uses on the environment.

Soil surveys are designed for many different users. Farmers, ranchers, foresters, and agronomists can use the surveys to evaluate the potential of the soil and the management needed for maximum food and fiber production. Planners, community officials, engineers, developers, builders, and home buyers can use the surveys to plan land use, select sites for construction, and identify special practices needed to ensure proper performance. Conservationists, teachers, students, and specialists in recreation, wildlife management, waste disposal, and pollution control can use the surveys to help them understand, protect, and enhance the environment.

Various land use regulations of Federal, State, and local governments may impose special restrictions on land use or land treatment. The information in this report is intended to identify soil properties that are used in making various land use or land treatment decisions. Statements made in this report are intended to help the land users identify and reduce the effects of soil limitations on various land uses. The landowner or user is responsible for identifying and complying with existing laws and regulations.

Although soil survey information can be used for general farm, local, and wider area planning, onsite investigation is needed to supplement this information in some cases. Examples include soil quality assessments (http://soils.usda.gov/sqi/) and certain conservation and engineering applications. For more detailed information, contact your local USDA Service Center (http://offices.sc.egov.usda.gov/locator/app?agency=nrcs) or your NRCS state soil scientist (http://soils.usda.gov/contact/state_offices/).

Great differences in soil properties can occur within short distances. Some soils are seasonally wet or subject to flooding. Some are too unstable to be used as a foundation for buildings or roads. Clayey or wet soils are poorly suited to use as septic tank absorption fields. A high water table makes a soil poorly suited to basements or underground installations.

These and many other soil properties that affect land use are described in this soil survey. The location of each map unit is shown on the detailed soil maps. Each soil in the survey area is described, and information on specific uses is given. Help in using this publication and additional information are available at the local office of the Natural Resources Conservation Service or the Cooperative Extension Service.

John A. Bricker
State Conservationist
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Soil Survey of
Craig County, Virginia

By Robert K. Conner, Natural Resources Conservation Service

Fieldwork by Robert K. Conner and Jeannine C. Freyman, Natural Resources Conservation Service

United States Department of Agriculture, Natural Resources Conservation Service,
in cooperation with
United States Department of Agriculture, Forest Service; Virginia Polytechnic Institute and State University; Virginia Department of Conservation and Recreation, Division of Soil and Water Conservation; Craig County Board of Supervisors; and Mountain Castles Soil and Water Conservation District

CRAIG COUNTY is in the western part of Virginia, about 30 miles northwest of Roanoke (fig. 1). The county has a total area of about 211,988 acres. This soil survey includes the 95,600 acres of privately owned land in the county. The Jefferson National Forest, which covers about 116,388 acres in the county, is not included in this soil survey.

According to the U.S. Census Bureau, the population of the survey area in 2010 was 5,190. New Castle, which is in the east-central part of the county, is the county seat.

Farming and forestry are the major land uses in the county. The survey area is about 55 percent woodland and 45 percent farmland. Most of the farms produce beef cattle, dairy products, corn, and hay.

General Nature of the Survey Area

This section provides general information about Craig County. It describes early history; water resources; transportation; land use; physiography, geology, relief, and drainage; and climate.

Early History

Many of the early settlers in the area of present-day Craig County arrived shortly after the end of the French and Indian War. The majority of them traveled down the Shenandoah Valley from Pennsylvania. Land along the confluence of Craig Creek and Johns Creek, near the present-day town of New Castle, attracted the settlers because of its topography and soils and was among the first areas to be settled. New Castle was originally called “Craig’s Camp” and was built up as a large fort in order to guard against Indian attacks. Later the name was changed to “New Fincastle” and then shortened to “New Castle.” Soon after the Revolutionary War, areas along the Sinking Creek Valley were settled by farming families, who, in many cases, had moved from the upper Shenandoah Valley in search of new land.

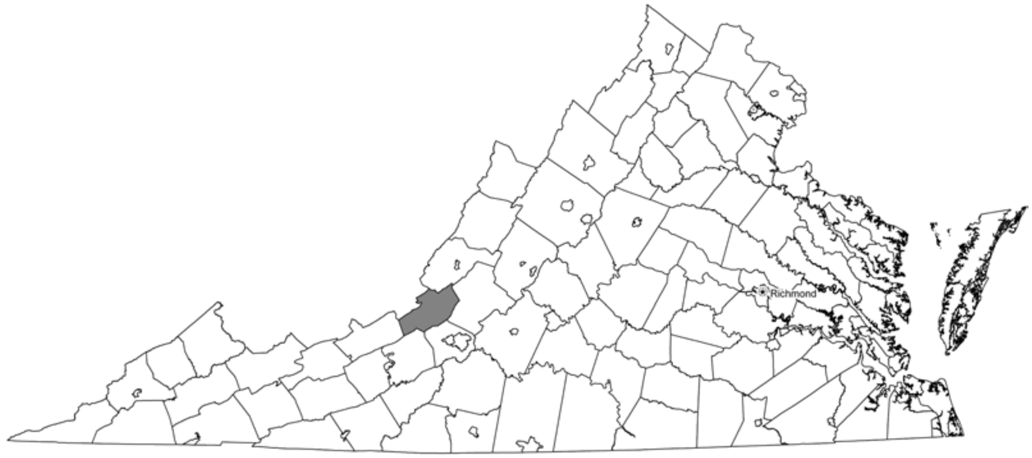

Figure 1.—Location of Craig County in Virginia.

Craig County was formed in 1851 from sections of Botetourt, Giles, and Roanoke Counties in Virginia and Monroe County in West Virginia. Additional sections from Monroe, Montgomery, Alleghany, and Giles Counties were added between 1852 and 1880.

Water Resources

The major streams in the survey area are Craig Creek and its tributaries, Barbours Creek, Johns Creek, Potts Creek, and Sinking Creek. Craig Creek flows into the James River in Botetourt County. Potts Creek flows into the Jackson River in Alleghany County. Sinking Creek flows into the New River in Giles County.

Water for residential use is available from wells and springs throughout the survey area. Ground water is hard in areas underlain by limestone. The quantity of ground water in the mountains is influenced by seasonal precipitation. Iron and sulfur influence the quality of the water in some areas underlain by acid shale.

Transportation

Three major highways serve Craig County. State Route 42 provides access to points east and west through the central part of the county, from New Castle to the Giles County line near Newport. State Route 311 provides access to points north and south through the central part of the county. State Route 18 begins at Paint Bank and continues eastward to the Alleghany County line.

Land Use

Farming and timber production are the major land uses in the county. According to the 2007 Census of Agriculture, about 41,630 acres in the county is farmland (USDA-NASS, 2007). Crops are harvested on about 11,240 acres. The valleys are used mainly for beef, dairy, poultry, and hog production. Horses are kept on many farms throughout the survey area. Bison are grazed in areas near Paint Bank. The soils in the valleys are suited to pasture, hay, and grain crops. The nearly level to moderately steep soils are used for crop production. The moderately steep to very steep soils and the soils in areas with rock outcrops are used as pasture or woodland. About 53,000 acres in the survey area are in woodland.

Residential, commercial, and industrial areas are in the valley sections of Craig County. The county remains largely rural in most areas. Residential development is slowly expanding into rural areas, especially along Routes 42 and 615 near New Castle. The potential for increasing commercial development exists especially along Route 311. The potential for increasing industrial development exists mainly in areas near New Castle. One of the major industries in the survey area is the Castle Sands Company, a sand and gravel quarry near the community of Pine Top. The Craig-Botetourt Electric Co-op in New Castle is a major employer in the county.

Physiography, Geology, Relief, and Drainage

Craig County is entirely within the Appalachian Ridges and Valleys Major Land Resource Area. It is largely mountainous and characterized by intermingled valleys, surrounded by rolling hills and isolated mountain ridges. The mountains throughout the county are mainly underlain with sandstone and shale. The rolling hills and upland-valley areas are dominantly underlain with dolomitic limestone and chert; in some places, these areas are underlain with interbedded limestone and shale. Lower positions in the valleys contain transported material from the surrounding ridges and knobs.

The Eastern Continental Divide crosses the survey area and breaks the drainage systems in the county into two sections. The larger portion of the county, east of the divide, drains into tributaries of the James River. The smaller portion of the county, west of the divide, drains into tributaries of the New River.

Elevations in the survey area range from about 1,130 feet, where Craig Creek flows into Botetourt County, to about 3,785 feet, on Potts Mountain in the northern part of the county. On the valley floors in the survey area, they average about 2,250 feet. Most of the land in agricultural production is below an elevation of 2,700 feet.

Climate

Table 1 gives data on temperature and precipitation for the survey area as recorded at Covington Filt Plant in the period 1971 to 2000. Table 2 shows probable dates of the first freeze in fall and the last freeze in spring. Table 3 provides data on the length of the growing season.

In winter, the average temperature is 36.9 degrees F and the average daily minimum temperature is 25.3 degrees. The lowest temperature on record, which occurred at Covington Filt Plant on January 21, 1985 was -19 degrees. In summer, the average temperature is 72.9 degrees and the average daily maximum temperature is 86.5 degrees. The highest temperature, which occurred at Covington Filt Plant on August 1, 1999, is 102 degrees.

Growing degree days are shown in table 1. They are equivalent to “heat units.” During the month, growing degree days accumulate by the amount that the average temperature each day exceeds a base temperature (40 degrees F). The normal monthly accumulation is used to schedule single or successive plantings of a crop between the last freeze in spring and the first freeze in fall.

The average annual total precipitation is 37.33 inches. Of this, 17.49 inches, or about 47 percent, usually falls in May through September. The growing season for most crops falls within this period. The heaviest 1-day rainfall during the period of record was 8.00 inches, recorded at Covington Filt Plant on November 4, 1985. Thunderstorms occur on about 37 days each year, and most occur in July.

The average seasonal snowfall is 5.7 inches. The greatest snow depth at any one time during the period of record was 22 inches, recorded on January 30, 1966. On an average, 5 days per year have at least 1 inch of snow on the ground. The heaviest 1-day snowfall on record was 10 inches, recorded on October 10, 1979 and January 1, 1971.

The average relative humidity in mid-afternoon is about 53 percent. Humidity is higher at night, and the average at dawn is about 78 percent. The sun shines 60 percent of the time in summer and 38 percent of the time in winter. The prevailing wind is from the west-northwest. Average windspeed is highest, 8.5 miles per hour, in March.

How This Survey Was Made

This survey was made to provide information about the soils and miscellaneous areas in the survey area. The information includes a description of the soils and miscellaneous areas and their location and a discussion of their suitability, limitations, and management for specified uses. Soil scientists observed the steepness, length, and shape of the slopes; the general pattern of drainage; the kinds of crops and native plants; and the kinds of bedrock. They dug many holes to study the soil profile, which is the sequence of natural layers, or horizons, in a soil. The profile extends from the surface down into the unconsolidated material in which the soil formed. The unconsolidated material is devoid of roots and other living organisms and has not been changed by other biological activity.

The soils and miscellaneous areas in the survey area are in an orderly pattern that is related to the geology, landforms, relief, climate, and natural vegetation of the area. Each kind of soil and miscellaneous area is associated with a particular kind of landform or with a segment of the landform. By observing the soils and miscellaneous areas in the survey area and relating their position to specific segments of the landform, a soil scientist develops a concept, or model, of how they were formed. Thus, during mapping, this model enables the soil scientist to predict with a considerable degree of accuracy the kind of soil or miscellaneous area at a specific location on the landscape.

Commonly, individual soils on the landscape merge into one another as their characteristics gradually change. To construct an accurate soil map, however, soil scientists must determine the boundaries between the soils. They can observe only a limited number of soil profiles. Nevertheless, these observations, supplemented by an understanding of the soil-vegetation-landscape relationship, are sufficient to verify predictions of the kinds of soil in an area and to determine the boundaries.

Soil scientists recorded the characteristics of the soil profiles that they studied. They noted soil color, texture, size and shape of soil aggregates, kind and amount of rock fragments, distribution of plant roots, reaction, and other features that enable them to identify soils. After describing the soils in the survey area and determining their properties, the soil scientists assigned the soils to taxonomic classes (units). Taxonomic classes are concepts. Each taxonomic class has a set of soil characteristics with precisely defined limits. The classes are used as a basis for comparison to classify soils systematically. Soil taxonomy, the system of taxonomic classification used in the United States, is based mainly on the kind and character of soil properties and the arrangement of horizons within the profile. After the soil scientists classified and named the soils in the survey area, they compared the individual soils with similar soils in the same taxonomic class in other areas so that they could confirm data and assemble additional data based on experience and research.

While a soil survey is in progress, samples of some of the soils in the area generally are collected for laboratory analyses and for engineering tests. Soil scientists interpret the data from these analyses and tests as well as the field-observed characteristics and the soil properties to determine the expected behavior of the soils under different uses. Interpretations for all of the soils are field tested through observation of the soils in different uses and under different levels of management. Some interpretations are modified to fit local conditions, and some new interpretations are developed to meet local needs. Data are assembled from other sources, such as research information, production records, and field experience of specialists. For example, data on crop yields under defined levels of management are assembled from farm records and from field or plot experiments on the same kinds of soil.

Predictions about soil behavior are based not only on soil properties but also on such variables as climate and biological activity. Soil conditions are predictable over long periods of time, but they are not predictable from year to year. For example, soil scientists can predict with a fairly high degree of accuracy that a given soil will have a high water table within certain depths in most years, but they cannot predict that a high water table will always be at a specific level in the soil on a specific date.

After soil scientists located and identified the significant natural bodies of soil in the survey area, they drew the boundaries of these bodies on aerial photographs and identified each as a specific map unit. Aerial photographs show trees, buildings, fields, roads, and rivers, all of which help in locating boundaries accurately.

The descriptions, names, and delineations of the soils in this survey area do not fully agree with those of the soils in adjacent survey areas. Differences are the result of a better knowledge of soils, modifications in series concepts, or variations in the intensity of mapping or in the extent of the soils in the survey areas.

Detailed Soil Map Units

The map units delineated on the detailed soil maps in this survey represent the soils or miscellaneous areas in the survey area. The map unit descriptions in this section, along with the maps, can be used to determine the suitability and potential of a unit for specific uses. They also can be used to plan the management needed for those uses.

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.

Most minor soils have properties similar to those of the dominant soil or soils in the map unit, and thus they do not affect use and management. These are called noncontrasting, or similar, components. They may or may not be mentioned in a particular map unit description. Other minor components, however, have properties and behavioral characteristics divergent enough to affect use or to require different management. These are called contrasting, or dissimilar, components. They generally are in small areas and could not be mapped separately because of the scale used. Some small areas of strongly contrasting soils or miscellaneous areas are identified by a special symbol on the maps. The contrasting components are mentioned in the map unit descriptions. A few areas of minor components may not have been observed, and consequently they are not mentioned in the descriptions, especially where the pattern was so complex that it was impractical to make enough observations to identify all the soils and miscellaneous areas on the landscape.

The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The objective of mapping is not to delineate pure taxonomic classes but rather to separate the landscape into landforms or landform segments that have similar use and management requirements. The delineation of such segments on the map provides sufficient information for the development of resource plans. If intensive use of small areas is planned, however, onsite investigation is needed to define and locate the soils and miscellaneous areas.

An identifying symbol precedes the map unit name in the map unit descriptions. Each description includes general facts about the unit and gives the principal hazards and limitations to be considered in planning for specific uses.

Soils that have profiles that are almost alike make up a *soil series*. All the soils of a series have major horizons that are similar in composition, thickness, and arrangement. The soils of a given series can differ in texture of the surface layer, slope, stoniness, salinity, degree of erosion, and other characteristics that affect their use. On the basis of such differences, a soil series is divided into *soil phases*. Most of the areas shown on the detailed soil maps are phases of soil series. The name of a soil phase commonly indicates a feature that affects use or management. For example, Frederick silt loam, 8 to 15 percent slopes, is a phase of the Frederick series.

Some map units are made up of two or more major soils or miscellaneous areas. These map units are complexes or undifferentiated groups.

A *complex* consists of two or more soils or miscellaneous areas in such an intricate pattern or in such small areas that they cannot be shown separately on the maps. The pattern and proportion of the soils or miscellaneous areas are somewhat similar in all areas. Berks-Weikert complex, 8 to 15 percent slopes, is an example.

An *undifferentiated group* is made up of two or more soils or miscellaneous areas that could be mapped individually but are mapped as one unit because similar interpretations can be made for use and management. The pattern and proportion of the soils or miscellaneous areas in a mapped area are not uniform. An area can be made up of only one of the major soils or miscellaneous areas, or it can be made up of all of them. Frederick and Watahala soils, karst, 8 to 15 percent slopes, is an undifferentiated group in this survey area.

This survey includes *miscellaneous areas*. Such areas have little or no soil material and support little or no vegetation. Pits and dumps is an example.

Table 4 gives the acreage and proportionate extent of each map unit in the survey area. Other tables give properties of the soils and the limitations, capabilities, and potentials for many uses. The Glossary defines many of the terms used in describing the soils.

1A—Alonzville loam, 0 to 3 percent slopes, rarely flooded

Setting

Major land resource area: Southern Appalachian Ridges and Valleys (MLRA 128)
Landform: Low stream terraces in a river valley
Position on the landform: Treads

Map Unit Composition

Alonzville and similar soils: Typically 85 percent, ranging from about 75 to 95 percent

Typical Profile

Surface layer:
0 to 5 inches—dark grayish brown loam

Subsoil:
5 to 15 inches—brown loam
15 to 44 inches—dark yellowish brown clay loam
44 to 55 inches—dark yellowish brown clay loam
55 to 65 inches—dark yellowish brown gravelly loam

Minor Components

Dissimilar components:
- Pope soils, which have less clay in the subsoil than the Alonzville soil and are more susceptible to flooding; on flood plains
- Coursey soils, which are moderately well drained; on adjacent stream terraces
- Oriskany soils, which have more than 35 percent rock fragments throughout and are not susceptible to flooding; on footslopes
- Ogles soils, which have more than 35 percent rock fragments throughout and are more susceptible to flooding; on flood plains

- Soils that flood more frequently or are not flooded
- Soils that have slopes of 3 to 8 percent; on similar landforms

Similar components:
- Soils that have less clay than the Alonzville soil; on similar landforms
- Soils that are deep to shale bedrock; on similar landforms
- Soils that have 15 to 35 percent rock fragments in the subsoil; on similar landforms
- Soils that have more than 35 percent rock fragments in the lower part of the subsoil; on similar landforms
- Soils that are well drained and have iron depletions between depths of 36 and 60 inches; on similar landforms

Soil Properties and Qualities

Available water capacity: Moderate (about 7.4 inches)
Slowest saturated hydraulic conductivity: Moderately high (about 0.57 in/hr)
Depth class: Very deep (more than 60 inches)
Depth to root-restrictive feature: More than 60 inches
Drainage class: Well drained
Depth to seasonal water saturation: More than 6 feet
Flooding hazard: Rare
Ponding hazard: None
Shrink-swell potential: Low
Runoff class: Low
Surface fragments: None
Parent material: Alluvium derived from sandstone and shale

Use and Management Considerations

Cropland
- This soil is well suited to corn, wheat, and grass-legume hay and moderately suited to alfalfa hay.

Pastureland
- This soil is well suited to pastureland.

Woodland
Suitability: Moderately suited to northern red oak, yellow-poplar, and eastern white pine
- Proper planning for timber harvesting is essential in order to minimize the potential negative impact to soil and water quality. A timber harvest plan should include general adherence to all applicable best management practices.
- The low soil strength interferes with the construction of haul roads and log landings.

Building sites
- Flooding is a limitation affecting building site development.

Septic tank absorption fields
- This soil is well suited to septic tank absorption fields.

Local roads and streets
- The low soil strength may cause structural damage to local roads and streets.

Interpretive Groups

Prime farmland: All areas are prime farmland
Land capability class: 1
Virginia soil management group: L
Hydric soil: No

1B—Alonzville loam, 3 to 8 percent slopes, rarely flooded

Setting

Major land resource area: Southern Appalachian Ridges and Valleys (MLRA 128)
Landform: Low stream terraces in a river valley
Position on the landform: Treads and risers

Map Unit Composition

Alonzville and similar soils: Typically 85 percent, ranging from about 75 to 95 percent

Typical Profile

Surface layer:
0 to 5 inches—dark grayish brown loam

Subsoil:
5 to 15 inches—brown loam
15 to 44 inches—dark yellowish brown clay loam
44 to 55 inches—dark yellowish brown clay loam
55 to 65 inches—dark yellowish brown gravelly loam

Minor Components

Dissimilar components:
- Pope soils, which have less clay in the subsoil than the Alonzville soil and are more susceptible to flooding; on flood plains
- Coursey soils, which are moderately well drained; on adjacent stream terraces
- Oriskany soils, which have more than 35 percent rock fragments throughout and are not susceptible to flooding; on footslopes
- Ogles soils, which have more than 35 percent rock fragments throughout and are more susceptible to flooding; on flood plains
- Soils that flood more frequently or are not flooded
- Soils on slopes that range from 0 to 3 percent or 8 to 15 percent; on similar landforms

Similar components:
- Soils that have a surface layer with more gravel and cobbles; on similar landforms
- Soils that have less clay than the Alonzville soil; on similar landforms
- Soils that are deep to shale bedrock; on similar landforms
- Soils that have 15 to 35 percent rock fragments in the subsoil; on similar landforms
- Soils that have more than 35 percent rock fragments in the lower part of the subsoil; on similar landforms
- Soils that are well drained and have iron depletions between depths of 36 and 60 inches; on similar landforms

Soil Properties and Qualities

Available water capacity: Moderate (about 7.4 inches)
Slowest saturated hydraulic conductivity: Moderately high (about 0.57 in/hr)
Depth class: Very deep (more than 60 inches)
Depth to root-restrictive feature: More than 60 inches
Drainage class: Well drained
Depth to seasonal water saturation: More than 6 feet
Flooding hazard: Rare
Ponding hazard: None
Shrink-swell potential: Low
Runoff class: Medium

Surface fragments: None
Parent material: Alluvium derived from sandstone and shale

Use and Management Considerations

Cropland
Suitability: Well suited to corn, wheat, and grass-legume hay; moderately suited to alfalfa hay
- The rate of surface runoff, the erosion hazard, and the amount of nutrient loss are increased because of the slope.

Pastureland
Suitability: Well suited
- The hazard of erosion, the rate of surface runoff, and the amount of nutrient loss are increased because of the slope.

Woodland
Suitability: Moderately suited to northern red oak, yellow-poplar, and eastern white pine
- Proper planning for timber harvesting is essential in order to minimize the potential negative impact to soil and water quality. A timber harvest plan should include general adherence to all applicable best management practices.
- The slope may restrict the use of some mechanical planting equipment.
- The low soil strength interferes with the construction of haul roads and log landings.

Building sites
- Flooding is a limitation affecting building site development.

Septic tank absorption fields
- This soil is well suited to septic tank absorption fields.

Local roads and streets
- The low soil strength may cause structural damage to local roads and streets.

Interpretive Groups

Prime farmland: All areas are prime farmland
Land capability class: 2e
Virginia soil management group: L
Hydric soil: No

2B—Alonzville loam, 3 to 8 percent slopes

Setting

Major land resource area: Southern Appalachian Ridges and Valleys (MLRA 128)
Landform: Intermediate-level stream terraces in a river valley
Position on the landform: Treads and risers

Map Unit Composition

Alonzville and similar soils: Typically 85 percent, ranging from about 75 to 95 percent

Typical Profile

Surface layer:
0 to 5 inches—dark grayish brown loam

Subsoil:
5 to 15 inches—brown loam
15 to 44 inches—dark yellowish brown clay loam

44 to 55 inches—dark yellowish brown clay loam
55 to 65 inches—dark yellowish brown gravelly loam

Minor Components

Dissimilar components:
- Ogles soils, which have more than 35 percent rock fragments throughout and are susceptible to flooding; on flood plains
- Pope soils, which have less clay in the subsoil than the Alonzville soil and are susceptible to flooding; on flood plains
- Coursey soils, which are moderately well drained and are susceptible to flooding; on low stream terraces
- Nicelytown soils, which are moderately well drained; on similar landforms
- Oriskany soils, which have more than 35 percent rock fragments throughout; on footslopes
- Soils that have slopes of 0 to 3 percent or 8 to 15 percent; on similar landforms
- Soils that flood on lower-level terraces
- Soils that have a mantle of alluvium over shale bedrock and are moderately deep; on similar landforms

Similar components:
- Soils that have a surface layer with more gravel and cobbles; on similar landforms
- Soils that have more than 35 percent rock fragments within a depth of 40 inches; on similar landforms
- Soils that are well drained and have iron depletions between depths of 36 and 60 inches; on similar landforms
- Soils that have less clay than the Alonzville soil; on similar landforms
- Soils that are deep to shale bedrock; on similar landforms

Soil Properties and Qualities

Available water capacity: Moderate (about 7.4 inches)
Slowest saturated hydraulic conductivity: Moderately high (about 0.57 in/hr)
Depth class: Very deep (more than 60 inches)
Depth to root-restrictive feature: More than 60 inches
Drainage class: Well drained
Depth to seasonal water saturation: More than 6 feet
Flooding hazard: None
Ponding hazard: None
Shrink-swell potential: Low
Runoff class: Medium
Surface fragments: None
Parent material: Alluvium derived from sandstone and shale

Use and Management Considerations

Cropland
Suitability: Well suited to corn, wheat, and grass-legume hay; moderately suited to alfalfa hay
- The rate of surface runoff, the erosion hazard, and the amount of nutrient loss are increased because of the slope.

Pastureland
Suitability: Well suited
- The hazard of erosion, the rate of surface runoff, and the amount of nutrient loss are increased because of the slope.

Woodland

Suitability: Moderately suited to northern red oak, yellow-poplar, and eastern white pine

- Proper planning for timber harvesting is essential in order to minimize the potential negative impact to soil and water quality. A timber harvest plan should include general adherence to all applicable best management practices.
- The slope may restrict the use of some mechanical planting equipment.
- The low soil strength interferes with the construction of haul roads and log landings.

Building sites

- This soil is well suited to building sites.

Septic tank absorption fields

- This soil is well suited to septic tank absorption fields.

Local roads and streets

- The low soil strength may cause structural damage to local roads and streets.

Interpretive Groups

Prime farmland: All areas are prime farmland
Land capability class: 2e
Virginia soil management group: L
Hydric soil: No

3A—Atkins fine sandy loam, 0 to 3 percent slopes, frequently flooded

Setting

Major land resource area: Southern Appalachian Ridges and Valleys (MLRA 128)
Landform: Backswamps or depressions on flood plains along small creeks
Position on the landform: Flood-plain steps

Map Unit Composition

Atkins and similar soils: Typically 90 percent, ranging from about 85 to 95 percent

Typical Profile

Surface layer:
0 to 3 inches—dark grayish brown fine sandy loam with yellowish brown masses of oxidized iron
3 to 9 inches—gray fine sandy loam with yellowish brown masses of oxidized iron

Subsoil:
9 to 23 inches—gray sandy loam with yellowish brown masses of oxidized iron
23 to 37 inches—dark gray sandy loam with yellowish brown masses of oxidized iron

Substratum:
37 to 56 inches—dark gray gravelly sandy loam with yellowish brown masses of oxidized iron
56 to 62 inches—dark gray silty clay loam with yellowish brown masses of oxidized iron

Minor Components

Dissimilar components:

- Ogles soils, which are well drained and have more rock fragments in the soil than the Atkins soil; on similar landforms

- Philo soils, which are moderately well drained; on similar landforms
- Pope soils, which are well drained; on similar landforms
- Maurertown soils, which are less susceptible to flooding and have more clay in the subsoil than the Atkins soil; on low stream terraces

Similar components:
- Soils that have darker surface layers; on similar landforms
- Soils that have cobbly or gravelly surface layers; on similar landforms
- Soils that have a pH of more than 5.5 in the upper part of the subsoil; on similar landforms

Soil Properties and Qualities

Available water capacity: Moderate (about 7.0 inches)
Slowest saturated hydraulic conductivity: Moderately low (about 0.06 in/hr)
Depth class: Very deep (more than 60 inches)
Depth to root-restrictive feature: More than 60 inches
Drainage class: Poorly drained
Depth to seasonal water saturation: About 0 to 12 inches
Water table kind: Apparent
Flooding hazard: Frequent
Ponding hazard: Frequent
Depth of ponding: 0.1 to 1.0 foot
Shrink-swell potential: Low
Runoff class: Negligible
Surface fragments: None
Parent material: Fine-loamy alluvium derived from sandstone, siltstone, and shale

Use and Management Considerations

Cropland
- This soil is unsuited to cropland.

Pastureland
Suitability: Poorly suited
- Flooding may damage pastures.
- The seasonal high water table can affect equipment use, grazing patterns, and the viability of grass and legume species.
- Frost action may damage the root systems of plants.

Woodland
Suitability: Moderately suited to sweetgum
- Proper planning for timber harvesting is essential in order to minimize the potential negative impact to soil and water quality. A timber harvest plan should focus on streamside management zones and stream crossings and should include general adherence to all applicable best management practices.
- Flooding may damage haul roads.
- Flooding and ponding restrict the safe use of roads by log trucks.
- Soil wetness may limit the use of log trucks.
- The low soil strength interferes with the construction of haul roads and log landings.
- The low soil strength may create unsafe conditions for log trucks.

Building sites
- Flooding and ponding are limitations affecting building site development.
- The seasonal high water table may restrict the period when excavations can be made.

Septic tank absorption fields
- Flooding and ponding are limitations affecting septic tank absorption fields.

- The seasonal high water table greatly limits the absorption and proper treatment of the effluent from conventional septic systems.

Local roads and streets
- Flooding may damage local roads and streets.
- Ponding affects the ease of excavation and grading and limits the bearing capacity of the soil.

Interpretive Groups

Prime farmland: Not prime farmland
Land capability class: 6w
Virginia soil management group: NN
Hydric soil: Yes

4C—Bailegap fine sandy loam, 8 to 15 percent slopes, very stony

Setting

Major land resource area: Southern Appalachian Ridges and Valleys (MLRA 128)
Landform: Hills and mountains
Position on the landform: Interfluves, nose slopes, and mountaintops

Map Unit Composition

Bailegap and similar soils: Typically 90 percent, ranging from about 85 to 95 percent

Typical Profile

Organic layer:
0 to 1 inch—slightly decomposed plant material
1 to 2 inches—moderately decomposed plant material

Surface layer:
2 to 4 inches—brown fine sandy loam

Subsurface layer:
4 to 9 inches—reddish brown fine sandy loam

Subsoil:
9 to 28 inches—yellowish red loam
28 to 43 inches—reddish brown clay loam

Soft bedrock:
43 to 46 inches—reddish brown bedrock

Hard bedrock:
46 inches—bedrock

Minor Components

Dissimilar components:
- Calvin soils, which are moderately deep to shale or siltstone bedrock and have more rock fragments in the soil than the Bailegap soil; on similar landforms
- Dekalb soils, which are moderately deep to sandstone bedrock and have more rock fragments in the soil than the Bailegap soil; on similar landforms
- Oriskany soils, which are very deep to bedrock and have more rock fragments in the soil than the Bailegap soil; on footslopes at the base of hills and mountains
- Areas of widely scattered rock outcrops; on similar landforms

Similar components:
- Lily soils, which are moderately deep to sandstone bedrock; on similar landforms
- Gilpin soils, which are moderately deep to shale bedrock; on similar landforms
- Jefferson soils, which are very deep to bedrock; on footslopes at the base of hills and mountains
- Soils that have more stones or fewer stones on the surface than the Bailegap soil; on similar landforms

Soil Properties and Qualities

Available water capacity: Moderate (about 6.3 inches)
Slowest saturated hydraulic conductivity: Moderately high (about 0.57 in/hr)
Depth class: Deep (40 to 60 inches)
Depth to root-restrictive feature: 40 to 60 inches to paralithic and lithic bedrock
Drainage class: Well drained
Depth to seasonal water saturation: More than 6 feet
Flooding hazard: None
Ponding hazard: None
Shrink-swell potential: Low
Runoff class: Medium
Surface fragments: About 0.10 to 3.00 percent subangular stones
Parent material: Residuum weathered from sandstone and/or residuum weathered from shale and siltstone

Use and Management Considerations

Cropland
- This soil is unsuited to cropland.

Pastureland
Suitability: Moderately suited
- The hazard of erosion, the rate of surface runoff, and the amount of nutrient loss are increased because of the slope.
- Large stones on the surface may restrict the operation of some farm machinery.

Woodland
Suitability: Moderately suited to northern red oak, chestnut oak, and eastern white pine
- Proper planning for timber harvesting is essential in order to minimize the potential negative impact to soil and water quality. A timber harvest plan should include general adherence to all applicable best management practices.
- The slope creates unsafe operating conditions and reduces the operating efficiency of log trucks.
- The slope may restrict the use of some mechanical planting equipment.

Building sites
- The slope influences the use of machinery and the amount of excavation required.

Septic tank absorption fields
- Slow water movement limits the absorption and proper treatment of the effluent from conventional septic systems.
- The slope limits the proper treatment of effluent from conventional septic systems.

Local roads and streets
- Because of the slope, designing local roads and streets is difficult.

Interpretive Groups

Prime farmland: Not prime farmland

Land capability class: 6s
Virginia soil management group: GG
Hydric soil: No

4E—Bailegap fine sandy loam, 15 to 35 percent slopes, very stony

Setting

Major land resource area: Southern Appalachian Ridges and Valleys (MLRA 128)
Landform: Hills and mountains
Position on the landform: Interfluves, nose slopes, side slopes, mountaintops, and mountain flanks

Map Unit Composition

Bailegap and similar soils: Typically 90 percent, ranging from about 85 to 95 percent

Typical Profile

Organic layer:
0 to 1 inch—slightly decomposed plant material
1 to 2 inches—moderately decomposed plant material

Surface layer:
2 to 4 inches—brown fine sandy loam

Subsurface layer:
4 to 9 inches—reddish brown fine sandy loam

Subsoil:
9 to 28 inches—yellowish red loam
28 to 43 inches—reddish brown clay loam

Soft bedrock:
43 to 46 inches—reddish brown bedrock

Hard bedrock:
46 inches—bedrock

Minor Components

Dissimilar components:
- Calvin soils, which are moderately deep to shale or siltstone bedrock and have more rock fragments in the soil than the Bailegap soil; on similar landforms
- Dekalb soils, which are moderately deep to sandstone bedrock and have more rock fragments in the soil than the Bailegap soil; on similar landforms
- Oriskany soils, which are very deep to bedrock and have more rock fragments in the soil than the Bailegap soil; on footslopes at the base of hills and mountains
- Areas of widely scattered rock outcrops; on similar landforms
- Soils that have slopes of less than 15 percent; on similar landforms

Similar components:
- Lily soils, which are moderately deep to sandstone bedrock; on similar landforms
- Gilpin soils, which are moderately deep to shale bedrock; on similar landforms
- Jefferson soils, which are very deep to bedrock; on footslopes at the base of hills and mountains

- Soils that have more stones or fewer stones on the surface than the Bailegap soil; on similar landforms

Soil Properties and Qualities

Available water capacity: Moderate (about 6.3 inches)
Slowest saturated hydraulic conductivity: Moderately high (about 0.57 in/hr)
Depth class: Deep (40 to 60 inches)
Depth to root-restrictive feature: 40 to 60 inches to paralithic and lithic bedrock
Drainage class: Well drained
Depth to seasonal water saturation: More than 6 feet
Flooding hazard: None
Ponding hazard: None
Shrink-swell potential: Low
Runoff class: High
Surface fragments: About 0.10 to 3.00 percent subangular stones
Parent material: Residuum weathered from sandstone and/or residuum weathered from shale and siltstone

Use and Management Considerations

Cropland
- This soil is unsuited to cropland.

Pastureland
- This soil is unsuited to pastureland.

Woodland
Suitability: Moderately suited to northern red oak, chestnut oak, and eastern white pine
- Proper planning for timber harvesting is essential in order to minimize the potential negative impact to soil and water quality. A timber harvest plan should include general adherence to all applicable best management practices.
- The slope poses safety hazards and creates a potential for erosion during the construction of haul roads and log landings.
- The slope creates unsafe operating conditions and reduces the operating efficiency of log trucks and harvesting equipment.
- Because of the slope, the use of equipment for preparing sites for planting and seeding is restricted.
- Because of the slope, the use of mechanical planting equipment is impractical.
- The low soil strength interferes with the construction of haul roads and log landings.

Building sites
- The slope influences the use of machinery and the amount of excavation required.

Septic tank absorption fields
- Slow water movement limits the absorption and proper treatment of the effluent from conventional septic systems.
- The slope limits the proper treatment of effluent from conventional septic systems.

Local roads and streets
- Because of the slope, designing local roads and streets is difficult.

Interpretive Groups

Prime farmland: Not prime farmland
Land capability class: 7s
Virginia soil management group: GG
Hydric soil: No

5G—Bailegap-Lily-Dekalb complex, 35 to 70 percent slopes, very stony

Setting

Major land resource area: Southern Appalachian Ridges and Valleys (MLRA 128)
Landform: Hills and mountains
Position on the landform: Nose slopes, side slopes, and mountain flanks

Map Unit Composition

Note: These Bailegap, Lily, and Dekalb soils occur as areas so closely intermingled that they could not be separated at the scale selected for mapping.

Bailegap and similar soils: Typically 35 percent, ranging from about 30 to 40 percent
Lily and similar soils: Typically 30 percent, ranging from about 25 to 35 percent
Dekalb and similar soils: Typically 25 percent, ranging from about 20 to 25 percent

Typical Profile

Bailegap

Organic layer:
0 to 1 inch—slightly decomposed plant material
1 to 2 inches—moderately decomposed plant material

Surface layer:
2 to 4 inches—brown fine sandy loam

Subsurface layer:
4 to 9 inches—reddish brown fine sandy loam

Subsoil:
9 to 28 inches—yellowish red loam
28 to 43 inches—reddish brown clay loam

Soft bedrock:
43 to 46 inches—reddish brown bedrock

Hard bedrock:
46 inches—bedrock

Lily

Organic layer:
0 to 2 inches—slightly decomposed plant material

Surface layer:
2 to 7 inches—brown sandy loam

Subsoil:
7 to 13 inches—yellowish brown sandy loam
13 to 24 inches—yellowish brown clay loam

Substratum:
24 to 30 inches—yellowish brown sandy loam

Hard bedrock:
30 inches—sandstone bedrock

Dekalb

Organic layer:
0 to 2 inches—slightly decomposed plant material

Surface layer:
2 to 5 inches—very dark grayish brown channery sandy loam

Subsoil:
5 to 24 inches—yellowish brown very channery sandy loam

Substratum:
24 to 31 inches—yellowish brown extremely channery sandy loam

Hard bedrock:
31 inches—sandstone bedrock

Minor Components

Dissimilar components:
- Berks soils, which are moderately deep to shale bedrock, have more rock fragments in the soil than the Bailegap and Lily soils, and have less sand than the Dekalb soil; on similar landforms
- Oriskany soils, which are very deep to bedrock and have more rock fragments in the soil than the Bailegap and Lily soils; on footslopes at the base of hills and mountains
- Soils that are shallow to hard bedrock; on similar landforms

Similar components:
- Calvin soils, which are moderately deep to shale or siltstone bedrock; on similar landforms
- Soils that have less clay and more sand in the subsoil than the Bailegap, Lily, and Dekalb soils; on similar landforms

Soil Properties and Qualities

Available water capacity: Bailegap—moderate (about 6.3 inches); Lily—low (about 3.9 inches); Dekalb—very low (about 2.1 inches)
Slowest saturated hydraulic conductivity: Bailegap and Lily—moderately high (about 0.6 in/hr or 4.2 μm/sec); Dekalb—high (about 2.0 in/hr or 14.1 μm/sec)
Depth class: Bailegap—deep (40 to 60 inches); Lily and Dekalb—moderately deep (20 to 40 inches)
Depth to root-restrictive feature: Bailegap—40 to 60 inches to lithic and paralithic bedrock; Lily and Dekalb—20 to 40 inches to lithic bedrock
Drainage class: Bailegap and Lily—well drained; Dekalb—somewhat excessively drained
Depth to seasonal water saturation: More than 6 feet
Flooding hazard: None
Ponding hazard: None
Shrink-swell potential: Low
Runoff class: Bailegap—high; Lily and Dekalb—very high
Surface fragments: About 0.1 to 3.0 percent subangular stones
Parent material: Baileygap—fine-loamy residuum weathered from sandstone, siltstone, and shale; Lily—fine-loamy residuum weathered from sandstone; Dekalb—gravelly loamy residuum weathered from sandstone

Use and Management Considerations

Cropland
- These soils are unsuited to cropland.

Pastureland
- These soils are unsuited to pastureland.

Woodland
Suitability: Moderately suited to northern red oak, chestnut oak, and eastern white pine

- Proper planning for timber harvesting is essential in order to minimize the potential negative impact to soil and water quality, especially on the steeper slopes. A timber harvest plan should focus on the proper location of haul roads and skid tails, and careful attention should be given to all applicable best management practices.
- The slope poses safety hazards and creates a potential for erosion during the construction of haul roads and log landings.
- The slope creates unsafe operating conditions and reduces the operating efficiency of log trucks and harvesting equipment.
- Because of the slope, the use of equipment for planting and seeding (including mechanical planting equipment) is impractical.
- Coarse textured soil layers may slough, thus reducing the efficiency of mechanical planting equipment.
- The coarseness of the soil material may reduce the traction of wheeled harvest equipment and log trucks.
- The low soil strength interferes with the construction of haul roads and log landings.

Building sites
- The slope influences the use of machinery and the amount of excavation required.

Septic tank absorption fields
- Because of the limited depth to bedrock, the filtering capacity of the soil is reduced and the difficulty of properly installing the effluent distribution lines is increased.
- The slope limits the proper treatment of effluent from conventional septic systems.

Local roads and streets
- The low soil strength may cause structural damage to local roads and streets.
- Because of the slope, designing local roads and streets is difficult.

Interpretive Groups

Prime farmland: Not prime farmland
Land capability class: 7e
Virginia soil management group: Bailegap—GG; Lily—U; Dekalb—FF
Hydric soil: No

6E—Berks-Culleoka complex, 25 to 35 percent slopes

Setting

Major land resource area: Southern Appalachian Ridges and Valleys (MLRA 128)
Landform: Hills and mountains
Position on the landform: Nose slopes, side slopes, crests, and mountain flanks

Map Unit Composition

Note: These Berks and Culleoka soils occur as areas so closely intermingled that they could not be separated at the scale selected for mapping.

Berks and similar soils: Typically 55 percent, ranging from about 50 to 60 percent
Culleoka and similar soils: Typically 35 percent, ranging from about 30 to 40 percent

Typical Profile

Berks

Organic layer:
0 to 2 inches—moderately decomposed plant material

Surface layer:
2 to 5 inches—brown very channery silt loam

Subsoil:
5 to 15 inches—yellowish brown channery silt loam
15 to 26 inches—brownish yellow very channery silt loam

Substratum:
26 to 28 inches—strong brown extremely channery silt loam

Hard bedrock:
28 inches—shale bedrock

Culleoka

Organic layer:
0 to 1 inch—moderately decomposed plant material

Surface layer:
1 to 3 inches—brown gravelly silt loam

Subsoil:
3 to 11 inches—yellowish brown silt loam
11 to 22 inches—yellowish brown channery silty clay loam

Substratum:
22 to 27 inches—dark yellowish brown very channery silt loam

Hard bedrock:
27 inches—siltstone bedrock

Minor Components

Dissimilar components:
- Shelocta soils, which are very deep to bedrock and have fewer rock fragments in the soil than the Berks soil; on footslopes
- Carbo soils, which are moderately deep to limestone bedrock and have more clay than the Berks and Culleoka soils; on similar landforms
- Oriskany soils, which are very deep to bedrock and have more rock fragments in the soil than the Culleoka soil; on footslopes
- Soils that are very shallow to bedrock; on similar landforms
- Areas of rock outcrop on similar landforms
- Soils that are very stony to rubbly on the surface; on similar landforms
- Soils that have slopes of 15 to 25 percent or more than 35 percent; on similar landforms

Similar components:
- Weikert soils, which are shallow to shale bedrock and have more rock fragments in the soil than the Culleoka soil; on similar landforms
- Soils that are deep to bedrock; on similar landforms

Soil Properties and Qualities

Available water capacity: Berks—low (about 3.1 inches); Culleoka—low (about 3.6 inches)
Slowest saturated hydraulic conductivity: Moderately high (about 0.57 in/hr)
Depth class: Moderately deep (20 to 40 inches)
Depth to root-restrictive feature: 20 to 40 inches to lithic bedrock
Drainage class: Well drained
Depth to seasonal water saturation: More than 6 feet
Flooding hazard: None

Ponding hazard: None
Shrink-swell potential: Low
Runoff class: Medium
Surface fragments: None
Parent material: Berks—residuum weathered from shale and siltstone; Culleoka—residuum weathered from shale, siltstone, and limestone

Use and Management Considerations

Cropland
- These soils are unsuited to cropland.

Pastureland
Suitability: Poorly suited
- The hazard of erosion, the rate of surface runoff, and the amount of nutrient loss are increased because of the slope.
- The slope may restrict the use of some farm equipment.
- The bedrock may restrict the rooting depth of plants.

Woodland
Suitability: Moderately suited to northern red oak and chestnut oak
- Proper planning for timber harvesting is essential in order to minimize the potential negative impact to soil and water quality, especially on the steeper slopes. A timber harvest plan should focus on the proper location of haul roads and skid tails, and careful attention should be given to all applicable best management practices.
- The slope poses safety hazards and creates a potential for erosion during the construction of haul roads and log landings.
- The slope creates unsafe operating conditions and reduces the operating efficiency of log trucks and harvesting equipment.
- Because of the slope, the use of equipment for preparing sites for planting and seeding is restricted.
- Because of the slope, the use of mechanical planting equipment is impractical.
- The low soil strength interferes with the construction of haul roads and log landings.
- The low soil strength may create unsafe conditions for log trucks.

Building sites
- The slope influences the use of machinery and the amount of excavation required.
- Because of the limited depth to bedrock, the ease of excavation is greatly reduced and the difficulty of constructing foundations and installing utilities is increased.

Septic tank absorption fields
- Because of the limited depth to bedrock, the filtering capacity of the soil is reduced and the difficulty of properly installing the effluent distribution lines is increased.
- The slope limits the proper treatment of effluent from conventional septic systems.

Local roads and streets
- Because of the limited depth to bedrock, the ease of excavation is reduced and the difficulty of constructing roads is increased.
- Because of the slope, designing local roads and streets is difficult.

Interpretive Groups

Prime farmland: Not prime farmland
Land capability class: 6e
Virginia soil management group: Berks—JJ; Culleoka—U
Hydric soil: No

Figure 2.—A view of Sinking Creek Valley from Haul Road in the Jefferson National Forest, looking north, towards Johns Creek Mountain. These south-facing slopes of Johns Creek Mountain are dominantly mapped as Berks-Culleoka complex, 35 to 70 percent slopes. The forested area running east-west, at the foot of Johns Creek Mountain (locally known as the Gravel Hills), is dominantly mapped as Watahala gravelly silt loam, 15 to 35 percent slopes, extremely stony. The pastured area (in the center of the photograph) is mapped as Frederick silt loam, 15 to 25 percent slopes.

6G—Berks-Culleoka complex, 35 to 70 percent slopes

Setting

Major land resource area: Southern Appalachian Ridges and Valleys (MLRA 128)
Landform: Hills and mountains
Position on the landform: Nose slopes, side slopes, crests, and mountain flanks (fig. 2)

Map Unit Composition

Note: These Berks and Culleoka soils occur as areas so closely intermingled that they could not be separated at the scale selected for mapping.

Berks and similar soils: Typically 60 percent, ranging from about 55 to 65 percent
Culleoka and similar soils: Typically 30 percent, ranging from about 25 to 35 percent

Typical Profile

Berks

Organic layer:
0 to 2 inches—moderately decomposed plant material

Surface layer:
2 to 5 inches—brown very channery silt loam

Subsoil:
5 to 15 inches—yellowish brown channery silt loam
15 to 26 inches—brownish yellow very channery silt loam

Substratum:
26 to 28 inches—strong brown extremely channery silt loam

Hard bedrock:
28 inches—shale bedrock

Culleoka

Organic layer:
0 to 1 inch—moderately decomposed plant material

Surface layer:
1 to 3 inches—brown gravelly silt loam

Subsoil:
3 to 11 inches—yellowish brown silt loam
11 to 22 inches—yellowish brown channery silty clay loam

Substratum:
22 to 27 inches—dark yellowish brown very channery silt loam

Hard bedrock:
27 inches—siltstone bedrock

Minor Components

Dissimilar components:
- Shelocta soils, which are very deep to bedrock and have fewer rock fragments in the soil than the Berks soil; on footslopes
- Carbo soils, which are moderately deep to limestone bedrock and have more clay than the Berks and Culleoka soils; on similar landforms
- Oriskany soils, which are very deep to bedrock and have more rock fragments in the soil than the Culleoka soil; on footslopes
- Soils that are very shallow to bedrock; on similar landforms
- Areas of rock outcrop on similar landforms
- Soils that are very stony to rubbly on the surface; on similar landforms
- Soils that have slopes of 25 to 35 percent; on similar landforms

Similar components:
- Weikert soils, which are shallow to shale bedrock and have more rock fragments in the soil than the Culleoka soil; on similar landforms
- Soils that are deep to bedrock; on similar landforms

Soil Properties and Qualities

Available water capacity: Berks—low (about 3.1 inches); Culleoka—low (about 3.6 inches)
Slowest saturated hydraulic conductivity: Moderately high (about 0.57 in/hr)
Depth class: Moderately deep (20 to 40 inches)
Depth to root-restrictive feature: 20 to 40 inches to lithic bedrock
Drainage class: Well drained
Depth to seasonal water saturation: More than 6 feet
Flooding hazard: None
Ponding hazard: None
Shrink-swell potential: Low
Runoff class: Medium
Surface fragments: None

Parent material: Berks—residuum weathered from shale and siltstone; Culleoka—residuum weathered from shale, siltstone, and limestone

Use and Management Considerations

Cropland
- These soils are unsuited to cropland.

Pastureland
- These soils are unsuited to pastureland.

Woodland
Suitability: Moderately suited to northern red oak and chestnut oak
- Proper planning for timber harvesting is essential in order to minimize the potential negative impact to soil and water quality, especially on the steeper slopes. A timber harvest plan should focus on the proper location of haul roads and skid tails, and careful attention should be given to all applicable best management practices.
- The slope poses safety hazards and creates a potential for erosion during the construction of haul roads and log landings.
- The slope creates unsafe operating conditions and reduces the operating efficiency of log trucks and harvesting equipment.
- Because of the slope, the use of equipment for planting and seeding (including mechanical planting equipment) is impractical.
- The low soil strength interferes with the construction of haul roads and log landings.
- The low soil strength may create unsafe conditions for log trucks.

Building sites
- The slope influences the use of machinery and the amount of excavation required.
- Because of the limited depth to bedrock, the ease of excavation is greatly reduced and the difficulty of constructing foundations and installing utilities is increased.

Septic tank absorption fields
- Because of the limited depth to bedrock, the filtering capacity of the soil is reduced and the difficulty of properly installing the effluent distribution lines is increased.
- The slope limits the proper treatment of effluent from conventional septic systems.

Local roads and streets
- Because of the limited depth to bedrock, the ease of excavation is reduced and the difficulty of constructing roads is increased.
- Because of the slope, designing local roads and streets is difficult.

Interpretive Groups

Prime farmland: Not prime farmland
Land capability class: 7e
Virginia soil management group: Berks—JJ; Culleoka—U
Hydric soil: No

7C—Berks-Weikert complex, 8 to 15 percent slopes

Setting

Major land resource area: Southern Appalachian Ridges and Valleys (MLRA 128)
Landform: Hills and mountains
Position on the landform: Interfluves, crests, and mountaintops

Map Unit Composition

Note: These Berks and Weikert soils occur as areas so closely intermingled that they could not be separated at the scale selected for mapping.

Berks and similar soils: Typically 45 percent, ranging from about 40 to 50 percent
Weikert and similar soils: Typically 40 percent, ranging from about 35 to 45 percent

Typical Profile

Berks

Organic layer:
0 to 2 inches—moderately decomposed plant material

Surface layer:
2 to 5 inches—brown very channery silt loam

Subsoil:
5 to 15 inches—yellowish brown channery silt loam
15 to 26 inches—brownish yellow very channery silt loam

Substratum:
26 to 28 inches—strong brown extremely channery silt loam

Hard bedrock:
28 inches—shale bedrock

Weikert

Organic layer:
0 to 1 inch—moderately decomposed plant material

Surface layer:
1 to 3 inches—brown channery silt loam

Subsurface layer:
3 to 6 inches—yellowish brown very channery silt loam

Subsoil:
6 to 11 inches—yellowish brown extremely channery silt loam

Substratum:
11 to 17 inches—yellowish brown extremely channery silt loam

Hard bedrock:
17 inches—shale bedrock

Minor Components

Dissimilar components:
- Gilpin soils, which are moderately deep to shale bedrock and have fewer rock fragments in the soil than the Berks and Weikert soils; on similar landforms
- Nicelytown soils, which are very deep to bedrock and moderately well drained; on footslopes at the base of hills
- Shelocta soils, which are very deep to bedrock and have fewer rock fragments in the soil than the Berks and Weikert soils; on footslopes at the base of hills
- Rough soils, which are very shallow to shale bedrock; on similar landforms
- Soils that have slopes of less than 8 percent; on similar landforms

Similar components:
- Soils that have fewer rock fragments in the subsoil than the Berks and Weikert soils; on similar landforms
- Soils that have very stony surfaces; on similar landforms

Soil Properties and Qualities

Available water capacity: Berks—low (about 3.1 inches); Weikert—very low (about 1.3 inches)

Slowest saturated hydraulic conductivity: Berks—moderately high (about 0.57 in/hr); Weikert—high (about 1.98 in/hr)
Depth class: Berks—moderately deep (20 to 40 inches); Weikert—shallow (10 to 20 inches)
Depth to root-restrictive feature: Berks—20 to 40 inches to lithic bedrock; Weikert—10 to 20 inches to lithic bedrock
Drainage class: Well drained
Depth to seasonal water saturation: More than 6 feet
Flooding hazard: None
Ponding hazard: None
Shrink-swell potential: Low
Runoff class: Low
Surface fragments: None
Parent material: Residuum weathered from shale and siltstone

Use and Management Considerations

Cropland

Suitability: Moderately suited to grass-legume hay; poorly suited to corn; not suited to alfalfa hay

- The rate of surface runoff, the erosion hazard, and the amount of nutrient loss are increased because of the slope.
- The bedrock restricts the rooting depth of crops.
- The limited available water capacity may cause plants to suffer from moisture stress.

Pastureland

Suitability: Poorly suited

- The hazard of erosion, the rate of surface runoff, and the amount of nutrient loss are increased because of the slope.
- The limited available water capacity may cause plants to suffer from moisture stress during the drier summer months.
- The bedrock may restrict the rooting depth of plants.

Woodland

Suitability: Moderately suited to chestnut oak

- Proper planning for timber harvesting is essential in order to minimize the potential negative impact to soil and water quality. A timber harvest plan should include general adherence to all applicable best management practices.
- The slope creates unsafe operating conditions and reduces the operating efficiency of log trucks.
- The slope may restrict the use of some mechanical planting equipment.
- Bedrock may interfere with the construction of haul roads and log landings.
- Coarse textured soil layers may slough, thus reducing the efficiency of mechanical planting equipment.
- Coarse textured soil layers increase the maintenance needs for haul roads and log landings.
- The low soil strength may create unsafe conditions for log trucks.

Building sites

- The slope influences the use of machinery and the amount of excavation required.
- Because of the limited depth to bedrock, the ease of excavation is greatly reduced and the difficulty of constructing foundations and installing utilities is increased.

Septic tank absorption fields

- Because of the limited depth to bedrock, the filtering capacity of the soil is reduced and the difficulty of properly installing the effluent distribution lines is increased.
- The slope limits the proper treatment of effluent from conventional septic systems.

Local roads and streets
- Because of the limited depth to bedrock, the ease of excavation is reduced and the difficulty of constructing roads is increased.
- Because of the slope, designing local roads and streets is difficult.

Interpretive Groups

Prime farmland: Not prime farmland
Land capability class: Berks—3e; Weikert—6s
Virginia soil management group: JJ
Hydric soil: No

7E—Berks-Weikert complex, 15 to 35 percent slopes

Setting

Major land resource area: Southern Appalachian Ridges and Valleys (MLRA 128)
Landform: Hills and mountains
Position on the landform: Interfluves, nose slopes, crests, side slopes, mountaintops, and mountain flanks

Map Unit Composition

Note: These Berks and Weikert soils occur as areas so closely intermingled that they could not be separated at the scale selected for mapping.

Berks and similar soils: Typically 50 percent, ranging from about 45 to 55 percent
Weikert and similar soils: Typically 35 percent, ranging from about 30 to 40 percent

Typical Profile

Berks

Organic layer:
0 to 2 inches—moderately decomposed plant material

Surface layer:
2 to 5 inches—brown very channery silt loam

Subsoil:
5 to 15 inches—yellowish brown channery silt loam
15 to 26 inches—brownish yellow very channery silt loam

Substratum:
26 to 28 inches—strong brown extremely channery silt loam

Hard bedrock:
28 inches—shale bedrock

Weikert

Organic layer:
0 to 1 inch—moderately decomposed plant material

Surface layer:
1 to 3 inches—brown channery silt loam

Subsurface layer:
3 to 6 inches—yellowish brown very channery silt loam

Subsoil:
6 to 11 inches—yellowish brown extremely channery silt loam

Substratum:
11 to 17 inches—yellowish brown extremely channery silt loam

Hard bedrock:
17 inches—shale bedrock

Minor Components

Dissimilar components:
- Gilpin soils, which are moderately deep to shale bedrock and have fewer rock fragments in the soil than the Berks and Weikert soils; on similar landforms
- Nicelytown soils, which are very deep to bedrock and moderately well drained; on footslopes at the base of hills
- Shelocta soils, which are very deep to bedrock and have fewer rock fragments in the soil than the Berks and Weikert soils; on footslopes at the base of hills
- Rough soils, which are very shallow to shale bedrock; on similar landforms
- Soils that have slopes of less than 15 percent; on similar landforms

Similar components:
- Soils that have fewer rock fragments in the subsoil than the Berks and Weikert soils; on similar landforms
- Soils that have very stony surfaces; on similar landforms

Soil Properties and Qualities

Available water capacity: Berks—low (about 3.1 inches); Weikert—very low (about 1.3 inches)
Slowest saturated hydraulic conductivity: Berks—moderately high (about 0.57 in/hr); Weikert—high (about 1.98 in/hr)
Depth class: Berks—moderately deep (20 to 40 inches); Weikert—shallow (10 to 20 inches)
Depth to root-restrictive feature: Berks—20 to 40 inches to lithic bedrock; Weikert—10 to 20 inches to lithic bedrock
Drainage class: Well drained
Depth to seasonal water saturation: More than 6 feet
Flooding hazard: None
Ponding hazard: None
Shrink-swell potential: Low
Runoff class: Medium
Surface fragments: None
Parent material: Residuum weathered from shale and siltstone

Use and Management Considerations

Cropland
- These soils are unsuited to cropland.

Pastureland
Suitability: Poorly suited
- The hazard of erosion, the rate of surface runoff, and the amount of nutrient loss are increased because of the slope.
- The slope may restrict the use of some farm equipment.
- The limited available water capacity may cause plants to suffer from moisture stress during the drier summer months.
- The bedrock may restrict the rooting depth of plants.

Woodland
Suitability: Moderately suited to chestnut oak

- Proper planning for timber harvesting is essential in order to minimize the potential negative impact to soil and water quality. A timber harvest plan should include general adherence to all applicable best management practices.
- The slope poses safety hazards and creates a potential for erosion during the construction of haul roads and log landings.
- The slope creates unsafe operating conditions and reduces the operating efficiency of log trucks and harvesting equipment.
- Because of the slope, the use of equipment for preparing sites for planting and seeding is restricted.
- Because of the slope, the use of mechanical planting equipment is impractical.
- Coarse textured soil layers may slough, thus reducing the efficiency of mechanical planting equipment.
- The low soil strength may create unsafe conditions for log trucks.

Building sites
- The slope influences the use of machinery and the amount of excavation required.
- Because of the limited depth to bedrock, the ease of excavation is greatly reduced and the difficulty of constructing foundations and installing utilities is increased.

Septic tank absorption fields
- Because of the limited depth to bedrock, the filtering capacity of the soil is reduced and the difficulty of properly installing the effluent distribution lines is increased.
- The slope limits the proper treatment of effluent from conventional septic systems.

Local roads and streets
- Because of the limited depth to bedrock, the ease of excavation is reduced and the difficulty of constructing roads is increased.
- Because of the slope, designing local roads and streets is difficult.

Interpretive Groups

Prime farmland: Not prime farmland
Land capability class: 6e
Virginia soil management group: JJ
Hydric soil: No

7G—Berks-Weikert complex, 35 to 70 percent slopes

Setting

Major land resource area: Southern Appalachian Ridges and Valleys (MLRA 128)
Landform: Hills and mountains (fig. 3)
Position on the landform: Nose slopes, crests, side slopes, and mountain flanks

Map Unit Composition

Note: These Berks and Weikert soils occur as areas so closely intermingled that they could not be separated at the scale selected for mapping.

Berks and similar soils: Typically 45 percent, ranging from about 40 to 50 percent
Weikert and similar soils: Typically 40 percent, ranging from about 35 to 45 percent

Typical Profile

Berks

Organic layer:
0 to 2 inches—moderately decomposed plant material

Figure 3.—The mountains in the upper third of the photograph are dominantly mapped as Berks-Weikert complex, 35 to 70 percent slopes, a map unit which is underlain primarily by shale bedrock. Nicelytown silt loam, 3 to 8 percent percent slopes, is mapped on the footslopes and toeslopes.

Surface layer:
2 to 5 inches—brown very channery silt loam

Subsoil:
5 to 15 inches—yellowish brown channery silt loam
15 to 26 inches—brownish yellow very channery silt loam

Substratum:
26 to 28 inches—strong brown extremely channery silt loam

Hard bedrock:
28 inches—shale bedrock

Weikert

Organic layer:
0 to 1 inch—moderately decomposed plant material

Surface layer:
1 to 3 inches—brown channery silt loam

Subsurface layer:
3 to 6 inches—yellowish brown very channery silt loam

Subsoil:
6 to 11 inches—yellowish brown extremely channery silt loam

Substratum:
11 to 17 inches—yellowish brown extremely channery silt loam

Hard bedrock:
17 inches—shale bedrock

Minor Components

Dissimilar components:
- Gilpin soils, which are moderately deep to shale bedrock and have fewer rock fragments in the soil than the Berks and Weikert soils; on similar landforms
- Nicelytown soils, which are very deep to bedrock and moderately well drained; on footslopes at the base of hills
- Shelocta soils, which are very deep to bedrock and have fewer rock fragments in the soil than the Berks and Weikert soils; on footslopes at the base of hills
- Rough soils, which are very shallow to shale bedrock; on similar landforms

Similar components:
- Soils that have slopes of more than 70 percent; on similar landforms
- Soils that have fewer rock fragments in the subsoil than the Berks and Weikert soils; on similar landforms
- Soils that have very stony surfaces; on similar landforms

Soil Properties and Qualities

Available water capacity: Berks—low (about 3.1 inches); Weikert—very low (about 1.3 inches)
Slowest saturated hydraulic conductivity: Berks—moderately high (about 0.57 in/hr); Weikert—high (about 1.98 in/hr)
Depth class: Berks—moderately deep (20 to 40 inches); Weikert—shallow (10 to 20 inches)
Depth to root-restrictive feature: Berks—20 to 40 inches to lithic bedrock; Weikert—10 to 20 inches to lithic bedrock
Drainage class: Well drained
Depth to seasonal water saturation: More than 6 feet
Flooding hazard: None
Ponding hazard: None
Shrink-swell potential: Low
Runoff class: High
Surface fragments: None
Parent material: Residuum weathered from shale and siltstone

Use and Management Considerations

Cropland
- These soils are unsuited to cropland.

Pastureland
- These soils are unsuited to pastureland.

Woodland
Suitability: Moderately suited to chestnut oak
- Proper planning for timber harvesting is essential in order to minimize the potential negative impact to soil and water quality, especially on the steeper slopes. A timber harvest plan should focus on the proper location of haul roads and skid tails, and careful attention should be given to all applicable best management practices.
- The slope poses safety hazards and creates a potential for erosion during the construction of haul roads and log landings.
- The slope creates unsafe operating conditions and reduces the operating efficiency of log trucks and harvesting equipment.
- Because of the slope, the use of equipment for planting and seeding (including mechanical planting equipment) is impractical.

- Coarse textured soil layers may slough, thus reducing the efficiency of mechanical planting equipment.
- The low soil strength may create unsafe conditions for log trucks.

Building sites
- The slope influences the use of machinery and the amount of excavation required.
- Because of the limited depth to bedrock, the ease of excavation is greatly reduced and the difficulty of constructing foundations and installing utilities is increased.

Septic tank absorption fields
- Because of the limited depth to bedrock, the filtering capacity of the soil is reduced and the difficulty of properly installing the effluent distribution lines is increased.
- The slope limits the proper treatment of effluent from conventional septic systems.

Local roads and streets
- Because of the limited depth to bedrock, the ease of excavation is reduced and the difficulty of constructing roads is increased.
- Because of the slope, designing local roads and streets is difficult.

Interpretive Groups

Prime farmland: Not prime farmland
Land capability class: 7e
Virginia soil management group: JJ
Hydric soil: No

8G—Brushy extremely gravelly loam, 35 to 70 percent slopes, very stony

Setting

Major land resource area: Southern Appalachian Ridges and Valleys (MLRA 128)
Landform: Hills and mountains
Position on the landform: Nose slopes, side slopes, and mountain flanks

Map Unit Composition

Brushy and similar soils: Typically 90 percent, ranging from about 85 to 95 percent

Typical Profile

Organic layer:
0 to 2 inches—moderately decomposed plant material

Surface layer:
2 to 7 inches—dark yellowish brown extremely gravelly loam

Subsurface layer:
7 to 13 inches—pale brown very gravelly loam

Subsoil:
13 to 27 inches—yellowish brown very gravelly clay loam
27 to 34 inches—brown very gravelly clay loam

Hard bedrock:
34 inches—chert bedrock

Minor Components

Dissimilar components:
- Oriskany soils, which are very deep to bedrock; on footslopes at the base of hills and mountains
- Soils that are very deep to hard bedrock; on similar landforms
- Rock outcrop on similar landforms

Similar components:
- Dekalb soils, which are moderately deep to sandstone bedrock; on similar landforms
- Lily soils, which have fewer rock fragments in the soil than the Brushy soil; on similar landforms
- Soils that are deep to hard bedrock; on similar landforms
- Soils that are shallow to hard bedrock; on similar landforms
- Soils that have fewer surface stones than the Brushy soil; on similar landforms

Soil Properties and Qualities

Available water capacity: Very low (about 1.6 inches)
Slowest saturated hydraulic conductivity: Moderately high (about 0.57 in/hr)
Depth class: Moderately deep (20 to 40 inches)
Depth to root-restrictive feature: 20 to 40 inches to lithic bedrock
Drainage class: Well drained
Depth to seasonal water saturation: More than 6 feet
Flooding hazard: None
Ponding hazard: None
Shrink-swell potential: Low
Runoff class: High
Surface fragments: About 0.10 to 3.00 percent subangular stones
Parent material: Residuum weathered from chert and/or residuum weathered from cherty limestone

Use and Management Considerations

Cropland
- This soil is unsuited to cropland.

Pastureland
- This soil is unsuited to pastureland.

Woodland
Suitability: Well suited to chestnut oak; moderately suited to northern red oak; poorly suited to yellow-poplar
- Proper planning for timber harvesting is essential in order to minimize the potential negative impact to soil and water quality, especially on the steeper slopes. A timber harvest plan should focus on the proper location of haul roads and skid tails, and careful attention should be given to all applicable best management practices.
- The slope poses safety hazards and creates a potential for erosion during the construction of haul roads and log landings.
- The slope creates unsafe operating conditions and reduces the operating efficiency of log trucks and harvesting equipment.
- Because of the slope, the use of equipment for planting and seeding is impractical.
- The use of mechanical planting equipment is impractical because of the slope and the content of rock fragments.
- Rock fragments restrict the use of equipment during site preparation for planting or seeding.
- Coarse textured soil layers may slough, thus reducing the efficiency of mechanical planting equipment.

- The coarseness of the soil material may reduce the traction of wheeled harvest equipment and log trucks.
- Coarse textured soil layers increase the maintenance needs for haul roads and log landings.

Building sites
- The slope influences the use of machinery and the amount of excavation required.
- Because of the limited depth to bedrock, the ease of excavation is greatly reduced and the difficulty of constructing foundations and installing utilities is increased.

Septic tank absorption fields
- Because of the limited depth to bedrock, the filtering capacity of the soil is reduced and the difficulty of properly installing the effluent distribution lines is increased.
- The slope limits the proper treatment of effluent from conventional septic systems.

Local roads and streets
- Because of the limited depth to bedrock, the ease of excavation is reduced and the difficulty of constructing roads is increased.
- Because of the slope, designing local roads and streets is difficult.

Interpretive Groups

Prime farmland: Not prime farmland
Land capability class: 7e
Virginia soil management group: JJ
Hydric soil: No

9E—Calvin channery silt loam, 15 to 35 percent slopes, very stony

Setting

Major land resource area: Southern Appalachian Ridges and Valleys (MLRA 128)
Landform: Hills and mountains
Position on the landform: Interfluves, nose slopes, side slopes, mountaintops, and mountain flanks

Map Unit Composition

Calvin and similar soils: Typically 80 percent, ranging from about 75 to 85 percent

Typical Profile

Organic layer:
0 to 1 inch—slightly decomposed plant material

Surface layer:
1 to 4 inches—dark reddish brown channery silt loam

Subsoil:
4 to 9 inches—reddish brown channery silt loam
9 to 21 inches—reddish brown very channery silt loam

Substratum:
21 to 27 inches—reddish brown extremely channery silt loam

Hard bedrock:
27 inches—siltstone bedrock

Minor Components

Dissimilar components:
- Bailegap soils, which are deep to sandstone bedrock and have fewer rock fragments in the soil than the Calvin soil; on similar landforms
- Rough soils, which are very shallow to shale bedrock; on similar landforms
- Culleoka soils, which have fewer rock fragments in the soil than the Calvin soil; on similar landforms
- Westmoreland soils, which are deep to bedrock and have fewer rock fragments in the soil than the Calvin soil; on similar landforms
- Areas of widely scattered rock outcrops; on similar landforms
- Soils on slopes of less than 15 percent; on similar landforms

Similar components:
- Berks soils, which are browner than the Calvin soil; on similar landforms
- Dekalb soils, which are moderately deep to sandstone bedrock and are browner and have more sand than the Calvin soil; on similar landforms
- Soils that are shallow to hard bedrock; on similar landforms
- Soils that have fewer surface stones than the Calvin soil; on similar landforms
- Soils that have more surface stones than the Calvin soil; on similar landforms

Soil Properties and Qualities

Available water capacity: Low (about 3.2 inches)
Slowest saturated hydraulic conductivity: High (about 1.98 in/hr)
Depth class: Moderately deep (20 to 40 inches)
Depth to root-restrictive feature: 20 to 40 inches to lithic bedrock
Drainage class: Well drained
Depth to seasonal water saturation: More than 6 feet
Flooding hazard: None
Ponding hazard: None
Shrink-swell potential: Low
Runoff class: Medium
Surface fragments: About 0.10 to 3.00 percent subangular stones
Parent material: Residuum weathered from shale and siltstone

Use and Management Considerations

Cropland
- This soil is unsuited to cropland.

Pastureland
- This soil is unsuited to pastureland.

Woodland
Suitability: Moderately suited to northern red oak
- Proper planning for timber harvesting is essential in order to minimize the potential negative impact to soil and water quality. A timber harvest plan should include general adherence to all applicable best management practices.
- The slope poses safety hazards and creates a potential for erosion during the construction of haul roads and log landings.
- The slope creates unsafe operating conditions and reduces the operating efficiency of log trucks and harvesting equipment.
- Because of the slope, the use of equipment for preparing sites for planting and seeding is restricted.
- Because of the slope, the use of mechanical planting equipment is impractical.

Building sites
- The slope influences the use of machinery and the amount of excavation required.

- Because of the limited depth to bedrock, the ease of excavation is greatly reduced and the difficulty of constructing foundations and installing utilities is increased.

Septic tank absorption fields
- Because of the limited depth to bedrock, the filtering capacity of the soil is reduced and the difficulty of properly installing the effluent distribution lines is increased.
- The slope limits the proper treatment of effluent from conventional septic systems.

Local roads and streets
- Because of the limited depth to bedrock, the ease of excavation is reduced and the difficulty of constructing roads is increased.
- Because of the slope, designing local roads and streets is difficult.

Interpretive Groups

Prime farmland: Not prime farmland
Land capability class: 7s
Virginia soil management group: JJ
Hydric soil: No

10G—Calvin-Rough complex, 35 to 70 percent slopes, very stony

Setting

Major land resource area: Southern Appalachian Ridges and Valleys (MLRA 128)
Landform: Hills and mountains
Position on the landform: Nose slopes, side slopes, and the upper to center third of mountain flanks

Map Unit Composition

Note: These Calvin and Rough soils occur as areas so closely intermingled that they could not be separated at the scale selected for mapping.

Calvin and similar soils: Typically 55 percent, ranging from about 50 to 60 percent
Rough and similar soils: Typically 30 percent, ranging from about 25 to 35 percent

Typical Profile

Calvin

Organic layer:
0 to 1 inch—slightly decomposed plant material

Surface layer:
1 to 4 inches—dark reddish brown channery silt loam

Subsoil:
4 to 9 inches—reddish brown channery silt loam
9 to 21 inches—reddish brown very channery silt loam

Substratum:
21 to 27 inches—reddish brown extremely channery silt loam

Hard bedrock:
27 inches—siltstone bedrock

Rough

Organic layer:
0 to 1 inch—slightly decomposed plant material

Surface layer:
1 to 3 inches—brown channery silt loam

Subsoil:
3 to 6 inches—yellowish brown very channery silt loam

Substratum:
6 to 8 inches—yellowish brown extremely channery silt loam

Hard bedrock:
8 inches—shale bedrock

Minor Components

Dissimilar components:
- Bailegap soils, which are deep to sandstone bedrock and have fewer rock fragments in the soil than the Calvin and Rough soils; on similar landforms
- Culleoka soils, which have fewer rock fragments in the soil than the Calvin and Rough soils; on similar landforms
- Westmoreland soils, which are deep to bedrock and have fewer rock fragments in the soil than the Calvin and Rough soils; on similar landforms
- Areas of widely scattered rock outcrops; on similar landforms

Similar components:
- Berks soils, which are browner than the Calvin and Rough soils; on similar landforms
- Dekalb soils, which are moderately deep to sandstone bedrock and are browner and have more sand than the Calvin and Rough soils; on similar landforms
- Soils that are shallow to hard bedrock; on similar landforms
- Soils that have slopes of more than 70 percent; on similar landforms
- Soils that have fewer or more surface stones than the Calvin and Rough soils; on similar landforms

Soil Properties and Qualities

Available water capacity: Calvin—low (about 3.2 inches); Rough—very low (about 0.9 inch)
Slowest saturated hydraulic conductivity: Calvin—high (about 1.98 in/hr); Rough—moderately high (about 0.57 in/hr)
Depth class: Calvin—moderately deep (20 to 40 inches); Rough—very shallow (less than 10 inches)
Depth to root-restrictive feature: Calvin—20 to 40 inches to lithic bedrock; Rough—4 to 10 inches to lithic bedrock
Drainage class: Calvin—well drained; Rough—somewhat excessively drained
Depth to seasonal water saturation: More than 6 feet
Flooding hazard: None
Ponding hazard: None
Shrink-swell potential: Low
Runoff class: Calvin—medium; Rough—very high
Surface fragments: About 0.10 to 3.00 percent subangular stones
Parent material: Residuum weathered from shale and siltstone

Use and Management Considerations

Cropland
- These soils are unsuited to cropland.

Pastureland
- These soils are unsuited to pastureland.

Woodland

Suitability: Moderately suited to northern red oak

- Proper planning for timber harvesting is essential in order to minimize the potential negative impact to soil and water quality, especially on the steeper slopes. A timber harvest plan should focus on the proper location of haul roads and skid tails, and careful attention should be given to all applicable best management practices.
- The slope poses safety hazards and creates a potential for erosion during the construction of haul roads and log landings.
- The slope creates unsafe operating conditions and reduces the operating efficiency of log trucks and harvesting equipment.
- Because of the slope, the use of equipment for planting and seeding (including mechanical planting equipment) is impractical.
- The low soil strength may create unsafe conditions for log trucks.

Building sites

- The slope influences the use of machinery and the amount of excavation required.
- Because of the limited depth to bedrock, the ease of excavation is greatly reduced and the difficulty of constructing foundations and installing utilities is increased.

Septic tank absorption fields

- Because of the limited depth to bedrock, the filtering capacity of the soil is reduced and the difficulty of properly installing the effluent distribution lines is increased.
- The slope limits the proper treatment of effluent from conventional septic systems.

Local roads and streets

- Because of the limited depth to bedrock, the ease of excavation is reduced and the difficulty of constructing roads is increased.
- Because of the slope, designing local roads and streets is difficult.

Interpretive Groups

Prime farmland: Not prime farmland
Land capability class: 7e
Virginia soil management group: JJ
Hydric soil: No

11E—Carbo-Rock outcrop complex, 8 to 35 percent slopes, eroded

Setting

Major land resource area: Southern Appalachian Ridges and Valleys (MLRA 128)
Landform: Hills
Position on the landform: Interfluves, nose slopes, and side slopes
Note: Erosion has removed some of the original surface layer and exposed the subsoil in places; some areas may have intricate patterns, ranging from uneroded small areas to severely eroded small areas

Map Unit Composition

Note: This Carbo soil and Rock outcrop occur as areas so closely intermingled that they could not be separated at the scale selected for mapping.

Carbo and similar soils: Typically 60 percent, ranging from about 55 to 65 percent
Rock outcrop: Typically 25 percent, ranging from about 15 to 35 percent

Typical Profile

Carbo

Surface layer:
0 to 5 inches—brown silty clay loam

Subsoil:
5 to 16 inches—brown clay with black manganese masses
16 to 24 inches—brown clay with black manganese masses

Hard bedrock:
24 inches—limestone bedrock

Rock outcrop

This part of the map unit consists of outcrops of grayish hard limestone that are a few inches to about 5 feet high.

Minor Components

Dissimilar components:
- Frederick soils, which are very deep to bedrock; on similar landforms
- Watahala soils, which are very deep to bedrock and have more chert fragments in the soil than the Carbo soil; on similar landforms
- Soils that are very shallow to limestone bedrock; on similar landforms

Similar components:
- Soils that are deep to hard bedrock; on similar landforms
- Soils that are shallow to hard bedrock; on similar landforms

Properties and Qualities of the Carbo Soil

Available water capacity: Low (about 3.0 inches)
Slowest saturated hydraulic conductivity: Moderately low (about 0.06 in/hr)
Depth class: Moderately deep (20 to 40 inches)
Depth to root-restrictive feature: 20 to 40 inches to lithic bedrock
Drainage class: Well drained
Depth to seasonal water saturation: More than 6 feet
Flooding hazard: None
Ponding hazard: None
Shrink-swell potential: High
Runoff class: High
Surface fragments: None
Parent material: Residuum weathered from limestone

Use and Management Considerations

Cropland
- This map unit is unsuited to cropland.

Pastureland
- This map unit is unsuited to pastureland.

Woodland
Suitability: Moderately suited to northern red oak and yellow-poplar
- Proper planning for timber harvesting is essential in order to minimize the potential negative impact to soil and water quality. A timber harvest plan should include general adherence to all applicable best management practices.
- The slope poses safety hazards and creates a potential for erosion during the construction of haul roads and log landings.

- The slope creates unsafe operating conditions and reduces the operating efficiency of log trucks and harvesting equipment.
- Because of the slope, the use of equipment for preparing sites for planting and seeding is restricted.
- The slope may restrict the use of some mechanical planting equipment.
- Bedrock may interfere with the construction of haul roads and log landings.
- The low soil strength interferes with the construction of haul roads and log landings.
- The low soil strength may create unsafe conditions for log trucks.
- The stickiness of the soil increases the difficulty of constructing haul roads and log landings when the soil is wet.
- The stickiness of the soil reduces the efficiency of mechanical planting equipment.
- The stickiness of the soil restricts the use of equipment for site preparation to the drier periods.

Building sites
- The slope influences the use of machinery and the amount of excavation required.
- The shrinking and swelling of the soil may crack foundations and basement walls.
- Because of the limited depth to bedrock, the ease of excavation is greatly reduced and the difficulty of constructing foundations and installing utilities is increased.
- The high content of clay in the subsurface layer increases the difficulty of digging, filling, and compacting the soil material in shallow excavations.
- Because of rock outcrops, rock removal may be needed.

Septic tank absorption fields
- Because of the limited depth to bedrock, the filtering capacity of the soil is reduced and the difficulty of properly installing the effluent distribution lines is increased.
- The slope limits the proper treatment of effluent from conventional septic systems.
- Because of rock outcrops, special designs for septic tank absorption fields are needed.

Local roads and streets
- Because of the limited depth to bedrock, the ease of excavation is reduced and the difficulty of constructing roads is increased.
- Because of shrinking and swelling, the use of the Carbo soil as base material for local roads and streets is restricted.
- The low soil strength is unfavorable for supporting heavy loads.
- Because of the slope, designing local roads and streets is difficult.
- Because of rock outcrops, special designs for the grade of local roads and streets are needed and special consideration of location is needed to avoid rock removal.

Interpretive Groups

Prime farmland: Not prime farmland
Land capability class: Carbo—7s; Rock outcrop—8
Virginia soil management group: Carbo—Y; Rock outcrop—none assigned
Hydric soil: No

11F—Carbo-Rock outcrop complex, 35 to 55 percent slopes, eroded

Setting

Major land resource area: Southern Appalachian Ridges and Valleys (MLRA 128)
Landform: Hills
Position on the landform: Interfluves, nose slopes, and side slopes

Note: Erosion has removed some of the original surface layer and exposed the subsoil in places; some areas may have intricate patterns, ranging from uneroded small areas to severely eroded small areas

Map Unit Composition

Note: This Carbo soil and Rock outcrop occur as areas so closely intermingled that they could not be separated at the scale selected for mapping.

Carbo and similar soils: Typically 60 percent, ranging from about 55 to 65 percent
Rock outcrop: Typically 25 percent, ranging from about 15 to 35 percent

Typical Profile

Carbo

Surface layer:
0 to 5 inches—brown silty clay loam

Subsoil:
5 to 16 inches—brown clay with black manganese masses
16 to 24 inches—brown clay with black manganese masses

Hard bedrock:
24 inches—limestone bedrock

Rock outcrop

This part of the map unit consists of outcrops of grayish hard limestone that are a few inches to about 5 feet high.

Minor Components

Dissimilar components:
- Frederick soils, which are very deep to bedrock; on similar landforms
- Watahala soils, which are very deep to bedrock and have more chert fragments in the soil than the Carbo soil; on similar landforms
- Soils that have slopes of more than 55 percent; on similar landforms
- Soils that are very shallow to limestone bedrock; on similar landforms

Similar components:
- Soils that are deep to hard bedrock; on similar landforms
- Soils that are shallow to hard bedrock; on similar landforms

Properties and Qualities of the Carbo Soil

Available water capacity: Low (about 3.0 inches)
Slowest saturated hydraulic conductivity: Moderately low (about 0.06 in/hr)
Depth class: Moderately deep (20 to 40 inches)
Depth to root-restrictive feature: 20 to 40 inches to lithic bedrock
Drainage class: Well drained
Depth to seasonal water saturation: More than 6 feet
Flooding hazard: None
Ponding hazard: None
Shrink-swell potential: High
Runoff class: High
Surface fragments: None
Parent material: Residuum weathered from limestone

Use and Management Considerations

Cropland

- This map unit is unsuited to cropland.

Pastureland

- This map unit is unsuited to pastureland.

Woodland

Suitability: Moderately suited to northern red oak and yellow-poplar

- Proper planning for timber harvesting is essential in order to minimize the potential negative impact to soil and water quality, especially on the steeper slopes. A timber harvest plan should focus on the proper location of haul roads and skid tails, and careful attention should be given to all applicable best management practices.
- The slope poses safety hazards and creates a potential for erosion during the construction of haul roads and log landings.
- The slope creates unsafe operating conditions and reduces the operating efficiency of log trucks and harvesting equipment.
- Because of the slope, the use of equipment for planting and seeding (including mechanical planting equipment) is impractical.
- The low soil strength interferes with the construction of haul roads and log landings.
- The low soil strength may create unsafe conditions for log trucks.
- The stickiness of the soil reduces the efficiency of mechanical planting equipment.
- The stickiness of the soil restricts the use of equipment for site preparation to the drier periods.

Building sites

- The slope influences the use of machinery and the amount of excavation required.
- The shrinking and swelling of the soil may crack foundations and basement walls.
- Because of the limited depth to bedrock, the ease of excavation is greatly reduced and the difficulty of constructing foundations and installing utilities is increased.
- The high content of clay in the subsurface layer increases the difficulty of digging, filling, and compacting the soil material in shallow excavations.
- Because of rock outcrops, rock removal may be needed.

Septic tank absorption fields

- Because of the limited depth to bedrock, the filtering capacity of the soil is reduced and the difficulty of properly installing the effluent distribution lines is increased.
- The slope limits the proper treatment of effluent from conventional septic systems.
- Because of rock outcrops, special designs for septic tank absorption fields are needed.

Local roads and streets

- Because of the limited depth to bedrock, the ease of excavation is reduced and the difficulty of constructing roads is increased.
- Because of shrinking and swelling, the use of the Carbo soil as base material for local roads and streets is restricted.
- The low soil strength is unfavorable for supporting heavy loads.
- Because of the slope, designing local roads and streets is difficult.
- Because of rock outcrops, special designs for the grade of local roads and streets are needed and special consideration of location is needed to avoid rock removal.

Interpretive Groups

Prime farmland: Not prime farmland
Land capability class: Carbo—7s; Rock outcrop—8
Virginia soil management group: Carbo—Y; Rock outcrop—none assigned
Hydric soil: No

12E—Carbo-Rock outcrop complex, karst, 8 to 35 percent slopes, eroded

Setting

Major land resource area: Southern Appalachian Ridges and Valleys (MLRA 128)
Landform: Hills and valleys in areas with karst topography
Position on the landform: Interfluves, nose slopes, and side slopes
Note: Many sinkholes are scattered throughout areas of this map unit; erosion has removed part of the original surface layer and exposed the subsoil in places; some areas may have intricate patterns, ranging from uneroded small areas to severely eroded small areas

Map Unit Composition

Note: This Carbo soil and Rock outcrop occur as areas so closely intermingled that they could not be separated at the scale selected for mapping.

Carbo and similar soils: Typically 60 percent, ranging from about 55 to 65 percent
Rock outcrop: Typically 25 percent, ranging from about 15 to 35 percent

Typical Profile

Carbo

Surface layer:
0 to 5 inches—brown silty clay loam

Subsoil:
5 to 16 inches—brown clay with black manganese masses
16 to 24 inches—brown clay with black manganese masses

Hard bedrock:
24 inches—limestone bedrock

Rock outcrop

This part of the map unit consists of outcrops of grayish hard limestone that are a few inches to about 5 feet high.

Minor Components

Dissimilar components:
- Frederick soils, which are very deep to bedrock; on similar landforms
- Watahala soils, which are very deep to bedrock and have more chert fragments in the soil than the Carbo soil; on similar landforms
- Soils that have slopes of more than 35 percent; on similar landforms
- Beech Grove soils, which are very shallow to limestone bedrock; on similar landforms

Similar components:
- Soils that are deep to hard bedrock; on similar landforms
- Soils that are shallow to hard bedrock; on similar landforms

Properties and Qualities of the Carbo Soil

Available water capacity: Low (about 3.0 inches)
Slowest saturated hydraulic conductivity: Moderately low (about 0.06 in/hr)
Depth class: Moderately deep (20 to 40 inches)
Depth to root-restrictive feature: 20 to 40 inches to lithic bedrock
Drainage class: Well drained
Depth to seasonal water saturation: More than 6 feet

Flooding hazard: None
Ponding hazard: None
Shrink-swell potential: High
Runoff class: High
Surface fragments: None
Parent material: Residuum weathered from limestone

Use and Management Considerations

General concerns and considerations

The risk of ground-water pollution is higher in karst areas. Sinkholes vary in their ability to filter pollutants. Some sinkholes may be direct pathways from the land surface to ground water. In most cases, karstic aquifers cannot filter contaminated ground water sufficiently to render the water potable at a discharge site. Any soil amendments applied to the soil surface may wash into the ground water during periods of precipitation. In many cases, chemicals such as fertilizers, herbicides, and pesticides may be transmitted directly to domestic wells in a matter of hours. Concentrations of livestock in or near sinkholes may also contribute to the pollution of ground water. The presence of sinkholes indicates that additional sinkholes may develop in the future.

Cropland

- This map unit is unsuited to cropland.

Pastureland

- This map unit is unsuited to pastureland.

Woodland

Suitability: Moderately suited to northern red oak and yellow-poplar

- Proper planning for timber harvesting is essential in order to minimize the potential negative impact to soil and water quality. A timber harvest plan should include general adherence to all applicable best management practices.
- The slope poses safety hazards and creates a potential for erosion during the construction of haul roads and log landings.
- The slope creates unsafe operating conditions and reduces the operating efficiency of log trucks and harvesting equipment.
- Because of the slope, the use of equipment for preparing sites for planting and seeding is restricted.
- The slope may restrict the use of some mechanical planting equipment.
- Bedrock may interfere with the construction of haul roads and log landings.
- The low soil strength interferes with the construction of haul roads and log landings.
- The stickiness of the soil increases the difficulty of constructing haul roads and log landings when the soil is wet.
- The stickiness of the soil reduces the efficiency of mechanical planting equipment.
- The stickiness of the soil restricts the use of equipment for site preparation to the drier periods.

Building sites

- Because of the potential for sinkhole collapse, building site development is not recommended for karst areas.

Septic tank absorption fields

- Sinkholes (karst areas) increase the potential for ground-water contamination from the effluent from conventional septic systems; septic systems should not be placed near sinkholes.
- Because of the limited depth to bedrock, the filtering capacity of the soil is reduced and the difficulty of properly installing the effluent distribution lines is increased.
- The slope limits the proper treatment of effluent from conventional septic systems.

- Because of rock outcrops, special designs for septic tank absorption fields are needed.

Local roads and streets

- Because of the limited depth to bedrock, the ease of excavation is reduced and the difficulty of constructing roads is increased.
- Because of shrinking and swelling, the use of the Carbo soil as base material for local roads and streets is restricted.
- The low soil strength is unfavorable for supporting heavy loads.
- Because of the slope, designing local roads and streets is difficult.
- Collapsing sinkholes may damage local roads and streets.
- Because of rock outcrops, special designs for the grade of local roads and streets are needed and special consideration of location is needed to avoid rock removal.

Interpretive Groups

Prime farmland: Not prime farmland
Land capability class: Carbo—7s; Rock outcrop—8
Virginia soil management group: Carbo—Y; Rock outcrop—none assigned
Hydric soil: No

13A—Coursey loam, 0 to 3 percent slopes, rarely flooded

Setting

Major land resource area: Southern Appalachian Ridges and Valleys (MLRA 128)
Landform: Low stream terraces in a river valley
Position on the landform: Treads

Map Unit Composition

Coursey and similar soils: Typically 85 percent, ranging from about 75 to 90 percent

Typical Profile

Surface layer:
0 to 6 inches—brown loam

Subsoil:
6 to 14 inches—yellowish brown loam
14 to 21 inches—yellowish brown clay loam with light yellowish brown iron depletions
21 to 38 inches—yellowish brown clay loam with light gray iron depletions
38 to 43 inches—yellowish brown gravelly clay loam with light gray iron depletions

Substratum:
43 to 62 inches—yellowish brown very gravelly fine sandy loam with light gray iron depletions

Minor Components

Dissimilar components:

- Pope soils, which have less clay in the subsoil than the Coursey soil, are well drained, and are more susceptible to flooding; on flood plains
- Alonzville soils, which are well drained; on adjacent stream terraces
- Escatawba soils, which have a seasonal high water table at a depth of about 2.5 to 4 feet and are not susceptible to flooding; on adjacent footslopes
- Ogles soils, which have more than 35 percent rock fragments throughout and are more susceptible to flooding; on flood plains
- Maurertown soils, which are poorly drained and have more clay in the subsoil; in backswamps or in depressions on similar landforms

- Soils that flood more frequently; on flood plains
- Soils that are not susceptible to flooding; on the higher terraces
- Soils that have slopes of 3 to 8 percent; on similar landforms

Similar components:
- Soils that have less clay than the Coursey soil; on similar landforms
- Soils that are somewhat poorly drained; on similar landforms
- Soils that are deep to shale bedrock; on similar landforms

Soil Properties and Qualities

Available water capacity: Moderate (about 7.1 inches)
Slowest saturated hydraulic conductivity: Moderately high (about 0.57 in/hr)
Depth class: Very deep (more than 60 inches)
Depth to root-restrictive feature: More than 60 inches
Drainage class: Moderately well drained
Depth to seasonal water saturation: About 18 to 36 inches
Water table kind: Apparent
Flooding hazard: Rare
Ponding hazard: None
Shrink-swell potential: Low
Runoff class: Medium
Surface fragments: None
Parent material: Fine-loamy alluvium derived from sandstone and shale

Use and Management Considerations

Cropland
- This soil is well suited to corn, wheat, and grass-legume hay and moderately suited to alfalfa hay.

Pastureland
- This soil is well suited to pastureland.

Woodland
Suitability: Moderately suited to northern red oak and yellow-poplar
- Proper planning for timber harvesting is essential in order to minimize the potential negative impact to soil and water quality. A timber harvest plan should include general adherence to all applicable best management practices.
- Soil wetness may limit the use of log trucks.
- The low soil strength interferes with the construction of haul roads and log landings.

Building sites
- Flooding is a limitation affecting building site development.
- The seasonal high water table may restrict the period when excavations can be made.

Septic tank absorption fields
- The seasonal high water table greatly limits the absorption and proper treatment of the effluent from conventional septic systems.

Local roads and streets
- The seasonal high water table affects the ease of excavation and grading and reduces the bearing capacity of the soil.

Interpretive Groups

Prime farmland: All areas are prime farmland
Land capability class: 2w

Virginia soil management group: G
Hydric soil: No

13B—Coursey loam, 3 to 8 percent slopes, rarely flooded

Setting

Major land resource area: Southern Appalachian Ridges and Valleys (MLRA 128)
Landform: Low stream terraces in a river valley
Position on the landform: Treads and risers

Map Unit Composition

Coursey and similar soils: Typically 85 percent, ranging from about 75 to 90 percent

Typical Profile

Surface layer:
0 to 6 inches—brown loam

Subsoil:
6 to 14 inches—yellowish brown loam
14 to 21 inches—yellowish brown clay loam with light yellowish brown iron depletions
21 to 38 inches—yellowish brown clay loam with light gray iron depletions
38 to 43 inches—yellowish brown gravelly clay loam with light gray iron depletions

Substratum:
43 to 62 inches—yellowish brown very gravelly fine sandy loam with light gray iron depletions

Minor Components

Dissimilar components:
- Pope soils, which have less clay in the subsoil than the Coursey soil, are well drained, and are more susceptible to flooding; on flood plains
- Alonzville soils, which are well drained; on adjacent stream terraces
- Escatawba soils, which have a seasonal high water table at a depth of about 2.5 to 4 feet and are not susceptible to flooding; on adjacent footslopes
- Ogles soils, which have more than 35 percent rock fragments throughout and are more susceptible to flooding; on flood plains
- Maurertown soils, which are poorly drained and have more clay in the subsoil; in backswamps and in depressions on similar landforms
- Soils that flood more frequently; on flood plains
- Soils that are not susceptible to flooding; on the higher terraces
- Soils that have slopes of less than 3 percent; on similar landforms

Similar components:
- Soils that have less clay than the Coursey soil; on similar landforms
- Soils that are somewhat poorly drained; on similar landforms
- Soils that are deep to shale bedrock; on similar landforms

Soil Properties and Qualities

Available water capacity: Moderate (about 7.1 inches)
Slowest saturated hydraulic conductivity: Moderately high (about 0.57 in/hr)
Depth class: Very deep (more than 60 inches)
Depth to root-restrictive feature: More than 60 inches
Drainage class: Moderately well drained
Depth to seasonal water saturation: About 18 to 36 inches

Water table kind: Apparent
Flooding hazard: Rare
Ponding hazard: None
Shrink-swell potential: Low
Runoff class: Medium
Surface fragments: None
Parent material: Fine-loamy alluvium derived from sandstone and shale

Use and Management Considerations

Cropland
Suitability: Well suited to corn, wheat, and grass-legume hay; moderately suited to alfalfa hay
- The rate of surface runoff, the erosion hazard, and the amount of nutrient loss are increased because of the slope.

Pastureland
Suitability: Well suited
- The hazard of erosion, the rate of surface runoff, and the amount of nutrient loss are increased because of the slope.

Woodland
Suitability: Moderately suited to northern red oak and yellow-poplar
- Proper planning for timber harvesting is essential in order to minimize the potential negative impact to soil and water quality. A timber harvest plan should include general adherence to all applicable best management practices.
- Soil wetness may limit the use of log trucks.
- The slope may restrict the use of some mechanical planting equipment.
- The low soil strength interferes with the construction of haul roads and log landings.

Building sites
- Flooding is a limitation affecting building site development.
- The seasonal high water table may restrict the period when excavations can be made.

Septic tank absorption fields
- The seasonal high water table greatly limits the absorption and proper treatment of the effluent from conventional septic systems.

Local roads and streets
- The seasonal high water table affects the ease of excavation and grading and reduces the bearing capacity of the soil.

Interpretive Groups

Prime farmland: All areas are prime farmland
Land capability class: 2e
Virginia soil management group: G
Hydric soil: No

14C—Culleoka-Berks complex, 8 to 15 percent slopes

Setting

Major land resource area: Southern Appalachian Ridges and Valleys (MLRA 128)
Landform: Hills and mountains
Position on the landform: Interfluves and mountaintops

Map Unit Composition

Note: These Culleoka and Berks soils occur as areas so closely intermingled that they could not be separated at the scale selected for mapping.

Culleoka and similar soils: Typically 50 percent, ranging from about 45 to 55 percent
Berks and similar soils: Typically 40 percent, ranging from about 35 to 45 percent

Typical Profile

Culleoka

Organic layer:
0 to 1 inch—moderately decomposed plant material

Surface layer:
1 to 3 inches—brown gravelly silt loam

Subsoil:
3 to 11 inches—yellowish brown silt loam
11 to 22 inches—yellowish brown channery silty clay loam

Substratum:
22 to 27 inches—dark yellowish brown very channery silt loam

Hard bedrock:
27 inches—siltstone bedrock

Berks

Organic layer:
0 to 2 inches—moderately decomposed plant material

Surface layer:
2 to 5 inches—brown very channery silt loam

Subsoil:
5 to 15 inches—yellowish brown channery silt loam
15 to 26 inches—brownish yellow very channery silt loam

Substratum:
26 to 28 inches—strong brown extremely channery silt loam

Hard bedrock:
28 inches—shale bedrock

Minor Components

Dissimilar components:
- Shelocta soils, which are very deep to bedrock and have fewer rock fragments in the soil than the Berks soils; on footslopes
- Carbo soils, which are moderately deep to limestone bedrock and have more clay than the Berks and Culleoka soils; on similar landforms
- Soils that are very shallow to bedrock; on similar landforms
- Areas of rock outcrop on similar landforms
- Soils that are very stony to rubbly on the surface; on similar landforms
- Soils that have slopes of less than 8 percent; on similar landforms

Similar components:
- Weikert soils, which are shallow to shale bedrock and have more rock fragments in the soil than the Culleoka soil; on similar landforms
- Soils that are deep to bedrock; on similar landforms

Soil Properties and Qualities

Available water capacity: Culleoka—low (about 3.6 inches); Berks—low (about 3.1 inches)
Slowest saturated hydraulic conductivity: Moderately high (about 0.57 in/hr)
Depth class: Moderately deep (20 to 40 inches)
Depth to root-restrictive feature: 20 to 40 inches to lithic bedrock
Drainage class: Well drained
Depth to seasonal water saturation: More than 6 feet
Flooding hazard: None
Ponding hazard: None
Shrink-swell potential: Low
Runoff class: Low
Surface fragments: None
Parent material: Culleoka—residuum weathered from shale, siltstone, and limestone; Berks—residuum weathered from shale and siltstone

Use and Management Considerations

Cropland

Suitability: Moderately suited to corn, wheat, grass-legume hay, and alfalfa hay
- The rate of surface runoff, the erosion hazard, and the amount of nutrient loss are increased because of the slope.
- The bedrock restricts the rooting depth of crops.

Pastureland

Suitability: Well suited
- The hazard of erosion, the rate of surface runoff, and the amount of nutrient loss are increased because of the slope.
- The bedrock may restrict the rooting depth of plants.

Woodland

Suitability: Well suited to chestnut oak; moderately suited to northern red oak and yellow-poplar
- Proper planning for timber harvesting is essential in order to minimize the potential negative impact to soil and water quality. A timber harvest plan should include general adherence to all applicable best management practices.
- The slope creates unsafe operating conditions and reduces the operating efficiency of log trucks.
- The slope may restrict the use of some mechanical planting equipment.
- Bedrock may interfere with the construction of haul roads and log landings.
- The low soil strength interferes with the construction of haul roads and log landings.
- The low soil strength may create unsafe conditions for log trucks.

Building sites

- The slope influences the use of machinery and the amount of excavation required.
- Because of the limited depth to bedrock, the ease of excavation is greatly reduced and the difficulty of constructing foundations and installing utilities is increased.

Septic tank absorption fields

- Because of the limited depth to bedrock, the filtering capacity of the soil is reduced and the difficulty of properly installing the effluent distribution lines is increased.
- The slope limits the proper treatment of effluent from conventional septic systems.

Local roads and streets

- Because of the limited depth to bedrock, the ease of excavation is reduced and the difficulty of constructing roads is increased.
- Because of the slope, designing local roads and streets is difficult.

Interpretive Groups

Prime farmland: Not prime farmland
Land capability class: 3e
Virginia soil management group: Culleoka—U; Berks—JJ
Hydric soil: No

14D—Culleoka-Berks complex, 15 to 25 percent slopes

Setting

Major land resource area: Southern Appalachian Ridges and Valleys (MLRA 128)
Landform: Hills and mountains
Position on the landform: Interfluves, nose slopes, side slopes, crests, mountaintops, and mountain flanks

Map Unit Composition

Note: These Culleoka and Berks soils occur as areas so closely intermingled that they could not be separated at the scale selected for mapping.

Culleoka and similar soils: Typically 50 percent, ranging from about 45 to 55 percent
Berks and similar soils: Typically 40 percent, ranging from about 35 to 45 percent

Typical Profile

Culleoka

Organic layer:
0 to 1 inch—moderately decomposed plant material

Surface layer:
1 to 3 inches—brown gravelly silt loam

Subsoil:
3 to 11 inches—yellowish brown silt loam
11 to 22 inches—yellowish brown channery silty clay loam

Substratum:
22 to 27 inches—dark yellowish brown very channery silt loam

Hard bedrock:
27 inches—siltstone bedrock

Berks

Organic layer:
0 to 2 inches—moderately decomposed plant material

Surface layer:
2 to 5 inches—brown very channery silt loam

Subsoil:
5 to 15 inches—yellowish brown channery silt loam
15 to 26 inches—brownish yellow very channery silt loam

Substratum:
26 to 28 inches—strong brown extremely channery silt loam

Hard bedrock:
28 inches—shale bedrock

Minor Components

Dissimilar components:
- Shelocta soils, which are very deep to bedrock and have fewer rock fragments in the soil than the Berks soil; on footslopes
- Carbo soils, which are moderately deep to limestone bedrock and have more clay than the Berks and Culleoka soils; on similar landforms
- Soils that are very shallow to bedrock; on similar landforms
- Areas of rock outcrop on similar landforms
- Soils that are very stony to rubbly on the surface; on similar landforms
- Soils that have slopes of less than 15 percent or 25 to 35 percent; on similar landforms

Similar components:
- Weikert soils, which are shallow to shale bedrock and have more rock fragments in the soil than the Culleoka soil; on similar landforms
- Soils that are deep to bedrock; on similar landforms

Soil Properties and Qualities

Available water capacity: Culleoka—low (about 3.6 inches); Berks—low (about 3.1 inches)
Slowest saturated hydraulic conductivity: Moderately high (about 0.57 in/hr)
Depth class: Moderately deep (20 to 40 inches)
Depth to root-restrictive feature: 20 to 40 inches to lithic bedrock
Drainage class: Well drained
Depth to seasonal water saturation: More than 6 feet
Flooding hazard: None
Ponding hazard: None
Shrink-swell potential: Low
Runoff class: Medium
Surface fragments: None
Parent material: Culleoka—residuum weathered from shale, siltstone, and limestone; Berks—residuum weathered from shale and siltstone

Use and Management Considerations

Cropland
Suitability: Moderately suited to corn, wheat, grass-legume hay, and alfalfa hay
- The rate of surface runoff, the erosion hazard, and the amount of nutrient loss are increased because of the slope.
- The bedrock restricts the rooting depth of crops.

Pastureland
Suitability: Well suited or moderately well suited (fig. 4)
- The hazard of erosion, the rate of surface runoff, and the amount of nutrient loss are increased because of the slope.

Woodland
Suitability: Well suited to chestnut oak; moderately suited to northern red oak and yellow-poplar
- Proper planning for timber harvesting is essential in order to minimize the potential negative impact to soil and water quality. A timber harvest plan should include general adherence to all applicable best management practices.
- The slope poses safety hazards and creates a potential for erosion during the construction of haul roads and log landings.

Figure 4.—Pasture in an area of Culleoka-Berks complex, 15 to 25 percent slopes. A forested area of Berks-Culleoka complex, 35 to 70 percent slopes, is in the background.

- The slope creates unsafe operating conditions and reduces the operating efficiency of log trucks and harvesting equipment.
- The bedrock may restrict the rooting depth of plants.
- Because of the slope, the use of equipment for preparing sites for planting and seeding is restricted.
- The slope may restrict the use of some mechanical planting equipment.
- Bedrock may interfere with the construction of haul roads and log landings.
- The low soil strength interferes with the construction of haul roads and log landings.
- The low soil strength may create unsafe conditions for log trucks.

Building sites
- The slope influences the use of machinery and the amount of excavation required.
- Because of the limited depth to bedrock, the ease of excavation is greatly reduced and the difficulty of constructing foundations and installing utilities is increased.

Septic tank absorption fields
- Because of the limited depth to bedrock, the filtering capacity of the soil is reduced and the difficulty of properly installing the effluent distribution lines is increased.
- The slope limits the proper treatment of effluent from conventional septic systems.

Local roads and streets
- Because of the limited depth to bedrock, the ease of excavation is reduced and the difficulty of constructing roads is increased.
- Because of the slope, designing local roads and streets is difficult.

Interpretive Groups

Prime farmland: Not prime farmland

Land capability class: 4e
Virginia soil management group: Culleoka—U; Berks—JJ
Hydric soil: No

15E—Dekalb channery sandy loam, 8 to 35 percent slopes, extremely stony

Setting

Major land resource area: Southern Appalachian Ridges and Valleys (MLRA 128)
Landform: Hills and mountains
Position on the landform: Interfluves and mountaintops

Map Unit Composition

Dekalb and similar soils: Typically 90 percent, ranging from about 85 to 95 percent

Typical Profile

Organic layer:
0 to 2 inches—slightly decomposed plant material

Surface layer:
2 to 5 inches—very dark grayish brown channery sandy loam

Subsoil:
5 to 24 inches—yellowish brown very channery sandy loam

Substratum:
24 to 31 inches—yellowish brown extremely channery sandy loam

Hard bedrock:
31 inches—sandstone bedrock

Minor Components

Dissimilar components:
- Bailegap soils, which are deep to sandstone bedrock and have fewer rock fragments in the soil than the Dekalb soil; on similar landforms
- Gilpin soils, which are moderately deep to shale bedrock and have less sand and fewer rock fragments in the soil than the Dekalb soil; on similar landforms
- Lily soils, which have more clay and fewer rock fragments in the soil than the Dekalb soil; on similar landforms
- Oriskany soils, which are very deep to bedrock; on footslopes at the base of hills and mountains
- Rock outcrops on similar landforms

Similar components:
- Soils that are shallow to hard bedrock; on similar landforms
- Soils that have fewer rock fragments in the subsoil than the Dekalb soil; on similar landforms
- Soils that have fewer or more surface stones than the Dekalb soil; on similar landforms
- Soils that have a subsoil that is redder than that of the Dekalb soil; on similar landforms

Soil Properties and Qualities

Available water capacity: Very low (about 2.1 inches)
Slowest saturated hydraulic conductivity: High (about 1.98 in/hr)

Depth class: Moderately deep (20 to 40 inches)
Depth to root-restrictive feature: 20 to 40 inches to lithic bedrock
Drainage class: Somewhat excessively drained
Depth to seasonal water saturation: More than 6 feet
Flooding hazard: None
Ponding hazard: None
Shrink-swell potential: Low
Runoff class: High
Surface fragments: About 3.00 to 15.00 percent subangular stones
Parent material: Residuum weathered from sandstone

Use and Management Considerations

Cropland
- This soil is unsuited to cropland.

Pastureland
- This soil is unsuited to pastureland.

Woodland
Suitability: Moderately suited to chestnut oak
- Proper planning for timber harvesting is essential in order to minimize the potential negative impact to soil and water quality. A timber harvest plan should include general adherence to all applicable best management practices.
- The slope poses safety hazards and creates a potential for erosion during the construction of haul roads and log landings.
- The slope creates unsafe operating conditions and reduces the operating efficiency of log trucks and harvesting equipment.
- Because of the slope, the use of equipment for preparing sites for planting and seeding is restricted.
- Because of the slope, the use of mechanical planting equipment is impractical.
- Bedrock may interfere with the construction of haul roads and log landings.
- The high content of stones or boulders on the surface may obstruct the construction of haul roads and log landings.
- Rock fragments on the surface may reduce the traction of wheeled harvest equipment.
- Rock fragments on the surface interfere with the use of site preparation equipment.
- Coarse textured soil layers may slough, thus reducing the efficiency of mechanical planting equipment.
- The coarseness of the soil material may reduce the traction of wheeled harvest equipment and log trucks.

Building sites
- The slope influences the use of machinery and the amount of excavation required.
- Because of the limited depth to bedrock, the ease of excavation is greatly reduced and the difficulty of constructing foundations and installing utilities is increased.

Septic tank absorption fields
- Because of the limited depth to bedrock, the filtering capacity of the soil is reduced and the difficulty of properly installing the effluent distribution lines is increased.
- The slope limits the proper treatment of effluent from conventional septic systems.

Local roads and streets
- Because of the limited depth to bedrock, the ease of excavation is reduced and the difficulty of constructing roads is increased.
- Because of the slope, designing local roads and streets is difficult.

Interpretive Groups

Prime farmland: Not prime farmland
Land capability class: 7s
Virginia soil management group: FF
Hydric soil: No

15F—Dekalb channery sandy loam, 35 to 55 percent slopes, extremely stony

Setting

Major land resource area: Southern Appalachian Ridges and Valleys (MLRA 128)
Landform: Hills and mountains
Position on the landform: Nose slopes, side slopes, and mountain flanks

Map Unit Composition

Dekalb and similar soils: Typically 85 percent, ranging from about 80 to 90 percent

Typical Profile

Organic layer:
0 to 2 inches—slightly decomposed plant material

Surface layer:
2 to 5 inches—very dark grayish brown channery sandy loam

Subsoil:
5 to 24 inches—yellowish brown very channery sandy loam

Substratum:
24 to 31 inches—yellowish brown extremely channery sandy loam

Hard bedrock:
31 inches—sandstone bedrock

Minor Components

Dissimilar components:
- Bailegap soils, which are deep to sandstone bedrock and have fewer rock fragments in the soil than the Dekalb soil; on similar landforms
- Gilpin soils, which are moderately deep to shale bedrock and have less sand and fewer rock fragments in the soil than the Dekalb soil; on similar landforms
- Lily soils, which have more clay and fewer rock fragments in the soil than the Dekalb soil; on similar landforms
- Oriskany soils, which are very deep to bedrock; on footslopes at the base of hills and mountains
- Rock outcrops on similar landforms

Similar components:
- Soils that are shallow to hard bedrock; on similar landforms
- Soils that have fewer rock fragments in the subsoil than the Dekalb soil; on similar landforms
- Soils that have fewer or more surface stones than the Dekalb; on similar landforms
- Soils that have a subsoil that is redder than that of the Dekalb soil; on similar landforms

Soil Properties and Qualities

Available water capacity: Very low (about 2.1 inches)

Slowest saturated hydraulic conductivity: High (about 1.98 in/hr)
Depth class: Moderately deep (20 to 40 inches)
Depth to root-restrictive feature: 20 to 40 inches to lithic bedrock
Drainage class: Somewhat excessively drained
Depth to seasonal water saturation: More than 6 feet
Flooding hazard: None
Ponding hazard: None
Shrink-swell potential: Low
Runoff class: High
Surface fragments: About 3.00 to 15.00 percent subangular stones
Parent material: Residuum weathered from sandstone

Use and Management Considerations

Cropland
- This soil is unsuited to cropland.

Pastureland
- This soil is unsuited to pastureland.

Woodland
Suitability: Moderately suited to chestnut oak
- Proper planning for timber harvesting is essential in order to minimize the potential negative impact to soil and water quality, especially on the steeper slopes. A timber harvest plan should focus on the proper location of haul roads and skid tails, and careful attention should be given to all applicable best management practices.
- The slope poses safety hazards and creates a potential for erosion during the construction of haul roads and log landings.
- The slope creates unsafe operating conditions and reduces the operating efficiency of log trucks and harvesting equipment.
- Because of the slope, the use of equipment for planting and seeding (including mechanical planting equipment) is impractical.
- The high content of stones or boulders on the surface may obstruct the construction of haul roads and log landings.
- Rock fragments on the surface may reduce the traction of wheeled harvest equipment.
- Rock fragments on the surface interfere with the use of site preparation equipment.
- Coarse textured soil layers may slough, thus reducing the efficiency of mechanical planting equipment.
- The coarseness of the soil material may reduce the traction of wheeled harvest equipment and log trucks.

Building sites
- The slope influences the use of machinery and the amount of excavation required.
- Because of the limited depth to bedrock, the ease of excavation is greatly reduced and the difficulty of constructing foundations and installing utilities is increased.

Septic tank absorption fields
- Because of the limited depth to bedrock, the filtering capacity of the soil is reduced and the difficulty of properly installing the effluent distribution lines is increased.
- The slope limits the proper treatment of effluent from conventional septic systems.

Local roads and streets
- Because of the limited depth to bedrock, the ease of excavation is reduced and the difficulty of constructing roads is increased.
- Because of the slope, designing local roads and streets is difficult.

Interpretive Groups

Prime farmland: Not prime farmland
Land capability class: 7e
Virginia soil management group: FF
Hydric soil: No

16E—Dekalb-Rock outcrop complex, 8 to 35 percent slopes, extremely stony

Setting

Major land resource area: Southern Appalachian Ridges and Valleys (MLRA 128)
Landform: Hills and mountains; rock outcrops can be near-vertical cliffs
Position on the landform: Interfluves, nose slopes, side slopes, mountaintops, and upper third of mountain flanks

Map Unit Composition

Note: This Dekalb soil and Rock outcrop occur as areas so closely intermingled that they could not be separated at the scale selected for mapping.

Dekalb and similar soils: Typically 75 percent, ranging from about 70 to 80 percent
Rock outcrop: Typically 15 percent, ranging from about 10 to 20 percent

Typical Profile

Dekalb

Organic layer:
0 to 2 inches—slightly decomposed plant material

Surface layer:
2 to 5 inches—very dark grayish brown channery sandy loam

Subsoil:
5 to 24 inches—yellowish brown very channery sandy loam

Substratum:
24 to 31 inches—yellowish brown extremely channery sandy loam

Hard bedrock:
31 inches—sandstone bedrock

Rock outcrop

This part of the map unit consists of outcrops of sandstone bedrock. The outcrops range from a few inches in height to 50 feet in height, as near-vertical cliffs.

Minor Components

Dissimilar components:
- Bailegap soils, which are deep to sandstone bedrock and have fewer rock fragments in the soil than the Dekalb soil; on similar landforms
- Lily soils, which have more clay and fewer rock fragments in the soil than the Dekalb soil; on similar landforms
- Oriskany soils, which are very deep to bedrock; on footslopes at the base of hills and mountains

Similar components:
- Soils that are shallow to hard bedrock; on similar landforms

- Soils that have fewer rock fragments in the subsoil than the Dekalb soil; on similar landforms
- Soils that have fewer or more surface stones than the Dekalb soil; on similar landforms
- Soils that have a subsoil that is redder than that of the Dekalb soil; on similar landforms

Properties and Qualities of the Dekalb Soil

Available water capacity: Very low (about 2.1 inches)
Slowest saturated hydraulic conductivity: High (about 1.98 in/hr)
Depth class: Moderately deep (20 to 40 inches)
Depth to root-restrictive feature: 20 to 40 inches to lithic bedrock
Drainage class: Somewhat excessively drained
Depth to seasonal water saturation: More than 6 feet
Flooding hazard: None
Ponding hazard: None
Shrink-swell potential: Low
Runoff class: High
Surface fragments: About 3.00 to 15.00 percent subangular stones
Parent material: Residuum weathered from sandstone

Use and Management Considerations

Cropland
- This map unit is unsuited to cropland.

Pastureland
- This map unit is unsuited to pastureland.

Woodland
Suitability: Moderately suited to chestnut oak
- Proper planning for timber harvesting is essential in order to minimize the potential negative impact to soil and water quality. A timber harvest plan should include general adherence to all applicable best management practices.
- The slope poses safety hazards and creates a potential for erosion during the construction of haul roads and log landings.
- The slope creates unsafe operating conditions and reduces the operating efficiency of log trucks and harvesting equipment.
- Because of the slope, the use of equipment for preparing sites for planting and seeding is restricted.
- The slope may restrict the use of some mechanical planting equipment.
- Bedrock may interfere with the construction of haul roads and log landings.
- The high content of stones or boulders on the surface may obstruct the construction of haul roads and log landings.
- Rock fragments on the surface may reduce the traction of wheeled harvest equipment.
- Rock fragments on the surface interfere with the use of site preparation equipment.
- Coarse textured soil layers may slough, thus reducing the efficiency of mechanical planting equipment.
- The coarseness of the soil material may reduce the traction of wheeled harvest equipment and log trucks.
- Coarse textured soil layers increase the maintenance needs for haul roads and log landings.

Building sites
- The slope influences the use of machinery and the amount of excavation required.

- Because of the limited depth to bedrock, the ease of excavation is greatly reduced and the difficulty of constructing foundations and installing utilities is increased.
- Because of rock outcrops, rock removal may be needed.

Septic tank absorption fields
- Because of the limited depth to bedrock, the filtering capacity of the soil is reduced and the difficulty of properly installing the effluent distribution lines is increased.
- The slope limits the proper treatment of effluent from conventional septic systems.
- Because of rock outcrops, special designs for septic tank absorption fields are needed.

Local roads and streets
- Because of the limited depth to bedrock, the ease of excavation is reduced and the difficulty of constructing roads is increased.
- Because of the slope, designing local roads and streets is difficult.
- Because of rock outcrops, special designs for the grade of local roads and streets are needed and special consideration of location is needed to avoid rock removal.

Interpretive Groups

Prime farmland: Not prime farmland
Land capability class: Dekalb—7s; Rock outcrop—8
Virginia soil management group: Dekalb—FF; Rock outcrop—none assigned
Hydric soil: No

16G—Dekalb-Rock outcrop complex, 35 to 80 percent slopes, extremely stony

Setting

Major land resource area: Southern Appalachian Ridges and Valleys (MLRA 128)
Landform: Hills and mountains; rock outcrops can be near-vertical cliffs
Position on the landform: Nose slopes, side slopes, and mountain flanks

Map Unit Composition

Note: This Dekalb soil and Rock outcrop occur as areas so closely intermingled that they could not be separated at the scale selected for mapping.

Dekalb and similar soils: Typically 75 percent, ranging from about 70 to 80 percent
Rock outcrop: Typically 15 percent, ranging from about 10 to 20 percent

Typical Profile

Dekalb

Organic layer:
0 to 2 inches—slightly decomposed plant material

Surface layer:
2 to 5 inches—very dark grayish brown channery sandy loam

Subsoil:
5 to 24 inches—yellowish brown very channery sandy loam

Substratum:
24 to 31 inches—yellowish brown extremely channery sandy loam

Hard bedrock:
31 inches—sandstone bedrock

Rock outcrop

This part of the map unit consists of outcrops of sandstone bedrock. The outcrops range from a few inches in height to 50 feet in height, as near-vertical cliffs.

Minor Components

Dissimilar components:
- Bailegap soils, which are deep to sandstone bedrock and have fewer rock fragments in the soil than the Dekalb soil; on similar landforms
- Lily soils, which have more clay and fewer rock fragments in the soil than the Dekalb soil; on similar landforms
- Oriskany soils, which are very deep to bedrock; on footslopes at the base of hills and mountains

Similar components:
- Calvin soils, which are moderately deep to shale or siltstone bedrock and are redder and have less sand than the Dekalb soil; on similar landforms
- Soils that are shallow to hard bedrock; on similar landforms
- Soils that have fewer rock fragments in the subsoil than the Dekalb soil; on similar landforms
- Soils that have fewer or more surface stones than the Dekalb soil; on similar landforms
- Soils that have a subsoil that is redder than that of the Dekalb soil; on similar landforms

Properties and Qualities of the Dekalb Soil

Available water capacity: Very low (about 2.1 inches)
Slowest saturated hydraulic conductivity: High (about 1.98 in/hr)
Depth class: Moderately deep (20 to 40 inches)
Depth to root-restrictive feature: 20 to 40 inches to lithic bedrock
Drainage class: Somewhat excessively drained
Depth to seasonal water saturation: More than 6 feet
Flooding hazard: None
Ponding hazard: None
Shrink-swell potential: Low
Runoff class: High
Surface fragments: About 3.00 to 15.00 percent subangular stones
Parent material: Residuum weathered from sandstone

Use and Management Considerations

Cropland
- This map unit is unsuited to cropland.

Pastureland
- This map unit is unsuited to pastureland.

Woodland
Suitability: Moderately suited to chestnut oak
- Proper planning for timber harvesting is essential in order to minimize the potential negative impact to soil and water quality, especially on the steeper slopes. A timber harvest plan should focus on the proper location of haul roads and skid tails, and careful attention should be given to all applicable best management practices.
- The slope poses safety hazards and creates a potential for erosion during the construction of haul roads and log landings.
- The slope creates unsafe operating conditions and reduces the operating efficiency of log trucks and harvesting equipment.

- Because of the slope, the use of equipment for planting and seeding (including mechanical planting equipment) is impractical.
- The high content of stones or boulders on the surface may obstruct the construction of haul roads and log landings.
- Rock fragments on the surface may reduce the traction of wheeled harvest equipment.
- Rock fragments on the surface interfere with the use of site preparation equipment.
- Coarse textured soil layers may slough, thus reducing the efficiency of mechanical planting equipment.
- The coarseness of the soil material may reduce the traction of wheeled harvest equipment and log trucks.

Building sites
- The slope influences the use of machinery and the amount of excavation required.
- Because of the limited depth to bedrock, the ease of excavation is greatly reduced and the difficulty of constructing foundations and installing utilities is increased.
- Because of rock outcrops, rock removal may be needed.

Septic tank absorption fields
- Because of the limited depth to bedrock, the filtering capacity of the soil is reduced and the difficulty of properly installing the effluent distribution lines is increased.
- The slope limits the proper treatment of effluent from conventional septic systems.
- Because of rock outcrops, special designs for septic tank absorption fields are needed.

Local roads and streets
- Because of the limited depth to bedrock, the ease of excavation is reduced and the difficulty of constructing roads is increased.
- Because of the slope, designing local roads and streets is difficult.
- Because of rock outcrops, special designs for the grade of local roads and streets are needed and special consideration of location is needed to avoid rock removal.

Interpretive Groups

Prime farmland: Not prime farmland
Land capability class: Dekalb—7s; Rock outcrop—8
Virginia soil management group: Dekalb—FF; Rock outcrop—none assigned
Hydric soil: No

17B—Escatawba loam, 3 to 8 percent slopes

Setting

Major land resource area: Southern Appalachian Ridges and Valleys (MLRA 128)
Landform: Areas in valleys
Position on the landform: Base slopes and mountain bases

Map Unit Composition

Escatawba and similar soils: Typically 90 percent, ranging from about 85 to 95 percent

Typical Profile

Organic layer:
0 to 1 inch—moderately decomposed plant material

Surface layer:
1 to 3 inches—very dark grayish brown loam

Subsoil:
3 to 17 inches—yellowish brown loam
17 to 30 inches—yellowish brown loam
30 to 44 inches—strong brown clay loam with yellowish red masses of oxidized iron
44 to 50 inches—yellowish brown and strong brown gravelly clay loam with pale brown iron depletions
50 to 65 inches—strong brown cobbly clay loam with pinkish gray iron depletions and yellowish red masses of oxidized iron

Minor Components

Dissimilar components:
- Oriskany soils, which have more than 35 percent rock fragments in the subsoil and do not have a perched seasonal high water table; on similar landforms
- Soils that have a dense, hard layer in the subsoil; on similar landforms
- Soils that are extremely stony to rubbly on the surface; on similar landforms
- Soils that are poorly drained; on similar landforms
- Soils that have slopes of less than 3 percent or 8 to 15 percent; on similar landforms

Similar components:
- Shelocta and Jefferson soils, which do not have a perched seasonal high water table; on similar landforms
- Tumbling soils, which do not have a perched seasonal high water table and have more clay in the upper part of the subsoil than the Escatawba soil; on similar landforms
- Nicelytown soils, which are moderately well drained; on similar landforms

Soil Properties and Qualities

Available water capacity: Moderate (about 8.3 inches)
Slowest saturated hydraulic conductivity: Moderately high (about 0.20 in/hr)
Depth class: Very deep (more than 60 inches)
Depth to root-restrictive feature: More than 60 inches
Drainage class: Well drained
Depth to seasonal water saturation: About 30 to 48 inches
Water table kind: Perched
Flooding hazard: None
Ponding hazard: None
Shrink-swell potential: Low
Runoff class: Low
Surface fragments: None
Parent material: Colluvium derived from sandstone and shale

Use and Management Considerations

Cropland
Suitability: Well suited to corn, wheat, and grass-legume hay; moderately suited to alfalfa hay
- The rate of surface runoff, the erosion hazard, and the amount of nutrient loss are increased because of the slope.
- The high clay content restricts the rooting depth of crops.

Pastureland
Suitability: Well suited
- The hazard of erosion, the rate of surface runoff, and the amount of nutrient loss are increased because of the slope.

Woodland

Suitability: Well suited to chestnut oak; moderately suited to eastern white pine
- Proper planning for timber harvesting is essential in order to minimize the potential negative impact to soil and water quality. A timber harvest plan should include general adherence to all applicable best management practices.
- The slope may restrict the use of some mechanical planting equipment.
- The low soil strength interferes with the construction of haul roads and log landings.
- The low soil strength may create unsafe conditions for log trucks.

Building sites
- The seasonal high water table may restrict the period when excavations can be made.

Septic tank absorption fields
- The seasonal high water table greatly limits the absorption and proper treatment of the effluent from conventional septic systems.
- Slow water movement limits the absorption and proper treatment of the effluent from conventional septic systems.

Local roads and streets
- This soil is well suited to local roads and streets.

Interpretive Groups

Prime farmland: All areas are prime farmland
Land capability class: 2e
Virginia soil management group: L
Hydric soil: No

17C—Escatawba loam, 8 to 15 percent slopes

Setting

Major land resource area: Southern Appalachian Ridges and Valleys (MLRA 128)
Landform: Bases of mountain slopes and hillslopes and areas in valleys
Position on the landform: Base slopes and mountain bases

Map Unit Composition

Escatawba and similar soils: Typically 90 percent, ranging from about 85 to 95 percent

Typical Profile

Organic layer:
0 to 1 inch—moderately decomposed plant material

Surface layer:
1 to 3 inches—very dark grayish brown loam

Subsoil:
3 to 17 inches—yellowish brown loam
17 to 30 inches—yellowish brown loam
30 to 44 inches—strong brown clay loam with yellowish red masses of oxidized iron
44 to 50 inches—yellowish brown and strong brown gravelly clay loam with pale brown iron depletions
50 to 65 inches—strong brown cobbly clay loam with pinkish gray iron depletions and yellowish red masses of oxidized iron

Minor Components

Dissimilar components:
- Oriskany soils, which have more than 35 percent rock fragments in the subsoil and do not have a perched seasonal high water table; on similar landforms
- Soils that have a dense, hard layer in the subsoil; on similar landforms
- Soils that are extremely stony to rubbly on the surface; on similar landforms
- Soils that are poorly drained; on similar landforms
- Soils that have slopes of 3 to 8 percent or 15 to 35 percent; on similar landforms

Similar components:
- Shelocta and Jefferson soils, which do not have a perched seasonal high water table; on similar landforms
- Tumbling soils, which do not have a perched seasonal high water table and have more clay in the upper part of the subsoil than the Escatawba soil; on similar landforms
- Nicelytown soils, which are moderately well drained; on similar landforms

Soil Properties and Qualities

Available water capacity: Moderate (about 8.3 inches)
Slowest saturated hydraulic conductivity: Moderately high (about 0.20 in/hr)
Depth class: Very deep (more than 60 inches)
Depth to root-restrictive feature: More than 60 inches
Drainage class: Well drained
Depth to seasonal water saturation: About 30 to 48 inches
Water table kind: Perched
Flooding hazard: None
Ponding hazard: None
Shrink-swell potential: Low
Runoff class: Low
Surface fragments: None
Parent material: Colluvium derived from sandstone and shale

Use and Management Considerations

Cropland
Suitability: Well suited to wheat and grass-legume hay; moderately suited to corn and alfalfa hay
- The rate of surface runoff, the erosion hazard, and the amount of nutrient loss are increased because of the slope.
- The high clay content restricts the rooting depth of crops.

Pastureland
Suitability: Well suited
- The hazard of erosion, the rate of surface runoff, and the amount of nutrient loss are increased because of the slope.

Woodland
Suitability: Well suited to chestnut oak; moderately suited to eastern white pine
- Proper planning for timber harvesting is essential in order to minimize the potential negative impact to soil and water quality. A timber harvest plan should include general adherence to all applicable best management practices.
- The slope creates unsafe operating conditions and reduces the operating efficiency of log trucks.
- The slope may restrict the use of some mechanical planting equipment.
- The low soil strength interferes with the construction of haul roads and log landings.
- The low soil strength may create unsafe conditions for log trucks.

Building sites
- The seasonal high water table may restrict the period when excavations can be made.
- The slope influences the use of machinery and the amount of excavation required.

Septic tank absorption fields
- The seasonal high water table greatly limits the absorption and proper treatment of the effluent from conventional septic systems.
- Slow water movement limits the absorption and proper treatment of the effluent from conventional septic systems.
- The slope limits the proper treatment of effluent from conventional septic systems.

Local roads and streets
- Because of the slope, designing local roads and streets is difficult.

Interpretive Groups

Prime farmland: Not prime farmland
Land capability class: 3e
Virginia soil management group: L
Hydric soil: No

18C—Escatawba loam, 8 to 15 percent slopes, very stony

Setting

Major land resource area: Southern Appalachian Ridges and Valleys (MLRA 128)
Landform: Bases of mountain slopes and hillslopes and areas in valleys
Position on the landform: Base slopes and mountain bases

Map Unit Composition

Escatawba and similar soils: Typically 90 percent, ranging from about 85 to 95 percent

Typical Profile

Organic layer:
0 to 1 inch—moderately decomposed plant material

Surface layer:
1 to 3 inches—very dark grayish brown loam

Subsoil:
3 to 17 inches—yellowish brown loam
17 to 30 inches—yellowish brown loam
30 to 44 inches—strong brown clay loam with yellowish red masses of oxidized iron
44 to 50 inches—yellowish brown and strong brown gravelly clay loam with pale brown iron depletions
50 to 65 inches—strong brown cobbly clay loam with pinkish gray iron depletions and yellowish red masses of oxidized iron

Minor Components

Dissimilar components:
- Oriskany soils, which have more than 35 percent rock fragments in the subsoil and do not have a perched seasonal high water table; on similar landforms
- Soils that have a dense, hard layer in the subsoil; on similar landforms
- Soils that are rubbly on the surface; on similar landforms
- Soils that are poorly drained; on similar landforms
- Soils that have slopes of 3 to 8 percent or 15 to 35 percent; on similar landforms

Similar components:
- Shelocta and Jefferson soils, which do not have a perched seasonal high water table; on similar landforms
- Tumbling soils, which do not have a perched seasonal high water table and have more clay in the upper part of the subsoil than the Escatawba soil; on similar landforms
- Nicelytown soils, which are moderately well drained; on similar landforms

Soil Properties and Qualities

Available water capacity: Moderate (about 8.3 inches)
Slowest saturated hydraulic conductivity: Moderately high (about 0.20 in/hr)
Depth class: Very deep (more than 60 inches)
Depth to root-restrictive feature: More than 60 inches
Drainage class: Well drained
Depth to seasonal water saturation: About 30 to 48 inches
Water table kind: Perched
Flooding hazard: None
Ponding hazard: None
Shrink-swell potential: Low
Runoff class: Low
Surface fragments: About 0.10 to 2.00 percent subrounded stones and about 0.00 to 1.00 percent subrounded boulders
Parent material: Colluvium derived from sandstone and shale

Use and Management Considerations

Cropland
- This soil is unsuited to cropland.

Pastureland
Suitability: Well suited
- The hazard of erosion, the rate of surface runoff, and the amount of nutrient loss are increased because of the slope.
- Large stones on the surface may restrict the operation of some farm machinery.

Woodland
Suitability: Well suited to chestnut oak; moderately suited to eastern white pine
- Proper planning for timber harvesting is essential in order to minimize the potential negative impact to soil and water quality. A timber harvest plan should include general adherence to all applicable best management practices.
- The slope creates unsafe operating conditions and reduces the operating efficiency of log trucks.
- The slope may restrict the use of some mechanical planting equipment.
- The low soil strength interferes with the construction of haul roads and log landings.
- The low soil strength may create unsafe conditions for log trucks.

Building sites
- The seasonal high water table may restrict the period when excavations can be made.
- The slope influences the use of machinery and the amount of excavation required.

Septic tank absorption fields
- The seasonal high water table greatly limits the absorption and proper treatment of the effluent from conventional septic systems.
- Slow water movement limits the absorption and proper treatment of the effluent from conventional septic systems.
- The slope limits the proper treatment of effluent from conventional septic systems.

Local roads and streets

- Because of the slope, designing local roads and streets is difficult.

Interpretive Groups

Prime farmland: Not prime farmland
Land capability class: 6s
Virginia soil management group: L
Hydric soil: No

18E—Escatawba loam, 15 to 35 percent slopes, very stony

Setting

Major land resource area: Southern Appalachian Ridges and Valleys (MLRA 128)
Landform: Bases of mountain slopes and hillslopes and areas in valleys
Position on the landform: Base slopes and mountain bases

Map Unit Composition

Escatawba and similar soils: Typically 85 percent, ranging from about 80 to 90 percent

Typical Profile

Organic layer:
0 to 1 inch—moderately decomposed plant material

Surface layer:
1 to 3 inches—very dark grayish brown loam

Subsoil:
3 to 17 inches—yellowish brown loam
17 to 30 inches—yellowish brown loam
30 to 44 inches—strong brown clay loam with yellowish red masses of oxidized iron
44 to 50 inches—yellowish brown and strong brown gravelly clay loam with pale brown iron depletions
50 to 65 inches—strong brown cobbly clay loam with pinkish gray iron depletions and yellowish red masses of oxidized iron

Minor Components

Dissimilar components:

- Oriskany soils, which have more than 35 percent rock fragments in the subsoil and do not have a perched seasonal high water table; on similar landforms
- Soils that have a dense, hard layer in the subsoil; on similar landforms
- Soils that are rubbly on the surface; on similar landforms
- Soils that have slopes of 8 to 15 percent; on similar landforms

Similar components:

- Shelocta and Jefferson soils, which do not have a perched seasonal high water table; on similar landforms
- Tumbling soils, which do not have a perched seasonal high water table and have more clay in the upper part of the subsoil than the Escatawba soil; on similar landforms
- Nicelytown soils, which are moderately well drained; on similar landforms

Soil Properties and Qualities

Available water capacity: Moderate (about 8.3 inches)
Slowest saturated hydraulic conductivity: Moderately high (about 0.20 in/hr)

Depth class: Very deep (more than 60 inches)
Depth to root-restrictive feature: More than 60 inches
Drainage class: Well drained
Depth to seasonal water saturation: About 30 to 48 inches
Water table kind: Perched
Flooding hazard: None
Ponding hazard: None
Shrink-swell potential: Low
Runoff class: Medium
Surface fragments: About 0.00 to 1.00 percent subrounded boulders and about 0.10 to 2.00 percent subrounded stones
Parent material: Colluvium derived from sandstone and shale

Use and Management Considerations

Cropland
- This soil is unsuited to cropland.

Pastureland
- This soil is unsuited to pastureland.

Woodland
Suitability: Well suited to chestnut oak; moderately suited to eastern white pine
- Proper planning for timber harvesting is essential in order to minimize the potential negative impact to soil and water quality. A timber harvest plan should include general adherence to all applicable best management practices.
- The slope poses safety hazards and creates a potential for erosion during the construction of haul roads and log landings.
- The slope creates unsafe operating conditions and reduces the operating efficiency of log trucks and harvesting equipment.
- Because of the slope, the use of equipment for preparing sites for planting and seeding is restricted.
- Because of the slope, the use of mechanical planting equipment is impractical.
- The low soil strength interferes with the construction of haul roads and log landings.
- The low soil strength may create unsafe conditions for log trucks.

Building sites
- The seasonal high water table may restrict the period when excavations can be made.
- The slope influences the use of machinery and the amount of excavation required.

Septic tank absorption fields
- The seasonal high water table greatly limits the absorption and proper treatment of the effluent from conventional septic systems.
- Slow water movement limits the absorption and proper treatment of the effluent from conventional septic systems.
- The slope limits the proper treatment of effluent from conventional septic systems.

Local roads and streets
- Because of the slope, designing local roads and streets is difficult.

Interpretive Groups

Prime farmland: Not prime farmland
Land capability class: 7s
Virginia soil management group: L
Hydric soil: No

19B—Frederick silt loam, 3 to 8 percent slopes

Setting

Major land resource area: Southern Appalachian Ridges and Valleys (MLRA 128)
Landform: Hills
Position on the landform: Interfluves

Map Unit Composition

Frederick and similar soils: Typically 90 percent, ranging from about 85 to 95 percent

Typical Profile

Surface layer:
0 to 8 inches—brown silt loam

Subsoil:
8 to 18 inches—red silty clay
18 to 35 inches—red clay with common strong brown mottles
35 to 51 inches—red clay with common reddish yellow and common strong brown mottles
51 to 72 inches—red clay with common reddish yellow mottles

Minor Components

Dissimilar components:
- Carbo soils, which are moderately deep to limestone bedrock; on similar landforms
- Slabtown soils, which are moderately well drained; on concave footslopes at the base of hills
- Areas of widely scattered rock outcrops on similar landforms

Similar components:
- Watahala soils, which have more chert gravel in the surface layer and subsoil than the Frederick soil; on similar landforms
- Soils that have cobbly surface layers; on similar landforms
- Soils that have surface layers of fine sandy loam; on similar landforms
- Soils that have more chert gravel in the surface layer than the Frederick soil; on similar landforms

Soil Properties and Qualities

Available water capacity: Moderate (about 7.3 inches)
Slowest saturated hydraulic conductivity: Moderately high (about 0.57 in/hr)
Depth class: Very deep (more than 60 inches)
Depth to root-restrictive feature: More than 60 inches
Drainage class: Well drained
Depth to seasonal water saturation: More than 6 feet
Flooding hazard: None
Ponding hazard: None
Shrink-swell potential: Moderate
Runoff class: Medium
Surface fragments: None
Parent material: Residuum weathered from limestone

Use and Management Considerations

Cropland
Suitability: Well suited to corn, wheat, grass-legume hay, and alfalfa hay
- The rate of surface runoff, the erosion hazard, and the amount of nutrient loss are increased because of the slope.

- The high clay content restricts the rooting depth of crops.
- The risk of compaction increases when the soil is wet.
- Soil crusting results in a decrease in water infiltration and hinders the emergence of seedlings.

Pastureland
Suitability: Well suited
- The hazard of erosion, the rate of surface runoff, and the amount of nutrient loss are increased because of the slope.

Woodland
Suitability: Moderately suited to northern red oak, yellow-poplar, and eastern white pine
- Proper planning for timber harvesting is essential in order to minimize the potential negative impact to soil and water quality. A timber harvest plan should include general adherence to all applicable best management practices.
- The slope may restrict the use of some mechanical planting equipment.
- The low soil strength interferes with the construction of haul roads and log landings.
- The low soil strength may create unsafe conditions for log trucks.
- The stickiness of the soil reduces the efficiency of mechanical planting equipment.

Building sites
- The high content of clay in the subsurface layer increases the difficulty of digging, filling, and compacting the soil material in shallow excavations.

Septic tank absorption fields
- This soil is well suited to septic tank absorption fields.

Local roads and streets
- Because of shrinking and swelling, the use of this soil as base material for local roads and streets is restricted.
- The low soil strength is unfavorable for supporting heavy loads.

Interpretive Groups

Prime farmland: All areas are prime farmland
Land capability class: 2e
Virginia soil management group: M
Hydric soil: No

19C—Frederick silt loam, 8 to 15 percent slopes

Setting

Major land resource area: Southern Appalachian Ridges and Valleys (MLRA 128)
Landform: Hills
Position on the landform: Interfluves

Map Unit Composition

Frederick and similar soils: Typically 90 percent, ranging from about 85 to 95 percent

Typical Profile

Surface layer:
0 to 8 inches—brown silt loam

Subsoil:
8 to 18 inches—red silty clay
18 to 35 inches—red clay with common strong brown mottles

35 to 51 inches—red clay with common reddish yellow and common strong brown mottles
51 to 72 inches—red clay with common reddish yellow mottles

Minor Components

Dissimilar components:
- Carbo soils, which are moderately deep to limestone bedrock; on similar landforms
- Slabtown soils, which are moderately well drained; on concave footslopes at the base of hills
- Areas of widely scattered rock outcrops on similar landforms
- Soils that have slopes of less than 8 percent; on similar landforms

Similar components:
- Watahala soils, which have more chert gravel in the surface layer and subsoil than the Frederick soil; on similar landforms
- Soils that have cobbly surface layers; on similar landforms
- Soils that have surface layers of fine sandy loam; on similar landforms
- Soils that have more chert gravel in the surface layer than the Frederick soil; on similar landforms

Soil Properties and Qualities

Available water capacity: Moderate (about 7.3 inches)
Slowest saturated hydraulic conductivity: Moderately high (about 0.57 in/hr)
Depth class: Very deep (more than 60 inches)
Depth to root-restrictive feature: More than 60 inches
Drainage class: Well drained
Depth to seasonal water saturation: More than 6 feet
Flooding hazard: None
Ponding hazard: None
Shrink-swell potential: Moderate
Runoff class: Medium
Surface fragments: None
Parent material: Residuum weathered from limestone

Use and Management Considerations

Cropland
Suitability: Well suited to wheat and grass-legume hay; moderately suited to corn and alfalfa hay
- The rate of surface runoff, the erosion hazard, and the amount of nutrient loss are increased because of the slope.
- The high clay content restricts the rooting depth of crops.
- The risk of compaction increases when the soil is wet.
- Soil crusting results in a decrease in water infiltration and hinders the emergence of seedlings.

Pastureland
Suitability: Well suited
- The hazard of erosion, the rate of surface runoff, and the amount of nutrient loss are increased because of the slope.

Woodland
Suitability: Moderately suited to northern red oak, yellow-poplar, and eastern white pine
- Proper planning for timber harvesting is essential in order to minimize the potential negative impact to soil and water quality. A timber harvest plan should include general adherence to all applicable best management practices.

- The slope creates unsafe operating conditions and reduces the operating efficiency of log trucks.
- The slope may restrict the use of some mechanical planting equipment.
- The low soil strength interferes with the construction of haul roads and log landings.
- The low soil strength may create unsafe conditions for log trucks.
- The stickiness of the soil reduces the efficiency of mechanical planting equipment.

Building sites
- The slope influences the use of machinery and the amount of excavation required.
- The high content of clay in the subsurface layer increases the difficulty of digging, filling, and compacting the soil material in shallow excavations.

Septic tank absorption fields
- The slope limits the proper treatment of effluent from conventional septic systems.

Local roads and streets
- Because of shrinking and swelling, the use of this soil as base material for local roads and streets is restricted.
- The low soil strength is unfavorable for supporting heavy loads.
- Because of the slope, designing local roads and streets is difficult.

Interpretive Groups

Prime farmland: Not prime farmland
Land capability class: 3e
Virginia soil management group: M
Hydric soil: No

19D—Frederick silt loam, 15 to 25 percent slopes

Setting

Major land resource area: Southern Appalachian Ridges and Valleys (MLRA 128)
Landform: Hills
Position on the landform: Interfluves, nose slopes, and side slopes

Map Unit Composition

Frederick and similar soils: Typically 90 percent, ranging from about 85 to 95 percent

Typical Profile

Surface layer:
0 to 8 inches—brown silt loam

Subsoil:
8 to 18 inches—red silty clay
18 to 35 inches—red clay with common strong brown mottles
35 to 51 inches—red clay with common reddish yellow and common strong brown mottles
51 to 72 inches—red clay with common reddish yellow mottles

Minor Components

Dissimilar components:
- Carbo soils, which are moderately deep to limestone bedrock; on similar landforms
- Slabtown soils, which are moderately well drained; on concave footslopes at the base of hills
- Areas of widely scattered rock outcrops on similar landforms
- Soils that have cobbly surface layers; on similar landforms

Similar components:
- Watahala soils, which have more chert gravel in the surface layer and subsoil than the Frederick soil; on similar landforms
- Soils that have surface layers of fine sandy loam; on similar landforms
- Soils that have more chert gravel in the surface layer than the Frederick soil; on similar landforms

Soil Properties and Qualities

Available water capacity: Moderate (about 7.3 inches)
Slowest saturated hydraulic conductivity: Moderately high (about 0.57 in/hr)
Depth class: Very deep (more than 60 inches)
Depth to root-restrictive feature: More than 60 inches
Drainage class: Well drained
Depth to seasonal water saturation: More than 6 feet
Flooding hazard: None
Ponding hazard: None
Shrink-swell potential: Moderate
Runoff class: High
Surface fragments: None
Parent material: Residuum weathered from limestone

Use and Management Considerations

Cropland

Suitability: Moderately suited to corn, wheat, grass-legume hay, and alfalfa hay
- The rate of surface runoff, the erosion hazard, and the amount of nutrient loss are increased because of the slope.
- The high clay content restricts the rooting depth of crops.
- The risk of compaction increases when the soil is wet.
- Soil crusting results in a decrease in water infiltration and hinders the emergence of seedlings.

Pastureland

Suitability: Well suited
- The hazard of erosion, the rate of surface runoff, and the amount of nutrient loss are increased because of the slope.

Woodland

Suitability: Moderately suited to northern red oak, yellow-poplar, and eastern white pine
- Proper planning for timber harvesting is essential in order to minimize the potential negative impact to soil and water quality. A timber harvest plan should include general adherence to all applicable best management practices.
- The slope poses safety hazards and creates a potential for erosion during the construction of haul roads and log landings.
- The slope creates unsafe operating conditions and reduces the operating efficiency of log trucks and harvesting equipment.
- Because of the slope, the use of equipment for preparing sites for planting and seeding is restricted.
- The slope may restrict the use of some mechanical planting equipment.
- The low soil strength interferes with the construction of haul roads and log landings.
- The low soil strength may create unsafe conditions for log trucks.
- The stickiness of the soil reduces the efficiency of mechanical planting equipment.

Building sites

- The slope influences the use of machinery and the amount of excavation required.

- The high content of clay in the subsurface layer increases the difficulty of digging, filling, and compacting the soil material in shallow excavations.

Septic tank absorption fields
- The slope limits the proper treatment of effluent from conventional septic systems.

Local roads and streets
- Because of shrinking and swelling, the use of this soil as base material for local roads and streets is restricted.
- The low soil strength is unfavorable for supporting heavy loads.
- Because of the slope, designing local roads and streets is difficult.

Interpretive Groups

Prime farmland: Not prime farmland
Land capability class: 4e
Virginia soil management group: M
Hydric soil: No

19E—Frederick silt loam, 25 to 35 percent slopes

Setting

Major land resource area: Southern Appalachian Ridges and Valleys (MLRA 128)
Landform: Hills
Position on the landform: Side slopes

Map Unit Composition

Frederick and similar soils: Typically 90 percent, ranging from about 85 to 95 percent

Typical Profile

Surface layer:
0 to 8 inches—brown silt loam

Subsoil:
8 to 18 inches—red silty clay
18 to 35 inches—red clay with common strong brown mottles
35 to 51 inches—red clay with common reddish yellow and common strong brown mottles
51 to 72 inches—red clay with common reddish yellow mottles

Minor Components

Dissimilar components:
- Carbo soils, which are moderately deep to limestone bedrock; on similar landforms
- Slabtown soils, which are moderately well drained; on concave footslopes at the base of hills
- Areas of widely scattered rock outcrops on similar landforms
- Soils that have cobbly surface layers; on similar landforms

Similar components:
- Watahala soils, which have more chert gravel in the surface layer and subsoil than the Frederick soil; on similar landforms
- Soils that have surface layers of fine sandy loam; on similar landforms
- Soils that have more chert gravel in the surface layer than the Frederick soil; on similar landforms

Soil Properties and Qualities

Available water capacity: Moderate (about 7.3 inches)
Slowest saturated hydraulic conductivity: Moderately high (about 0.57 in/hr)
Depth class: Very deep (more than 60 inches)
Depth to root-restrictive feature: More than 60 inches
Drainage class: Well drained
Depth to seasonal water saturation: More than 6 feet
Flooding hazard: None
Ponding hazard: None
Shrink-swell potential: Moderate
Runoff class: High
Surface fragments: None
Parent material: Residuum weathered from limestone

Use and Management Considerations

Cropland
- This soil is unsuited to cropland.

Pastureland
Suitability: Moderately suited
- The hazard of erosion, the rate of surface runoff, and the amount of nutrient loss are increased because of the slope.
- The slope may restrict the use of some farm equipment.

Woodland
Suitability: Moderately suited to northern red oak, yellow-poplar, and eastern white pine
- Proper planning for timber harvesting is essential in order to minimize the potential negative impact to soil and water quality, especially on the steeper slopes. A timber harvest plan should focus on the proper location of haul roads and skid tails, and careful attention should be given to all applicable best management practices.
- The slope poses safety hazards and creates a potential for erosion during the construction of haul roads and log landings.
- The slope creates unsafe operating conditions and reduces the operating efficiency of log trucks and harvesting equipment.
- Because of the slope, the use of equipment for preparing sites for planting and seeding is restricted.
- Because of the slope, the use of mechanical planting equipment is impractical.
- The low soil strength interferes with the construction of haul roads and log landings.
- The low soil strength may create unsafe conditions for log trucks.
- The stickiness of the soil reduces the efficiency of mechanical planting equipment.

Building sites
- The slope influences the use of machinery and the amount of excavation required.
- The high content of clay in the subsurface layer increases the difficulty of digging, filling, and compacting the soil material in shallow excavations.

Septic tank absorption fields
- The slope limits the proper treatment of effluent from conventional septic systems.

Local roads and streets
- Because of shrinking and swelling, the use of this soil as base material for local roads and streets is restricted.
- The low soil strength is unfavorable for supporting heavy loads.
- Because of the slope, designing local roads and streets is difficult.

Interpretive Groups

Prime farmland: Not prime farmland
Land capability class: 6e
Virginia soil management group: M
Hydric soil: No

20C—Frederick and Watahala soils, karst, 8 to 15 percent slopes

Setting

Major land resource area: Southern Appalachian Ridges and Valleys (MLRA 128)
Landform: Hills and valleys in areas with karst topography
Position on the landform: Interfluves
Note: Many sinkholes are scattered throughout areas of this map unit; erosion has removed part of the original surface layer and exposed the subsoil in places; some areas may have intricate patterns, ranging from uneroded small areas to severely eroded small areas

Map Unit Composition

Note: These Frederick and Watahala soils are included in the same map unit because their use and management are the same or very similar for common uses. The use of these soils is governed by sinkhole (karst) conditions in the areas in which they occur.

Frederick and similar soils: Typically 50 percent, ranging from about 45 to 55 percent
Watahala and similar soils: Typically 35 percent, ranging from about 30 to 40 percent

Typical Profile

Frederick

Surface layer:
0 to 5 inches—dark yellowish brown gravelly silt loam

Subsurface layer:
5 to 13 inches—light yellowish brown silt loam

Subsoil:
13 to 27 inches—yellowish red silty clay
27 to 49 inches—yellowish red clay with common brownish yellow mottles
49 to 62 inches—yellowish red clay with common brownish yellow mottles

Watahala

Surface layer:
0 to 2 inches—dark yellowish brown gravelly silt loam

Subsurface layer:
2 to 17 inches—light yellowish brown gravelly silt loam

Subsoil:
17 to 25 inches—light yellowish brown gravelly loam
25 to 29 inches—strong brown gravelly clay loam with common yellowish red mottles
29 to 62 inches—yellowish red clay with few brownish yellow mottles

Minor Components

Dissimilar components:
- Beech Grove soils, which are very shallow to bedrock; on similar landforms
- Carbo soils, which are moderately deep to limestone bedrock; on similar landforms
- Slabtown soils, which are moderately well drained; on concave footslopes at the base of hills
- Areas of widely scattered rock outcrops on similar landforms
- Soils that have slopes of less than 8 percent; on similar landforms

Similar components:
- Soils that have cobbly surface layers; on similar landforms
- Soils that have surface layers of fine sandy loam; on similar landforms
- Soils that have less chert gravel in the surface layer than the Frederick and Watahala soils; on similar landforms

Soil Properties and Qualities

Available water capacity: Frederick—moderate (about 7.8 inches); Watahala—moderate (about 7.1 inches)
Slowest saturated hydraulic conductivity: Frederick—moderately high (about 0.57 in/hr); Watahala—moderately high (about 0.20 in/hr)
Depth class: Very deep (more than 60 inches)
Depth to root-restrictive feature: Frederick—more than 60 inches; Watahala—20 to 50 inches to strongly contrasting textural stratification
Drainage class: Well drained
Depth to seasonal water saturation: More than 6 feet
Flooding hazard: None
Ponding hazard: None
Shrink-swell potential: Moderate
Runoff class: Frederick—medium; Watahala—low
Surface fragments: Frederick—about 0.50 to 2.00 percent coarse angular gravel; Watahala—about 0.00 to 1.00 percent angular cobbles and about 0.50 to 2.00 percent coarse angular gravel
Parent material: Frederick—clayey residuum weathered from limestone; Watahala—gravelly residuum over clayey residuum weathered from cherty limestone

Use and Management Considerations

General concerns and considerations

The risk of ground-water pollution is higher in karst areas. Sinkholes vary in their ability to filter pollutants. Some sinkholes may be direct pathways from the land surface to ground water. In most cases, karstic aquifers cannot filter contaminated ground water sufficiently to render the water potable at a discharge site. Any soil amendments applied to the soil surface may wash into the ground water during periods of precipitation. In many cases, chemicals such as fertilizers, herbicides, and pesticides may be transmitted directly to domestic wells in a matter of hours. Concentrations of livestock in or near sinkholes may also contribute to the pollution of ground water. The presence of sinkholes indicates that additional sinkholes may develop in the future.

Cropland

Suitability: Moderately suited to grass-legume hay and alfalfa hay; not suited to corn
- The rate of surface runoff, the erosion hazard, and the amount of nutrient loss are increased because of the slope.
- The high clay content restricts the rooting depth of crops.
- Karst areas (sinkholes) increase the potential for ground-water contamination.

Pastureland

Suitability: Well suited
- The hazard of erosion, the rate of surface runoff, and the amount of nutrient loss are increased because of the slope.
- Karst areas (sinkholes) increase the potential for ground-water contamination.

Woodland

Suitability: Moderately suited to northern red oak, yellow-poplar, and eastern white pine
- Proper planning for timber harvesting is essential in order to minimize the potential negative impact to soil and water quality. A timber harvest plan should include general adherence to all applicable best management practices.
- The slope creates unsafe operating conditions and reduces the operating efficiency of log trucks.
- The slope may restrict the use of some mechanical planting equipment.
- The use of mechanical planting equipment is impractical because of the content of rock fragments.
- Rock fragments restrict the use of equipment during site preparation for planting or seeding.
- The low soil strength interferes with the construction of haul roads and log landings.

Building sites
- Because of the potential for sinkhole collapse, building site development is not recommended for karst areas.

Septic tank absorption fields
- Sinkholes (karst areas) increase the potential for ground-water contamination from the effluent from conventional septic systems; septic systems should not be placed near sinkholes.
- The slope limits the proper treatment of effluent from conventional septic systems.

Local roads and streets
- Because of shrinking and swelling, the use of these soils as base material for local roads and streets is restricted.
- The low soil strength is unfavorable for supporting heavy loads.
- Because of the slope, designing local roads and streets is difficult.
- Collapsing sinkholes may damage local roads and streets.

Interpretive Groups

Prime farmland: Not prime farmland
Land capability class: 3e
Virginia soil management group: M
Hydric soil: No

20D—Frederick and Watahala soils, karst, 15 to 25 percent slopes

Setting

Major land resource area: Southern Appalachian Ridges and Valleys (MLRA 128)
Landform: Hills and valleys in areas with karst topography
Position on the landform: Interfluves, nose slopes, and side slopes
Note: Many sinkholes are scattered throughout areas of this map unit; erosion has removed part of the original surface layer and exposed the subsoil in places; some areas may have intricate patterns, ranging from uneroded small areas to severely eroded small areas

Map Unit Composition

Note: These Frederick and Watahala soils are included in the same map unit because their use and management are the same or very similar for common uses. The use of these soils is governed by sinkhole (karst) conditions in the areas in which they occur.

Frederick and similar soils: Typically 50 percent, ranging from about 45 to 55 percent
Watahala and similar soils: Typically 35 percent, ranging from about 30 to 40 percent

Typical Profile

Frederick

Surface layer:
0 to 5 inches—dark yellowish brown gravelly silt loam

Subsurface layer:
5 to 13 inches—light yellowish brown silt loam

Subsoil:
13 to 27 inches—yellowish red silty clay
27 to 49 inches—yellowish red clay with common brownish yellow mottles
49 to 62 inches—yellowish red clay with common brownish yellow mottles

Watahala

Surface layer:
0 to 2 inches—dark yellowish brown gravelly silt loam

Subsurface layer:
2 to 17 inches—light yellowish brown gravelly silt loam

Subsoil:
17 to 25 inches—light yellowish brown gravelly loam
25 to 29 inches—strong brown gravelly clay loam with common yellowish red mottles
29 to 62 inches—yellowish red clay with few brownish yellow mottles

Minor Components

Dissimilar components:
- Beech Grove soils, which are very shallow to bedrock; on similar landforms
- Carbo soils, which are moderately deep to limestone bedrock; on similar landforms
- Slabtown soils, which are moderately well drained; on concave footslopes at the base of hills
- Areas of widely scattered rock outcrops on similar landforms
- Soils that have slopes of less than 15 percent; on similar landforms
- Soils that have cobbly surface layers; on similar landforms

Similar components:
- Soils that have surface layers of fine sandy loam; on similar landforms
- Soils that have less chert gravel in the surface layer than the Frederick and Watahala soils; on similar landforms

Soil Properties and Qualities

Available water capacity: Frederick—moderate (about 7.8 inches); Watahala—moderate (about 7.1 inches)
Slowest saturated hydraulic conductivity: Frederick—moderately high (about 0.57 in/hr); Watahala—moderately high (about 0.20 in/hr)
Depth class: Very deep (more than 60 inches)

Depth to root-restrictive feature: Frederick—more than 60 inches; Watahala—20 to 50 inches to strongly contrasting textural stratification
Drainage class: Well drained
Depth to seasonal water saturation: More than 6 feet
Flooding hazard: None
Ponding hazard: None
Shrink-swell potential: Moderate
Runoff class: Frederick—high; Watahala—medium
Surface fragments: Frederick—about 0.50 to 2.00 percent coarse angular gravel; Watahala—about 0.00 to 1.00 percent angular cobbles and about 0.50 to 2.00 percent coarse angular gravel
Parent material: Frederick—clayey residuum weathered from limestone; Watahala—gravelly residuum over clayey residuum weathered from cherty limestone

Use and Management Considerations

General concerns and considerations

The risk of ground-water pollution is higher in karst areas. Sinkholes vary in their ability to filter pollutants. Some sinkholes may be direct pathways from the land surface to ground water. In most cases, karstic aquifers cannot filter contaminated ground water sufficiently to render the water potable at a discharge site. Any soil amendments applied to the soil surface may wash into the ground water during periods of precipitation. In many cases, chemicals such as fertilizers, herbicides, and pesticides may be transmitted directly to domestic wells in a matter of hours. Concentrations of livestock in or near sinkholes may also contribute to the pollution of ground water. The presence of sinkholes indicates that additional sinkholes may develop in the future.

Cropland

Suitability: Moderately suited to grass-legume hay and alfalfa hay; not suited to corn
- The rate of surface runoff, the erosion hazard, and the amount of nutrient loss are increased because of the slope.
- The high clay content restricts the rooting depth of crops.
- Karst areas (sinkholes) increase the potential for ground-water contamination.

Pastureland

Suitability: Moderately suited
- The hazard of erosion, the rate of surface runoff, and the amount of nutrient loss are increased because of the slope.
- Karst areas (sinkholes) increase the potential for ground-water contamination.

Woodland

Suitability: Moderately suited to northern red oak, yellow-poplar, and eastern white pine
- Proper planning for timber harvesting is essential in order to minimize the potential negative impact to soil and water quality. A timber harvest plan should include general adherence to all applicable best management practices.
- The slope poses safety hazards and creates a potential for erosion during the construction of haul roads and log landings.
- The slope creates unsafe operating conditions and reduces the operating efficiency of log trucks and harvesting equipment.
- Because of the slope, the use of equipment for preparing sites for planting and seeding is restricted.
- The slope may restrict the use of some mechanical planting equipment.
- The use of mechanical planting equipment is impractical because of the content of rock fragments.

- Rock fragments restrict the use of equipment during site preparation for planting or seeding.
- The low soil strength interferes with the construction of haul roads and log landings.

Building sites
- Because of the potential for sinkhole collapse, building site development is not recommended for karst areas.

Septic tank absorption fields
- Sinkholes (karst areas) increase the potential for ground-water contamination from the effluent from conventional septic systems; septic systems should not be placed near sinkholes.
- The slope limits the proper treatment of effluent from conventional septic systems.

Local roads and streets
- Because of shrinking and swelling, the use of these soils as base material for local roads and streets is restricted.
- The low soil strength is unfavorable for supporting heavy loads.
- Because of the slope, designing local roads and streets is difficult.
- Collapsing sinkholes may damage local roads and streets.

Interpretive Groups

Prime farmland: Not prime farmland
Land capability class: 4e
Virginia soil management group: M
Hydric soil: No

21C—Gilpin silt loam, 8 to 15 percent slopes

Setting

Major land resource area: Southern Appalachian Ridges and Valleys (MLRA 128)
Landform: Hills and mountains
Position on the landform: Interfluves, nose slopes, and mountaintops

Map Unit Composition

Gilpin and similar soils: Typically 85 percent, ranging from about 80 to 90 percent

Typical Profile

Organic layer:
0 to 1 inch—moderately decomposed plant material

Surface layer:
1 to 5 inches—dark yellowish brown silt loam

Subsoil:
5 to 9 inches—yellowish brown silt loam
9 to 21 inches—brownish yellow silty clay loam
21 to 26 inches—brownish yellow channery silty clay loam

Substratum:
26 to 33 inches—yellowish brown very channery silt loam with few brownish yellow mottles

Soft bedrock:
33 inches—shale and siltstone bedrock

Minor Components

Dissimilar components:
- Berks soils, which have more rock fragments in the soil than the Gilpin soil; on similar landforms
- Weikert soils, which are shallow to shale bedrock and have more rock fragments in the soil than the Gilpin soil; on similar landforms
- Soils that have slopes of less than 8 percent; on similar landforms
- Shelocta soils, which are very deep to bedrock; on footslopes at the base of hills
- Soils that are moderately well drained; on similar landforms

Similar components:
- Soils that are deep to soft bedrock; on similar landforms
- Soils that have less clay in the subsoil than the Gilpin soil; on similar landforms

Soil Properties and Qualities

Available water capacity: Low (about 4.9 inches)
Slowest saturated hydraulic conductivity: Moderately high (about 0.57 in/hr)
Depth class: Moderately deep (20 to 40 inches)
Depth to root-restrictive feature: 20 to 40 inches to paralithic bedrock
Drainage class: Well drained
Depth to seasonal water saturation: More than 6 feet
Flooding hazard: None
Ponding hazard: None
Shrink-swell potential: Low
Runoff class: Medium
Surface fragments: None
Parent material: Residuum weathered from shale and siltstone

Use and Management Considerations

Cropland
Suitability: Moderately suited to corn, wheat, grass-legume hay, and alfalfa hay
- The rate of surface runoff, the erosion hazard, and the amount of nutrient loss are increased because of the slope.
- The bedrock restricts the rooting depth of crops.
- The risk of compaction increases when the soil is wet.
- Soil crusting results in a decrease in water infiltration and hinders the emergence of seedlings.

Pastureland
Suitability: Well suited
- The hazard of erosion, the rate of surface runoff, and the amount of nutrient loss are increased because of the slope.
- The bedrock may restrict the rooting depth of plants.

Woodland
Suitability: Moderately suited to northern red oak and yellow-poplar
- Proper planning for timber harvesting is essential in order to minimize the potential negative impact to soil and water quality. A timber harvest plan should include general adherence to all applicable best management practices.
- The slope creates unsafe operating conditions and reduces the operating efficiency of log trucks.
- The slope may restrict the use of some mechanical planting equipment.
- Bedrock may interfere with the construction of haul roads and log landings.

Building sites
- The slope influences the use of machinery and the amount of excavation required.

- Because of the nature and depth of the soft bedrock, the ease of excavation is reduced and the difficulty of constructing foundations and installing utilities is increased.

Septic tank absorption fields
- Because of the limited depth to bedrock, the filtering capacity of the soil is reduced and the difficulty of properly installing the effluent distribution lines is increased.
- The slope limits the proper treatment of effluent from conventional septic systems.

Local roads and streets
- The low soil strength is unfavorable for supporting heavy loads.
- Because of the slope, designing local roads and streets is difficult.

Interpretive Groups

Prime farmland: Not prime farmland
Land capability class: 3e
Virginia soil management group: U
Hydric soil: No

21D—Gilpin silt loam, 15 to 25 percent slopes

Setting

Major land resource area: Southern Appalachian Ridges and Valleys (MLRA 128)
Landform: Hills and mountains
Position on the landform: Interfluves, nose slopes, side slopes, mountaintops, and mountain flanks

Map Unit Composition

Gilpin and similar soils: Typically 85 percent, ranging from about 80 to 90 percent

Typical Profile

Organic layer:
0 to 1 inch—moderately decomposed plant material

Surface layer:
1 to 5 inches—dark yellowish brown silt loam

Subsoil:
5 to 9 inches—yellowish brown silt loam
9 to 21 inches—brownish yellow silty clay loam
21 to 26 inches—brownish yellow channery silty clay loam

Substratum:
26 to 33 inches—yellowish brown very channery silt loam with few brownish yellow mottles

Soft bedrock:
33 inches—shale and siltstone bedrock

Minor Components

Dissimilar components:
- Berks soils, which have more rock fragments in the soil than the Gilpin soil; on similar landforms
- Weikert soils, which are shallow to shale bedrock and have more rock fragments in the soil than the Gilpin soil; on similar landforms

- Shelocta soils, which are very deep to bedrock; on footslopes at the base of hills
- Soils that are moderately well drained; on similar landforms

Similar components:
- Soils that have slopes of more than 25 percent; on similar landforms
- Soils that are deep to soft bedrock; on similar landforms
- Soils that have less clay in the subsoil than the Gilpin soil; on similar landforms

Soil Properties and Qualities

Available water capacity: Low (about 4.9 inches)
Slowest saturated hydraulic conductivity: Moderately high (about 0.57 in/hr)
Depth class: Moderately deep (20 to 40 inches)
Depth to root-restrictive feature: 20 to 40 inches to paralithic bedrock
Drainage class: Well drained
Depth to seasonal water saturation: More than 6 feet
Flooding hazard: None
Ponding hazard: None
Shrink-swell potential: Low
Runoff class: High
Surface fragments: None
Parent material: Residuum weathered from shale and siltstone

Use and Management Considerations

Cropland
Suitability: Moderately suited to corn, wheat, grass-legume hay, and alfalfa hay
- The rate of surface runoff, the erosion hazard, and the amount of nutrient loss are increased because of the slope.
- The bedrock restricts the rooting depth of crops.
- The risk of compaction increases when the soil is wet.
- Soil crusting results in a decrease in water infiltration and hinders the emergence of seedlings.

Pastureland
Suitability: Well suited
- The hazard of erosion, the rate of surface runoff, and the amount of nutrient loss are increased because of the slope.
- The bedrock may restrict the rooting depth of plants.

Woodland
Suitability: Moderately suited to northern red oak and yellow-poplar
- Proper planning for timber harvesting is essential in order to minimize the potential negative impact to soil and water quality. A timber harvest plan should include general adherence to all applicable best management practices.
- The slope poses safety hazards and creates a potential for erosion during the construction of haul roads and log landings.
- The slope creates unsafe operating conditions and reduces the operating efficiency of log trucks and harvesting equipment.
- Because of the slope, the use of equipment for preparing sites for planting and seeding is restricted.
- The slope may restrict the use of some mechanical planting equipment.
- Bedrock may interfere with the construction of haul roads and log landings.
- The low soil strength interferes with the construction of haul roads and log landings.

Building sites
- The slope influences the use of machinery and the amount of excavation required.

- Because of the nature and depth of the soft bedrock, the ease of excavation is reduced and the difficulty of constructing foundations and installing utilities is increased.

Septic tank absorption fields
- Because of the limited depth to bedrock, the filtering capacity of the soil is reduced and the difficulty of properly installing the effluent distribution lines is increased.
- The slope limits the proper treatment of effluent from conventional septic systems.

Local roads and streets
- The low soil strength is unfavorable for supporting heavy loads.
- Because of the slope, designing local roads and streets is difficult.

Interpretive Groups

Prime farmland: Not prime farmland
Land capability class: 4e
Virginia soil management group: U
Hydric soil: No

22B—Jefferson cobbly loam, 3 to 8 percent slopes

Setting

Major land resource area: Southern Appalachian Ridges and Valleys (MLRA 128)
Landform: Bases of hillslopes and mountain slopes
Position on the landform: Base slopes and mountain bases

Map Unit Composition

Jefferson and similar soils: Typically 90 percent, ranging from about 85 to 95 percent

Typical Profile

Organic layer:
0 to 2 inches—slightly decomposed plant material

Surface layer:
2 to 5 inches—dark brown cobbly loam

Subsurface layer:
5 to 12 inches—yellowish brown loam

Subsoil:
12 to 22 inches—yellowish brown loam
22 to 32 inches—yellowish brown loam
32 to 61 inches—strong brown cobbly clay loam

Substratum:
61 to 70 inches—strong brown cobbly loam with many red mottles

Minor Components

Dissimilar components:
- Nicelytown soils, which are moderately well drained; on similar landforms
- Soils that have slopes of 8 to 15 percent; on similar landforms
- Soils that have a dense, hard layer in the subsoil; on similar landforms

Similar components:
- Oriskany soils, which have more rock fragments in the soil than the Jefferson soil; on similar landforms

- Shelocta soils, which have less sand and more silt than the Jefferson soil; on similar landforms
- Tumbling soils, which have more clay than the Jefferson soil; on similar landforms
- Soils that are very stony; on similar landforms

Soil Properties and Qualities

Available water capacity: Moderate (about 8.1 inches)
Slowest saturated hydraulic conductivity: High (about 1.98 in/hr)
Depth class: Very deep (more than 60 inches)
Depth to root-restrictive feature: More than 60 inches
Drainage class: Well drained
Depth to seasonal water saturation: More than 6 feet
Flooding hazard: None
Ponding hazard: None
Shrink-swell potential: Low
Runoff class: Low
Surface fragments: None
Parent material: Colluvium derived from sandstone and/or shale and siltstone

Use and Management Considerations

Cropland
Suitability: Moderately suited to corn, wheat, grass-legume hay, and alfalfa hay
- The rate of surface runoff, the erosion hazard, and the amount of nutrient loss are increased because of the slope.

Pastureland
Suitability: Well suited
- The hazard of erosion, the rate of surface runoff, and the amount of nutrient loss are increased because of the slope.

Woodland
Suitability: Well suited to yellow-poplar and eastern white pine; moderately suited to northern red oak
- Proper planning for timber harvesting is essential in order to minimize the potential negative impact to soil and water quality. A timber harvest plan should include general adherence to all applicable best management practices.
- The slope may restrict the use of some mechanical planting equipment.
- Rock fragments restrict the use of equipment during site preparation for planting or seeding.
- The low soil strength interferes with the construction of haul roads and log landings.

Building sites
- This soil is well suited to building sites.

Septic tank absorption fields
- This soil is well suited to septic tank absorption fields.

Local roads and streets
- This soil is well suited to local roads and streets

Interpretive Groups

Prime farmland: Not prime farmland
Land capability class: 3s
Virginia soil management group: L
Hydric soil: No

22C—Jefferson cobbly loam, 8 to 15 percent slopes

Setting

Major land resource area: Southern Appalachian Ridges and Valleys (MLRA 128)
Landform: Bases of hillslopes and mountain slopes
Position on the landform: Base slopes and mountain bases

Map Unit Composition

Jefferson and similar soils: Typically 90 percent, ranging from about 85 to 95 percent

Typical Profile

Organic layer:
0 to 2 inches—slightly decomposed plant material

Surface layer:
2 to 5 inches—dark brown cobbly loam

Subsurface layer:
5 to 12 inches—yellowish brown loam

Subsoil:
12 to 22 inches—yellowish brown loam
22 to 32 inches—yellowish brown loam
32 to 61 inches—strong brown cobbly clay loam

Substratum:
61 to 70 inches—strong brown cobbly loam with many red mottles

Minor Components

Dissimilar components:
- Nicelytown soils, which are moderately well drained; on similar landforms
- Soils that have slopes of less than 8 percent; on similar landforms
- Soils that have a dense, hard layer in the subsoil; on similar landforms

Similar components:
- Oriskany soils, which have more rock fragments in the soil than the Jefferson soil; on similar landforms
- Shelocta soils, which have less sand and more silt than the Jefferson soil; on similar landforms
- Tumbling soils, which have more clay than the Jefferson soil; on similar landforms
- Soils that are very stony; on similar landforms

Soil Properties and Qualities

Available water capacity: Moderate (about 8.1 inches)
Slowest saturated hydraulic conductivity: High (about 1.98 in/hr)
Depth class: Very deep (more than 60 inches)
Depth to root-restrictive feature: More than 60 inches
Drainage class: Well drained
Depth to seasonal water saturation: More than 6 feet
Flooding hazard: None
Ponding hazard: None
Shrink-swell potential: Low
Runoff class: Low
Surface fragments: None
Parent material: Colluvium derived from sandstone and/or shale and siltstone

Use and Management Considerations

Cropland
Suitability: Moderately suited to corn, wheat, grass-legume hay, and alfalfa hay
- The rate of surface runoff, the erosion hazard, and the amount of nutrient loss are increased because of the slope.

Pastureland
Suitability: Moderately suited
- The hazard of erosion, the rate of surface runoff, and the amount of nutrient loss are increased because of the slope.

Woodland
Suitability: Well suited to yellow-poplar and eastern white pine; moderately suited to northern red oak
- Proper planning for timber harvesting is essential in order to minimize the potential negative impact to soil and water quality. A timber harvest plan should include general adherence to all applicable best management practices.
- The slope creates unsafe operating conditions and reduces the operating efficiency of log trucks.
- The slope may restrict the use of some mechanical planting equipment.
- Rock fragments restrict the use of equipment during site preparation for planting or seeding.
- The low soil strength interferes with the construction of haul roads and log landings.

Building sites
- The slope influences the use of machinery and the amount of excavation required.

Septic tank absorption fields
- The slope limits the proper treatment of effluent from conventional septic systems.

Local roads and streets
- Because of the slope, designing local roads and streets is difficult.

Interpretive Groups

Prime farmland: Not prime farmland
Land capability class: 4s
Virginia soil management group: L
Hydric soil: No

22D—Jefferson cobbly loam, 15 to 25 percent slopes

Setting

Major land resource area: Southern Appalachian Ridges and Valleys (MLRA 128)
Landform: Bases of hillslopes and mountain slopes
Position on the landform: Base slopes and mountain bases

Map Unit Composition

Jefferson and similar soils: Typically 90 percent, ranging from about 85 to 95 percent

Typical Profile

Organic layer:
0 to 2 inches—slightly decomposed plant material

Surface layer:
2 to 5 inches—dark brown cobbly loam

Subsurface layer:
5 to 12 inches—yellowish brown loam

Subsoil:
12 to 22 inches—yellowish brown loam
22 to 32 inches—yellowish brown loam
32 to 61 inches—strong brown cobbly clay loam

Substratum:
61 to 70 inches—strong brown cobbly loam with many red mottles

Minor Components

Dissimilar components:
- Nicelytown soils, which are moderately well drained; on similar landforms
- Soils that have slopes of more than 25 percent; on similar landforms
- Soils that have a dense, hard layer in the subsoil; on similar landforms

Similar components:
- Oriskany soils, which have more rock fragments in the soil than the Jefferson soil; on similar landforms
- Shelocta soils, which have less sand and more silt than the Jefferson soil; on similar landforms
- Tumbling soils, which have more clay than the Jefferson soil; on similar landforms
- Soils that are very stony; on similar landforms

Soil Properties and Qualities

Available water capacity: Moderate (about 8.1 inches)
Slowest saturated hydraulic conductivity: High (about 1.98 in/hr)
Depth class: Very deep (more than 60 inches)
Depth to root-restrictive feature: More than 60 inches
Drainage class: Well drained
Depth to seasonal water saturation: More than 6 feet
Flooding hazard: None
Ponding hazard: None
Shrink-swell potential: Low
Runoff class: Medium
Surface fragments: None
Parent material: Colluvium derived from sandstone and/or shale and siltstone

Use and Management Considerations

Cropland
- This soil is unsuited to cropland.

Pastureland
Suitability: Moderately suited
- The hazard of erosion, the rate of surface runoff, and the amount of nutrient loss are increased because of the slope.

Woodland
Suitability: Well suited to yellow-poplar and eastern white pine; moderately suited to northern red oak
- Proper planning for timber harvesting is essential in order to minimize the potential negative impact to soil and water quality. A timber harvest plan should include general adherence to all applicable best management practices.
- The slope poses safety hazards and creates a potential for erosion during the construction of haul roads and log landings.

- The slope creates unsafe operating conditions and reduces the operating efficiency of log trucks and harvesting equipment.
- Because of the slope, the use of equipment for preparing sites for planting and seeding is restricted.
- The slope may restrict the use of some mechanical planting equipment.
- Rock fragments restrict the use of equipment during site preparation for planting or seeding.
- The low soil strength interferes with the construction of haul roads and log landings.

Building sites
- The slope influences the use of machinery and the amount of excavation required.

Septic tank absorption fields
- The slope limits the proper treatment of effluent from conventional septic systems.

Local roads and streets
- Because of the slope, designing local roads and streets is difficult.

Interpretive Groups

Prime farmland: Not prime farmland
Land capability class: 6s
Virginia soil management group: L
Hydric soil: No

23C—Lily sandy loam, 8 to 15 percent slopes, very stony

Setting

Major land resource area: Southern Appalachian Ridges and Valleys (MLRA 128)
Landform: Hills and mountains
Position on the landform: Interfluves and mountaintops

Map Unit Composition

Lily and similar soils: Typically 90 percent, ranging from about 85 to 95 percent

Typical Profile

Organic layer:
0 to 2 inches—slightly decomposed plant material

Surface layer:
2 to 7 inches—brown sandy loam

Subsoil:
7 to 13 inches—yellowish brown sandy loam
13 to 24 inches—yellowish brown clay loam

Substratum:
24 to 30 inches—yellowish brown sandy loam

Hard bedrock:
30 inches—sandstone bedrock

Minor Components

Dissimilar components:
- Dekalb soils, which have more rock fragments in the soil than the Lily soil; on similar landforms
- Oriskany soils, which are very deep to bedrock and have more rock fragments in the soil than the Lily soil; on footslopes at the base of hills and mountains

Similar components:
- Bailegap soils, which are deep to sandstone bedrock; on similar landforms
- Gilpin soils, which are moderately deep to shale bedrock and have more silt and less sand than the Lily soil; on similar landforms
- Soils that are deep to hard bedrock; on similar landforms
- Soils that are shallow to hard bedrock; on similar landforms
- Soils that have less clay in the subsoil than the Lily soil; on similar landforms
- Soils that have fewer or more surface stones than the Lily soil; on similar landforms

Soil Properties and Qualities

Available water capacity: Low (about 3.9 inches)
Slowest saturated hydraulic conductivity: Moderately high (about 0.57 in/hr)
Depth class: Moderately deep (20 to 40 inches)
Depth to root-restrictive feature: 20 to 40 inches to lithic bedrock
Drainage class: Well drained
Depth to seasonal water saturation: More than 6 feet
Flooding hazard: None
Ponding hazard: None
Shrink-swell potential: Low
Runoff class: Medium
Surface fragments: About 0.10 to 3.00 percent subangular stones
Parent material: Residuum weathered from sandstone

Use and Management Considerations

Cropland
- This soil is unsuited to cropland.

Pastureland
Suitability: Well suited
- The hazard of erosion, the rate of surface runoff, and the amount of nutrient loss are increased because of the slope.
- The limited available water capacity may cause plants to suffer from moisture stress during the drier summer months.
- The bedrock may restrict the rooting depth of plants.
- Large stones on the surface may restrict the operation of some farm machinery.

Woodland
Suitability: Moderately suited to northern red oak and chestnut oak
- Proper planning for timber harvesting is essential in order to minimize the potential negative impact to soil and water quality. A timber harvest plan should include general adherence to all applicable best management practices.
- The slope creates unsafe operating conditions and reduces the operating efficiency of log trucks.
- The slope may restrict the use of some mechanical planting equipment.
- Bedrock may interfere with the construction of haul roads and log landings.

Building sites
- The slope influences the use of machinery and the amount of excavation required.
- Because of the limited depth to bedrock, the ease of excavation is greatly reduced and the difficulty of constructing foundations and installing utilities is increased.

Septic tank absorption fields
- Because of the limited depth to bedrock, the filtering capacity of the soil is reduced and the difficulty of properly installing the effluent distribution lines is increased.
- The slope limits the proper treatment of effluent from conventional septic systems.

Local roads and streets
- Because of the limited depth to bedrock, the ease of excavation is reduced and the difficulty of constructing roads is increased.
- The low soil strength may cause structural damage to local roads and streets.
- Because of the slope, designing local roads and streets is difficult.

Interpretive Groups

Prime farmland: Not prime farmland
Land capability class: 6s
Virginia soil management group: U
Hydric soil: No

23E—Lily sandy loam, 15 to 35 percent slopes, very stony

Setting

Major land resource area: Southern Appalachian Ridges and Valleys (MLRA 128)
Landform: Hills and mountains
Position on the landform: Interfluves, nose slopes, side slopes, mountaintops, and mountain flanks

Map Unit Composition

Lily and similar soils: Typically 85 percent, ranging from about 80 to 90 percent

Typical Profile

Organic layer:
0 to 2 inches—slightly decomposed plant material

Surface layer:
2 to 7 inches—brown sandy loam

Subsoil:
7 to 13 inches—yellowish brown sandy loam
13 to 24 inches—yellowish brown clay loam

Substratum:
24 to 30 inches—yellowish brown sandy loam

Hard bedrock:
30 inches—sandstone bedrock

Minor Components

Dissimilar components:
- Dekalb soils, which have more rock fragments in the soil than the Lily soil; on similar landforms
- Oriskany soils, which are very deep to bedrock and have more rock fragments in the soil than the Lily soil; on footslopes at the base of hills and mountains

Similar components:
- Bailegap soils, which are deep to sandstone bedrock; on similar landforms
- Gilpin soils, which are moderately deep to shale bedrock and have more silt and less sand than the Lily soil; on similar landforms
- Soils that are deep to hard bedrock; on similar landforms
- Soils that are shallow to hard bedrock; on similar landforms
- Soils that have less clay in the subsoil than the Lily soil; on similar landforms
- Soils that have fewer or more surface stones than the Lily soil; on similar landforms

Soil Properties and Qualities

Available water capacity: Low (about 3.9 inches)
Slowest saturated hydraulic conductivity: Moderately high (about 0.57 in/hr)
Depth class: Moderately deep (20 to 40 inches)
Depth to root-restrictive feature: 20 to 40 inches to lithic bedrock
Drainage class: Well drained
Depth to seasonal water saturation: More than 6 feet
Flooding hazard: None
Ponding hazard: None
Shrink-swell potential: Low
Runoff class: High
Surface fragments: About 0.10 to 3.00 percent subangular stones
Parent material: Residuum weathered from sandstone

Use and Management Considerations

Cropland
- This soil is unsuited to cropland.

Pastureland
- This soil is unsuited to pastureland.

Woodland
Suitability: Moderately suited to northern red oak and chestnut oak
- Proper planning for timber harvesting is essential in order to minimize the potential negative impact to soil and water quality. A timber harvest plan should include general adherence to all applicable best management practices.
- The slope poses safety hazards and creates a potential for erosion during the construction of haul roads and log landings.
- The slope creates unsafe operating conditions and reduces the operating efficiency of log trucks and harvesting equipment.
- Because of the slope, the use of equipment for preparing sites for planting and seeding is restricted.
- Because of the slope, the use of mechanical planting equipment is impractical.
- The low soil strength interferes with the construction of haul roads and log landings.

Building sites
- The slope influences the use of machinery and the amount of excavation required.
- Because of the limited depth to bedrock, the ease of excavation is greatly reduced and the difficulty of constructing foundations and installing utilities is increased.

Septic tank absorption fields
- Because of the limited depth to bedrock, the filtering capacity of the soil is reduced and the difficulty of properly installing the effluent distribution lines is increased.
- The slope limits the proper treatment of effluent from conventional septic systems.

Local roads and streets
- Because of the limited depth to bedrock, the ease of excavation is reduced and the difficulty of constructing roads is increased.
- The low soil strength may cause structural damage to local roads and streets.
- Because of the slope, designing local roads and streets is difficult.

Interpretive Groups

Prime farmland: Not prime farmland
Land capability class: 7s
Virginia soil management group: U
Hydric soil: No

23F—Lily sandy loam, 35 to 55 percent slopes, very stony

Setting

Major land resource area: Southern Appalachian Ridges and Valleys (MLRA 128)
Landform: Hills and mountains
Position on the landform: Side slopes and mountain flanks

Map Unit Composition

Lily and similar soils: Typically 85 percent, ranging from about 80 to 90 percent

Typical Profile

Organic layer:
0 to 2 inches—slightly decomposed plant material

Surface layer:
2 to 7 inches—brown sandy loam

Subsoil:
7 to 13 inches—yellowish brown sandy loam
13 to 24 inches—yellowish brown clay loam

Substratum:
24 to 30 inches—yellowish brown sandy loam

Hard bedrock:
30 inches—sandstone bedrock

Minor Components

Dissimilar components:
- Dekalb soils, which have more rock fragments in the soil than the Lily soil; on similar landforms
- Oriskany soils, which are very deep to bedrock and have more rock fragments in the soil than the Lily soil; on footslopes at the base of hills and mountains

Similar components:
- Bailegap soils, which are deep to sandstone bedrock; on similar landforms
- Gilpin soils, which are moderately deep to shale bedrock and have more silt and less sand than the Lily soil; on similar landforms
- Soils that are deep to hard bedrock; on similar landforms
- Soils that are shallow to hard bedrock; on similar landforms
- Soils that have less clay in the subsoil than the Lily soil; on similar landforms
- Soils that have fewer or more surface stones than the Lily soil; on similar landforms

Soil Properties and Qualities

Available water capacity: Low (about 3.9 inches)
Slowest saturated hydraulic conductivity: Moderately high (about 0.57 in/hr)
Depth class: Moderately deep (20 to 40 inches)
Depth to root-restrictive feature: 20 to 40 inches to lithic bedrock
Drainage class: Well drained
Depth to seasonal water saturation: More than 6 feet
Flooding hazard: None
Ponding hazard: None
Shrink-swell potential: Low
Runoff class: High
Surface fragments: About 0.10 to 3.00 percent subangular stones
Parent material: Residuum weathered from sandstone

Use and Management Considerations

Cropland
- This soil is unsuited to cropland.

Pastureland
- This soil is unsuited to pastureland.

Woodland
Suitability: Moderately suited to northern red oak and chestnut oak
- Proper planning for timber harvesting is essential in order to minimize the potential negative impact to soil and water quality, especially on the steeper slopes. A timber harvest plan should focus on the proper location of haul roads and skid tails, and careful attention should be given to all applicable best management practices.
- The slope poses safety hazards and creates a potential for erosion during the construction of haul roads and log landings.
- The slope creates unsafe operating conditions and reduces the operating efficiency of log trucks and harvesting equipment.
- Because of the slope, the use of equipment for planting and seeding (including mechanical planting equipment) is impractical.
- The low soil strength interferes with the construction of haul roads and log landings.

Building sites
- The slope influences the use of machinery and the amount of excavation required.
- Because of the limited depth to bedrock, the ease of excavation is greatly reduced and the difficulty of constructing foundations and installing utilities is increased.

Septic tank absorption fields
- Because of the limited depth to bedrock, the filtering capacity of the soil is reduced and the difficulty of properly installing the effluent distribution lines is increased.
- The slope limits the proper treatment of effluent from conventional septic systems.

Local roads and streets
- Because of the limited depth to bedrock, the ease of excavation is reduced and the difficulty of constructing roads is increased.
- The low soil strength may cause structural damage to local roads and streets.
- Because of the slope, designing local roads and streets is difficult.

Interpretive Groups

Prime farmland: Not prime farmland
Land capability class: 7e
Virginia soil management group: U
Hydric soil: No

24A—Maurertown silt loam, 0 to 3 percent slopes, rarely flooded

Setting

Major land resource area: Southern Appalachian Ridges and Valleys (MLRA 128)
Landform: Depressions or backswamps on low-level stream terraces
Position on the landform: Treads

Map Unit Composition

Maurertown and similar soils: Typically 90 percent, ranging from about 85 to 95 percent

Typical Profile

Surface layer:
0 to 6 inches—dark grayish brown silt loam

Subsoil:
6 to 18 inches—dark grayish brown silty clay loam with yellowish brown masses of oxidized iron
18 to 41 inches—dark gray silty clay with yellowish brown masses of oxidized iron

Substratum:
41 to 48 inches—very dark gray silty clay loam with yellowish brown and yellow masses of oxidized iron and light gray iron depletions
48 to 62 inches—gray gravelly silty clay loam with brownish yellow masses of oxidized iron and light gray iron depletions

Minor Components

Dissimilar components:
- Alonzville soils, which are well drained and have less clay than the Maurertown soil; on similar landforms
- Coursey soils, which are moderately well drained and have less clay than the Maurertown soil; on similar landforms
- Nicelytown soils, which are moderately well drained, are not susceptible to flooding, and have less clay than the Maurertown soil; on the higher stream terraces
- Atkins soils, which are more susceptible to flooding and have less clay than the Maurertown soil; on flood plains
- Soils that have slopes of more than 3 percent; on similar landforms

Similar components:
- Soils that have more rock fragments in the subsoil than the Maurertown soil; on similar landforms
- Soils that have surface layers which are thicker and darker brown than those of the Maurertown soil; on similar landforms

Soil Properties and Qualities

Available water capacity: Moderate (about 8.9 inches)
Slowest saturated hydraulic conductivity: Low (about 0.00 in/hr)
Depth class: Very deep (more than 60 inches)
Depth to root-restrictive feature: More than 60 inches
Drainage class: Poorly drained
Depth to seasonal water saturation: About 0 to 6 inches
Water table kind: Apparent
Flooding hazard: Rare
Ponding hazard: Occasional
Depth of ponding: 0.3 to 1.0 foot
Shrink-swell potential: High
Runoff class: Negligible
Surface fragments: None
Parent material: Clayey alluvium derived from limestone, sandstone, and shale

Use and Management Considerations

Cropland
Suitability: Poorly suited to corn and wheat; not suited to grass-legume hay and alfalfa hay
- The high clay content restricts the rooting depth of crops.
- Frost action may damage the root system of winter grain crops.

- The risk of compaction increases when the soil is wet.
- Soil crusting results in a decrease in water infiltration and hinders the emergence of seedlings.
- The seasonal high water table restricts the use of equipment, decreases the viability of crops, and interferes with the planting and harvesting of crops.

Pastureland
Suitability: Poorly suited
- The seasonal high water table can affect equipment use, grazing patterns, and the viability of grass and legume species.
- Compaction may occur when the soil is wet.
- Frost action may damage the root systems of plants.

Woodland
Suitability: Moderately suited to sweetgum
- Proper planning for timber harvesting is essential in order to minimize the potential negative impact to soil and water quality. A timber harvest plan should include general adherence to all applicable best management practices.
- Ponding restricts the safe use of roads by log trucks.
- The low soil strength interferes with the construction of haul roads and log landings.
- The stickiness of the soil reduces the efficiency of mechanical planting equipment.

Building sites
- Flooding and ponding are limitations affecting building site development.
- The seasonal high water table may restrict the period when excavations can be made.

Septic tank absorption fields
- Ponding is a limitation affecting septic tank absorption fields.
- The seasonal high water table greatly limits the absorption and proper treatment of the effluent from conventional septic systems.

Local roads and streets
- Ponding affects the ease of excavation and grading and limits the bearing capacity of the soil.
- Because of shrinking and swelling, the use of this soil as base material for local roads and streets is restricted.
- The low soil strength is unfavorable for supporting heavy loads.

Interpretive Groups

Prime farmland: Not prime farmland
Land capability class: 4w
Virginia soil management group: NN
Hydric soil: Yes

25B—Nicelytown silt loam, 3 to 8 percent slopes

Setting

Major land resource area: Southern Appalachian Ridges and Valleys (MLRA 128)
Landform: High-level stream terraces; some areas are at the base of hillslopes
Position on the landform: Treads and base slopes

Map Unit Composition

Nicelytown and similar soils: Typically 90 percent, ranging from about 85 to 95 percent

Typical Profile

Surface layer:
0 to 6 inches—dark yellowish brown silt loam

Subsoil:
6 to 18 inches—yellowish brown silt loam with common light yellowish brown mottles and manganese masses
18 to 24 inches—yellowish brown silt loam with common pale brown mottles, light brownish gray iron depletions, and manganese masses
24 to 60 inches—yellowish brown silty clay loam with light gray iron depletions, brownish yellow masses of oxidized iron, and manganese masses
60 to 62 inches—yellowish brown very cobbly silty clay loam with strong brown masses of oxidized iron and light gray iron depletions

Minor Components

Dissimilar components:
- Sugarhol soils, which are well drained and have more clay in the subsoil than the Nicelytown soil; on similar landforms
- Alonzville soils, which are well drained and susceptible to flooding; on lower stream terraces
- Coursey soils, which are moderately well drained and susceptible to flooding; on lower stream terraces
- Shelocta soils, which are well drained; on footslopes
- Maurertown soils, which are poorly drained and susceptible to flooding and ponding; in backswamps of lower stream terraces
- Berks and Gilpin soils, which are moderately deep to shale bedrock; on hills
- Tumbling soils, which are well drained and have more clay than the Nicelytown soil; on footslopes
- Soils that are poorly drained; in depressions or other concave areas on similar landforms
- Soils that have slopes of less than 3 percent or 8 to 15 percent; on similar landforms
- Soils that have a dense, hard layer in the subsoil; on similar landforms

Similar components:
- Soils that have more clay in the upper part of the subsoil than the Nicelytown soil; on similar landforms
- Soils that are very stony on the surface; on similar landforms
- Soils that have a very cobbly surface layer; on similar landforms

Soil Properties and Qualities

Available water capacity: High (about 9.3 inches)
Slowest saturated hydraulic conductivity: Moderately high (about 0.20 in/hr)
Depth class: Very deep (more than 60 inches)
Depth to root-restrictive feature: More than 60 inches
Drainage class: Moderately well drained
Depth to seasonal water saturation: About 18 to 30 inches
Water table kind: Apparent
Flooding hazard: None
Ponding hazard: None
Shrink-swell potential: Low
Runoff class: Very high
Surface fragments: None
Parent material: Fine-loamy alluvium derived from limestone, sandstone, and shale; some areas are intermixed with colluvium

Use and Management Considerations

Cropland

Suitability: Well suited to corn, wheat, and grass-legume hay; moderately suited to alfalfa hay

- The rate of surface runoff, the erosion hazard, and the amount of nutrient loss are increased because of the slope.
- The risk of compaction increases when the soil is wet.
- Soil crusting results in a decrease in water infiltration and hinders the emergence of seedlings.

Pastureland

Suitability: Well suited

- The hazard of erosion, the rate of surface runoff, and the amount of nutrient loss are increased because of the slope.

Woodland

Suitability: Well suited to northern red oak; moderately suited to yellow-poplar

- Proper planning for timber harvesting is essential in order to minimize the potential negative impact to soil and water quality. A timber harvest plan should include general adherence to all applicable best management practices.
- The slope may restrict the use of some mechanical planting equipment.
- The low soil strength interferes with the construction of haul roads and log landings.
- The low soil strength may create unsafe conditions for log trucks.

Building sites

- The seasonal high water table may restrict the period when excavations can be made.

Septic tank absorption fields

- The seasonal high water table greatly limits the absorption and proper treatment of the effluent from conventional septic systems.
- Slow water movement limits the absorption and proper treatment of the effluent from conventional septic systems.

Local roads and streets

- The seasonal high water table affects the ease of excavation and grading and reduces the bearing capacity of the soil.
- The low soil strength is unfavorable for supporting heavy loads.

Interpretive Groups

Prime farmland: All areas are prime farmland
Land capability class: 2e
Virginia soil management group: G
Hydric soil: No

25C—Nicelytown silt loam, 8 to 15 percent slopes

Setting

Major land resource area: Southern Appalachian Ridges and Valleys (MLRA 128)
Landform: High-level stream terraces and bases of hillslopes
Position on the landform: Treads, risers, base slopes, and fans

Map Unit Composition

Nicelytown and similar soils: Typically 90 percent, ranging from about 85 to 95 percent

Typical Profile

Surface layer:
0 to 6 inches—dark yellowish brown silt loam

Subsoil:
6 to 18 inches—yellowish brown silt loam with common light yellowish brown mottles and manganese masses
18 to 24 inches—yellowish brown silt loam with common pale brown mottles, light brownish gray iron depletions, and manganese masses
24 to 60 inches—yellowish brown silty clay loam with light gray iron depletions, brownish yellow masses of oxidized iron, and manganese masses
60 to 62 inches—yellowish brown very cobbly silty clay loam with strong brown masses of oxidized iron and light gray iron depletions

Minor Components

Dissimilar components:
- Sugarhol soils, which are well drained and have more clay in the subsoil than the Nicelytown soil; on similar landforms
- Alonzville soils, which are well drained and susceptible to flooding; on lower stream terraces
- Coursey soils, which are moderately well drained and susceptible to flooding; on lower stream terraces
- Shelocta soils, which are well drained; on footslopes
- Maurertown soils, which are poorly drained and susceptible to flooding and ponding; in backswamps of lower stream terraces
- Berks and Gilpin soils, which are moderately deep to shale bedrock; on hills
- Tumbling soils, which are well drained and have more clay than the Nicelytown soil; on footslopes
- Soils that are poorly drained; in depressions or other concave areas on similar landforms
- Soils that have slopes of less than 8 percent or more than 15 percent; on similar landforms
- Soils that have a dense, hard layer in the subsoil; on similar landforms
- Soils that have a very cobbly surface layer; on similar landforms

Similar components:
- Soils that are very stony on the surface; on similar landforms

Soil Properties and Qualities

Available water capacity: High (about 9.3 inches)
Slowest saturated hydraulic conductivity: Moderately high (about 0.20 in/hr)
Depth class: Very deep (more than 60 inches)
Depth to root-restrictive feature: More than 60 inches
Drainage class: Moderately well drained
Depth to seasonal water saturation: About 18 to 30 inches
Water table kind: Apparent
Flooding hazard: None
Ponding hazard: None
Shrink-swell potential: Low
Runoff class: Very high
Surface fragments: None
Parent material: Fine-loamy alluvium derived from limestone, sandstone, and shale; some areas are intermixed with colluvium

Use and Management Considerations

Cropland

Suitability: Well suited to wheat and grass-legume hay; moderately suited to corn and alfalfa hay

- The rate of surface runoff, the erosion hazard, and the amount of nutrient loss are increased because of the slope.
- The risk of compaction increases when the soil is wet.
- Soil crusting results in a decrease in water infiltration and hinders the emergence of seedlings.

Pastureland

Suitability: Well suited

- The hazard of erosion, the rate of surface runoff, and the amount of nutrient loss are increased because of the slope.

Woodland

Suitability: Well suited to northern red oak; moderately suited to yellow-poplar

- Proper planning for timber harvesting is essential in order to minimize the potential negative impact to soil and water quality. A timber harvest plan should include general adherence to all applicable best management practices.
- The slope creates unsafe operating conditions and reduces the operating efficiency of log trucks.
- The slope may restrict the use of some mechanical planting equipment.
- The low soil strength interferes with the construction of haul roads and log landings.
- The low soil strength may create unsafe conditions for log trucks.

Building sites

- The seasonal high water table may restrict the period when excavations can be made.
- The slope influences the use of machinery and the amount of excavation required.

Septic tank absorption fields

- The seasonal high water table greatly limits the absorption and proper treatment of the effluent from conventional septic systems.
- Slow water movement limits the absorption and proper treatment of the effluent from conventional septic systems.
- The slope limits the proper treatment of effluent from conventional septic systems.

Local roads and streets

- The low soil strength is unfavorable for supporting heavy loads.
- Because of the slope, designing local roads and streets is difficult.

Interpretive Groups

Prime farmland: Not prime farmland
Land capability class: 3e
Virginia soil management group: G
Hydric soil: No

26B—Ogles very stony loam, 0 to 5 percent slopes, frequently flooded

Setting

Major land resource area: Southern Appalachian Ridges and Valleys (MLRA 128)
Landform: Flood plains along small creeks and major rivers
Position on the landform: Flood-plain steps

Map Unit Composition

Ogles and similar soils: Typically 90 percent, ranging from about 85 to 95 percent

Typical Profile

Organic layer:
0 to 2 inches—moderately decomposed plant material

Surface layer:
2 to 6 inches—very dark brown very stony loam

Subsoil:
6 to 10 inches—dark yellowish brown very stony loam
10 to 23 inches—yellowish brown extremely stony sandy loam

Substratum:
23 to 47 inches—dark yellowish brown extremely stony loamy sand
47 to 65 inches—dark yellowish brown extremely stony loamy sand

Minor Components

Dissimilar components:
- Philo soils, which are moderately well drained and have fewer rock fragments in the soil than the Ogles soil; on similar landforms
- Soils that have slopes of more than 5 percent; on similar landforms
- Pope soils, which have significantly fewer rock fragments in the surface layer and subsoil than the Ogles soil; on similar landforms

Similar components:
- Soils that are very bouldery on the surface; on similar landforms

Soil Properties and Qualities

Available water capacity: Moderate (about 6.2 inches)
Slowest saturated hydraulic conductivity: High (about 1.98 in/hr)
Depth class: Very deep (more than 60 inches)
Depth to root-restrictive feature: More than 60 inches
Drainage class: Well drained
Depth to seasonal water saturation: About 42 to 72 inches
Water table kind: Apparent
Flooding hazard: Frequent
Ponding hazard: None
Shrink-swell potential: Low
Runoff class: Very low
Surface fragments: None
Parent material: Alluvium derived from sandstone and shale

Use and Management Considerations

Cropland
- This soil is unsuited to cropland.

Pastureland
Suitability: Moderately suited
- The hazard of erosion, the rate of surface runoff, and the amount of nutrient loss are increased because of the slope.
- Flooding may damage pastures.
- Large stones on the surface may restrict the operation of some farm machinery.

Woodland
Suitability: Moderately suited to northern red oak, yellow-poplar, and eatern white pine

- Proper planning for timber harvesting is essential in order to minimize the potential negative impact to soil and water quality. A timber harvest plan should focus on streamside management zones and stream crossings and should include general adherence to all applicable best management practices.
- Flooding may damage haul roads.
- Flooding restricts the safe use of roads by log trucks.
- The use of mechanical planting equipment is impractical because of the content of rock fragments.
- The low soil strength interferes with the construction of haul roads and log landings.
- The low soil strength may create unsafe conditions for log trucks.

Building sites
- Flooding is a limitation affecting building site development.
- The seasonal high water table may restrict the period when excavations can be made.

Septic tank absorption fields
- Flooding is a limitation affecting septic tank absorption fields.
- The seasonal high water table greatly limits the absorption and proper treatment of the effluent from conventional septic systems.

Local roads and streets
- Flooding may damage local roads and streets.

Interpretive Groups

Prime farmland: Not prime farmland
Land capability class: 6s
Virginia soil management group: CC
Hydric soil: No

27C—Oriskany gravelly fine sandy loam, 8 to 15 percent slopes, extremely stony

Setting

Major land resource area: Southern Appalachian Ridges and Valleys (MLRA 128)
Landform: Bases of hillslopes and mountain slopes
Position on the landform: Base slopes and mountain bases

Map Unit Composition

Oriskany and similar soils: Typically 90 percent, ranging from about 85 to 95 percent

Typical Profile

Surface layer:
0 to 6 inches—dark brown gravelly fine sandy loam

Subsurface layer:
6 to 14 inches—yellowish brown very cobbly fine sandy loam

Subsoil:
14 to 61 inches—strong brown extremely stony sandy clay loam

Minor Components

Dissimilar components:
- Bailegap soils, which are deep to sandstone bedrock and have fewer rock fragments in the soil than the Oriskany soil; on hills and mountains

- Berks soils, which are moderately deep to shale bedrock; on hills and mountains
- Culleoka soils, which are moderately deep to siltstone bedrock and have fewer rock fragments in the soil than the Oriskany soil; on hills and mountains
- Tumbling soils, which have fewer rock fragments in the soil and more clay than the Oriskany soil; on similar landforms
- Westmoreland soils, which are deep to shale bedrock and have fewer rock fragments in the soil than the Oriskany soil; on hills and mountains
- Soils that have slopes of less than 8 percent; on similar landforms
- Soils that are very bouldery or very rubbly on the surface; on similar landforms

Similar components:
- Jefferson soils, which have fewer rock fragments in the soil than the Oriskany soil; on similar landforms
- Soils that have fewer stones on the surface than the Oriskany soil; on similar landforms
- Soils that have more silt than the Oriskany soil; on similar landforms

Soil Properties and Qualities

Available water capacity: Moderate (about 7.9 inches)
Slowest saturated hydraulic conductivity: High (about 1.98 in/hr)
Depth class: Very deep (more than 60 inches)
Depth to root-restrictive feature: More than 60 inches
Drainage class: Well drained
Depth to seasonal water saturation: More than 6 feet
Flooding hazard: None
Ponding hazard: None
Shrink-swell potential: Low
Runoff class: Low
Surface fragments: About 1.00 to 4.00 percent subrounded cobbles, about 2.00 to 10.00 percent subrounded stones, and about 0.00 to 1.00 percent subrounded boulders
Parent material: Colluvium derived from sandstone and shale

Use and Management Considerations

Cropland
- This soil is unsuited to cropland.

Pastureland
- This soil is unsuited to pastureland.

Woodland
Suitability: Well suited to yellow-poplar; moderately suited to northern red oak
- Proper planning for timber harvesting is essential in order to minimize the potential negative impact to soil and water quality. A timber harvest plan should include general adherence to all applicable best management practices.
- The slope creates unsafe operating conditions and reduces the operating efficiency of log trucks.
- The slope may restrict the use of some mechanical planting equipment.
- Stones or boulders in the soil may damage equipment during the construction of haul roads and log landings.
- The use of mechanical planting equipment is impractical because of the content of rock fragments.
- Rock fragments restrict the use of equipment during site preparation for planting or seeding.

Figure 5.—An area of Oriskany gravelly fine sandy loam, 15 to 35 percent slopes, extremely stony, and Jefferson cobbly loam, 8 to 15 percent slopes, on footslopes in low-lying areas. Wooded upland landforms in this area are in the Jefferson National Forest.

Building sites
- The slope influences the use of machinery and the amount of excavation required.

Septic tank absorption fields
- The slope limits the proper treatment of effluent from conventional septic systems.

Local roads and streets
- Because of the slope, designing local roads and streets is difficult.

Interpretive Groups

Prime farmland: Not prime farmland
Land capability class: 7s
Virginia soil management group: CC
Hydric soil: No

27E—Oriskany gravelly fine sandy loam, 15 to 35 percent slopes, extremely stony

Setting

Major land resource area: Southern Appalachian Ridges and Valleys (MLRA 128)
Landform: Bases of hillslopes and mountain slopes (fig. 5)
Position on the landform: Base slopes and mountain bases

Map Unit Composition

Oriskany and similar soils: Typically 90 percent, ranging from about 85 to 95 percent

Typical Profile

Surface layer:
0 to 6 inches—dark brown gravelly fine sandy loam

Subsurface layer:
6 to 14 inches—yellowish brown very cobbly fine sandy loam

Subsoil:
14 to 61 inches—strong brown extremely stony sandy clay loam

Minor Components

Dissimilar components:
- Bailegap soils, which are deep to sandstone bedrock and have fewer rock fragments in the soil than the Oriskany soil; on hills and mountains
- Berks soils, which are moderately deep to shale bedrock; on hills and mountains
- Culleoka soils, which are moderately deep to siltstone bedrock and have fewer rock fragments in the soil than the Oriskany soil; on hills and mountains
- Tumbling soils, which have fewer rock fragments in the soil and more clay than the Oriskany soil; on similar landforms
- Westmoreland soils, which are deep to shale bedrock and have fewer rock fragments in the soil than the Oriskany soil; on hills and mountains
- Soils that have slopes of more than 35 percent; on similar landforms
- Soils that are very bouldery or very rubbly on the surface; on similar landforms

Similar components:
- Jefferson soils, which have fewer rock fragments in the soil than the Oriskany soil; on similar landforms
- Soils that have fewer stones on the surface than the Oriskany soil; on similar landforms
- Soils that have more silt than the Oriskany soil; on similar landforms

Soil Properties and Qualities

Available water capacity: Moderate (about 7.9 inches)
Slowest saturated hydraulic conductivity: High (about 1.98 in/hr)
Depth class: Very deep (more than 60 inches)
Depth to root-restrictive feature: More than 60 inches
Drainage class: Well drained
Depth to seasonal water saturation: More than 6 feet
Flooding hazard: None
Ponding hazard: None
Shrink-swell potential: Low
Runoff class: Medium
Surface fragments: About 2.00 to 10.00 percent subrounded stones, about 1.00 to 4.00 percent subrounded cobbles, and about 0.00 to 1.00 percent subrounded boulders
Parent material: Colluvium derived from sandstone and shale

Use and Management Considerations

Cropland
- This soil is unsuited to cropland.

Pastureland
- This soil is unsuited to pastureland.

Woodland

Suitability: Well suited to yellow-poplar; moderately suited to northern red oak

- Proper planning for timber harvesting is essential in order to minimize the potential negative impact to soil and water quality. A timber harvest plan should include general adherence to all applicable best management practices.
- The slope poses safety hazards and creates a potential for erosion during the construction of haul roads and log landings.
- The slope creates unsafe operating conditions and reduces the operating efficiency of log trucks and harvesting equipment.
- Because of the slope, the use of equipment for preparing sites for planting and seeding is restricted.
- Stones or boulders in the soil may damage equipment during the construction of haul roads and log landings.
- The use of mechanical planting equipment is impractical because of the slope and the content of rock fragments.
- Rock fragments restrict the use of equipment during site preparation for planting or seeding.

Building sites

- The slope influences the use of machinery and the amount of excavation required.

Septic tank absorption fields

- The slope limits the proper treatment of effluent from conventional septic systems.

Local roads and streets

- Because of the slope, designing local roads and streets is difficult.

Interpretive Groups

Prime farmland: Not prime farmland
Land capability class: 7s
Virginia soil management group: CC
Hydric soil: No

28F—Oriskany gravelly fine sandy loam, 15 to 55 percent slopes, very rubbly

Setting

Major land resource area: Southern Appalachian Ridges and Valleys (MLRA 128)
Landform: Bases of hillslopes and mountain slopes
Position on the landform: Base slopes and mountain bases

Map Unit Composition

Oriskany and similar soils: Typically 90 percent, ranging from about 85 to 95 percent

Typical Profile

Surface layer:
0 to 6 inches—dark brown gravelly fine sandy loam

Subsurface layer:
6 to 14 inches—yellowish brown very cobbly fine sandy loam

Subsoil:
14 to 61 inches—strong brown extremely stony sandy clay loam

Minor Components

Dissimilar components:
- Bailegap soils, which are deep to sandstone bedrock and have fewer rock fragments in the soil than the Oriskany soil; on hills and mountains
- Berks soils, which are moderately deep to shale bedrock; on hills and mountains
- Culleoka soils, which are moderately deep to siltstone bedrock and have fewer rock fragments in the soil than the Oriskany soil; on hills and mountains
- Tumbling soils, which have fewer rock fragments in the soil and more clay than the Oriskany soil; on similar landforms
- Westmoreland soils, which are deep to shale bedrock and have fewer rock fragments in the soil than the Oriskany soil; on hills and mountains

Similar components:
- Jefferson soils, which have fewer rock fragments in the soil than the Oriskany soil; on similar landforms
- Soils that have fewer stones on the surface than the Oriskany soil; on similar landforms

Soil Properties and Qualities

Available water capacity: Moderate (about 7.9 inches)
Slowest saturated hydraulic conductivity: High (about 1.98 in/hr)
Depth class: Very deep (more than 60 inches)
Depth to root-restrictive feature: More than 60 inches
Drainage class: Well drained
Depth to seasonal water saturation: More than 6 feet
Flooding hazard: None
Ponding hazard: None
Shrink-swell potential: Low
Runoff class: Medium
Surface fragments: About 10.00 to 15.00 percent subrounded stones, about 5.00 to 15.00 percent subrounded cobbles, and about 35.00 to 45.00 percent subrounded boulders
Parent material: Colluvium derived from sandstone and shale

Use and Management Considerations

Cropland
- This soil is unsuited to cropland.

Pastureland
- This soil is unsuited to pastureland.

Woodland
Suitability: Well suited to yellow-poplar; moderately suited to northern red oak
- Proper planning for timber harvesting is essential in order to minimize the potential negative impact to soil and water quality. A timber harvest plan should include general adherence to all applicable best management practices.
- The slope poses safety hazards and creates a potential for erosion during the construction of haul roads and log landings.
- The slope creates unsafe operating conditions and reduces the operating efficiency of log trucks and harvesting equipment.
- Because of the slope, the use of equipment for planting and seeding is impractical.
- The use of mechanical planting equipment is impractical because of the slope and the content of rock fragments.
- Rock fragments restrict the use of equipment during site preparation for planting or seeding.

Building sites
- The slope influences the use of machinery and the amount of excavation required.

Septic tank absorption fields
- The slope limits the proper treatment of effluent from conventional septic systems.

Local roads and streets
- Because of the slope, designing local roads and streets is difficult.

Interpretive Groups

Prime farmland: Not prime farmland
Land capability class: 7s
Virginia soil management group: CC
Hydric soil: No

29A—Philo fine sandy loam, 0 to 3 percent slopes, occasionally flooded

Setting

Major land resource area: Southern Appalachian Ridges and Valleys (MLRA 128)
Landform: Flood plains along major streams and small creeks
Position on the landform: Flood-plain steps

Map Unit Composition

Philo and similar soils: Typically 85 percent, ranging from about 80 to 90 percent

Typical Profile

Surface layer:
0 to 9 inches—dark brown fine sandy loam

Subsoil:
9 to 23 inches—dark yellowish brown fine sandy loam
23 to 30 inches—brown loam with very dark brown manganese masses, strong brown masses of oxidized iron, and grayish brown iron depletions

Substratum:
30 to 65 inches—grayish brown cobbly loam with light brownish gray iron depletions and strong brown masses of oxidized iron

Minor Components

Dissimilar components:
- Pope soils, which are well drained; on similar landforms
- Atkins soils, which are poorly drained; on similar landforms or in backswamps
- Maurertown soils, which are poorly drained, are less susceptible to flooding, and have more clay than the Philo soil; in backswamps of stream terraces
- Ogles soils, which are well drained and have more rock fragments in the soil than the Philo soil; on similar landforms

Similar components:
- Soils that have more clay than the Philo soil; on similar landforms
- Soils that have surface layers that are darker brown than those of the Philo soil; on similar landforms
- Soils that have surface layers of silt loam; on similar landforms

Soil Properties and Qualities

Available water capacity: Moderate (about 8.5 inches)
Slowest saturated hydraulic conductivity: Moderately high (about 0.57 in/hr)
Depth class: Very deep (more than 60 inches)
Depth to root-restrictive feature: More than 60 inches
Drainage class: Moderately well drained
Depth to seasonal water saturation: About 18 to 36 inches
Water table kind: Apparent
Flooding hazard: Occasional
Ponding hazard: None
Shrink-swell potential: Low
Runoff class: Low
Surface fragments: None
Parent material: Coarse-loamy alluvium derived from acid shale and/or sandstone

Use and Management Considerations

Cropland
Suitability: Well suited to corn; moderately suited to wheat and grass-legume hay; not suited to alfalfa hay
- Flooding may damage crops.

Pastureland
Suitability: Moderately suited
- Flooding may damage pastures.

Woodland
Suitability: Well suited to northern red oak and yellow-poplar
- Proper planning for timber harvesting is essential in order to minimize the potential negative impact to soil and water quality. A timber harvest plan should focus on streamside management zones and stream crossings and should include general adherence to all applicable best management practices.
- Flooding may damage haul roads.
- Flooding restricts the safe use of roads by log trucks.
- Soil wetness may limit the use of log trucks.

Building sites
- Flooding is a limitation affecting building site development.
- The seasonal high water table may restrict the period when excavations can be made.

Septic tank absorption fields
- Flooding is a limitation affecting septic tank absorption fields.
- The seasonal high water table greatly limits the absorption and proper treatment of the effluent from conventional septic systems.

Local roads and streets
- Flooding may damage local roads and streets.
- The seasonal high water table affects the ease of excavation and grading and reduces the bearing capacity of the soil.

Interpretive Groups

Prime farmland: All areas are prime farmland
Land capability class: 2w
Virginia soil management group: H
Hydric soil: No

30—Pits and dumps

Setting

Major land resource area: Southern Appalachian Ridges and Valleys (MLRA 128)
Landform: Hills and mountains
Position on the landform: Variable
Note: This map unit consists of areas where sand or iron ore has been mined

Map Unit Composition

Pits and similar soils: Typically 50 percent, ranging from about 45 to 55 percent
Dumps and similar soils: Typically 45 percent, ranging from about 40 to 50 percent

Description

Pits

This part of the map unit consists of open excavations from which soil and underlying material have been removed, exposing layers of bedrock.

Dumps

This part of the map unit consists of smoothed or uneven accumulations or piles of sand or spoil material.

Use and Management Considerations

Onsite investigation is needed to determine the suitability of any area for specific uses.

Interpretive Groups

Prime farmland: Not prime farmland
Land capability class: 8
Virginia soil management group: None assigned
Hydric soil: Unranked

31A—Pope fine sandy loam, 0 to 3 percent slopes, frequently flooded

Setting

Major land resource area: Southern Appalachian Ridges and Valleys (MLRA 128)
Landform: Flood plains along major streams and small creeks
Position on the landform: Flood-plain steps

Map Unit Composition

Pope and similar soils: Typically 90 percent, ranging from about 85 to 95 percent

Typical Profile

Surface layer:
0 to 8 inches—dark yellowish brown fine sandy loam

Subsoil:
8 to 15 inches—brown gravelly sandy loam
15 to 27 inches—strong brown sandy loam
27 to 45 inches—strong brown gravelly sandy loam

Substratum:
45 to 65 inches—strong brown very gravelly loamy sand

Minor Components

Dissimilar components:
- Philo soils, which are moderately well drained; on similar landforms and in backswamps
- Atkins soils, which are poorly drained and susceptible to ponding; on similar landforms
- Coursey soils, which have more clay in the subsoil than the Pope soil, are moderately well drained, and are less susceptible to flooding; on low terraces
- Alonzville soils, which have more clay in the subsoil and are less susceptible to flooding; on low terraces
- Ogles soils, which have significantly more rock fragments in the surface layer and subsoil than the Pope soil; on similar landforms

Similar components:
- Soils that have more silt and less sand throughout than the Pope soil; on similar landform positions
- Soils that have thick, dark surface layers; on similar landforms

Soil Properties and Qualities

Available water capacity: Low (about 5.6 inches)
Slowest saturated hydraulic conductivity: Moderately high (about 0.57 in/hr)
Depth class: Very deep (more than 60 inches)
Depth to root-restrictive feature: More than 60 inches
Drainage class: Well drained
Depth to seasonal water saturation: More than 6 feet
Flooding hazard: Frequent
Ponding hazard: None
Shrink-swell potential: Low
Runoff class: Very low
Surface fragments: None
Parent material: Coarse-loamy alluvium derived from acid shale and/or sandstone

Use and Management Considerations

Cropland
Suitability: Well suited to corn, wheat, grass-legume hay, and alfalfa hay
- Frequent flooding restricts the use of winter grain crops.
- Flooding may damage crops.

Pastureland
Suitability: Well suited
- Flooding may damage pastures.

Woodland
Suitability: Well suited to northern red oak; moderately suited to yellow-poplar
- Proper planning for timber harvesting is essential in order to minimize the potential negative impact to soil and water quality. A timber harvest plan should focus on streamside management zones and stream crossings and should include general adherence to all applicable best management practices.
- Flooding may damage haul roads.
- Flooding restricts the safe use of roads by log trucks.

Building sites
- Flooding is a limitation affecting building site development.

Septic tank absorption fields
- Flooding is a limitation affecting septic tank absorption fields.

Local roads and streets
- Flooding may damage local roads and streets.

Interpretive Groups

Prime farmland: Not prime farmland
Land capability class: 2w
Virginia soil management group: A
Hydric soil: No

32C—Schaffenaker loamy sand, 8 to 15 percent slopes

Setting

Major land resource area: Southern Appalachian Ridges and Valleys (MLRA 128)
Landform: Hills and mountains
Position on the landform: Interfluves and mountaintops

Map Unit Composition

Schaffenaker and similar soils: Typically 85 percent, ranging from about 80 to 90 percent

Typical Profile

Surface layer:
0 to 2 inches—black loamy sand

Subsurface layer:
2 to 5 inches—brown loamy sand

Subsoil:
5 to 12 inches—yellowish brown loamy sand
12 to 23 inches—yellowish brown loamy sand

Substratum:
23 to 38 inches—yellowish brown loamy sand

Hard bedrock:
38 inches—sandstone bedrock

Minor Components

Dissimilar components:
- Bailegap soils, which have less sand than the Schaffenaker soil and are deep to sandstone bedrock; on adjacent hills and mountains
- Dekalb soils, which have less sand and more rock fragments in the soil; on adjacent hills and mountains
- Lily soils, which have more clay and less sand; on adjacent hills and mountains
- Oriskany soils, which are very deep to bedrock and have more rock fragments in the soil; on footslopes at the base of hills and mountains
- Rock outcrops on similar landforms
- Areas that have slopes of 15 to 35 percent; on hills
- Disturbed areas that contain spoil piles, pits, or other features associated with the mining of sand or iron ore

Similar components:
- Soils that are shallow or deep to sandstone bedrock; on similar landforms
- Soils that have more surface stones; on similar landforms

Soil Properties and Qualities

Available water capacity: Very low (about 2.7 inches)
Slowest saturated hydraulic conductivity: High (about 5.95 in/hr)
Depth class: Moderately deep (20 to 40 inches)
Depth to root-restrictive feature: 20 to 40 inches to lithic bedrock
Drainage class: Somewhat excessively drained
Depth to seasonal water saturation: More than 6 feet
Flooding hazard: None
Ponding hazard: None
Shrink-swell potential: Low
Runoff class: Low
Surface fragments: None
Parent material: Sandy residuum weathered from sandstone

Use and Management Considerations

Cropland
Suitability: Poorly suited to corn and grass-legume hay; not suited to alfalfa hay
- The rate of surface runoff, the erosion hazard, and the amount of nutrient loss are increased because of the slope.
- The bedrock restricts the rooting depth of crops.
- The limited available water capacity may cause plants to suffer from moisture stress.
- Sandy or coarse textured layers accelerate the rate at which plant nutrients are leached.

Pastureland
Suitability: Poorly suited
- The hazard of erosion, the rate of surface runoff, and the amount of nutrient loss are increased because of the slope.
- The limited available water capacity may cause plants to suffer from moisture stress during the drier summer months.
- The bedrock may restrict the rooting depth of plants.

Woodland
Suitability: Poorly suited to chestnut oak
- Proper planning for timber harvesting is essential in order to minimize the potential negative impact to soil and water quality. A timber harvest plan should include general adherence to all applicable best management practices.
- The slope creates unsafe operating conditions and reduces the operating efficiency of log trucks.
- The slope may restrict the use of some mechanical planting equipment.
- Bedrock may interfere with the construction of haul roads and log landings.
- Coarse textured soil layers may slough, thus reducing the efficiency of mechanical planting equipment.
- The coarseness of the soil material may reduce the traction of wheeled harvest equipment and log trucks.

Building sites
- The slope influences the use of machinery and the amount of excavation required.
- Because of the limited depth to bedrock, the ease of excavation is greatly reduced and the difficulty of constructing foundations and installing utilities is increased.
- The high content of sand or gravel increases sloughing and causes cutbanks to be more susceptible to caving.

Septic tank absorption fields

- Because of the limited depth to bedrock, the filtering capacity of the soil is reduced and the difficulty of properly installing the effluent distribution lines is increased.
- The slope limits the proper treatment of effluent from conventional septic systems.

Local roads and streets

- Because of the limited depth to bedrock, the ease of excavation is reduced and the difficulty of constructing roads is increased.
- Because of the slope, designing local roads and streets is difficult.

Interpretive Groups

Prime farmland: Not prime farmland
Land capability class: 4s
Virginia soil management group: II
Hydric soil: No

33B—Shelocta silt loam, 3 to 8 percent slopes

Setting

Major land resource area: Southern Appalachian Ridges and Valleys (MLRA 128)
Landform: Bases of hillslopes and mountain slopes
Position on the landform: Base slopes, head slopes, and mountain bases

Map Unit Composition

Shelocta and similar soils: Typically 90 percent, ranging from about 85 to 95 percent

Typical Profile

Surface layer:
0 to 8 inches—dark yellowish brown silt loam

Subsoil:
8 to 15 inches—brown silt loam
15 to 34 inches—strong brown silt loam
34 to 46 inches—strong brown silty clay loam
46 to 62 inches—strong brown channery silty clay loam

Minor Components

Dissimilar components:

- Berks soils, which are moderately deep to shale bedrock and have more rock fragments in the subsoil than the Shelocta soil; on hills and mountains
- Calvin soils, which are moderately deep to shale or siltstone bedrock and are redder and have more rock fragments in the soil than the Shelocta soil; on hills and mountains
- Nicelytown soils, which are moderately well drained; on similar landforms
- Oriskany soils, which have more rock fragments in the soil than the Shelocta soil; on similar landforms
- Weikert soils, which are shallow to shale bedrock and have more rock fragments in the subsoil than the Shelocta soil; on hills and mountains
- Gilpin soils, which are moderately deep to shale bedrock; on hills and mountains

Similar components:

- Jefferson soils, which have more sand and less silt than the Shelocta soil; on similar landforms
- Soils that have more rock fragments in the soil than the Shelocta soil; on similar landforms

• Soils that have a subsoil that is redder than that of the Shelocta soil; on similar landforms

Soil Properties and Qualities

Available water capacity: High (about 10.7 inches)
Slowest saturated hydraulic conductivity: Moderately high (about 0.57 in/hr)
Depth class: Very deep (more than 60 inches)
Depth to root-restrictive feature: More than 60 inches
Drainage class: Well drained
Depth to seasonal water saturation: More than 6 feet
Flooding hazard: None
Ponding hazard: None
Shrink-swell potential: Low
Runoff class: Medium
Surface fragments: None
Parent material: Colluvium derived from sandstone and shale

Use and Management Considerations

Cropland
Suitability: Well suited to corn, wheat, and grass-legume hay; moderately suited to alfalfa hay
• The rate of surface runoff, the erosion hazard, and the amount of nutrient loss are increased because of the slope.
• The risk of compaction increases when the soil is wet.
• Soil crusting results in a decrease in water infiltration and hinders the emergence of seedlings.

Pastureland
Suitability: Well suited
• The hazard of erosion, the rate of surface runoff, and the amount of nutrient loss are increased because of the slope.

Woodland
Suitability: Well suited to northern red oak, yellow-poplar, and eastern white pine
• Proper planning for timber harvesting is essential in order to minimize the potential negative impact to soil and water quality. A timber harvest plan should include general adherence to all applicable best management practices.
• The slope may restrict the use of some mechanical planting equipment.
• The low soil strength interferes with the construction of haul roads and log landings.
• The low soil strength may create unsafe conditions for log trucks.

Building sites
• This soil is well suited to building sites.

Septic tank absorption fields
• This soil is well suited to septic tank absorption fields.

Local roads and streets
• The low soil strength may cause structural damage to local roads and streets.

Interpretive Groups

Prime farmland: All areas are prime farmland
Land capability class: 2e
Virginia soil management group: L
Hydric soil: No

33C—Shelocta silt loam, 8 to 15 percent slopes

Setting

Major land resource area: Southern Appalachian Ridges and Valleys (MLRA 128)
Landform: Bases of hillslopes and mountain slopes
Position on the landform: Base slopes, head slopes, and mountain bases

Map Unit Composition

Shelocta and similar soils: Typically 90 percent, ranging from about 85 to 95 percent

Typical Profile

Surface layer:
0 to 8 inches—dark yellowish brown silt loam

Subsoil:
8 to 15 inches—brown silt loam
15 to 34 inches—strong brown silt loam
34 to 46 inches—strong brown silty clay loam
46 to 62 inches—strong brown channery silty clay loam

Minor Components

Dissimilar components:
- Berks soils, which are moderately deep to shale bedrock and have more rock fragments in the subsoil than the Shelocta soil; on hills and mountains
- Calvin soils, which are moderately deep to shale or siltstone bedrock and are redder and have more rock fragments in the soil than the Shelocta soil; on hills and mountains
- Nicelytown soils, which are moderately well drained; on similar landforms
- Oriskany soils, which have more rock fragments in the soil than the Shelocta soil; on similar landforms
- Weikert soils, which are shallow to shale bedrock and have more rock fragments in the subsoil than the Shelocta soil; on hills and mountains
- Soils that have slopes of less than 8 percent; on similar landforms
- Gilpin soils, which are moderately deep to shale bedrock; on hills and mountains

Similar components:
- Jefferson soils, which have more sand and less silt than the Shelocta soil; on similar landforms
- Soils that have more rock fragments in the soil than the Shelocta soil; on similar landforms
- Soils that have a subsoil that is redder than that of the Shelocta soil; on similar landforms

Soil Properties and Qualities

Available water capacity: High (about 10.7 inches)
Slowest saturated hydraulic conductivity: Moderately high (about 0.57 in/hr)
Depth class: Very deep (more than 60 inches)
Depth to root-restrictive feature: More than 60 inches
Drainage class: Well drained
Depth to seasonal water saturation: More than 6 feet
Flooding hazard: None
Ponding hazard: None
Shrink-swell potential: Low

Runoff class: Medium
Surface fragments: None
Parent material: Colluvium derived from sandstone and shale

Use and Management Considerations

Cropland
Suitability: Well suited to wheat and grass-legume hay; moderately suited to corn and alfalfa hay
- The rate of surface runoff, the erosion hazard, and the amount of nutrient loss are increased because of the slope.
- The risk of compaction increases when the soil is wet.
- Soil crusting results in a decrease in water infiltration and hinders the emergence of seedlings.

Pastureland
Suitability: Well suited
- The hazard of erosion, the rate of surface runoff, and the amount of nutrient loss are increased because of the slope.

Woodland
Suitability: Well suited to northern red oak, yellow-poplar, and eastern white pine
- Proper planning for timber harvesting is essential in order to minimize the potential negative impact to soil and water quality. A timber harvest plan should include general adherence to all applicable best management practices.
- The slope creates unsafe operating conditions and reduces the operating efficiency of log trucks.
- The slope may restrict the use of some mechanical planting equipment.
- The low soil strength interferes with the construction of haul roads and log landings.
- The low soil strength may create unsafe conditions for log trucks.

Building sites
- The slope influences the use of machinery and the amount of excavation required.

Septic tank absorption fields
- The slope limits the proper treatment of effluent from conventional septic systems.

Local roads and streets
- The low soil strength may cause structural damage to local roads and streets.
- Because of the slope, designing local roads and streets is difficult.

Interpretive Groups

Prime farmland: Not prime farmland
Land capability class: 3e
Virginia soil management group: L
Hydric soil: No

33D—Shelocta silt loam, 15 to 25 percent slopes

Setting

Major land resource area: Southern Appalachian Ridges and Valleys (MLRA 128)
Landform: Bases of hillslopes and mountain slopes
Position on the landform: Base slopes, head slopes, and mountain bases

Map Unit Composition

Shelocta and similar soils: Typically 90 percent, ranging from about 85 to 95 percent

Typical Profile

Surface layer:
0 to 8 inches—dark yellowish brown silt loam

Subsoil:
8 to 15 inches—brown silt loam
15 to 34 inches—strong brown silt loam
34 to 46 inches—strong brown silty clay loam
46 to 62 inches—strong brown channery silty clay loam

Minor Components

Dissimilar components:
- Berks soils, which are moderately deep to shale bedrock and have more rock fragments in the subsoil than the Shelocta soil; on hills and mountains
- Calvin soils, which are moderately deep to shale or siltstone bedrock and are redder and have more rock fragments in the soil than the Shelocta soil; on hills and mountains
- Nicelytown soils, which are moderately well drained; on similar landforms
- Oriskany soils, which have more rock fragments in the soil than the Shelocta soil; on similar landforms
- Weikert soils, which are shallow to shale bedrock and have more rock fragments in the subsoil than the Shelocta soil; on hills and mountains
- Soils that have slopes of more than 25 percent; on similar landforms
- Gilpin soils, which are moderately deep to shale bedrock; on hills and mountains

Similar components:
- Jefferson soils, which have more sand and less silt than the Shelocta soil; on similar landforms
- Soils that have more rock fragments in the soil than the Shelocta soil; on similar landforms
- Soils that have a subsoil that is redder than that of the Shelocta soil; on similar landforms

Soil Properties and Qualities

Available water capacity: High (about 10.7 inches)
Slowest saturated hydraulic conductivity: Moderately high (about 0.57 in/hr)
Depth class: Very deep (more than 60 inches)
Depth to root-restrictive feature: More than 60 inches
Drainage class: Well drained
Depth to seasonal water saturation: More than 6 feet
Flooding hazard: None
Ponding hazard: None
Shrink-swell potential: Low
Runoff class: High
Surface fragments: None
Parent material: Colluvium derived from sandstone and shale

Use and Management Considerations

Cropland
Suitability: Moderately suited to corn, wheat, grass-legume hay, and alfalfa hay
- The rate of surface runoff, the erosion hazard, and the amount of nutrient loss are increased because of the slope.
- The risk of compaction increases when the soil is wet.
- Soil crusting results in a decrease in water infiltration and hinders the emergence of seedlings.

Pastureland
Suitability: Well suited
- The hazard of erosion, the rate of surface runoff, and the amount of nutrient loss are increased because of the slope.

Woodland
Suitability: Well suited to northern red oak, yellow-poplar, and eastern white pine
- Proper planning for timber harvesting is essential in order to minimize the potential negative impact to soil and water quality. A timber harvest plan should include general adherence to all applicable best management practices.
- The slope poses safety hazards and creates a potential for erosion during the construction of haul roads and log landings.
- The slope creates unsafe operating conditions and reduces the operating efficiency of log trucks and harvesting equipment.
- Because of the slope, the use of equipment for preparing sites for planting and seeding is restricted.
- The slope may restrict the use of some mechanical planting equipment.
- The low soil strength interferes with the construction of haul roads and log landings.
- The low soil strength may create unsafe conditions for log trucks.

Building sites
- The slope influences the use of machinery and the amount of excavation required.

Septic tank absorption fields
- The slope limits the proper treatment of effluent from conventional septic systems.

Local roads and streets
- The low soil strength may cause structural damage to local roads and streets.
- Because of the slope, designing local roads and streets is difficult.

Interpretive Groups

Prime farmland: Not prime farmland
Land capability class: 4e
Virginia soil management group: L
Hydric soil: No

34B—Slabtown silt loam, 3 to 8 percent slopes

Setting

Major land resource area: Southern Appalachian Ridges and Valleys (MLRA 128)
Landform: Bases of hillslopes and drainageways in valleys
Position on the landform: Base slopes and heads of drainageways

Map Unit Composition

Slabtown and similar soils: Typically 90 percent, ranging from about 85 to 95 percent

Typical Profile

Surface layer:
0 to 9 inches—brown silt loam

Subsurface layer:
9 to 18 inches—yellowish brown silt loam with few pale brown mottles

Subsoil:
18 to 26 inches—yellowish brown silt loam with manganese masses

26 to 34 inches—yellowish brown silt loam with manganese masses and light gray iron depletions
34 to 44 inches—light yellowish brown and strong brown gravelly silty clay loam with manganese masses and light gray iron depletions
44 to 75 inches—yellowish brown clay with yellowish red masses of oxidized iron

Minor Components

Dissimilar components:
- Philo soils, which are susceptible to flooding; on flood plains
- Aktins soils, which are poorly drained and susceptible to flooding; on flood plains or other low-lying landforms
- Maurertown soils, which are susceptible to flooding and ponding and are poorly drained; in backswamps of stream terraces
- Carbo soils, which are moderately deep to limestone bedrock; on adjacent hills
- Frederick and Watahala soils, which are well drained and have more clay in the upper part than the Slabtown soil; on adjacent hills
- Soils that formed from colluvial materials and are well drained; on similar landforms
- Soils that have slopes of less than 3 percent; on similar landforms
- Soils that have a dense, hard layer in the subsoil; on similar landforms

Similar components:
- Soils that have more gravel in the surface layer than the Slabtown soil; on similar landforms

Soil Properties and Qualities

Available water capacity: High (about 10.3 inches)
Slowest saturated hydraulic conductivity: Moderately high (about 0.20 in/hr)
Depth class: Very deep (more than 60 inches)
Depth to root-restrictive feature: More than 60 inches
Drainage class: Moderately well drained
Depth to seasonal water saturation: About 18 to 36 inches
Water table kind: Perched
Flooding hazard: None
Ponding hazard: None
Shrink-swell potential: High
Runoff class: Medium
Surface fragments: None
Parent material: Local fine-loamy colluvium derived from limestone and shale over clayey residuum weathered from limestone

Use and Management Considerations

Cropland
Suitability: Well suited to corn, wheat, and grass-legume hay; moderately suited to alfalfa hay
- The rate of surface runoff, the erosion hazard, and the amount of nutrient loss are increased because of the slope.
- The risk of compaction increases when the soil is wet.
- Soil crusting results in a decrease in water infiltration and hinders the emergence of seedlings.

Pastureland
Suitability: Well suited
- The hazard of erosion, the rate of surface runoff, and the amount of nutrient loss are increased because of the slope.

Woodland
Suitability: Moderately suited to northern red oak and yellow-poplar
- Proper planning for timber harvesting is essential in order to minimize the potential negative impact to soil and water quality. A timber harvest plan should include general adherence to all applicable best management practices.
- The slope may restrict the use of some mechanical planting equipment.
- The low soil strength interferes with the construction of haul roads and log landings.
- The low soil strength may create unsafe conditions for log trucks.

Building sites
- The seasonal high water table may restrict the period when excavations can be made.
- The shrinking and swelling of the soil may crack foundations and basement walls.
- The high content of clay in the subsurface layer increases the difficulty of digging, filling, and compacting the soil material in shallow excavations.

Septic tank absorption fields
- The seasonal high water table greatly limits the absorption and proper treatment of the effluent from conventional septic systems.
- Slow water movement limits the absorption and proper treatment of the effluent from conventional septic systems.

Local roads and streets
- The seasonal high water table affects the ease of excavation and grading and reduces the bearing capacity of the soil.
- Because of shrinking and swelling, the use of this soil as base material for local roads and streets is restricted.
- The low soil strength is unfavorable for supporting heavy loads.

Interpretive Groups

Prime farmland: All areas are prime farmland
Land capability class: 2e
Virginia soil management group: G
Hydric soil: No

34C—Slabtown silt loam, 8 to 15 percent slopes

Setting

Major land resource area: Southern Appalachian Ridges and Valleys (MLRA 128)
Landform: Bases of hillslopes and drainageways in valleys
Position on the landform: Base slopes and heads of drainageways

Map Unit Composition

Slabtown and similar soils: Typically 90 percent, ranging from about 85 to 95 percent

Typical Profile

Surface layer:
0 to 9 inches—brown silt loam

Subsurface layer:
9 to 18 inches—yellowish brown silt loam with few pale brown mottles

Subsoil:
18 to 26 inches—yellowish brown silt loam with manganese masses
26 to 34 inches—yellowish brown silt loam with manganese masses and light gray iron depletions

34 to 44 inches—light yellowish brown and strong brown gravelly silty clay loam with manganese masses and light gray iron depletions
44 to 75 inches—yellowish brown clay with yellowish red masses of oxidized iron

Minor Components

Dissimilar components:
- Philo soils, which are susceptible to flooding; on flood plains
- Aktins soils, which are poorly drained and susceptible to flooding; on flood plains or other low-lying landforms
- Maurertown soils, which are susceptible to flooding and ponding and are poorly drained; in backswamps of stream terraces
- Carbo soils, which are moderately deep to limestone bedrock; on adjacent hills
- Frederick and Watahala soils, which are well drained and have more clay in the upper part than the Slabtown soil; on adjacent hills
- Soils that formed in colluvial materials and are well drained; on similar landforms
- Soils that have slopes of more than 15 percent; on similar landforms
- Soils that have a dense, hard layer in the subsoil; on similar landforms

Similar components:
- Soils that have more gravel in the surface layer than the Slabtown soil; on similar landforms

Soil Properties and Qualities

Available water capacity: High (about 10.3 inches)
Slowest saturated hydraulic conductivity: Moderately high (about 0.20 in/hr)
Depth class: Very deep (more than 60 inches)
Depth to root-restrictive feature: More than 60 inches
Drainage class: Moderately well drained
Depth to seasonal water saturation: About 18 to 36 inches
Water table kind: Perched
Flooding hazard: None
Ponding hazard: None
Shrink-swell potential: High
Runoff class: Medium
Surface fragments: None
Parent material: Local fine-loamy colluvium derived from limestone and shale over clayey residuum weathered from limestone

Use and Management Considerations

Cropland
Suitability: Well suited to wheat and grass-legume hay; moderately suited to corn and alfalfa hay
- The rate of surface runoff, the erosion hazard, and the amount of nutrient loss are increased because of the slope.
- The risk of compaction increases when the soil is wet.
- Soil crusting results in a decrease in water infiltration and hinders the emergence of seedlings.

Pastureland
Suitability: Well suited
- The hazard of erosion, the rate of surface runoff, and the amount of nutrient loss are increased because of the slope.

Woodland
Suitability: Moderately suited to northern red oak and yellow-poplar; moderately suited to yellow-poplar

- Proper planning for timber harvesting is essential in order to minimize the potential negative impact to soil and water quality. A timber harvest plan should include general adherence to all applicable best management practices.
- The slope creates unsafe operating conditions and reduces the operating efficiency of log trucks.
- The slope may restrict the use of some mechanical planting equipment.
- The low soil strength interferes with the construction of haul roads and log landings.
- The low soil strength may create unsafe conditions for log trucks.

Building sites
- The seasonal high water table may restrict the period when excavations can be made.
- The slope influences the use of machinery and the amount of excavation required.
- The shrinking and swelling of the soil may crack foundations and basement walls.
- The high content of clay in the subsurface layer increases the difficulty of digging, filling, and compacting the soil material in shallow excavations.

Septic tank absorption fields
- The seasonal high water table greatly limits the absorption and proper treatment of the effluent from conventional septic systems.
- Slow water movement limits the absorption and proper treatment of the effluent from conventional septic systems.
- The slope limits the proper treatment of effluent from conventional septic systems.

Local roads and streets
- The seasonal high water table affects the ease of excavation and grading and reduces the bearing capacity of the soil.
- Because of shrinking and swelling, the use of this soil as base material for local roads and streets is restricted.
- The low soil strength is unfavorable for supporting heavy loads.
- Because of the slope, designing local roads and streets is difficult.

Interpretive Groups

Prime farmland: Not prime farmland
Land capability class: 3e
Virginia soil management group: G
Hydric soil: No

35B—Sugarhol silt loam, 3 to 8 percent slopes

Setting

Major land resource area: Southern Appalachian Ridges and Valleys (MLRA 128)
Landform: High stream terraces in a river valley
Position on the landform: Treads

Map Unit Composition

Sugarhol and similar soils: Typically 90 percent, ranging from about 85 to 95 percent

Typical Profile

Organic layer:
0 to 1 inch—highly decomposed plant material

Surface layer:
1 to 2 inches—dark grayish brown silt loam

Subsurface layer:
2 to 3 inches—grayish brown silt loam

Subsoil:
3 to 11 inches—light yellowish brown silt loam
11 to 34 inches—yellowish brown silty clay
34 to 53 inches—strong brown silty clay with many light yellowish brown and many yellowish red mottles
53 to 61 inches—yellowish brown clay with common strong brown and common light yellowish brown mottles

Minor Components

Dissimilar components:
- Nicelytown soils, which are moderately well drained; on similar landforms
- Soils that are moderately deep to bedrock; on similar landforms
- Soils that have slopes of less than 3 percent or 8 to 15 percent; on similar landforms

Similar components:
- Soils that have less clay in the upper part of the subsoil than the Sugarhol soil; on similar landforms
- Soils that have more than 35 percent rock fragments in the subsoil; on similar landforms
- Soils that have gravelly or cobbly surface layers; on similar landforms

Soil Properties and Qualities

Available water capacity: Moderate (about 8.8 inches)
Slowest saturated hydraulic conductivity: Moderately high (about 0.57 in/hr)
Depth class: Very deep (more than 60 inches)
Depth to root-restrictive feature: More than 60 inches
Drainage class: Well drained
Depth to seasonal water saturation: More than 6 feet
Flooding hazard: None
Ponding hazard: None
Shrink-swell potential: Moderate
Runoff class: Medium
Surface fragments: None
Parent material: Alluvium derived from sandstone and shale

Use and Management Considerations

Cropland
Suitability: Well suited to corn, wheat, and grass-legume hay; moderately suited to alfalfa hay
- The rate of surface runoff, the erosion hazard, and the amount of nutrient loss are increased because of the slope.
- The high clay content restricts the rooting depth of crops.
- The risk of compaction increases when the soil is wet.
- Soil crusting results in a decrease in water infiltration and hinders the emergence of seedlings.

Pastureland
Suitability: Well suited
- The hazard of erosion, the rate of surface runoff, and the amount of nutrient loss are increased because of the slope.

Woodland
Suitability: Well suited to eastern white pine

- Proper planning for timber harvesting is essential in order to minimize the potential negative impact to soil and water quality. A timber harvest plan should include general adherence to all applicable best management practices.
- The slope may restrict the use of some mechanical planting equipment.
- The low soil strength interferes with the construction of haul roads and log landings.
- The stickiness of the soil reduces the efficiency of mechanical planting equipment.

Building sites
- The high content of clay in the subsurface layer increases the difficulty of digging, filling, and compacting the soil material in shallow excavations.

Septic tank absorption fields
- This soil is well suited to septic tank absorption fields.

Local roads and streets
- Because of shrinking and swelling, the use of this soil as base material for local roads and streets is restricted.
- The low soil strength is unfavorable for supporting heavy loads.

Interpretive Groups

Prime farmland: All areas are prime farmland
Land capability class: 2e
Virginia soil management group: O
Hydric soil: No

35C—Sugarhol silt loam, 8 to 15 percent slopes

Setting

Major land resource area: Southern Appalachian Ridges and Valleys (MLRA 128)
Landform: High stream terraces in a river valley
Position on the landform: Treads and risers

Map Unit Composition

Sugarhol and similar soils: Typically 85 percent, ranging from about 75 to 95 percent

Typical Profile

Organic layer:
0 to 1 inch—highly decomposed plant material

Surface layer:
1 to 2 inches—dark grayish brown silt loam

Subsurface layer:
2 to 3 inches—grayish brown silt loam

Subsoil:
3 to 11 inches—light yellowish brown silt loam
11 to 34 inches—yellowish brown silty clay
34 to 53 inches—strong brown silty clay with many light yellowish brown and many yellowish red mottles
53 to 61 inches—yellowish brown clay with common strong brown and common light yellowish brown mottles

Minor Components

Dissimilar components:
- Nicelytown soils, which are moderately well drained; on similar landforms

- Soils that are moderately deep to bedrock; on similar landforms
- Soils that have slopes of 3 to 8 percent or 15 to 25 percent; on similar landforms

Similar components:
- Soils that have less clay in the upper part of the subsoil than the Sugarhol soil; on similar landforms
- Soils that have more than 35 percent rock fragments in the subsoil; on similar landforms
- Soils that have gravelly or cobbly surface layers; on similar landforms

Soil Properties and Qualities

Available water capacity: Moderate (about 8.8 inches)
Slowest saturated hydraulic conductivity: Moderately high (about 0.57 in/hr)
Depth class: Very deep (more than 60 inches)
Depth to root-restrictive feature: More than 60 inches
Drainage class: Well drained
Depth to seasonal water saturation: More than 6 feet
Flooding hazard: None
Ponding hazard: None
Shrink-swell potential: Moderate
Runoff class: Medium
Surface fragments: None
Parent material: Alluvium derived from sandstone and shale

Use and Management Considerations

Cropland
Suitability: Well suited to wheat and grass-legume hay; moderately suited to corn and alfalfa hay
- The rate of surface runoff, the erosion hazard, and the amount of nutrient loss are increased because of the slope.
- The high clay content restricts the rooting depth of crops.
- The risk of compaction increases when the soil is wet.
- Soil crusting results in a decrease in water infiltration and hinders the emergence of seedlings.

Pastureland
Suitability: Well suited
- The hazard of erosion, the rate of surface runoff, and the amount of nutrient loss are increased because of the slope.

Woodland
Suitability: Well suited to eastern white pine
- Proper planning for timber harvesting is essential in order to minimize the potential negative impact to soil and water quality. A timber harvest plan should include general adherence to all applicable best management practices.
- The slope creates unsafe operating conditions and reduces the operating efficiency of log trucks.
- The slope may restrict the use of some mechanical planting equipment.
- The low soil strength interferes with the construction of haul roads and log landings.
- The stickiness of the soil reduces the efficiency of mechanical planting equipment.

Building sites
- The slope influences the use of machinery and the amount of excavation required.
- The high content of clay in the subsurface layer increases the difficulty of digging, filling, and compacting the soil material in shallow excavations.

Septic tank absorption fields

- The slope limits the proper treatment of effluent from conventional septic systems.

Local roads and streets

- Because of shrinking and swelling, the use of this soil as base material for local roads and streets is restricted.
- The low soil strength is unfavorable for supporting heavy loads.
- Because of the slope, designing local roads and streets is difficult.

Interpretive Groups

Prime farmland: Not prime farmland
Land capability class: 3e
Virginia soil management group: O
Hydric soil: No

36B—Tumbling loam, 3 to 8 percent slopes

Setting

Major land resource area: Southern Appalachian Ridges and Valleys (MLRA 128)
Landform: Bases of hillslopes and mountain slopes
Position on the landform: Base slopes and mountain bases

Map Unit Composition

Tumbling and similar soils: Typically 80 percent, ranging from about 75 to 85 percent

Typical Profile

Surface layer:
0 to 9 inches—dark yellowish brown loam

Subsoil:
9 to 16 inches—yellowish brown clay loam
16 to 34 inches—strong brown clay loam
34 to 44 inches—strong brown clay loam with common red mottles
44 to 62 inches—yellowish red clay loam with common yellowish brown mottles

Minor Components

Dissimilar components:

- Carbo soils, which are moderately deep to limestone bedrock; on adjacent hills
- Nicelytown soils, which are moderately well drained; on similar landforms
- Oriskany soils, which have more rock fragments in the soil, more sand, and less clay than the Tumbling soil; on similar landforms

Similar components:

- Escatawba soils, which have a perched seasonal high water table at a depth of 2.5 to 4 feet and have less clay in the upper part of the subsoil than the Tumbling soil; on similar landforms
- Soils that are very stony on the surface; on similar landforms
- Soils that have more sand and less clay than the Tumbling soil; on similar landforms
- Soils that have rounded cobbles on the surface; on similar landforms

Soil Properties and Qualities

Available water capacity: Moderate (about 8.3 inches)
Slowest saturated hydraulic conductivity: Moderately high (about 0.57 in/hr)
Depth class: Very deep (more than 60 inches)

Depth to root-restrictive feature: More than 60 inches
Drainage class: Well drained
Depth to seasonal water saturation: More than 6 feet
Flooding hazard: None
Ponding hazard: None
Shrink-swell potential: Moderate
Runoff class: Medium
Surface fragments: None
Parent material: Clayey colluvium derived from sandstone and shale

Use and Management Considerations

Cropland
Suitability: Well suited to corn, wheat, and grass-legume hay; moderately suited to alfalfa hay
- The rate of surface runoff, the erosion hazard, and the amount of nutrient loss are increased because of the slope.

Pastureland
Suitability: Well suited
- The hazard of erosion, the rate of surface runoff, and the amount of nutrient loss are increased because of the slope.

Woodland
Suitability: Well suited to northern red oak; moderately suited to yellow-poplar and eastern white pine
- Proper planning for timber harvesting is essential in order to minimize the potential negative impact to soil and water quality. A timber harvest plan should include general adherence to all applicable best management practices.
- The slope may restrict the use of some mechanical planting equipment.
- The low soil strength interferes with the construction of haul roads and log landings.
- The low soil strength may create unsafe conditions for log trucks.

Building sites
- This soil is well suited to building sites.

Septic tank absorption fields
- This soil is well suited to septic tank absorption fields.

Local roads and streets
- Because of shrinking and swelling, the use of this soil as base material for local roads and streets is restricted.
- The low soil strength may cause structural damage to local roads and streets.

Interpretive Groups

Prime farmland: All areas are prime farmland
Land capability class: 2e
Virginia soil management group: O
Hydric soil: No

36C—Tumbling loam, 8 to 15 percent slopes

Setting

Major land resource area: Southern Appalachian Ridges and Valleys (MLRA 128)
Landform: Bases of hillslopes and mountain slopes
Position on the landform: Base slopes and mountain bases

Map Unit Composition

Tumbling and similar soils: Typically 85 percent, ranging from about 80 to 90 percent

Typical Profile

Surface layer:
0 to 9 inches—dark yellowish brown loam

Subsoil:
9 to 16 inches—yellowish brown clay loam
16 to 34 inches—strong brown clay loam
34 to 44 inches—strong brown clay loam with common red mottles
44 to 62 inches—yellowish red clay loam with common yellowish brown mottles

Minor Components

Dissimilar components:
- Carbo soils, which are moderately deep to limestone bedrock; on adjacent hills
- Nicelytown soils, which are moderately well drained; on similar landforms
- Oriskany soils, which have more rock fragments in the soil, more sand, and less clay than the Tumbling soil; on similar landforms

Similar components:
- Escatawba soils, which have a perched seasonal high water table at a depth of 2.5 to 4 feet and have less clay in the upper part of the subsoil than the Tumbling soil; on similar landforms
- Soils that are very stony on the surface; on similar landforms
- Soils that have more sand and less clay than the Tumbling soil; on similar landforms
- Soils that have rounded cobbles on the surface; on similar landforms

Soil Properties and Qualities

Available water capacity: Moderate (about 8.3 inches)
Slowest saturated hydraulic conductivity: Moderately high (about 0.57 in/hr)
Depth class: Very deep (more than 60 inches)
Depth to root-restrictive feature: More than 60 inches
Drainage class: Well drained
Depth to seasonal water saturation: More than 6 feet
Flooding hazard: None
Ponding hazard: None
Shrink-swell potential: Moderate
Runoff class: Medium
Surface fragments: None
Parent material: Clayey colluvium derived from sandstone and shale

Use and Management Considerations

Cropland

Suitability: Well suited to wheat and grass-legume hay; moderately suited to corn and alfalfa hay
- The rate of surface runoff, the erosion hazard, and the amount of nutrient loss are increased because of the slope.

Pastureland

Suitability: Well suited
- The hazard of erosion, the rate of surface runoff, and the amount of nutrient loss are increased because of the slope.

Woodland

Suitability: Well suited to northern red oak; moderately suited to yellow-poplar and eastern white pine

- Proper planning for timber harvesting is essential in order to minimize the potential negative impact to soil and water quality. A timber harvest plan should include general adherence to all applicable best management practices.
- The slope creates unsafe operating conditions and reduces the operating efficiency of log trucks.
- The slope may restrict the use of some mechanical planting equipment.
- The low soil strength interferes with the construction of haul roads and log landings.
- The low soil strength may create unsafe conditions for log trucks.

Building sites

- The slope influences the use of machinery and the amount of excavation required.

Septic tank absorption fields

- The slope limits the proper treatment of effluent from conventional septic systems.

Local roads and streets

- Because of shrinking and swelling, the use of this soil as base material for local roads and streets is restricted.
- The low soil strength may cause structural damage to local roads and streets.
- Because of the slope, designing local roads and streets is difficult.

Interpretive Groups

Prime farmland: Not prime farmland
Land capability class: 3e
Virginia soil management group: O
Hydric soil: No

36D—Tumbling loam, 15 to 25 percent slopes

Setting

Major land resource area: Southern Appalachian Ridges and Valleys (MLRA 128)
Landform: Bases of hillslopes and mountain slopes
Position on the landform: Base slopes and mountain bases

Map Unit Composition

Tumbling and similar soils: Typically 80 percent, ranging from about 75 to 85 percent

Typical Profile

Surface layer:
0 to 9 inches—dark yellowish brown loam

Subsoil:
9 to 16 inches—yellowish brown clay loam
16 to 34 inches—strong brown clay loam
34 to 44 inches—strong brown clay loam with common red mottles
44 to 62 inches—yellowish red clay loam with common yellowish brown mottles

Minor Components

Dissimilar components:

- Carbo soils, which are moderately deep to limestone bedrock; on adjacent hills
- Nicelytown soils, which are moderately well drained; on similar landforms

- Oriskany soils, which have more rock fragments in the soil, more sand, and less clay than the Tumbling soil; on similar landforms
- Soils that have slopes of more than 25 percent; on the steeper base slopes and mountains bases

Similar components:
- Escatawba soils, which have a perched seasonal high water table at a depth of 2.5 to 4 feet and have less clay in the upper part of the subsoil than the Tumbling soil; on similar landforms
- Soils that are very stony on the surface; on similar landforms
- Soils that have more sand and less clay than the Tumbling soil; on similar landforms
- Soils that have rounded cobbles on the surface; on similar landforms

Soil Properties and Qualities

Available water capacity: Moderate (about 8.3 inches)
Slowest saturated hydraulic conductivity: Moderately high (about 0.57 in/hr)
Depth class: Very deep (more than 60 inches)
Depth to root-restrictive feature: More than 60 inches
Drainage class: Well drained
Depth to seasonal water saturation: More than 6 feet
Flooding hazard: None
Ponding hazard: None
Shrink-swell potential: Moderate
Runoff class: High
Surface fragments: None
Parent material: Clayey colluvium derived from sandstone and shale

Use and Management Considerations

Cropland
Suitability: Moderately suited to corn, wheat, grass-legume hay, and alfalfa hay
- The rate of surface runoff, the erosion hazard, and the amount of nutrient loss are increased because of the slope.

Pastureland
Suitability: Well suited
- The hazard of erosion, the rate of surface runoff, and the amount of nutrient loss are increased because of the slope.

Woodland
Suitability: Well suited to northern red oak; moderately suited to yellow-poplar and eastern white pine
- Proper planning for timber harvesting is essential in order to minimize the potential negative impact to soil and water quality. A timber harvest plan should include general adherence to all applicable best management practices.
- The slope poses safety hazards and creates a potential for erosion during the construction of haul roads and log landings.
- The slope creates unsafe operating conditions and reduces the operating efficiency of log trucks and harvesting equipment.
- Because of the slope, the use of equipment for preparing sites for planting and seeding is restricted.
- The slope may restrict the use of some mechanical planting equipment.
- The low soil strength interferes with the construction of haul roads and log landings.
- The low soil strength may create unsafe conditions for log trucks.

Building sites
- The slope influences the use of machinery and the amount of excavation required.

Septic tank absorption fields
- The slope limits the proper treatment of effluent from conventional septic systems.

Local roads and streets
- Because of shrinking and swelling, the use of this soil as base material for local roads and streets is restricted.
- The low soil strength may cause structural damage to local roads and streets.
- Because of the slope, designing local roads and streets is difficult.

Interpretive Groups

Prime farmland: Not prime farmland
Land capability class: 4e
Virginia soil management group: O
Hydric soil: No

37C—Tumbling loam, 8 to 15 percent slopes, very stony

Setting

Major land resource area: Southern Appalachian Ridges and Valleys (MLRA 128)
Landform: Bases of hillslopes and mountain slopes
Position on the landform: Base slopes and mountain bases

Map Unit Composition

Tumbling and similar soils: Typically 80 percent, ranging from about 75 to 85 percent

Typical Profile

Surface layer:
0 to 9 inches—dark yellowish brown loam

Subsoil:
9 to 16 inches—yellowish brown clay loam
16 to 34 inches—strong brown clay loam
34 to 44 inches—strong brown clay loam with common red mottles
44 to 62 inches—yellowish red clay loam with common yellowish brown mottles

Minor Components

Dissimilar components:
- Carbo soils, which are moderately deep to limestone bedrock; on adjacent hills
- Nicelytown soils, which are moderately well drained; on similar landforms
- Oriskany soils, which have more rock fragments in the soil, more sand, and less clay than the Tumbling soil; on similar landforms
- Soils that have slopes of less than 8 percent; on similar landforms

Similar components:
- Escatawba soils, which have a perched seasonal high water table at a depth of 2.5 to 4 feet and have less clay in the upper part of the subsoil than the Tumbling soil; on similar landforms
- Soils that have fewer or more stones on the surface than the Tumbling soil; on similar landforms
- Soils that have more sand and less clay than the Tumbling soil; on similar landforms

Soil Properties and Qualities

Available water capacity: Moderate (about 8.3 inches)
Slowest saturated hydraulic conductivity: Moderately high (about 0.57 in/hr)
Depth class: Very deep (more than 60 inches)

Depth to root-restrictive feature: More than 60 inches
Drainage class: Well drained
Depth to seasonal water saturation: More than 6 feet
Flooding hazard: None
Ponding hazard: None
Shrink-swell potential: Moderate
Runoff class: Medium
Surface fragments: About 0.10 to 3.00 percent rounded stones
Parent material: Clayey colluvium derived from sandstone and shale

Use and Management Considerations

Cropland
• This soil is unsuited to cropland.

Pastureland
Suitability: Well suited
• The hazard of erosion, the rate of surface runoff, and the amount of nutrient loss are increased because of the slope.
• Large stones on the surface may restrict the operation of some farm machinery.

Woodland
Suitability: Well suited to northern red oak; moderately suited to yellow-poplar and eastern white pine
• Proper planning for timber harvesting is essential in order to minimize the potential negative impact to soil and water quality. A timber harvest plan should include general adherence to all applicable best management practices.
• The slope creates unsafe operating conditions and reduces the operating efficiency of log trucks.
• The slope may restrict the use of some mechanical planting equipment.
• The low soil strength interferes with the construction of haul roads and log landings.
• The low soil strength may create unsafe conditions for log trucks.

Building sites
• The slope influences the use of machinery and the amount of excavation required.

Septic tank absorption fields
• The slope limits the proper treatment of effluent from conventional septic systems.

Local roads and streets
• Because of shrinking and swelling, the use of this soil as base material for local roads and streets is restricted.
• The low soil strength may cause structural damage to local roads and streets.
• Because of the slope, designing local roads and streets is difficult.

Interpretive Groups

Prime farmland: Not prime farmland
Land capability class: 6s
Virginia soil management group: O
Hydric soil: No

37E—Tumbling loam, 15 to 35 percent slopes, very stony

Setting

Major land resource area: Southern Appalachian Ridges and Valleys (MLRA 128)
Landform: Bases of hillslopes and mountain slopes
Position on the landform: Base slopes and mountain bases

Map Unit Composition

Tumbling and similar soils: Typically 80 percent, ranging from about 75 to 85 percent

Typical Profile

Surface layer:
0 to 9 inches—dark yellowish brown loam

Subsoil:
9 to 16 inches—yellowish brown clay loam
16 to 34 inches—strong brown clay loam
34 to 44 inches—strong brown clay loam with common red mottles
44 to 62 inches—yellowish red clay loam with common yellowish brown mottles

Minor Components

Dissimilar components:
- Carbo soils, which are moderately deep to limestone bedrock; on adjacent hills
- Nicelytown soils, which are moderately well drained; on similar landforms
- Oriskany soils, which have more rock fragments in the soil, more sand, and less clay than the Tumbling soil; on similar landforms
- Soils that have slopes of more than 35 percent; on similar landforms

Similar components:
- Escatawba soils, which have a perched seasonal high water table at a depth of 2.5 to 4 feet and have less clay in the upper part of the subsoil than the Tumbling soil; on similar landforms
- Soils that have fewer or more stones on the surface than the Tumbling soil; on similar landforms
- Soils that have more sand and less clay than the Tumbling soil; on similar landforms

Soil Properties and Qualities

Available water capacity: Moderate (about 8.3 inches)
Slowest saturated hydraulic conductivity: Moderately high (about 0.57 in/hr)
Depth class: Very deep (more than 60 inches)
Depth to root-restrictive feature: More than 60 inches
Drainage class: Well drained
Depth to seasonal water saturation: More than 6 feet
Flooding hazard: None
Ponding hazard: None
Shrink-swell potential: Moderate
Runoff class: High
Surface fragments: About 0.10 to 3.00 percent rounded stones
Parent material: Clayey colluvium derived from sandstone and shale

Use and Management Considerations

Cropland
- This soil is unsuited to cropland.

Pastureland
- This soil is unsuited to pastureland.

Woodland
Suitability: Well suited to northern red oak; moderately suited to yellow-poplar and eastern white pine
- Proper planning for timber harvesting is essential in order to minimize the potential negative impact to soil and water quality. A timber harvest plan should include general adherence to all applicable best management practices.

- The slope poses safety hazards and creates a potential for erosion during the construction of haul roads and log landings.
- The slope creates unsafe operating conditions and reduces the operating efficiency of log trucks and harvesting equipment.
- Because of the slope, the use of equipment for preparing sites for planting and seeding is restricted.
- Because of the slope, the use of mechanical planting equipment is impractical.
- The low soil strength interferes with the construction of haul roads and log landings.
- The low soil strength may create unsafe conditions for log trucks.

Building sites
- The slope influences the use of machinery and the amount of excavation required.

Septic tank absorption fields
- The slope limits the proper treatment of effluent from conventional septic systems.

Local roads and streets
- Because of shrinking and swelling, the use of this soil as base material for local roads and streets is restricted.
- The low soil strength may cause structural damage to local roads and streets.
- Because of the slope, designing local roads and streets is difficult.

Interpretive Groups

Prime farmland: Not prime farmland
Land capability class: 7s
Virginia soil management group: O
Hydric soil: No

38—Udorthents-Urban land complex, 0 to 25 percent slopes

Setting

Major land resource area: Southern Appalachian Ridges and Valleys (MLRA 128)
Landform: Urban or built-up areas in valleys and on hills and stream terraces
Position on the landform: Interfluves, base slopes, side slopes, or treads in areas of towns, highways, housing developments, industrial parks, landfills, shopping centers, and other manmade structures, excluding mines and quarries

Map Unit Composition

Udorthents and similar soils: Typically 50 percent, ranging from about 45 to 55 percent
Urban land: Typically 40 percent, ranging from about 35 to 45 percent

Description

Udorthents

The properties and characteristics of Udorthents vary to the extent that these soils do not have a typical profile. Udorthents have resulted from the disturbance of soil by land leveling, excavation, or filling. They consist of loamy and clayey soil material, varying amounts of rock fragments, and some foreign debris. Depth to hard bedrock varies from a few inches to more than 5 feet. Areas range from severely compacted to slightly compacted. Drainage, reaction, soil wetness, and other properties and qualities are variable.

Urban land

This part of the map unit consists of areas covered by asphalt or concrete roadways and parking lots, structures, buildings, and other impervious surfaces.

Minor Components

Dissimilar components:
- Atkins soils, which are poorly drained and susceptible to flooding and ponding; on undisturbed flood plains
- Frederick soils, which are well drained and very deep to bedrock; on undisturbed hills
- Nicelytown soils, which are moderately well drained and very deep to bedrock; on undisturbed footslopes and high stream terraces
- Sugarhol soils, which are well drained and very deep to bedrock; on undisturbed high stream terraces
- Alonzville soils, which are well drained and susceptible to flooding; on undisturbed low-level stream terraces
- Other Alonzville soils, which are well drained and not susceptible to flooding; on undisturbed intermediate-level stream terraces
- Coursey soils, which are moderately well drained and susceptible to flooding; on undisturbed low-level stream terraces
- Rock outcrops
- Areas that contain water, such as ponds or reservoirs
- Other areas that flood

Use and Management Considerations

Onsite investigation is needed to determine the suitability of any area for specific uses.

Interpretive Groups

Prime farmland: Not prime farmland
Land capability class: Udorthents—none assigned; Urban land—8
Virginia soil management group: None assigned
Hydric soil: Unranked

39C—Watahala gravelly silt loam, 8 to 15 percent slopes

Setting

Major land resource area: Southern Appalachian Ridges and Valleys (MLRA 128)
Landform: Hills
Position on the landform: Interfluves

Map Unit Composition

Watahala and similar soils: Typically 90 percent, ranging from about 85 to 95 percent

Typical Profile

Surface layer:
0 to 2 inches—dark yellowish brown gravelly silt loam

Subsurface layer:
2 to 17 inches—light yellowish brown gravelly silt loam

Subsoil:
17 to 25 inches—light yellowish brown gravelly loam

25 to 29 inches—strong brown gravelly clay loam with common yellowish red mottles
29 to 62 inches—yellowish red clay with few brownish yellow mottles

Minor Components

Dissimilar components:
- Carbo soils, which are moderately deep to limestone bedrock; on similar landforms
- Slabtown soils, which are moderately well drained; on concave footslopes
- Soils that have slopes of less than 8 percent; on similar landforms

Similar components:
- Frederick soils, which have more clay in the upper part of the subsoil than the Watahala soil and fewer chert gravel in the soil layers underneath the surface layer; on similar landforms
- Soils that are very stony on the surface; on similar landforms
- Soils that have cobbly surface layers; on similar landforms

Soil Properties and Qualities

Available water capacity: Moderate (about 7.1 inches)
Slowest saturated hydraulic conductivity: Moderately high (about 0.20 in/hr)
Depth class: Very deep (more than 60 inches)
Depth to root-restrictive feature: 20 to 50 inches to strongly contrasting textural stratification
Drainage class: Well drained
Depth to seasonal water saturation: More than 6 feet
Flooding hazard: None
Ponding hazard: None
Shrink-swell potential: Moderate
Runoff class: Low
Surface fragments: About 0.50 to 2.00 percent coarse angular gravel and about 0.00 to 1.00 percent angular cobbles
Parent material: Gravelly residuum over clayey residuum weathered from cherty limestone

Use and Management Considerations

Cropland
Suitability: Moderately suited to corn, wheat, grass-legume hay, and alfalfa hay
- The rate of surface runoff, the erosion hazard, and the amount of nutrient loss are increased because of the slope.
- The high clay content restricts the rooting depth of crops.
- The limited available water capacity may cause plants to suffer from moisture stress.

Pastureland
Suitability: Well suited
- The hazard of erosion, the rate of surface runoff, and the amount of nutrient loss are increased because of the slope.
- The limited available water capacity may cause plants to suffer from moisture stress during the drier summer months.

Woodland
Suitability: Moderately suited to northern red oak, yellow-poplar, and eastern white pine
- Proper planning for timber harvesting is essential in order to minimize the potential negative impact to soil and water quality. A timber harvest plan should include general adherence to all applicable best management practices.
- The slope creates unsafe operating conditions and reduces the operating efficiency of log trucks.

- The slope may restrict the use of some mechanical planting equipment.
- Rock fragments restrict the use of equipment during site preparation for planting or seeding.
- The low soil strength interferes with the construction of haul roads and log landings.
- The low soil strength may create unsafe conditions for log trucks.

Building sites
- The slope influences the use of machinery and the amount of excavation required.
- The high content of clay in the subsurface layer increases the difficulty of digging, filling, and compacting the soil material in shallow excavations.

Septic tank absorption fields
- The slope limits the proper treatment of effluent from conventional septic systems.

Local roads and streets
- Because of shrinking and swelling, the use of this soil as base material for local roads and streets is restricted.
- Because of the slope, designing local roads and streets is difficult.

Interpretive Groups

Prime farmland: Not prime farmland
Land capability class: 3e
Virginia soil management group: M
Hydric soil: No

39D—Watahala gravelly silt loam, 15 to 25 percent slopes

Setting

Major land resource area: Southern Appalachian Ridges and Valleys (MLRA 128)
Landform: Hills
Position on the landform: Interfluves, nose slopes, and side slopes

Map Unit Composition

Watahala and similar soils: Typically 90 percent, ranging from about 85 to 95 percent

Typical Profile

Surface layer:
0 to 2 inches—dark yellowish brown gravelly silt loam

Subsurface layer:
2 to 17 inches—light yellowish brown gravelly silt loam

Subsoil:
17 to 25 inches—light yellowish brown gravelly loam
25 to 29 inches—strong brown gravelly clay loam with common yellowish red mottles
29 to 62 inches—yellowish red clay with few brownish yellow mottles

Minor Components

Dissimilar components:
- Carbo soils, which are moderately deep to limestone bedrock; on similar landforms
- Slabtown soils, which are moderately well drained; on concave footslopes
- Soils that have cobbly surface layers; on similar landforms

Similar components:
- Frederick soils, which have more clay in the upper part of the subsoil than the Watahala soil and fewer chert gravel in the soil layers underneath the surface layer; on similar landforms
- Soils that are very stony on the surface; on similar landforms

Soil Properties and Qualities

Available water capacity: Moderate (about 7.1 inches)
Slowest saturated hydraulic conductivity: Moderately high (about 0.20 in/hr)
Depth class: Very deep (more than 60 inches)
Depth to root-restrictive feature: 20 to 50 inches to strongly contrasting textural stratification
Drainage class: Well drained
Depth to seasonal water saturation: More than 6 feet
Flooding hazard: None
Ponding hazard: None
Shrink-swell potential: Moderate
Runoff class: Medium
Surface fragments: About 0.50 to 2.00 percent coarse angular gravel and about 0.00 to 1.00 percent angular cobbles
Parent material: Gravelly residuum over clayey residuum weathered from cherty limestone

Use and Management Considerations

Cropland

Suitability: Moderately suited to corn, wheat, grass-legume hay, and alfalfa hay
- The rate of surface runoff, the erosion hazard, and the amount of nutrient loss are increased because of the slope.
- The high clay content restricts the rooting depth of crops.
- The limited available water capacity may cause plants to suffer from moisture stress.

Pastureland

Suitability: Moderately suited
- The hazard of erosion, the rate of surface runoff, and the amount of nutrient loss are increased because of the slope.
- The limited available water capacity may cause plants to suffer from moisture stress during the drier summer months.

Woodland

Suitability: Moderately suited to northern red oak, yellow-poplar, and eastern white pine
- Proper planning for timber harvesting is essential in order to minimize the potential negative impact to soil and water quality. A timber harvest plan should include general adherence to all applicable best management practices.
- The slope poses safety hazards and creates a potential for erosion during the construction of haul roads and log landings.
- The slope creates unsafe operating conditions and reduces the operating efficiency of log trucks and harvesting equipment.
- Because of the slope, the use of equipment for preparing sites for planting and seeding is restricted.
- The slope may restrict the use of some mechanical planting equipment.
- Rock fragments restrict the use of equipment during site preparation for planting or seeding.
- The low soil strength interferes with the construction of haul roads and log landings.
- The low soil strength may create unsafe conditions for log trucks.

Building sites
- The slope influences the use of machinery and the amount of excavation required.
- The high content of clay in the subsurface layer increases the difficulty of digging, filling, and compacting the soil material in shallow excavations.

Septic tank absorption fields
- The slope limits the proper treatment of effluent from conventional septic systems.

Local roads and streets
- Because of shrinking and swelling, the use of this soil as base material for local roads and streets is restricted.
- Because of the slope, designing local roads and streets is difficult.

Interpretive Groups

Prime farmland: Not prime farmland
Land capability class: 4e
Virginia soil management group: M
Hydric soil: No

39E—Watahala gravelly silt loam, 25 to 35 percent slopes

Setting

Major land resource area: Southern Appalachian Ridges and Valleys (MLRA 128)
Landform: Hills
Position on the landform: Nose slopes and side slopes

Map Unit Composition

Watahala and similar soils: Typically 90 percent, ranging from about 85 to 95 percent

Typical Profile

Surface layer:
0 to 2 inches—dark yellowish brown gravelly silt loam

Subsurface layer:
2 to 17 inches—light yellowish brown gravelly silt loam

Subsoil:
17 to 25 inches—light yellowish brown gravelly loam
25 to 29 inches—strong brown gravelly clay loam with common yellowish red mottles
29 to 62 inches—yellowish red clay with few brownish yellow mottles

Minor Components

Dissimilar components:
- Carbo soils, which are moderately deep to limestone bedrock; on similar landforms
- Slabtown soils, which are moderately well drained; on concave footslopes
- Soils that have cobbly surface layers; on similar landforms

Similar components:
- Frederick soils, which have more clay in the upper part of the subsoil than the Watahala soil and fewer chert gravel in the soil layers underneath the surface layer; on similar landforms
- Soils that are very stony on the surface; on similar landforms

Soil Properties and Qualities

Available water capacity: Moderate (about 7.1 inches)
Slowest saturated hydraulic conductivity: Moderately high (about 0.20 in/hr)

Depth class: Very deep (more than 60 inches)
Depth to root-restrictive feature: 20 to 50 inches to strongly contrasting textural stratification
Drainage class: Well drained
Depth to seasonal water saturation: More than 6 feet
Flooding hazard: None
Ponding hazard: None
Shrink-swell potential: Moderate
Runoff class: Medium
Surface fragments: About 0.50 to 2.00 percent coarse angular gravel and about 0.00 to 1.00 percent angular cobbles
Parent material: Gravelly residuum over clayey residuum weathered from cherty limestone

Use and Management Considerations

Cropland

- This soil is unsuited to cropland.

Pastureland

Suitability: Moderately suited

- The hazard of erosion, the rate of surface runoff, and the amount of nutrient loss are increased because of the slope.
- The slope may restrict the use of some farm equipment.
- The limited available water capacity may cause plants to suffer from moisture stress during the drier summer months.

Woodland

Suitability: Moderately suited to northern red oak, yellow-poplar, and eastern white pine

- Proper planning for timber harvesting is essential in order to minimize the potential negative impact to soil and water quality, especially on the steeper slopes. A timber harvest plan should focus on the proper location of haul roads and skid tails, and careful attention should be given to all applicable best management practices.
- The slope poses safety hazards and creates a potential for erosion during the construction of haul roads and log landings.
- The slope creates unsafe operating conditions and reduces the operating efficiency of log trucks and harvesting equipment.
- Because of the slope, the use of equipment for preparing sites for planting and seeding is restricted.
- Because of the slope, the use of mechanical planting equipment is impractical.
- Rock fragments restrict the use of equipment during site preparation for planting or seeding.
- The low soil strength interferes with the construction of haul roads and log landings.
- The low soil strength may create unsafe conditions for log trucks.

Building sites

- The slope influences the use of machinery and the amount of excavation required.
- The high content of clay in the subsurface layer increases the difficulty of digging, filling, and compacting the soil material in shallow excavations.

Septic tank absorption fields

- The slope limits the proper treatment of effluent from conventional septic systems.

Local roads and streets

- Because of shrinking and swelling, the use of this soil as base material for local roads and streets is restricted.
- Because of the slope, designing local roads and streets is difficult.

Interpretive Groups

Prime farmland: Not prime farmland
Land capability class: 6e
Virginia soil management group: M
Hydric soil: No

40C—Watahala gravelly silt loam, 8 to 15 percent slopes, extremely stony

Setting

Major land resource area: Southern Appalachian Ridges and Valleys (MLRA 128)
Landform: Hills
Position on the landform: Interfluves

Map Unit Composition

Watahala and similar soils: Typically 90 percent, ranging from about 85 to 95 percent

Typical Profile

Surface layer:
0 to 2 inches—dark yellowish brown gravelly silt loam

Subsurface layer:
2 to 17 inches—light yellowish brown gravelly silt loam

Subsoil:
17 to 25 inches—light yellowish brown gravelly loam
25 to 29 inches—strong brown gravelly clay loam with common yellowish red mottles
29 to 62 inches—yellowish red clay with few brownish yellow mottles

Minor Components

Dissimilar components:
- Carbo soils, which are moderately deep to limestone bedrock; on similar landforms
- Slabtown soils, which are moderately well drained; on concave footslopes
- Beech Grove soils, which are very shallow to limestone bedrock; on similar landforms
- Soils that are shallow to hard bedrock; on similar landforms
- Soils that have significantly more chert gravel in the subsoil than the Watahala soil; on similar landforms
- Rock outcrops on similar landforms
- Soils that have slopes of less than 8 percent; on similar landforms

Similar components:
- Frederick soils, which have more clay in the upper part of the subsoil than the Watahala soil and fewer chert gravel in the soil layers underneath the surface layer; on similar landforms
- Soils that have fewer or more stones on the surface; on similar landforms

Soil Properties and Qualities

Available water capacity: Moderate (about 7.1 inches)
Slowest saturated hydraulic conductivity: Moderately high (about 0.20 in/hr)
Depth class: Very deep (more than 60 inches)

Depth to root-restrictive feature: 20 to 50 inches to strongly contrasting textural stratification
Drainage class: Well drained
Depth to seasonal water saturation: More than 6 feet
Flooding hazard: None
Ponding hazard: None
Shrink-swell potential: Moderate
Runoff class: Low
Surface fragments: About 3.00 to 15.00 percent angular stones
Parent material: Gravelly residuum over clayey residuum weathered from cherty limestone

Use and Management Considerations

Cropland
- This soil is unsuited to cropland.

Pastureland
- This soil is unsuited to pastureland.

Woodland
Suitability: Moderately suited to northern red oak, yellow-poplar, and eastern white pine
- Proper planning for timber harvesting is essential in order to minimize the potential negative impact to soil and water quality. A timber harvest plan should include general adherence to all applicable best management practices.
- The slope creates unsafe operating conditions and reduces the operating efficiency of log trucks.
- The slope may restrict the use of some mechanical planting equipment.
- The high content of stones or boulders on the surface may obstruct the construction of haul roads and log landings.
- Rock fragments on the surface may reduce the traction of wheeled harvest equipment.
- Rock fragments on the surface interfere with the use of site preparation equipment.
- Rock fragments restrict the use of equipment during site preparation for planting or seeding.
- The low soil strength interferes with the construction of haul roads and log landings.
- The low soil strength may create unsafe conditions for log trucks.

Building sites
- The slope influences the use of machinery and the amount of excavation required.
- The high content of clay in the subsurface layer increases the difficulty of digging, filling, and compacting the soil material in shallow excavations.

Septic tank absorption fields
- The slope limits the proper treatment of effluent from conventional septic systems.

Local roads and streets
- Because of shrinking and swelling, the use of this soil as base material for local roads and streets is restricted.
- Because of the slope, designing local roads and streets is difficult.

Interpretive Groups

Prime farmland: Not prime farmland
Land capability class: 7s
Virginia soil management group: M
Hydric soil: No

40E—Watahala gravelly silt loam, 15 to 35 percent slopes, extremely stony

Setting

Major land resource area: Southern Appalachian Ridges and Valleys (MLRA 128)
Landform: Hills
Position on the landform: Nose slopes and side slopes

Map Unit Composition

Watahala and similar soils: Typically 90 percent, ranging from about 85 to 95 percent

Typical Profile

Surface layer:
0 to 2 inches—dark yellowish brown gravelly silt loam

Subsurface layer:
2 to 17 inches—light yellowish brown gravelly silt loam

Subsoil:
17 to 25 inches—light yellowish brown gravelly loam
25 to 29 inches—strong brown gravelly clay loam with common yellowish red mottles
29 to 62 inches—yellowish red clay with few brownish yellow mottles

Minor Components

Dissimilar components:
- Carbo soils, which are moderately deep to limestone bedrock; on similar landforms
- Slabtown soils, which are moderately well drained; on concave footslopes
- Beech Grove soils, which are very shallow to limestone bedrock; on similar landforms
- Soils that are shallow to hard bedrock; on similar landforms
- Soils that have significantly more chert gravel in the subsoil than the Watahala soil; on similar landforms
- Rock outcrops on similar landforms

Similar components:
- Frederick soils, which have more clay in the upper part of the subsoil than the Watahala soil and fewer chert gravel in the soil layers underneath the surface layer; on similar landforms
- Soils that have fewer or more stones on the surface; on similar landforms

Soil Properties and Qualities

Available water capacity: Moderate (about 7.1 inches)
Slowest saturated hydraulic conductivity: Moderately high (about 0.20 in/hr)
Depth class: Very deep (more than 60 inches)
Depth to root-restrictive feature: 20 to 50 inches to strongly contrasting textural stratification
Drainage class: Well drained
Depth to seasonal water saturation: More than 6 feet
Flooding hazard: None
Ponding hazard: None
Shrink-swell potential: Moderate

Runoff class: Medium
Surface fragments: About 3.00 to 15.00 percent angular stones
Parent material: Gravelly residuum over clayey residuum weathered from cherty limestone

Use and Management Considerations

Cropland
- This soil is unsuited to cropland.

Pastureland
- This soil is unsuited to pastureland.

Woodland
Suitability: Moderately suited to northern red oak, yellow-poplar, and eastern white pine
- Proper planning for timber harvesting is essential in order to minimize the potential negative impact to soil and water quality. A timber harvest plan should include general adherence to all applicable best management practices.
- The slope poses safety hazards and creates a potential for erosion during the construction of haul roads and log landings.
- The slope creates unsafe operating conditions and reduces the operating efficiency of log trucks and harvesting equipment.
- Because of the slope, the use of equipment for preparing sites for planting and seeding is restricted.
- Because of the slope, the use of mechanical planting equipment is impractical.
- The high content of stones or boulders on the surface may obstruct the construction of haul roads and log landings.
- Rock fragments on the surface may reduce the traction of wheeled harvest equipment.
- Rock fragments on the surface interfere with the use of site preparation equipment.
- Rock fragments restrict the use of equipment during site preparation for planting or seeding.
- The low soil strength interferes with the construction of haul roads and log landings.
- The low soil strength may create unsafe conditions for log trucks.

Building sites
- The slope influences the use of machinery and the amount of excavation required.
- The high content of clay in the subsurface layer increases the difficulty of digging, filling, and compacting the soil material in shallow excavations.

Septic tank absorption fields
- The slope limits the proper treatment of effluent from conventional septic systems.

Local roads and streets
- Because of shrinking and swelling, the use of this soil as base material for local roads and streets is restricted.
- Because of the slope, designing local roads and streets is difficult.

Interpretive Groups

Prime farmland: Not prime farmland
Land capability class: 7s
Virginia soil management group: M
Hydric soil: No

40F—Watahala gravelly silt loam, 35 to 55 percent slopes, extremely stony

Setting

Major land resource area: Southern Appalachian Ridges and Valleys (MLRA 128)
Landform: Hills
Position on the landform: Nose slopes and side slopes

Map Unit Composition

Watahala and similar soils: Typically 90 percent, ranging from about 85 to 95 percent

Typical Profile

Surface layer:
0 to 2 inches—dark yellowish brown gravelly silt loam

Subsurface layer:
2 to 17 inches—light yellowish brown gravelly silt loam

Subsoil:
17 to 25 inches—light yellowish brown gravelly loam
25 to 29 inches—strong brown gravelly clay loam with common yellowish red mottles
29 to 62 inches—yellowish red clay with few brownish yellow mottles

Minor Components

Dissimilar components:
- Carbo soils, which are moderately deep to limestone bedrock; on similar landforms
- Slabtown soils, which are moderately well drained; on concave footslopes
- Beech Grove soils, which are very shallow to limestone bedrock; on similar landforms
- Soils that are shallow to hard bedrock; on similar landforms
- Soils that have significantly more chert gravel in the subsoil than the Watahala soil; on similar landforms
- Rock outcrops on similar landforms

Similar components:
- Frederick soils, which have more clay in the upper part of the subsoil than the Watahala soil and fewer chert gravel in the soil layers underneath the surface layer; on similar landforms
- Soils that have slopes of more than 55 percent; on similar landforms
- Soils that have fewer or more stones on the surface; on similar landforms

Soil Properties and Qualities

Available water capacity: Moderate (about 7.1 inches)
Slowest saturated hydraulic conductivity: Moderately high (about 0.20 in/hr)
Depth class: Very deep (more than 60 inches)
Depth to root-restrictive feature: 20 to 50 inches to strongly contrasting textural stratification
Drainage class: Well drained
Depth to seasonal water saturation: More than 6 feet
Flooding hazard: None
Ponding hazard: None

Shrink-swell potential: Moderate
Runoff class: Medium
Surface fragments: About 3.00 to 15.00 percent angular stones
Parent material: Gravelly residuum over clayey residuum weathered from cherty limestone

Use and Management Considerations

Cropland

- This soil is unsuited to cropland.

Pastureland

- This soil is unsuited to pastureland.

Woodland

Suitability: Moderately suited to northern red oak, yellow-poplar, and eastern white pine

- Proper planning for timber harvesting is essential in order to minimize the potential negative impact to soil and water quality, especially on the steeper slopes. A timber harvest plan should focus on the proper location of haul roads and skid tails, and careful attention should be given to all applicable best management practices.
- The slope poses safety hazards and creates a potential for erosion during the construction of haul roads and log landings.
- The slope creates unsafe operating conditions and reduces the operating efficiency of log trucks and harvesting equipment.
- Because of the slope, the use of equipment for planting and seeding (including mechanical planting equipment) is impractical.
- The high content of stones or boulders on the surface may obstruct the construction of haul roads and log landings.
- Rock fragments on the surface may reduce the traction of wheeled harvest equipment.
- Rock fragments on the surface interfere with the use of site preparation equipment.
- Rock fragments restrict the use of equipment during site preparation for planting or seeding.
- The low soil strength interferes with the construction of haul roads and log landings.
- The low soil strength may create unsafe conditions for log trucks.

Building sites

- The slope influences the use of machinery and the amount of excavation required.
- The high content of clay in the subsurface layer increases the difficulty of digging, filling, and compacting the soil material in shallow excavations.

Septic tank absorption fields

- The slope limits the proper treatment of effluent from conventional septic systems.

Local roads and streets

- Because of shrinking and swelling, the use of this soil as base material for local roads and streets is restricted.
- Because of the slope, designing local roads and streets is difficult.

Interpretive Groups

Prime farmland: Not prime farmland
Land capability class: 7e
Virginia soil management group: M
Hydric soil: No

41G—Weikert-Rough-Rock outcrop complex, 70 to 100 percent slopes

Setting

Major land resource area: Southern Appalachian Ridges and Valleys (MLRA 128)
Landform: Hills and mountains
Position on the landform: Side slopes and mountain flanks; rock outcrops are near-vertical cliffs in some areas

Map Unit Composition

Note: These Weikert and Rough soils and Rock outcrop occur as areas so closely intermingled that they could not be separated at the scale selected for mapping.

Weikert and similar soils: Typically 35 percent, ranging from about 30 to 40 percent
Rough and similar soils: Typically 30 percent, ranging from about 25 to 30 percent
Rock outcrop: Typically 25 percent, ranging from about 25 to 30 percent

Typical Profile

Weikert

Organic layer:
0 to 1 inch—moderately decomposed plant material

Surface layer:
1 to 3 inches—brown channery silt loam

Subsurface layer:
3 to 6 inches—yellowish brown very channery silt loam

Subsoil:
6 to 11 inches—yellowish brown extremely channery silt loam

Substratum:
11 to 17 inches—yellowish brown extremely channery silt loam

Hard bedrock:
17 inches—shale bedrock

Rough

Organic layer:
0 to 1 inch—slightly decomposed plant material

Surface layer:
1 to 3 inches—brown channery silt loam

Subsoil:
3 to 6 inches—yellowish brown very channery silt loam

Substratum:
6 to 8 inches—yellowish brown extremely channery silt loam

Hard bedrock:
8 inches—shale bedrock

Rock outcrop

This part of the map unit consists of outcrops of shale. The outcrops are near-vertical cliffs in some areas.

Minor Components

Dissimilar components:
- Oriskany soils, which are very deep to bedrock; on footslopes
- Shelocta soils, which are very deep to bedrock and have fewer rock fragments in the soil than the Weikert and Rough soils; on footslopes

Similar components:
- Berks soils, which are moderately deep to shale bedrock; on similar landforms
- Soils that have slopes of 35 to 70 percent; on similar landforms

Properties and Qualities of the Weikert and Rough Soils

Available water capacity: Weikert—very low (about 1.3 inches); Rough—very low (about 0.9 inch)
Slowest saturated hydraulic conductivity: Weikert—high (about 1.98 in/hr); Rough—moderately high (about 0.57 in/hr)
Depth class: Weikert—shallow (10 to 20 inches); Rough—very shallow (less than 10 inches)
Depth to root-restrictive feature: Weikert—10 to 20 inches to lithic bedrock; Rough—4 to 10 inches to lithic bedrock
Drainage class: Weikert—well drained; Rough—somewhat excessively drained
Depth to seasonal water saturation: More than 6 feet
Flooding hazard: None
Ponding hazard: None
Shrink-swell potential: Low
Runoff class: Weikert—high; Rough—very high
Surface fragments: None
Parent material: Residuum weathered from shale and siltstone

Use and Management Considerations

Cropland
- This map unit is unsuited to cropland.

Pastureland
- This map unit is unsuited to pastureland.

Woodland
Suitability: Moderately suited to chestnut oak
- Proper planning for timber harvesting is essential in order to minimize the potential negative impact to soil and water quality, especially on the steeper slopes. A timber harvest plan should focus on the proper location of haul roads and skid tails, and careful attention should be given to all applicable best management practices.
- The slope poses safety hazards and creates a potential for erosion during the construction of haul roads and log landings.
- The slope creates unsafe operating conditions and reduces the operating efficiency of log trucks and harvesting equipment.
- Because of the slope, the use of equipment for planting and seeding (including mechanical planting equipment) is impractical.
- Coarse textured soil layers may slough, thus reducing the efficiency of mechanical planting equipment.
- Coarse textured soil layers increase the maintenance needs for haul roads and log landings.
- The low soil strength may create unsafe conditions for log trucks.

Building sites
- The slope influences the use of machinery and the amount of excavation required.

- Because of the limited depth to bedrock, the ease of excavation is greatly reduced and the difficulty of constructing foundations and installing utilities is increased.
- Because of rock outcrops, rock removal may be needed.

Septic tank absorption fields
- Because of the limited depth to bedrock, the filtering capacity of the soil is reduced and the difficulty of properly installing the effluent distribution lines is increased.
- The slope limits the proper treatment of effluent from conventional septic systems.
- Because of rock outcrops, special designs for septic tank absorption fields are needed.

Local roads and streets
- Because of the limited depth to bedrock, the ease of excavation is reduced and the difficulty of constructing roads is increased.
- Because of the slope, designing local roads and streets is difficult.
- Because of rock outcrops, special designs for the grade of local roads and streets are needed and special consideration of location is needed to avoid rock removal.

Interpretive Groups

Prime farmland: Not prime farmland
Land capability class: Weikert and Rough—7s; Rock outcrop—8
Virginia soil management group: Weikert and Rough—JJ; Rock outcrop—none assigned
Hydric soil: No

W—Water

This map unit is in the Southern Applachian Ridges and Valleys Major Land Resource Area. It includes ponds, lakes, creeks, rivers, and reservoirs.

This map unit is not assigned any interpretive groups.

Use and Management of the Soils

This soil survey is an inventory and evaluation of the soils in the survey area. It can be used to adjust land uses to the limitations and potentials of natural resources and the environment. Also, it can help to prevent soil-related failures in land uses.

In preparing a soil survey, soil scientists, conservationists, engineers, and others collect extensive field data about the nature and behavioral characteristics of the soils. They collect data on erosion, droughtiness, flooding, and other factors that affect various soil uses and management. Field experience and collected data on soil properties and performance are used as a basis in predicting soil behavior.

Information in this section can be used to plan the use and management of soils for crops and pasture; as rangeland and forestland; as sites for buildings, sanitary facilities, highways and other transportation systems, and parks and other recreational facilities; for agricultural waste management; and as wildlife habitat. It can be used to identify the potentials and limitations of each soil for specific land uses and to help prevent construction failures caused by unfavorable soil properties.

Planners and others using soil survey information can evaluate the effect of specific land uses on productivity and on the environment in all or part of the survey area. The survey can help planners to maintain or create a land use pattern in harmony with the natural soil.

Contractors can use this survey to locate sources of gravel, sand, reclamation material, roadfill, and topsoil. They can use it to identify areas where bedrock, wetness, or very firm soil layers can cause difficulty in excavation.

Health officials, highway officials, engineers, and others may also find this survey useful. The survey can help them plan the safe disposal of wastes and locate sites for pavements, sidewalks, campgrounds, playgrounds, lawns, and trees and shrubs.

Interpretive Ratings

The interpretive tables in this survey rate the soils in the survey area for various uses. Many of the tables identify the limitations that affect specified uses and indicate the severity of those limitations. The ratings in these tables are both verbal and numerical.

Rating Class Terms

Rating classes are expressed in the tables in terms that indicate the extent to which the soils are limited by all of the soil features that affect a specified use or in terms that indicate the suitability of the soils for the use. Thus, the tables may show limitation classes or suitability classes. Terms for the limitation classes are *not limited, somewhat limited,* and *very limited*. The suitability ratings are expressed as *well suited, moderately suited, poorly suited,* and *unsuited* or as *good, fair,* and *poor*.

Numerical Ratings

Numerical ratings in the tables indicate the relative severity of individual limitations. The ratings are shown as decimal fractions ranging from 0.00 to 1.00. They indicate gradations between the point at which a soil feature has the greatest negative impact on the use and the point at which the soil feature is not a limitation. The limitations appear in order from the most limiting to the least limiting. Thus, if more than one limitation is identified, the most severe limitation is listed first and the least severe one is listed last.

Crops and Pasture

General management needed for crops and pasture is suggested in this section. The crops and pasture plants best suited to the soils, including some not commonly grown in the survey area, are identified; the estimated yields of the main crops and pasture plants are listed; the system of land capability classification used by the Natural Resources Conservation Service is explained; and Virginia soil management groups are described.

Effective pasture management practices include maintaining a mixture of grasses and legumes, rotating pastures, deferring grazing, controlling undesirable vegetation, and using proper stocking rates.

Planners of management systems for individual fields or farms should consider the detailed information given in the description of each soil under the heading “Detailed Soil Map Units.” Specific information can be obtained from the local office of the Natural Resources Conservation Service or the Cooperative Extension Service.

Farms in Craig County have decreased in number and increased in size since about 1960. Livestock and forage production are the main sources of income on these farms. The main types of livestock are beef cattle, dairy cattle, and horses. Other types include goats and sheep. The main forage crops are mixed grass-legume hay and alfalfa hay. Corn is grown mainly for silage. Grain and specialty crops are grown in small areas. Grain crops include corn, oats, and wheat. Specialty crops include tobacco and vegetables.

Soil and water conservation practices are necessary on almost all of the cropland in the survey area. The most common conservation practices are conservation tillage, stripcropping, crop rotations that include grasses and legumes, winter cover crops, grassed waterways, and diversions. The most common system of conservation tillage is no-till planting. Rye is the primary cover crop in areas where no-till corn is grown.

The slope, stoniness, and depth to bedrock limit many areas to less intensive uses, such as hay and pasture. Grass-clover hay is the primary hay crop, but alfalfa has made a comeback since the early 1960s, when it was almost eliminated by the alfalfa weevil. No-till alfalfa has been particularly successful. The grasses grown for hay in the survey area are mainly orchardgrass and fescue mixed with red clover. The pastures dominantly support cool-season grasses, such as orchardgrass and fescue. Pastures in areas where access to farm machinery is limited tend to support fescue.

Many farmers use their grassland for both hay and pasture. This dual use is most common in areas where fescue is stockpiled for winter grazing. One or two hay cuttings are made in the spring and summer, additional nitrogen fertilizer is applied in August, and cattle graze the accumulated growth during the winter. Another common dual use is one in which cattle are allowed to graze the regrowth after the first cutting of orchardgrass.

Yields per Acre

The average yields per acre that can be expected of the principal crops under a high level of management are shown in table 5. 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 land capability classification and the Virginia soil management group of map units in the survey area also are shown in the table.

The yields are based VALUES—the Virginia Agronomic Land Evaluation System (Virginia Polytechnic Institute and State University, 1994). 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 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.

Realistic yield goals can be maintained on a long-term basis through proper nutrient management and other soil amendments, such as lime. Applications of nitrogen and phosphorus from organic or inorganic forms should be used according to approved nutrient management practices and regulations.

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 table 5 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.

Land Capability Classification

Land capability classification shows, in a general way, the suitability of soils for most kinds of field crops. 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 (USDA-SCS, 1961). Only class and subclass are used in this survey.

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. They have other limitations that restrict their use to pasture, rangeland, forestland, wildlife habitat, or recreation.

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.

The capability classification of the soils in this survey area is given in the section “Detailed Soil Map Units” and table 5.

Virginia Soil Management Groups

The Virginia Agronomic Land Use Evaluation System (VALUES) is a system that ranks soils for management and productivity (Virginia Polytechnic Institute and State University, 1994). VALUES places each soil series in Virginia into one of 43 management groups. The format of the management groups, A through QQ, include the following soil characteristics—regional occurrence; parent material; landscape position or influence; solum thickness; dominant profile features, such as texture; available water capacity for plants; and internal soil drainage. Yields that are both economically and environmentally feasible were assigned to each management group, based on yields of field trial crop data and research. The following paragraphs describe the soil management groups in Craig County.

Group A. The soils of this group formed in alluvial parent materials and are on gently sloping flood plains or stream terraces that have watersheds originating west of the Blue Ridge. They are deep or very deep and are medium textured throughout. They have a high available water capacity and are well drained.

Group G. The soils of this group formed in locally transported, medium textured sediments of either colluvial or alluvial origin that overlie a wide range of residual materials. They are on footslopes and toeslopes, at the heads of drainageways, in depressions, and in narrow upland drainageways. These deep and very deep soils are silty to loamy in the upper part of the subsoil, which is underlain with clayey to stony materials. They have a moderately high available water capacity and are moderately well drained or somewhat poorly drained.

Group H. The soils of this group formed in alluvium along streams or terraces. They are moderately deep to very deep, have subsurface layers of silt loam to clay loam, and have a moderately high available water capacity. They are somewhat poorly drained or poorly drained, unless artificial drainage is provided. If artificial drainage is provided, the productive capacity of these soils is significantly increased.

Group L. The soils of this group formed from old transported deposits of alluvium or colluvium. They are common on stream terraces, footslopes, and older, elevated, upland landscapes that were once stream terraces. They are deep or very deep, have medium textured surface layers, have more clayey subsurface layers, and commonly contain gravel and rounded stones. They have a moderate or high available water capacity and typically are well drained.

Group M. The soils of this group formed in material weathered from carbonate rocks. They are on upland summits and side slopes. These deep or very deep soils have reddish brown clayey subsurface layers, which contain coarse fragments in some areas. They have a moderate available water capacity, unless the content of coarse fragments is significantly high, and are well drained.

Group O. The soils of this group formed from transported materials ranging from mountain colluvium to old alluvium on dissected uplands and deposits on old, elevated river terraces. These very deep to shallow soils have very dark red clayey subsurface layers, which have significant amounts of coarse fragments in some areas. They have a moderate available water capacity and are well drained.

Group U. The soils of this group formed from a variety of residual parent materials ranging from Triassic sediments to sandstone, shale, and limestone to colluvium from these materials. These moderately deep to shallow soils commonly have fine-loamy subsurface layers. They commonly have coarse fragments making up one-third of the soil volume and, as a result, have a moderate or moderately low available water capacity. They are well drained or moderately well drained.

Group Y. The soils of this group formed from residuum of weathered limestone, shale, or other carbonate-influenced rocks. These shallow to moderately deep soils represent upland landscapes. They have clayey subsurface layers, which contain coarse fragments in some areas. They have a moderate or low available water capacity where they are shallow to bedrock. They are mostly well drained.

Group CC. The soils of this group formed from a range of parent materials that include alluvium and colluvium. They occur on a variety of landscapes, including uplands, stream terraces, colluvial areas, and bottom lands. They commonly have a moderately deep solum, are very deep to bedrock, have clayey-skeletal to coarse-loamy subsurface layers (which have as much as 70 percent coarse fragments in some areas), and have a moderately low available water capacity. They are well drained.

Group FF. The soils of this group formed in sandstone and shale residual parent materials and mountain colluvium. They are on steeply dissected uplands and mountain side slopes. They are moderately shallow and mostly have loamy-skeletal subsurface layers, which may contain 80 percent, or more, coarse fragments. As a result, the available water capacity is low or very low. The soils are well drained or moderately well drained.

Group GG. The soils of this group formed in cherty limestone or other residuum. They are on ridgetops and side slopes. They are very deep to moderately deep and have loamy-skeletal subsurface layers, which may contain 60 percent, or more, coarse fragments. As a result, the available water capacity is low. The soils are well drained.

Group JJ. The soils of this group formed from a wide variety of residual parent materials, ranging from sandstone, shale, and limestone to phyllite or schist. They are shallow to moderately deep, are dominantly loamy-skeletal throughout, and contain 30 to 70 percent coarse fragments. This group includes some very deep soils if the natural soil porosity has been disturbed. The soils of this group have a very low available water capacity and are well drained.

Group NN. The soils of this group are undrained. They formed in alluvium along streams or on terraces. They are moderately deep to very deep, have subsurface layers of silt loam to clay loam, have a moderately high available water capacity, and are somewhat poorly drained or poorly drained.

The management groups for the map units in Craig County are given in the section "Detailed Soil Map Units" and in table 5.

Prime Farmland

Table 6 lists the map units in the survey area that are considered prime farmland. This list does not constitute a recommendation for a particular land use.

In an effort to identify the extent and location of important farmlands, the Natural Resources Conservation Service, in cooperation with other interested Federal, State, and local government organizations, has inventoried land that can be used for the production of the Nation's food supply.

Prime farmland is of major importance in meeting the Nation's short- and long-range needs for food and fiber. Because the supply of high-quality farmland is limited, the U.S. Department of Agriculture recognizes that responsible levels of government, as well as individuals, should encourage and facilitate the wise use of our Nation's prime farmland.

Prime farmland, as defined by the U.S. Department of Agriculture, is land that has the best combination of physical and chemical characteristics for producing food, feed, forage, fiber, and oilseed crops and is available for these uses. It could be cultivated land, pastureland, forestland, or other land, but it is not urban or built-up land or water areas. The soil quality, growing season, and moisture supply are those needed for the soil to economically produce sustained high yields of crops when proper management, including water management, and acceptable farming methods are applied. In general, prime farmland has an adequate and dependable supply of moisture from precipitation or irrigation, a favorable temperature and growing season, acceptable acidity or alkalinity, an acceptable salt and sodium content, and few or no rocks. The water supply is dependable and of adequate quality. Prime farmland is permeable to water and air. It is not excessively erodible or saturated with water for long periods, and it either is not frequently flooded during the growing season or is protected from flooding. Slope ranges mainly from 0 to 6 percent. More detailed information about the criteria for prime farmland is available at the local office of the Natural Resources Conservation Service.

About 10,542 acres in the survey area, or nearly 11 percent of the total acreage, meets the requirements for prime farmland. This land is on flood plains along small creeks and rivers, on low stream terraces and intermediate stream terraces along rivers, on toeslopes and footslopes, and on gently sloping hill summits. Historically, this land has been used primarily for agricultural purposes, mainly hayland, pasture, and a few crops.

A recent trend in land use in some areas has been the loss of some prime farmland to industrial and urban uses. The loss of prime farmland to other uses puts pressure on marginal lands, which generally are more erodible, droughty, and less productive and cannot be easily cultivated.

For some soils identified in the table as prime farmland, measures that overcome a hazard or limitation, such as flooding, wetness, and droughtiness, are needed. Onsite evaluation is needed to determine whether or not the hazard or limitation has been overcome by corrective measures.

Hydric Soils

This section lists the map unit components that are rated as hydric soils in the survey area. This list can help in planning land uses; however, onsite investigation is recommended to determine the hydric soils on a specific site (National Research Council, 1995; Hurt and others, 2002).

The three essential characteristics of wetlands are hydrophytic vegetation, hydric soils, and wetland hydrology (Cowardin and others, 1979; U.S. Army Corps of Engineers, 1987; National Research Council, 1995; Tiner, 1985). Criteria for all of the characteristics must be met for areas to be identified as wetlands. Undrained hydric soils that have natural vegetation should support a dominant population of ecological wetland plant species. Hydric soils that have been converted to other uses should be capable of being restored to wetlands.

Hydric soils are defined by the National Technical Committee for Hydric Soils (NTCHS) as soils that formed under conditions of saturation, flooding, or ponding long enough during the growing season to develop anaerobic conditions in the upper part (Federal Register, 1994). These soils, under natural conditions, are either saturated or inundated long enough during the growing season to support the growth and reproduction of hydrophytic vegetation.

The NTCHS definition identifies general soil properties that are associated with wetness. In order to determine whether a specific soil is a hydric soil or nonhydric soil, however, more specific information, such as information about the depth and duration of the water table, is needed. Thus, criteria that identify those estimated soil properties unique to hydric soils have been established (Federal Register, 2002). These criteria are used to identify map unit components that normally are associated with wetlands. The criteria used are selected estimated soil properties that are described in “Soil Taxonomy” (Soil Survey Staff, 1999) and “Keys to Soil Taxonomy” (Soil Survey Staff, 2006) and in the “Soil Survey Manual” (Soil Survey Division Staff, 1993).

If soils are wet enough for a long enough period of time to be considered hydric, they should exhibit certain properties that can be easily observed in the field. These visible properties are indicators of hydric soils. The indicators used to make onsite determinations of hydric soils are specified in “Field Indicators of Hydric Soils in the United States” (Hurt and others, 2002).

Hydric soils are identified by examining and describing the soil to a depth of about 20 inches. This depth may be greater if determination of an appropriate indicator so requires. It is always recommended that soils be excavated and described to the depth necessary for an understanding of the redoximorphic processes. Then, using the completed soil descriptions, soil scientists can compare the soil features required by each indicator and specify which indicators have been matched with the conditions observed in the soil. The soil can be identified as a hydric soil if at least one of the approved indicators is present.

The following map units meet the definition of hydric soils and have at least one of the hydric soil indicators. This list can help in planning land uses; however, onsite investigation is recommended to determine the hydric soils on a specific site (Hurt and others, 2002).

3A Atkins fine sandy loam, 0 to 3 percent slopes, frequently flooded
24A Maurertown silt loam, 0 to 3 percent slopes, rarely flooded

Map units that are dominantly made up of hydric soils may have small areas, or inclusions, of nonhydric soils in the higher positions on the landform, and map units dominantly made up of nonhydric soils may have inclusions of hydric soils in the lower positions on the landform.

The following map units, in general, do not meet the definition of hydric soils because they do not have one of the hydric soil indicators. A portion of these map units, however, may include hydric soils. Onsite investigation is recommended to determine whether hydric soils occur and the location of the included hydric soils.

13A Coursey loam, 0 to 3 percent slopes, rarely flooded
13B Coursey loam, 3 to 8 percent slopes, rarely flooded
17B Escatawba loam, 3 to 8 percent slopes
17C Escatawba loam, 8 to 15 percent slopes

18C	Escatawba loam, 8 to 15 percent slopes, very stony
25B	Nicelytown silt loam, 3 to 8 percent slopes
25C	Nicelytown silt loam, 8 to 15 percent slopes
29A	Philo fine sandy loam, 0 to 3 percent slopes, occasionally flooded
31A	Pope fine sandy loam, 0 to 3 percent slopes, frequently flooded
34B	Slabtown silt loam, 3 to 8 percent slopes
34C	Slabtown silt loam, 8 to 15 percent slopes
38	Udorthents-Urban land complex, 0 to 25 percent slopes

Agricultural Waste Management

Soil properties are important considerations in areas where soils are used as sites for the treatment and disposal of organic waste and wastewater. Selection of soils with properties that favor waste management can help to prevent environmental damage.

Table 7, parts I through III show the degree and kind of soil limitations affecting the treatment of agricultural waste, including municipal and food-processing wastewater and effluent from lagoons or storage ponds. Municipal wastewater is the waste stream from a municipality. It contains domestic waste and may contain industrial waste. It may have received primary or secondary treatment. It is rarely untreated sewage. Food-processing wastewater results from the preparation of fruits, vegetables, milk, cheese, and meats for public consumption. In places it is high in content of sodium and chloride. In the context of this table, the effluent in lagoons and storage ponds is from facilities used to treat or store food-processing wastewater or domestic or animal waste. Domestic and food-processing wastewater is very dilute, and the effluent from the facilities that treat or store it commonly is very low in content of carbonaceous and nitrogenous material; the content of nitrogen commonly ranges from 10 to 30 milligrams per liter. The wastewater from animal waste treatment lagoons or storage ponds, however, has much higher concentrations of these materials, mainly because the manure has not been diluted as much as the domestic waste. The content of nitrogen in this wastewater generally ranges from 50 to 2,000 milligrams per liter. When wastewater is applied, checks should be made to ensure that nitrogen, heavy metals, and salts are not added in excessive amounts.

The ratings in the table are for waste management systems that not only dispose of and treat organic waste or wastewater but also are beneficial to crops (application of manure and food-processing waste, application of sewage sludge, and disposal of wastewater by irrigation) and for waste management systems that are designed only for the purpose of wastewater disposal and treatment (overland flow of wastewater, rapid infiltration of wastewater, and slow rate treatment of wastewater).

The ratings are both verbal and numerical. Rating class terms indicate the extent to which the soils are limited by all of the soil features that affect agricultural waste management. *Not limited* indicates that the soil has features that are very favorable for the specified use. Good performance and very low maintenance can be expected. *Somewhat limited* indicates that the soil has features that are moderately favorable for the specified use. The limitations can be overcome or minimized by special planning, design, or installation. Fair performance and moderate maintenance can be expected. *Very limited* indicates that the soil has one or more features that are unfavorable for the specified use. The limitations generally cannot be overcome without major soil reclamation, special design, or expensive installation procedures. Poor performance and high maintenance can be expected.

Numerical ratings in the table indicate the severity of individual limitations. The ratings are shown as decimal fractions ranging from 0.01 to 1.00. They indicate gradations between the point at which a soil feature has the greatest negative impact on the use (1.00) and the point at which the soil feature is not a limitation (0.00).

Application of manure and food-processing waste not only disposes of waste material but also can improve crop production by increasing the supply of nutrients in the soils where the material is applied. Manure is the excrement of livestock and poultry, and food-processing waste is damaged fruit and vegetables and the peelings, stems, leaves, pits, and soil particles removed in food preparation. The manure and food-processing waste are either solid, slurry, or liquid. Their nitrogen content varies. A high content of nitrogen limits the application rate. Toxic or otherwise dangerous wastes, such as those mixed with the lye used in food processing, are not considered in the ratings.

The ratings are based on the soil properties that affect absorption, plant growth, microbial activity, erodibility, the rate at which the waste is applied, and the method by which the waste is applied. The properties that affect absorption include permeability, depth to a water table, ponding, the sodium adsorption ratio, depth to bedrock or a cemented pan, and available water capacity. The properties that affect plant growth and microbial activity include reaction, the sodium adsorption ratio, salinity, and bulk density. The wind erodibility group, the soil erodibility factor K, and slope are considered in estimating the likelihood that wind erosion or water erosion will transport the waste material from the application site. Stones, cobbles, a water table, ponding, and flooding can hinder the application of waste. Permanently frozen soils are unsuitable for waste treatment.

Application of sewage sludge not only disposes of waste material but also can improve crop production by increasing the supply of nutrients in the soils where the material is applied. In the context of this table, sewage sludge is the residual product of the treatment of municipal sewage. The solid component consists mainly of cell mass, primarily bacteria cells that developed during secondary treatment and have incorporated soluble organics into their own bodies. The sludge has small amounts of sand, silt, and other solid debris. The content of nitrogen varies. Some sludge has constituents that are toxic to plants or hazardous to the food chain, such as heavy metals and exotic organic compounds, and should be analyzed chemically prior to use.

The content of water in the sludge ranges from about 98 percent to less than 40 percent. The sludge is considered liquid if it is more than about 90 percent water, slurry if it is about 50 to 90 percent water, and solid if it is less than about 50 percent water.

The ratings in the table are based on the soil properties that affect absorption, plant growth, microbial activity, erodibility, the rate at which the sludge is applied, and the method by which the sludge is applied. The properties that affect absorption, plant growth, and microbial activity include permeability, depth to a water table, ponding, the sodium adsorption ratio, depth to bedrock or a cemented pan, available water capacity, reaction, salinity, and bulk density. The wind erodibility group, the soil erodibility factor K, and slope are considered in estimating the likelihood that wind erosion or water erosion will transport the waste material from the application site. Stones, cobbles, a water table, ponding, and flooding can hinder the application of sludge. Permanently frozen soils are unsuitable for waste treatment.

Disposal of wastewater by irrigation not only disposes of municipal wastewater and wastewater from food-processing plants, lagoons, and storage ponds but also can improve crop production by increasing the amount of water available to crops. The ratings in the table are based on the soil properties that affect the design, construction, management, and performance of the irrigation system. The properties that affect design and management include the sodium adsorption ratio, depth to a water table, ponding, available water capacity, permeability, slope, and flooding. The properties that affect construction include stones, cobbles, depth to bedrock or a cemented pan, depth to a water table, and ponding. The properties that affect performance include depth to bedrock or a cemented pan, bulk density, the sodium adsorption ratio, salinity, reaction, and the cation-exchange capacity, which is used to estimate the capacity of a soil to adsorb heavy metals. Permanently frozen soils are not suitable for disposal of wastewater by irrigation.

Overland flow of wastewater is a process in which wastewater is applied to the upper reaches of sloped land and allowed to flow across vegetated surfaces, sometimes called terraces, to runoff-collection ditches. The length of the run generally is 150 to 300 feet. The application rate ranges from 2.5 to 16.0 inches per week. It commonly exceeds the rate needed for irrigation of cropland. The wastewater leaves solids and nutrients on the vegetated surfaces as it flows downslope in a thin film. Most of the water reaches the collection ditch, some is lost through evapotranspiration, and a small amount may percolate to the ground water.

The ratings in the table are based on the soil properties that affect absorption, plant growth, microbial activity, and the design and construction of the system. Reaction and the cation-exchange capacity affect absorption. Reaction, salinity, and the sodium adsorption ratio affect plant growth and microbial activity. Slope, permeability, depth to a water table, ponding, flooding, depth to bedrock or a cemented pan, stones, and cobbles affect design and construction. Permanently frozen soils are unsuitable for waste treatment.

Rapid infiltration of wastewater is a process in which wastewater applied in a level basin at a rate of 4 to 120 inches per week percolates through the soil. The wastewater may eventually reach the ground water. The application rate commonly exceeds the rate needed for irrigation of cropland. Vegetation is not a necessary part of the treatment; hence, the basins may or may not be vegetated. The thickness of the soil material needed for proper treatment of the wastewater is more than 72 inches. As a result, geologic and hydrologic investigation is needed to ensure proper design and performance and to determine the risk of ground-water pollution.

The ratings in the table are based on the soil properties that affect the risk of pollution and the design, construction, and performance of the system. Depth to a water table, ponding, flooding, and depth to bedrock or a cemented pan affect the risk of pollution and the design and construction of the system. Slope, stones, and cobbles also affect design and construction. Permeability and reaction affect performance. Permanently frozen soils are unsuitable for waste treatment.

Slow rate treatment of wastewater is a process in which wastewater is applied to land at a rate normally between 0.5 inch and 4.0 inches per week. The application rate commonly exceeds the rate needed for irrigation of cropland. The applied wastewater is treated as it moves through the soil. Much of the treated water may percolate to the ground water, and some enters the atmosphere through evapotranspiration. The applied water generally is not allowed to run off the surface. Waterlogging is prevented either through control of the application rate or through the use of tile drains, or both.

The ratings in the table are based on the soil properties that affect absorption, plant growth, microbial activity, erodibility, and the application of waste. The properties that affect absorption include the sodium adsorption ratio, depth to a water table, ponding, available water capacity, permeability, depth to bedrock or a cemented pan, reaction, the cation-exchange capacity, and slope. Reaction, the sodium adsorption ratio, salinity, and bulk density affect plant growth and microbial activity. The wind erodibility group, the soil erodibility factor K, and slope are considered in estimating the likelihood of wind erosion or water erosion. Stones, cobbles, a water table, ponding, and flooding can hinder the application of waste. Permanently frozen soils are unsuitable for waste treatment.

Forestland Productivity and Management

Tables 8 and 9 can help forest owners or managers plan the use of soils for wood crops. They show the potential productivity of the soils for wood crops and rate the soils according to the limitations that affect various aspects of forestland management.

Oak-hickory forests once covered most of the survey area. As the area was settled, the forests were cleared for agriculture and pasture. The fertile limestone valleys and ridges were the prime targets, but eventually many steep knobs and lower slopes of the bigger mountains were also cleared. What remained was mostly the rough, steep, and inaccessible land in forest.

Around 1900, as the need for lumber and wood products grew, the best timber was removed from the remaining forest. In the 1920s, blight destroyed the American chestnut. At about the same time, agricultural land started reverting back to forest. The light-seeded species, such as yellow-poplar, black locust, maple, and pine, invaded the abandoned farmland as well as the areas once occupied by chestnut trees.

The quality of trees in Craig County varies from excellent, in the moist coves and on the north-facing lower slopes, to very poor, on the dry, high ridgetops and the west-facing slopes. Quality has been affected by wildfire and the high-grading type of harvests that remove only the best stems of certain species. As a result, some areas contain a high percentage of trees not suitable for lumber. Recent improvement in markets should allow more of such stems to be utilized and make way for new forests of young, better quality trees.

Forestland Productivity

In table 8, the *potential productivity* of merchantable or *common trees* on a soil is expressed as a site index and as a volume number. The *site index* is the average height, in feet, that dominant and codominant trees of a given species attain in a specified number of years. The site index applies to fully stocked, even-aged, unmanaged stands. Commonly grown trees are those that forest managers generally favor in intermediate or improvement cuttings. They are selected on the basis of growth rate, quality, value, and marketability. More detailed information regarding site index is available in the "National Forestry Manual," which is available in local offices of the Natural Resources Conservation Service or on the Internet.

The *volume of wood fiber*, a number, is the yield likely to be produced by the most important tree species. This number, expressed as cubic feet per acre per year and calculated at the age of culmination of the mean annual increment (CMAI), indicates the amount of fiber produced in a fully stocked, even-aged, unmanaged stand.

Trees to manage are those that are preferred for planting, seeding, or natural regeneration and those that remain in the stand after thinning or partial harvest.

Forestland Management

In table 9, parts I through V, interpretive ratings are given for various aspects of forestland management. The ratings are both verbal and numerical.

Some rating class terms indicate the degree to which the soils are suited to a specified aspect of forestland management. *Well suited* indicates that the soil has features that are favorable for the specified management aspect and has no limitations. Good performance can be expected, and little or no maintenance is needed. *Moderately suited* indicates that the soil has features that are moderately favorable for the specified management aspect. One or more soil properties are less than desirable, and fair performance can be expected. Some maintenance is needed. *Poorly suited* indicates that the soil has one or more properties that are unfavorable for the specified management aspect. Overcoming the unfavorable properties requires special design, extra maintenance, and costly alteration. *Unsuited* indicates that the expected performance of the soil is unacceptable for the specified management aspect or that extreme measures are needed to overcome the undesirable soil properties.

Proper planning for timber harvesting is essential to minimize the potential impact on soil and water quality. A harvest plan should include logging roads, log decks, streamside management zones, stream crossings, skid trails, a schedule of activities, and best management practices (BMPs) for each activity. Forests should be managed to increase economic and environmental benefits. A forest stewardship plan should be developed to guide management and utilization of woodlands.

Numerical ratings in the table indicate the severity of individual limitations. The ratings are shown as decimal fractions ranging from 0.01 to 1.00. They indicate gradations between the point at which a soil feature has the greatest negative impact on the specified aspect of forestland management (1.00) and the point at which the soil feature is not a limitation (0.00).

Rating class terms for *fire damage* and *seedling mortality* are expressed as *low, moderate,* and *high*. Where these terms are used, the numerical ratings indicate gradations between the point at which the potential for fire damage or seedling mortality is highest (1.00) and the point at which the potential is lowest (0.00).

The paragraphs that follow indicate the soil properties considered in rating the soils. More detailed information about the criteria used in the ratings is available in the "National Forestry Manual," which is available in local offices of the Natural Resources Conservation Service or on the Internet.

For *limitations affecting construction of haul roads and log landings*, the ratings are based on slope, flooding, permafrost, plasticity index, the hazard of soil slippage, content of sand, the Unified classification, rock fragments on or below the surface, depth to a restrictive layer that is indurated, depth to a water table, and ponding. The limitations are described as slight, moderate, or severe. A rating of *slight* indicates that no significant limitations affect construction activities, *moderate* indicates that one or more limitations can cause some difficulty in construction, and *severe* indicates that one or more limitations can make construction very difficult or very costly.

The ratings of *suitability for log landings* are based on slope, rock fragments on the surface, plasticity index, content of sand, the Unified classification, depth to a water table, ponding, flooding, and the hazard of soil slippage. The soils are described as well suited, moderately suited, or poorly suited to use as log landings.

Ratings in the column *soil rutting hazard* are based on depth to a water table, rock fragments on or below the surface, the Unified classification, depth to a restrictive layer, and slope. Ruts form as a result of the operation of forest equipment. The hazard is described as slight, moderate, or severe. A rating of *slight* indicates that the soil is subject to little or no rutting, *moderate* indicates that rutting is likely, and *severe* indicates that ruts form readily.

Ratings in the column *hazard of off-road or off-trail erosion* are based on slope and on soil erodibility factor K. The soil loss is caused by sheet or rill erosion in off-road or off-trail areas where 50 to 75 percent of the surface has been exposed by logging, grazing, mining, or other kinds of disturbance. The hazard is described as slight, moderate, severe, or very severe. A rating of *slight* indicates that erosion is unlikely under ordinary climatic conditions; *moderate* indicates that some erosion is likely and that erosion-control measures may be needed; *severe* indicates that erosion is very likely and that erosion-control measures, including revegetation of bare areas, are advised; and *very severe* indicates that significant erosion is expected, loss of soil productivity and off-site damage are likely, and erosion-control measures are costly and generally impractical.

Ratings in the column *hazard of erosion on roads and trails* are based on the soil erodibility factor K, slope, and content of rock fragments. The ratings apply to unsurfaced roads and trails. The hazard is described as slight, moderate, or severe. A rating of *slight* indicates that little or no erosion is likely; *moderate* indicates that some erosion is likely, that the roads or trails may require occasional maintenance, and that simple erosion-control measures are needed; and *severe* indicates that significant erosion is expected, that the roads or trails require frequent maintenance, and that costly erosion-control measures are needed.

Ratings in the column *suitability for roads (natural surface)* are based on slope, rock fragments on the surface, plasticity index, content of sand, the Unified classification, depth to a water table, ponding, flooding, and the hazard of soil slippage. The ratings indicate the suitability for using the natural surface of the soil for roads. The soils are described as well suited, moderately suited, or poorly suited to this use.

Ratings in the columns *suitability for hand planting* and *suitability for mechanical planting* are based on slope, depth to a restrictive layer, content of sand, plasticity index, rock fragments on or below the surface, depth to a water table, and ponding. The soils are described as well suited, moderately suited, poorly suited, or unsuited to these methods of planting. It is assumed that necessary site preparation is completed before seedlings are planted.

Ratings in the column *suitability for use of harvesting equipment* are based on slope, rock fragments on the surface, plasticity index, content of sand, the Unified classification, depth to a water table, and ponding. The soils are described as well suited, moderately suited, or poorly suited to this use.

Ratings in the column *suitability for mechanical site preparation (surface)* are based on slope, depth to a restrictive layer, plasticity index, rock fragments on or below the surface, depth to a water table, and ponding. The soils are described as well suited, poorly suited, or unsuited to this management activity. The part of the soil from the surface to a depth of about 1 foot is considered in the ratings.

Ratings in the column *suitability for mechanical site preparation (deep)* are based on slope, depth to a restrictive layer, rock fragments on or below the surface, depth to a water table, and ponding. The soils are described as well suited, poorly suited, or unsuited to this management activity. The part of the soil from the surface to a depth of about 3 feet is considered in the ratings.

Ratings in the column *potential for damage to soil by fire* are based on texture of the surface layer, content of rock fragments and organic matter in the surface layer, thickness of the surface layer, and slope. The soils are described as having a low, moderate, or high potential for this kind of damage. The ratings indicate an evaluation of the potential impact of prescribed fires or wildfires that are intense enough to remove the duff layer and consume organic matter in the surface layer.

Ratings in the column *potential for seedling mortality* are based on flooding, ponding, depth to a water table, content of lime, reaction, salinity, available water capacity, soil moisture regime, soil temperature regime, aspect, and slope. The soils are described as having a low, moderate, or high potential for seedling mortality.

Recreational Development

The survey area offers many opportunities for fishing, hunting, hiking, camping, biking, and horseback riding. The Appalachian Trail passes through the survey area and is a popular attraction for hiking activities.

In table 10, parts I and II, the soils of the survey area are rated according to limitations that affect their suitability for recreational development. The ratings are both verbal and numerical. Rating class terms indicate the extent to which the soils are limited by all of the soil features that affect the recreational uses. *Not limited* indicates that the soil has features that are very favorable for the specified use. Good performance and very low maintenance can be expected. *Somewhat limited* indicates that the soil has features that are moderately favorable for the specified use. The limitations can be overcome or minimized by special planning, design, or installation. Fair performance and moderate maintenance can be expected. *Very limited* indicates that the soil has one or more features that are unfavorable for the specified use. The limitations generally cannot be overcome without major soil reclamation, special design, or expensive installation procedures. Poor performance and high maintenance can be expected.

Numerical ratings in the table indicate the severity of individual limitations. The ratings are shown as decimal fractions ranging from 0.01 to 1.00. They indicate gradations between the point at which a soil feature has the greatest negative impact on the use (1.00) and the point at which the soil feature is not a limitation (0.00).

The ratings in the table are based on restrictive soil features, such as wetness, slope, and texture of the surface layer. Susceptibility to flooding is considered. Not considered in the ratings, but important in evaluating a site, are the location and accessibility of the area, the size and shape of the area and its scenic quality, vegetation, access to water, potential water impoundment sites, and access to public sewer lines. The capacity of the soil to absorb septic tank effluent and the ability of the soil to support vegetation also are important. Soils that are subject to flooding are limited for recreational uses by the duration and intensity of flooding and the season when flooding occurs. In planning recreational facilities, onsite assessment of the height, duration, intensity, and frequency of flooding is essential.

The information in this table can be supplemented by other information in this survey, for example, interpretations for dwellings without basements, for local roads and streets, and for septic tank absorption fields.

Camp areas require site preparation, such as shaping and leveling the tent and parking areas, stabilizing roads and intensively used areas, and installing sanitary facilities and utility lines. Camp areas are subject to heavy foot traffic and some vehicular traffic. The ratings are based on the soil properties that affect the ease of developing camp areas and the performance of the areas after development. Slope, stoniness, and depth to bedrock or a cemented pan are the main concerns affecting the development of camp areas. The soil properties that affect the performance of the areas after development are those that influence trafficability and promote the growth of vegetation, especially in heavily used areas. For good trafficability, the surface of camp areas should absorb rainfall readily, remain firm under heavy foot traffic, and not be dusty when dry. The soil properties that influence trafficability are texture of the surface layer, depth to a water table, ponding, flooding, permeability, and large stones. The soil properties that affect the growth of plants are depth to bedrock or a cemented pan, permeability, and toxic substances in the soil.

Picnic areas are subject to heavy foot traffic. Most vehicular traffic is confined to access roads and parking areas. The ratings are based on the soil properties that affect the ease of developing picnic areas and that influence trafficability and the growth of vegetation after development. Slope and stoniness are the main concerns affecting the development of picnic areas. For good trafficability, the surface of picnic areas should absorb rainfall readily, remain firm under heavy foot traffic, and not be dusty when dry. The soil properties that influence trafficability are texture of the surface layer, depth to a water table, ponding, flooding, permeability, and large stones. The soil properties that affect the growth of plants are depth to bedrock or a cemented pan, permeability, and toxic substances in the soil.

Playgrounds require soils that are nearly level, are free of stones, and can withstand intensive foot traffic. The ratings are based on the soil properties that affect the ease of developing playgrounds and that influence trafficability and the growth of vegetation after development. Slope and stoniness are the main concerns affecting the development of playgrounds. For good trafficability, the surface of the playgrounds should absorb rainfall readily, remain firm under heavy foot traffic, and not be dusty when dry. The soil properties that influence trafficability are texture of the surface layer, depth to a water table, ponding, flooding, permeability, and large stones. The soil properties that affect the growth of plants are depth to bedrock or a cemented pan, permeability, and toxic substances in the soil.

Paths and trails for hiking and horseback riding should require little or no slope modification through cutting and filling. The ratings are based on the soil properties that affect trafficability and erodibility. These properties are stoniness, depth to a water table, ponding, flooding, slope, and texture of the surface layer.

Off-road motorcycle trails require little or no site preparation. They are not covered with surfacing material or vegetation. Considerable compaction of the soil material is likely. The ratings are based on the soil properties that influence erodibility, trafficability, dustiness, and the ease of revegetation. These properties are stoniness, slope, depth to a water table, ponding, flooding, and texture of the surface layer.

Golf fairways are subject to heavy foot traffic and some light vehicular traffic. Cutting or filling may be required. Irrigation is not considered in the ratings. The ratings are based on the soil properties that affect plant growth and trafficability after vegetation is established. The properties that affect plant growth are reaction; depth to a water table; ponding; depth to bedrock or a cemented pan; the available water capacity in the upper 40 inches; the content of salts, sodium, or calcium carbonate; and sulfidic materials. The properties that affect trafficability are flooding, depth to a water table, ponding, slope, stoniness, and the amount of sand, clay, or organic matter in the surface layer. The suitability of the soil for traps, tees, roughs, and greens is not considered in the ratings.

Wildlife Habitat

Soils affect the kind and amount of vegetation that is available to wildlife as food and cover. They also affect the construction of water impoundments. The kind and abundance of wildlife depend largely on the amount and distribution of food, cover, and water. Wildlife habitat can be created or improved by planting the appropriate vegetation, by maintaining the existing plant cover, or by promoting the natural establishment of desirable plants.

Several species of wildlife inhabit Craig County. White-tailed deer, black bear, wild turkey, ruffed grouse, raccoon, ground squirrel, fox squirrel, gray squirrel, opossum, bobcat, red fox, gray fox, coyote, skunk, and wood thrush are common in the forested mountain areas, especially on Bailegap, Berks, Brushy, Calvin, Culleoka, Dekalb, Gilpin, Lily, Rough, and Weikert soils. Cottontail rabbit, ground hog, quail, mourning dove, and woodcock are in upland pastures and in open fields throughout the survey area, especially on Frederick, Carbo, Tumbling, and Watahala soils.

Beaver, muskrat, and mink inhabit areas along Craig Creek, Johns Creek, Potts Creek, Sinking Creek, and some of the smaller streams, especially on Pope, Ogles, Philo, Nicelytown, and Alonzville soils.

Mallard, wood duck, black duck, Canada goose, blue-winged teal, and numerous warblers inhabit the wetland areas, on Atkins soils, during migration periods.

Craig Creek, Johns Creek, Potts Creek, and Sinking Creek contain smallmouth bass, largemouth bass, rock bass, catfish, bluegill, sunfish, brown trout, brook trout, and rainbow trout. Stocked trout fishing is permitted in season. Native brook trout inhabit some of the remote mountain streams in the survey area.

Numerous songbirds inhabit the survey area. They include many varieties of warblers, sparrows, wrens, and flycatchers, most of which are migratory. Birds of prey, such as hawks and owls, are common. Bald eagles are sometimes seen along sections of Johns Creek.

Several species of bats inhabit caves scattered throughout the karst areas of the survey area.

Engineering

This section provides information for planning land uses related to urban development and to water management. Soils are rated for various uses, and the most limiting features are identified. Ratings are given for building site development, sanitary facilities, construction materials, and water management. The ratings are based on observed performance of the soils and on the data in the tables described under the heading “Soil Properties.”

Information in this section is intended for land use planning, for evaluating land use alternatives, and for planning site investigations prior to design and construction. The information, however, has limitations. For example, estimates and other data generally apply only to that part of the soil between the surface and a depth of 5 to 7 feet. Because of the map scale, small areas of different soils may be included within the mapped areas of a specific soil.

The information is not site specific and does not eliminate the need for onsite investigation of the soils or for testing and analysis by personnel experienced in the design and construction of engineering works.

Government ordinances and regulations that restrict certain land uses or impose specific design criteria were not considered in preparing the information in this section. Local ordinances and regulations should be considered in planning, in site selection, and in design.

Soil properties, site features, and observed performance were considered in determining the ratings in this section. During the fieldwork for this soil survey, determinations were made about particle-size distribution, liquid limit, plasticity index, soil reaction, depth to bedrock, hardness of bedrock within 5 to 7 feet of the surface, soil wetness, depth to a water table, ponding, slope, likelihood of flooding, natural soil structure aggregation, and soil density. Data were collected about kinds of clay minerals, mineralogy of the sand and silt fractions, and the kinds of adsorbed cations. Estimates were made for erodibility, permeability, corrosivity, shrink-swell potential, available water capacity, and other behavioral characteristics affecting engineering uses.

This information can be used to evaluate the potential of areas for residential, commercial, industrial, and recreational uses; make preliminary estimates of construction conditions; evaluate alternative routes for roads, streets, highways, pipelines, and underground cables; evaluate alternative sites for sanitary landfills, septic tank absorption fields, and sewage lagoons; plan detailed onsite investigations of soils and geology; locate potential sources of gravel, sand, reclamation material, roadfill, and topsoil; plan structures for water management; and predict performance of proposed small structures and pavements by comparing the performance of existing similar structures on the same or similar soils.

The information in the tables, along with the soil maps, the soil descriptions, and other data provided in this survey, can be used to make additional interpretations.

Some of the terms used in this soil survey have a special meaning in soil science and are defined in the Glossary.

Building Site Development

Soil properties influence the development of building sites, including the selection of the site, the design of the structure, construction, performance after construction, and maintenance. Table 11, parts I and II show the degree and kind of soil limitations that affect dwellings with and without basements, small commercial buildings, local roads and streets, shallow excavations, and lawns and landscaping.

The ratings in table 11 are both verbal and numerical. Rating class terms indicate the extent to which the soils are limited by all of the soil features that affect building site development. *Not limited* indicates that the soil has features that are very favorable for the specified use. Good performance and very low maintenance can be expected. *Somewhat limited* indicates that the soil has features that are moderately favorable for the specified use. The limitations can be overcome or minimized by special planning, design, or installation. Fair performance and moderate maintenance can be expected. *Very limited* indicates that the soil has one or more features that are unfavorable for the specified use. The limitations generally cannot be overcome without major soil reclamation, special design, or expensive installation procedures. Poor performance and high maintenance can be expected.

Numerical ratings in the table indicate the severity of individual limitations. The ratings are shown as decimal fractions ranging from 0.01 to 1.00. They indicate gradations between the point at which a soil feature has the greatest negative impact on the use (1.00) and the point at which the soil feature is not a limitation (0.00).

Dwellings are single-family houses of three stories or less. For dwellings without basements, the foundation is assumed to consist of spread footings of reinforced concrete built on undisturbed soil at a depth of 2 feet or at the depth of maximum frost penetration, whichever is deeper. For dwellings with basements, the foundation is assumed to consist of spread footings of reinforced concrete built on undisturbed soil at a depth of about 7 feet. The ratings for dwellings are based on the soil properties that affect the capacity of the soil to support a load without movement and on the properties that affect excavation and construction costs. The properties that affect the load-supporting capacity include depth to a water table, ponding, flooding, subsidence, linear extensibility (shrink-swell potential), and compressibility. Compressibility is inferred from the Unified classification. The properties that affect the ease and amount of excavation include depth to a water table, ponding, flooding, slope, depth to bedrock or a cemented pan, hardness of bedrock or a cemented pan, and the amount and size of rock fragments.

Small commercial buildings are structures that are less than three stories high and do not have basements. The foundation is assumed to consist of spread footings of reinforced concrete built on undisturbed soil at a depth of 2 feet or at the depth of maximum frost penetration, whichever is deeper. The ratings are based on the soil properties that affect the capacity of the soil to support a load without movement and on the properties that affect excavation and construction costs. The properties that affect the load-supporting capacity include depth to a water table, ponding, flooding, subsidence, linear extensibility (shrink-swell potential), and compressibility (which is inferred from the Unified classification). The properties that affect the ease and amount of excavation include flooding, depth to a water table, ponding, slope, depth to bedrock or a cemented pan, hardness of bedrock or a cemented pan, and the amount and size of rock fragments.

Local roads and streets have an all-weather surface and carry automobile and light truck traffic all year. They have a subgrade of cut or fill soil material; a base of gravel, crushed rock, or soil material stabilized by lime or cement; and a surface of flexible material (asphalt), rigid material (concrete), or gravel with a binder. The ratings are based on the soil properties that affect the ease of excavation and grading and the traffic-supporting capacity. The properties that affect the ease of excavation and grading are depth to bedrock or a cemented pan, hardness of bedrock or a cemented pan, depth to a water table, ponding, flooding, the amount of large stones, and slope. The properties that affect the traffic-supporting capacity are soil strength (as inferred from the AASHTO group index number), subsidence, linear extensibility (shrink-swell potential), the potential for frost action, depth to a water table, and ponding.

Shallow excavations are trenches or holes dug to a maximum depth of 5 or 6 feet for graves, utility lines, open ditches, or other purposes. The ratings are based on the soil properties that influence the ease of digging and the resistance to sloughing. Depth to bedrock or a cemented pan, hardness of bedrock or a cemented pan, the amount of large stones, and dense layers influence the ease of digging, filling, and compacting. Depth to the seasonal high water table, flooding, and ponding may restrict the period when excavations can be made. Slope influences the ease of using machinery. Soil texture, depth to the water table, and linear extensibility (shrink-swell potential) influence the resistance to sloughing.

Lawns and landscaping require soils on which turf and ornamental trees and shrubs can be established and maintained. Irrigation is not considered in the ratings. The ratings are based on the soil properties that affect plant growth and trafficability after vegetation is established. The properties that affect plant growth are reaction; depth to a water table; ponding; depth to bedrock or a cemented pan; the available water capacity in the upper 40 inches; the content of salts, sodium, or calcium carbonate; and sulfidic materials. The properties that affect trafficability are flooding, depth to a water table, ponding, slope, stoniness, and the amount of sand, clay, or organic matter in the surface layer.

Sanitary Facilities

Table 12, parts I and II show the degree and kind of soil limitations that affect septic tank absorption fields, sewage lagoons, sanitary landfills, and daily cover for landfill. The ratings are both verbal and numerical. Rating class terms indicate the extent to which the soils are limited by all of the soil features that affect these uses. *Not limited* indicates that the soil has features that are very favorable for the specified use. Good performance and very low maintenance can be expected. *Somewhat limited* indicates that the soil has features that are moderately favorable for the specified use. The limitations can be overcome or minimized by special planning, design, or installation. Fair performance and moderate maintenance can be expected. *Very limited* indicates that the soil has one or more features that are unfavorable for the specified use. The limitations generally cannot be overcome without major soil reclamation, special design, or expensive installation procedures. Poor performance and high maintenance can be expected.

Numerical ratings in the table indicate the severity of individual limitations. The ratings are shown as decimal fractions ranging from 0.01 to 1.00. They indicate gradations between the point at which a soil feature has the greatest negative impact on the use (1.00) and the point at which the soil feature is not a limitation (0.00).

Septic tank absorption fields are areas in which effluent from a septic tank is distributed into the soil through subsurface tiles or perforated pipe. Only that part of the soil between depths of 24 and 60 inches is evaluated. The ratings are based on the soil properties that affect absorption of the effluent, construction and maintenance of the system, and public health. Permeability, depth to a water table, ponding, depth to bedrock or a cemented pan, and flooding affect absorption of the effluent. Stones and boulders, ice, and bedrock or a cemented pan interfere with installation. Subsidence interferes with installation and maintenance. Excessive slope may cause lateral seepage and surfacing of the effluent in downslope areas.

Some soils are underlain by loose sand and gravel or fractured bedrock at a depth of less than 4 feet below the distribution lines. In these soils the absorption field may not adequately filter the effluent, particularly when the system is new. As a result, the ground water may become contaminated.

Sewage lagoons are shallow ponds constructed to hold sewage while aerobic bacteria decompose the solid and liquid wastes. Lagoons should have a nearly level floor surrounded by cut slopes or embankments of compacted soil. Nearly impervious soil material for the lagoon floor and sides is required to minimize seepage and contamination of ground water. Considered in the ratings are slope, permeability, depth to a water table, ponding, depth to bedrock or a cemented pan, flooding, large stones, and content of organic matter.

Soil permeability is a critical property affecting the suitability for sewage lagoons. Most porous soils eventually become sealed when they are used as sites for sewage lagoons. Until sealing occurs, however, the hazard of pollution is severe. Soils that have a permeability rate of more than 2 inches per hour are too porous for the proper functioning of sewage lagoons. In these soils, seepage of the effluent can result in contamination of the ground water. Ground-water contamination is also a hazard if fractured bedrock is within a depth of 40 inches, if the water table is high enough to raise the level of sewage in the lagoon, or if floodwater overtops the lagoon.

A high content of organic matter is detrimental to proper functioning of the lagoon because it inhibits aerobic activity. Slope, bedrock, and cemented pans can cause construction problems, and large stones can hinder compaction of the lagoon floor. If the lagoon is to be uniformly deep throughout, the slope must be gentle enough and the soil material must be thick enough over bedrock or a cemented pan to make land smoothing practical.

A *trench sanitary landfill* is an area where solid waste is placed in successive layers in an excavated trench. The waste is spread, compacted, and covered daily with a thin layer of soil excavated at the site. When the trench is full, a final cover of soil material at least 2 feet thick is placed over the landfill. The ratings in the table are based on the soil properties that affect the risk of pollution, the ease of excavation, trafficability, and revegetation. These properties include permeability, depth to bedrock or a cemented pan, depth to a water table, ponding, slope, flooding, texture, stones and boulders, highly organic layers, soil reaction, and content of salts and sodium. Unless otherwise stated, the ratings apply only to that part of the soil within a depth of about 6 feet. For deeper trenches, onsite investigation may be needed.

Hard, nonrippable bedrock, creviced bedrock, or highly permeable strata in or directly below the proposed trench bottom can affect the ease of excavation and the hazard of ground-water pollution. Slope affects construction of the trenches and the movement of surface water around the landfill. It also affects the construction and performance of roads in areas of the landfill.

Soil texture and consistence affect the ease with which the trench is dug and the ease with which the soil can be used as daily or final cover. They determine the workability of the soil when dry and when wet. Soils that are plastic and sticky when wet are difficult to excavate, grade, or compact and are difficult to place as a uniformly thick cover over a layer of refuse.

The soil material used as the final cover for a trench landfill should be suitable for plants. It should not have excess sodium or salts and should not be too acid. The surface layer generally has the best workability, the highest content of organic matter, and the best potential for plants. Material from the surface layer should be stockpiled for use as the final cover.

In an *area sanitary landfill*, solid waste is placed in successive layers on the surface of the soil. The waste is spread, compacted, and covered daily with a thin layer of soil from a source away from the site. A final cover of soil material at least 2 feet thick is placed over the completed landfill. The ratings in the table are based on the soil properties that affect trafficability and the risk of pollution. These properties include flooding, permeability, depth to a water table, ponding, slope, and depth to bedrock or a cemented pan.

Flooding is a serious problem because it can result in pollution in areas downstream from the landfill. If permeability is too rapid or if fractured bedrock, a fractured cemented pan, or the water table is close to the surface, the leachate can contaminate the water supply. Slope is a consideration because of the extra grading required to maintain roads in the steeper areas of the landfill. Also, leachate may flow along the surface of the soils in the steeper areas and cause difficult seepage problems.

Daily cover for landfill is the soil material that is used to cover compacted solid waste in an area sanitary landfill. The soil material is obtained offsite, transported to the landfill, and spread over the waste. The ratings in the table also apply to the final cover for a landfill. They are based on the soil properties that affect workability, the ease of digging, and the ease of moving and spreading the material over the refuse daily during wet and dry periods. These properties include soil texture, depth to a water table, ponding, rock fragments, slope, depth to bedrock or a cemented pan, reaction, and content of salts, sodium, or lime.

Loamy or silty soils that are free of large stones and excess gravel are the best cover for a landfill. Clayey soils may be sticky and difficult to spread; sandy soils are subject to wind erosion.

Slope affects the ease of excavation and of moving the cover material. Also, it can influence runoff, erosion, and reclamation of the borrow area.

After soil material has been removed, the soil material remaining in the borrow area must be thick enough over bedrock, a cemented pan, or the water table to permit revegetation. The soil material used as the final cover for a landfill should be suitable for plants. It should not have excess sodium, salts, or lime and should not be too acid.

Construction Materials

Table 13, parts I and II give information about the soils as potential sources of gravel, sand, reclamation material, roadfill, and topsoil. Normal compaction, minor processing, and other standard construction practices are assumed.

Gravel and *sand* are natural aggregates suitable for commercial use with a minimum of processing. They are used in many kinds of construction. Specifications for each use vary widely. In table 13, part I, only the likelihood of finding material in suitable quantity is evaluated. The suitability of the material for specific purposes is not evaluated, nor are factors that affect excavation of the material. The properties used to evaluate the soil as a source of sand or gravel are gradation of grain sizes (as indicated by the Unified classification of the soil), the thickness of suitable material, and the content of rock fragments. If the bottom layer of the soil contains sand or gravel, the soil is considered a likely source regardless of thickness. The assumption is that the sand or gravel layer below the depth of observation exceeds the minimum thickness.

The soils are rated *good, fair,* or *poor* as potential sources of sand and gravel. A rating of *good* or *fair* means that the source material is likely to be in or below the soil. The bottom layer and the thickest layer of the soils are assigned numerical ratings. These ratings indicate the likelihood that the layer is a source of sand or gravel. The number 0.00 indicates that the layer is a poor source. The number 1.00 indicates that the layer is a good source. A number between 0.00 and 1.00 indicates the degree to which the layer is a likely source.

In table 13, part II, the rating class terms are *good, fair,* and *poor*. The features that limit the soils as sources of these materials are specified in the table. The numerical ratings given after the specified features indicate the degree to which the features limit the soils as sources of reclamation material, roadfill, and topsoil. The lower the number, the greater the limitation.

Reclamation material is used in areas that have been drastically disturbed by surface mining or similar activities. When these areas are reclaimed, layers of soil material or unconsolidated geological material, or both, are replaced in a vertical sequence. The reconstructed soil favors plant growth. The ratings in the table do not apply to quarries and other mined areas that require an offsite source of reconstruction material. The ratings are based on the soil properties that affect erosion and stability of the surface and the productive potential of the reconstructed soil. These properties include the content of sodium, salts, and calcium carbonate; reaction; available water capacity; erodibility; texture; content of rock fragments; and content of organic matter and other features that affect fertility.

Roadfill is soil material that is excavated in one place and used in road embankments in another place. In this table, the soils are rated as a source of roadfill for low embankments, generally less than 6 feet high and less exacting in design than higher embankments.

The ratings are for the whole soil, from the surface to a depth of about 5 feet. It is assumed that soil layers will be mixed when the soil material is excavated and spread.

The ratings are based on the amount of suitable material and on soil properties that affect the ease of excavation and the performance of the material after it is in place. The thickness of the suitable material is a major consideration. The ease of excavation is affected by large stones, depth to a water table, and slope. How well the soil performs in place after it has been compacted and drained is determined by its strength (as inferred from the AASHTO classification of the soil) and linear extensibility (shrink-swell potential).

Topsoil is used to cover an area so that vegetation can be established and maintained. The upper 40 inches of a soil is evaluated for use as topsoil. Also evaluated is the reclamation potential of the borrow area. The ratings are based on the soil properties that affect plant growth; the ease of excavating, loading, and spreading the material; and reclamation of the borrow area. Toxic substances, soil reaction, and the properties that are inferred from soil texture, such as available water capacity and fertility, affect plant growth. The ease of excavating, loading, and spreading is affected by rock fragments, slope, depth to a water table, soil texture, and thickness of suitable material. Reclamation of the borrow area is affected by slope, depth to a water table, rock fragments, depth to bedrock or a cemented pan, and toxic material.

The surface layer of most soils is generally preferred for topsoil because of its organic matter content. Organic matter greatly increases the absorption and retention of moisture and nutrients for plant growth.

Water Management

Table 14 gives information on the soil properties and site features that affect water management. The degree and kind of soil limitations are given for pond reservoir areas; embankments, dikes, and levees; and aquifer-fed excavated ponds. The ratings are both verbal and numerical. Rating class terms indicate the extent to which the soils are limited by all of the soil features that affect these uses. *Not limited* indicates that the soil has features that are very favorable for the specified use. Good performance and very low maintenance can be expected. *Somewhat limited* indicates that the soil has features that are moderately favorable for the specified use. The limitations can be overcome or minimized by special planning, design, or installation. Fair performance and moderate maintenance can be expected. *Very limited* indicates that the soil has one or more features that are unfavorable for the specified use. The limitations generally cannot be overcome without major soil reclamation, special design, or expensive installation procedures. Poor performance and high maintenance can be expected.

Numerical ratings in the table indicate the severity of individual limitations. The ratings are shown as decimal fractions ranging from 0.01 to 1.00. They indicate gradations between the point at which a soil feature has the greatest negative impact on the use (1.00) and the point at which the soil feature is not a limitation (0.00).

Pond reservoir areas hold water behind a dam or embankment. Soils best suited to this use have low seepage potential in the upper 60 inches. The seepage potential is determined by the permeability of the soil and the depth to fractured bedrock or other permeable material. Excessive slope can affect the storage capacity of the reservoir area.

Embankments, dikes, and levees are raised structures of soil material, generally less than 20 feet high, constructed to impound water or to protect land against overflow. Embankments that have zoned construction (core and shell) are not considered. In this table, the soils are rated as a source of material for embankment fill. The ratings apply to the soil material below the surface layer to a depth of about 5 feet. It is assumed that soil layers will be uniformly mixed and compacted during construction.

The ratings do not indicate the ability of the natural soil to support an embankment. Soil properties to a depth even greater than the height of the embankment can affect performance and safety of the embankment. Generally, deeper onsite investigation is needed to determine these properties.

Soil material in embankments must be resistant to seepage, piping, and erosion and have favorable compaction characteristics. Unfavorable features include less than 5 feet of suitable material and a high content of stones or boulders, organic matter, or salts or sodium. A high water table affects the amount of usable material. It also affects trafficability.

Aquifer-fed excavated ponds are pits or dugouts that extend to a ground-water aquifer or to a depth below a permanent water table. Excluded are ponds that are fed only by surface runoff and embankment ponds that impound water 3 feet or more above the original surface. Excavated ponds are affected by depth to a permanent water table, permeability of the aquifer, and quality of the water as inferred from the salinity of the soil. Depth to bedrock and the content of large stones affect the ease of excavation.

Soil Properties

Data relating to soil properties are collected during the course of the soil survey.

Soil properties are determined by field examination of the soils and by laboratory index testing of some benchmark soils. Established standard procedures are followed. During the survey, many shallow borings are made and examined to identify and classify the soils and to delineate them on the soil maps. Samples are taken from some typical profiles and tested in the laboratory to determine particle-size distribution, plasticity, and compaction characteristics.

Estimates of soil properties are based on field examinations, on laboratory tests of samples from the survey area, and on laboratory tests of samples of similar soils in nearby areas. Tests verify field observations, verify properties that cannot be estimated accurately by field observation, and help to characterize key soils.

The estimates of soil properties are shown in tables. They include engineering index properties, physical and chemical properties, and pertinent soil and water features.

Engineering Properties

Table 15 gives the engineering classifications and the range of engineering properties for the layers of each soil in the survey area.

Depth to the upper and lower boundaries of each layer is indicated.

Texture is given in the standard terms used by the U.S. Department of Agriculture. These terms are defined according to percentages of sand, silt, and clay in the fraction of the soil that is less than 2 millimeters in diameter. “Loam,” for example, is soil that is 7 to 27 percent clay, 28 to 50 percent silt, and less than 52 percent sand. If the content of particles coarser than sand is 15 percent or more, an appropriate modifier is added, for example, “gravelly.” Textural terms are defined in the Glossary.

Classification of the soils is determined according to the Unified soil classification system (ASTM, 2005) and the system adopted by the American Association of State Highway and Transportation Officials (AASHTO, 2004).

The Unified system classifies soils according to properties that affect their use as construction material. Soils are classified according to particle-size distribution of the fraction less than 3 inches in diameter and according to plasticity index, liquid limit, and organic matter content. Sandy and gravelly soils are identified as GW, GP, GM, GC, SW, SP, SM, and SC; silty and clayey soils as ML, CL, OL, MH, CH, and OH; and highly organic soils as PT. Soils exhibiting engineering properties of two groups can have a dual classification, for example, CL-ML.

The AASHTO system classifies soils according to those properties that affect roadway construction and maintenance. In this system, the fraction of a mineral soil that is less than 3 inches in diameter is classified in one of seven groups from A-1 through A-7 on the basis of particle-size distribution, liquid limit, and plasticity index. Soils in group A-1 are coarse grained and low in content of fines (silt and clay). At the other extreme, soils in group A-7 are fine grained. Highly organic soils are classified in group A-8 on the basis of visual inspection.

If laboratory data are available, the A-1, A-2, and A-7 groups are further classified as A-1-a, A-1-b, A-2-4, A-2-5, A-2-6, A-2-7, A-7-5, or A-7-6. As an additional refinement, the suitability of a soil as subgrade material can be indicated by a group index number. Group index numbers range from 0 for the best subgrade material to 20 or higher for the poorest.

Rock fragments larger than 10 inches in diameter and 3 to 10 inches in diameter are indicated as a percentage of the total soil on a dry-weight basis. The percentages are estimates determined mainly by converting volume percentage in the field to weight percentage.

Percentage (of soil particles) passing designated sieves is the percentage of the soil fraction less than 3 inches in diameter based on an ovendry weight. The sieves, numbers 4, 10, 40, and 200 (USA Standard Series), have openings of 4.76, 2.00, 0.420, and 0.074 millimeters, respectively. Estimates are based on laboratory tests of soils sampled in the survey area and in nearby areas and on estimates made in the field.

Liquid limit and *plasticity index* (Atterberg limits) indicate the plasticity characteristics of a soil. The estimates are based on test data from the survey area or from nearby areas and on field examination.

Physical Soil Properties

Table 16, parts I and II show estimates of some physical characteristics and features that affect soil behavior. These estimates are given for the layers of each soil in the survey area. The estimates are based on field observations and on test data for these and similar soils.

Depth to the upper and lower boundaries of each layer is indicated.

Particle size is the effective diameter of a soil particle as measured by sedimentation, sieving, or micrometric methods. Particle sizes are expressed as classes with specific effective diameter class limits. The broad classes are sand, silt, and clay, ranging from the larger to the smaller.

Sand as a soil separate consists of mineral soil particles that are 0.05 millimeter to 2 millimeters in diameter. In table 16, part I, the estimated sand content of each soil layer is given as a percentage, by weight, of the soil material that is less than 2 millimeters in diameter.

Silt as a soil separate consists of mineral soil particles that are 0.002 to 0.05 millimeter in diameter. In the table, the estimated silt content of each soil layer is given as a percentage, by weight, of the soil material that is less than 2 millimeters in diameter.

Clay as a soil separate consists of mineral soil particles that are less than 0.002 millimeter in diameter. In the table, the estimated clay content of each soil layer is given as a percentage, by weight, of the soil material that is less than 2 millimeters in diameter.

The content of sand, silt, and clay affects the physical behavior of a soil. Particle size is important for engineering and agronomic interpretations, for determination of soil hydrologic qualities, and for soil classification.

The amount and kind of clay affect the fertility and physical condition of the soil and the ability of the soil to adsorb cations and to retain moisture. They influence shrink-swell potential, permeability, plasticity, the ease of soil dispersion, and other soil properties. The amount and kind of clay in a soil also affect tillage and earthmoving operations.

Moist bulk density is the weight of soil (ovendry) per unit volume. Volume is measured when the soil is at field moisture capacity, that is, the moisture content at $^{1}/_{3}$- or $^{1}/_{10}$-bar (33kPa or 10kPa) moisture tension. Weight is determined after the soil is dried at 105 degrees C. In the table, the estimated moist bulk density of each soil horizon is expressed in grams per cubic centimeter of soil material that is less than 2 millimeters in diameter. Bulk density data are used to compute linear extensibility, shrink-swell potential, available water capacity, total pore space, and other soil properties. The moist bulk density of a soil indicates the pore space available for water and roots. Depending on soil texture, a bulk density of more than 1.4 can restrict water storage and root penetration. Moist bulk density is influenced by texture, kind of clay, content of organic matter, and soil structure.

Saturated hydraulic conductivity refers to the ability of a soil to transmit water or air. The term "permeability," as used in soil surveys, indicates saturated hydraulic conductivity (Ksat). The estimates in the table indicate the rate of water movement, in micrometers per second, when the soil is saturated. They are based on soil characteristics observed in the field, particularly structure, porosity, and texture. Permeability is considered in the design of soil drainage systems and septic tank absorption fields.

Available water capacity refers to the quantity of water that the soil is capable of storing for use by plants. The capacity for water storage is given in inches of water per inch of soil for each soil layer. The capacity varies, depending on soil properties that affect retention of water. The most important properties are the content of organic matter, soil texture, bulk density, and soil structure. Available water capacity is an important factor in the choice of plants or crops to be grown and in the design and management of irrigation systems. Available water capacity is not an estimate of the quantity of water actually available to plants at any given time.

Linear extensibility refers to the change in length of an unconfined clod as moisture content is decreased from a moist to a dry state. It is an expression of the volume change between the water content of the clod at $^1/_3$- or $^1/_{10}$-bar tension (33kPa or 10kPa tension) and oven dryness. The volume change is reported in the table as percent change for the whole soil. Volume change is influenced by the amount and type of clay minerals in the soil.

Linear extensibility is used to determine the shrink-swell potential of soils. The shrink-swell potential is low if the soil has a linear extensibility of less than 3 percent; moderate if 3 to 6 percent; high if 6 to 9 percent; and very high if more than 9 percent. If the linear extensibility is more than 3, shrinking and swelling can cause damage to buildings, roads, and other structures and to plant roots. Special design commonly is needed.

Organic matter is the plant and animal residue in the soil at various stages of decomposition. In table 16, part II, the estimated content of organic matter is expressed as a percentage, by weight, of the soil material that is less than 2 millimeters in diameter.

The content of organic matter in a soil can be maintained by returning crop residue to the soil. Organic matter has a positive effect on available water capacity, water infiltration, soil organism activity, and tilth. It is a source of nitrogen and other nutrients for crops and soil organisms.

Erosion factors are shown in the table as the K factor (Kw and Kf) and the T factor. Erosion factor K indicates the susceptibility of a soil to sheet and rill erosion by water. Factor K is one of six factors used in the Universal Soil Loss Equation (USLE) and the Revised Universal Soil Loss Equation (RUSLE) to predict the average annual rate of soil loss by sheet and rill erosion in tons per acre per year. The estimates are based primarily on percentage of silt, sand, and organic matter and on soil structure and permeability. Values of K range from 0.02 to 0.69. Other factors being equal, the higher the value, the more susceptible the soil is to sheet and rill erosion by water.

Erosion factor Kw indicates the erodibility of the whole soil. The estimates are modified by the presence of rock fragments.

Erosion factor Kf indicates the erodibility of the fine-earth fraction, or the material less than 2 millimeters in size.

Erosion factor T is an estimate of the maximum average annual rate of soil erosion by wind or water that can occur without affecting crop productivity over a sustained period. The rate is in tons per acre per year.

Wind erodibility groups are made up of soils that have similar properties affecting their susceptibility to wind erosion in cultivated areas. The soils assigned to group 1 are the most susceptible to wind erosion, and those assigned to group 8 are the least susceptible. The groups are described in the “National Soil Survey Handbook,” which is available in local offices of the Natural Resources Conservation Service or on the Internet.

Wind erodibility index is a numerical value indicating the susceptibility of soil to wind erosion, or the tons per acre per year that can be expected to be lost to wind erosion. There is a close correlation between wind erosion and the texture of the surface layer, the size and durability of surface clods, rock fragments, organic matter, and a calcareous reaction. Soil moisture and frozen soil layers also influence wind erosion.

Chemical Soil Properties

Table 17 shows estimates of some chemical characteristics and features that affect soil behavior. These estimates are given for the layers of each soil in the survey area. The estimates are based on field observations and on test data for these and similar soils.

Depth to the upper and lower boundaries of each layer is indicated.

Cation-exchange capacity is the total amount of extractable cations that can be held by the soil, expressed in terms of milliequivalents per 100 grams of soil at neutrality (pH 7.0) or at some other stated pH value. Soils having a low cation-exchange capacity hold fewer cations and may require more frequent applications of fertilizer than soils having a high cation-exchange capacity. The ability to retain cations reduces the hazard of ground-water pollution.

Effective cation-exchange capacity refers to the sum of extractable cations plus aluminum expressed in terms of milliequivalents per 100 grams of soil. It is determined for soils that have pH of less than 5.5.

Soil reaction is a measure of acidity or alkalinity. The pH of each soil horizon is based on many field tests. For many soils, values have been verified by laboratory analyses. Soil reaction is important in selecting crops and other plants, in evaluating soil amendments for fertility and stabilization, and in determining the risk of corrosion.

Water Features

Table 18 gives estimates of various water features. The estimates are used in land use planning that involves engineering considerations.

Hydrologic soil groups are based on estimates of runoff potential. Soils are assigned to one of four groups according to the rate of water infiltration when the soils are not protected by vegetation, are thoroughly wet, and receive precipitation from long-duration storms.

The four hydrologic soil groups are:

Group A. Soils having a high infiltration rate (low runoff potential) when thoroughly wet. These consist mainly of deep, well drained to excessively drained sands or gravelly sands. These soils have a high rate of water transmission.

Group B. Soils having a moderate infiltration rate when thoroughly wet. These consist chiefly of moderately deep or deep, moderately well drained or well drained soils that have moderately fine texture to moderately coarse texture. These soils have a moderate rate of water transmission.

Group C. Soils having a slow infiltration rate when thoroughly wet. These consist chiefly of soils having a layer that impedes the downward movement of water or soils of moderately fine texture or fine texture. These soils have a slow rate of water transmission.

Group D. Soils having a very slow infiltration rate (high runoff potential) when thoroughly wet. These consist chiefly of clays that have a high shrink-swell potential, soils that have a high water table, soils that have a claypan or clay layer at or near the surface, and soils that are shallow over nearly impervious material. These soils have a very slow rate of water transmission.

Surface runoff refers to the loss of water from an area by flow over the land surface. Surface runoff classes are based on slope, climate, and vegetative cover. It is assumed that the surface of the soil is bare and that the retention of surface water resulting from irregularities in the ground surface is minimal. The classes are negligible, very low, low, medium, high, and very high.

The *months* in the table indicate the portion of the year in which the feature is most likely to be a concern.

Water table refers to a saturated zone in the soil. The table indicates, by month, depth to the top (*upper limit*) and base (*lower limit*) of the saturated zone in most years. Estimates of the upper and lower limits are based mainly on observations of the water table at selected sites and on evidence of a saturated zone, namely grayish colors or mottles (redoximorphic features) in the soil. A saturated zone that lasts for less than a month is not considered a water table.

Ponding is standing water in a closed depression. Unless a drainage system is installed, the water is removed only by percolation, transpiration, or evaporation. The table indicates *surface water depth* and the *duration* and *frequency* of ponding. Duration is expressed as *very brief* if less than 2 days, *brief* if 2 to 7 days, *long* if 7 to 30 days, and *very long* if more than 30 days. Frequency is expressed as none, rare, occasional, and frequent. *None* means that ponding is not probable; *rare* that it is unlikely but possible under unusual weather conditions (the chance of ponding is nearly 0 percent to 5 percent in any year); *occasional* that it occurs, on the average, once or less in 2 years (the chance of ponding is 5 to 50 percent in any year); and *frequent* that it occurs, on the average, more than once in 2 years (the chance of ponding is more than 50 percent in any year).

Flooding is the temporary inundation of an area caused by overflowing streams, by runoff from adjacent slopes, or by tides. Water standing for short periods after rainfall or snowmelt is not considered flooding, and water standing in swamps and marshes is considered ponding rather than flooding.

Duration and *frequency* are estimated. Duration is expressed as *extremely brief* if 0.1 hour to 4 hours, *very brief* if 4 hours to 2 days, *brief* if 2 to 7 days, *long* if 7 to 30 days, and *very long* if more than 30 days. Frequency is expressed as none, very rare, rare, occasional, frequent, and very frequent. *None* means that flooding is not probable; *very rare* that it is very unlikely but possible under extremely unusual weather conditions (the chance of flooding is less than 1 percent in any year); *rare* that it is unlikely but possible under unusual weather conditions (the chance of flooding is 1 to 5 percent in any year); *occasional* that it occurs infrequently under normal weather conditions (the chance of flooding is 5 to 50 percent in any year); *frequent* that it is likely to occur often under normal weather conditions (the chance of flooding is more than 50 percent in any year but is less than 50 percent in all months in any year); and *very frequent* that it is likely to occur very often under normal weather conditions (the chance of flooding is more than 50 percent in all months of any year).

The information is based on evidence in the soil profile, namely thin strata of gravel, sand, silt, or clay deposited by floodwater; irregular decrease in organic matter content with increasing depth; and little or no horizon development.

Also considered are local information about the extent and levels of flooding and the relation of each soil on the landscape to historic floods. Information on the extent of flooding based on soil data is less specific than that provided by detailed engineering surveys that delineate flood-prone areas at specific flood frequency levels.

Soil Features

Table 19 gives estimates of various soil features. The estimates are used in land use planning that involves engineering considerations.

A *restrictive layer* is a nearly continuous layer that has one or more physical, chemical, or thermal properties that significantly impede the movement of water and air through the soil or that restrict roots or otherwise provide an unfavorable root environment. Examples are bedrock, cemented layers, dense layers, and frozen layers. The table indicates the hardness of the restrictive layer, which significantly affects the ease of excavation. *Depth to top* is the vertical distance from the soil surface to the upper boundary of the restrictive layer.

Potential for frost action is the likelihood of upward or lateral expansion of the soil caused by the formation of segregated ice lenses (frost heave) and the subsequent collapse of the soil and loss of strength on thawing. Frost action occurs when moisture moves into the freezing zone of the soil. Temperature, texture, density, permeability, content of organic matter, and depth to the water table are the most important factors considered in evaluating the potential for frost action. It is assumed that the soil is not insulated by vegetation or snow and is not artificially drained. Silty and highly structured, clayey soils that have a high water table in winter are the most susceptible to frost action. Well drained, very gravelly, or very sandy soils are the least susceptible. Frost heave and low soil strength during thawing cause damage to pavements and other rigid structures.

Risk of corrosion pertains to potential soil-induced electrochemical or chemical action that corrodes or weakens uncoated steel or concrete. The rate of corrosion of uncoated steel is related to such factors as soil moisture, particle-size distribution, acidity, and electrical conductivity of the soil. The rate of corrosion of concrete is based mainly on the sulfate and sodium content, texture, moisture content, and acidity of the soil. Special site examination and design may be needed if the combination of factors results in a severe hazard of corrosion. The steel or concrete in installations that intersect soil boundaries or soil layers is more susceptible to corrosion than the steel or concrete in installations that are entirely within one kind of soil or within one soil layer.

For uncoated steel, the risk of corrosion, expressed as *low, moderate,* or *high,* is based on soil drainage class, total acidity, electrical resistivity near field capacity, and electrical conductivity of the saturation extract.

For concrete, the risk of corrosion also is expressed as *low, moderate,* or *high*. It is based on soil texture, acidity, and amount of sulfates in the saturation extract.

Classification of the Soils

The system of soil classification used by the National Cooperative Soil Survey has six categories (Soil Survey Staff, 1999 and 2006). Beginning with the broadest, these categories are the order, suborder, great group, subgroup, family, and series. Classification is based on soil properties observed in the field or inferred from those observations or from laboratory measurements. The categories are defined in the following paragraphs.

ORDER. Twelve soil orders are recognized. The differences among orders reflect the dominant soil-forming processes and the degree of soil formation. Each order is identified by a word ending in *sol*. An example is Ultisol.

SUBORDER. Each order is divided into suborders primarily on the basis of properties that influence soil genesis and are important to plant growth or properties that reflect the most important variables within the orders. The last syllable in the name of a suborder indicates the order. An example is Udult (*Ud*, meaning humid, plus *ult*, from Ultisol).

GREAT GROUP. Each suborder is divided into great groups on the basis of close similarities in kind, arrangement, and degree of development of pedogenic horizons; soil moisture and temperature regimes; type of saturation; and base status. Each great group is identified by the name of a suborder and by a prefix that indicates a property of the soil. An example is Hapludults (*Hapl*, meaning minimal horizonation, plus *udult*, the suborder of the Ultisols that has a udic moisture regime).

SUBGROUP. Each great group has a typic subgroup. Other subgroups are intergrades or extragrades. The typic subgroup is the central concept of the great group; it is not necessarily the most extensive. Intergrades are transitions to other orders, suborders, or great groups. Extragrades have some properties that are not representative of the great group but do not indicate transitions to any other taxonomic class. Each subgroup is identified by one or more adjectives preceding the name of the great group. The adjective *Typic* identifies the subgroup that typifies the great group. An example is Typic Hapludults.

FAMILY. Families are established within a subgroup on the basis of physical and chemical properties and other characteristics that affect management. Generally, the properties are those of horizons below plow depth where there is much biological activity. Among the properties and characteristics considered are particle-size class, mineralogy class, cation-exchange activity class, soil temperature regime, soil depth, and reaction class. A family name consists of the name of a subgroup preceded by terms that indicate soil properties. An example is fine-loamy, mixed, active, mesic Typic Hapludults.

SERIES. The series consists of soils within a family that have horizons similar in color, texture, structure, reaction, consistence, mineral and chemical composition, and arrangement in the profile.

Table 20 indicates the order, suborder, great group, subgroup, and family of the soil series in the survey area.

Soil Series and Their Morphology

In this section, each soil series recognized in the survey area is described. Characteristics of the soil and the material in which it formed are identified for each series. A pedon, a small three-dimensional area of soil, that is typical of the series in the survey area is described. The detailed description of each soil horizon follows standards in the “Soil Survey Manual” (Soil Survey Division Staff, 1993) and in the “Field Book for Describing and Sampling Soils” (Schoeneberger and others, 2002). Many of the technical terms used in the descriptions are defined in “Soil Taxonomy” (Soil Survey Staff, 1999) and in “Keys to Soil Taxonomy” (Soil Survey Staff, 2006). Unless otherwise indicated, colors in the descriptions are for moist soil. Following the pedon description is the range of important characteristics of the soils in the series.

Alonzville Series

Physiographic province: Valley and Ridge
Landform: Low and intermediate stream terraces in river valleys
Parent material: Alluvium derived from sandstone and shale
Drainage class: Well drained
Slowest saturated hydraulic conductivity: Moderately high
Depth class: Very deep
Slope range: 0 to 15 percent

Associated Soils

- Coursey soils, which are moderately well drained; on similar landforms
- Ogles soils, which have a loamy-skeletal particle size and do not have an argillic horizon; on flood plains
- Pope soils, which do not have an argillic horizon; on flood plains
- Philo soils, which do not have an argillic horizon and are moderately well drained; on flood plains

Taxonomic Classification

Fine-loamy, siliceous, semiactive, mesic Typic Hapludults

Typical Pedon

Alonzville loam, 0 to 3 percent slopes, rarely flooded; in Alleghany County, Virginia; approximately 9,350 feet south-southwest, on a bearing of 210 degrees, from the intersection of Highways VA-159 and VA-665 in the area of Peters Mountain, in a pasture; Callaghan, Virginia USGS 7.5 Minute Quadrangle, NAD27; lat. 37 degrees 45 minutes 56.00 seconds N. and long. 80 degrees 7 minutes 4.00 seconds W.

Ap—0 to 5 inches; dark grayish brown (10YR 4/2) loam; weak fine granular structure; very friable; common very fine and fine roots; 12 percent rounded sandstone gravel; strongly acid; clear smooth boundary.

BA—5 to 15 inches; brown (10YR 4/3) loam; weak fine subangular blocky structure; very friable; common very fine and fine roots; 12 percent rounded sandstone gravel; strongly acid; gradual smooth boundary.

Bt1—15 to 44 inches; dark yellowish brown (10YR 4/4) clay loam; strong medium subangular blocky structure; very friable; few very fine and fine roots; many distinct clay films on all faces of peds; 3 percent rounded sandstone gravel; strongly acid; diffuse smooth boundary.

Bt2—44 to 55 inches; dark yellowish brown (10YR 4/4) clay loam; moderate medium subangular blocky structure; very friable; few very fine and fine roots; common faint clay films on all faces of peds; 12 percent rounded sandstone gravel; strongly acid; gradual smooth boundary.

BC—55 to 65 inches; dark yellowish brown (10YR 4/4) gravelly loam; weak fine subangular blocky structure; very friable; few very fine and fine roots; 30 percent rounded sandstone gravel; strongly acid.

Range in Characteristics

Solum thickness: 30 to 60 inches or more
Depth to bedrock: More than 60 inches
Reaction: Very strongly acid to moderately acid in unlimed areas
Rock fragments: 0 to 15 percent gravel in the Ap, BA, AB, BE, and Bt horizons and 0 to 35 percent gravel in the BC and C horizons

Ap horizon:
Hue—7.5YR or 10YR
Value—2 to 4
Chroma—2 or 3
Texture—loam

BA, AB, and BE horizons (if they occur):
Hue—7.5YR or 10YR
Value—4 to 6
Chroma—3 to 6
Texture—loam, silt loam, or fine sandy loam

Bt horizon:
Hue—7.5YR or 10YR
Value—4 or 5
Chroma—3 to 8
Texture—clay loam, silty clay loam, silt loam, or loam

BC horizon:
Hue—7.5YR or 10YR
Value—4 or 5
Chroma—4 to 6
Fine-earth texture—loam, clay loam, or sandy clay loam

C horizon (if it occurs):
Hue—7.5YR or 10YR
Value—4 or 5
Chroma—3 to 6
Fine-earth texture—fine sandy loam, clay loam, or loam

Atkins Series

Physiographic province: Valley and Ridge
Landform: Flood plains along small creeks
Parent material: Fine-loamy alluvium derived from sandstone, siltstone, and shale
Drainage class: Poorly drained
Slowest saturated hydraulic conductivity: Moderately low
Depth class: Very deep
Slope range: 0 to 3 percent

Associated Soils

- Ogles soils, which are well drained and have a loamy-skeletal particle size; on similar landforms
- Philo soils, which are moderately well drained and have a coarse-loamy particle size; on similar landforms

- Pope soils, which are well drained and have a coarse-loamy particle size; on similar landforms

Taxonomic Classification

Fine-loamy, mixed, active, acid, mesic Fluvaquentic Endoaquepts

Typical Pedon

Atkins fine sandy loam, 0 to 3 percent slopes, frequently flooded; in Bland County, Virginia; about 1.9 miles northeast of Mechanicsburg, about 0.2 mile south of the junction of Highways VA-607 and VA-606, about 1.5 miles northwest of the junction of Highways VA-606 and VA-42, in a pasture; Mechanicsburg, Virginia USGS 7.5 Minute Quadrangle, NAD27; lat. 37 degrees 10 minutes 29.00 seconds N. and long. 80 degrees 55 minutes 33.00 seconds W.

A1—0 to 3 inches; dark grayish brown (10YR 4/2) fine sandy loam; weak fine granular structure; friable; nonsticky, nonplastic; few fine and many very fine roots; common medium distinct yellowish brown (10YR 5/8), moist, masses of oxidized iron on surfaces along root channels; strongly acid; abrupt smooth boundary.

A2—3 to 9 inches; gray (10YR 5/1) fine sandy loam; weak fine granular structure; friable; nonsticky, nonplastic; common very fine roots; common medium distinct yellowish brown (10YR 5/8), moist, masses of oxidized iron on surfaces along root channels; strongly acid; clear smooth boundary.

Bg1—9 to 23 inches; gray (10YR 5/1) sandy loam; weak fine subangular blocky structure; friable; nonsticky, nonplastic; few very fine and fine roots; common medium distinct yellowish brown (10YR 5/8), moist, masses of oxidized iron on surfaces along root channels; 5 percent rounded sandstone gravel; strongly acid; gradual smooth boundary.

Bg2—23 to 37 inches; dark gray (10YR 4/1) sandy loam; weak fine subangular blocky structure; friable; nonsticky, nonplastic; few very fine roots; common medium distinct yellowish brown (10YR 5/8), moist, masses of oxidized iron on surfaces along root channels; 10 percent rounded sandstone gravel; strongly acid; gradual smooth boundary.

Cg1—37 to 56 inches; dark gray (10YR 4/1) gravelly sandy loam; massive; friable; slightly sticky, nonplastic; few medium distinct yellowish brown (10YR 5/8), moist, masses of oxidized iron on surfaces along root channels; 15 percent rounded sandstone gravel; strongly acid; gradual smooth boundary.

Cg2—56 to 62 inches; dark gray (10YR 4/1) silty clay loam; massive; friable; slightly sticky, slightly plastic; few fine distinct yellowish brown (10YR 5/8), moist, masses of oxidized iron on surfaces along root channels; 10 percent rounded sandstone gravel; strongly acid.

Range in Characteristics

Solum thickness: 25 to 50 inches
Depth to bedrock: More than 60 inches
Reaction: In unlimed areas, very strongly acid or strongly acid to a depth of 40 inches and very strongly acid to moderately acid below a depth 40 inches
Rock fragments (content, type and size): 0 to 15 percent in the A horizon, 0 to 20 percent in the B horizon, and 0 to 60 percent in the C horizon; rounded sandstone gravel and cobbles

A horizon:
Hue—10YR
Value—4 to 7
Chroma—1 to 4
Texture—fine sandy loam

Redoximorphic features—masses of oxidized iron in shades of red, brown, and yellow in some pedons; iron depletions in shades of brown and gray in some pedons

Bg horizon:

Hue—7.5YR to 5Y or neutral
Value—4 to 7
Chroma—1 or 2
Fine-earth texture—sandy loam, loam, silt loam, or silty clay loam
Redoximorphic features—masses of oxidized iron in shades of red, brown, and yellow; iron depletions in shades of brown and gray in some pedons within the gleyed matrix

Cg horizon:

Hue—7.5YR to 5Y or neutral
Value—4 to 7
Chroma—1 or 2
Fine-earth texture—sandy loam, loam, silt loam, or silty clay loam
Redoximorphic features—masses of oxidized iron in shades of red, brown, and yellow; iron depletions in shades of brown and gray in some pedons within the gleyed matrix

Bailegap Series

Physiographic province: Valley and Ridge
Landform: Hills and mountains
Parent material: Fine-loamy residuum weathered from sandstone, siltstone, and shale
Drainage class: Well drained
Slowest saturated hydraulic conductivity: Moderately high
Depth class: Deep
Slope range: 8 to 70 percent

Associated Soils

- Dekalb soils, which are moderately deep to sandstone bedrock and have a loamy-skeletal particle size; on similar landforms
- Gilpin soils, which are moderately deep to shale bedrock; on similar landforms
- Lily soils, which are moderately deep to sandstone bedrock; on similar landforms
- Oriskany soils, which are very deep to bedrock, have a loamy-skeletal particle size, and have many stones on the surface; on footslopes and adjacent to drainageways

Taxonomic Classification

Fine-loamy, siliceous, semiactive, mesic Typic Hapludults

Typical Pedon

Bailegap fine sandy loam, 15 to 35 percent slopes, very stony; in Bland County, Virginia; about 1.0 mile southeast of Bluefield, on East River Mountain, about 1.5 miles northeast of the end of maintained Highway VA-613, about 1.0 mile northwest of Laurel Fork Church, in woodland; Bastian, Virginia USGS 7.5 Minute Quadrangle, NAD27; lat. 37 degrees 14 minutes 40.00 seconds N. and long. 81 degrees 11 minutes 37.00 seconds W.

Oi—0 to 1 inch; slightly decomposed plant material.
Oe—1 to 2 inches; moderately decomposed plant material.

A—2 to 4 inches; brown (7.5YR 4/3) fine sandy loam; weak fine granular structure; friable; nonsticky, nonplastic; many very fine, fine, medium, and coarse roots; 5 percent subangular sandstone gravel; very strongly acid; clear wavy boundary.
E—4 to 9 inches; reddish brown (5YR 4/4) fine sandy loam; weak medium granular structure; friable; slightly sticky, nonplastic; common medium and coarse roots; 5 percent subangular sandstone gravel; strongly acid; clear wavy boundary.
Bt1—9 to 28 inches; yellowish red (5YR 4/6) loam; weak very fine and fine subangular blocky structure; friable; slightly sticky, slightly plastic; few fine and medium roots; few faint clay films on all faces of peds; 5 percent subangular sandstone gravel; strongly acid; clear wavy boundary.
Bt2—28 to 43 inches; reddish brown (5YR 4/4) clay loam; moderate fine subangular blocky structure; friable; slightly sticky, slightly plastic; few very fine roots; few faint clay films on all faces of peds; 10 percent subangular sandstone gravel; strongly acid; gradual wavy boundary.
Cr—43 to 46 inches; reddish brown (5YR 4/4) soft sandstone bedrock; abrupt broken boundary.
R—46 inches; hard sandstone bedrock.

Range in Characteristics

Solum thickness: 40 to 60 inches
Depth to bedrock: 40 to 60 inches
Reaction: Very strongly acid or strongly acid
Content of rock fragments: 5 to 35 percent in the upper solum and 5 to 60 percent in the lower solum and in the substratum

A horizon:
Hue—10YR to 5YR
Value—3 or 4
Chroma—2 or 3
Fine-earth texture—fine sandy loam

E horizon:
Hue—10YR to 5YR
Value—4 to 6
Chroma—3 to 6
Fine-earth texture—loam, silt loam, fine sandy loam, or sandy loam

Bt horizon:
Hue—7.5YR to 2.5YR
Value—4 to 6
Chroma—4 to 8
Fine-earth texture—clay loam, sandy clay loam, silt loam, or loam

Berks Series

Physiographic province: Valley and Ridge
Landform: Hills and mountains
Parent material: Residuum weathered from shale and siltstone
Drainage class: Well drained
Slowest saturated hydraulic conductivity: Moderately high
Depth class: Moderately deep
Slope range: 8 to 70 percent

Associated Soils

- Calvin soils, which are redder than the Berks soils; on similar landforms
- Culleoka and Gilpin soils, which have a fine-loamy particle size; on similar landforms

- Oriskany soils, which are very deep to bedrock and have many stones on the surface; on footslopes
- Rough soils, which are very shallow to bedrock; on similar landforms
- Shelocta soils, which are very deep to bedrock and have a fine-loamy particle size; on footslopes
- Weikert soils, which are shallow to bedrock; on similar landforms

Taxonomic Classification

Loamy-skeletal, mixed, active, mesic Typic Dystrudepts

Typical Pedon

Berks very channery silt loam in an area of Weikert-Berks complex, 35 to 70 percent slopes; in Smyth County, Virginia; about 4.5 miles northeast of Marion, about 0.4 mile south of the junction of Highways VA-16 and VA-348, about 1.0 mile southwest of Molly's Knob, in woodland; Chatham Hill, Virginia USGS 7.5 Minute Quadrangle, NAD27; lat. 36 degrees 52 minutes 42.00 seconds N. and long. 81 degrees 31 minutes 36.00 seconds W.

Oe—0 to 2 inches; moderately decomposed plant material.

A—2 to 5 inches; brown (10YR 5/3) very channery silt loam; weak fine granular structure; friable; slightly sticky, slightly plastic; common coarse and many very fine roots; many very fine interstitial pores; 50 percent angular shale channers; very strongly acid; clear smooth boundary.

Bw1—5 to 15 inches; yellowish brown (10YR 5/6) channery silt loam; weak fine subangular blocky structure; friable; slightly sticky, slightly plastic; few fine and medium roots; many very fine interstitial pores; common faint silt coats; 30 percent angular shale channers; very strongly acid; gradual wavy boundary.

Bw2—15 to 26 inches; brownish yellow (10YR 6/8) very channery silt loam; weak medium subangular blocky structure; friable; slightly sticky, slightly plastic; few fine roots; many very fine interstitial pores; common faint silt coats; 55 percent angular shale channers; very strongly acid; clear smooth boundary.

C—26 to 28 inches; strong brown (7.5YR 5/8) extremely channery silt loam; massive; friable; slightly sticky, slightly plastic; few very fine roots; many very fine interstitial pores; 80 percent angular shale channers; very strongly acid; abrupt wavy boundary.

R—28 inches; intermixed soft and hard shale bedrock.

Range in Characteristics

Solum thickness: 15 to 30 inches
Depth to bedrock: 20 to 40 inches
Reaction: Extremely acid to strongly acid in unlimed areas
Rock fragments (content, kind and size): 15 to 50 percent in the upper part of the solum, 30 to 75 percent in the middle and lower parts of the solum, and 35 to 85 percent in the substratum; shale, siltstone, or fine grained sandstone channers

A horizon:
Hue—10YR
Value—3 to 5
Chroma—2 to 4
Fine-earth texture—silt loam

Bw horizon:
Hue—7.5YR or 10YR
Value—4 to 6
Chroma—4 to 8
Fine-earth texture—silt loam or loam

C horizon:
Hue—7.5YR or 10YR
Value—4 to 6
Chroma—4 to 8
Fine-earth texture—silt loam or loam

Cr horizon or R layer:
Texture—soft or hard shale bedrock

Brushy Series

Physiographic province: Valley and Ridge
Landform: Hills and mountains
Parent material: Residuum weathered from chert or cherty limestone
Drainage class: Well drained
Slowest saturated hydraulic conductivity: Moderately high
Depth class: Moderately deep
Slope range: 35 to 70 percent

Associated Soils

- Bailegap soils, which are deep to sandstone bedrock and have a fine-loamy particle size; on similar landforms
- Berks soils, which are moderately deep to shale bedrock; on similar landforms
- Dekalb soils, which are moderately deep to sandstone bedrock; on similar landforms
- Lily soils, which have a fine-loamy particle size; on similar landforms
- Oriskany soils, which are very deep to bedrock; on footslopes

Taxonomic Classification

Loamy-skeletal, siliceous, semiactive, mesic Typic Hapludults

Typical Pedon

Brushy extremely gravelly loam, 25 to 65 percent slopes; in Smyth County, Virginia; on Walker Mountain, about 1.75 miles northeast of the intersection of Highways VA-617 and VA-659, about 1.25 miles west-northwest of Grove Church, 0.2 mile north of old Shannon Gap Road; Chatham Hill, Virginia USGS 7.5 Minute Quadrangle, NAD27; lat. 36 degrees 52 minutes 45.00 seconds N. and long. 81 degrees 35 minutes 36.00 seconds W.

Oe—0 to 2 inches; moderately decomposed plant material.
A—2 to 7 inches; dark yellowish brown (10YR 4/4) extremely gravelly loam; weak fine granular structure; friable; nonsticky, nonplastic; many very fine and fine roots; 75 percent angular chert gravel; extremely acid; clear smooth boundary.
E—7 to 13 inches; pale brown (10YR 6/3) very gravelly loam; weak fine granular structure; friable; nonsticky, nonplastic; common very fine and fine roots; 55 percent angular chert gravel; very strongly acid; abrupt wavy boundary.
Bt1—13 to 27 inches; yellowish brown (10YR 5/4) very gravelly clay loam; moderate fine subangular blocky structure; friable; slightly sticky, slightly plastic; few fine roots; common distinct clay films on all faces of peds; 45 percent angular chert gravel; very strongly acid; clear wavy boundary.
Bt2—27 to 34 inches; brown (7.5YR 5/4) very gravelly clay loam; weak fine subangular blocky structure; friable; slightly sticky, slightly plastic; common distinct clay films on all faces of peds; 40 percent angular chert gravel; very strongly acid; abrupt smooth boundary.
R—34 inches; chert bedrock.

Range in Characteristics

Solum thickness: 20 to 40 inches
Depth to bedrock: 20 to 40 inches
Reaction: Extremely acid to moderately acid in unlimed areas
Rock fragments (content, kind and size): 25 to 75 percent (less than 35 percent is limited to subhorizons of the Bt horizon); dominantly chert gravel and cobbles

A horizon:
Hue—10YR
Value—3 or 4
Chroma—2 to 4
Fine-earth texture—loam

E horizon:
Hue—10YR
Value—6
Chroma—3 or 4
Fine-earth texture—loam, silt loam, or fine sandy loam

Bt horizon:
Hue—7.5YR or 10YR
Value—4 to 6
Chroma—4 to 6
Fine-earth texture—loam, sandy clay loam, or clay loam

Calvin Series

Physiographic province: Valley and Ridge
Landform: Hills and mountains
Parent material: Loamy residuum weathered from shale and siltstone
Drainage class: Well drained
Slowest saturated hydraulic conductivity: High
Depth class: Moderately deep
Slope range: 15 to 70 percent

Associated Soils

- Berks soils, which are browner than the Calvin soils; on similar landforms
- Culleoka soils, which have a fine-loamy particle size and are browner than the Calvin soils; on similar landforms
- Dekalb soils, which are moderately deep to sandstone bedrock and are browner than the Calvin soils; on similar landforms
- Rough soils, which are very shallow to bedrock; on similar landforms
- Weikert soils, which are shallow to shale bedrock and are browner than the Calvin soils; on similar landforms
- Westmoreland soils, which are deep to bedrock, have a fine-loamy particle size, and are browner than the Calvin soils; on similar landforms

Taxonomic Classification

Loamy-skeletal, mixed, active, mesic Typic Dystrudepts

Typical Pedon

Calvin channery silt loam, 25 to 65 percent slopes; in Smyth County, Virginia; about 6.0 miles northwest of Marion, about 0.06 mile east of Highway VA-16, about 1.5 miles north of the intersection of Highways VA-16 and VA-348, in woodland; Chatham Hill, Virginia USGS 7.5 Minute Quadrangle, NAD27; lat. 36 degrees 54 minutes 18.00 seconds N. and long. 81 degrees 32 minutes 16.00 seconds W.

Oi—0 to 1 inch; slightly decomposed plant material.
A—1 to 4 inches; dark reddish brown (5YR 3/3) channery silt loam; weak fine granular structure; friable; nonsticky, nonplastic; many very fine and fine roots; many very fine interstitial pores; 20 percent angular siltstone channers; very strongly acid; clear smooth boundary.
BA—4 to 9 inches; reddish brown (5YR 4/3) channery silt loam; weak fine subangular blocky structure; friable; nonsticky, nonplastic; common fine, medium, and few coarse roots; many very fine interstitial pores; 25 percent angular siltstone channers; very strongly acid; clear smooth boundary.
Bw—9 to 21 inches; reddish brown (5YR 4/3) very channery silt loam; weak fine subangular blocky structure; friable; slightly sticky, slightly plastic; few fine and medium roots; many very fine interstitial pores; 45 percent angular siltstone channers; very strongly acid; clear wavy boundary.
C—21 to 27 inches; reddish brown (5YR 4/3) extremely channery silt loam; massive; friable; nonsticky, nonplastic; few very fine roots; many very fine interstitial pores; 70 percent angular siltstone channers; very strongly acid; abrupt smooth boundary.
R—27 inches; siltstone bedrock.

Range in Characteristics

Solum thickness: 12 to 35 inches
Depth to bedrock: 20 to 40 inches
Reaction: Moderately acid to very strongly acid
Content of rock fragments: 5 to 25 percent in the A and BA horizons, 25 to 55 percent in B horizon, and 40 to 80 percent in the C horizon

A horizon:
Hue—5YR
Value—2 to 4
Chroma—2 or 3
Fine-earth texture—silt loam

BA horizon:
Hue—2.5YR or 5YR
Value—4 or 5
Chroma—3 or 4
Fine-earth texture—silt loam or loam

Bw horizon:
Hue—2.5YR or 5YR
Value—4 or 5
Chroma—3 to 6
Fine-earth texture—silt loam or loam

C horizon:
Hue—2.5YR or 5YR
Value—3 to 5
Chroma—2 to 4
Fine-earth texture—silt loam or loam

Carbo Series

Physiographic province: Valley and Ridge
Landform: Hills; some areas have karst topography
Parent material: Residuum weathered from limestone

Drainage class: Well drained
Slowest saturated hydraulic conductivity: Moderately low
Depth class: Moderately deep
Slope range: 8 to 55 percent

Associated Soils

- Beech Grove soils, which are very shallow to bedrock; on similar landforms
- Bland soils, which have a subsoil that is redder than that of the Carbo soils; on similar landforms
- Frederick soils, which are very deep to bedrock; on similar landforms
- Slabtown soils, which are moderately well drained and very deep to bedrock; on concave footslopes and adjacent to drainageways
- Watahala soils, which are very deep to bedrock; on similar landforms

Taxonomic Classification

Very fine, mixed, active, mesic Typic Hapludalfs

Typical Pedon

Carbo silty clay loam, 7 to 15 percent slopes; in Smyth County, Virginia; about 8.5 miles northwest of Marion, about 3.8 miles northwest of the junction of Highways VA-16 and VA-348, about 4.0 miles southwest of the junction of Highways VA-610 and VA-16, in a pasture; Chatham Hill, Virginia USGS 7.5 Minute Quadrangle, NAD27; lat. 36 degrees 54 minutes 17.00 seconds N. and long. 81 degrees 35 minutes 37.00 seconds W.

Ap—0 to 5 inches; brown (10YR 4/3) silty clay loam; moderate medium granular structure; friable; slightly sticky, slightly plastic; many very fine, fine, and medium roots; neutral; clear smooth boundary.
Bt1—5 to 16 inches; brown (7.5YR 5/4) clay; moderate medium subangular blocky structure; firm; very sticky, very plastic; few very fine and fine roots; many distinct clay films on all faces of peds; common black (10YR 2/1) manganese masses; neutral; clear wavy boundary.
Bt2—16 to 24 inches; brown (7.5YR 4/4) clay; moderate medium subangular blocky structure; firm; very sticky, very plastic; many distinct clay films on all faces of peds; common black (10YR 2/1) manganese masses; neutral; abrupt smooth boundary.
R—24 inches; limestone bedrock.

Range in Characteristics

Solum thickness: 20 to 40 inches
Depth to bedrock: 20 to 40 inches
Reaction: Slightly acid to slightly alkaline in unlimed areas
Rock fragments (content, kind and size): 0 to 5 percent; dominantly limestone and chert gravel but including shale channers

Ap horizon:
Hue—7.5YR or 10YR
Value—3 to 5
Chroma—3 to 6
Texture—silty clay loam

Bt horizon:
Hue—7.5YR or 10YR
Value—4 to 6
Chroma—4 to 6
Texture—clay

Coursey Series

Physiographic province: Valley and Ridge
Landform: Low stream terraces in river valleys
Parent material: Fine-loamy alluvium derived from sandstone and shale
Drainage class: Moderately well drained
Slowest saturated hydraulic conductivity: Moderately high
Depth class: Very deep
Slope range: 0 to 8 percent

Associated Soils

- Alonzville soils, which are well drained; on similar landforms
- Ogles soils, which have a loamy-skeletal particle size and do not have an argillic horizon; on flood plains
- Pope soils, which do not have an argillic horizon; on flood plains
- Philo soils, which do not have an argillic horizon and are moderately well drained; on flood plains

Taxonomic Classification

Fine-loamy, siliceous, semiactive, mesic Aquic Hapludults

Typical Pedon

Coursey loam, 3 to 8 percent slopes, rarely flooded; in Craig County, Virgina; 0.2 mile south-southwest of the intersection of Highways VA-605 and VA-611, about 0.45 mile southwest of the intersection of Highways VA-604 and VA-611, in a pasture; Potts Creek, Virginia USGS 7.5 Minute Quadrangle, NAD27; lat. 37 degrees 31 minutes 34.00 seconds N. and long. 80 degrees 9 minutes 32.00 seconds W.

Ap—0 to 6 inches; brown (10YR 4/3) loam; moderate fine granular structure; friable; slightly sticky, slightly plastic; many very fine and fine and common medium and coarse roots; 2 percent sandstone gravel; strongly acid; clear smooth boundary.

BA—6 to 14 inches; yellowish brown (10YR 5/4) loam; weak fine subangular blocky structure; friable; slightly sticky, slightly plastic; many very fine and fine and few medium and coarse roots; 5 percent sandstone gravel; strongly acid; abrupt smooth boundary.

Bt1—14 to 21 inches; yellowish brown (10YR 5/6) clay loam; moderate fine and medium subangular blocky structure; firm; slightly sticky, slightly plastic; common very fine and fine roots; common faint clay films on all faces of peds; common fine faint light yellowish brown (10YR 6/4), moist, iron depletions; 5 percent sandstone gravel; strongly acid; gradual smooth boundary.

Bt2—21 to 38 inches; yellowish brown (10YR 5/6) clay loam; moderate medium subangular blocky structure; firm; slightly sticky, slightly plastic; few very fine and fine roots; common faint clay films on all faces of peds; many medium prominent light gray (10YR 7/2), moist, iron depletions; 10 percent sandstone gravel; strongly acid; clear smooth boundary.

BC—38 to 43 inches; yellowish brown (10YR 5/6) gravelly clay loam; weak fine subangular blocky structure; firm; slightly sticky, slightly plastic; many coarse prominent light gray (10YR 7/2), moist, iron depletions; 20 percent sandstone gravel; strongly acid; clear smooth boundary.

C—43 to 62 inches; yellowish brown (10YR 5/6) very gravelly fine sandy loam; massive; firm; slightly sticky, slightly plastic; many coarse prominent light gray (10YR 7/2), moist, iron depletions; 45 percent sandstone gravel; strongly acid.

Range in Characteristics

Solum thickness: 30 to 60 inches or more
Depth to bedrock: More than 60 inches
Reaction: Extremely acid to strongly acid in unlimed areas
Rock fragments: 0 to 15 percent gravel in the Ap horizon, 0 to 35 percent gravel in the BA and Bt horizons, and 0 to 50 percent gravel in the BC and C horizons

Ap horizon:
Hue—10YR
Value—4 to 6
Chroma—2 to 4
Texture—loam

BA horizon:
Hue—7.5YR or 10YR
Value—4 to 6
Chroma—3 to 8
Fine-earth texture—loam, clay loam, or sandy clay loam

Bt horizon:
Hue—7.5YR to 2.5Y
Value—4 to 6
Chroma—3 to 8
Fine-earth texture—loam, clay loam, or sandy clay loam
Redoximorphic features—masses of oxidized iron in shades of red, brown, or yellow in some pedons; iron depletions in shades of brown or gray

Btg horizon (if it occurs):
Hue—7.5YR to 2.5Y
Value—4 to 6
Chroma—2
Fine-earth texture—loam, clay loam, or sandy clay loam
Redoximorphic features—masses of oxidized iron in shades of red, brown, or yellow in some pedons; iron depletions in shades of brown or gray in some pedons within the gleyed matrix

BC horizon:
Hue—7.5YR to 2.5Y
Value—4 to 6
Chroma—3 to 8
Fine-earth texture—loam, clay loam, or sandy clay loam
Redoximorphic features—masses of oxidized iron in shades of red, brown, or yellow in some pedons; iron depletions in shades of brown or gray

BCg horizon (if it occurs):
Hue—7.5YR to 2.5Y
Value—4 to 6
Chroma—2
Fine-earth texture—loam, clay loam, or sandy clay loam
Redoximorphic features—masses of oxidized iron in shades of red, brown, or yellow in some pedons; iron depletions in shades of brown or gray in some pedons within the gleyed matrix

C horizon:
Hue—horizon has hue of 7.5YR or 2.5Y or is mottled in these colors without a dominant matrix hue

Value—4 to 8
Chroma—3 to 8
Fine-earth texture—fine sandy loam, loam, clay loam, or sandy clay loam
Redoximorphic features—masses of oxidized iron in shades of red, brown, or yellow in some pedons; iron depletions in shades of brown or gray

Cg horizon (if it occurs):
Hue—horizon has hue of 7.5YR or 2.5Y or is mottled in these colors without a dominant matrix hue
Value—4 to 8
Chroma—1 or 2
Fine-earth texture—fine sandy loam, loam, clay loam, or sandy clay loam
Redoximorphic features—masses of oxidized iron in shades of red, brown, or yellow in some pedons; iron depletions in shades of brown or gray in some pedons within the gleyed matrix

Culleoka Series

Physiographic province: Valley and Ridge
Landform: Hills and mountains
Parent material: Residuum weathered from shale, siltstone, and limestone
Drainage class: Well drained
Slowest saturated hydraulic conductivity: Moderately high
Depth class: Moderately deep
Slope range: 8 to 70 percent

Associated Soils

- Berks soils, which have a loamy-skeletal particle size; on similar landforms
- Calvin soils, which have a loamy-skeletal particle size and are redder than the Culleoka soils; on similar landforms
- Oriskany soils, which are very deep and have many stones on the surface; on footslopes

Taxonomic Classification

Fine-loamy, mixed, active, mesic Ultic Hapludalfs

Typical Pedon

Culleoka gravelly silt loam in an area of Culleoka-Berks complex, 35 to 70 percent slopes; in Bland County, Virginia; about 3.0 miles southeast of Bland, about 1.9 miles southeast of the intersection of Highways VA-656 and VA-658, about 2.5 miles south-southeast of the intersection of Highways VA-42 and VA-604, about 1.0 mile northeast of Turkey Gap Shelter, in woodland; Bland, Virginia USGS 7.5 Minute Quadrangle, NAD27; lat. 37 degrees 4 minutes 33.00 seconds N. and long. 81 degrees 4 minutes 31.00 seconds W.

Oe—0 to 1 inch; moderately decomposed plant material.
A—1 to 3 inches; brown (10YR 4/3) gravelly silt loam; moderate very fine granular structure; friable; nonsticky, nonplastic; many fine, medium, and coarse and common very fine roots; many very fine and fine interstitial pores; 5 percent angular sandstone gravel and 15 percent angular siltstone gravel; strongly acid; abrupt wavy boundary.
Bt1—3 to 11 inches; yellowish brown (10YR 5/6) silt loam; weak very fine subangular blocky structure; friable; slightly sticky, slightly plastic; few very fine, fine, medium,

and coarse roots; common very fine and fine interstitial pores; common distinct clay films on all faces of peds; 10 percent angular shale channers; strongly acid; clear wavy boundary.

Bt2—11 to 22 inches; yellowish brown (10YR 5/6) channery silty clay loam; moderate fine subangular blocky structure; friable; slightly sticky, slightly plastic; few very fine, fine, and coarse roots; common very fine and fine interstitial pores; common distinct clay films on all faces of peds; 25 percent angular shale channers; strongly acid; clear wavy boundary.

C—22 to 27 inches; dark yellowish brown (10YR 4/6) very channery silt loam; massive; friable; slightly sticky, nonplastic; few very fine and fine roots; common very fine and fine interstitial pores; 55 percent angular shale channers; strongly acid; gradual irregular boundary.

R—27 inches; siltstone bedrock.

Range in Characteristics

Solum thickness: 20 to 40 inches

Depth to bedrock: 20 to 40 inches

Reaction: In unlimed areas, strongly acid to moderately acid in the solum and strongly acid to slightly acid in the substratum

Rock fragments (content, kind and size): 0 to 35 percent in the A horizon, 10 to 35 percent in the Bt horizon, and 25 to 80 percent in the C horizon; dominantly shale, siltstone, or fine grained sandstone gravel or channers

A horizon:

Hue—7.5YR or 10YR

Value—3 or 4

Chroma—2 to 4

Fine-earth texture—silt loam

Bt horizon:

Hue—7.5YR or 10YR

Value—4 or 5

Chroma—3 to 6

Fine-earth texture—loam, silt loam, or silty clay loam

C horizon:

Hue—7.5YR or 10YR

Value—4 or 5

Chroma—4 to 6

Fine-earth texture—loam, silt loam, or silty clay loam

Dekalb Series

Physiographic province: Valley and Ridge

Landform: Hills and mountains

Parent material: Residuum weathered from sandstone

Drainage class: Somewhat excessively drained

Slowest saturated hydraulic conductivity: High

Depth class: Moderately deep

Slope range: 8 to 80 percent

Associated Soils

- Brushy soils, which are moderately deep to cherty limestone bedrock; on similar landforms
- Calvin soils, which are moderately deep to red shale bedrock; on similar landforms

- Lily soils, which have a fine-loamy particle size and an argillic horizon; on similar landforms
- Oriskany soils, which are very deep to bedrock and have a loamy-skeletal particle size; on footslopes

Taxonomic Classification

Loamy-skeletal, siliceous, active, mesic Typic Dystrudepts

Typical Pedon

Dekalb channery sandy loam, 25 to 80 percent slopes, extremely stony; in Smyth County, Virginia; about 2.5 miles southeast of Thomas Bridge, on Barton Mountain, about 0.6 mile west of the junction of Highways VA-650 and VA-670, about 1.6 miles east of the junction of Highways VA-650 and VA-720, in woodland; Marion, Virginia USGS 7.5 Minute Quadrangle, NAD27; lat. 36 degrees 45 minutes 20.00 seconds N. and long. 81 degrees 31 minutes 7.00 seconds W.

Oi—0 to 2 inches; slightly decomposed plant material.

A—2 to 5 inches; very dark grayish brown (10YR 3/2) channery sandy loam; weak fine granular structure; friable; slightly sticky, nonplastic; many very fine and fine roots; 5 percent flagstones and 20 percent channers; strongly acid; abrupt wavy boundary.

Bw—5 to 24 inches; yellowish brown (10YR 5/6) very channery sandy loam; weak very fine and fine subangular blocky structure; friable; slightly sticky, nonplastic; common very fine and fine roots; 10 percent flagstones and 40 percent channers; strongly acid; gradual wavy boundary.

C—24 to 31 inches; yellowish brown (10YR 5/6) extremely channery sandy loam; massive; friable; slightly sticky, nonplastic; few very fine roots; 15 percent flagstones and 60 percent channers; strongly acid; clear wavy boundary.

R—31 inches; sandstone bedrock.

Range in Characteristics

Solum thickness: 20 to 40 inches
Depth to bedrock: 20 to 40 inches
Reaction: Extremely acid to strongly acid
Rock fragments (content, type, size): 15 to 60 percent in the solum and 50 to 85 percent in the substratum; an average of more than 35 percent in the particle-size control section; sandstone; gravel to stones

A horizon:
Hue—10YR
Value—3 or 4
Chroma—2 to 4
Fine-earth texture—sandy loam

Bw horizon:
Hue—7.5YR or 10YR
Value—5 to 8
Chroma—4 to 8
Fine-earth texture—loam, fine sandy loam, or sandy loam

C horizon:
Hue—7.5YR or 10YR
Value—5 or 6
Chroma—4 to 6
Fine-earth texture—sandy loam or loamy sand

Escatawba Series

Physiographic province: Valley and Ridge
Landform: Bases of hillslopes and mountain slopes and areas in valleys
Parent material: Colluvium derived from sandstone and shale
Drainage class: Well drained
Slowest saturated hydraulic conductivity: Moderately high
Depth class: Very deep
Slope range: 3 to 35 percent

Associated Soils

- Oriskany soils, which have a loamy-skeletal particle size and do not have a seasonal high water table; on similar landforms
- Shelocta and Jefferson soils, which do not have a seasonal high water table; on similar landforms
- Tumbling soils, which do not have a seasonal high water table and have a fine particle size; on similar landforms
- Nicelytown soils, which are moderately well drained; on similar landforms

Taxonomic Classification

Fine-loamy, siliceous, semiactive, mesic Oxyaquic Paleudults

Typical Pedon

Escatawba loam, 3 to 8 percent slopes, very stony; in Alleghany County, Virginia; approximately 1,400 feet west-northwest, on a bearing of 276 degrees, from the intersection of Highway VA-613 and U.S. Forest Road 351 near Spice Run, in planted pine; Jordan Mines, Virginia USGS 7.5 Minute Quadrangle, NAD27; lat. 37 degrees 39 minutes 44.00 seconds N. and long. 80 degrees 4 minutes 8.00 seconds W.

Oe—0 to 1 inch; moderately decomposed plant material.

A—1 to 3 inches; very dark grayish brown (10YR 3/2) loam; weak fine granular structure; very friable; nonsticky, nonplastic; many very fine and fine and common medium roots; 5 percent gravel; very strongly acid; clear smooth boundary.

BE—3 to 17 inches; yellowish brown (10YR 5/4) loam; weak medium subangular blocky structure; very friable; slightly sticky, slightly plastic; common very fine and fine and few medium roots; 2 percent gravel; very strongly acid; gradual smooth boundary.

Bt1—17 to 30 inches; yellowish brown (10YR 5/6) loam; moderate medium subangular blocky structure; very friable; slightly sticky, moderately plastic; few very fine, fine, and medium roots; few distinct strong brown (7.5YR 5/6) clay films on all faces of peds; 2 percent gravel; strongly acid; clear smooth boundary.

2Bt2—30 to 44 inches; strong brown (7.5YR 5/6) clay loam; strong medium subangular blocky structure; friable; moderately sticky, moderately plastic; few very fine and fine roots; common distinct strong brown (7.5YR 5/6) clay films on all faces of peds and many prominent light yellowish brown (10YR 6/4) silt coats on all faces of peds; common medium distinct yellowish red (5YR 5/6), moist, masses of oxidized iron; 12 percent gravel; strongly acid; gradual smooth boundary.

2Bt3—44 to 50 inches; yellowish brown (10YR 5/6) and strong brown (7.5YR 5/6) gravelly clay loam; strong medium subangular blocky structure; friable; moderately sticky, moderately plastic; few very fine and fine roots; common distinct strong brown (7.5YR 5/6) clay films on all faces of peds; common fine distinct pale brown (10YR 6/3), moist, iron depletions; 17 percent gravel; strongly acid; gradual smooth boundary.

2Bt4—50 to 65 inches; strong brown (7.5YR 5/6) cobbly clay loam; strong medium subangular blocky structure; friable; moderately sticky, moderately plastic; few very fine roots; common distinct strong brown (7.5YR 5/6) clay films on all faces of peds; common medium prominent pinkish gray (7.5YR 6/2), moist, iron depletions and many medium prominent yellowish red (5YR 5/8), moist, masses of oxidized iron; 10 percent gravel and 15 percent cobbles; strongly acid.

Range in Characteristics

Solum thickness: More than 60 inches
Depth to bedrock: More than 60 inches
Depth to 2Bt horizon: 15 to 40 inches
Reaction: Extremely acid to strongly acid (pH 3.5 to 5.5) in the A and E horizons, except in limed areas, and very strongly acid or strongly acid (pH 4.5 to 5.5) in the Bt and 2Bt horizons
Rock fragments: 0 to 15 percent gravel and cobbles in the A horizon; 0 to 25 percent gravel and cobbles in the E and BE horizons; 0 to 35 percent gravel and cobbles in the Bt horizon; 10 to 35 percent gravel, cobbles, and stones in the upper part of the 2Bt horizon; 15 to 50 percent gravel, cobbles, and stones in the lower part of the 2Bt horizon

A horizon:
Hue—10YR
Value—3 to 6
Chroma—1 to 3
Texture—loam

BE or E horizon (if it occurs):
Hue—10YR or 2.5Y
Value—5 or 6
Chroma—2 to 6
Fine-earth texture—loam, silt loam, or fine sandy loam

Bt horizon:
Hue—7.5YR to 2.5Y
Value—5 or 6
Chroma—4 to 8
Fine-earth texture—loam, silt loam, clay loam, or silty clay loam
Particle-size control section—average of 18 to 35 percent clay

2Bt horizon:
Hue—2.5YR to 10YR
Value—4 to 6
Chroma—4 to 8
Redoximorphic features—masses of oxidized iron in shades of red, brown, or yellow throughout the horizon in most pedons; iron depletions in shades of brown and gray in the lower part of the horizon in most pedons
Fine-earth texture—clay loam, silty clay loam, or clay

Frederick Series

Physiographic province: Valley and Ridge
Landform: Hills; some areas have karst topography
Parent material: Residuum weathered from limestone
Drainage class: Well drained
Slowest saturated hydraulic conductivity: Moderately high

Depth class: Very deep
Slope range: 3 to 35 percent

Associated Soils

- Carbo soils, which are moderately deep to limestone bedrock; on similar landforms
- Slabtown soils, which are moderately well drained and have a fine-loamy particle size; on concave footslopes
- Watahala soils, which have a fine-loamy over clayey particle size; on similar landforms

Taxonomic Classification

Fine, mixed, semiactive, mesic Typic Paleudults

Typical Pedon

Frederick silt loam, 7 to 15 percent slopes; in Smyth County, Virginia; about 1.0 mile west of Atkins, about 0.5 mile north-northeast of the junction of Highways VA-622 and US-11, about 1.5 miles northeast of the junction of Highways VA-689 and US-11, in a hay field; Atkins, Virginia USGS 7.5 Minute Quadrangle, NAD27; lat. 36 degrees 52 minutes 10.00 seconds N. and long. 81 degrees 26 minutes 51.00 seconds W.

Ap—0 to 8 inches; brown (7.5YR 4/4) silt loam; moderate medium granular structure; friable; slightly sticky, slightly plastic; many fine roots; 3 percent angular chert gravel; slightly acid; abrupt smooth boundary.

Bt1—8 to 18 inches; red (2.5YR 4/6) silty clay; moderate medium subangular blocky structure; firm; moderately sticky, moderately plastic; common fine roots; many distinct clay films on all faces of peds; 5 percent angular chert gravel; strongly acid; diffuse smooth boundary.

Bt2—18 to 35 inches; red (2.5YR 4/6) clay; common medium distinct strong brown (7.5YR 5/6) mottles; moderate medium subangular blocky structure; firm; moderately sticky, moderately plastic; few fine roots; many distinct clay films on all faces of peds; 5 percent angular chert gravel; strongly acid; clear wavy boundary.

Bt3—35 to 51 inches; red (2.5YR 4/6) clay; common medium prominent reddish yellow (7.5YR 8/6) and common medium distinct strong brown (7.5YR 4/6) mottles; moderate medium subangular blocky structure; firm; moderately sticky, moderately plastic; many distinct clay films on all faces of peds; 5 percent angular chert gravel; strongly acid; gradual wavy boundary.

Bt4—51 to 72 inches; red (2.5YR 4/6) clay; common medium distinct reddish yellow (7.5YR 8/6) mottles; moderate medium subangular blocky structure; firm; moderately sticky, moderately plastic; many distinct clay films on all faces of peds; 10 percent angular chert gravel; strongly acid.

Range in Characteristics

Solum thickness: More than 60 inches
Depth to bedrock: More than 72 inches
Reaction: Very strongly acid to moderately acid, except in limed areas
Rock fragments (content, kind): 0 to 30 percent throughout the profile; dominantly chert

Ap or A horizon:
Hue—7.5YR or 10YR
Value—3 or 4
Chroma—1 to 8
Fine-earth texture—silt loam

E horizon (if it occurs):
Hue—7.5YR or 10YR

Value—5 to 7
Chroma—3 to 8
Fine-earth texture—silt loam or loam

Bt horizon:
Hue—2.5YR or 5YR; including 7.5YR in the upper part
Value—4 to 6
Chroma—4 to 8
Fine-earth texture—clay, silty clay, silty clay loam, or clay loam in the upper part; clay or silty clay in the lower part

Gilpin Series

Physiographic province: Valley and Ridge
Landform: Hills and mountains
Parent material: Residuum weathered from shale and siltstone
Drainage class: Well drained
Slowest saturated hydraulic conductivity: Moderately high
Depth class: Moderately deep
Slope range: 8 to 25 percent

Associated Soils

- Bailegap soils, which are deep to sandstone bedrock; on similar landforms
- Berks soils, which have a loamy-skeletal particle size; on similar landforms
- Lily soils, which are moderately deep to sandstone bedrock; on similar landforms
- Shelocta soils, which are very deep to bedrock; on footslopes
- Weikert soils, which are shallow to shale bedrock and have a loamy-skeletal particle size; on similar landforms

Taxonomic Classification

Fine-loamy, mixed, active, mesic Typic Hapludults

Typical Pedon

Gilpin silt loam, 8 to 15 percent slopes; in Bland County, Virginia; about 2.3 miles west of Bland, about 1.5 miles north of the junction of Highways VA-42 and VA-615, about 2.4 miles north-northeast of the junction of Highways VA-615 and US-52, in woodland; Big Bend, Virginia USGS 7.5 Minute Quadrangle, NAD27; lat. 37 degrees 5 minutes 49.00 seconds N. and long. 81 degrees 10 minutes 20.00 seconds W.

Oe—0 to 1 inch; moderately decomposed plant material.

A—1 to 5 inches; dark yellowish brown (10YR 4/4) silt loam; weak fine granular structure; friable; nonsticky, nonplastic; many very fine and fine and few medium and coarse roots; many fine pores; common fine mica flakes in matrix; 5 percent subangular shale channers; strongly acid; abrupt smooth boundary.

BA—5 to 9 inches; yellowish brown (10YR 5/4) silt loam; weak medium granular structure; friable; slightly sticky, slightly plastic; common very fine and fine and few medium and coarse roots; many fine pores; common fine mica flakes in matrix; 5 percent subangular shale channers; strongly acid; clear wavy boundary.

Bt1—9 to 21 inches; brownish yellow (10YR 6/8) silty clay loam; moderate fine and medium subangular blocky structure; friable; slightly sticky, slightly plastic; few very fine and fine and few medium and coarse roots; many fine pores; common faint clay films on all faces of peds; common fine mica flakes in matrix; 5 percent subangular shale channers; strongly acid; clear wavy boundary.

Bt2—21 to 26 inches; brownish yellow (10YR 6/8) channery silty clay loam; weak very fine and fine subangular blocky structure; friable; slightly sticky, slightly plastic; few very fine and fine and few medium and coarse roots; many fine pores; common faint clay films on all faces of peds; common fine mica flakes in matrix; 25 percent subangular shale channers; strongly acid; gradual wavy boundary.

C—26 to 33 inches; yellowish brown (10YR 5/6) very channery silt loam; few fine faint brownish yellow (10YR 6/6) mottles; massive; friable; slightly sticky, slightly plastic; few very fine roots; many fine pores; common fine mica flakes in matrix; 55 percent subangular shale channers; strongly acid; clear wavy boundary.

Cr—33 inches; shale and siltstone bedrock.

Range in Characteristics

Solum thickness: 18 to 36 inches
Depth to bedrock: 20 to 40 inches
Reaction: Extremely acid to strongly acid in unlimed areas
Content of rock fragments: 5 to 30 percent in the solum and 30 to 60 percent in the substratum

A horizon:
Hue—10YR
Value—2 to 4
Chroma—1 to 4
Fine-earth texture—silt loam

BA horizon:
Hue—10YR
Value—5 or 6
Chroma—3 or 4
Fine-earth texture—silt loam or loam

Bt horizon:
Hue—7.5YR or 10YR
Value—4 to 6
Chroma—4 to 8
Fine-earth texture—silt loam, loam, or silty clay loam

C horizon:
Hue—7.5YR or 10YR
Value—4 or 5
Chroma—4 to 6
Fine-earth texture—silt loam, loam, or silty clay loam

Jefferson Series

Physiographic province: Valley and Ridge
Landform: Bases of hillslopes and mountain slopes
Parent material: Colluvium derived from sandstone, siltstone, and shale
Drainage class: Well drained
Slowest saturated hydraulic conductivity: High
Depth class: Very deep
Slope range: 3 to 25 percent

Associated Soils

- Dekalb soils, which are moderately deep to sandstone bedrock and have a loamy-skeletal particle size; on adjacent hills

- Lily soils, which are moderately deep to sandstone bedrock; on adjacent hills
- Oriskany soils, which have a loamy-skeletal particle size; on similar landforms
- Tumbling soils, which have a fine particle size and fewer stones on the surface than the Jefferson soils; on similar landforms

Taxonomic Classification

Fine-loamy, siliceous, semiactive, mesic Typic Hapludults

Typical Pedon

Jefferson cobbly loam, 15 to 35 percent slopes; in Wythe County, Virginia; about 1.2 miles southeast of Speedwell, about 1.1 miles southeast of the intersection of Highways US-21 and VA-619, about 1.2 miles northeast of the intersection of Highways US-21 and VA-773, in woodland; Speedwell, Virginia USGS 7.5 Minute Quadrangle, NAD27; lat. 36 degrees 48 minutes 5.00 seconds N. and long. 81 degrees 9 minutes 57.00 seconds W.

Oi—0 to 2 inches; slightly decomposed plant material.

A—2 to 5 inches; dark brown (10YR 3/3) cobbly loam; moderate medium granular structure; friable; slightly sticky, slightly plastic; many fine, medium, and coarse roots; 20 percent subrounded sandstone cobbles; very strongly acid; clear wavy boundary.

E—5 to 12 inches; yellowish brown (10YR 5/4) loam; moderate medium granular structure; friable; slightly sticky, slightly plastic; many fine, medium, and coarse roots; 10 percent subrounded sandstone cobbles; very strongly acid; gradual smooth boundary.

Bt1—12 to 22 inches; yellowish brown (10YR 5/6) loam; moderate medium subangular blocky structure; friable; slightly sticky, slightly plastic; common fine and medium and few coarse roots; common distinct clay films on all faces of peds; 10 percent subrounded sandstone cobbles; strongly acid; gradual smooth boundary.

Bt2—22 to 32 inches; yellowish brown (10YR 5/6) loam; moderate medium subangular blocky structure; friable; slightly sticky, slightly plastic; common fine and medium and few coarse roots; common distinct clay films on all faces of peds; 10 percent subrounded sandstone cobbles; strongly acid; gradual smooth boundary.

BC—32 to 61 inches; strong brown (7.5YR 5/8) cobbly clay loam; moderate medium subangular blocky structure; friable; slightly sticky, slightly plastic; few fine and medium roots; many distinct clay films on all faces of peds; 25 percent subrounded sandstone cobbles; strongly acid; clear smooth boundary.

C—61 to 70 inches; strong brown (7.5YR 5/8) cobbly loam; many medium distinct red (2.5YR 4/8) mottles; massive; friable; slightly sticky, slightly plastic; few distinct clay films on all faces of peds; 25 percent subrounded sandstone cobbles; strongly acid.

Range in Characteristics

Solum thickness: More than 40 inches

Depth to bedrock: More than 60 inches

Reaction: Very strongly acid or strongly acid in unlimed areas

Rock fragments (content, kind and size): 5 to 35 percent to a depth of about 40 inches and 20 to 80 percent below a depth of 40 inches; a combination of subrounded sandstone gravel, cobbles, and stones

A horizon:

Hue—10YR
Value—3 or 4
Chroma—2 or 3
Fine-earth texture—loam

E horizon:
Hue—10YR
Value—4 to 6
Chroma—3 or 4
Fine-earth texture—loam or fine sandy loam

Bt horizon:
Hue—7.5YR or 10YR
Value—4 or 5
Chroma—4 to 8
Fine-earth texture—clay loam, sandy clay loam, or loam

BC horizon:
Hue—7.5YR or 10YR
Value—4 to 6
Chroma—4 to 8
Fine-earth texture—fine sandy loam, sandy loam, sandy clay loam, clay loam, or loam

C horizon:
Hue—7.5YR or 10YR
Value—4 to 6
Chroma—4 to 8
Fine-earth texture—fine sandy loam, sandy loam, or loam

Lily Series

Physiographic province: Valley and Ridge
Landform: Hills and mountains
Parent material: Residuum weathered from sandstone
Drainage class: Well drained
Slowest saturated hydraulic conductivity: Moderately high
Depth class: Moderately deep
Slope range: 8 to 70 percent

Associated Soils

- Bailegap soils, which are deep to sandstone bedrock; on similar landforms
- Brushy soils, which are moderately deep to cherty limestone bedrock; on similar landforms
- Dekalb soils, which have a loamy-skeletal particle size; on similar landforms
- Gilpin soils, which are moderately deep to shale bedrock; on similar landforms
- Oriskany soils, which are very deep to bedrock and have a loamy-skeletal particle size; on footslopes

Taxonomic Classification

Fine-loamy, siliceous, semiactive, mesic Typic Hapludults

Typical Pedon

Lily sandy loam, 15 to 25 percent slopes, very stony; in Smyth County, Virginia; about 4.6 miles northwest of Atkins, on Walker Mountain, about 1.3 miles northwest of the junction of Highways VA-622 and VA-694, about 1.5 miles southwest of the junction of Highways VA-622 and VA-610, in woodland; Nebo, Virginia USGS 7.5 Minute Quadrangle, NAD27; lat. 36 degrees 54 minutes 49.00 seconds N. and long. 81 degrees 27 minutes 24.00 seconds W.

Oi—0 to 2 inches; slightly decomposed plant material.
A—2 to 7 inches; brown (10YR 4/3) sandy loam; weak fine granular structure; friable; nonsticky, nonplastic; many fine, medium, and coarse roots; very strongly acid; clear smooth boundary.
BA—7 to 13 inches; yellowish brown (10YR 5/6) sandy loam; weak fine granular structure; friable; slightly sticky, nonplastic; few fine and medium roots; very strongly acid; clear smooth boundary.
Bt—13 to 24 inches; yellowish brown (10YR 5/8) clay loam; moderate medium subangular blocky structure; friable; slightly sticky, slightly plastic; few fine roots; common distinct clay films on all faces of peds; very strongly acid; clear wavy boundary.
C—24 to 30 inches; yellowish brown (10YR 5/8) sandy loam; massive; friable; slightly sticky, nonplastic; very strongly acid; abrupt smooth boundary.
R—30 inches; hard sandstone bedrock.

Range in Characteristics

Solum thickness: 20 to 40 inches
Depth to bedrock: 20 to 40 inches
Reaction: Extremely acid to strongly acid in unlimed areas
Content of rock fragments: 0 to 30 percent above a depth of 24 inches and 0 to 35 percent below a depth of 24 inches

A horizon:
Hue—10YR or 7.5YR
Value—2 to 4
Chroma—2 to 4
Fine-earth texture—sandy loam

BA horizon:
Hue—10YR or 7.5YR
Value—4 to 6
Chroma—4 to 8
Fine-earth texture—loam, sandy loam, or fine sandy loam

Bt horizon:
Hue—10YR or 7.5YR
Value—4 to 6
Chroma—4 to 8
Fine-earth texture—loam, clay loam, or sandy clay loam

C horizon:
Hue—10YR or 7.5YR
Value—4 to 6
Chroma—4 to 8
Texture—sandy loam, loam, loamy sand, or sandy clay loam

Maurertown Series

Physiographic province: Valley and Ridge
Landform: Low stream terraces
Parent material: Clayey alluvium derived from limestone, sandstone, and shale
Drainage class: Poorly drained
Slowest saturated hydraulic conductivity: Low
Depth class: Very deep
Slope range: 0 to 3 percent

Associated Soils

- Alonzville soils, which are well drained and have a fine-loamy particle size; on similar landforms
- Coursey soils, which are moderately well drained and have a fine-loamy particle size; on similar landforms
- Atkins soils, which have a fine-loamy particle size; on flood plains
- Nicelytown soils, which are moderately well drained and have a fine-loamy particle size; on the higher stream terraces
- Philo soils, which are moderately well drained and have a coarse-loamy particle size; on flood plains
- Pope soils, which are well drained and have a coarse-loamy particle size; on flood plains

Taxonomic Classification

Fine, mixed, semiactive, mesic Typic Endoaqualfs

Typical Pedon

Maurertown silt loam, 0 to 2 percent slopes, occasionally flooded; in Smyth County, Virginia; about 1.5 miles north of Marion, 0.3 mile northeast of the junction of Highways VA-617 and VA-665, about 1.0 mile northeast of Greenwood Church, 0.5 mile south-southeast of Hungry Mother Lake, in a hay field; Marion, Virginia USGS 7.5 Minute Quadrangle, NAD27; lat. 36 degrees 51 minutes 40.00 seconds N. and long. 81 degrees 31 minutes 39.00 seconds W.

Ap—0 to 6 inches; dark grayish brown (10YR 4/2) silt loam; moderate fine granular structure; friable; slightly sticky, slightly plastic; many fine and very fine roots; few very fine tubular pores; neutral; clear smooth boundary.

BAg—6 to 18 inches; dark grayish brown (10YR 4/2) silty clay loam; moderate fine subangular blocky structure; firm; slightly sticky, slightly plastic; common very fine and fine roots; few very fine tubular pores; common medium prominent irregular yellowish brown (10YR 5/6), moist, masses of oxidized iron on surfaces along root channels; neutral; gradual smooth boundary.

Btg—18 to 41 inches; dark gray (10YR 4/1) silty clay; moderate medium subangular blocky structure; firm; moderately sticky, moderately plastic; few very fine and fine roots; few fine tubular pores; common distinct continuous clay films on all faces of peds; common medium prominent irregular yellowish brown (10YR 5/8), moist, masses of oxidized iron on surfaces along root channels; neutral; clear smooth boundary.

Cg1—41 to 48 inches; very dark gray (10YR 3/1) silty clay loam; massive; friable; slightly sticky, slightly plastic; few very fine tubular pores; many medium prominent irregular yellowish brown (10YR 5/8), moist, and yellow (10YR 7/8), moist, masses of oxidized iron throughout and many medium distinct irregular light gray (10YR 7/1), moist, iron depletions throughout; 10 percent sandstone gravel; neutral; gradual smooth boundary.

Cg2—48 to 62 inches; gray (N 5/0) gravelly silty clay loam; massive; friable; slightly sticky, slightly plastic; few fine roots; few very fine tubular pores; common medium prominent irregular brownish yellow (10YR 6/8), moist, masses of oxidized iron throughout and common medium distinct irregular light gray (10YR 7/1), moist, iron depletions throughout; 15 percent sandstone gravel; neutral.

Range in Characteristics

Solum thickness: 40 to 60 inches or more
Depth to bedrock: More than 60 inches
Reaction: Moderately acid to neutral in unlimed areas

Rock fragments (content, kind and size): 0 to 15 percent; dominantly rounded sandstone gravel and cobbles

Ap horizon:
Hue—10YR or 2.5Y
Value—4 or 5
Chroma—1 or 2
Texture—silt loam
Redoximorphic features—masses of oxidized iron in shades of red, brown, and yellow in some pedons; iron depletions in shades of brown and gray in some pedons

BAg horizon:
Hue—10YR, 2.5Y, or neutral
Value—4 to 6
Chroma—0 to 2
Texture—loam, silt loam, or silty clay loam
Redoximorphic features—masses of oxidized iron in shades of red, brown, and yellow; iron depletions in shades of brown and gray in some pedons within the gleyed matrix

Btg horizon:
Hue—10YR, 2.5Y, or neutral
Value—4 to 6
Chroma—0 to 2
Texture—silty clay loam, silty clay, or clay
Redoximorphic features—masses of oxidized iron in shades of red, brown, and yellow; iron depletions in shades of brown and gray in some pedons within the gleyed matrix

Cg horizon:
Hue—10YR, 2.5Y, or neutral
Value—3 to 6
Chroma—0 to 2
Texture—silty clay loam, silty clay, or clay
Redoximorphic features—masses of oxidized iron in shades of red, brown, and yellow; iron depletions in shades of brown and gray in some pedons within the gleyed matrix

Nicelytown Series

Physiographic province: Valley and Ridge
Landform: High stream terraces and bases of hillslopes
Parent material: Fine-loamy alluvium derived from limestone, sandstone, and shale; some areas are intermixed with colluvium
Drainage class: Moderately well drained
Slowest saturated hydraulic conductivity: Moderately high
Depth class: Very deep
Slope range: 3 to 15 percent

Associated Soils

- Sugarhol soils, which are well drained and have a fine particle size; on similar landforms
- Alonzville soils, which are well drained; on the lower stream terraces
- Berks soils, which are well drained, are moderately deep to shale bedrock, and have a loamy-skeletal particle size; on adjacent hills

- Maurertown soils, which are poorly drained and have a fine particle size; on the lower stream terraces
- Tumbling soils, which are well drained and have a fine particle size; on footslopes

Taxonomic Classification

Fine-loamy, siliceous, semiactive, mesic Aquic Paleudults

Typical Pedon

Nicelytown silt loam, 3 to 8 percent slopes; in Bland County, Virginia; about 1.1 miles west of Grapefield, about 2.5 miles southeast of the junction of Highways VA-662 and VA-61, about 2.3 miles northeast of Gose Knob, in a pasture; Cove Creek, Virginia USGS 7.5 Minute Quadrangle, NAD27; lat. 37 degrees 8 minutes 47.00 seconds N. and long. 81 degrees 16 minutes 22.00 seconds W.

Ap—0 to 6 inches; dark yellowish brown (10YR 4/4) silt loam; weak fine granular structure; friable; nonsticky, nonplastic; many very fine and fine roots; many very fine irregular and many very fine tubular pores; 1 percent rounded sandstone gravel; moderately acid; abrupt wavy boundary.

BE—6 to 18 inches; yellowish brown (10YR 5/6) silt loam; common medium faint light yellowish brown (10YR 6/4) mottles; weak fine subangular blocky structure; friable; slightly sticky, nonplastic; many very fine roots; many very fine irregular and many very fine tubular pores; common manganese masses; 3 percent rounded sandstone gravel; strongly acid; gradual wavy boundary.

Bt1—18 to 24 inches; yellowish brown (10YR 5/6) silt loam; common medium distinct pale brown (10YR 6/3) mottles; weak medium subangular blocky structure; friable; slightly sticky, slightly plastic; common very fine roots; many very fine irregular and many very fine tubular pores; few faint discontinuous clay films on all faces of peds; few fine prominent light brownish gray (10YR 6/2) iron depletions throughout and common manganese masses; 5 percent rounded sandstone gravel; strongly acid; clear wavy boundary.

Bt2—24 to 60 inches; yellowish brown (10YR 5/6) silty clay loam; moderate medium subangular blocky structure; friable; slightly sticky, slightly plastic; common fine roots; common very fine tubular and common very fine irregular pores; many faint discontinuous clay films on all faces of peds; common medium prominent light gray (10YR 7/1) iron depletions throughout and common medium faint brownish yellow (10YR 6/6) masses of oxidized iron on faces of peds; common manganese masses; 10 percent rounded sandstone gravel; strongly acid; clear wavy boundary.

Bt3—60 to 62 inches; yellowish brown (10YR 5/6) very cobbly silty clay loam; moderate medium subangular blocky structure; friable; slightly sticky, slightly plastic; common very fine tubular and common very fine irregular pores; common faint discontinuous clay films on all faces of peds; common coarse faint strong brown (7.5YR 5/6) masses of oxidized iron on faces of peds and common coarse prominent light gray (10YR 7/1) iron depletions; 35 percent rounded sandstone cobbles; strongly acid.

Range in Characteristics

Solum thickness: More than 60 inches
Depth to bedrock: More than 60 inches
Reaction: Very strongly acid or strongly acid, except in limed areas
Rock fragments (content, kind and size): 0 to 15 percent in the A and BE horizons and 0 to 35 percent in the Bt horizon; rounded sandstone gravel and cobbles

Ap horizon:
Hue—10YR or 2.5Y

Value—4 or 5
Chroma—3 or 4
Texture—silt loam

BE horizon:
Hue—10YR or 2.5Y
Value—4 to 6
Chroma—3 to 6
Texture—fine sandy loam, loam, or silt loam
Redoximorphic features—masses of oxidized iron in shades brown or yellow; iron depletions in shades of gray in some pedons

Bt horizon:
Hue—10YR to 2.5Y
Value—5 or 6
Chroma—3 to 8
Fine-earth texture—loam, silt loam, clay loam, or silty clay loam
Redoximorphic features—masses of oxidized iron in shades of brown, yellow, or red accompanied by iron depletions in shades of gray occur within a depth of 30 inches

Btg horizon (if it occurs):
Hue—10YR or 2.5Y
Value—5 to 7
Chroma—1 or 2
Fine-earth texture—loam, clay loam, or silty clay loam
Redoximorphic features—masses of oxidized iron in shades of brown, yellow, or red

BCg horizon (if it occurs):
Hue—10YR, 2.5Y, 5B, or neutral
Value—5 to 8
Chroma—1 or 2
Fine-earth texture—loam, clay loam, or silty clay loam
Redoximorphic features—masses of oxidized iron in shades of brown, yellow, or red

Ogles Series

Physiographic province: Valley and Ridge
Landform: Flood plains along small creeks and major rivers
Parent material: Stony, loamy alluvium derived from sandstone and shale
Drainage class: Well drained
Slowest saturated hydraulic conductivity: High
Depth class: Very deep
Slope range: 0 to 5 percent

Associated Soils

- Oriskany soils, which have subrounded rock fragments; on footslopes
- Philo soils, which are moderately well drained and have a coarse-loamy particle size; on similar landforms
- Pope soils, which have a coarse-loamy particle size; on similar landforms

Taxonomic Classification

Loamy-skeletal, siliceous, active, mesic Fluventic Dystrudepts

Typical Pedon

Ogles very stony loam, 0 to 3 percent slopes, occasionally flooded; in Scott County, Virginia; on a wooded flood plain about 0.79 mile southeast of the southernmost intersection of Highways VA-619 and VA-653, about 2.17 miles northwest of the intersection of Highways VA-619 and VA-65; Fort Blackmore, Virginia USGS 7.5 Minute Quadrangle, NAD27; lat. 36 degrees 47 minutes 58.00 seconds N. and long. 82 degrees 36 minutes 0.00 seconds W.

Oe—0 to 2 inches; moderately decomposed plant material.

A—2 to 6 inches; very dark brown (10YR 2/2) very stony loam; weak fine granular structure; very friable; nonsticky, nonplastic; many very fine, fine, and medium roots; common medium interstitial pores; 2 percent well rounded sandstone gravel, 18 percent well rounded sandstone stones, and 20 percent well rounded sandstone cobbles; moderately acid; clear wavy boundary.

BA—6 to 10 inches; dark yellowish brown (10YR 3/4) very stony loam; weak fine granular structure; very friable; nonsticky, nonplastic; many very fine, fine, and medium roots; common medium interstitial pores; 2 percent well rounded sandstone gravel, 18 percent well rounded sandstone stones, and 20 percent well rounded sandstone cobbles; moderately acid; clear wavy boundary.

Bw—10 to 23 inches; yellowish brown (10YR 5/6) extremely stony sandy loam; weak coarse granular structure; very friable; nonsticky, nonplastic; common very fine and fine and few medium and coarse roots; common medium interstitial pores; 4 percent well rounded sandstone gravel, 34 percent well rounded sandstone stones, and 37 percent well rounded sandstone cobbles; moderately acid; gradual wavy boundary.

C1—23 to 47 inches; dark yellowish brown (10YR 4/6) extremely stony loamy sand; massive; very friable; nonsticky, nonplastic; few very fine and fine roots; common medium interstitial pores; 3 percent well rounded sandstone gravel, 37 percent well rounded sandstone cobbles, and 40 percent well rounded sandstone stones; strongly acid; gradual wavy boundary.

C2—47 to 65 inches; dark yellowish brown (10YR 4/6) extremely stony loamy sand; massive; very friable; nonsticky, nonplastic; few very fine and fine roots; common medium interstitial and few very coarse tubular pores; 3 percent well rounded sandstone gravel, 40 percent well rounded sandstone stones, and 42 percent well rounded sandstone cobbles; strongly acid.

Range in Characteristics

Solum thickness: 20 to 40 inches
Depth to bedrock: More than 60 inches
Reaction: Very strongly acid to moderately acid in unlimed areas
Rock fragments (content, kind and size): 35 to 60 percent in the A horizon and 35 to 85 percent in the B and C horizons; well rounded sandstone gravel, cobbles, and stones

A horizon:
Hue—10YR
Value—2 to 4
Chroma—2 to 4
Fine-earth texture—loam

BA horizon:
Hue—10YR
Value—2 to 4
Chroma—2 to 4
Fine-earth texture—loam

Bw horizon:
Hue—7.5YR or 10YR
Value—4 or 5
Chroma—4 to 6
Fine-earth texture—loam or sandy loam

C horizon:
Hue—7.5YR or 10YR
Value—4 or 5
Chroma—3 to 6
Fine-earth texture—sandy loam or loamy sand

Oriskany Series

Physiographic province: Valley and Ridge
Landform: Bases of hillslopes and mountain slopes
Parent material: Stony, loamy colluvium derived from sandstone and shale
Drainage class: Well drained
Slowest saturated hydraulic conductivity: High
Depth class: Very deep
Slope range: 8 to 55 percent

Associated Soils

- Berks soils, which are moderately deep to shale bedrock; on adjacent hills
- Culleoka soils, which are moderately deep to siltstone or shale bedrock and have a fine-loamy particle size; on adjacent hills
- Dekalb soils, which are moderately deep to sandstone bedrock; on adjacent mountains
- Jefferson soils, which have a fine-loamy particle size; on similar landforms
- Tumbling soils, which have a fine particle size and fewer stones on the surface than the Oriskany soils; on similar landforms
- Westmoreland soils, which are deep to bedrock and have a fine-loamy particle size; on adjacent hills

Taxonomic Classification

Loamy-skeletal, siliceous, semiactive, mesic Typic Hapludults

Typical Pedon

Oriskany gravelly fine sandy loam, 35 to 55 percent slopes, extremely stony; in Tazewell County, Virginia; about 2.4 miles south of Bluefield, about 0.3 mile east of Highway VA-662 and 0.5 mile northwest of Highway VA-61, about 1.5 miles west-southwest of the Bland-Tazewell County line, in woodland; Pounding Mill, Virginia USGS 7.5 Minute Quadrangle, NAD27; lat. 37 degrees 11 minutes 4.00 seconds N. and long. 81 degrees 17 minutes 53.00 seconds W.

A—0 to 6 inches; dark brown (10YR 3/3) gravelly fine sandy loam; weak fine granular structure; friable; nonsticky, nonplastic; common very fine and fine roots; many fine tubular and many very fine vesicular pores; 25 percent subrounded sandstone gravel; very strongly acid; clear smooth boundary.
E—6 to 14 inches; yellowish brown (10YR 5/6) very cobbly fine sandy loam; weak fine subangular blocky structure; friable; nonsticky, nonplastic; common fine and medium roots; many fine tubular and many very fine vesicular pores; 45 percent subrounded sandstone cobbles; very strongly acid; gradual wavy boundary.
Bt—14 to 61 inches; strong brown (7.5YR 5/6) extremely stony sandy clay loam; moderate medium subangular blocky structure; friable; slightly sticky, slightly

plastic; few fine and coarse roots; many fine tubular and many very fine vesicular pores; common faint clay films on all faces of peds; 60 percent subrounded sandstone stones; very strongly acid.

Range in Characteristics

Solum thickness: 40 to more than 60 inches
Depth to bedrock: More than 60 inches
Reaction: Very strongly acid or strongly acid in unlimed areas
Rock fragments (content, kind and size): 15 to 65 percent in the A and E horizons and 35 to 75 percent in the Bt horizon; a combination of subrounded sandstone gravel, cobbles, and stones

A horizon:
Hue—7.5YR or 10YR
Value—2 to 4
Chroma—2 to 4
Fine-earth texture—fine sandy loam

E horizon:
Hue—7.5YR or 10YR
Value—4 to 6
Chroma—4 to 6
Fine-earth texture—fine sandy loam, sandy loam, or loam

Bt horizon:
Hue—7.5YR or 10YR
Value—4 to 6
Chroma—4 to 8
Fine-earth texture—clay loam, sandy clay loam, or loam

Philo Series

Physiographic province: Valley and Ridge
Landform: Flood plains along small creeks and major rivers
Parent material: Coarse-loamy alluvium derived from sandstone and shale
Drainage class: Moderately well drained
Slowest saturated hydraulic conductivity: Moderately high
Depth class: Very deep
Slope range: 0 to 3 percent

Associated Soils

- Atkins soils, which are poorly drained and have a fine-loamy particle size; on similar landforms
- Ogles soils, which are well drained and have a loamy-skeletal particle size; on similar landforms
- Pope soils, which are well drained; on similar landforms

Taxonomic Classification

Coarse-loamy, mixed, active, mesic Fluvaquentic Dystrudepts

Typical Pedon

Philo fine sandy loam, 0 to 3 percent slopes, occasionally flooded; in Rockbridge County, Virginia; approximately 3.2 miles west-southwest, on a bearing of 240 degrees, from the intersection of Highways VA-780 and VA-39 along Brattons Run, in the area of Goshen, in woodland; Millboro, Virginia USGS 7.5 Minute Quadrangle, NAD83; lat. 37 degrees 56 minutes 56.00 seconds N. and long. 79 degrees 33 minutes 34.00 seconds W.

A—0 to 9 inches; dark brown (10YR 3/3) fine sandy loam; moderate fine and medium granular structure; friable; nonsticky, nonplastic; common very fine and fine and few medium and coarse roots; 2 percent rounded sandstone gravel; strongly acid; gradual wavy boundary.

Bw1—9 to 23 inches; dark yellowish brown (10YR 4/4) fine sandy loam; weak medium and coarse subangular blocky structure; friable; nonsticky, nonplastic; few very fine, fine, and coarse roots; 2 percent rounded sandstone gravel; strongly acid; clear wavy boundary.

Bw2—23 to 30 inches; brown (10YR 5/3) loam; weak medium and coarse subangular blocky structure; friable; slightly sticky, slightly plastic; few very fine and fine roots; few fine prominent very dark brown (10YR 2/2), moist, manganese masses; common medium prominent strong brown (7.5YR 5/8), moist, masses of oxidized iron; common medium faint grayish brown (10YR 5/2), moist, iron depletions; 2 percent rounded sandstone gravel; strongly acid; clear wavy boundary.

Cg—30 to 65 inches; grayish brown (10YR 5/2) cobbly loam; massive; friable; slightly sticky, slightly plastic; common medium faint light brownish gray (10YR 6/2), moist, iron depletions and common medium prominent strong brown (7.5YR 5/8), moist, masses of oxidized iron; 10 percent rounded sandstone cobbles and 20 percent rounded sandstone gravel; strongly acid.

Range in Characteristics

Solum thickness: 20 to 48 inches
Depth to bedrock: More than 60 inches
Reaction: Very strongly acid to moderately acid, except in limed areas
Rock fragments (content, kind and size): 0 to 15 percent in the A horizon, 0 to 20 percent in the B horizon, and 0 to 40 percent in the C horizon; dominantly rounded sandstone gravel and cobbles

A horizon:
Hue—10YR
Value—3 or 4
Chroma—2 or 3
Texture—fine sandy loam

Bw horizon:
Hue—7.5YR to 2.5Y
Value—4 or 5
Chroma—3 to 6
Fine-earth texture—sandy loam, fine sandy loam, or loam
Redoximorphic features—masses of oxidized iron in shades of brown; iron depletions in shades of brown and gray

C horizon:
Hue—7.5YR to 2.5Y
Value—4 to 6
Chroma—1 to 6
Fine-earth texture—sandy loam, fine sandy loam, or loam
Redoximorphic features—masses of oxidized iron in shades of red or brown; iron depletions in shades of brown and gray

Pope Series

Physiographic province: Valley and Ridge
Landform: Flood plains along small creeks and major rivers
Parent material: Coarse-loamy alluvium derived from sandstone and shale
Drainage class: Well drained
Slowest saturated hydraulic conductivity: Moderately high
Depth class: Very deep
Slope range: 0 to 3 percent

Associated Soils

- Atkins soils, which are poorly drained and have a fine-loamy particle size; on similar landforms
- Ogles soils, which are well drained and have a loamy-skeletal particle size; on similar landforms
- Philo soils, which are moderately well drained; on similar landforms

Taxonomic Classification

Coarse-loamy, mixed, active, mesic Fluventic Dystrudepts

Typical Pedon

Pope fine sandy loam, 0 to 2 percent slopes, rarely flooded; in Tazewell County, Virginia; about 3.5 miles south of Bluefield, 100 feet south of Highway VA-61, about 800 feet west of the Tazewell-Bland County line, in a crop field; Cove Creek, Virginia USGS 7.5 Minute Quadrangle, NAD27; lat. 37 degrees 11 minutes 3.00 seconds N. and long. 81 degrees 16 minutes 19.00 seconds W.

Ap—0 to 8 inches; dark yellowish brown (10YR 3/4) fine sandy loam; weak fine granular structure; very friable; nonsticky, nonplastic; many very fine and fine roots; many fine tubular and many very fine vesicular pores; 5 percent rounded sandstone gravel; moderately acid; abrupt wavy boundary.

Bw1—8 to 15 inches; brown (7.5YR 4/4) gravelly sandy loam; weak fine subangular blocky structure; very friable; nonsticky, nonplastic; many very fine and fine roots; many fine tubular and many very fine vesicular pores; 15 percent rounded sandstone gravel; strongly acid; clear wavy boundary.

Bw2—15 to 27 inches; strong brown (7.5YR 4/6) sandy loam; weak medium subangular blocky structure; very friable; nonsticky, nonplastic; few very fine roots; many fine tubular and many very fine vesicular pores; few organic stains on all faces of peds; 5 percent rounded sandstone gravel; strongly acid; clear wavy boundary.

Bw3—27 to 45 inches; strong brown (7.5YR 4/6) gravelly sandy loam; weak medium subangular blocky structure; very friable; nonsticky, nonplastic; few very fine roots; many fine tubular and many very fine vesicular pores; 20 percent rounded sandstone gravel; very strongly acid; clear wavy boundary.

C—45 to 65 inches; strong brown (7.5YR 4/6) very gravelly loamy sand; single grain; loose; nonsticky, nonplastic; few very fine roots; many fine vesicular and many fine tubular pores; 45 percent rounded sandstone gravel; very strongly acid.

Range in Characteristics

Solum thickness: 30 to 60 inches or more
Depth to bedrock: More than 60 inches
Reaction: Extremely acid to moderately acid throughout the profile in unlimed areas
Rock fragments (content, size): 0 to 15 percent in the A horizon, 0 to 30 percent in the B horizon, and 0 to 75 percent in the C horizon; gravel and cobbles

Ap horizon:
Hue—10YR
Value—3 or 4
Chroma—3 or 4
Texture—fine sandy loam

Bw horizon:
Hue—7.5YR or 10YR
Value—4 or 5
Chroma—4 to 6
Fine-earth texture—sandy loam, fine sandy loam, or loam

C horizon:
Hue—7.5YR or 10YR
Value—4 to 6
Chroma—3 to 6
Fine-earth texture—loamy sand, sandy loam, or fine sandy loam

Rough Series

Physiographic province: Valley and Ridge
Landform: Hills and mountains
Parent material: Residuum weathered from shale and siltstone
Drainage class: Somewhat excessively drained
Slowest saturated hydraulic conductivity: Moderately high
Depth class: Very shallow
Slope range: 35 to 70 percent

Associated Soils

- Berks soils, which are moderately deep to shale bedrock; on similar landforms
- Calvin and Culleoka soils, which are moderately deep to bedrock; on similar landforms
- Weikert soils, which are shallow to bedrock; on similar landforms
- Westmoreland soils, which are deep to bedrock and have a fine-loamy particle size; on similar landforms

Taxonomic Classification

Loamy-skeletal, mixed, active, acid, mesic Lithic Udorthents

Typical Pedon

Rough channery silt loam in an area of Weikert-Rough-Rock outcrop complex, 70 to 100 percent slopes; in Bland County, Virginia; about 2.5 miles north of Bastian, about 0.7 mile northeast of the junction of Highways VA-614 and US-52, about 1.2 miles south of the junction of Highways 615 and US-52, in woodland; Bastian, Virginia USGS 7.5 Minute Quadrangle, NAD27; lat. 37 degrees 11 minutes 10.00 seconds N. and long. 81 degrees 8 minutes 12.00 seconds W.

Oi—0 to 1 inch; slightly decomposed plant material.
A—1 to 3 inches; brown (10YR 4/3) channery silt loam; weak fine granular structure; friable; nonsticky, nonplastic; common very fine and fine and few coarse roots; many very fine interstitial pores; 25 percent angular siltstone channers; very strongly acid; abrupt smooth boundary.

Bw—3 to 6 inches; yellowish brown (10YR 5/4) very channery silt loam; weak fine subangular blocky structure; friable; slightly sticky, nonplastic; common very fine and fine and few medium and coarse roots; many very fine interstitial pores; 45 percent angular siltstone channers; strongly acid; clear wavy boundary.

C—6 to 8 inches; yellowish brown (10YR 5/4) extremely channery silt loam; massive; friable; nonsticky, nonplastic; few very fine and fine roots; many very fine interstitial pores; 80 percent angular siltstone channers; strongly acid; abrupt wavy boundary.

R—8 inches; shale bedrock.

Range in Characteristics

Solum thickness: 0 to 8 inches
Depth to bedrock: Less than 10 inches; typically ranging from 4 to 9 inches
Reaction: Extremely acid to very strongly acid in unlimed areas; including strongly acid in some areas
Rock fragments (content, kind): 15 to 60 percent in the A horizon, 35 to 75 percent in the Bw horizon, and 60 to 80 percent in the C horizon; shale, siltstone, and sandstone

A horizon:
Hue—10YR
Value—3 or 4
Chroma—2 to 4
Fine-earth texture—loam

Bw horizon:
Hue—7.5YR or 10YR
Value—4 to 6
Chroma—4 to 6
Fine-earth texture—silt loam or loam

C horizon:
Hue—10YR
Value—4 to 6
Chroma—4 to 6
Fine-earth texture—silt loam or loam

Schaffenaker Series

Physiographic province: Valley and Ridge
Landform: Hills on uplands
Parent material: Sandy residuum weathered from sandstone
Drainage class: Somewhat excessively drained
Slowest saturated hydraulic conductivity: High
Depth class: Moderately deep
Slope range: 8 to 15 percent

Associated Soils

- Dekalb soils, which have less sand and more rock fragments than the Schaffenaker soils; on adjacent hills and mountains
- Bailegap soils, which have less sand and are deep to sandstone bedrock; on adjacent hills and mountains
- Lily soils, which have more clay and are less sandy; on adjacent hills and mountains
- Oriskany soils, which are very deep to bedrock and have more rock fragments in the soil; on adjacent footslopes

Taxonomic Classification

Mesic, coated Typic Quartzipsamments

Typical Pedon

Schaffenaker loamy sand in an area of Schaffenaker very stony loamy sand, 3 to 15 percent slopes; in Hampshire County, West Virginia; about 1.5 miles south-southwest of the intersection of Highways US-50 and West Virginia 50/25 (Dillons Run Road), on the eastern aspect of Schaffenaker Mountain; Capon Bridge, West Virginia USGS 7.5 Minute Quadrangle, NAD27; lat. 39 degrees 16 minutes 8.00 seconds N. and long. 78 degrees 28 minutes 37.00 seconds W.

A—0 to 2 inches; black (10YR 2/1) loamy sand; weak fine granular structure; very friable; many fine roots; very strongly acid; abrupt smooth boundary.
E—2 to 5 inches; brown (10YR 5/3) loamy sand; single grain; loose; many fine roots; very strongly acid; clear smooth boundary.
Bw1—5 to 12 inches; yellowish brown (10YR 5/6) loamy sand; weak fine granular structure; very friable; few fine roots; 10 percent weak coarse aggregates $^1/_2$ inch to 2 inches in diameter; strongly acid; gradual wavy boundary.
Bw2—12 to 23 inches; yellowish brown (10YR 5/6) loamy sand; weak fine granular structure; very friable; few fine roots; 20 percent very weak coarse aggregates; strongly acid; gradual wavy boundary.
C—23 to 38 inches; yellowish brown (10YR 5/8) loamy sand; single grain; loose; strongly acid; abrupt wavy boundary.
R—38 inches; coarse grained, gray sandstone bedrock.

Range in Characteristics

Solum thickness: 15 to 30 inches
Depth to bedrock: 20 to 40 inches
Reaction: Extremely acid to strongly acid
Rock fragments: 0 to 15 percent gravel in the A and E horizons, 0 to 30 percent gravel in the Bw horizon, and 0 to 50 percent gravel in the C horizon

A horizon:
Hue—10YR
Value—2 to 4
Chroma—1 or 2
Texture—loamy sand

E horizon:
Hue—10YR
Value—4 to 6
Chroma—3 or 4
Fine-earth texture—loamy sand

Bw horizon:
Hue—5YR to 10YR
Value—4 to 6
Chroma—3 to 8
Fine-earth texture—sand, loamy sand, or loamy fine sand

C horizon:
Hue—5YR to 10YR
Value—4 or 5
Chroma—3 to 8
Fine-earth texture—sand, loamy sand, or loamy fine sand

Shelocta Series

Physiographic province: Valley and Ridge
Landform: Bases of hillslopes and mountain slopes
Parent material: Fine-loamy colluvium derived from sandstone and shale
Drainage class: Well drained
Slowest saturated hydraulic conductivity: Moderately high
Depth class: Very deep
Slope range: 3 to 35 percent

Associated Soils

- Berks soils, which are moderately deep to shale bedrock and have a loamy-skeletal particle size; on hills
- Gilpin soils, which are moderately deep to shale bedrock; on hills
- Nicelytown soils, which are moderately well drained; on similar landforms
- Oriskany soils, which have a loamy-skeletal particle size; on similar landforms
- Weikert soils, which are shallow to shale bedrock and have a loamy-skeletal particle size; on hills

Taxonomic Classification

Fine-loamy, mixed, active, mesic Typic Hapludults

Typical Pedon

Shelocta silt loam, 7 to 15 percent slopes; in Smyth County, Virginia; about 3.4 miles southwest of Cedar Springs, about 0.4 mile north-northeast of the intersection of Highways VA-612 and VA-614, about 1.6 miles west of the intersection of Highways VA-612 and VA-675, in a crop field; Cedar Springs, Virginia USGS 7.5 Minute Quadrangle, NAD27; lat. 36 degrees 48 minutes 2.00 seconds N. and long. 81 degrees 20 minutes 33.00 seconds W.

Ap—0 to 8 inches; dark yellowish brown (10YR 4/4) silt loam; weak fine granular structure; friable; slightly sticky, slightly plastic; many fine and few medium roots; common medium pores; 5 percent subangular shale channers; strongly acid; abrupt smooth boundary.

BA—8 to 15 inches; brown (7.5YR 5/4) silt loam; weak fine and medium subangular blocky structure; friable; slightly sticky, slightly plastic; many fine roots; common medium pores; 5 percent subangular shale channers; strongly acid; clear wavy boundary.

Bt1—15 to 34 inches; strong brown (7.5YR 4/6) silt loam; weak fine and medium subangular blocky structure; friable; slightly sticky, slightly plastic; common fine roots; common fine and medium pores; common distinct clay films on all faces of peds; 5 percent subangular shale channers; strongly acid; clear wavy boundary.

Bt2—34 to 46 inches; strong brown (7.5YR 5/6) silty clay loam; moderate fine and medium subangular blocky structure; friable; slightly sticky, slightly plastic; few fine roots; common fine pores; common distinct clay films on all faces of peds; 10 percent subangular shale channers; strongly acid; abrupt wavy boundary.

Bt3—46 to 62 inches; strong brown (7.5YR 5/6) channery silty clay loam; weak fine subangular blocky structure; friable; slightly sticky, slightly plastic; common fine pores; common distinct clay films on all faces of peds; 18 percent subangular shale channers; strongly acid.

Range in Characteristics

Solum thickness: 40 to 60 inches or more
Depth to bedrock: More than 40 inches
Reaction: Very strongly acid or strongly acid in unlimed areas

Rock fragments (content, kind and size): 2 to 35 percent in the A and BA horizons and 5 to 35 percent in the Bt horizon; mostly shale channers

Ap horizon:
Hue—10YR
Value—4 or 5
Chroma—2 to 4
Fine-earth texture—silt loam

BA horizon:
Hue—7.5YR or 10YR
Value—4 to 6
Chroma—4 to 6
Fine-earth texture—silt loam or loam

Bt horizon:
Hue—7.5YR or 10YR
Value—4 to 6
Chroma—4 to 8
Fine-earth texture—silt loam or silty clay loam

Slabtown Series

Physiographic province: Valley and Ridge
Landform: Bases of hillslopes and areas in valleys
Parent material: Local fine-loamy colluvium derived from limestone and shale over clayey residuum weathered from limestone
Drainage class: Moderately well drained
Slowest saturated hydraulic conductivity: Moderately high
Depth class: Very deep
Slope range: 3 to 15 percent

Associated Soils

- Carbo soils, which are well drained, are moderately deep to limestone bedrock, and have a very fine particle size; on hills
- Frederick soils, which are well drained, are very deep to limestone bedrock, and have a fine particle size; on hills
- Watahala soils, which are well drained, are very deep to cherty limestone bedrock, and have a fine-loamy over clayey particle size; on hills

Taxonomic Classification

Fine-loamy, mixed, semiactive, mesic Aquic Paleudalfs

Typical Pedon

Slabtown silt loam, 7 to 15 percent slopes; in Pulaski County, Virginia; approximately 3 miles north of Pulaski, 150 yards northwest of the intersection of Highways VA-645 and US-11, about 1.1 miles southeast of the intersection of Highways VA-636 and VA-645, in a pasture; Pulaski, Virginia USGS 7.5 Minute Quadrangle, NAD27; lat. 37 degrees 4 minutes 41.00 seconds N. and long. 80 degrees 45 minutes 10.00 seconds W.

Ap—0 to 9 inches; brown (10YR 4/3) silt loam; weak fine granular structure; friable; slightly sticky, nonplastic; common very fine and fine roots; common very fine tubular pores; 10 percent subrounded chert gravel; neutral; clear wavy boundary.
E—9 to 18 inches; yellowish brown (10YR 5/4) silt loam; few fine faint irregular pale brown (10YR 6/3) mottles; weak very fine and fine subangular blocky structure;

friable; slightly sticky, nonplastic; few very fine and fine roots; common very fine tubular pores; 5 percent subrounded chert gravel; slightly alkaline; clear smooth boundary.

BE—18 to 26 inches; yellowish brown (10YR 5/4) silt loam; moderate very fine and fine subangular blocky structure; friable; slightly sticky, slightly plastic; few very fine roots; many very fine tubular pores; few distinct discontinuous pale brown (10YR 6/3), moist, and dark yellowish brown (10YR 4/4), moist, silt coats on all faces of peds; few manganese masses on faces of peds; 12 percent subrounded chert gravel; slightly alkaline; clear smooth boundary.

Bt1—26 to 34 inches; yellowish brown (10YR 5/6) silt loam; moderate coarse prismatic structure parting to moderate very thick platy; friable; slightly sticky, slightly plastic; brittle; few very fine roots; many very fine tubular pores; few distinct discontinuous brown (7.5YR 4/4), moist, clay films on all faces of peds; common manganese masses on faces of peds and many fine prominent light gray (10YR 7/2), moist, iron depletions; 2 percent subrounded chert gravel; slightly alkaline; gradual smooth boundary.

Bt2—34 to 44 inches; 40 percent light yellowish brown (10YR 6/4) and 60 percent strong brown (7.5YR 5/6) gravelly silty clay loam; moderate coarse prismatic structure parting to moderate very thick platy; friable; slightly sticky, slightly plastic; brittle; few very fine roots; common very fine tubular pores; few distinct discontinuous brown (7.5YR 4/4), moist, clay films on all faces of peds; common manganese masses on faces of peds and many fine prominent light gray (10YR 7/2), moist, iron depletions; 18 percent subrounded chert gravel; slightly alkaline; clear smooth boundary.

2Bt3—44 to 75 inches; yellowish brown (10YR 5/8) clay; moderate very fine subangular blocky structure; friable; slightly sticky, moderately plastic; common very fine tubular pores; common prominent continuous strong brown (7.5YR 5/6), moist, clay films on all faces of peds; common medium distinct yellowish red (5YR 5/8), moist, masses of oxidized iron; slightly alkaline.

Range in Characteristics

Solum thickness: More than 60 inches
Depth to bedrock: More than 60 inches
Reaction: Moderately acid to slightly alkaline, except in limed areas
Rock fragments (content, type): 2 to 35 percent in the A, E, and Bt horizons and 0 to 5 percent in the 2Bt horizon; chert or sandstone

Ap horizon:
Hue—10YR
Value—4 or 5
Chroma—3 to 8
Fine-earth texture—silt loam or loam

E and BE horizons:
Hue—7.5YR or 10YR
Value—4 or 5
Chroma—3 to 8
Fine-earth texture—silt loam or loam

Bt horizon:
Hue—7.5YR or 10YR
Value—5 or 6
Chroma—4 to 8
Fine-earth texture—silt loam, loam, silty clay loam, or clay loam
Redoximorphic features—masses of oxidized iron in shades of red, brown, and yellow in some pedons; iron depletions in shades of brown and gray

2Bt horizon:
Hue—5YR to 10YR
Value—5 or 6
Chroma—4 to 8
Texture—silty clay loam, silty clay, or clay
Redoximorphic features—masses of oxidized iron in shades of red, brown, and yellow in some pedons

Sugarhol Series

Physiographic province: Valley and Ridge
Landform: High stream terraces in river valleys
Parent material: Alluvium derived from sandstone and shale
Drainage class: Well drained
Slowest saturated hydraulic conductivity: Moderately high
Depth class: Very deep
Slope range: 3 to 15 percent

Associated Soils

- Nicelytown soils, which are moderately well drained and have less clay in the subsoil than the Sugarhol soils; on similar landforms
- Alonzville soils, which have less clay in the subsoil and are susceptible to flooding; on adjacent low stream terraces
- Coursey soils, which are moderately well drained, have less clay in the subsoil, and are susceptible to flooding; on adjacent low stream terraces

Taxonomic Classification

Fine, mixed, semiactive, mesic Typic Paleudults

Typical Pedon

Sugarhol silt loam, 3 to 8 percent slopes; in Bath County, Virginia; approximately 3,300 feet southwest, on a bearing of 220 degrees, from the southernmost intersection of Highways VA-600 and VA-603, in woodland; Falling Spring, Virginia USGS 7.5 Minute Quadrangle, NAD27; lat. 37 degrees 59 minutes 10.00 seconds N. and long. 79 degrees 58 minutes 15.00 seconds W.

Oa—0 to 1 inch; highly decomposed plant material.
A—1 to 2 inches; dark grayish brown (10YR 4/2) silt loam; weak medium granular structure; very friable; slightly sticky, slightly plastic; many very fine, fine, and medium roots; extremely acid; abrupt smooth boundary.
E—2 to 3 inches; grayish brown (10YR 5/2) silt loam; weak medium granular structure; very friable; slightly sticky, slightly plastic; many very fine, fine, and medium roots; very strongly acid; abrupt smooth boundary.
BE—3 to 11 inches; light yellowish brown (10YR 6/4) silt loam; weak medium subangular blocky structure; friable; slightly sticky, slightly plastic; common very fine, fine, medium, and coarse roots; 2 percent rounded gravel; very strongly acid; abrupt wavy boundary.
Bt1—11 to 34 inches; yellowish brown (10YR 5/6) silty clay; moderate fine and medium subangular blocky structure; firm; moderately sticky, moderately plastic; few very fine and fine roots; common distinct clay films on all faces of peds; 2 percent rounded gravel; very strongly acid; clear wavy boundary.
Bt2—34 to 53 inches; strong brown (7.5YR 5/8) silty clay; many prominent light yellowish brown (2.5Y 6/4) and many faint yellowish red (5YR 5/8) mottles; strong fine and medium subangular blocky structure; firm; moderately sticky, moderately

plastic; common distinct clay films on all faces of peds; 2 percent rounded gravel; very strongly acid; gradual wavy boundary.

Bt3—53 to 61 inches; yellowish brown (10YR 5/6) clay; common distinct strong brown (7.5YR 5/8) and common distinct light yellowish brown (2.5Y 6/4) mottles; strong fine and medium subangular blocky structure; firm; moderately sticky, moderately plastic; common distinct clay films on all faces of peds; 2 percent rounded gravel; very strongly acid.

Range in Characteristics

Solum thickness: More than 60 inches
Depth to bedrock: More than 60 inches
Reaction: Extremely acid to strongly acid, except in limed areas
Rock fragments (content, size): 0 to 15 percent in the A, Ap, E, EB, BE, and BA horizons and 0 to 35 percent in the Bt horizon; gravel and cobbles

A horizon:
Hue—10YR
Value—2 to 4
Chroma—2 to 4
Texture—silt loam or loam

Ap horizon (if it occurs):
Hue—10YR
Value—3 or 4
Chroma—2 to 4
Texture—silt loam, loam, or silty clay loam

E or EB horizon:
Hue—10YR or 2.5Y
Value—5 or 6
Chroma—2 to 4
Texture—silt loam or loam

BE horizon:
Hue—10YR or 2.5Y
Value—5 or 6
Chroma—4 to 6
Texture—silt loam, loam, or clay loam

BA horizon (if it occurs):
Hue—10YR
Value—4 or 5
Chroma—3 to 6
Texture—silt loam, loam, or clay loam

Bt horizon:
Hue—5YR to 10YR
Value—4 to 6
Chroma—4 to 8
Fine-earth texture—clay, silty clay, silty clay loam, or clay loam
Lithochromic mottles—mottles in shades of red, reddish brown, and light yellowish brown may occur below a depth of 30 inches

Tumbling Series

Physiographic province: Valley and Ridge
Landform: Bases of hillslopes and mountain slopes and areas in valleys
Parent material: Clayey colluvium derived from sandstone and shale

Drainage class: Well drained
Slowest saturated hydraulic conductivity: Moderately high
Depth class: Very deep
Slope range: 3 to 35 percent

Associated Soils

- Jefferson soils, which have a fine-loamy particle size; on similar landforms
- Nicelytown soils, which have a fine-loamy particle size and are moderately well drained; on similar landforms
- Oriskany soils, which have a loamy-skeletal particle size; on similar landforms
- Escatawba soils, which have a fine-loamy particle size and a seasonal high water table at a depth of 2.5 to 4 feet; on similar landforms

Taxonomic Classification

Fine, kaolinitic, mesic Typic Paleudults

Typical Pedon

Tumbling loam, 2 to 7 percent slopes; in Smyth County, Virginia; about 1.2 miles northwest of the junction of Highways VA-614 and VA-749 and 1.1 miles west of the junction of Highways VA-749 and VA-670, northwest of Cedar Springs, in cropland; Cedar Springs, Virginia USGS 7.5 Minute Quadrangle, NAD27; lat. 36 degrees 50 minutes 26.00 seconds N. and long. 81 degrees 18 minutes 19.00 seconds W.

Ap—0 to 9 inches; dark yellowish brown (10YR 4/4) loam; weak fine granular structure; friable; slightly sticky, slightly plastic; many fine roots; strongly acid; abrupt smooth boundary.
Bt1—9 to 16 inches; yellowish brown (10YR 5/6) clay loam; weak medium subangular blocky structure; firm; slightly sticky, slightly plastic; common fine roots; common distinct clay films on all faces of peds; strongly acid; clear smooth boundary.
Bt2—16 to 34 inches; strong brown (7.5YR 5/6) clay loam; weak medium subangular blocky structure; firm; slightly sticky, slightly plastic; few fine roots; common distinct clay films on all faces of peds; strongly acid; clear smooth boundary.
Bt3—34 to 44 inches; strong brown (7.5YR 5/6) clay loam; common medium prominent red (2.5YR 5/8) mottles; weak medium subangular blocky structure; firm; slightly sticky, slightly plastic; few fine roots; common distinct clay films on all faces of peds; very strongly acid; clear smooth boundary.
Bt4—44 to 62 inches; yellowish red (5YR 5/6) clay loam; common fine faint yellowish brown (10YR 5/6) mottles; weak medium subangular blocky structure; firm; slightly sticky, slightly plastic; common distinct clay films on all faces of peds; very strongly acid.

Range in Characteristics

Solum thickness: More than 60 inches
Depth to bedrock: More than 60 inches
Reaction: Very strongly acid or strongly acid in unlimed areas
Content of rock fragments: 0 to 15 percent in the A horizon and 0 to 35 percent in the B horizon

Ap horizon:
Hue—7.5YR or 10YR
Value—4 or 5
Chroma—3 or 4
Fine-earth texture—loam

Bt horizon:
Hue—2.5YR to 10YR

Value—4 or 5
Chroma—4 to 8
Fine-earth texture—clay, sandy clay loam, or clay loam

Udorthents

Physiographic province: Valley and Ridge
Landform: Hills, valleys, and stream terraces
Parent material: Fill material
Drainage class: Variable
Slowest saturated hydraulic conductivity: Variable
Depth class: Variable
Slope range: 0 to 25 percent

Associated Soils

- Berks soils, which are moderately deep to shale bedrock; on undisturbed hills
- Carbo soils, which are moderately deep to limestone bedrock; on undisturbed hills
- Frederick and Watahala soils, which are very deep to limestone bedrock; on undisturbed hills
- Nicelytown soils, which are moderately well drained; on undisturbed high stream terraces
- Sugarhol soils, which are well drained; on undisturbed high stream terraces
- Alonzville soils, which are well drained; on undisturbed low- to intermediate-level stream terraces
- Coursey soils, which are moderately well drained; on undisturbed low- to intermediate-level stream terraces

Taxonomic Classification

Udorthents

Typical Pedon

The properties and characteristics of Udorthents vary to the extent that these soils do not have a typical profile. Udorthents formed when soils were disturbed by land leveling, excavation, or filling. They consist of loamy and clayey soil material, varying amounts of rock fragments, and some foreign debris. Depth to hard bedrock varies from a few inches to more than 5 feet. Areas range from slightly compacted to severely compacted. Unvegetated areas are susceptible to severe erosion.

Watahala Series

Physiographic province: Valley and Ridge
Landform: Hills
Parent material: Gravelly residuum over clayey residuum weathered from cherty limestone
Drainage class: Well drained
Slowest saturated hydraulic conductivity: Moderately high
Depth class: Very deep
Slope range: 8 to 55 percent

Associated Soils

- Carbo soils, which are moderately deep to bedrock; on similar landforms
- Frederick soils, which have a fine particle size and less chert than the Watahala soils; on similar landforms

- Slabtown soils, which are moderately well drained and have a fine-loamy particle size; on concave footslopes

Taxonomic Classification

Fine-loamy over clayey, siliceous over mixed, subactive, mesic Typic Paleudults

Typical Pedon

Watahala gravelly silt loam, 15 to 35 percent slopes, extremely stony; in Bland County, Virginia; about 3.7 miles northeast of Nebo, about 1.2 miles south-southeast of the junction of Highways VA-42 and VA-610, about 1.2 miles south of the junction of Highways VA-622 and VA-42, in cutover woodland; Nebo, Virginia USGS 7.5 Minute Quadrangle, NAD27; lat. 36 degrees 58 minutes 13.00 seconds N. and long. 81 degrees 23 minutes 19.00 seconds W.

Ap—0 to 2 inches; dark yellowish brown (10YR 4/4) gravelly silt loam; weak very fine and fine granular structure; friable; nonsticky, nonplastic; many very fine, fine, medium, and coarse roots; 25 percent angular chert gravel; very strongly acid; abrupt wavy boundary.

E—2 to 17 inches; light yellowish brown (10YR 6/4) gravelly silt loam; weak very fine subangular blocky structure; friable; slightly sticky, nonplastic; common very fine and fine and few medium and coarse roots; 20 percent angular chert gravel; strongly acid; gradual wavy boundary.

Bt1—17 to 25 inches; light yellowish brown (10YR 6/4) gravelly loam; weak fine and medium subangular blocky structure; friable; slightly sticky, nonplastic; few very fine and fine roots; few faint clay films on all faces of peds; 30 percent angular chert gravel; very strongly acid; clear wavy boundary.

Bt2—25 to 29 inches; strong brown (7.5YR 5/6) gravelly clay loam; common medium distinct yellowish red (5YR 5/8) mottles; weak fine and medium subangular blocky structure; friable; slightly sticky, slightly plastic; few very fine and fine roots; common faint clay films on all faces of peds; 15 percent angular chert gravel; very strongly acid; abrupt wavy boundary.

2Bt3—29 to 62 inches; yellowish red (5YR 5/8) clay; few fine distinct brownish yellow (10YR 6/8) mottles; moderate medium subangular blocky structure; firm; moderately sticky, moderately plastic; few very fine roots; common distinct clay films on all faces of peds; 5 percent angular chert gravel; very strongly acid.

Range in Characteristics

Solum thickness: More than 60 inches
Depth to bedrock: More than 60 inches
Reaction: In unlimed areas, extremely acid to strongly acid in the upper part of the solum and very strongly acid or strongly acid in the 2Bt horizon
Rock fragments (content, kind, size): 10 to 45 percent in individual horizons above the 2Bt horizon and 0 to 35 percent in the 2Bt horizon; the control section averages less than 35 percent; mostly chert but including limestone and sandstone in some pedons; mostly gravel or cobbles

A horizon:
Hue—10YR
Value—3 or 4
Chroma—2 to 4
Fine-earth texture—silt loam

E horizon:
Hue—10YR
Value—5 or 6

Chroma—2 to 4
Fine-earth texture—silt loam, loam, fine sandy loam, or sandy loam

Bt horizon:
Hue—7.5YR or 10YR
Value—5 or 6
Chroma—4 to 8
Fine-earth texture—loam, clay loam, or silty clay loam

2Bt horizon:
Hue—5YR or 7.5YR
Value—4 to 6
Chroma—6 to 8
Fine-earth texture—clay or silty clay

Weikert Series

Physiographic province: Valley and Ridge
Landform: Hills and mountains
Parent material: Residuum weathered from shale and siltstone
Drainage class: Well drained
Slowest saturated hydraulic conductivity: High
Depth class: Shallow
Slope range: 8 to 70 percent

Associated Soils

- Berks soils, which are moderately deep to bedrock; on similar landforms
- Nicelytown soils, which are very deep to bedrock, are moderately well drained, and have a fine-loamy particle size; on footslopes
- Rough soils, which are very shallow to shale bedrock; on similar landforms
- Shelocta soils, which are very deep to bedrock and have a fine-loamy particle size; on footslopes
- Tumbling soils, which are very deep to bedrock and have a fine particle size; on footslopes

Taxonomic Classification

Loamy-skeletal, mixed, active, mesic Lithic Dystrudepts

Typical Pedon

Weikert channery silt loam in an area of Berks-Weikert complex, 15 to 35 percent slopes; in Bland County, Virginia; about 3.5 miles northwest of Mechanicsburg, about 0.3 mile west of the junction of Highways VA-631 and VA-612, about 1.0 mile southwest of the junction of Highways VA-612 and VA-606, in woodland; Mechanicsburg, Virginia USGS 7.5 Minute Quadrangle, NAD27; lat. 37 degrees 10 minutes 46.00 seconds N. and long. 80 degrees 59 minutes 31.00 seconds W.

Oe—0 to 1 inch; moderately decomposed plant material.
A—1 to 3 inches; brown (10YR 4/3) channery silt loam; weak very fine granular structure; friable; slightly sticky, nonplastic; many very fine and fine and few medium and coarse roots; 25 percent angular shale channers; strongly acid; abrupt wavy boundary.
E—3 to 6 inches; yellowish brown (10YR 5/4) very channery silt loam; weak very fine subangular blocky structure; friable; slightly sticky, nonplastic; common very fine and fine and few medium roots; 40 percent angular shale channers; strongly acid; clear wavy boundary.

Bw—6 to 11 inches; yellowish brown (10YR 5/6) extremely channery silt loam; weak very fine subangular blocky structure; friable; slightly sticky, nonplastic; common very fine and fine and few coarse roots; 60 percent angular shale channers; very strongly acid; abrupt smooth boundary.

C—11 to 17 inches; yellowish brown (10YR 5/6) extremely channery silt loam; massive; friable; slightly sticky, nonplastic; 85 percent angular shale channers; very strongly acid; clear wavy boundary.

R—17 inches; intermixed soft and hard shale bedrock.

Range in Characteristics

Solum thickness: 8 to 20 inches
Depth to bedrock: 10 to 20 inches
Reaction: Extremely acid to strongly acid in unlimed areas
Content of rock fragments: 10 to 50 percent in the upper part of the solum, 35 to 60 percent in the middle and lower parts of the solum, and 60 to 85 percent in the substratum

A horizon:
Hue—10YR
Value—3 or 4
Chroma—3 or 4
Fine-earth texture—silt loam

E horizon:
Hue—10YR
Value—5
Chroma—4 to 8
Fine-earth texture—silt loam or loam

Bw horizon:
Hue—7.5YR or 10YR
Value—4 to 6
Chroma—4 to 6
Fine-earth texture—silt loam or loam

C horizon:
Hue—7.5YR or 10YR
Value—4 to 6
Chroma—4 to 8
Fine-earth texture—silt loam or loam

Cr horizon or R layer:
Texture—soft or hard shale bedrock; soft bedrock occurs when intermixed with hard bedrock

Formation of the Soils

This section describes the factors and processes that have affected the formation and morphology of the soils in Craig County.

Factors of Soil Formation

Soil is formed by weathering and other processes that act upon parent material. The characteristics of the soil at any given point depend upon the interaction of the five factors of soil formation. These factors are parent material, climate, plants and animals, relief, and time (Jenny, 1941).

Climate and plants and animals are the active forces of soil formation. They act on the parent material accumulated through the weathering of rocks and slowly change it into soil. Although all of the five factors affect the formation of every soil, the relative importance of each differs from place to place. In extreme cases one factor may dominate in the formation of a soil and fix most of its properties. Generally, the combined action of the five factors determines the characteristics of each soil.

Parent Material

The unconsolidated mass from which a soil forms is parent material. It is largely responsible for the chemical and mineralogical composition of the soil and the rate at which soil-forming processes take place. There are three kinds of parent material in the survey area: residual, alluvial, and colluvial.

The principle types of residual parent material in the survey area are limestone, sandstone, shale, and siltstone. Soils that formed in residuum from limestone are in the valley areas. They typically have a surface layer of loam or silt loam and a subsoil of clay or silty clay. Examples are Frederick, Carbo, and Watahala soils. Soils that formed in residuum from sandstone are on the higher mountains. They typically have (in the fine-earth fraction) a surface layer of fine sandy loam or sandy loam and a subsoil of loam, sandy clay loam, or clay loam. Examples are the loamy Bailegap, Lily, and Dekalb soils. Soils that formed from shale and siltstone are dominantly located on intermediate mountain ridges across the survey area. They typically have (in the fine-earth fraction) a surface layer of silt loam and a subsoil of silt loam or silty clay loam. Examples are Berks, Calvin, Gilpin, and Weikert soils.

Alluvial parent materials are of local origin along streams and their tributaries. Soils derived from alluvium have a wide range in texture and development. Examples are Alonzville, Atkins, Ogles, Pope, and Philo soils.

Colluvial parent materials are dominantly along lower mountain side slopes, in coves, and on benches. Soils derived from colluvium are primarily moderately coarse textured, medium textured, or moderately fine textured. Examples are Jefferson, Oriskany, Slabtown, and Tumbling soils.

Climate

Climate, principally through the influence of precipitation and temperature, affects the physical, chemical, and biological relationships in soils. Water dissolves minerals and organic residue through the surface layer and subsoil. Temperature determines the types of physical and chemical processes and biological activities that take place and the speed at which they occur.

In Craig County, because precipitation exceeds evapotranspiration, the soils have been leached. Much of the soluble material that originally was present or was released through weathering has been removed. In addition to leaching soluble materials, water that percolates through the soil moves clay from the surface layer into the subsoil. Except for soils that formed in recent alluvium or sand or are on very steep slopes, the soils of the county typically contain more clay in the subsoil than in the surface layer.

Climate also influences the formation of blocky structure in the subsoil of well developed soils. The development of peds (aggregates) in the subsoil is caused partly by changes in volume of the soil mass that are primarily the result of alternating periods of wetting and drying.

Climate is uniform throughout most of the survey area. However, its affect on soil formation may be modified locally by the gradient and aspect of slopes.

Plant and Animal Life

Micro-organisms, vegetation, animals, and humans are major factors in the formation of soils. Vegetation is generally responsible for the amount of organic matter in the soil and the color of the surface layer. Earthworms, cicadas, and burrowing animals help keep the soil open and porous. Micro-organisms decompose the vegetation and dead animal matter, thus releasing nutrients for plant food.

Before the survey area was settled, the native vegetation was the major living organism affecting soil development. The native vegetation consisted mainly of hardwoods. Oaks, hickories, chestnuts, maples, beech, and birch, along with scattered hemlock and eastern white pine, were the dominant trees in the original forest cover. Most hardwoods use a large amount of the available calcium and other bases in soil and constantly recycle them through leaf fall and decay. Coniferous trees recycle smaller amounts of bases than deciduous trees. Consequently, more bases have been leached from soils developed under coniferous vegetation than under deciduous vegetation. The soils in the mountainous regions of the county that are underlain by acid parent rock have few remaining bases, even though they developed under a hardwood forest. This is mainly because of the low base content of the original parent material. Because the soils formed under forest vegetation, rapid decay of organic matter and constant recycling of plant nutrients have prevented organic matter from accumulating in large quantities. In addition, the present climate favors the rapid decay of plant materials, the oxidation of organic matter, and the leaching of plant nutrients.

As farming developed in the survey area, humans became an important factor in the development of soils. The clearing of the forests, cultivation, the introduction of new plants, and changes in natural drainage all have had their effect on soil development. The most important changes brought about by humans are the mixing of the upper layers of the soil to form a plow layer, the cultivation of steep erodible slopes, and the liming and fertilizing that change the content of plant nutrients, especially in the upper layers of the soils.

Relief

The underlying formations, the geologic history of the general region, and the effects of dissection by rivers and streams largely determine the relief of an area. Relief affects the formation of soils by influencing the rate of surface runoff, the soil temperature, and the geologic erosion. It can alter the effects of climate acting on the parent material to the extent that several different kinds of soil may form from the same kind of parent material. Relief also affects the amount of radiant energy absorbed by the soils, which in turn affects the type of native vegetation.

Relief affects drainage. Runoff from upland areas tends to accumulate in areas on the nearly level flood plains. As a result, soils on the flood plains have a high water table. The poorly drained Atkins and Maurertown soils in Craig County are examples.

The gently sloping to very steep soils generally are well drained or moderately well drained. In areas of these soils, geologic erosion is slight, surface runoff is medium to rapid, and the translocation of bases and clay downward through the soil has usually occurred. In areas of the steeper soils, however, surface runoff is very rapid, water infiltration and the translocation of clays and bases throughout the soil are reduced, and geologic erosion removes soil material almost as fast as it forms.

Time

Time, as a factor of soil formation, generally is related to the degree of development or degree of horizon differentiation within the soil. A soil that has little or no horizon development is considered a young soil, and one that has strongly developed horizons is considered an old or mature soil.

The oldest soils in the survey area formed in residual material weathered from bedrock. In general, these soils are in the less sloping, relatively stable positions and formed in easily weatherable materials. These older soils have a strong degree of horizon differentiation. Frederick soils are an example. On very steep slopes, geologic erosion removed soil material in a relatively short period and the soils generally have not been in place long enough to develop more than moderate horizon differentiation. Weikert and Rough soils are examples of soils in these areas. Soils that formed in recent alluvium have been in place only a relatively short time and show little or no development other than an accumulation of organic matter in the surface layer. They commonly are stratified and have an irregular distribution of organic matter. Examples are Pope and Ogles soils.

Morphology of the Soils

The results of the interaction of the soil-forming factors can be distinguished by the different layers, or horizons, in a soil profile. The soil profile extends from the surface down to materials that are little altered by the soil-forming processes.

Most soils have three major horizons: the A, B, and C horizons. Soils under a forest canopy have an O (organic) horizon at the surface. These major horizons may be further subdivided by the use of numbers and letters to indicate changes within one horizon. An example would be the Bt horizon, a B horizon that has an accumulation of clay.

The A horizon is the surface layer. It is the layer that has the maximum accumulation of organic matter and that shows a maximum leaching or eluviation of clay and iron. The E horizon is a subsurface layer that has the maximum leaching of bases and eluviation of clay and iron and is normally the lightest colored horizon in the profile.

The B horizon underlies an A or E horizon and is commonly called the subsoil. It is the horizon of maximum accumulation of clay, iron, aluminum, or other compounds leached from the surface layer. In some soils the B horizon formed by alteration in place rather than by illuviation. The alteration can be caused by the oxidation and reduction of iron or by the weathering of clay minerals. The B horizon commonly has blocky or prismatic structure. It generally is finer textured, has firmer consistence, and is lighter in color than the A horizon but darker than the C or E horizon.

The C horizon is below the B horizon or, in some instances, below the A horizon. It consists of materials that are little altered by the soil-forming processes.

Processes of Horizon Differentiation

In this survey area, several processes are involved in the formation of soil horizons. Among these are the accumulation of organic matter, the leaching of soluble salts, the reduction and transfer of iron, the formation of soil structure, and the formation and translocation of clay minerals. These processes are continually taking place, generally at the same time throughout the soil profile. Such processes have been going on for thousands of years.

The accumulation and incorporation of organic matter takes place with the decomposition of plant residue. Organic matter darkens the surface layer and helps to form the A horizon. In many places, much of the surface layer has been eroded away or has been mixed with materials from underlying layers through cultivation. Once organic matter is lost, it normally takes a long time to replace it. In Craig County, the organic matter content of the surface layer ranges from low, as in Dekalb soils, to high, as in Atkins soils.

For soils to form distinct subsoil horizons, soluble salts must be leached before the translocation of clay minerals can occur. The factors that affect this leaching include the kind of salts originally present and the permeability of the soil profile.

Well drained and moderately well drained soils in the survey area have a red to yellowish brown subsoil. These colors are caused mainly by thin coatings of iron oxides on the soil particles, although in some soils the color is inherited from the materials in which they formed. In most of the soils in the survey area, the structure of the subsoil is weak or moderate subangular blocky.

The reduction and transfer of iron, called gleying, is associated mainly with the wetter, more poorly drained soils. Moderately well drained soils, such as Nicelytown, have yellowish brown to gray mottles, indicating the segregation of iron. In poorly drained soils, such as Atkins and Maurertown, the subsoil and underlying material are grayish, indicating the reduction and transfer of iron by removal in solution.

References

American Association of State Highway and Transportation Officials (AASHTO). 2004. Standard specifications for transportation materials and methods of sampling and testing. 24th edition.

American Society for Testing and Materials (ASTM). 2005. Standard classification of soils for engineering purposes. ASTM Standard D2487-00.

Cowardin, L.M., V. Carter, F.C. Golet, and E.T. LaRoe. 1979. Classification of wetlands and deep-water habitats of the United States. U.S. Fish and Wildlife Service FWS/OBS-79/31.

Federal Register. July 13, 1994. Changes in hydric soils of the United States.

Federal Register. September 18, 2002. Hydric soils of the United States.

Hurt, G.W., P.M. Whited, and R.F. Pringle, editors. 2002. Field indicators of hydric soils in the United States. Version 5.0.

Jenny, Hans. 1941. Factors of soil formation.

National Research Council. 1995. Wetlands: Characteristics and boundaries.

Schoeneberger, P.J., D.A. Wysocki, E.C. Benham, and W.D. Broderson, editors. 2002. Field book for describing and sampling soils. Version 2.0. U.S. Department of Agriculture, Natural Resources Conservation Service.

Soil Survey Division Staff. 1993. Soil survey manual. Soil Conservation Service. U.S. Department of Agriculture Handbook 18. (Available at http://soils.usda.gov/technical/)

Soil Survey Staff. 1999. Soil taxonomy: A basic system of soil classification for making and interpreting soil surveys. 2nd edition. Natural Resources Conservation Service. U.S. Department of Agriculture Handbook 436.

Soil Survey Staff. 2006. Keys to soil taxonomy. 10th edition. U.S. Department of Agriculture, Natural Resources Conservation Service.

Tiner, R.W., Jr. 1985. Wetlands of Delaware. U.S. Fish and Wildlife Service and Delaware Department of Natural Resources and Environmental Control, Wetlands Section.

United States Army Corps of Engineers, Environmental Laboratory. 1987. Corps of Engineers wetlands delineation manual. Waterways Experiment Station Technical Report Y-87-1.

United States Census Bureau. Data for Craig County, Virginia. (Available at http://quickfacts.census.gov/qfd/states/51/51045.html)

United States Department of Agriculture, National Agricultural Statistics Service. Data from 2007 Census. (Available at http://www.agcensus.usda.gov/)

United States Department of Agriculture, Natural Resources Conservation Service. National forestry manual. (Available at http://soils.usda.gov/technical/)

United States Department of Agriculture, Natural Resources Conservation Service. National soil survey handbook. Title 430_VI. (Available at http://soils.usda.gov/technical/)

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

Virginia Polytechnic Institute and State University. 1994. VALUES—Virginia Agronomic Land Use and Evaluation System. *In* Soil Test Recommendations for Virginia. Virginia Cooperative Extension.

Glossary

Many of the terms relating to landforms, geology, and geomorphology are defined in more detail in the “National Soil Survey Handbook” (available in local offices of the Natural Resources Conservation Service or on the Internet).

ABC soil. A soil having an A, a B, and a C horizon.

AC soil. A soil having only an A and a C horizon. Commonly, such soil formed in recent alluvium or on steep, rocky slopes.

Aeration, soil. The exchange of air in soil with air from the atmosphere. The air in a well aerated soil is similar to that in the atmosphere; the air in a poorly aerated soil is considerably higher in carbon dioxide and lower in oxygen.

Aggregate, soil. Many fine particles held in a single mass or cluster. Natural soil aggregates, such as granules, blocks, or prisms, are called peds. Clods are aggregates produced by tillage or logging.

Alkali (sodic) soil. A soil having so high a degree of alkalinity (pH 8.5 or higher) or so high a percentage of exchangeable sodium (15 percent or more of the total exchangeable bases), or both, that plant growth is restricted.

Alluvial cone. A semiconical type of alluvial fan having very steep slopes. It is higher, narrower, and steeper than a fan and is composed of coarser and thicker layers of material deposited by a combination of alluvial episodes and (to a much lesser degree) landslides (debris flow). The coarsest materials tend to be concentrated at the apex of the cone.

Alluvial fan. A low, outspread mass of loose materials and/or rock material, commonly with gentle slopes. It is shaped like an open fan or a segment of a cone. The material was deposited by a stream at the place where it issues from a narrow mountain valley or upland valley or where a tributary stream is near or at its junction with the main stream. The fan is steepest near its apex, which points upstream, and slopes gently and convexly outward (downstream) with a gradual decrease in gradient.

Alluvium. Unconsolidated material, such as gravel, sand, silt, clay, and various mixtures of these, deposited on land by running water.

Alpha,alpha-dipyridyl. A compound that when dissolved in ammonium acetate is used to detect the presence of reduced iron (Fe II) in the soil. A positive reaction implies reducing conditions and the likely presence of redoximorphic features.

Animal unit month (AUM). The amount of forage required by one mature cow of approximately 1,000 pounds weight, with or without a calf, for 1 month.

Aquic conditions. Current soil wetness characterized by saturation, reduction, and redoximorphic features.

Argillic horizon. A subsoil horizon characterized by an accumulation of illuvial clay.

Aspect. The direction toward which a slope faces. Also called slope aspect.

Association, soil. A group of soils or miscellaneous areas geographically associated in a characteristic repeating pattern and defined and delineated as a single map unit.

Available water capacity (available moisture capacity). The capacity of soils to hold water available for use by most plants. It is commonly defined as the difference between the amount of soil water at field moisture capacity and the amount at wilting point. It is commonly expressed as inches of water per inch of soil. The capacity, in inches, in a 60-inch profile or to a limiting layer is expressed as:

Very low	0 to 3
Low	3 to 6
Moderate	6 to 9
High	9 to 12
Very high	more than 12

Backslope. The position that forms the steepest and generally linear, middle portion of a hillslope. In profile, backslopes are commonly bounded by a convex shoulder above and a concave footslope below.

Backswamp. A flood-plain landform. Extensive, marshy or swampy, depressed areas of flood plains between natural levees and valley sides or terraces.

Basal area. The area of a cross section of a tree, generally referring to the section at breast height and measured outside the bark. It is a measure of stand density, commonly expressed in square feet.

Base saturation. The degree to which material having cation-exchange properties is saturated with exchangeable bases (sum of Ca, Mg, Na, and K), expressed as a percentage of the total cation-exchange capacity.

Base slope (geomorphology). A geomorphic component of hills consisting of the concave to linear (perpendicular to the contour) slope that, regardless of the lateral shape, forms an apron or wedge at the bottom of a hillside dominated by colluvium and slope-wash sediments (for example, slope alluvium).

Bedding plane. A planar or nearly planar bedding surface that visibly separates each successive layer of stratified sediment or rock (of the same or different lithology) from the preceding or following layer; a plane of deposition. It commonly marks a change in the circumstances of deposition and may show a parting, a color difference, a change in particle size, or various combinations of these. The term is commonly applied to any bedding surface, even one that is conspicuously bent or deformed by folding.

Bedding system. A drainage system made by plowing, grading, or otherwise shaping the surface of a flat field. It consists of a series of low ridges separated by shallow, parallel dead furrows.

Bedrock. The solid rock that underlies the soil and other unconsolidated material or that is exposed at the surface.

Bedrock-controlled topography. A landscape where the configuration and relief of the landforms are determined or strongly influenced by the underlying bedrock.

Bench terrace. A raised, level or nearly level strip of earth constructed on or nearly on a contour, supported by a barrier of rocks or similar material, and designed to make the soil suitable for tillage and to prevent accelerated erosion.

Bisequum. Two sequences of soil horizons, each of which consists of an illuvial horizon and the overlying eluvial horizons.

Blowout. A saucer-, cup-, or trough-shaped depression formed by wind erosion on a preexisting dune or other sand deposit, especially in an area of shifting sand or loose soil or where protective vegetation is disturbed or destroyed; the adjoining accumulation of sand derived from the depression, where recognizable, is commonly included. Blowouts are commonly small.

Bottom land. An informal term loosely applied to various portions of a flood plain.

Boulders. Rock fragments larger than 2 feet (60 centimeters) in diameter.

Breaks. A landscape or tract of steep, rough or broken land dissected by ravines and gullies and marking a sudden change in topography.

Breast height. An average height of 4.5 feet above the ground surface; the point on a tree where diameter measurements are ordinarily taken.

Brush management. Use of mechanical, chemical, or biological methods to make conditions favorable for reseeding or to reduce or eliminate competition from woody vegetation and thus allow understory grasses and forbs to recover. Brush management increases forage production and thus reduces the hazard of erosion. It can improve the habitat for some species of wildlife.

Cable yarding. A method of moving felled trees to a nearby central area for transport to a processing facility. Most cable yarding systems involve use of a drum, a pole, and wire cables in an arrangement similar to that of a rod and reel used for fishing. To reduce friction and soil disturbance, felled trees generally are reeled in while one end is lifted or the entire log is suspended.

Calcareous soil. A soil containing enough calcium carbonate (commonly combined with magnesium carbonate) to effervesce visibly when treated with cold, dilute hydrochloric acid.

California bearing ratio (CBR). The load-supporting capacity of a soil as compared to that of standard crushed limestone, expressed as a ratio. First standardized in California. A soil having a CBR of 16 supports 16 percent of the load that would be supported by standard crushed limestone, per unit area, with the same degree of distortion.

Canopy. The leafy crown of trees or shrubs. (See Crown.)

Capillary water. Water held as a film around soil particles and in tiny spaces between particles. Surface tension is the adhesive force that holds capillary water in the soil.

Catena. A sequence, or “chain,” of soils on a landscape that formed in similar kinds of parent material and under similar climatic conditions but that have different characteristics as a result of differences in relief and drainage.

Cation. An ion carrying a positive charge of electricity. The common soil cations are calcium, potassium, magnesium, sodium, and hydrogen.

Cation-exchange capacity. The total amount of exchangeable cations that can be held by the soil, expressed in terms of milliequivalents per 100 grams of soil at neutrality (pH 7.0) or at some other stated pH value. The term, as applied to soils, is synonymous with base-exchange capacity but is more precise in meaning.

Catsteps. See Terracettes.

Cement rock. Shaly limestone used in the manufacture of cement.

Channery soil material. Soil material that has, by volume, 15 to 35 percent thin, flat fragments of sandstone, shale, slate, limestone, or schist as much as 6 inches (15 centimeters) along the longest axis. A single piece is called a channer.

Chemical treatment. Control of unwanted vegetation through the use of chemicals.

Chiseling. Tillage with an implement having one or more soil-penetrating points that shatter or loosen hard, compacted layers to a depth below normal plow depth.

Clay. As a soil separate, the mineral soil particles less than 0.002 millimeter in diameter. As a soil textural class, soil material that is 40 percent or more clay, less than 45 percent sand, and less than 40 percent silt.

Clay depletions. See Redoximorphic features.

Clay film. A thin coating of oriented clay on the surface of a soil aggregate or lining pores or root channels. Synonyms: clay coating, clay skin.

Claypan. A dense, compact, slowly permeable subsoil layer that contains much more clay than the overlying materials, from which it is separated by a sharply defined boundary. A claypan is commonly hard when dry and plastic and sticky when wet.

Climax plant community. The stabilized plant community on a particular site. The plant cover reproduces itself and does not change so long as the environment remains the same.

Concretions. See Redoximorphic features.

Coarse textured soil. Sand or loamy sand.

Cobble (or cobblestone). A rounded or partly rounded fragment of rock 3 to 10 inches (7.6 to 25 centimeters) in diameter.

Cobbly soil material. Material that has 15 to 35 percent, by volume, rounded or partially rounded rock fragments 3 to 10 inches (7.6 to 25 centimeters) in diameter. Very cobbly soil material has 35 to 60 percent of these rock fragments, and extremely cobbly soil material has more than 60 percent.

COLE (coefficient of linear extensibility). See Linear extensibility.

Colluvium. Unconsolidated, unsorted earth material being transported or deposited on side slopes and/or at the base of slopes by mass movement (e.g., direct gravitational action) and by local, unconcentrated runoff.

Complex slope. Irregular or variable slope. Planning or establishing terraces, diversions, and other water-control structures on a complex slope is difficult.

Complex, soil. A map unit of two or more kinds of soil or miscellaneous areas in such an intricate pattern or so small in area that it is not practical to map them separately at the selected scale of mapping. The pattern and proportion of the soils or miscellaneous areas are somewhat similar in all areas.

Concretions. Cemented bodies with crude internal symmetry organized around a point, a line, or a plane. They typically take the form of concentric layers visible to the naked eye. Calcium carbonate, iron oxide, and manganese oxide are common compounds making up concretions. If formed in place, concretions of iron oxide or manganese oxide are generally considered a type of redoximorphic concentration.

Conglomerate. A coarse grained, clastic sedimentary rock composed of rounded or subangular rock fragments more than 2 millimeters in diameter. It commonly has a matrix of sand and finer textured material. Conglomerate is the consolidated equivalent of gravel.

Conservation cropping system. Growing crops in combination with needed cultural and management practices. In a good conservation cropping system, the soil-improving crops and practices more than offset the effects of the soil-depleting crops and practices. Cropping systems are needed on all tilled soils. Soil-improving practices in a conservation cropping system include the use of rotations that contain grasses and legumes and the return of crop residue to the soil. Other practices include the use of green manure crops of grasses and legumes, proper tillage, adequate fertilization, and weed and pest control.

Conservation tillage. A tillage system that does not invert the soil and that leaves a protective amount of crop residue on the surface throughout the year.

Consistence, soil. Refers to the degree of cohesion and adhesion of soil material and its resistance to deformation when ruptured. Consistence includes resistance of soil material to rupture and to penetration; plasticity, toughness, and stickiness of puddled soil material; and the manner in which the soil material behaves when subject to compression. Terms describing consistence are defined in the “Soil Survey Manual.”

Contour stripcropping. Growing crops in strips that follow the contour. Strips of grass or close-growing crops are alternated with strips of clean-tilled crops or summer fallow.

Control section. The part of the soil on which classification is based. The thickness varies among different kinds of soil, but for many it is that part of the soil profile between depths of 10 inches and 40 or 80 inches.

Coprogenous earth (sedimentary peat). A type of limnic layer composed predominantly of fecal material derived from aquatic animals.

Corrosion (geomorphology). A process of erosion whereby rocks and soil are removed or worn away by natural chemical processes, especially by the solvent action of running water, but also by other reactions, such as hydrolysis, hydration, carbonation, and oxidation.

Corrosion (soil survey interpretations). Soil-induced electrochemical or chemical action that dissolves or weakens concrete or uncoated steel.

Cover crop. A close-growing crop grown primarily to improve and protect the soil between periods of regular crop production, or a crop grown between trees and vines in orchards and vineyards.

Crop residue management. Returning crop residue to the soil, which helps to maintain soil structure, organic matter content, and fertility and helps to control erosion.

Cropping system. Growing crops according to a planned system of rotation and management practices.

Cross-slope farming. Deliberately conducting farming operations on sloping farmland in such a way that tillage is across the general slope.

Crown. The upper part of a tree or shrub, including the living branches and their foliage.

Cryoturbate. A mass of soil or other unconsolidated earthy material moved or disturbed by frost action. It is typically coarser than the underlying material.

Cuesta. An asymmetric ridge capped by resistant rock layers of slight or moderate dip (commonly less than 15 percent slopes); a type of homocline produced by differential erosion of interbedded resistant and weak rocks. A cuesta has a long, gentle slope on one side (dip slope) that roughly parallels the inclined beds; on the other side, it has a relatively short and steep or clifflike slope (scarp) that cuts through the tilted rocks.

Culmination of the mean annual increment (CMAI). The average annual increase per acre in the volume of a stand. Computed by dividing the total volume of the stand by its age. As the stand increases in age, the mean annual increment continues to increase until mortality begins to reduce the rate of increase. The point where the stand reaches its maximum annual rate of growth is called the culmination of the mean annual increment.

Decreasers. The most heavily grazed climax range plants. Because they are the most palatable, they are the first to be destroyed by overgrazing.

Deferred grazing. Postponing grazing or resting grazing land for a prescribed period.

Delta. A body of alluvium having a surface that is fan shaped and nearly flat; deposited at or near the mouth of a river or stream where it enters a body of relatively quiet water, generally a sea or lake.

Dense layer (in tables). A very firm, massive layer that has a bulk density of more than 1.8 grams per cubic centimeter. Such a layer affects the ease of digging and can affect filling and compacting.

Depth, soil. Generally, the thickness of the soil over bedrock. Very deep soils are more than 60 inches deep over bedrock; deep soils, 40 to 60 inches; moderately deep, 20 to 40 inches; shallow, 10 to 20 inches; and very shallow, less than 10 inches.

Diatomaceous earth. A geologic deposit of fine, grayish siliceous material composed chiefly or entirely of the remains of diatoms.

Dip slope. A slope of the land surface, roughly determined by and approximately conforming to the dip of the underlying bedrock.

Diversion (or diversion terrace). A ridge of earth, generally a terrace, built to protect downslope areas by diverting runoff from its natural course.

Divided-slope farming. A form of field stripcropping in which crops are grown in a systematic arrangement of two strips, or bands, across the slope to reduce the hazard of water erosion. One strip is in a close-growing crop that provides protection from erosion, and the other strip is in a crop that provides less protection from erosion. This practice is used where slopes are not long enough to permit a full stripcropping pattern to be used.

Drainage class (natural). Refers to the frequency and duration of wet periods under conditions similar to those under which the soil formed. Alterations of the water regime by human activities, either through drainage or irrigation, are not a consideration unless they have significantly changed the morphology of the soil. Seven classes of natural soil drainage are recognized—*excessively drained, somewhat excessively drained, well drained, moderately well drained, somewhat poorly drained, poorly drained,* and *very poorly drained*. These classes are defined in the "Soil Survey Manual."

Drainage, surface. Runoff, or surface flow of water, from an area.

Drainageway. A general term for a course or channel along which water moves in draining an area. A term restricted to relatively small, linear depressions that at some time move concentrated water and either do not have a defined channel or have only a small defined channel.

Draw. A small stream valley that generally is shallower and more open than a ravine or gulch and that has a broader bottom. The present stream channel may appear inadequate to have cut the drainageway that it occupies.

Drift. A general term applied to all mineral material (clay, silt, sand, gravel, and boulders) transported by a glacier and deposited directly by or from the ice or transported by running water emanating from a glacier. Drift includes unstratified material (till) that forms moraines and stratified deposits that form outwash plains, eskers, kames, varves, and glaciofluvial sediments. The term is generally applied to Pleistocene glacial deposits in areas that no longer contain glaciers.

Duff. A generally firm organic layer on the surface of mineral soils. It consists of fallen plant material that is in the process of decomposition and includes everything from the litter on the surface to underlying pure humus.

Dune. A low mound, ridge, bank, or hill of loose, windblown granular material (generally sand), either barren and capable of movement from place to place or covered and stabilized with vegetation but retaining its characteristic shape.

Earthy fill. See Mine spoil.

Ecological site. An area where climate, soil, and relief are sufficiently uniform to produce a distinct natural plant community. An ecological site is the product of all the environmental factors responsible for its development. It is typified by an association of species that differ from those on other ecological sites in kind and/or proportion of species or in total production.

Eluviation. The movement of material in true solution or colloidal suspension from one place to another within the soil. Soil horizons that have lost material through eluviation are eluvial; those that have received material are illuvial.

Endosaturation. A type of saturation of the soil in which all horizons between the upper boundary of saturation and a depth of 2 meters are saturated.

Eolian deposit. Sand-, silt-, or clay-sized clastic material transported and deposited primarily by wind, commonly in the form of a dune or a sheet of sand or loess.

Ephemeral stream. A stream, or reach of a stream, that flows only in direct response to precipitation. It receives no long-continued supply from melting snow or other source, and its channel is above the water table at all times.

Episaturation. A type of saturation indicating a perched water table in a soil in which saturated layers are underlain by one or more unsaturated layers within 2 meters of the surface.

Erosion. The wearing away of the land surface by water, wind, ice, or other geologic agents and by such processes as gravitational creep.

Erosion (geologic). Erosion caused by geologic processes acting over long geologic periods and resulting in the wearing away of mountains and the building up of such landscape features as flood plains and coastal plains. Synonym: natural erosion.

Erosion (accelerated). Erosion much more rapid than geologic erosion, mainly as a result of human or animal activities or of a catastrophe in nature, such as a fire, that exposes the surface.

Erosion pavement. A surficial lag concentration or layer of gravel and other rock fragments that remains on the soil surface after sheet or rill erosion or wind has removed the finer soil particles and that tends to protect the underlying soil from further erosion.

Erosion surface. A land surface shaped by the action of erosion, especially by running water.

Escarpment. A relatively continuous and steep slope or cliff breaking the general continuity of more gently sloping land surfaces and resulting from erosion or faulting. Most commonly applied to cliffs produced by differential erosion. Synonym: scarp.

Fallow. Cropland left idle in order to restore productivity through accumulation of moisture. Summer fallow is common in regions of limited rainfall where cereal grain is grown. The soil is tilled for at least one growing season for weed control and decomposition of plant residue.

Fan remnant. A general term for landforms that are the remaining parts of older fan landforms, such as alluvial fans, that have been either dissected or partially buried.

Fertility, soil. The quality that enables a soil to provide plant nutrients, in adequate amounts and in proper balance, for the growth of specified plants when light, moisture, temperature, tilth, and other growth factors are favorable.

Fibric soil material (peat). The least decomposed of all organic soil material. Peat contains a large amount of well preserved fiber that is readily identifiable according to botanical origin. Peat has the lowest bulk density and the highest water content at saturation of all organic soil material.

Field moisture capacity. The moisture content of a soil, expressed as a percentage of the ovendry weight, after the gravitational, or free, water has drained away; the field moisture content 2 or 3 days after a soaking rain; also called *normal field capacity, normal moisture capacity,* or *capillary capacity*.

Fill slope. A sloping surface consisting of excavated soil material from a road cut. It commonly is on the downhill side of the road.

Fine textured soil. Sandy clay, silty clay, or clay.

Firebreak. An area cleared of flammable material to stop or help control creeping or running fires. It also serves as a line from which to work and to facilitate the movement of firefighters and equipment. Designated roads also serve as firebreaks.

First bottom. An obsolete, informal term loosely applied to the lowest flood-plain steps that are subject to regular flooding.

Flaggy soil material. Material that has, by volume, 15 to 35 percent flagstones. Very flaggy soil material has 35 to 60 percent flagstones, and extremely flaggy soil material has more than 60 percent flagstones.

Flagstone. A thin fragment of sandstone, limestone, slate, shale, or (rarely) schist 6 to 15 inches (15 to 38 centimeters) long.

Flood plain. The nearly level plain that borders a stream and is subject to flooding unless protected artificially.

Flood-plain landforms. A variety of constructional and erosional features produced by stream channel migration and flooding. Examples include backswamps, flood-plain splays, meanders, meander belts, meander scrolls, oxbow lakes, and natural levees.

Flood-plain splay. A fan-shaped deposit or other outspread deposit formed where an overloaded stream breaks through a levee (natural or artificial) and deposits its material (commonly coarse grained) on the flood plain.

Flood-plain step. An essentially flat, terrace-like alluvial surface within a valley that is frequently covered by floodwater from the present stream; any approximately horizontal surface still actively modified by fluvial scour and/or deposition. May occur individually or as a series of steps.

Fluvial. Of or pertaining to rivers or streams; produced by stream or river action.

Foothills. A region of steeply sloping hills that fringes a mountain range or high-plateau escarpment. The hills have relief of as much as 1,000 feet (300 meters).

Footslope. The concave surface at the base of a hillslope. A footslope is a transition zone between upslope sites of erosion and transport (shoulders and backslopes) and downslope sites of deposition (toeslopes).

Forb. Any herbaceous plant not a grass or a sedge.

Forest cover. All trees and other woody plants (underbrush) covering the ground in a forest.

Forest type. A stand of trees similar in composition and development because of given physical and biological factors by which it may be differentiated from other stands.

Fragipan. A loamy, brittle subsurface horizon low in porosity and content of organic matter and low or moderate in clay but high in silt or very fine sand. A fragipan appears cemented and restricts roots. When dry, it is hard or very hard and has a higher bulk density than the horizon or horizons above. When moist, it tends to rupture suddenly under pressure rather than to deform slowly.

Genesis, soil. The mode of origin of the soil. Refers especially to the processes or soil-forming factors responsible for the formation of the solum, or true soil, from the unconsolidated parent material.

Gilgai. Commonly, a succession of microbasins and microknolls in nearly level areas or of microvalleys and microridges parallel with the slope. Typically, the microrelief of clayey soils that shrink and swell considerably with changes in moisture content.

Gleyed soil. Soil that formed under poor drainage, resulting in the reduction of iron and other elements in the profile and in gray colors.

Graded stripcropping. Growing crops in strips that grade toward a protected waterway.

Grassed waterway. A natural or constructed waterway, typically broad and shallow, seeded to grass as protection against erosion. Conducts surface water away from cropland.

Gravel. Rounded or angular fragments of rock as much as 3 inches (2 millimeters to 7.6 centimeters) in diameter. An individual piece is a pebble.

Gravelly soil material. Material that has 15 to 35 percent, by volume, rounded or angular rock fragments, not prominently flattened, as much as 3 inches (7.6 centimeters) in diameter.

Green manure crop (agronomy). A soil-improving crop grown to be plowed under in an early stage of maturity or soon after maturity.

Ground water. Water filling all the unblocked pores of the material below the water table.

Gully. A small channel with steep sides caused by erosion and cut in unconsolidated materials by concentrated but intermittent flow of water. The distinction between a gully and a rill is one of depth. A gully generally is an obstacle to farm machinery and is too deep to be obliterated by ordinary tillage; a rill is of lesser depth and can be smoothed over by ordinary tillage.

Hard bedrock. Bedrock that cannot be excavated except by blasting or by the use of special equipment that is not commonly used in construction.

Hard to reclaim (in tables). Reclamation is difficult after the removal of soil for construction and other uses. Revegetation and erosion control are extremely difficult.

Hardpan. A hardened or cemented soil horizon, or layer. The soil material is sandy, loamy, or clayey and is cemented by iron oxide, silica, calcium carbonate, or other substance.

Head slope (geomorphology). A geomorphic component of hills consisting of a laterally concave area of a hillside, especially at the head of a drainageway. The overland waterflow is converging.

Hemic soil material (mucky peat). Organic soil material intermediate in degree of decomposition between the less decomposed fibric material and the more decomposed sapric material.

High-residue crops. Such crops as small grain and corn used for grain. If properly managed, residue from these crops can be used to control erosion until the next crop in the rotation is established. These crops return large amounts of organic matter to the soil.

Hill. A generic term for an elevated area of the land surface, rising as much as 1,000 feet above surrounding lowlands, commonly of limited summit area and having a well defined outline. Slopes are generally more than 15 percent. The distinction between a hill and a mountain is arbitrary and may depend on local usage.

Hillslope. A generic term for the steeper part of a hill between its summit and the drainage line, valley flat, or depression floor at the base of a hill.

Horizon, soil. A layer of soil, approximately parallel to the surface, having distinct characteristics produced by soil-forming processes. In the identification of soil horizons, an uppercase letter represents the major horizons. Numbers or lowercase letters that follow represent subdivisions of the major horizons. An explanation of the subdivisions is given in the “Soil Survey Manual.” The major horizons of mineral soil are as follows:

O horizon.—An organic layer of fresh and decaying plant residue.

L horizon.—A layer of organic and mineral limnic materials, including coprogenous earth (sedimentary peat), diatomaceous earth, and marl.

A horizon.—The mineral horizon at or near the surface in which an accumulation of humified organic matter is mixed with the mineral material. Also, a plowed surface horizon, most of which was originally part of a B horizon.

E horizon.—The mineral horizon in which the main feature is loss of silicate clay, iron, aluminum, or some combination of these.

B horizon.—The mineral horizon below an A horizon. The B horizon is in part a layer of transition from the overlying A to the underlying C horizon. The B horizon also has distinctive characteristics, such as (1) accumulation of clay, sesquioxides, humus, or a combination of these; (2) prismatic or blocky structure; (3) redder or browner colors than those in the A horizon; or (4) a combination of these.

C horizon.—The mineral horizon or layer, excluding indurated bedrock, that is little affected by soil-forming processes and does not have the properties typical of the overlying soil material. The material of a C horizon may be either like or unlike that in which the solum formed. If the material is known to differ from that in the solum, an Arabic numeral, commonly a 2, precedes the letter C.

Cr horizon.—Soft, consolidated bedrock beneath the soil.

R layer.—Consolidated bedrock beneath the soil. The bedrock commonly underlies a C horizon, but it can be directly below an A or a B horizon.

Humus. The well decomposed, more or less stable part of the organic matter in mineral soils.

Hydrologic soil groups. Refers to soils grouped according to their runoff potential. The soil properties that influence this potential are those that affect the minimum rate of water infiltration on a bare soil during periods after prolonged wetting when the soil is not frozen. These properties are depth to a seasonal high water table, the infiltration rate and permeability after prolonged wetting, and depth to a very slowly permeable layer. The slope and the kind of plant cover are not considered but are separate factors in predicting runoff.

Igneous rock. Rock that was formed by cooling and solidification of magma and that has not been changed appreciably by weathering since its formation. Major varieties include plutonic and volcanic rock (e.g., andesite, basalt, and granite).

Illuviation. The movement of soil material from one horizon to another in the soil profile. Generally, material is removed from an upper horizon and deposited in a lower horizon.

Impervious soil. A soil through which water, air, or roots penetrate slowly or not at all. No soil is absolutely impervious to air and water all the time.

Increasers. Species in the climax vegetation that increase in amount as the more desirable plants are reduced by close grazing. Increasers commonly are the shorter plants and the less palatable to livestock.

Infiltration. The downward entry of water into the immediate surface of soil or other material, as contrasted with percolation, which is movement of water through soil layers or material.

Infiltration capacity. The maximum rate at which water can infiltrate into a soil under a given set of conditions.

Infiltration rate. The rate at which water penetrates the surface of the soil at any given instant, usually expressed in inches per hour. The rate can be limited by the infiltration capacity of the soil or the rate at which water is applied at the surface.

Intake rate. The average rate of water entering the soil under irrigation. Most soils have a fast initial rate; the rate decreases with application time. Therefore, intake rate for design purposes is not a constant but is a variable depending on the net irrigation application. The rate of water intake, in inches per hour, is expressed as follows:

Less than 0.2	very low
0.2 to 0.4	low
0.4 to 0.75	moderately low
0.75 to 1.25	moderate
1.25 to 1.75	moderately high
1.75 to 2.5	high
More than 2.5	very high

Interfluve. A landform composed of the relatively undissected upland or ridge between two adjacent valleys containing streams flowing in the same general direction. An elevated area between two drainageways that sheds water to those drainageways.

Interfluve (geomorphology). A geomorphic component of hills consisting of the uppermost, comparatively level or gently sloping area of a hill; shoulders of backwearing hillslopes can narrow the upland or can merge, resulting in a strongly convex shape.

Intermittent stream. A stream, or reach of a stream, that does not flow year-round but that is commonly dry for 3 or more months out of 12 and whose channel is generally below the local water table. It flows only during wet periods or when it receives ground-water discharge or long, continued contributions from melting snow or other surface and shallow subsurface sources.

Invaders. On range, plants that encroach into an area and grow after the climax vegetation has been reduced by grazing. Generally, plants invade following disturbance of the surface.

Iron depletions. See Redoximorphic features.

Irrigation. Application of water to soils to assist in production of crops. Methods of irrigation are:

Basin.—Water is applied rapidly to nearly level plains surrounded by levees or dikes.

Border.—Water is applied at the upper end of a strip in which the lateral flow of water is controlled by small earth ridges called border dikes, or borders.
Controlled flooding.—Water is released at intervals from closely spaced field ditches and distributed uniformly over the field.
Corrugation.—Water is applied to small, closely spaced furrows or ditches in fields of close-growing crops or in orchards so that it flows in only one direction.
Drip (or trickle).—Water is applied slowly and under low pressure to the surface of the soil or into the soil through such applicators as emitters, porous tubing, or perforated pipe.
Furrow.—Water is applied in small ditches made by cultivation implements. Furrows are used for tree and row crops.
Sprinkler.—Water is sprayed over the soil surface through pipes or nozzles from a pressure system.
Subirrigation.—Water is applied in open ditches or tile lines until the water table is raised enough to wet the soil.
Wild flooding.—Water, released at high points, is allowed to flow onto an area without controlled distribution.

Karst (topography). A kind of topography that formed in limestone, gypsum, or other soluble rocks by dissolution and that is characterized by closed depressions, sinkholes, caves, and underground drainage.

Knoll. A small, low, rounded hill rising above adjacent landforms.

Ksat. Saturated hydraulic conductivity. (See Permeability.)

Lacustrine deposit. Material deposited in lake water and exposed when the water level is lowered or the elevation of the land is raised.

Lake plain. A nearly level surface marking the floor of an extinct lake filled by well sorted, generally fine textured, stratified deposits, commonly containing varves.

Lake terrace. A narrow shelf, partly cut and partly built, produced along a lakeshore in front of a scarp line of low cliffs and later exposed when the water level falls.

Landslide. A general, encompassing term for most types of mass movement landforms and processes involving the downslope transport and outward deposition of soil and rock materials caused by gravitational forces; the movement may or may not involve saturated materials. The speed and distance of movement, as well as the amount of soil and rock material, vary greatly.

Large stones (in tables). Rock fragments 3 inches (7.6 centimeters) or more across. Large stones adversely affect the specified use of the soil.

Leaching. The removal of soluble material from soil or other material by percolating water.

Linear extensibility. Refers to the change in length of an unconfined clod as moisture content is decreased from a moist to a dry state. Linear extensibility is used to determine the shrink-swell potential of soils. It is an expression of the volume change between the water content of the clod at $^1/_3$- or $^1/_{10}$-bar tension (33kPa or 10kPa tension) and oven dryness. Volume change is influenced by the amount and type of clay minerals in the soil. The volume change is the percent change for the whole soil. If it is expressed as a fraction, the resulting value is COLE, coefficient of linear extensibility.

Liquid limit. The moisture content at which the soil passes from a plastic to a liquid state.

Loam. Soil material that is 7 to 27 percent clay particles, 28 to 50 percent silt particles, and less than 52 percent sand particles.

Loess. Material transported and deposited by wind and consisting dominantly of silt-sized particles.

Low strength. The soil is not strong enough to support loads.

Low-residue crops. Such crops as corn used for silage, peas, beans, and potatoes. Residue from these crops is not adequate to control erosion until the next crop in the rotation is established. These crops return little organic matter to the soil.

Marl. An earthy, unconsolidated deposit consisting chiefly of calcium carbonate mixed with clay in approximately equal proportions; formed primarily under freshwater lacustrine conditions but also formed in more saline environments.

Mass movement. A generic term for the dislodgment and downslope transport of soil and rock material as a unit under direct gravitational stress.

Masses. See Redoximorphic features.

Meander belt. The zone within which migration of a meandering channel occurs; the flood-plain area included between two imaginary lines drawn tangential to the outer bends of active channel loops.

Meander scar. A crescent-shaped, concave or linear mark on the face of a bluff or valley wall, produced by the lateral erosion of a meandering stream that impinged upon and undercut the bluff.

Meander scroll. One of a series of long, parallel, close-fitting, crescent-shaped ridges and troughs formed along the inner bank of a stream meander as the channel migrated laterally down-valley and toward the outer bank.

Mechanical treatment. Use of mechanical equipment for seeding, brush management, and other management practices.

Medium textured soil. Very fine sandy loam, loam, silt loam, or silt.

Mesa. A broad, nearly flat-topped and commonly isolated landmass bounded by steep slopes or precipitous cliffs and capped by layers of resistant, nearly horizontal rocky material. The summit width is characteristically greater than the height of the bounding escarpments.

Metamorphic rock. Rock of any origin altered in mineralogical composition, chemical composition, or structure by heat, pressure, and movement at depth in the earth's crust. Nearly all such rocks are crystalline.

Mine spoil. An accumulation of displaced earthy material, rock, or other waste material removed during mining or excavation. Also called earthy fill.

Mineral soil. Soil that is mainly mineral material and low in organic material. Its bulk density is more than that of organic soil.

Minimum tillage. Only the tillage essential to crop production and prevention of soil damage.

Miscellaneous area. A kind of map unit that has little or no natural soil and supports little or no vegetation.

Moderately coarse textured soil. Coarse sandy loam, sandy loam, or fine sandy loam.

Moderately fine textured soil. Clay loam, sandy clay loam, or silty clay loam.

Mollic epipedon. A thick, dark, humus-rich surface horizon (or horizons) that has high base saturation and pedogenic soil structure. It may include the upper part of the subsoil.

Morphology, soil. The physical makeup of the soil, including the texture, structure, porosity, consistence, color, and other physical, mineral, and biological properties of the various horizons, and the thickness and arrangement of those horizons in the soil profile.

Mottling, soil. Irregular spots of different colors that vary in number and size. Descriptive terms are as follows: abundance—*few, common,* and *many;* size—*fine, medium,* and *coarse;* and contrast—*faint, distinct,* and *prominent*. The size measurements are of the diameter along the greatest dimension. *Fine* indicates less than 5 millimeters (about 0.2 inch); *medium,* from 5 to 15 millimeters (about 0.2 to 0.6 inch); and *coarse,* more than 15 millimeters (about 0.6 inch).

Mountain. A generic term for an elevated area of the land surface, rising more than 1,000 feet (300 meters) above surrounding lowlands, commonly of restricted summit area (relative to a plateau) and generally having steep sides. A mountain can occur as a single, isolated mass or in a group forming a chain or range. Mountains are formed primarily by tectonic activity and/or volcanic action but can also be formed by differential erosion.

Muck. Dark, finely divided, well decomposed organic soil material. (See Sapric soil material.)

Mudstone. A blocky or massive, fine grained sedimentary rock in which the proportions of clay and silt are approximately equal. Also, a general term for such material as clay, silt, claystone, siltstone, shale, and argillite and that should be used only when the amounts of clay and silt are not known or cannot be precisely identified.

Munsell notation. A designation of color by degrees of three simple variables—hue, value, and chroma. For example, a notation of 10YR 6/4 is a color with hue of 10YR, value of 6, and chroma of 4.

Natric horizon. A special kind of argillic horizon that contains enough exchangeable sodium to have an adverse effect on the physical condition of the subsoil.

Neutral soil. A soil having a pH value of 6.6 to 7.3. (See Reaction, soil.)

Nodules. See Redoximorphic features.

Nose slope (geomorphology). A geomorphic component of hills consisting of the projecting end (laterally convex area) of a hillside. The overland waterflow is predominantly divergent. Nose slopes consist dominantly of colluvium and slope-wash sediments (for example, slope alluvium).

Nutrient, plant. Any element taken in by a plant essential to its growth. Plant nutrients are mainly nitrogen, phosphorus, potassium, calcium, magnesium, sulfur, iron, manganese, copper, boron, and zinc obtained from the soil and carbon, hydrogen, and oxygen obtained from the air and water.

Organic matter. Plant and animal residue in the soil in various stages of decomposition. The content of organic matter in the surface layer is described as follows:

Very low	less than 0.5 percent
Low	0.5 to 1.0 percent
Moderately low	1.0 to 2.0 percent
Moderate	2.0 to 4.0 percent
High	4.0 to 8.0 percent
Very high	more than 8.0 percent

Paleoterrace. An erosional remnant of a terrace that retains the surface form and alluvial deposits of its origin but was not emplaced by, and commonly does not grade to, a present-day stream or drainage network.

Pan. A compact, dense layer in a soil that impedes the movement of water and the growth of roots. For example, *hardpan, fragipan, claypan, plowpan,* and *traffic pan*.

Parent material. The unconsolidated organic and mineral material in which soil forms.

Peat. Unconsolidated material, largely undecomposed organic matter, that has accumulated under excess moisture. (See Fibric soil material.)

Ped. An individual natural soil aggregate, such as a granule, a prism, or a block.

Pedisediment. A layer of sediment, eroded from the shoulder and backslope of an erosional slope, that lies on and is being (or was) transported across a gently sloping erosional surface at the foot of a receding hill or mountain slope.

Pedon. The smallest volume that can be called “a soil.” A pedon is three dimensional and large enough to permit study of all horizons. Its area ranges from about 10 to 100 square feet (1 square meter to 10 square meters), depending on the variability of the soil.

Percolation. The movement of water through the soil.

Permafrost. Ground, soil, or rock that remains at or below 0 degrees C for at least 2 years. It is defined on the basis of temperature and is not necessarily frozen.

Permeability. The quality of the soil that enables water or air to move downward through the profile. The rate at which a saturated soil transmits water is accepted as a measure of this quality. In soil physics, the rate is referred to as "saturated hydraulic conductivity," which is defined in the "Soil Survey Manual." In line with conventional usage in the engineering profession and with traditional usage in published soil surveys, this rate of flow continues to be expressed as "permeability." Terms describing permeability, measured in inches per hour, are as follows:

Impermeable	less than 0.0015 inch
Very slow	0.0015 to 0.06 inch
Slow	0.06 to 0.2 inch
Moderately slow	0.2 to 0.6 inch
Moderate	0.6 inch to 2.0 inches
Moderately rapid	2.0 to 6.0 inches
Rapid	6.0 to 20 inches
Very rapid	more than 20 inches

pH value. A numerical designation of acidity and alkalinity in soil. (See Reaction, soil.)

Phase, soil. A subdivision of a soil series based on features that affect its use and management, such as slope, stoniness, and flooding.

Piping (in tables). Formation of subsurface tunnels or pipelike cavities by water moving through the soil.

Pitting (in tables). Pits caused by melting around ice. They form on the soil after plant cover is removed.

Plastic limit. The moisture content at which a soil changes from semisolid to plastic.

Plasticity index. The numerical difference between the liquid limit and the plastic limit; the range of moisture content within which the soil remains plastic.

Plateau (geomorphology). A comparatively flat area of great extent and elevation; specifically, an extensive land region that is considerably elevated (more than 100 meters) above the adjacent lower lying terrain, is commonly limited on at least one side by an abrupt descent, and has a flat or nearly level surface. A comparatively large part of a plateau surface is near summit level.

Playa. The generally dry and nearly level lake plain that occupies the lowest parts of closed depressions, such as those on intermontane basin floors. Temporary flooding occurs primarily in response to precipitation and runoff. Playa deposits are fine grained and may or may not have a high water table and saline conditions.

Plinthite. The sesquioxide-rich, humus-poor, highly weathered mixture of clay with quartz and other diluents. It commonly appears as red mottles, usually in platy, polygonal, or reticulate patterns. Plinthite changes irreversibly to an ironstone hardpan or to irregular aggregates on repeated wetting and drying, especially if it is exposed also to heat from the sun. In a moist soil, plinthite can be cut with a spade. It is a form of laterite.

Plowpan. A compacted layer formed in the soil directly below the plowed layer.

Ponding. Standing water on soils in closed depressions. Unless the soils are artificially drained, the water can be removed only by percolation or evapotranspiration.

Poorly graded. Refers to a coarse grained soil or soil material consisting mainly of particles of nearly the same size. Because there is little difference in size of the particles, density can be increased only slightly by compaction.

Pore linings. See Redoximorphic features.

Potential native plant community. See Climax plant community.

Potential rooting depth (effective rooting depth). Depth to which roots could penetrate if the content of moisture in the soil were adequate. The soil has no properties restricting the penetration of roots to this depth.

Prescribed burning. Deliberately burning an area for specific management purposes, under the appropriate conditions of weather and soil moisture and at the proper time of day.

Productivity, soil. The capability of a soil for producing a specified plant or sequence of plants under specific management.

Profile, soil. A vertical section of the soil extending through all its horizons and into the parent material.

Proper grazing use. Grazing at an intensity that maintains enough cover to protect the soil and maintain or improve the quantity and quality of the desirable vegetation. This practice increases the vigor and reproduction capacity of the key plants and promotes the accumulation of litter and mulch necessary to conserve soil and water.

Rangeland. Land on which the potential natural vegetation is predominantly grasses, grasslike plants, forbs, or shrubs suitable for grazing or browsing. It includes natural grasslands, savannas, many wetlands, some deserts, tundras, and areas that support certain forb and shrub communities.

Reaction, soil. A measure of acidity or alkalinity of a soil, expressed as pH values. A soil that tests to pH 7.0 is described as precisely neutral in reaction because it is neither acid nor alkaline. The degrees of acidity or alkalinity, expressed as pH values, are:

Ultra acid	less than 3.5
Extremely acid	3.5 to 4.4
Very strongly acid	4.5 to 5.0
Strongly acid	5.1 to 5.5
Moderately acid	5.6 to 6.0
Slightly acid	6.1 to 6.5
Neutral	6.6 to 7.3
Slightly alkaline	7.4 to 7.8
Moderately alkaline	7.9 to 8.4
Strongly alkaline	8.5 to 9.0
Very strongly alkaline	9.1 and higher

Red beds. Sedimentary strata that are mainly red and are made up largely of sandstone and shale.

Redoximorphic concentrations. See Redoximorphic features.

Redoximorphic depletions. See Redoximorphic features.

Redoximorphic features. Redoximorphic features are associated with wetness and result from alternating periods of reduction and oxidation of iron and manganese compounds in the soil. Reduction occurs during saturation with water, and oxidation occurs when the soil is not saturated. Characteristic color patterns are created by these processes. The reduced iron and manganese ions may be removed from a soil if vertical or lateral fluxes of water occur, in which case there is no iron or manganese precipitation in that soil. Wherever the iron and manganese are oxidized and precipitated, they form either soft masses or hard concretions or nodules. Movement of iron and manganese as a result of redoximorphic processes in a soil may result in redoximorphic features that are defined as follows:

1. Redoximorphic concentrations.—These are zones of apparent accumulation of iron-manganese oxides, including:

   A. Nodules and concretions, which are cemented bodies that can be removed from the soil intact. Concretions are distinguished from nodules on the basis of internal organization. A concretion typically has concentric layers that are visible to the naked eye. Nodules do not have visible organized internal structure; *and*

   B. Masses, which are noncemented concentrations of substances within the soil matrix; *and*

   C. Pore linings, i.e., zones of accumulation along pores that may be either coatings on pore surfaces or impregnations from the matrix adjacent to the pores.

2. Redoximorphic depletions.—These are zones of low chroma (chromas less than those in the matrix) where either iron-manganese oxides alone or both iron-manganese oxides and clay have been stripped out, including:
   A. Iron depletions, i.e., zones that contain low amounts of iron and manganese oxides but have a clay content similar to that of the adjacent matrix; *and*
   B. Clay depletions, i.e., zones that contain low amounts of iron, manganese, and clay (often referred to as silt coatings or skeletans).
3. Reduced matrix.—This is a soil matrix that has low chroma *in situ* but undergoes a change in hue or chroma within 30 minutes after the soil material has been exposed to air.

Reduced matrix. See Redoximorphic features.

Regolith. All unconsolidated earth materials above the solid bedrock. It includes material weathered in place from all kinds of bedrock and alluvial, glacial, eolian, lacustrine, and pyroclastic deposits.

Relief. The relative difference in elevation between the upland summits and the lowlands or valleys of a given region.

Residuum (residual soil material). Unconsolidated, weathered or partly weathered mineral material that accumulated as bedrock disintegrated in place.

Rill. A very small, steep-sided channel resulting from erosion and cut in unconsolidated materials by concentrated but intermittent flow of water. A rill generally is not an obstacle to wheeled vehicles and is shallow enough to be smoothed over by ordinary tillage.

Riser. The vertical or steep side slope (e.g., escarpment) of terraces, flood-plain steps, or other stepped landforms; commonly a recurring part of a series of natural, steplike landforms, such as successive stream terraces.

Road cut. A sloping surface produced by mechanical means during road construction. It is commonly on the uphill side of the road.

Rock fragments. Rock or mineral fragments having a diameter of 2 millimeters or more; for example, pebbles, cobbles, stones, and boulders.

Root zone. The part of the soil that can be penetrated by plant roots.

Runoff. The precipitation discharged into stream channels from an area. The water that flows off the surface of the land without sinking into the soil is called surface runoff. Water that enters the soil before reaching surface streams is called ground-water runoff or seepage flow from ground water.

Saline soil. A soil containing soluble salts in an amount that impairs growth of plants. A saline soil does not contain excess exchangeable sodium.

Sand. As a soil separate, individual rock or mineral fragments from 0.05 millimeter to 2.0 millimeters in diameter. Most sand grains consist of quartz. As a soil textural class, a soil that is 85 percent or more sand and not more than 10 percent clay.

Sandstone. Sedimentary rock containing dominantly sand-sized particles.

Sapric soil material (muck). The most highly decomposed of all organic soil material. Muck has the least amount of plant fiber, the highest bulk density, and the lowest water content at saturation of all organic soil material.

Saprolite. Unconsolidated residual material underlying the soil and grading to hard bedrock below.

Saturated hydraulic conductivity (Ksat). See Permeability.

Saturation. Wetness characterized by zero or positive pressure of the soil water. Under conditions of saturation, the water will flow from the soil matrix into an unlined auger hole.

Scarification. The act of abrading, scratching, loosening, crushing, or modifying the surface to increase water absorption or to provide a more tillable soil.

Sedimentary rock. A consolidated deposit of clastic particles, chemical precipitates, or organic remains accumulated at or near the surface of the earth under normal low temperature and pressure conditions. Sedimentary rocks include consolidated equivalents of alluvium, colluvium, drift, and eolian, lacustrine, and marine deposits. Examples are sandstone, siltstone, mudstone, claystone, shale, conglomerate, limestone, dolomite, and coal.

Sequum. A sequence consisting of an illuvial horizon and the overlying eluvial horizon. (See Eluviation.)

Series, soil. A group of soils that have profiles that are almost alike. All the soils of a given series have horizons that are similar in composition, thickness, and arrangement.

Shale. Sedimentary rock that formed by the hardening of a deposit of clay, silty clay, or silty clay loam and that has a tendency to split into thin layers.

Sheet erosion. The removal of a fairly uniform layer of soil material from the land surface by the action of rainfall and surface runoff.

Shoulder. The convex, erosional surface near the top of a hillslope. A shoulder is a transition from summit to backslope.

Shrink-swell (in tables). The shrinking of soil when dry and the swelling when wet. Shrinking and swelling can damage roads, dams, building foundations, and other structures. It can also damage plant roots.

Shrub-coppice dune. A small, streamlined dune that forms around brush and clump vegetation.

Side slope (geomorphology). A geomorphic component of hills consisting of a laterally planar area of a hillside. The overland waterflow is predominantly parallel. Side slopes are dominantly colluvium and slope-wash sediments.

Silica. A combination of silicon and oxygen. The mineral form is called quartz.

Silica-sesquioxide ratio. The ratio of the number of molecules of silica to the number of molecules of alumina and iron oxide. The more highly weathered soils or their clay fractions in warm-temperate, humid regions, and especially those in the tropics, generally have a low ratio.

Silt. As a soil separate, individual mineral particles that range in diameter from the upper limit of clay (0.002 millimeter) to the lower limit of very fine sand (0.05 millimeter). As a soil textural class, soil that is 80 percent or more silt and less than 12 percent clay.

Siltstone. An indurated silt having the texture and composition of shale but lacking its fine lamination or fissility; a massive mudstone in which silt predominates over clay.

Similar soils. Soils that share limits of diagnostic criteria, behave and perform in a similar manner, and have similar conservation needs or management requirements for the major land uses in the survey area.

Sinkhole. A closed, circular or elliptical depression, commonly funnel shaped, characterized by subsurface drainage and formed either by dissolution of the surface of underlying bedrock (e.g., limestone, gypsum, or salt) or by collapse of underlying caves within bedrock. Complexes of sinkholes in carbonate-rock terrain are the main components of karst topography.

Site index. A designation of the quality of a forest site based on the height of the dominant stand at an arbitrarily chosen age. For example, if the average height attained by dominant and codominant trees in a fully stocked stand at the age of 50 years is 75 feet, the site index is 75.

Slickensides (pedogenic). Grooved, striated, and/or glossy (shiny) slip faces on structural peds, such as wedges; produced by shrink-swell processes, most commonly in soils that have a high content of expansive clays.

Slope. The inclination of the land surface from the horizontal. Percentage of slope is the vertical distance divided by horizontal distance, then multiplied by 100. Thus, a slope of 20 percent is a drop of 20 feet in 100 feet of horizontal distance. In this survey, classes for simple slopes are as follows:

Nearly level	0 to 3 percent
Gently sloping	3 to 8 percent
Strongly sloping	8 to 15 percent
Moderately steep	15 to 25 percent
Steep	25 to 35 percent
Very steep	35 percent and higher

Slope alluvium. Sediment gradually transported down the slopes of mountains or hills primarily by nonchannel alluvial processes (i.e., slope-wash processes) and characterized by particle sorting. Lateral particle sorting is evident on long slopes. In a profile sequence, sediments may be distinguished by differences in size and/or specific gravity of rock fragments and may be separated by stone lines. Burnished peds and sorting of rounded or subrounded pebbles or cobbles distinguish these materials from unsorted colluvial deposits.

Slow refill (in tables). The slow filling of ponds, resulting from restricted permeability in the soil.

Sodic (alkali) soil. A soil having so high a degree of alkalinity (pH 8.5 or higher) or so high a percentage of exchangeable sodium (15 percent or more of the total exchangeable bases), or both, that plant growth is restricted.

Sodicity. The degree to which a soil is affected by exchangeable sodium. Sodicity is expressed as a sodium adsorption ratio (SAR) of a saturation extract, or the ratio of Na^{+} to $Ca^{++} + Mg^{++}$. The degrees of sodicity and their respective ratios are:

Slight	less than 13:1
Moderate	13-30:1
Strong	more than 30:1

Sodium adsorption ratio (SAR). A measure of the amount of sodium (Na) relative to calcium (Ca) and magnesium (Mg) in the water extract from saturated soil paste. It is the ratio of the Na concentration divided by the square root of one-half of the Ca + Mg concentration.

Soft bedrock. Bedrock that can be excavated with trenching machines, backhoes, small rippers, and other equipment commonly used in construction.

Soil. A natural, three-dimensional body at the earth's surface. It is capable of supporting plants and has properties resulting from the integrated effect of climate and living matter acting on earthy parent material, as conditioned by relief and by the passage of time.

Soil crust. A relatively thin, somewhat continuous layer of the soil surface that often restricts water movement, air entry, and seedling emergence from the soil. It generally is less than 2 inches thick and is massive.

Soil separates. Mineral particles less than 2 millimeters in equivalent diameter and ranging between specified size limits. The names and sizes, in millimeters, of separates recognized in the United States are as follows:

Very coarse sand	2.0 to 1.0
Coarse sand	1.0 to 0.5
Medium sand	0.5 to 0.25
Fine sand	0.25 to 0.10
Very fine sand	0.10 to 0.05
Silt	0.05 to 0.002
Clay	less than 0.002

Solum. The upper part of a soil profile, above the C horizon, in which the processes of soil formation are active. The solum in soil consists of the A, E, and B horizons. Generally, the characteristics of the material in these horizons are unlike those of the material below the solum. The living roots and plant and animal activities are largely confined to the solum.

Stone line. In a vertical cross section, a line formed by scattered fragments or a discrete layer of angular and subangular rock fragments (commonly a gravel- or cobble-sized lag concentration) that formerly was draped across a topographic surface and was later buried by additional sediments. A stone line generally caps material that was subject to weathering, soil formation, and erosion before burial. Many stone lines seem to be buried erosion pavements, originally formed by sheet and rill erosion across the land surface.

Stones. Rock fragments 10 to 24 inches (25 to 60 centimeters) in diameter if rounded or 15 to 24 inches (38 to 60 centimeters) in length if flat.

Stony. Refers to a soil containing stones in numbers that interfere with or prevent tillage.

Strath terrace. A type of stream terrace; formed as an erosional surface cut on bedrock and thinly mantled with stream deposits (alluvium).

Stream terrace. One of a series of platforms in a stream valley, flanking and more or less parallel to the stream channel, originally formed near the level of the stream; represents the remnants of an abandoned flood plain, stream bed, or valley floor produced during a former state of fluvial erosion or deposition.

Stripcropping. Growing crops in a systematic arrangement of strips or bands that provide vegetative barriers to wind erosion and water erosion.

Structure, soil. The arrangement of primary soil particles into compound particles or aggregates. The principal forms of soil structure are—*platy* (laminated), *prismatic* (vertical axis of aggregates longer than horizontal), *columnar* (prisms with rounded tops), *blocky* (angular or subangular), and *granular*. *Structureless* soils are either *single grain* (each grain by itself, as in dune sand) or *massive* (the particles adhering without any regular cleavage, as in many hardpans).

Stubble mulch. Stubble or other crop residue left on the soil or partly worked into the soil. It protects the soil from wind erosion and water erosion after harvest, during preparation of a seedbed for the next crop, and during the early growing period of the new crop.

Subsoil. Technically, the B horizon; roughly, the part of the solum below plow depth.

Subsoiling. Tilling a soil below normal plow depth, ordinarily to shatter a hardpan or claypan.

Substratum. The part of the soil below the solum.

Subsurface layer. Any surface soil horizon (A, E, AB, or EB) below the surface layer.

Summer fallow. The tillage of uncropped land during the summer to control weeds and allow storage of moisture in the soil for the growth of a later crop. A practice common in semiarid regions, where annual precipitation is not enough to produce a crop every year. Summer fallow is frequently practiced before planting winter grain.

Summit. The topographically highest position of a hillslope. It has a nearly level (planar or only slightly convex) surface.

Surface layer. The soil ordinarily moved in tillage, or its equivalent in uncultivated soil, ranging in depth from 4 to 10 inches (10 to 25 centimeters). Frequently designated as the “plow layer,” or the “Ap horizon.”

Surface soil. The A, E, AB, and EB horizons, considered collectively. It includes all subdivisions of these horizons.

Talus. Rock fragments of any size or shape (commonly coarse and angular) derived from and lying at the base of a cliff or very steep rock slope. The accumulated mass of such loose broken rock formed chiefly by falling, rolling, or sliding.

Taxadjuncts. Soils that cannot be classified in a series recognized in the classification system. Such soils are named for a series they strongly resemble and are designated as taxadjuncts to that series because they differ in ways too small to be of consequence in interpreting their use and behavior. Soils are recognized as taxadjuncts only when one or more of their characteristics are slightly outside the range defined for the family of the series for which the soils are named.

Terrace (conservation). An embankment, or ridge, constructed across sloping soils on the contour or at a slight angle to the contour. The terrace intercepts surface runoff so that water soaks into the soil or flows slowly to a prepared outlet. A terrace in a field generally is built so that the field can be farmed. A terrace intended mainly for drainage has a deep channel that is maintained in permanent sod.

Terrace (geomorphology). A steplike surface, bordering a valley floor or shoreline, that represents the former position of a flood plain, lake, or seashore. The term is usually applied both to the relatively flat summit surface (tread) that was cut or built by stream or wave action and to the steeper descending slope (scarp or riser) that has graded to a lower base level of erosion.

Terracettes. Small, irregular steplike forms on steep hillslopes, especially in pasture, formed by creep or erosion of surficial materials that may be induced or enhanced by trampling of livestock, such as sheep or cattle.

Texture, soil. The relative proportions of sand, silt, and clay particles in a mass of soil. The basic textural classes, in order of increasing proportion of fine particles, are *sand, loamy sand, sandy loam, loam, silt loam, silt, sandy clay loam, clay loam, silty clay loam, sandy clay, silty clay,* and *clay*. The sand, loamy sand, and sandy loam classes may be further divided by specifying "coarse," "fine," or "very fine."

Thin layer (in tables). Otherwise suitable soil material that is too thin for the specified use.

Tilth, soil. The physical condition of the soil as related to tillage, seedbed preparation, seedling emergence, and root penetration.

Toeslope. The gently inclined surface at the base of a hillslope. Toeslopes in profile are commonly gentle and linear and are constructional surfaces forming the lower part of a hillslope continuum that grades to valley or closed-depression floors.

Topsoil. The upper part of the soil, which is the most favorable material for plant growth. It is ordinarily rich in organic matter and is used to topdress roadbanks, lawns, and land affected by mining.

Trace elements. Chemical elements, for example, zinc, cobalt, manganese, copper, and iron, in soils in extremely small amounts. They are essential to plant growth.

Tread. The flat to gently sloping, topmost, laterally extensive slope of terraces, flood-plain steps, or other stepped landforms; commonly a recurring part of a series of natural steplike landforms, such as successive stream terraces.

Upland. An informal, general term for the higher ground of a region, in contrast with a low-lying adjacent area, such as a valley or plain, or for land at a higher elevation than the flood plain or low stream terrace; land above the footslope zone of the hillslope continuum.

Valley fill. The unconsolidated sediment deposited by any agent (water, wind, ice, or mass wasting) so as to fill or partly fill a valley.

Variegation. Refers to patterns of contrasting colors assumed to be inherited from the parent material rather than to be the result of poor drainage.

Varve. A sedimentary layer or a lamina or sequence of laminae deposited in a body of still water within a year. Specifically, a thin pair of graded glaciolacustrine layers seasonally deposited, usually by meltwater streams, in a glacial lake or other body of still water in front of a glacier.

Water bars. Smooth, shallow ditches or depressional areas that are excavated at an angle across a sloping road. They are used to reduce the downward velocity of water and divert it off and away from the road surface. Water bars can easily be driven over if constructed properly.

Weathering. All physical disintegration, chemical decomposition, and biologically induced changes in rocks or other deposits at or near the earth's surface by atmospheric or biologic agents or by circulating surface waters but involving essentially no transport of the altered material.

Well graded. Refers to soil material consisting of coarse grained particles that are well distributed over a wide range in size or diameter. Such soil normally can be easily increased in density and bearing properties by compaction. Contrasts with poorly graded soil.

Wilting point (or permanent wilting point). The moisture content of soil, on an ovendry basis, at which a plant (specifically a sunflower) wilts so much that it does not recover when placed in a humid, dark chamber.

Windthrow. The uprooting and tipping over of trees by the wind.

Tables

Table 1.—Temperature and Precipitation

(Recorded in the period 1971-2000 at Covington Filt Plant, Virginia)

Month	Temperature (degress F)						Precipitation (inches)				
	Average daily maximum	Average daily minimum	Average daily	2 years in 10 will have-- Maximum temp. higher than--	2 years in 10 will have-- Minimum temp. lower than--	Average number of growing degree days*	Average	2 years in 10 will have-- Less than--	2 years in 10 will have-- More than--	Average number of days with 0.10 inch or more	Average snow-fall
January--	45.5	23.7	34.6	70	-4	55	2.68	1.39	3.87	6	2.2
February-	50.4	25.8	38.1	76	2	89	2.34	1.22	3.36	5	0.5
March----	60.1	32.6	46.3	84	11	237	3.36	2.02	4.64	7	0.6
April----	70.5	39.6	55.0	90	20	453	3.01	1.72	4.22	6	0.3
May------	78.5	48.5	63.5	93	30	725	4.10	2.94	5.30	8	0.0
June-----	84.6	56.8	70.7	96	39	917	3.32	1.78	4.64	7	0.0
July-----	88.2	61.1	74.6	99	47	1,073	3.66	2.37	4.90	7	0.0
August---	86.8	59.8	73.3	98	45	1,030	3.34	1.82	4.70	6	0.0
September	80.3	53.4	66.9	94	34	795	3.07	1.12	5.01	5	0.0
October--	71.0	41.2	56.1	87	22	501	2.88	1.04	4.69	5	0.4
November-	59.4	33.0	46.2	80	14	224	3.08	1.58	4.05	6	0.3
December-	49.5	26.4	38.0	73	2	87	2.50	1.38	3.54	5	1.3
Yearly:											
Average	68.7	41.8	55.3	---	---	---	---	---	---	---	---
Extreme	102	-19	---	100	-7	---	---	---	---	---	---
Total--	---	---	---	---	---	6,185	37.33	30.69	41.28	73	5.7

* A growing degree day is a unit of heat available for plant growth. It can be calculated by adding the maximum and minimum daily temperatures, dividing the sum by 2, and subtracting the temperature below which growth is minimal for the principal crops in the area (40 degrees F).

Table 2.—Freeze Dates in Spring and Fall

(Recorded in the period 1971-2000 at Covington Filt Plant, Virginia)

Probability	Temperature		
	24 °F or lower	28 °F or lower	32 °F or lower
Last freezing temperature in spring:			
1 year in 10 later than--	Apr. 16	Apr. 27	May 14
2 years in 10 later than--	Apr. 11	Apr. 23	Apr. 10
5 years in 10 later than--	Apr. 2	Apr. 14	May 2
First freezing temperature in fall:			
1 year in 10 earlier than--	Oct. 18	Oct. 8	Sept. 28
2 years in 10 earlier than--	Oct. 24	Oct. 13	Oct. 2
5 years in 10 earlier than-	Nov. 5	Oct. 22	Oct. 10

Table 3.—Growing Season

(Recorded in the period 1971-2000 at Covington Filt Plant, Virginia)

Probability	Daily minimum temperature during growing season		
	Higher than 24 °F	Higher than 28 °F	Higher than 32 °F
	Days	Days	Days
9 years in 10	190	172	144
8 years in 10	199	178	150
5 years in 10	215	190	162
2 years in 10	231	202	174
1 year in 10	240	208	180

Table 4.—Acreage and Proportionate Extent of the Soils

Map symbol	Soil name	Acres	Percent
1A	Alonzville loam, 0 to 3 percent slopes, rarely flooded	324	0.3
1B	Alonzville loam, 3 to 8 percent slopes, rarely flooded	953	1.0
2B	Alonzville loam, 3 to 8 percent slopes	749	0.8
3A	Atkins fine sandy loam, 0 to 3 percent slopes, frequently flooded	481	0.5
4C	Bailegap fine sandy loam, 8 to 15 percent slopes, very stony	71	*
4E	Bailegap fine sandy loam, 15 to 35 percent slopes, very stony	891	0.9
5G	Bailegap-Lily-Dekalb complex, 35 to 70 percent slopes, very stony	1,035	1.1
6E	Berks-Culleoka complex, 25 to 35 percent slopes	4,037	4.2
6G	Berks-Culleoka complex, 35 to 70 percent slopes	1,510	1.6
7C	Berks-Weikert complex, 8 to 15 percent slopes	1,398	1.5
7E	Berks-Weikert complex, 15 to 35 percent slopes	7,552	7.9
7G	Berks-Weikert complex, 35 to 70 percent slopes	9,915	10.4
8G	Brushy extremely gravelly loam, 35 to 70 percent slopes, very stony	108	0.1
9E	Calvin channery silt loam, 15 to 35 percent slopes, very stony	596	0.6
10G	Calvin-Rough complex, 35 to 70 percent slopes, very stony	1,090	1.1
11E	Carbo-Rock outcrop complex, 8 to 35 percent slopes, eroded	1,221	1.3
11F	Carbo-Rock outcrop complex, 35 to 55 percent slopes, eroded	1,265	1.3
12E	Carbo-Rock outcrop complex, karst, 8 to 35 percent slopes, eroded	421	0.4
13A	Coursey loam, 0 to 3 percent slopes, rarely flooded	305	0.3
13B	Coursey loam, 3 to 8 percent slopes, rarely flooded	602	0.6
14C	Culleoka-Berks complex, 8 to 15 percent slopes	574	0.6
14D	Culleoka-Berks complex, 15 to 25 percent slopes	2,643	2.8
15E	Dekalb channery sandy loam, 8 to 35 percent slopes, extremely stony	1,260	1.3
15F	Dekalb channery sandy loam, 35 to 55 percent slopes, extremely stony	3,296	3.4
16E	Dekalb-Rock outcrop complex, 8 to 35 percent slopes, extremely stony	188	0.2
16G	Dekalb-Rock outcrop complex, 35 to 80 percent slopes, extremely stony	461	0.5
17B	Escatawba loam, 3 to 8 percent slopes	110	0.1
17C	Escatawba loam, 8 to 15 percent slopes	411	0.4
18C	Escatawba loam, 8 to 15 percent slopes, very stony	2,551	2.7
18E	Escatawba loam, 15 to 35 percent slopes, very stony	895	0.9
19B	Frederick silt loam, 3 to 8 percent slopes	125	0.1
19C	Frederick silt loam, 8 to 15 percent slopes	1,190	1.2
19D	Frederick silt loam, 15 to 25 percent slopes	1,429	1.5
19E	Frederick silt loam, 25 to 35 percent slopes	660	0.7
20C	Frederick and Watahala soils, karst, 8 to 15 percent slopes	104	0.1
20D	Frederick and Watahala soils, karst, 15 to 25 percent slopes	168	0.2
21C	Gilpin silt loam, 8 to 15 percent slopes	437	0.5
21D	Gilpin silt loam, 15 to 25 percent slopes	126	0.1
22B	Jefferson cobbly loam, 3 to 8 percent slopes	673	0.7
22C	Jefferson cobbly loam, 8 to 15 percent slopes	752	0.8
22D	Jefferson cobbly loam, 15 to 25 percent slopes	229	0.2
23C	Lily sandy loam, 8 to 15 percent slopes, very stony	546	0.6
23E	Lily sandy loam, 15 to 35 percent slopes, very stony	811	0.8
23F	Lily sandy loam, 35 to 55 percent slopes, very stony	134	0.1
24A	Maurertown silt loam, 0 to 3 percent slopes, rarely flooded	528	0.6
25B	Nicelytown silt loam, 3 to 8 percent slopes	4,449	4.7
25C	Nicelytown silt loam, 8 to 15 percent slopes	659	0.7
26B	Ogles very stony loam, 0 to 5 percent slopes, frequently flooded	1,219	1.3
27C	Oriskany gravelly fine sandy loam, 8 to 15 percent slopes, extremely stony	2,702	2.8
27E	Oriskany gravelly fine sandy loam, 15 to 35 percent slopes, extremely stony	6,796	7.1
28F	Oriskany gravelly fine sandy loam, 15 to 55 percent slopes, very rubbly	213	0.2
29A	Philo fine sandy loam, 0 to 3 percent slopes, occasionally flooded	804	0.8
30	Pits and dumps	289	0.3
31A	Pope fine sandy loam, 0 to 3 percent slopes, frequently flooded	2,370	2.5
32C	Schaffenaker loamy sand, 8 to 15 percent slopes	280	0.3
33B	Shelocta silt loam, 3 to 8 percent slopes	899	0.9
33C	Shelocta silt loam, 8 to 15 percent slopes	3,178	3.3
33D	Shelocta silt loam, 15 to 25 percent slopes	514	0.5

See footnote at end of table.

Table 4.—Acreage and Proportionate Extent of the Soils

Map symbol	Soil name	Acres	Percent
34B	Slabtown silt loam, 3 to 8 percent slopes	606	0.6
34C	Slabtown silt loam, 8 to 15 percent slopes	1,399	1.5
35B	Sugarhol silt loam, 3 to 8 percent slopes	513	0.5
35C	Sugarhol silt loam, 8 to 15 percent slopes	165	0.2
36B	Tumbling loam, 3 to 8 percent slopes	103	0.1
36C	Tumbling loam, 8 to 15 percent slopes	1,542	1.6
36D	Tumbling loam, 15 to 25 percent slopes	490	0.5
37C	Tumbling loam, 8 to 15 percent slopes, very stony	227	0.2
37E	Tumbling loam, 15 to 35 percent slopes, very stony	549	0.6
38	Udorthents-Urban land complex, 0 to 25 percent slopes	653	0.7
39C	Watahala gravelly silt loam, 8 to 15 percent slopes	1,106	1.2
39D	Watahala gravelly silt loam, 15 to 25 percent slopes	2,632	2.8
39E	Watahala gravelly silt loam, 25 to 35 percent slopes	1,199	1.3
40C	Watahala gravelly silt loam, 8 to 15 percent slopes, extremely stony	825	0.9
40E	Watahala gravelly silt loam, 15 to 35 percent slopes, extremely stony	3,076	3.2
40F	Watahala gravelly silt loam, 35 to 55 percent slopes, extremely stony	382	0.4
41G	Weikert-Rough-Rock outcrop complex, 70 to 100 percent slopes	210	0.2
W	Water	726	0.8
	Total	95,600	100.0

* Less than 0.1 percent.

Table 5.—Land Capability, Virginia Soil Management Group, and Yields per Acre of Crops and Pasture

(Yields are those that can be expected under a high level of management. They are for nonirrigated areas. Absence of a yield indicates that the soil is not suited to the crop or the crop generally is not grown on the soil)

Map symbol and soil name	Land capability	Virginia soil management group	Alfalfa hay	Corn	Grass-legume hay	Pasture	Wheat
			Tons	Bu	Tons	AUM	Bu
1A:							
Alonzville, rarely flooded----------	1	L	5.7	140	4.2	8.0	69
1B:							
Alonzville, rarely flooded----------	2e	L	5.5	130	4.0	7.5	64
2B:							
Alonzville--------	2e	L	5.5	130	4.0	7.5	64
3A:							
Atkins------------	6w	NN	---	---	---	3.0	---
4C:							
Bailegap----------	6s	GG	---	---	---	4.5	---
4E:							
Bailegap----------	7s	GG	---	---	---	---	---
5G:							
Bailegap----------	7e	GG	---	---	---	---	---
Lily--------------	7e	U	---	---	---	---	---
Dekalb------------	7e	FF	---	---	---	---	---
6E:							
Berks-------------	6e	JJ	---	---	---	3.2	---
Culleoka----------	6e	U	---	---	---	6.0	---
6G:							
Berks-------------	7e	JJ	---	---	---	---	---
Culleoka----------	7e	U	---	---	---	---	---
7C:							
Berks-------------	3e	JJ	---	57	2.6	3.5	---
Weikert-----------	6s	JJ	---	---	---	3.0	---
7E:							
Berks-------------	6e	JJ	---	---	---	3.0	---
Weikert-----------	6e	JJ	---	---	---	2.5	---
7G:							
Berks-------------	7e	JJ	---	---	---	---	---
Weikert-----------	7e	JJ	---	---	---	---	---
8G:							
Brushy------------	7e	JJ	---	---	---	---	---

Table 5.—Land Capability, Virginia Soil Management Group, and Yields per Acre of Crops and Pasture—Continued

Map symbol and soil name	Land capability	Virginia soil management group	Alfalfa hay	Corn	Grass-legume hay	Pasture	Wheat
			Tons	Bu	Tons	AUM	Bu
9E:							
Calvin	7s	JJ	---	---	---	---	---
10G:							
Calvin	7e	JJ	---	---	---	---	---
Rough	7e	JJ	---	---	---	---	---
11E:							
Carbo	7s	Y	---	---	---	---	---
Rock outcrop	8	---	---	---	---	---	---
11F:							
Carbo	7s	Y	---	---	---	---	---
Rock outcrop	8	---	---	---	---	---	---
12E:							
Carbo, karst	7s	Y	---	---	---	---	---
Rock outcrop	8	---	---	---	---	---	---
13A:							
Coursey	2w	G	5.5	140	4.5	9.0	64
13B:							
Coursey	2e	G	5.5	140	4.5	9.0	64
14C:							
Culleoka	3e	U	3.5	97	3.1	6.5	49
Berks	3e	JJ	---	57	2.6	3.5	35
14D:							
Culleoka	4e	U	3.2	88	2.8	6.0	45
Berks	4e	JJ	---	52	2.4	3.2	32
15E:							
Dekalb	7s	FF	---	---	---	---	---
15F:							
Dekalb	7e	FF	---	---	---	---	---
16E:							
Dekalb	7s	FF	---	---	---	---	---
Rock outcrop	8	---	---	---	---	---	---
16G:							
Dekalb	7s	FF	---	---	---	---	---
Rock outcrop	8	---	---	---	---	---	---
17B:							
Escatawba	2e	L	5.5	130	4.0	7.5	64
17C:							
Escatawba	3e	L	4.8	114	3.5	6.5	56

Table 5.—Land Capability, Virginia Soil Management Group, and Yields per Acre of Crops and Pasture—Continued

Map symbol and soil name	Land capability	Virginia soil management group	Alfalfa hay	Corn	Grass-legume hay	Pasture	Wheat
			Tons	Bu	Tons	AUM	Bu
18C:							
Escatawba, very stony	6s	L	---	---	---	6.0	---
18E:							
Escatawba, very stony	7s	L	---	---	---	---	---
19B:							
Frederick	2e	M	6.0	130	4.0	7.5	64
19C:							
Frederick	3e	M	5.3	114	3.5	6.6	56
19D:							
Frederick	4e	M	4.8	104	3.2	6.0	51
19E:							
Frederick	6e	M	---	---	---	5.7	---
20C:							
Frederick	3e	M	4.8	---	3.2	6.0	---
Watahala	3e	M	4.8	---	3.2	6.0	---
20D:							
Frederick	4e	M	4.3	---	2.9	5.5	---
Watahala	4e	M	4.3	---	2.9	5.5	---
21C:							
Gilpin	3e	U	3.5	97	3.1	6.5	49
21D:							
Gilpin	4e	U	3.2	88	2.8	6.0	45
22B:							
Jefferson	3s	L	4.7	110	3.4	6.5	54
22C:							
Jefferson	4s	L	4.1	97	3.0	5.5	48
22D:							
Jefferson	6s	L	---	---	---	5.0	---
23C:							
Lily	6s	U	---	---	---	6.0	---
23E:							
Lily	7s	U	---	---	---	---	---
23F:							
Lily	7e	U	---	---	---	---	---
24A:							
Maurertown	4w	NN	---	65	---	3.5	24
25B:							
Nicelytown	2e	G	5.5	140	4.5	9.0	64

Table 5.—Land Capability, Virginia Soil Management Group, and Yields per Acre of Crops and Pasture—Continued

Map symbol and soil name	Land capability	Virginia soil management group	Alfalfa hay	Corn	Grass-legume hay	Pasture	Wheat
			Tons	Bu	Tons	AUM	Bu
25C:							
Nicelytown	3e	G	4.8	123	4.0	8.0	56
26B:							
Ogles	6s	CC	---	---	---	5.0	---
27C:							
Oriskany, extremely stony	7s	CC	---	---	---	---	---
27E:							
Oriskany, extremely stony	7s	CC	---	---	---	---	---
28F:							
Oriskany, very rubbly	7s	CC	---	---	---	---	---
29A:							
Philo	2w	H	---	140	3.0	4.0	48
30:							
Pits	8	---	---	---	---	---	---
Dumps	8	---	---	---	---	---	---
31A:							
Pope	2w	A	6.0	160	4.5	9.0	64
32C:							
Schaffenaker	4s	II	---	55	2.0	2.0	---
33B:							
Shelocta	2e	L	5.5	130	4.0	7.5	64
33C:							
Shelocta	3e	L	4.8	114	3.5	6.5	56
33D:							
Shelocta	4e	L	4.4	104	3.2	6.0	51
34B:							
Slabtown	2e	G	5.5	140	4.5	9.0	64
34C:							
Slabtown	3e	G	4.8	123	4.0	8.0	56
35B:							
Sugarhol	2e	O	5.5	130	4.0	7.5	64
35C:							
Sugarhol	3e	O	4.8	114	3.5	6.6	56
36B:							
Tumbling	2e	O	5.5	130	4.0	7.5	64
36C:							
Tumbling	3e	O	4.8	114	3.5	6.5	56

Table 5.—Land Capability, Virginia Soil Management Group, and Yields per Acre of Crops and Pasture—Continued

Map symbol and soil name	Land capability	Virginia soil management group	Alfalfa hay	Corn	Grass-legume hay	Pasture	Wheat
			Tons	Bu	Tons	AUM	Bu
36D:							
Tumbling	4e	O	4.4	104	3.2	6.0	51
37C:							
Tumbling, very stony	6s	O	---	---	---	6.0	---
37E:							
Tumbling, very stony	7s	O	---	---	---	---	---
38:							
Udorthents, unstable fill.							
Urban land	8	---	---	---	---	---	---
39C:							
Watahala	3e	M	4.8	103	3.2	6.0	51
39D:							
Watahala	4e	M	4.3	94	2.9	5.5	46
39E:							
Watahala	6e	M	---	---	---	5.0	---
40C:							
Watahala, extremely stony	7s	M	---	---	---	---	---
40E:							
Watahala, extremely stony	7s	M	---	---	---	---	---
40F:							
Watahala, extremely stony	7e	M	---	---	---	---	---
41G:							
Weikert	7s	JJ	---	---	---	---	---
Rough	7s	JJ	---	---	---	---	---
Rock outcrop	8	---	---	---	---	---	---
W.							
Water							

Table 6.—Prime Farmland

(Only the soils considered prime farmland are listed. Urban or built-up areas of the soils listed are not considered prime farmland)

Map symbol	Map unit name
1A	Alonzville loam, 0 to 3 percent slopes, rarely flooded
1B	Alonzville loam, 3 to 8 percent slopes, rarely flooded
2B	Alonzville loam, 3 to 8 percent slopes
13A	Coursey loam, 0 to 3 percent slopes, rarely flooded
13B	Coursey loam, 3 to 8 percent slopes, rarely flooded
17B	Escatawba loam, 3 to 8 percent slopes
19B	Frederick silt loam, 3 to 8 percent slopes
25B	Nicelytown silt loam, 3 to 8 percent slopes
29A	Philo fine sandy loam, 0 to 3 percent slopes, occasionally flooded
33B	Shelocta silt loam, 3 to 8 percent slopes
34B	Slabtown silt loam, 3 to 8 percent slopes
35B	Sugarhol silt loam, 3 to 8 percent slopes
36B	Tumbling loam, 3 to 8 percent slopes

Table 7.—Agricultural Waste Management, Part I

(The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation. The numbers in the value columns range from 0.01 to 1.00. The larger the value, the greater the limitation. See text for further explanation of ratings in this table)

Map symbol and soil name	Pct. of map unit	Application of manure and food-processing waste: Rating class and limiting features	Value	Application of sewage sludge: Rating class and limiting features	Value
1A:					
Alonzville, rarely flooded	85	Somewhat limited		Somewhat limited	
		Too acid	0.37	Too acid	0.96
				Flooding	0.40
1B:					
Alonzville, rarely flooded	85	Somewhat limited		Somewhat limited	
		Too acid	0.37	Too acid	0.96
				Flooding	0.40
2B:					
Alonzville	85	Somewhat limited		Somewhat limited	
		Too acid	0.37	Too acid	0.96
3A:					
Atkins	90	Very limited		Very limited	
		Slow water movement	1.00	Ponding	1.00
		Ponding	1.00	Depth to saturated zone	1.00
		Depth to saturated zone	1.00	Flooding	1.00
4C:					
Bailegap	90	Somewhat limited		Somewhat limited	
		Large stones	0.76	Too acid	0.99
		Too acid	0.50	Slope	0.37
		Slope	0.37		
4E:					
Bailegap	90	Very limited		Very limited	
		Too steep	1.00	Too steep	1.00
		Large stones	0.76	Too acid	0.99
		Too acid	0.50		
5G:					
Bailegap	35	Very limited		Very limited	
		Too steep	1.00	Too steep	1.00
		Large stones	0.76	Too acid	0.99
		Too acid	0.50		
Lily	30	Very limited		Very limited	
		Too steep	1.00	Too steep	1.00
		Droughty	0.80	Too acid	1.00
		Too acid	0.73	Droughty	0.80
Dekalb	25	Very limited		Very limited	
		Too steep	1.00	Too steep	1.00
		Droughty	1.00	Droughty	1.00
		Large stones	1.00	Filtering capacity	0.99

Table 7.—Agricultural Waste Management, Part I—Continued

Map symbol and soil name	Pct. of map unit	Application of manure and food-processing waste: Rating class and limiting features	Value	Application of sewage sludge: Rating class and limiting features	Value
6E:					
Berks	55	Very limited		Very limited	
		Too steep	1.00	Too steep	1.00
		Droughty	0.99	Too acid	1.00
		Too acid	0.73	Droughty	0.99
Culleoka	35	Very limited		Very limited	
		Too steep	1.00	Too steep	1.00
		Droughty	0.90	Too acid	0.96
		Depth to bedrock	0.71	Droughty	0.90
6G:					
Berks	60	Very limited		Very limited	
		Too steep	1.00	Too steep	1.00
		Droughty	0.99	Too acid	1.00
		Too acid	0.73	Droughty	0.99
Culleoka	30	Very limited		Very limited	
		Too steep	1.00	Too steep	1.00
		Droughty	0.90	Too acid	0.96
		Depth to bedrock	0.71	Droughty	0.90
7C:					
Berks	45	Somewhat limited		Very limited	
		Droughty	0.99	Too acid	1.00
		Too acid	0.73	Droughty	0.99
		Depth to bedrock	0.65	Depth to bedrock	0.65
Weikert	40	Very limited		Very limited	
		Droughty	1.00	Droughty	1.00
		Depth to bedrock	1.00	Depth to bedrock	1.00
		Runoff	0.40	Too acid	0.85
7E:					
Berks	50	Very limited		Very limited	
		Too steep	1.00	Too steep	1.00
		Droughty	0.99	Too acid	1.00
		Too acid	0.73	Droughty	0.99
Weikert	35	Very limited		Very limited	
		Too steep	1.00	Droughty	1.00
		Droughty	1.00	Too steep	1.00
		Depth to bedrock	1.00	Depth to bedrock	1.00
7G:					
Berks	45	Very limited		Very limited	
		Too steep	1.00	Too steep	1.00
		Droughty	0.99	Too acid	1.00
		Too acid	0.73	Droughty	0.99
Weikert	40	Very limited		Very limited	
		Too steep	1.00	Droughty	1.00
		Droughty	1.00	Too steep	1.00
		Depth to bedrock	1.00	Depth to bedrock	1.00
8G:					
Brushy	90	Very limited		Very limited	
		Too steep	1.00	Too steep	1.00
		Droughty	1.00	Droughty	1.00
		Too acid	0.89	Too acid	1.00

Table 7.—Agricultural Waste Management, Part I—Continued

Map symbol and soil name	Pct. of map unit	Application of manure and food-processing waste: Rating class and limiting features	Value	Application of sewage sludge: Rating class and limiting features	Value
9E:					
Calvin	80	Very limited		Very limited	
		Too steep	1.00	Too steep	1.00
		Droughty	0.99	Too acid	1.00
		Depth to bedrock	0.71	Droughty	0.99
10G:					
Calvin	55	Very limited		Very limited	
		Too steep	1.00	Too steep	1.00
		Droughty	0.99	Too acid	1.00
		Depth to bedrock	0.71	Droughty	0.99
Rough	30	Very limited		Very limited	
		Too steep	1.00	Droughty	1.00
		Depth to bedrock	1.00	Depth to bedrock	1.00
		Droughty	1.00	Too steep	1.00
11E:					
Carbo	60	Very limited		Very limited	
		Slow water movement	1.00	Slow water movement	1.00
		Too steep	1.00	Too steep	1.00
		Droughty	0.99	Droughty	0.99
Rock outcrop	25	Not rated		Not rated	
11F:					
Carbo	60	Very limited		Very limited	
		Too steep	1.00	Too steep	1.00
		Slow water movement	1.00	Slow water movement	1.00
		Droughty	0.99	Droughty	0.99
Rock outcrop	25	Not rated		Not rated	
12E:					
Carbo, karst	60	Very limited		Very limited	
		Slow water movement	1.00	Slow water movement	1.00
		Too steep	1.00	Too steep	1.00
		Droughty	0.99	Droughty	0.99
Rock outcrop	25	Not rated		Not rated	
13A:					
Coursey	85	Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Too acid	0.27	Too acid	0.85
				Flooding	0.40
13B:					
Coursey	85	Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Too acid	0.27	Too acid	0.85
				Flooding	0.40

Table 7.—Agricultural Waste Management, Part I—Continued

Map symbol and soil name	Pct. of map unit	Application of manure and food-processing waste: Rating class and limiting features	Value	Application of sewage sludge: Rating class and limiting features	Value
14C:					
Culleoka	50	Somewhat limited		Somewhat limited	
		Droughty	0.90	Too acid	0.96
		Depth to bedrock	0.71	Droughty	0.90
		Too acid	0.37	Depth to bedrock	0.71
Berks	40	Somewhat limited		Very limited	
		Droughty	0.99	Too acid	1.00
		Too acid	0.73	Droughty	0.99
		Depth to bedrock	0.65	Depth to bedrock	0.65
14D:					
Culleoka	50	Very limited		Very limited	
		Too steep	1.00	Too steep	1.00
		Droughty	0.90	Too acid	0.96
		Depth to bedrock	0.71	Droughty	0.90
Berks	40	Very limited		Very limited	
		Too steep	1.00	Too steep	1.00
		Droughty	0.99	Too acid	1.00
		Too acid	0.73	Droughty	0.99
15E:					
Dekalb	90	Very limited		Very limited	
		Large stones	1.00	Droughty	1.00
		Droughty	1.00	Too steep	1.00
		Too steep	1.00	Filtering capacity	0.99
15F:					
Dekalb	85	Very limited		Very limited	
		Too steep	1.00	Too steep	1.00
		Large stones	1.00	Droughty	1.00
		Droughty	1.00	Filtering capacity	0.99
16E:					
Dekalb	75	Very limited		Very limited	
		Large stones	1.00	Droughty	1.00
		Droughty	1.00	Too steep	1.00
		Too steep	1.00	Filtering capacity	0.99
Rock outcrop	15	Not rated		Not rated	
16G:					
Dekalb	75	Very limited		Very limited	
		Too steep	1.00	Too steep	1.00
		Large stones	1.00	Droughty	1.00
		Droughty	1.00	Filtering capacity	0.99
Rock outcrop	15	Not rated		Not rated	
17B:					
Escatawba	90	Somewhat limited		Very limited	
		Depth to saturated zone	0.86	Too acid	1.00
		Too acid	0.78	Depth to saturated zone	0.96
		Slow water movement	0.50	Slow water movement	0.37

Table 7.—Agricultural Waste Management, Part I—Continued

Map symbol and soil name	Pct. of map unit	Application of manure and food-processing waste: Rating class and limiting features	Value	Application of sewage sludge: Rating class and limiting features	Value
17C:					
Escatawba	90	Somewhat limited		Very limited	
		Depth to saturated zone	0.86	Too acid	1.00
		Too acid	0.78	Depth to saturated zone	0.86
		Slow water movement	0.50	Slow water movement	0.37
18C:					
Escatawba, very stony	90	Somewhat limited		Very limited	
		Large stones	0.94	Too acid	1.00
		Depth to saturated zone	0.86	Depth to saturated zone	0.86
		Too acid	0.78	Slow water movement	0.37
18E:					
Escatawba, very stony	85	Very limited		Very limited	
		Too steep	1.00	Too steep	1.00
		Large stones	0.94	Too acid	1.00
		Depth to saturated zone	0.86	Depth to saturated zone	0.86
19B:					
Frederick	90	Somewhat limited		Somewhat limited	
		Too acid	0.27	Too acid	0.85
19C:					
Frederick	90	Somewhat limited		Somewhat limited	
		Slope	0.37	Too acid	0.85
		Too acid	0.27	Slope	0.37
19D:					
Frederick	90	Very limited		Very limited	
		Too steep	1.00	Too steep	1.00
		Too acid	0.27	Too acid	0.85
19E:					
Frederick	90	Very limited		Very limited	
		Too steep	1.00	Too steep	1.00
		Too acid	0.27	Too acid	0.85
20C:					
Frederick	50	Somewhat limited		Somewhat limited	
		Slope	0.37	Too acid	0.67
		Too acid	0.18	Slope	0.37
Watahala	35	Somewhat limited		Somewhat limited	
		Strongly contrasting textural stratification	0.54	Too acid	0.99
		Too acid	0.50	Strongly contrasting textural stratification	0.54
		Slope	0.37	Slope	0.37
20D:					
Frederick	50	Very limited		Very limited	
		Too steep	1.00	Too steep	1.00
		Too acid	0.18	Too acid	0.67

Table 7.—Agricultural Waste Management, Part I—Continued

Map symbol and soil name	Pct. of map unit	Application of manure and food-processing waste: Rating class and limiting features	Value	Application of sewage sludge: Rating class and limiting features	Value
20D:					
Watahala	35	Very limited		Very limited	
		Too steep	1.00	Too steep	1.00
		Strongly contrasting textural stratification	0.54	Too acid	0.99
		Too acid	0.50	Strongly contrasting textural stratification	0.54
21C:					
Gilpin	85	Somewhat limited		Somewhat limited	
		Slope	0.37	Too acid	0.85
		Too acid	0.27	Slope	0.37
		Droughty	0.25	Droughty	0.25
21D:					
Gilpin	85	Very limited		Very limited	
		Too steep	1.00	Too steep	1.00
		Too acid	0.27	Too acid	0.85
		Droughty	0.25	Droughty	0.25
22B:					
Jefferson	90	Somewhat limited		Very limited	
		Too acid	0.73	Too acid	1.00
22C:					
Jefferson	90	Somewhat limited		Very limited	
		Too acid	0.73	Too acid	1.00
		Slope	0.37	Slope	0.37
22D:					
Jefferson	90	Very limited		Very limited	
		Too steep	1.00	Too steep	1.00
		Too acid	0.73	Too acid	1.00
23C:					
Lily	90	Somewhat limited		Very limited	
		Droughty	0.80	Too acid	1.00
		Large stones	0.76	Droughty	0.80
		Too acid	0.73	Depth to bedrock	0.46
23E:					
Lily	85	Very limited		Very limited	
		Too steep	1.00	Too steep	1.00
		Droughty	0.80	Too acid	1.00
		Large stones	0.76	Droughty	0.80
23F:					
Lily	85	Very limited		Very limited	
		Too steep	1.00	Too steep	1.00
		Droughty	0.80	Too acid	1.00
		Large stones	0.76	Droughty	0.80
24A:					
Maurertown	90	Very limited		Very limited	
		Slow water movement	1.00	Slow water movement	1.00
		Ponding	1.00	Ponding	1.00
		Depth to saturated zone	1.00	Depth to saturated zone	1.00

Table 7.—Agricultural Waste Management, Part I—Continued

Map symbol and soil name	Pct. of map unit	Application of manure and food-processing waste: Rating class and limiting features	Value	Application of sewage sludge: Rating class and limiting features	Value
25B:					
Nicelytown	90	Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Slow water movement	0.89	Slow water movement	0.78
		Too acid	0.11	Too acid	0.42
25C:					
Nicelytown	90	Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Slow water movement	0.89	Slow water movement	0.78
		Slope	0.37	Too acid	0.42
26B:					
Ogles	90	Very limited		Very limited	
		Flooding	1.00	Flooding	1.00
		Large stones on the surface	1.00	Large stones on the surface	1.00
		Cobble content	0.87	Cobble content	0.87
27C:					
Oriskany, extremely stony	90	Very limited		Somewhat limited	
		Large stones	1.00	Too acid	0.96
		Too acid	0.37	Slope	0.37
		Slope	0.37		
27E:					
Oriskany, extremely stony	90	Very limited		Very limited	
		Too steep	1.00	Too steep	1.00
		Large stones	1.00	Too acid	0.96
		Too acid	0.37		
28F:					
Oriskany, very rubbly	90	Very limited		Very limited	
		Too steep	1.00	Too steep	1.00
		Large stones	1.00	Too acid	0.96
		Too acid	0.37		
29A:					
Philo	85	Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Flooding	0.60	Flooding	1.00
		Too acid	0.43	Too acid	0.99
30:					
Pits	50	Not rated		Not rated	
Dumps	45	Not rated		Not rated	
31A:					
Pope	90	Very limited		Very limited	
		Flooding	1.00	Flooding	1.00
		Leaching	0.45	Too acid	0.42
		Too acid	0.11	Droughty	0.01

Table 7.—Agricultural Waste Management, Part I—Continued

Map symbol and soil name	Pct. of map unit	Application of manure and food-processing waste: Rating class and limiting features	Value	Application of sewage sludge: Rating class and limiting features	Value
32C:					
Schaffenaker	85	Very limited		Very limited	
		Droughty	1.00	Droughty	1.00
		Filtering capacity	0.99	Too acid	1.00
		Too acid	0.62	Filtering capacity	0.99
33B:					
Shelocta	90	Somewhat limited		Somewhat limited	
		Too acid	0.27	Too acid	0.85
33C:					
Shelocta	90	Somewhat limited		Somewhat limited	
		Slope	0.37	Too acid	0.85
		Too acid	0.27	Slope	0.37
33D:					
Shelocta	90	Very limited		Very limited	
		Too steep	1.00	Too steep	1.00
		Too acid	0.27	Too acid	0.85
34B:					
Slabtown	90	Somewhat limited		Somewhat limited	
		Depth to saturated zone	0.95	Depth to saturated zone	0.95
		Slow water movement	0.50	Slow water movement	0.37
34C:					
Slabtown	90	Somewhat limited		Somewhat limited	
		Depth to saturated zone	0.95	Depth to saturated zone	0.95
		Slow water movement	0.50	Slow water movement	0.37
		Slope	0.37	Slope	0.37
35B:					
Sugarhol	90	Somewhat limited		Very limited	
		Too acid	0.89	Too acid	1.00
35C:					
Sugarhol	85	Somewhat limited		Very limited	
		Too acid	0.89	Too acid	1.00
		Slope	0.37	Slope	0.37
36B:					
Tumbling	80	Somewhat limited		Somewhat limited	
		Too acid	0.27	Too acid	0.85
36C:					
Tumbling	85	Somewhat limited		Somewhat limited	
		Slope	0.37	Too acid	0.85
		Too acid	0.27	Slope	0.37
36D:					
Tumbling	80	Very limited		Very limited	
		Too steep	1.00	Too steep	1.00
		Too acid	0.27	Too acid	0.85

Table 7.—Agricultural Waste Management, Part I—Continued

Map symbol and soil name	Pct. of map unit	Application of manure and food-processing waste: Rating class and limiting features	Value	Application of sewage sludge: Rating class and limiting features	Value
37C:					
Tumbling, very stony	80	Very limited		Somewhat limited	
		Large stones	1.00	Too acid	0.85
		Slope	0.37	Slope	0.37
		Too acid	0.27		
37E:					
Tumbling, very stony	80	Very limited		Very limited	
		Too steep	1.00	Too steep	1.00
		Large stones	1.00	Too acid	0.85
		Too acid	0.27		
38:					
Udorthents, unstable fill	50	Not rated		Not rated	
Urban land	40	Not rated		Not rated	
39C:					
Watahala	90	Somewhat limited		Somewhat limited	
		Strongly contrasting textural stratification	0.54	Too acid	0.99
		Too acid	0.50	Strongly contrasting textural stratification	0.54
		Slope	0.37	Slope	0.37
39D:					
Watahala	90	Very limited		Very limited	
		Too steep	1.00	Too steep	1.00
		Strongly contrasting textural stratification	0.54	Too acid	0.99
		Too acid	0.50	Strongly contrasting textural stratification	0.54
39E:					
Watahala	90	Very limited		Very limited	
		Too steep	1.00	Too steep	1.00
		Strongly contrasting textural stratification	0.54	Too acid	0.99
		Too acid	0.50	Strongly contrasting textural stratification	0.54
40C:					
Watahala, extremely stony	90	Very limited		Somewhat limited	
		Large stones	1.00	Too acid	0.99
		Strongly contrasting textural stratification	0.54	Strongly contrasting textural stratification	0.54
		Too acid	0.50	Slope	0.37

Table 7.—Agricultural Waste Management, Part I—Continued

Map symbol and soil name	Pct. of map unit	Application of manure and food-processing waste: Rating class and limiting features	Value	Application of sewage sludge: Rating class and limiting features	Value
40E:					
Watahala, extremely stony	90	Very limited		Very limited	
		Too steep	1.00	Too steep	1.00
		Large stones	1.00	Too acid	0.99
		Strongly contrasting textural stratification	0.54	Strongly contrasting textural stratification	0.54
40F:					
Watahala, extremely stony	90	Very limited		Very limited	
		Too steep	1.00	Too steep	1.00
		Large stones	1.00	Too acid	0.99
		Strongly contrasting textural stratification	0.54	Strongly contrasting textural stratification	0.54
41G:					
Weikert	35	Very limited		Very limited	
		Too steep	1.00	Droughty	1.00
		Droughty	1.00	Too steep	1.00
		Depth to bedrock	1.00	Depth to bedrock	1.00
Rough	30	Very limited		Very limited	
		Too steep	1.00	Droughty	1.00
		Depth to bedrock	1.00	Depth to bedrock	1.00
		Droughty	1.00	Too steep	1.00
Rock outcrop	25	Not rated		Not rated	
W:					
Water	100	Not rated		Not rated	

Table 7.—Agricultural Waste Management, Part II

(The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation. The numbers in the value columns range from 0.01 to 1.00. The larger the value, the greater the limitation. See text for further explanation of ratings in this table)

Map symbol and soil name	Pct. of map unit	Disposal of wastewater by irrigation: Rating class and limiting features	Value	Overland flow of wastewater: Rating class and limiting features	Value
1A:					
Alonzville, rarely flooded	85	Somewhat limited		Very limited	
		Too acid	0.96	Seepage	1.00
				Too acid	0.96
				Flooding	0.40
1B:					
Alonzville, rarely flooded	85	Somewhat limited		Very limited	
		Too acid	0.96	Seepage	1.00
		Too steep for surface application	0.32	Too acid	0.96
				Flooding	0.40
2B:					
Alonzville	85	Somewhat limited		Very limited	
		Too acid	0.96	Seepage	1.00
		Too steep for surface application	0.32	Too acid	0.96
3A:					
Atkins	90	Very limited		Very limited	
		Ponding	1.00	Flooding	1.00
		Depth to saturated zone	1.00	Ponding	1.00
		Flooding	1.00	Depth to saturated zone	1.00
4C:					
Bailegap	90	Very limited		Very limited	
		Too steep for surface application	1.00	Seepage	1.00
		Too acid	0.99	Too acid	0.99
		Too steep for sprinkler application	0.60	Too steep for surface application	0.94
4E:					
Bailegap	90	Very limited		Very limited	
		Too steep for surface application	1.00	Too steep for surface application	1.00
		Too steep for sprinkler application	1.00	Seepage	1.00
		Too acid	0.99	Too acid	0.99

Table 7.—Agricultural Waste Management, Part II—Continued

Map symbol and soil name	Pct. of map unit	Disposal of wastewater by irrigation: Rating class and limiting features	Value	Overland flow of wastewater: Rating class and limiting features	Value
5G:					
Bailegap	35	Very limited		Very limited	
		Too steep for surface application	1.00	Too steep for surface application	1.00
		Too steep for sprinkler application	1.00	Seepage	1.00
		Too acid	0.99	Too acid	0.99
Lily	30	Very limited		Very limited	
		Too steep for surface application	1.00	Too steep for surface application	1.00
		Too steep for sprinkler application	1.00	Seepage	1.00
		Too acid	1.00	Depth to bedrock	1.00
Dekalb	25	Very limited		Very limited	
		Too steep for surface application	1.00	Seepage	1.00
		Too steep for sprinkler application	1.00	Too steep for surface application	1.00
		Droughty	1.00	Depth to bedrock	1.00
6E:					
Berks	55	Very limited		Very limited	
		Too steep for surface application	1.00	Too steep for surface application	1.00
		Too steep for sprinkler application	1.00	Seepage	1.00
		Too acid	1.00	Depth to bedrock	1.00
Culleoka	35	Very limited		Very limited	
		Too steep for surface application	1.00	Too steep for surface application	1.00
		Too steep for sprinkler application	1.00	Seepage	1.00
		Too acid	0.96	Depth to bedrock	1.00
6G:					
Berks	60	Very limited		Very limited	
		Too steep for surface application	1.00	Too steep for surface application	1.00
		Too steep for sprinkler application	1.00	Seepage	1.00
		Too acid	1.00	Depth to bedrock	1.00

Table 7.—Agricultural Waste Management, Part II—Continued

Map symbol and soil name	Pct. of map unit	Disposal of wastewater by irrigation: Rating class and limiting features	Value	Overland flow of wastewater: Rating class and limiting features	Value
6G:					
Culleoka	30	Very limited		Very limited	
		Too steep for surface application	1.00	Too steep for surface application	1.00
		Too steep for sprinkler application	1.00	Seepage	1.00
				Depth to bedrock	1.00
		Too acid	0.96		
7C:					
Berks	45	Very limited		Very limited	
		Too steep for surface application	1.00	Seepage	1.00
				Depth to bedrock	1.00
				Too acid	1.00
		Too acid	1.00		
		Droughty	0.99		
Weikert	40	Very limited		Very limited	
		Droughty	1.00	Seepage	1.00
		Too steep for surface application	1.00	Depth to bedrock	1.00
				Too steep for surface application	0.94
		Depth to bedrock	1.00		
7E:					
Berks	50	Very limited		Very limited	
		Too steep for surface application	1.00	Too steep for surface application	1.00
		Too steep for sprinkler application	1.00	Seepage	1.00
				Depth to bedrock	1.00
		Too acid	1.00		
Weikert	35	Very limited		Very limited	
		Droughty	1.00	Seepage	1.00
		Too steep for surface application	1.00	Depth to bedrock	1.00
				Too steep for surface application	1.00
		Too steep for sprinkler application	1.00		
7G:					
Berks	45	Very limited		Very limited	
		Too steep for surface application	1.00	Too steep for surface application	1.00
		Too steep for sprinkler application	1.00	Seepage	1.00
				Depth to bedrock	1.00
		Too acid	1.00		

Table 7.—Agricultural Waste Management, Part II—Continued

Map symbol and soil name	Pct. of map unit	Disposal of wastewater by irrigation: Rating class and limiting features	Value	Overland flow of wastewater: Rating class and limiting features	Value
7G:					
Weikert	40	Very limited		Very limited	
		Droughty	1.00	Seepage	1.00
		Too steep for surface application	1.00	Depth to bedrock	1.00
		Too steep for sprinkler application	1.00	Too steep for surface application	1.00
8G:					
Brushy	90	Very limited		Very limited	
		Too steep for surface application	1.00	Too steep for surface application	1.00
		Too steep for sprinkler application	1.00	Seepage	1.00
		Droughty	1.00	Depth to bedrock	1.00
9E:					
Calvin	80	Very limited		Very limited	
		Too steep for surface application	1.00	Seepage	1.00
		Too steep for sprinkler application	1.00	Too steep for surface application	1.00
		Too acid	1.00	Depth to bedrock	1.00
10G:					
Calvin	55	Very limited		Very limited	
		Too steep for surface application	1.00	Seepage	1.00
		Too steep for sprinkler application	1.00	Too steep for surface application	1.00
		Too acid	1.00	Depth to bedrock	1.00
Rough	30	Very limited		Very limited	
		Droughty	1.00	Depth to bedrock	1.00
		Depth to bedrock	1.00	Too steep for surface application	1.00
		Too steep for surface application	1.00	Seepage	1.00
11E:					
Carbo	60	Very limited		Very limited	
		Too steep for surface application	1.00	Seepage	1.00
		Slow water movement	1.00	Depth to bedrock	1.00
		Too steep for sprinkler application	1.00	Too steep for surface application	1.00
Rock outcrop	25	Not rated		Not rated	

Table 7.—Agricultural Waste Management, Part II—Continued

Map symbol and soil name	Pct. of map unit	Disposal of wastewater by irrigation: Rating class and limiting features	Value	Overland flow of wastewater: Rating class and limiting features	Value
11F:					
Carbo	60	Very limited		Very limited	
		Too steep for surface application	1.00	Too steep for surface application	1.00
		Too steep for sprinkler application	1.00	Seepage	1.00
				Depth to bedrock	1.00
		Slow water movement	1.00		
Rock outcrop	25	Not rated		Not rated	
12E:					
Carbo, karst	60	Very limited		Very limited	
		Too steep for surface application	1.00	Seepage	1.00
				Depth to bedrock	1.00
				Too steep for surface application	1.00
		Slow water movement	1.00		
		Too steep for sprinkler application	1.00		
Rock outcrop	25	Not rated		Not rated	
13A:					
Coursey	85	Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Too acid	0.85	Seepage	1.00
				Too acid	0.85
13B:					
Coursey	85	Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Too acid	0.85	Seepage	1.00
		Too steep for surface application	0.32	Too acid	0.85
14C:					
Culleoka	50	Very limited		Very limited	
		Too steep for surface application	1.00	Seepage	1.00
				Depth to bedrock	1.00
				Too acid	0.96
		Too acid	0.96		
		Droughty	0.90		
Berks	40	Very limited		Very limited	
		Too steep for surface application	1.00	Seepage	1.00
				Depth to bedrock	1.00
				Too acid	1.00
		Too acid	1.00		
		Droughty	0.99		

Table 7.—Agricultural Waste Management, Part II—Continued

Map symbol and soil name	Pct. of map unit	Disposal of wastewater by irrigation: Rating class and limiting features	Value	Overland flow of wastewater: Rating class and limiting features	Value
14D:					
Culleoka	50	Very limited		Very limited	
		Too steep for surface application	1.00	Too steep for surface application	1.00
		Too steep for sprinkler application	1.00	Seepage	1.00
				Depth to bedrock	1.00
		Too acid	0.96		
Berks	40	Very limited		Very limited	
		Too steep for surface application	1.00	Too steep for surface application	1.00
		Too steep for sprinkler application	1.00	Seepage	1.00
				Depth to bedrock	1.00
		Too acid	1.00		
15E:					
Dekalb	90	Very limited		Very limited	
		Too steep for surface application	1.00	Seepage	1.00
				Depth to bedrock	1.00
				Too steep for surface application	1.00
		Droughty	1.00		
		Too steep for sprinkler application	1.00		
15F:					
Dekalb	85	Very limited		Very limited	
		Too steep for surface application	1.00	Seepage	1.00
				Too steep for surface application	1.00
		Too steep for sprinkler application	1.00	Depth to bedrock	1.00
		Droughty	1.00		
16E:					
Dekalb	75	Very limited		Very limited	
		Too steep for surface application	1.00	Seepage	1.00
				Depth to bedrock	1.00
				Too steep for surface application	1.00
		Droughty	1.00		
		Too steep for sprinkler application	1.00		
Rock outcrop	15	Not rated		Not rated	
16G:					
Dekalb	75	Very limited		Very limited	
		Too steep for surface application	1.00	Seepage	1.00
				Too steep for surface application	1.00
		Too steep for sprinkler application	1.00	Depth to bedrock	1.00
		Droughty	1.00		

Table 7.—Agricultural Waste Management, Part II—Continued

Map symbol and soil name	Pct. of map unit	Disposal of wastewater by irrigation: Rating class and limiting features	Value	Overland flow of wastewater: Rating class and limiting features	Value
16G:					
Rock outcrop	15	Not rated		Not rated	
17B:					
Escatawba	90	Very limited		Very limited	
		Too acid	1.00	Seepage	1.00
		Depth to saturated zone	0.86	Too acid	1.00
		Slow water movement	0.37	Depth to saturated zone	0.86
17C:					
Escatawba	90	Very limited		Very limited	
		Too steep for surface application	1.00	Seepage	1.00
		Too acid	1.00	Too acid	1.00
		Depth to saturated zone	0.86	Too steep for surface application	0.94
18C:					
Escatawba, very stony	90	Very limited		Very limited	
		Too steep for surface application	1.00	Seepage	1.00
		Too acid	1.00	Too acid	1.00
		Depth to saturated zone	0.86	Too steep for surface application	0.94
18E:					
Escatawba, very stony	85	Very limited		Very limited	
		Too steep for surface application	1.00	Too steep for surface application	1.00
		Too steep for sprinkler application	1.00	Seepage	1.00
		Too acid	1.00	Too acid	1.00
19B:					
Frederick	90	Somewhat limited		Very limited	
		Too acid	0.85	Seepage	1.00
		Too steep for surface application	0.32	Too acid	0.85
19C:					
Frederick	90	Very limited		Very limited	
		Too steep for surface application	1.00	Seepage	1.00
		Too acid	0.85	Too steep for surface application	0.94
		Too steep for sprinkler application	0.60	Too acid	0.85

Table 7.—Agricultural Waste Management, Part II—Continued

Map symbol and soil name	Pct. of map unit	Disposal of wastewater by irrigation: Rating class and limiting features	Value	Overland flow of wastewater: Rating class and limiting features	Value
19D:					
Frederick	90	Very limited		Very limited	
		Too steep for surface application	1.00	Seepage	1.00
		Too steep for sprinkler application	1.00	Too steep for surface application	1.00
		Too acid	0.85	Too acid	0.85
19E:					
Frederick	90	Very limited		Very limited	
		Too steep for surface application	1.00	Seepage	1.00
		Too steep for sprinkler application	1.00	Too steep for surface application	1.00
		Too acid	0.85	Too acid	0.85
20C:					
Frederick	50	Very limited		Very limited	
		Too steep for surface application	1.00	Seepage	1.00
		Too acid	0.67	Too steep for surface application	0.94
		Too steep for sprinkler application	0.60	Too acid	0.67
Watahala	35	Very limited		Very limited	
		Too steep for surface application	1.00	Seepage	1.00
		Too acid	0.99	Too acid	0.99
		Too steep for sprinkler application	0.60	Too steep for surface application	0.94
20D:					
Frederick	50	Very limited		Very limited	
		Too steep for surface application	1.00	Seepage	1.00
		Too steep for sprinkler application	1.00	Too steep for surface application	1.00
		Too acid	0.67	Too acid	0.67
Watahala	35	Very limited		Very limited	
		Too steep for surface application	1.00	Seepage	1.00
		Too steep for sprinkler application	1.00	Too steep for surface application	1.00
		Too acid	0.99	Too acid	0.99

Table 7.—Agricultural Waste Management, Part II—Continued

Map symbol and soil name	Pct. of map unit	Disposal of wastewater by irrigation: Rating class and limiting features	Value	Overland flow of wastewater: Rating class and limiting features	Value
21C:					
Gilpin	85	Very limited		Very limited	
		Too steep for surface application	1.00	Seepage	1.00
		Too acid	0.85	Depth to bedrock	1.00
		Too steep for sprinkler application	0.60	Too steep for surface application	0.94
21D:					
Gilpin	85	Very limited		Very limited	
		Too steep for surface application	1.00	Too steep for surface application	1.00
		Too steep for sprinkler application	1.00	Seepage	1.00
		Too acid	0.85	Depth to bedrock	1.00
22B:					
Jefferson	90	Very limited		Very limited	
		Too acid	1.00	Seepage	1.00
		Too steep for surface application	0.32	Too acid	1.00
22C:					
Jefferson	90	Very limited		Very limited	
		Too steep for surface application	1.00	Seepage	1.00
		Too acid	1.00	Too acid	1.00
		Too steep for sprinkler application	0.60	Too steep for surface application	0.94
22D:					
Jefferson	90	Very limited		Very limited	
		Too steep for surface application	1.00	Seepage	1.00
		Too steep for sprinkler application	1.00	Too steep for surface application	1.00
		Too acid	1.00	Too acid	1.00
23C:					
Lily	90	Very limited		Very limited	
		Too steep for surface application	1.00	Seepage	1.00
		Too acid	1.00	Depth to bedrock	1.00
		Droughty	0.80	Too acid	1.00

Table 7.—Agricultural Waste Management, Part II—Continued

Map symbol and soil name	Pct. of map unit	Disposal of wastewater by irrigation: Rating class and limiting features	Value	Overland flow of wastewater: Rating class and limiting features	Value
23E:					
Lily	85	Very limited		Very limited	
		Too steep for surface application	1.00	Too steep for surface application	1.00
		Too steep for sprinkler application	1.00	Seepage	1.00
				Depth to bedrock	1.00
		Too acid	1.00		
23F:					
Lily	85	Very limited		Very limited	
		Too steep for surface application	1.00	Too steep for surface application	1.00
		Too steep for sprinkler application	1.00	Seepage	1.00
				Depth to bedrock	1.00
		Too acid	1.00		
24A:					
Maurertown	90	Very limited		Very limited	
		Slow water movement	1.00	Ponding	1.00
				Depth to saturated zone	1.00
		Ponding	1.00		
		Depth to saturated zone	1.00	Seepage	0.62
25B:					
Nicelytown	90	Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Slow water movement	0.78	Seepage	1.00
				Too acid	0.42
		Too acid	0.42		
25C:					
Nicelytown	90	Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Too steep for surface application	1.00	Seepage	1.00
				Too steep for surface application	0.94
		Slow water movement	0.78		
26B:					
Ogles	90	Very limited		Very limited	
		Large stones on the surface	1.00	Flooding	1.00
				Seepage	1.00
		Flooding	1.00	Stone content	1.00
		Cobble content	0.87		

Table 7.—Agricultural Waste Management, Part II—Continued

Map symbol and soil name	Pct. of map unit	Disposal of wastewater by irrigation: Rating class and limiting features	Value	Overland flow of wastewater: Rating class and limiting features	Value
27C:					
Oriskany, extremely stony	90	Very limited		Very limited	
		Too steep for surface application	1.00	Seepage	1.00
		Too acid	0.96	Stone content	1.00
		Too steep for sprinkler application	0.60	Too acid	0.96
27E:					
Oriskany, extremely stony	90	Very limited		Very limited	
		Too steep for surface application	1.00	Seepage	1.00
		Too steep for sprinkler application	1.00	Too steep for surface application	1.00
		Too acid	0.96	Stone content	1.00
28F:					
Oriskany, very rubbly	90	Very limited		Very limited	
		Too steep for surface application	1.00	Seepage	1.00
		Too steep for sprinkler application	1.00	Too steep for surface application	1.00
		Too acid	0.96	Stone content	1.00
29A:					
Philo	85	Very limited		Very limited	
		Depth to saturated zone	1.00	Flooding	1.00
		Too acid	0.99	Seepage	1.00
		Flooding	0.60	Depth to saturated zone	1.00
30:					
Pits	50	Not rated		Not rated	
Dumps	45	Not rated		Not rated	
31A:					
Pope	90	Very limited		Very limited	
		Flooding	1.00	Flooding	1.00
		Too acid	0.42	Seepage	1.00
		Droughty	0.01	Too acid	0.42
32C:					
Schaffenaker	85	Very limited		Very limited	
		Too steep for surface application	1.00	Seepage	1.00
		Droughty	1.00	Depth to bedrock	1.00
		Too acid	1.00	Too acid	1.00

Table 7.—Agricultural Waste Management, Part II—Continued

Map symbol and soil name	Pct. of map unit	Disposal of wastewater by irrigation: Rating class and limiting features	Value	Overland flow of wastewater: Rating class and limiting features	Value
33B:					
Shelocta	90	Somewhat limited		Very limited	
		Too acid	0.85	Seepage	1.00
		Too steep for surface application	0.32	Too acid	0.85
33C:					
Shelocta	90	Very limited		Very limited	
		Too steep for surface application	1.00	Seepage	1.00
		Too acid	0.85	Too steep for surface application	0.94
		Too steep for sprinkler application	0.60	Too acid	0.85
33D:					
Shelocta	90	Very limited		Very limited	
		Too steep for surface application	1.00	Too steep for surface application	1.00
		Too steep for sprinkler application	1.00	Seepage	1.00
		Too acid	0.85	Too acid	0.85
34B:					
Slabtown	90	Somewhat limited		Very limited	
		Depth to saturated zone	0.95	Seepage	1.00
		Slow water movement	0.37	Depth to saturated zone	0.95
		Too steep for surface application	0.32		
34C:					
Slabtown	90	Very limited		Very limited	
		Too steep for surface application	1.00	Seepage	1.00
		Depth to saturated zone	0.95	Depth to saturated zone	0.95
		Too steep for sprinkler application	0.60	Too steep for surface application	0.94
35B:					
Sugarhol	90	Very limited		Very limited	
		Too acid	1.00	Seepage	1.00
		Too steep for surface application	0.32	Too acid	1.00

Table 7.—Agricultural Waste Management, Part II—Continued

Map symbol and soil name	Pct. of map unit	Disposal of wastewater by irrigation: Rating class and limiting features	Value	Overland flow of wastewater: Rating class and limiting features	Value
35C:					
Sugarhol	85	Very limited		Very limited	
		Too steep for surface application	1.00	Seepage	1.00
		Too acid	1.00	Too acid	1.00
		Too steep for sprinkler application	0.60	Too steep for surface application	0.94
36B:					
Tumbling	80	Somewhat limited		Very limited	
		Too acid	0.85	Seepage	1.00
		Too steep for surface application	0.32	Too acid	0.85
36C:					
Tumbling	85	Very limited		Very limited	
		Too steep for surface application	1.00	Seepage	1.00
		Too acid	0.85	Too steep for surface application	0.94
		Too steep for sprinkler application	0.60	Too acid	0.85
36D:					
Tumbling	80	Very limited		Very limited	
		Too steep for surface application	1.00	Too steep for surface application	1.00
		Too steep for sprinkler application	1.00	Seepage	1.00
		Too acid	0.85	Too acid	0.85
37C:					
Tumbling, very stony	80	Very limited		Very limited	
		Too steep for surface application	1.00	Seepage	1.00
		Too acid	0.85	Too steep for surface application	0.94
		Too steep for sprinkler application	0.60	Too acid	0.85
37E:					
Tumbling, very stony	80	Very limited		Very limited	
		Too steep for surface application	1.00	Too steep for surface application	1.00
		Too steep for sprinkler application	1.00	Seepage	1.00
		Too acid	0.85	Too acid	0.85

Table 7.—Agricultural Waste Management, Part II—Continued

Map symbol and soil name	Pct. of map unit	Disposal of wastewater by irrigation: Rating class and limiting features	Value	Overland flow of wastewater: Rating class and limiting features	Value
38:					
Udorthents, unstable fill	50	Not rated		Not rated	
Urban land	40	Not rated		Not rated	
39C:					
Watahala	90	Very limited		Very limited	
		Too steep for surface application	1.00	Seepage	1.00
		Too acid	0.99	Too acid	0.99
		Too steep for sprinkler application	0.60	Too steep for surface application	0.94
39D:					
Watahala	90	Very limited		Very limited	
		Too steep for surface application	1.00	Seepage	1.00
		Too steep for sprinkler application	1.00	Too steep for surface application	1.00
		Too acid	0.99	Too acid	0.99
39E:					
Watahala	90	Very limited		Very limited	
		Too steep for surface application	1.00	Seepage	1.00
		Too steep for sprinkler application	1.00	Too steep for surface application	1.00
		Too acid	0.99	Too acid	0.99
40C:					
Watahala, extremely stony	90	Very limited		Very limited	
		Too steep for surface application	1.00	Seepage	1.00
		Too acid	0.99	Too acid	0.99
		Too steep for sprinkler application	0.60	Too steep for surface application	0.94
40E:					
Watahala, extremely stony	90	Very limited		Very limited	
		Too steep for surface application	1.00	Seepage	1.00
		Too steep for sprinkler application	1.00	Too steep for surface application	1.00
		Too acid	0.99	Too acid	0.99

Table 7.—Agricultural Waste Management, Part II—Continued

Map symbol and soil name	Pct. of map unit	Disposal of wastewater by irrigation		Overland flow of wastewater	
		Rating class and limiting features	Value	Rating class and limiting features	Value
40F:					
Watahala, extremely stony	90	Very limited		Very limited	
		Too steep for surface application	1.00	Seepage	1.00
		Too steep for sprinkler application	1.00	Too steep for surface application	1.00
		Too acid	0.99	Too acid	0.99
41G:					
Weikert	35	Very limited		Very limited	
		Droughty	1.00	Seepage	1.00
		Too steep for surface application	1.00	Depth to bedrock	1.00
		Too steep for sprinkler application	1.00	Too steep for surface application	1.00
Rough	30	Very limited		Very limited	
		Droughty	1.00	Depth to bedrock	1.00
		Depth to bedrock	1.00	Too steep for surface application	1.00
		Too steep for surface application	1.00	Seepage	1.00
Rock outcrop	25	Not rated		Not rated	
W:					
Water	100	Not rated		Not rated	

Table 7.—Agricultural Waste Management, Part III

(The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation. The numbers in the value columns range from 0.01 to 1.00. The larger the value, the greater the limitation. See text for further explanation of ratings in this table)

Map symbol and soil name	Pct. of map unit	Rapid infiltration of wastewater: Rating class and limiting features	Value	Slow rate treatment of wastewater: Rating class and limiting features	Value
1A:					
Alonzville, rarely flooded	85	Very limited		Somewhat limited	
		Slow water movement	1.00	Too acid	0.96
1B:					
Alonzville, rarely flooded	85	Very limited		Somewhat limited	
		Slow water movement	1.00	Too acid	0.96
				Too steep for surface application	0.32
		Slope	0.12		
2B:					
Alonzville	85	Very limited		Somewhat limited	
		Slow water movement	1.00	Too acid	0.96
				Too steep for surface application	0.32
		Slope	0.12		
3A:					
Atkins	90	Very limited		Very limited	
		Ponding	1.00	Ponding	1.00
		Flooding	1.00	Depth to saturated zone	1.00
		Slow water movement	1.00	Flooding	1.00
4C:					
Bailegap	90	Very limited		Very limited	
		Slope	1.00	Too steep for surface application	1.00
		Depth to bedrock	1.00		
		Slow water movement	1.00		
				Too acid	0.99
				Too steep for sprinkler irrigation	0.94
4E:					
Bailegap	90	Very limited		Very limited	
		Slope	1.00	Too steep for surface application	1.00
		Depth to bedrock	1.00		
		Slow water movement	1.00		
				Too steep for sprinkler irrigation	1.00
				Too acid	0.99

Table 7.—Agricultural Waste Management, Part III—Continued

Map symbol and soil name	Pct. of map unit	Rapid infiltration of wastewater: Rating class and limiting features	Value	Slow rate treatment of wastewater: Rating class and limiting features	Value
5G:					
Bailegap	35	Very limited		Very limited	
		Slope	1.00	Too steep for surface application	1.00
		Depth to bedrock	1.00	Too steep for sprinkler irrigation	1.00
		Slow water movement	1.00	Too acid	0.99
Lily	30	Very limited		Very limited	
		Slope	1.00	Too steep for surface application	1.00
		Depth to bedrock	1.00	Too steep for sprinkler irrigation	1.00
		Slow water movement	0.62	Depth to bedrock	1.00
Dekalb	25	Very limited		Very limited	
		Slope	1.00	Too steep for surface application	1.00
		Depth to bedrock	1.00	Too steep for sprinkler irrigation	1.00
		Cobble content	0.14	Depth to bedrock	1.00
6E:					
Berks	55	Very limited		Very limited	
		Slope	1.00	Too steep for surface application	1.00
		Depth to bedrock	1.00	Too steep for sprinkler irrigation	1.00
		Slow water movement	0.62	Depth to bedrock	1.00
Culleoka	35	Very limited		Very limited	
		Slope	1.00	Too steep for surface application	1.00
		Depth to bedrock	1.00	Too steep for sprinkler irrigation	1.00
		Slow water movement	0.62	Depth to bedrock	1.00
6G:					
Berks	60	Very limited		Very limited	
		Slope	1.00	Too steep for surface application	1.00
		Depth to bedrock	1.00	Too steep for sprinkler irrigation	1.00
		Slow water movement	0.62	Depth to bedrock	1.00

Table 7.—Agricultural Waste Management, Part III—Continued

Map symbol and soil name	Pct. of map unit	Rapid infiltration of wastewater: Rating class and limiting features	Value	Slow rate treatment of wastewater: Rating class and limiting features	Value
6G:					
Culleoka	30	Very limited		Very limited	
		Slope	1.00	Too steep for surface application	1.00
		Depth to bedrock	1.00	Too steep for sprinkler irrigation	1.00
		Slow water movement	0.62	Depth to bedrock	1.00
7C:					
Berks	45	Very limited		Very limited	
		Slope	1.00	Too steep for surface application	1.00
		Depth to bedrock	1.00	Depth to bedrock	1.00
		Slow water movement	0.62	Too acid	1.00
Weikert	40	Very limited		Very limited	
		Slope	1.00	Depth to bedrock	1.00
		Depth to bedrock	1.00	Too steep for surface application	1.00
		Cobble content	0.46	Too steep for sprinkler irrigation	0.94
7E:					
Berks	50	Very limited		Very limited	
		Slope	1.00	Too steep for surface application	1.00
		Depth to bedrock	1.00	Too steep for sprinkler irrigation	1.00
		Slow water movement	0.62	Depth to bedrock	1.00
Weikert	35	Very limited		Very limited	
		Slope	1.00	Depth to bedrock	1.00
		Depth to bedrock	1.00	Too steep for surface application	1.00
		Cobble content	0.46	Too steep for sprinkler irrigation	1.00
7G:					
Berks	45	Very limited		Very limited	
		Slope	1.00	Too steep for surface application	1.00
		Depth to bedrock	1.00	Too steep for sprinkler irrigation	1.00
		Slow water movement	0.62	Depth to bedrock	1.00

Table 7.—Agricultural Waste Management, Part III—Continued

Map symbol and soil name	Pct. of map unit	Rapid infiltration of wastewater: Rating class and limiting features	Value	Slow rate treatment of wastewater: Rating class and limiting features	Value
7G:					
Weikert	40	Very limited		Very limited	
		Slope	1.00	Depth to bedrock	1.00
		Depth to bedrock	1.00	Too steep for surface application	1.00
		Cobble content	0.46	Too steep for sprinkler irrigation	1.00
8G:					
Brushy	90	Very limited		Very limited	
		Slope	1.00	Too steep for surface application	1.00
		Depth to bedrock	1.00	Too steep for sprinkler irrigation	1.00
		Slow water movement	1.00	Depth to bedrock	1.00
9E:					
Calvin	80	Very limited		Very limited	
		Slope	1.00	Too steep for surface application	1.00
		Depth to bedrock	1.00	Too steep for sprinkler irrigation	1.00
		Cobble content	0.39	Depth to bedrock	1.00
10G:					
Calvin	55	Very limited		Very limited	
		Slope	1.00	Too steep for surface application	1.00
		Depth to bedrock	1.00	Too steep for sprinkler irrigation	1.00
		Cobble content	0.39	Depth to bedrock	1.00
Rough	30	Very limited		Very limited	
		Slope	1.00	Depth to bedrock	1.00
		Depth to bedrock	1.00	Too steep for surface application	1.00
		Cobble content	0.77	Too steep for sprinkler irrigation	1.00
11E:					
Carbo	60	Very limited		Very limited	
		Slope	1.00	Too steep for surface application	1.00
		Slow water movement	1.00	Depth to bedrock	1.00
		Depth to bedrock	1.00	Too steep for sprinkler irrigation	1.00
Rock outcrop	25	Not rated		Not rated	

Table 7.—Agricultural Waste Management, Part III—Continued

Map symbol and soil name	Pct. of map unit	Rapid infiltration of wastewater: Rating class and limiting features	Value	Slow rate treatment of wastewater: Rating class and limiting features	Value
11F:					
Carbo	60	Very limited		Very limited	
		Slope	1.00	Too steep for surface application	1.00
		Slow water movement	1.00	Too steep for sprinkler irrigation	1.00
		Depth to bedrock	1.00	Depth to bedrock	1.00
Rock outcrop	25	Not rated		Not rated	
12E:					
Carbo, karst	60	Very limited		Very limited	
		Slope	1.00	Too steep for surface application	1.00
		Slow water movement	1.00	Depth to bedrock	1.00
		Depth to bedrock	1.00	Too steep for sprinkler irrigation	1.00
Rock outcrop	25	Not rated		Not rated	
13A:					
Coursey	85	Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Slow water movement	1.00	Too acid	0.85
13B:					
Coursey	85	Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Slow water movement	1.00	Too acid	0.85
		Slope	0.12	Too steep for surface application	0.32
14C:					
Culleoka	50	Very limited		Very limited	
		Slope	1.00	Too steep for surface application	1.00
		Depth to bedrock	1.00	Depth to bedrock	1.00
		Slow water movement	0.62	Too acid	0.96
Berks	40	Very limited		Very limited	
		Slope	1.00	Too steep for surface application	1.00
		Depth to bedrock	1.00	Depth to bedrock	1.00
		Slow water movement	0.62	Too acid	1.00

Table 7.—Agricultural Waste Management, Part III—Continued

Map symbol and soil name	Pct. of map unit	Rapid infiltration of wastewater: Rating class and limiting features	Value	Slow rate treatment of wastewater: Rating class and limiting features	Value
14D:					
Culleoka	50	Very limited		Very limited	
		Slope	1.00	Too steep for surface application	1.00
		Depth to bedrock	1.00	Too steep for sprinkler irrigation	1.00
		Slow water movement	0.62	Depth to bedrock	1.00
Berks	40	Very limited		Very limited	
		Slope	1.00	Too steep for surface application	1.00
		Depth to bedrock	1.00	Too steep for sprinkler irrigation	1.00
		Slow water movement	0.62	Depth to bedrock	1.00
15E:					
Dekalb	90	Very limited		Very limited	
		Slope	1.00	Too steep for surface application	1.00
		Depth to bedrock	1.00	Depth to bedrock	1.00
		Cobble content	0.14	Too steep for sprinkler irrigation	1.00
15F:					
Dekalb	85	Very limited		Very limited	
		Slope	1.00	Too steep for surface application	1.00
		Depth to bedrock	1.00	Too steep for sprinkler irrigation	1.00
		Cobble content	0.14	Depth to bedrock	1.00
16E:					
Dekalb	75	Very limited		Very limited	
		Slope	1.00	Too steep for surface application	1.00
		Depth to bedrock	1.00	Depth to bedrock	1.00
		Cobble content	0.14	Too steep for sprinkler irrigation	1.00
Rock outcrop	15	Not rated		Not rated	
16G:					
Dekalb	75	Very limited		Very limited	
		Slope	1.00	Too steep for surface application	1.00
		Depth to bedrock	1.00	Too steep for sprinkler irrigation	1.00
		Cobble content	0.14	Depth to bedrock	1.00
Rock outcrop	15	Not rated		Not rated	

Table 7.—Agricultural Waste Management, Part III—Continued

Map symbol and soil name	Pct. of map unit	Rapid infiltration of wastewater: Rating class and limiting features	Value	Slow rate treatment of wastewater: Rating class and limiting features	Value
17B:					
Escatawba	90	Very limited		Very limited	
		Slow water movement	1.00	Too acid	1.00
		Depth to saturated zone	0.86	Depth to saturated zone	0.86
		Too acid	0.21	Too steep for surface application	0.32
17C:					
Escatawba	90	Very limited		Very limited	
		Slope	1.00	Too steep for surface application	1.00
		Slow water movement	1.00	Too acid	1.00
		Depth to saturated zone	0.86	Too steep for sprinkler irrigation	0.94
18C:					
Escatawba, very stony	90	Very limited		Very limited	
		Slope	1.00	Too steep for surface application	1.00
		Slow water movement	1.00	Too acid	1.00
		Depth to saturated zone	0.86	Too steep for sprinkler irrigation	0.94
18E:					
Escatawba, very stony	85	Very limited		Very limited	
		Slope	1.00	Too steep for surface application	1.00
		Slow water movement	1.00	Too steep for sprinkler irrigation	1.00
		Depth to saturated zone	0.86	Too acid	1.00
19B:					
Frederick	90	Very limited		Somewhat limited	
		Slow water movement	1.00	Too acid	0.85
		Slope	0.12	Too steep for surface application	0.32
19C:					
Frederick	90	Very limited		Very limited	
		Slope	1.00	Too steep for surface application	1.00
		Slow water movement	1.00	Too steep for sprinkler irrigation	0.94
				Too acid	0.85

Table 7.—Agricultural Waste Management, Part III—Continued

Map symbol and soil name	Pct. of map unit	Rapid infiltration of wastewater: Rating class and limiting features	Value	Slow rate treatment of wastewater: Rating class and limiting features	Value
19D:					
Frederick	90	Very limited		Very limited	
		Slope	1.00	Too steep for surface application	1.00
		Slow water movement	1.00	Too steep for sprinkler irrigation	1.00
				Too acid	0.85
19E:					
Frederick	90	Very limited		Very limited	
		Slope	1.00	Too steep for surface application	1.00
		Slow water movement	1.00	Too steep for sprinkler irrigation	1.00
				Too acid	0.85
20C:					
Frederick	50	Very limited		Very limited	
		Slope	1.00	Too steep for surface application	1.00
		Slow water movement	1.00	Too steep for sprinkler irrigation	0.94
				Too acid	0.67
Watahala	35	Very limited		Very limited	
		Slope	1.00	Too steep for surface application	1.00
		Slow water movement	1.00	Too acid	0.99
				Too steep for sprinkler irrigation	0.94
20D:					
Frederick	50	Very limited		Very limited	
		Slope	1.00	Too steep for surface application	1.00
		Slow water movement	1.00	Too steep for sprinkler irrigation	1.00
				Too acid	0.67
Watahala	35	Very limited		Very limited	
		Slope	1.00	Too steep for surface application	1.00
		Slow water movement	1.00	Too steep for sprinkler irrigation	1.00
				Too acid	0.99

Table 7.—Agricultural Waste Management, Part III—Continued

Map symbol and soil name	Pct. of map unit	Rapid infiltration of wastewater: Rating class and limiting features	Value	Slow rate treatment of wastewater: Rating class and limiting features	Value
21C:					
Gilpin	85	Very limited		Very limited	
		Slope	1.00	Too steep for surface application	1.00
		Depth to bedrock	1.00		
		Slow water movement	1.00		
				Depth to bedrock	1.00
				Too steep for sprinkler irrigation	0.94
21D:					
Gilpin	85	Very limited		Very limited	
		Slope	1.00	Too steep for surface application	1.00
		Depth to bedrock	1.00		
		Slow water movement	1.00		
				Too steep for sprinkler irrigation	1.00
				Depth to bedrock	1.00
22B:					
Jefferson	90	Somewhat limited		Very limited	
		Slow water movement	0.32	Too acid	1.00
				Too steep for surface application	0.32
		Slope	0.12		
		Too acid	0.03		
22C:					
Jefferson	90	Very limited		Very limited	
		Slope	1.00	Too steep for surface application	1.00
		Slow water movement	0.32		
		Too acid	0.03	Too acid	1.00
			0.03	Too steep for sprinkler irrigation	0.94
22D:					
Jefferson	90	Very limited		Very limited	
		Slope	1.00	Too steep for surface application	1.00
		Slow water movement	0.32		
		Too acid	0.03	Too steep for sprinkler irrigation	1.00
				Too acid	1.00
23C:					
Lily	90	Very limited		Very limited	
		Slope	1.00	Too steep for surface application	1.00
		Depth to bedrock	1.00		
		Slow water movement	0.62		
				Depth to bedrock	1.00
				Too acid	1.00

Table 7.—Agricultural Waste Management, Part III—Continued

Map symbol and soil name	Pct. of map unit	Rapid infiltration of wastewater: Rating class and limiting features	Value	Slow rate treatment of wastewater: Rating class and limiting features	Value
23E:					
Lily	85	Very limited		Very limited	
		Slope	1.00	Too steep for surface application	1.00
		Depth to bedrock	1.00	Too steep for sprinkler irrigation	1.00
		Slow water movement	0.62	Depth to bedrock	1.00
23F:					
Lily	85	Very limited		Very limited	
		Slope	1.00	Too steep for surface application	1.00
		Depth to bedrock	1.00	Too steep for sprinkler irrigation	1.00
		Slow water movement	0.62	Depth to bedrock	1.00
24A:					
Maurertown	90	Very limited		Very limited	
		Ponding	1.00	Ponding	1.00
		Slow water movement	1.00	Depth to saturated zone	1.00
		Depth to saturated zone	1.00	Slow water movement	1.00
25B:					
Nicelytown	90	Very limited		Very limited	
		Slow water movement	1.00	Depth to saturated zone	1.00
		Depth to saturated zone	1.00	Slow water movement	0.60
		Slope	0.12	Too acid	0.42
25C:					
Nicelytown	90	Very limited		Very limited	
		Slope	1.00	Depth to saturated zone	1.00
		Slow water movement	1.00	Too steep for surface application	1.00
		Depth to saturated zone	1.00	Too steep for sprinkler irrigation	0.94
26B:					
Ogles	90	Very limited		Very limited	
		Flooding	1.00	Large stones on the surface	1.00
		Depth to saturated zone	1.00	Flooding	1.00
		Stone content	1.00	Cobble content	0.87

Table 7.—Agricultural Waste Management, Part III—Continued

Map symbol and soil name	Pct. of map unit	Rapid infiltration of wastewater: Rating class and limiting features	Value	Slow rate treatment of wastewater: Rating class and limiting features	Value
27C:					
Oriskany, extremely stony	90	Very limited		Very limited	
		Slope	1.00	Too steep for surface application	1.00
		Stone content	1.00	Too acid	0.96
		Slow water movement	0.32	Too steep for sprinkler irrigation	0.94
27E:					
Oriskany, extremely stony	90	Very limited		Very limited	
		Slope	1.00	Too steep for surface application	1.00
		Stone content	1.00	Too steep for sprinkler irrigation	1.00
		Slow water movement	0.32	Too acid	0.96
28F:					
Oriskany, very rubbly	90	Very limited		Very limited	
		Slope	1.00	Too steep for surface application	1.00
		Stone content	1.00	Too steep for sprinkler irrigation	1.00
		Slow water movement	0.32	Too acid	0.96
29A:					
Philo	85	Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Slow water movement	1.00	Too acid	0.99
		Flooding	0.60	Flooding	0.60
30:					
Pits	50	Not rated		Not rated	
Dumps	45	Not rated		Not rated	
31A:					
Pope	90	Very limited		Very limited	
		Flooding	1.00	Flooding	1.00
		Slow water movement	0.32	Too acid	0.42
32C:					
Schaffenaker	85	Very limited		Very limited	
		Slope	1.00	Too steep for surface application	1.00
		Depth to bedrock	1.00	Depth to bedrock	1.00
				Too acid	1.00

Table 7.—Agricultural Waste Management, Part III—Continued

Map symbol and soil name	Pct. of map unit	Rapid infiltration of wastewater: Rating class and limiting features	Value	Slow rate treatment of wastewater: Rating class and limiting features	Value
33B:					
Shelocta------------	90	Very limited		Somewhat limited	
		Slow water movement	1.00	Too acid	0.85
		Slope	0.12	Too steep for surface application	0.32
33C:					
Shelocta------------	90	Very limited		Very limited	
		Slope	1.00	Too steep for surface application	1.00
		Slow water movement	1.00	Too steep for sprinkler irrigation	0.94
				Too acid	0.85
33D:					
Shelocta------------	90	Very limited		Very limited	
		Slope	1.00	Too steep for surface application	1.00
		Slow water movement	1.00	Too steep for sprinkler irrigation	1.00
				Too acid	0.85
34B:					
Slabtown------------	90	Very limited		Somewhat limited	
		Slow water movement	1.00	Depth to saturated zone	0.95
		Depth to saturated zone	0.95	Too steep for surface application	0.32
		Slope	0.12	Slow water movement	0.26
34C:					
Slabtown------------	90	Very limited		Very limited	
		Slope	1.00	Too steep for surface application	1.00
		Slow water movement	1.00	Depth to saturated zone	0.95
		Depth to saturated zone	0.95	Too steep for sprinkler irrigation	0.94
35B:					
Sugarhol------------	90	Very limited		Very limited	
		Slow water movement	1.00	Too acid	1.00
		Slope	0.12	Too steep for surface application	0.32
		Too acid	0.03		

Table 7.—Agricultural Waste Management, Part III—Continued

Map symbol and soil name	Pct. of map unit	Rapid infiltration of wastewater: Rating class and limiting features	Value	Slow rate treatment of wastewater: Rating class and limiting features	Value
35C:					
Sugarhol	85	Very limited		Very limited	
		Slope	1.00	Too steep for surface application	1.00
		Slow water movement	1.00	Too acid	1.00
		Too acid	0.03	Too steep for sprinkler irrigation	0.94
36B:					
Tumbling	80	Very limited		Somewhat limited	
		Slow water movement	1.00	Too acid	0.85
		Slope	0.12	Too steep for surface application	0.32
		Too acid	0.03		
36C:					
Tumbling	85	Very limited		Very limited	
		Slope	1.00	Too steep for surface application	1.00
		Slow water movement	1.00	Too steep for sprinkler irrigation	0.94
		Too acid	0.03	Too acid	0.85
36D:					
Tumbling	80	Very limited		Very limited	
		Slope	1.00	Too steep for surface application	1.00
		Slow water movement	1.00	Too steep for sprinkler irrigation	1.00
		Too acid	0.03	Too acid	0.85
37C:					
Tumbling, very stony	80	Very limited		Very limited	
		Slope	1.00	Too steep for surface application	1.00
		Slow water movement	1.00	Too steep for sprinkler irrigation	0.94
		Too acid	0.03	Too acid	0.85
37E:					
Tumbling, very stony	80	Very limited		Very limited	
		Slope	1.00	Too steep for surface application	1.00
		Slow water movement	1.00	Too steep for sprinkler irrigation	1.00
		Too acid	0.03	Too acid	0.85
38:					
Udorthents, unstable fill	50	Not rated		Not rated	
Urban land	40	Not rated		Not rated	

Table 7.—Agricultural Waste Management, Part III—Continued

Map symbol and soil name	Pct. of map unit	Rapid infiltration of wastewater: Rating class and limiting features	Value	Slow rate treatment of wastewater: Rating class and limiting features	Value
39C:					
Watahala	90	Very limited		Very limited	
		Slope	1.00	Too steep for surface application	1.00
		Slow water movement	1.00	Too acid	0.99
				Too steep for sprinkler irrigation	0.94
39D:					
Watahala	90	Very limited		Very limited	
		Slope	1.00	Too steep for surface application	1.00
		Slow water movement	1.00	Too steep for sprinkler irrigation	1.00
				Too acid	0.99
39E:					
Watahala	90	Very limited		Very limited	
		Slope	1.00	Too steep for surface application	1.00
		Slow water movement	1.00	Too steep for sprinkler irrigation	1.00
				Too acid	0.99
40C:					
Watahala, extremely stony	90	Very limited		Very limited	
		Slope	1.00	Too steep for surface application	1.00
		Slow water movement	1.00	Too acid	0.99
				Too steep for sprinkler irrigation	0.94
40E:					
Watahala, extremely stony	90	Very limited		Very limited	
		Slope	1.00	Too steep for surface application	1.00
		Slow water movement	1.00	Too steep for sprinkler irrigation	1.00
				Too acid	0.99

Table 7.—Agricultural Waste Management, Part III—Continued

Map symbol and soil name	Pct. of map unit	Rapid infiltration of wastewater: Rating class and limiting features	Value	Slow rate treatment of wastewater: Rating class and limiting features	Value
40F:					
Watahala, extremely stony	90	Very limited		Very limited	
		Slope	1.00	Too steep for surface application	1.00
		Slow water movement	1.00	Too steep for sprinkler irrigation	1.00
				Too acid	0.99
41G:					
Weikert	35	Very limited		Very limited	
		Slope	1.00	Depth to bedrock	1.00
		Depth to bedrock	1.00	Too steep for surface application	1.00
		Cobble content	0.46	Too steep for sprinkler irrigation	1.00
Rough	30	Very limited		Very limited	
		Slope	1.00	Depth to bedrock	1.00
		Depth to bedrock	1.00	Too steep for surface application	1.00
		Cobble content	0.77	Too steep for sprinkler irrigation	1.00
Rock outcrop	25	Not rated		Not rated	
W:					
Water	100	Not rated		Not rated	

Table 8.—Forestland Productivity

Map symbol and soil name	Potential productivity: Common trees	Site index	Volume of wood fiber	Trees to manage
			cu ft/ac/yr	
1A:				
Alonzville, rarely flooded	northern red oak	70	52	eastern white pine, northern red oak, white oak, yellow-poplar
	yellow-poplar	90	90	
	eastern white pine	80	144	
	hickory	65	48	
	white oak	70	52	
1B:				
Alonzville, rarely flooded	northern red oak	70	52	eastern white pine, northern red oak, white oak, yellow-poplar
	yellow-poplar	90	90	
	eastern white pine	80	144	
	hickory	65	48	
	white oak	70	52	
2B:				
Alonzville	northern red oak	70	52	eastern white pine, northern red oak, white oak, yellow-poplar
	yellow-poplar	90	90	
	eastern white pine	80	144	
	hickory	65	48	
	white oak	70	52	
3A:				
Atkins	red maple	75	47	pin oak, swamp white oak, sweetgum
	American sycamore	75	47	
	swamp white oak	70	---	
	eastern cottonwood	95	74	
	sweetgum	75	115	
	pin oak	75	57	
4C:				
Bailegap	northern red oak	65	48	white oak, eastern white pine, hickory, northern red oak, black oak
	eastern white pine	80	144	
	chestnut oak	59	41	
	scarlet oak	60	42	
	white oak	69	48	
4E:				
Bailegap	northern red oak	65	48	white oak, eastern white pine, hickory, northern red oak, black oak
	eastern white pine	80	144	
	chestnut oak	59	41	
	scarlet oak	60	42	
	white oak	69	48	
5G:				
Bailegap	northern red oak	65	48	white oak, eastern white pine, hickory, northern red oak, black oak
	eastern white pine	80	144	
	chestnut oak	59	41	
	scarlet oak	60	42	
	white oak	69	48	
Lily	northern red oak	65	47	white oak, eastern white pine, hickory, northern red oak, black oak
	chestnut oak	60	42	
	scarlet oak	60	47	
	Virginia pine	70	108	
	white oak	70	52	

Table 8.—Forestland Productivity—Continued

Map symbol and soil name	Potential productivity: Common trees	Site index	Volume of wood fiber	Trees to manage
			cu ft/ac/yr	
5G:				
Dekalb	chestnut oak	60	42	white oak, eastern white pine
	scarlet oak	55	38	
	white oak	60	42	
	Virginia pine	65	100	
6E:				
Berks	northern red oak	64	47	northern red oak, eastern white pine, black oak
	black oak	63	46	
	Virginia pine	60	92	
	chestnut oak	58	41	
	scarlet oak	63	46	
Culleoka	northern red oak	75	56	black oak, eastern white pine, hickory, northern red oak, yellow-poplar, white oak, sugar maple
	black oak	75	56	
	Virginia pine	65	100	
	yellow-poplar	85	80	
	chestnut oak	75	56	
	white oak	75	56	
6G:				
Berks	northern red oak	64	47	black oak, northern red oak, eastern white pine
	black oak	63	46	
	Virginia pine	60	92	
	chestnut oak	58	41	
	scarlet oak	63	46	
Culleoka	northern red oak	75	56	black oak, eastern white pine, hickory, northern red oak, yellow-poplar, white oak, sugar maple
	black oak	75	56	
	Virginia pine	65	100	
	yellow-poplar	85	80	
	chestnut oak	75	56	
	white oak	75	56	
7C:				
Berks	black oak	63	46	eastern white pine, black oak
	Virginia pine	60	92	
	chestnut oak	58	41	
	scarlet oak	63	46	
Weikert	scarlet oak	52	36	eastern white pine
	chestnut oak	45	31	
	Virginia pine	56	80	
7E:				
Berks	black oak	63	46	eastern white pine, black oak
	Virginia pine	60	92	
	chestnut oak	58	41	
	scarlet oak	63	46	
Weikert	scarlet oak	52	36	eastern white pine
	chestnut oak	45	31	
	Virginia pine	56	80	

Table 8.—Forestland Productivity—Continued

Map symbol and soil name	Potential productivity: Common trees	Site index	Volume of wood fiber	Trees to manage
			cu ft/ac/yr	
7G:				
Berks	black oak	63	46	eastern white pine, black oak
	Virginia pine	60	92	
	chestnut oak	58	41	
	scarlet oak	63	46	
Weikert	scarlet oak	52	36	eastern white pine
	chestnut oak	45	31	
	Virginia pine	56	80	
8G:				
Brushy	northern red oak	70	52	eastern white pine, hickory, northern red oak, yellow-poplar, sugar maple
	chestnut oak	65	47	
	scarlet oak	65	47	
	Virginia pine	75	114	
	yellow-poplar	75	61	
9E:				
Calvin	northern red oak	65	47	northern red oak, eastern white pine, black oak
	black oak	60	42	
	Virginia pine	65	100	
	scarlet oak	65	47	
10G:				
Calvin	northern red oak	65	47	northern red oak, eastern white pine, black oak
	black oak	60	42	
	Virginia pine	65	100	
	scarlet oak	65	47	
Rough	Virginia pine	38	26	eastern white pine
	chestnut oak	38	26	
	scarlet oak	38	26	
11E:				
Carbo	northern red oak	65	47	northern red oak, yellow-poplar, eastern white pine, sugar maple
	black locust	60	38	
	eastern redcedar	46	57	
	red maple	75	45	
	Virginia pine	55	79	
	yellow-poplar	80	72	
Rock outcrop.				
11F:				
Carbo	northern red oak	65	47	northern red oak, yellow-poplar, eastern white pine, sugar maple
	black locust	60	38	
	eastern redcedar	46	57	
	red maple	75	45	
	Virginia pine	55	79	
	yellow-poplar	80	72	
Rock outcrop.				
12E:				
Carbo, karst	northern red oak	65	47	northern red oak, yellow-poplar, eastern white pine, sugar maple
	black locust	60	38	
	eastern redcedar	46	57	
	red maple	75	45	
	Virginia pine	55	79	
	yellow-poplar	80	72	

Table 8.—Forestland Productivity—Continued

Map symbol and soil name	Potential productivity: Common trees	Site index	Volume of wood fiber	Trees to manage
			cu ft/ac/yr	
12E:				
Rock outcrop.				
13A:				
Coursey	northern red oak	70	57	eastern white pine, northern red oak, yellow-poplar
	Virginia pine	60	86	
	yellow-poplar	90	86	
13B:				
Coursey	northern red oak	70	57	eastern white pine, northern red oak, yellow-poplar
	Virginia pine	60	86	
	yellow-poplar	90	86	
14C:				
Culleoka	northern red oak	75	56	black oak, eastern white pine, hickory, northern red oak, yellow-poplar, white oak, sugar maple
	black oak	75	56	
	Virginia pine	65	100	
	yellow-poplar	85	80	
	chestnut oak	75	56	
	white oak	75	56	
Berks	northern red oak	64	47	northern red oak, eastern white pine, black oak
	black oak	63	46	
	Virginia pine	60	92	
	chestnut oak	58	41	
	scarlet oak	63	46	
14D:				
Culleoka	northern red oak	75	56	black oak, eastern white pine, hickory, northern red oak, yellow-poplar, white oak, sugar maple
	black oak	75	56	
	Virginia pine	65	100	
	yellow-poplar	85	80	
	chestnut oak	75	56	
	white oak	75	56	
Berks	northern red oak	64	47	northern red oak, eastern white pine, black oak
	black oak	63	46	
	Virginia pine	60	92	
	chestnut oak	58	41	
	scarlet oak	63	46	
15E:				
Dekalb	chestnut oak	60	42	white oak, eastern white pine
	scarlet oak	55	38	
	white oak	60	42	
	Virginia pine	65	100	
15F:				
Dekalb	chestnut oak	60	42	white oak, eastern white pine
	scarlet oak	55	38	
	white oak	60	42	
	Virginia pine	65	100	

Table 8.—Forestland Productivity—Continued

Map symbol and soil name	Potential productivity: Common trees	Site index	Volume of wood fiber	Trees to manage
			cu ft/ac/yr	
16E:				
Dekalb	chestnut oak	60	42	white oak, eastern white pine
	scarlet oak	55	38	
	white oak	60	42	
	Virginia pine	65	100	
Rock outcrop.				
16G:				
Dekalb	chestnut oak	60	42	white oak, eastern white pine
	scarlet oak	55	38	
	white oak	60	42	
	Virginia pine	65	100	
Rock outcrop.				
17B:				
Escatawba	white oak	70	52	black oak, eastern white pine, white oak
	black oak	70	52	
	scarlet oak	70	52	
	chestnut oak	70	52	
	eastern white pine	80	144	
	pitch pine	70	109	
17C:				
Escatawba	white oak	70	52	black oak, eastern white pine, white oak
	black oak	70	52	
	scarlet oak	70	52	
	chestnut oak	70	52	
	eastern white pine	80	144	
	pitch pine	70	109	
18C:				
Escatawba, very stony	white oak	70	52	black oak, eastern white pine, white oak
	black oak	70	52	
	scarlet oak	70	52	
	chestnut oak	70	52	
	eastern white pine	80	144	
	pitch pine	70	109	
18E:				
Escatawba, very stony	white oak	70	52	black oak, eastern white pine, white oak
	black oak	70	52	
	scarlet oak	70	52	
	chestnut oak	70	52	
	eastern white pine	80	144	
	pitch pine	70	109	
19B:				
Frederick	northern red oak	76	59	eastern white pine, black walnut, northern red oak, yellow-poplar, hickory, white oak
	eastern white pine	80	130	
	black walnut	76	59	
	white oak	75	58	
	yellow-poplar	86	81	

Table 8.—Forestland Productivity—Continued

Map symbol and soil name	Potential productivity: Common trees	Site index	Volume of wood fiber	Trees to manage
			cu ft/ac/yr	
19C:				
Frederick	northern red oak	76	59	eastern white pine, black walnut, northern red oak, yellow-poplar, hickory, white oak
	eastern white pine	80	130	
	black walnut	76	59	
	white oak	75	58	
	yellow-poplar	86	81	
19D:				
Frederick	northern red oak	76	59	eastern white pine, black walnut, northern red oak, yellow-poplar, hickory, white oak
	eastern white pine	80	130	
	black walnut	76	59	
	white oak	75	58	
	yellow-poplar	86	81	
19E:				
Frederick	northern red oak	76	59	eastern white pine, black walnut, northern red oak, yellow-poplar, hickory, white oak
	eastern white pine	80	130	
	black walnut	76	59	
	white oak	75	58	
	yellow-poplar	86	81	
20C:				
Frederick	northern red oak	76	59	eastern white pine, black walnut, northern red oak, yellow-poplar, hickory, white oak, sugar maple
	eastern white pine	80	130	
	black walnut	76	59	
	white oak	75	58	
	yellow-poplar	86	86	
Watahala	northern red oak	75	59	eastern white pine, hickory, northern red oak, yellow-poplar, black oak, white oak, sugar maple
	eastern white pine	80	130	
	white oak	75	59	
	black walnut	75	59	
	yellow-poplar	85	80	
20D:				
Frederick	northern red oak	76	59	eastern white pine, black walnut, northern red oak, yellow-poplar, hickory, white oak, sugar maple
	eastern white pine	80	130	
	black walnut	76	59	
	white oak	75	58	
	yellow-poplar	86	81	
Watahala	northern red oak	75	59	eastern white pine, hickory, northern red oak, yellow-poplar, black oak, white oak, sugar maple
	eastern white pine	80	130	
	white oak	75	59	
	black walnut	75	59	
	yellow-poplar	85	80	

Table 8.—Forestland Productivity—Continued

Map symbol and soil name	Potential productivity: Common trees	Site index	Volume of wood fiber	Trees to manage
			cu ft/ac/yr	
21C:				
Gilpin	northern red oak	70	52	black oak, eastern white pine, hickory, northern red oak, yellow-poplar, white oak
	red maple	80	62	
	Virginia pine	70	109	
	black oak	70	52	
	white oak	75	57	
	yellow-poplar	90	91	
21D:				
Gilpin	northern red oak	70	52	black oak, eastern white pine, hickory, northern red oak, yellow-poplar, white oak
	red maple	80	62	
	Virginia pine	70	109	
	black oak	70	52	
	white oak	75	57	
	yellow-poplar	90	91	
22B:				
Jefferson	northern red oak	75	56	eastern white pine, hickory, northern red oak, yellow-poplar, white oak
	white oak	75	56	
	yellow-poplar	100	107	
	eastern white pine	105	196	
22C:				
Jefferson	northern red oak	75	56	eastern white pine, hickory, northern red oak, yellow-poplar, white oak
	white oak	75	56	
	yellow-poplar	100	107	
	eastern white pine	105	196	
22D:				
Jefferson	northern red oak	75	56	eastern white pine, hickory, northern red oak, yellow-poplar, white oak
	white oak	75	56	
	yellow-poplar	100	107	
	eastern white pine	105	196	
23C:				
Lily	northern red oak	65	47	white oak, eastern white pine, hickory, northern red oak, black oak
	chestnut oak	60	42	
	scarlet oak	60	47	
	Virginia pine	70	108	
	white oak	70	52	
23E:				
Lily	northern red oak	65	47	white oak, eastern white pine, hickory, northern red oak, black oak
	chestnut oak	60	42	
	scarlet oak	60	47	
	Virginia pine	70	108	
	white oak	70	52	
23F:				
Lily	northern red oak	65	47	white oak, eastern white pine, hickory, northern red oak, black oak
	chestnut oak	60	42	
	scarlet oak	60	47	
	Virginia pine	70	108	
	white oak	70	52	

Table 8.—Forestland Productivity—Continued

Map symbol and soil name	Potential productivity: Common trees	Site index	Volume of wood fiber	Trees to manage
			cu ft/ac/yr	
24A:				
Maurertown	red maple	80	---	swamp white oak, sweetgum
	sweetgum	95	---	
	swamp white oak	75	---	
25B:				
Nicelytown	northern red oak	80	62	northern red oak, eastern white pine, white oak, yellow-poplar
	Virginia pine	70	109	
	white oak	75	57	
	yellow-poplar	95	100	
25C:				
Nicelytown	northern red oak	80	62	yellow-poplar, northern red oak, eastern white pine, white oak
	Virginia pine	70	109	
	white oak	75	57	
	yellow-poplar	95	100	
26B:				
Ogles	northern red oak	70	57	northern red oak, yellow-poplar, eastern white pine
	eastern white pine	80	142	
	Virginia pine	60	86	
	yellow-poplar	90	86	
27C:				
Oriskany, extremely stony	northern red oak	75	57	eastern white pine, hickory, northern red oak, yellow-poplar, white oak
	white oak	85	68	
	yellow-poplar	100	107	
	scarlet oak	75	57	
27E:				
Oriskany, extremely stony	northern red oak	75	57	eastern white pine, hickory, northern red oak, yellow-poplar, white oak
	white oak	85	68	
	yellow-poplar	100	107	
	scarlet oak	75	57	
28F:				
Oriskany, very rubbly	northern red oak	75	57	eastern white pine, hickory, northern red oak, yellow-poplar, white oak
	white oak	85	68	
	yellow-poplar	100	107	
	scarlet oak	75	57	
29A:				
Philo	white ash	85	70	northern red oak, eastern white pine, white oak, yellow-poplar, white ash
	yellow-poplar	102	112	
	Virginia pine	74	112	
	white oak	85	70	
	northern red oak	86	72	
	black oak	85	70	
30.				
Pits and dumps				

Table 8.—Forestland Productivity—Continued

Map symbol and soil name	Potential productivity: Common trees	Site index	Volume of wood fiber	Trees to manage
			cu ft/ac/yr	
31A:				
Pope	northern red oak	80	62	northern red oak, eastern white pine, white oak, yellow-poplar
	yellow-poplar	96	100	
	white oak	80	62	
32C:				
Schaffenaker	chestnut oak	30	25	chestnut oak, scarlet oak
	scarlet oak	30	25	
	Virginia pine	30	40	
33B:				
Shelocta	northern red oak	85	72	black oak, eastern white pine, hickory, northern red oak, yellow-poplar, white oak, black walnut
	black oak	80	62	
	red maple	80	62	
	scarlet oak	75	57	
	white oak	80	62	
	yellow-poplar	100	107	
	eastern white pine	90	166	
33C:				
Shelocta	northern red oak	85	72	black oak, eastern white pine, hickory, northern red oak, yellow-poplar, white oak, black walnut
	black oak	80	62	
	red maple	80	62	
	scarlet oak	75	57	
	white oak	80	62	
	yellow-poplar	100	107	
	eastern white pine	90	166	
33D:				
Shelocta	northern red oak	85	72	black oak, eastern white pine, hickory, northern red oak, yellow-poplar, white oak, black walnut
	black oak	80	62	
	red maple	80	62	
	scarlet oak	75	57	
	white oak	80	62	
	yellow-poplar	100	107	
	eastern white pine	90	166	
34B:				
Slabtown	northern red oak	70	52	northern red oak, black walnut, eastern white pine, sugar maple, white oak, yellow-poplar
	black walnut	80	62	
	white oak	75	56	
	yellow-poplar	85	80	
34C:				
Slabtown	northern red oak	70	52	northern red oak, black walnut, eastern white pine, sugar maple, white oak, yellow-poplar
	black walnut	80	62	
	white oak	75	56	
	yellow-poplar	85	80	
35B:				
Sugarhol	white oak	75	57	black oak, eastern white pine, white oak
	eastern white pine	85	155	
	black oak	75	57	
	scarlet oak	75	57	

Table 8.—Forestland Productivity—Continued

Map symbol and soil name	Potential productivity: Common trees	Site index	Volume of wood fiber	Trees to manage
			cu ft/ac/yr	
35C:				
Sugarhol	white oak	75	57	black oak, eastern white pine, white oak
	eastern white pine	85	155	
	black oak	75	57	
	scarlet oak	75	57	
36B:				
Tumbling	northern red oak	80	62	eastern white pine, hickory, northern red oak, black walnut, black oak, white oak, yellow-poplar
	eastern white pine	80	144	
	yellow-poplar	90	91	
	scarlet oak	75	57	
	white oak	75	57	
36C:				
Tumbling	northern red oak	80	62	eastern white pine, hickory, northern red oak, black walnut, black oak, white oak, yellow-poplar
	eastern white pine	80	144	
	yellow-poplar	90	91	
	scarlet oak	75	57	
	white oak	75	57	
36D:				
Tumbling	northern red oak	80	62	eastern white pine, hickory, northern red oak, black walnut, black oak, white oak, yellow-poplar
	eastern white pine	80	144	
	yellow-poplar	90	91	
	scarlet oak	75	57	
	white oak	75	57	
37C:				
Tumbling, very stony	northern red oak	80	62	eastern white pine, hickory, northern red oak, black walnut, black oak, white oak, yellow-poplar
	eastern white pine	80	144	
	yellow-poplar	90	91	
	scarlet oak	75	57	
	white oak	75	57	
37E:				
Tumbling, very stony	northern red oak	80	62	eastern white pine, hickory, northern red oak, black walnut, black oak, white oak, yellow-poplar
	eastern white pine	80	144	
	yellow-poplar	90	91	
	scarlet oak	75	57	
	white oak	75	57	
38.				
Udorthents-Urban land				
39C:				
Watahala	northern red oak	75	59	eastern white pine, hickory, northern red oak, yellow-poplar, black oak, white oak, sugar maple
	eastern white pine	80	130	
	white oak	75	59	
	black walnut	75	59	
	yellow-poplar	85	80	

Table 8.—Forestland Productivity—Continued

Map symbol and soil name	Potential productivity: Common trees	Site index	Volume of wood fiber	Trees to manage
			cu ft/ac/yr	
39D:				
Watahala	northern red oak	75	59	eastern white pine, hickory, northern red oak, yellow-poplar, black oak, white oak, sugar maple
	eastern white pine	80	130	
	white oak	75	59	
	black walnut	75	59	
	yellow-poplar	85	80	
39E:				
Watahala	northern red oak	75	59	eastern white pine, hickory, northern red oak, yellow-poplar, black oak, white oak, sugar maple
	eastern white pine	80	130	
	white oak	75	59	
	black walnut	75	59	
	yellow-poplar	85	80	
40C:				
Watahala, extremely stony	northern red oak	75	59	eastern white pine, hickory, northern red oak, yellow-poplar, black oak, white oak, sugar maple
	eastern white pine	80	130	
	white oak	75	59	
	black walnut	75	59	
	yellow-poplar	85	80	
40E:				
Watahala, extremely stony	northern red oak	75	59	eastern white pine, hickory, northern red oak, yellow-poplar, black oak, white oak, sugar maple
	eastern white pine	80	130	
	white oak	75	59	
	black walnut	75	59	
	yellow-poplar	85	80	
40F:				
Watahala, extremely stony	northern red oak	75	59	eastern white pine, hickory, northern red oak, yellow-poplar, black oak, white oak, sugar maple
	eastern white pine	80	130	
	white oak	75	59	
	black walnut	75	59	
	yellow-poplar	85	80	
41G:				
Weikert	scarlet oak	52	36	eastern white pine
	chestnut oak	45	31	
	Virginia pine	56	80	
Rough	Virginia pine	38	26	eastern white pine
	chestnut oak	38	26	
	scarlet oak	38	26	
Rock outcrop.				
W.				
Water				

Table 9.—Forestland Management, Part I

(The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation. The numbers in the value columns range from 0.01 to 1.00. The larger the value, the greater the limitation. See text for further explanation of ratings in this table)

Map symbol and soil name	Pct. of map unit	Limitations affecting construction of haul roads and log landings		Suitability for log landings		Soil rutting hazard	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
1A:							
Alonzville, rarely flooded	85	Moderate		Moderately suited		Severe	
		Low strength	0.50	Low strength	0.50	Low strength	1.00
1B:							
Alonzville, rarely flooded	85	Moderate		Moderately suited		Severe	
		Low strength	0.50	Low strength	0.50	Low strength	1.00
2B:							
Alonzville	85	Moderate		Moderately suited		Severe	
		Low strength	0.50	Low strength	0.50	Low strength	1.00
3A:							
Atkins	90	Severe		Poorly suited		Severe	
		Flooding	1.00	Ponding	1.00	Low strength	1.00
		Wetness	1.00	Flooding	1.00		
		Low strength	0.50	Wetness	0.50		
4C:							
Bailegap	90	Slight		Moderately suited		Moderate	
				Slope	0.50	Low strength	0.50
4E:							
Bailegap	90	Moderate		Poorly suited		Moderate	
		Slope	0.50	Slope	1.00	Low strength	0.50
		Restrictive layer	0.50				
5G:							
Bailegap	35	Severe		Poorly suited		Moderate	
		Slope	1.00	Slope	1.00	Low strength	0.50
		Low strength	0.50				
Lily	30	Severe		Poorly suited		Moderate	
		Slope	1.00	Slope	1.00	Low strength	0.50
		Low strength	0.50				
Dekalb	25	Severe		Poorly suited		Moderate	
		Slope	1.00	Slope	1.00	Low strength	0.50
		Stoniness	0.50	Rock fragments	0.50		
6E:							
Berks	55	Severe		Poorly suited		Slight	
		Restrictive layer	1.00	Slope	1.00	Strength	0.10
		Slope	0.50				
Culleoka	35	Severe		Poorly suited		Severe	
		Restrictive layer	1.00	Slope	1.00	Low strength	1.00
		Slope	0.50	Low strength	0.50		

Table 9.—Forestland Management, Part I—Continued

Map symbol and soil name	Pct. of map unit	Limitations affecting construction of haul roads and log landings: Rating class and limiting features	Value	Suitability for log landings: Rating class and limiting features	Value	Soil rutting hazard: Rating class and limiting features	Value
6G:							
Berks	60	Severe		Poorly suited		Slight	
		Slope	1.00	Slope	1.00	Strength	0.10
Culleoka	30	Severe		Poorly suited		Severe	
		Slope	1.00	Slope	1.00	Low strength	1.00
		Low strength	0.50	Low strength	0.50		
7C:							
Berks	45	Moderate		Moderately suited		Slight	
		Restrictive layer	0.50	Slope	0.50	Strength	0.10
Weikert	40	Severe		Moderately suited		Severe	
		Restrictive layer	1.00	Slope	0.50	Low strength	1.00
				Low strength	0.50		
7E:							
Berks	50	Severe		Poorly suited		Slight	
		Restrictive layer	1.00	Slope	1.00	Strength	0.10
		Slope	0.50				
Weikert	35	Severe		Poorly suited		Severe	
		Restrictive layer	1.00	Slope	1.00	Low strength	1.00
		Slope	0.50	Low strength	0.50		
7G:							
Berks	45	Severe		Poorly suited		Slight	
		Slope	1.00	Slope	1.00	Strength	0.10
Weikert	40	Severe		Poorly suited		Severe	
		Slope	1.00	Slope	1.00	Low strength	1.00
				Low strength	0.50		
8G:							
Brushy	90	Severe		Poorly suited		Slight	
		Slope	1.00	Slope	1.00	Strength	0.10
				Sandiness	0.50		
9E:							
Calvin	80	Severe		Poorly suited		Severe	
		Restrictive layer	1.00	Slope	1.00	Low strength	1.00
		Slope	0.50	Low strength	0.50		
10G:							
Calvin	55	Severe		Poorly suited		Severe	
		Slope	1.00	Slope	1.00	Low strength	1.00
				Low strength	0.50		
Rough	30	Severe		Poorly suited		Severe	
		Slope	1.00	Slope	1.00	Low strength	1.00
				Low strength	0.50		
11E:							
Carbo	60	Severe		Poorly suited		Severe	
		Restrictive layer	1.00	Slope	1.00	Low strength	1.00
		Slope	0.50	Low strength	0.50		
Rock outcrop	25	Not rated		Not rated		Not rated	

Table 9.—Forestland Management, Part I—Continued

Map symbol and soil name	Pct. of map unit	Limitations affecting construction of haul roads and log landings: Rating class and limiting features	Value	Suitability for log landings: Rating class and limiting features	Value	Soil rutting hazard: Rating class and limiting features	Value
11F:							
Carbo----------------	60	Severe		Poorly suited		Severe	
		Slope	1.00	Slope	1.00	Low strength	1.00
		Low strength	0.50	Low strength	0.50		
Rock outcrop--------	25	Not rated		Not rated		Not rated	
12E:							
Carbo, karst--------	60	Severe		Poorly suited		Severe	
		Restrictive layer	1.00	Slope	1.00	Low strength	1.00
		Slope	0.50	Low strength	0.50		
Rock outcrop--------	25	Not rated		Not rated		Not rated	
13A:							
Coursey-------------	85	Moderate		Moderately suited		Severe	
		Low strength	0.50	Low strength	0.50	Low strength	1.00
13B:							
Coursey-------------	85	Moderate		Moderately suited		Severe	
		Low strength	0.50	Low strength	0.50	Low strength	1.00
14C:							
Culleoka------------	50	Moderate		Moderately suited		Severe	
		Restrictive layer	0.50	Slope	0.50	Low strength	1.00
		Low strength	0.50	Low strength	0.50		
Berks---------------	40	Moderate		Moderately suited		Slight	
		Restrictive layer	0.50	Slope	0.50	Strength	0.10
14D:							
Culleoka------------	50	Severe		Poorly suited		Severe	
		Restrictive layer	1.00	Slope	1.00	Low strength	1.00
		Slope	0.50	Low strength	0.50		
Berks---------------	40	Severe		Poorly suited		Slight	
		Restrictive layer	1.00	Slope	1.00	Strength	0.10
		Slope	0.50				
15E:							
Dekalb--------------	90	Moderate		Poorly suited		Moderate	
		Slope	0.50	Slope	1.00	Low strength	0.50
		Restrictive layer	0.50	Rock fragments	0.50		
		Stoniness	0.50				
15F:							
Dekalb--------------	85	Severe		Poorly suited		Moderate	
		Slope	1.00	Slope	1.00	Low strength	0.50
		Stoniness	0.50	Rock fragments	0.50		
16E:							
Dekalb--------------	75	Moderate		Poorly suited		Moderate	
		Slope	0.50	Slope	1.00	Low strength	0.50
		Restrictive layer	0.50	Rock fragments	0.50		
		Stoniness	0.50				
Rock outcrop--------	15	Not rated		Not rated		Not rated	

Table 9.—Forestland Management, Part I—Continued

Map symbol and soil name	Pct. of map unit	Limitations affecting construction of haul roads and log landings: Rating class and limiting features	Value	Suitability for log landings: Rating class and limiting features	Value	Soil rutting hazard: Rating class and limiting features	Value
16G:							
Dekalb	75	Severe		Poorly suited		Moderate	
		Slope	1.00	Slope	1.00	Low strength	0.50
		Stoniness	0.50	Rock fragments	0.50		
Rock outcrop	15	Not rated		Not rated		Not rated	
17B:							
Escatawba	90	Moderate		Moderately suited		Severe	
		Low strength	0.50	Low strength	0.50	Low strength	1.00
17C:							
Escatawba	90	Moderate		Moderately suited		Severe	
		Low strength	0.50	Slope	0.50	Low strength	1.00
				Low strength	0.50		
18C:							
Escatawba, very stony	90	Moderate		Moderately suited		Severe	
		Low strength	0.50	Slope	0.50	Low strength	1.00
				Low strength	0.50		
				Rock fragments	0.50		
18E:							
Escatawba, very stony	85	Moderate		Poorly suited		Severe	
		Slope	0.50	Slope	1.00	Low strength	1.00
				Low strength	0.50		
				Rock fragments	0.50		
19B:							
Frederick	90	Moderate		Moderately suited		Severe	
		Low strength	0.50	Low strength	0.50	Low strength	1.00
19C:							
Frederick	90	Moderate		Moderately suited		Severe	
		Low strength	0.50	Slope	0.50	Low strength	1.00
				Low strength	0.50		
19D:							
Frederick	90	Moderate		Poorly suited		Severe	
		Slope	0.50	Slope	1.00	Low strength	1.00
				Low strength	0.50		
19E:							
Frederick	90	Moderate		Poorly suited		Severe	
		Slope	0.50	Slope	1.00	Low strength	1.00
				Low strength	0.50		
20C:							
Frederick	50	Moderate		Moderately suited		Severe	
		Low strength	0.50	Slope	0.50	Low strength	1.00
				Low strength	0.50		
Watahala	35	Moderate		Moderately suited		Severe	
		Low strength	0.50	Slope	0.50	Low strength	1.00
				Low strength	0.50		

Table 9.—Forestland Management, Part I—Continued

Map symbol and soil name	Pct. of map unit	Limitations affecting construction of haul roads and log landings: Rating class and limiting features	Value	Suitability for log landings: Rating class and limiting features	Value	Soil rutting hazard: Rating class and limiting features	Value
20D:							
Frederick	50	Moderate		Poorly suited		Severe	
		Slope	0.50	Slope	1.00	Low strength	1.00
				Low strength	0.50		
Watahala	35	Moderate		Poorly suited		Severe	
		Slope	0.50	Slope	1.00	Low strength	1.00
				Low strength	0.50		
21C:							
Gilpin	85	Slight		Moderately suited		Severe	
				Slope	0.50	Low strength	1.00
				Low strength	0.50		
21D:							
Gilpin	85	Moderate		Poorly suited		Severe	
		Slope	0.50	Slope	1.00	Low strength	1.00
				Low strength	0.50		
22B:							
Jefferson	90	Moderate		Moderately suited		Severe	
		Low strength	0.50	Low strength	0.50	Low strength	1.00
22C:							
Jefferson	90	Moderate		Moderately suited		Severe	
		Low strength	0.50	Slope	0.50	Low strength	1.00
				Low strength	0.50		
22D:							
Jefferson	90	Moderate		Poorly suited		Severe	
		Slope	0.50	Slope	1.00	Low strength	1.00
				Low strength	0.50		
23C:							
Lily	90	Moderate		Moderately suited		Moderate	
		Restrictive layer	0.50	Slope	0.50	Low strength	0.50
23E:							
Lily	85	Moderate		Poorly suited		Moderate	
		Slope	0.50	Slope	1.00	Low strength	0.50
		Restrictive layer	0.50				
23F:							
Lily	85	Severe		Poorly suited		Moderate	
		Slope	1.00	Slope	1.00	Low strength	0.50
		Low strength	0.50				
24A:							
Maurertown	90	Severe		Poorly suited		Severe	
		Wetness	1.00	Ponding	1.00	Low strength	1.00
		Low strength	0.50	Wetness	0.50		
				Low strength	0.50		
25B:							
Nicelytown	90	Moderate		Moderately suited		Severe	
		Low strength	0.50	Low strength	0.50	Low strength	1.00

Table 9.—Forestland Management, Part I—Continued

Map symbol and soil name	Pct. of map unit	Limitations affecting construction of haul roads and log landings: Rating class and limiting features	Value	Suitability for log landings: Rating class and limiting features	Value	Soil rutting hazard: Rating class and limiting features	Value
25C:							
Nicelytown	90	Moderate		Moderately suited		Severe	
		Low strength	0.50	Slope	0.50	Low strength	1.00
				Low strength	0.50		
26B:							
Ogles	90	Severe		Poorly suited		Moderate	
		Flooding	1.00	Flooding	1.00	Low strength	0.50
		Stoniness	1.00	Low strength	0.50		
		Low strength	0.50				
27C:							
Oriskany, extremely stony	90	Severe		Moderately suited		Moderate	
		Stoniness	1.00	Slope	0.50	Low strength	0.50
				Rock fragments	0.50		
27E:							
Oriskany, extremely stony	90	Moderate		Poorly suited		Moderate	
		Slope	0.50	Slope	1.00	Low strength	0.50
		Stoniness	0.50	Rock fragments	0.50		
28F:							
Oriskany, very rubbly	90	Severe		Poorly suited		Moderate	
		Stoniness	1.00	Rock fragments	1.00	Low strength	0.50
		Slope	1.00	Slope	1.00		
29A:							
Philo	85	Severe		Poorly suited		Moderate	
		Flooding	1.00	Flooding	1.00	Low strength	0.50
30:							
Pits	50	Not rated		Not rated		Not rated	
Dumps	45	Not rated		Not rated		Not rated	
31A:							
Pope	90	Severe		Poorly suited		Moderate	
		Flooding	1.00	Flooding	1.00	Low strength	0.50
32C:							
Schaffenaker	85	Moderate		Moderately suited		Moderate	
		Restrictive layer	0.50	Slope	0.50	Low strength	0.50
33B:							
Shelocta	90	Moderate		Moderately suited		Severe	
		Low strength	0.50	Low strength	0.50	Low strength	1.00
33C:							
Shelocta	90	Moderate		Moderately suited		Severe	
		Low strength	0.50	Slope	0.50	Low strength	1.00
				Low strength	0.50		
33D:							
Shelocta	90	Moderate		Poorly suited		Severe	
		Slope	0.50	Slope	1.00	Low strength	1.00
				Low strength	0.50		

Table 9.—Forestland Management, Part I—Continued

Map symbol and soil name	Pct. of map unit	Limitations affecting construction of haul roads and log landings: Rating class and limiting features	Value	Suitability for log landings: Rating class and limiting features	Value	Soil rutting hazard: Rating class and limiting features	Value
34B:							
Slabtown	90	Moderate		Moderately suited		Severe	
		Low strength	0.50	Low strength	0.50	Low strength	1.00
34C:							
Slabtown	90	Moderate		Moderately suited		Severe	
		Low strength	0.50	Slope	0.50	Low strength	1.00
				Low strength	0.50		
35B:							
Sugarhol	90	Moderate		Moderately suited		Severe	
		Low strength	0.50	Low strength	0.50	Low strength	1.00
35C:							
Sugarhol	85	Moderate		Moderately suited		Severe	
		Low strength	0.50	Slope	0.50	Low strength	1.00
				Low strength	0.50		
36B:							
Tumbling	80	Moderate		Moderately suited		Severe	
		Low strength	0.50	Low strength	0.50	Low strength	1.00
36C:							
Tumbling	85	Moderate		Moderately suited		Severe	
		Low strength	0.50	Slope	0.50	Low strength	1.00
				Low strength	0.50		
36D:							
Tumbling	80	Moderate		Poorly suited		Severe	
		Slope	0.50	Slope	1.00	Low strength	1.00
				Low strength	0.50		
37C:							
Tumbling, very stony	80	Moderate		Moderately suited		Severe	
		Stoniness	0.50	Slope	0.50	Low strength	1.00
		Low strength	0.50	Low strength	0.50		
				Rock fragments	0.50		
37E:							
Tumbling, very stony	80	Moderate		Poorly suited		Severe	
		Slope	0.50	Slope	1.00	Low strength	1.00
		Stoniness	0.50	Low strength	0.50		
				Rock fragments	0.50		
38:							
Udorthents, unstable fill	50	Not rated		Not rated		Not rated	
Urban land	40	Not rated		Not rated		Not rated	
39C:							
Watahala	90	Moderate		Moderately suited		Severe	
		Low strength	0.50	Slope	0.50	Low strength	1.00
				Low strength	0.50		
39D:							
Watahala	90	Moderate		Poorly suited		Severe	
		Slope	0.50	Slope	1.00	Low strength	1.00
				Low strength	0.50		

Table 9.—Forestland Management, Part I—Continued

Map symbol and soil name	Pct. of map unit	Limitations affecting construction of haul roads and log landings: Rating class and limiting features	Value	Suitability for log landings: Rating class and limiting features	Value	Soil rutting hazard: Rating class and limiting features	Value
39E:							
Watahala	90	Moderate		Poorly suited		Severe	
		Slope	0.50	Slope	1.00	Low strength	1.00
				Low strength	0.50		
40C:							
Watahala, extremely stony	90	Moderate		Moderately suited		Severe	
		Stoniness	0.50	Slope	0.50	Low strength	1.00
		Low strength	0.50	Rock fragments	0.50		
				Low strength	0.50		
40E:							
Watahala, extremely stony	90	Moderate		Poorly suited		Severe	
		Slope	0.50	Slope	1.00	Low strength	1.00
		Stoniness	0.50	Rock fragments	0.50		
				Low strength	0.50		
40F:							
Watahala, extremely stony	90	Severe		Poorly suited		Severe	
		Slope	1.00	Slope	1.00	Low strength	1.00
		Stoniness	0.50	Rock fragments	0.50		
		Low strength	0.50	Low strength	0.50		
41G:							
Weikert	35	Severe		Poorly suited		Severe	
		Slope	1.00	Slope	1.00	Low strength	1.00
				Low strength	0.50		
Rough	30	Severe		Poorly suited		Severe	
		Slope	1.00	Slope	1.00	Low strength	1.00
				Low strength	0.50		
Rock outcrop	25	Not rated		Not rated		Not rated	
W:							
Water	100	Not rated		Not rated		Not rated	

Table 9.—Forestland Management, Part II

(The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation. The numbers in the value columns range from 0.01 to 1.00. The larger the value, the greater the limitation. See text for further explanation of ratings in this table)

Map symbol and soil name	Pct. of map unit	Hazard of off-road or off-trail erosion: Rating class and limiting features	Value	Hazard of erosion on roads and trails: Rating class and limiting features	Value	Suitability for roads (natural surface): Rating class and limiting features	Value
1A:							
Alonzville, rarely flooded	85	Slight		Slight		Moderately suited	
						Low strength	0.50
1B:							
Alonzville, rarely flooded	85	Slight		Moderate		Moderately suited	
				Slope/erodibility	0.50	Low strength	0.50
2B:							
Alonzville	85	Slight		Moderate		Moderately suited	
				Slope/erodibility	0.50	Low strength	0.50
3A:							
Atkins	90	Slight		Slight		Poorly suited	
						Ponding	1.00
						Flooding	1.00
						Wetness	0.50
4C:							
Bailegap	90	Slight		Severe		Moderately suited	
				Slope/erodibility	0.95	Slope	0.50
4E:							
Bailegap	90	Moderate		Severe		Poorly suited	
		Slope/erodibility	0.50	Slope/erodibility	0.95	Slope	1.00
5G:							
Bailegap	35	Very severe		Severe		Poorly suited	
		Slope/erodibility	0.95	Slope/erodibility	0.95	Slope	1.00
Lily	30	Very severe		Severe		Poorly suited	
		Slope/erodibility	0.95	Slope/erodibility	0.95	Slope	1.00
Dekalb	25	Very severe		Severe		Poorly suited	
		Slope/erodibility	0.95	Slope/erodibility	0.95	Slope	1.00
						Rock fragments	0.50
6E:							
Berks	55	Moderate		Severe		Poorly suited	
		Slope/erodibility	0.50	Slope/erodibility	0.95	Slope	1.00
Culleoka	35	Moderate		Severe		Poorly suited	
		Slope/erodibility	0.50	Slope/erodibility	0.95	Slope	1.00
						Low strength	0.50
6G:							
Berks	60	Very severe		Severe		Poorly suited	
		Slope/erodibility	0.95	Slope/erodibility	0.95	Slope	1.00
Culleoka	30	Very severe		Severe		Poorly suited	
		Slope/erodibility	0.95	Slope/erodibility	0.95	Slope	1.00
						Low strength	0.50

Table 9.—Forestland Management, Part II—Continued

Map symbol and soil name	Pct. of map unit	Hazard of off-road or off-trail erosion: Rating class and limiting features	Value	Hazard of erosion on roads and trails: Rating class and limiting features	Value	Suitability for roads (natural surface): Rating class and limiting features	Value
7C:							
Berks	45	Slight		Moderate		Moderately suited	
				Slope/erodibility	0.50	Slope	0.50
Weikert	40	Slight		Moderate		Moderately suited	
				Slope/erodibility	0.50	Slope	0.50
						Low strength	0.50
7E:							
Berks	50	Moderate		Severe		Poorly suited	
		Slope/erodibility	0.50	Slope/erodibility	0.95	Slope	1.00
Weikert	35	Moderate		Severe		Poorly suited	
		Slope/erodibility	0.50	Slope/erodibility	0.95	Slope	1.00
						Low strength	0.50
7G:							
Berks	45	Very severe		Severe		Poorly suited	
		Slope/erodibility	0.95	Slope/erodibility	0.95	Slope	1.00
Weikert	40	Very severe		Severe		Poorly suited	
		Slope/erodibility	0.95	Slope/erodibility	0.95	Slope	1.00
						Low strength	0.50
8G:							
Brushy	90	Severe		Severe		Poorly suited	
		Slope/erodibility	0.75	Slope/erodibility	0.95	Slope	1.00
						Sandiness	0.50
9E:							
Calvin	80	Moderate		Severe		Poorly suited	
		Slope/erodibility	0.50	Slope/erodibility	0.95	Slope	1.00
						Low strength	0.50
10G:							
Calvin	55	Very severe		Severe		Poorly suited	
		Slope/erodibility	0.95	Slope/erodibility	0.95	Slope	1.00
						Low strength	0.50
Rough	30	Very severe		Severe		Poorly suited	
		Slope/erodibility	0.95	Slope/erodibility	0.95	Slope	1.00
						Low strength	0.50
11E:							
Carbo	60	Moderate		Severe		Poorly suited	
		Slope/erodibility	0.50	Slope/erodibility	0.95	Slope	1.00
						Low strength	0.50
Rock outcrop	25	Not rated		Not rated		Not rated	
11F:							
Carbo	60	Severe		Severe		Poorly suited	
		Slope/erodibility	0.75	Slope/erodibility	0.95	Slope	1.00
						Low strength	0.50
Rock outcrop	25	Not rated		Not rated		Not rated	

Table 9.—Forestland Management, Part II—Continued

Map symbol and soil name	Pct. of map unit	Hazard of off-road or off-trail erosion: Rating class and limiting features	Value	Hazard of erosion on roads and trails: Rating class and limiting features	Value	Suitability for roads (natural surface): Rating class and limiting features	Value
12E:							
Carbo, karst	60	Moderate		Severe		Poorly suited	
		Slope/erodibility	0.50	Slope/erodibility	0.95	Slope	1.00
						Low strength	0.50
Rock outcrop	25	Not rated		Not rated		Not rated	
13A:							
Coursey	85	Slight		Slight		Moderately suited	
						Low strength	0.50
13B:							
Coursey	85	Slight		Moderate		Moderately suited	
				Slope/erodibility	0.50	Low strength	0.50
14C:							
Culleoka	50	Slight		Moderate		Moderately suited	
				Slope/erodibility	0.50	Slope	0.50
						Low strength	0.50
Berks	40	Slight		Moderate		Moderately suited	
				Slope/erodibility	0.50	Slope	0.50
14D:							
Culleoka	50	Moderate		Severe		Poorly suited	
		Slope/erodibility	0.50	Slope/erodibility	0.95	Slope	1.00
						Low strength	0.50
Berks	40	Moderate		Severe		Poorly suited	
		Slope/erodibility	0.50	Slope/erodibility	0.95	Slope	1.00
15E:							
Dekalb	90	Moderate		Severe		Poorly suited	
		Slope/erodibility	0.50	Slope/erodibility	0.95	Slope	1.00
						Rock fragments	0.50
15F:							
Dekalb	85	Severe		Severe		Poorly suited	
		Slope/erodibility	0.75	Slope/erodibility	0.95	Slope	1.00
						Rock fragments	0.50
16E:							
Dekalb	75	Moderate		Severe		Poorly suited	
		Slope/erodibility	0.50	Slope/erodibility	0.95	Slope	1.00
						Rock fragments	0.50
Rock outcrop	15	Not rated		Not rated		Not rated	
16G:							
Dekalb	75	Very severe		Severe		Poorly suited	
		Slope/erodibility	0.95	Slope/erodibility	0.95	Slope	1.00
						Rock fragments	0.50
Rock outcrop	15	Not rated		Not rated		Not rated	
17B:							
Escatawba	90	Slight		Moderate		Moderately suited	
				Slope/erodibility	0.50	Low strength	0.50

Table 9.—Forestland Management, Part II—Continued

Map symbol and soil name	Pct. of map unit	Hazard of off-road or off-trail erosion: Rating class and limiting features	Value	Hazard of erosion on roads and trails: Rating class and limiting features	Value	Suitability for roads (natural surface): Rating class and limiting features	Value
17C:							
Escatawba	90	Slight		Moderate		Moderately suited	
				Slope/erodibility	0.50	Slope	0.50
						Low strength	0.50
18C:							
Escatawba, very stony	90	Slight		Moderate		Moderately suited	
				Slope/erodibility	0.50	Slope	0.50
						Low strength	0.50
						Rock fragments	0.50
18E:							
Escatawba, very stony	85	Moderate		Severe		Poorly suited	
		Slope/erodibility	0.50	Slope/erodibility	0.95	Slope	1.00
						Low strength	0.50
						Rock fragments	0.50
19B:							
Frederick	90	Slight		Moderate		Moderately suited	
				Slope/erodibility	0.50	Low strength	0.50
19C:							
Frederick	90	Moderate		Severe		Moderately suited	
		Slope/erodibility	0.50	Slope/erodibility	0.95	Slope	0.50
						Low strength	0.50
19D:							
Frederick	90	Moderate		Severe		Poorly suited	
		Slope/erodibility	0.50	Slope/erodibility	0.95	Slope	1.00
						Low strength	0.50
19E:							
Frederick	90	Severe		Severe		Poorly suited	
		Slope/erodibility	0.75	Slope/erodibility	0.95	Slope	1.00
						Low strength	0.50
20C:							
Frederick	50	Slight		Severe		Moderately suited	
				Slope/erodibility	0.95	Slope	0.50
						Low strength	0.50
Watahala	35	Slight		Severe		Moderately suited	
				Slope/erodibility	0.95	Slope	0.50
						Low strength	0.50
20D:							
Frederick	50	Moderate		Severe		Poorly suited	
		Slope/erodibility	0.50	Slope/erodibility	0.95	Slope	1.00
						Low strength	0.50
Watahala	35	Moderate		Severe		Poorly suited	
		Slope/erodibility	0.50	Slope/erodibility	0.95	Slope	1.00
						Low strength	0.50
21C:							
Gilpin	85	Moderate		Severe		Moderately suited	
		Slope/erodibility	0.50	Slope/erodibility	0.95	Slope	0.50
						Low strength	0.50

Table 9.—Forestland Management, Part II—Continued

Map symbol and soil name	Pct. of map unit	Hazard of off-road or off-trail erosion: Rating class and limiting features	Value	Hazard of erosion on roads and trails: Rating class and limiting features	Value	Suitability for roads (natural surface): Rating class and limiting features	Value
21D:							
Gilpin	85	Moderate		Severe		Poorly suited	
		Slope/erodibility	0.50	Slope/erodibility	0.95	Slope	1.00
						Low strength	0.50
22B:							
Jefferson	90	Slight		Slight		Moderately suited	
						Low strength	0.50
22C:							
Jefferson	90	Slight		Moderate		Moderately suited	
				Slope/erodibility	0.50	Slope	0.50
						Low strength	0.50
22D:							
Jefferson	90	Moderate		Moderate		Poorly suited	
		Slope/erodibility	0.50	Slope/erodibility	0.50	Slope	1.00
						Low strength	0.50
23C:							
Lily	90	Slight		Severe		Moderately suited	
				Slope/erodibility	0.95	Slope	0.50
23E:							
Lily	85	Moderate		Severe		Poorly suited	
		Slope/erodibility	0.50	Slope/erodibility	0.95	Slope	1.00
23F:							
Lily	85	Severe		Severe		Poorly suited	
		Slope/erodibility	0.75	Slope/erodibility	0.95	Slope	1.00
24A:							
Maurertown	90	Slight		Slight		Poorly suited	
						Ponding	1.00
						Wetness	0.50
						Low strength	0.50
25B:							
Nicelytown	90	Slight		Moderate		Moderately suited	
				Slope/erodibility	0.50	Low strength	0.50
25C:							
Nicelytown	90	Moderate		Moderate		Moderately suited	
		Slope/erodibility	0.50	Slope/erodibility	0.50	Slope	0.50
						Low strength	0.50
26B:							
Ogles	90	Slight		Slight		Poorly suited	
						Flooding	1.00
						Low strength	0.50
27C:							
Oriskany, extremely stony	90	Slight		Moderate		Moderately suited	
				Slope/erodibility	0.50	Slope	0.50
						Rock fragments	0.50
27E:							
Oriskany, extremely stony	90	Moderate		Moderate		Poorly suited	
		Slope/erodibility	0.50	Slope/erodibility	0.50	Slope	1.00
						Rock fragments	0.50

Table 9.—Forestland Management, Part II—Continued

Map symbol and soil name	Pct. of map unit	Hazard of off-road or off-trail erosion: Rating class and limiting features	Value	Hazard of erosion on roads and trails: Rating class and limiting features	Value	Suitability for roads (natural surface): Rating class and limiting features	Value
28F:							
Oriskany, very rubbly	90	Moderate		Severe		Poorly suited	
		Slope/erodibility	0.50	Slope/erodibility	0.95	Rock fragments	1.00
						Slope	1.00
29A:							
Philo	85	Slight		Slight		Poorly suited	
						Flooding	1.00
30:							
Pits	50	Not rated		Not rated		Not rated	
Dumps	45	Not rated		Not rated		Not rated	
31A:							
Pope	90	Slight		Slight		Poorly suited	
						Flooding	1.00
32C:							
Schaffenaker	85	Slight		Moderate		Moderately suited	
				Slope/erodibility	0.50	Slope	0.50
33B:							
Shelocta	90	Slight		Moderate		Moderately suited	
				Slope/erodibility	0.50	Low strength	0.50
33C:							
Shelocta	90	Moderate		Severe		Moderately suited	
		Slope/erodibility	0.50	Slope/erodibility	0.95	Slope	0.50
						Low strength	0.50
33D:							
Shelocta	90	Moderate		Severe		Poorly suited	
		Slope/erodibility	0.50	Slope/erodibility	0.95	Slope	1.00
						Low strength	0.50
34B:							
Slabtown	90	Slight		Moderate		Moderately suited	
				Slope/erodibility	0.50	Low strength	0.50
34C:							
Slabtown	90	Moderate		Severe		Moderately suited	
		Slope/erodibility	0.50	Slope/erodibility	0.95	Slope	0.50
						Low strength	0.50
35B:							
Sugarhol	90	Slight		Moderate		Moderately suited	
				Slope/erodibility	0.50	Low strength	0.50
35C:							
Sugarhol	85	Moderate		Severe		Moderately suited	
		Slope/erodibility	0.50	Slope/erodibility	0.95	Slope	0.50
						Low strength	0.50
36B:							
Tumbling	80	Slight		Moderate		Moderately suited	
				Slope/erodibility	0.50	Low strength	0.50

Table 9.—Forestland Management, Part II—Continued

Map symbol and soil name	Pct. of map unit	Hazard of off-road or off-trail erosion: Rating class and limiting features	Value	Hazard of erosion on roads and trails: Rating class and limiting features	Value	Suitability for roads (natural surface): Rating class and limiting features	Value
36C:							
Tumbling	85	Slight		Severe		Moderately suited	
				Slope/erodibility	0.95	Slope	0.50
						Low strength	0.50
36D:							
Tumbling	80	Moderate		Severe		Poorly suited	
		Slope/erodibility	0.50	Slope/erodibility	0.95	Slope	1.00
						Low strength	0.50
37C:							
Tumbling, very stony	80	Slight		Severe		Moderately suited	
				Slope/erodibility	0.95	Slope	0.50
						Low strength	0.50
						Rock fragments	0.50
37E:							
Tumbling, very stony	80	Moderate		Severe		Poorly suited	
		Slope/erodibility	0.50	Slope/erodibility	0.95	Slope	1.00
						Low strength	0.50
						Rock fragments	0.50
38:							
Udorthents, unstable fill	50	Not rated		Not rated		Not rated	
Urban land	40	Not rated		Not rated		Not rated	
39C:							
Watahala	90	Slight		Severe		Moderately suited	
				Slope/erodibility	0.95	Slope	0.50
						Low strength	0.50
39D:							
Watahala	90	Moderate		Severe		Poorly suited	
		Slope/erodibility	0.50	Slope/erodibility	0.95	Slope	1.00
						Low strength	0.50
39E:							
Watahala	90	Moderate		Severe		Poorly suited	
		Slope/erodibility	0.50	Slope/erodibility	0.95	Slope	1.00
						Low strength	0.50
40C:							
Watahala, extremely stony	90	Slight		Severe		Moderately suited	
				Slope/erodibility	0.95	Slope	0.50
						Rock fragments	0.50
						Low strength	0.50
40E:							
Watahala, extremely stony	90	Moderate		Severe		Poorly suited	
		Slope/erodibility	0.50	Slope/erodibility	0.95	Slope	1.00
						Rock fragments	0.50
						Low strength	0.50

Table 9.—Forestland Management, Part II—Continued

Map symbol and soil name	Pct. of map unit	Hazard of off-road or off-trail erosion: Rating class and limiting features	Value	Hazard of erosion on roads and trails: Rating class and limiting features	Value	Suitability for roads (natural surface): Rating class and limiting features	Value
40F:							
Watahala, extremely stony	90	Severe		Severe		Poorly suited	
		Slope/erodibility	0.75	Slope/erodibility	0.95	Slope	1.00
						Rock fragments	0.50
						Low strength	0.50
41G:							
Weikert	35	Very severe		Severe		Poorly suited	
		Slope/erodibility	0.95	Slope/erodibility	0.95	Slope	1.00
						Low strength	0.50
Rough	30	Very severe		Severe		Poorly suited	
		Slope/erodibility	0.95	Slope/erodibility	0.95	Slope	1.00
						Low strength	0.50
Rock outcrop	25	Not rated		Not rated		Not rated	
W:							
Water	100	Not rated		Not rated		Not rated	

Table 9.—Forestland Management, Part III

(The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation. The numbers in the value columns range from 0.01 to 1.00. The larger the value, the greater the limitation. See text for further explanation of ratings in this table)

Map symbol and soil name	Pct. of map unit	Suitability for hand planting: Rating class and limiting features	Value	Suitability for mechanical planting: Rating class and limiting features	Value	Suitability for use of harvesting equipment: Rating class and limiting features	Value
1A:							
Alonzville, rarely flooded	85	Well suited		Well suited		Moderately suited	
						Low strength	0.50
1B:							
Alonzville, rarely flooded	85	Well suited		Moderately suited		Moderately suited	
				Slope	0.50	Low strength	0.50
2B:							
Alonzville	85	Well suited		Moderately suited		Moderately suited	
				Slope	0.50	Low strength	0.50
3A:							
Atkins	90	Poorly suited		Poorly suited		Poorly suited	
		Wetness	0.75	Wetness	0.75	Wetness	1.00
						Low strength	0.50
4C:							
Bailegap	90	Well suited		Moderately suited		Well suited	
				Slope	0.50		
				Rock fragments	0.50		
4E:							
Bailegap	90	Well suited		Poorly suited		Moderately suited	
				Slope	0.75	Slope	0.50
				Rock fragments	0.50		
5G:							
Bailegap	35	Moderately suited		Unsuited		Poorly suited	
		Slope	0.50	Slope	1.00	Slope	1.00
				Rock fragments	0.50		
Lily	30	Moderately suited		Unsuited		Poorly suited	
		Slope	0.50	Slope	1.00	Slope	1.00
				Rock fragments	0.50		
Dekalb	25	Moderately suited		Unsuited		Poorly suited	
		Slope	0.50	Slope	1.00	Slope	1.00
		Rock fragments	0.50	Rock fragments	0.75	Rock fragments	0.50
6E:							
Berks	55	Moderately suited		Unsuited		Moderately suited	
		Rock fragments	0.50	Slope	1.00	Slope	0.50
				Rock fragments	0.75		
Culleoka	35	Well suited		Unsuited		Moderately suited	
				Slope	1.00	Low strength	0.50
				Rock fragments	0.50	Slope	0.50
6G:							
Berks	60	Moderately suited		Unsuited		Poorly suited	
		Slope	0.50	Slope	1.00	Slope	1.00
		Rock fragments	0.50	Rock fragments	0.75		

Table 9.—Forestland Management, Part III—Continued

Map symbol and soil name	Pct. of map unit	Suitability for hand planting: Rating class and limiting features	Value	Suitability for mechanical planting: Rating class and limiting features	Value	Suitability for use of harvesting equipment: Rating class and limiting features	Value
6G:							
Culleoka	30	Moderately suited		Unsuited		Poorly suited	
		Slope	0.50	Slope	1.00	Slope	1.00
				Rock fragments	0.50	Low strength	0.50
7C:							
Berks	45	Moderately suited		Poorly suited		Well suited	
		Rock fragments	0.50	Rock fragments	0.75		
				Slope	0.50		
Weikert	40	Poorly suited		Unsuited		Moderately suited	
		Rock fragments	0.75	Rock fragments	1.00	Low strength	0.50
				Slope	0.50		
7E:							
Berks	50	Moderately suited		Poorly suited		Moderately suited	
		Rock fragments	0.50	Slope	0.75	Slope	0.50
				Rock fragments	0.75		
Weikert	35	Poorly suited		Unsuited		Moderately suited	
		Rock fragments	0.75	Rock fragments	1.00	Low strength	0.50
				Slope	0.75	Slope	0.50
7G:							
Berks	45	Moderately suited		Unsuited		Poorly suited	
		Slope	0.50	Slope	1.00	Slope	1.00
		Rock fragments	0.50	Rock fragments	0.75		
Weikert	40	Poorly suited		Unsuited		Poorly suited	
		Rock fragments	0.75	Slope	1.00	Slope	1.00
		Slope	0.50	Rock fragments	1.00	Low strength	0.50
8G:							
Brushy	90	Moderately suited		Unsuited		Poorly suited	
		Slope	0.50	Slope	1.00	Slope	1.00
		Sandiness	0.50	Rock fragments	1.00	Sandiness	0.50
		Rock fragments	0.50	Sandiness	0.50		
9E:							
Calvin	80	Moderately suited		Poorly suited		Moderately suited	
		Rock fragments	0.50	Slope	0.75	Low strength	0.50
				Rock fragments	0.75	Slope	0.50
10G:							
Calvin	55	Moderately suited		Unsuited		Poorly suited	
		Slope	0.50	Slope	1.00	Slope	1.00
		Rock fragments	0.50	Rock fragments	0.75	Low strength	0.50
Rough	30	Unsuited		Unsuited		Poorly suited	
		Restrictive layer	1.00	Restrictive layer	1.00	Slope	1.00
		Rock fragments	0.75	Slope	1.00	Low strength	0.50
		Slope	0.50	Rock fragments	1.00		
11E:							
Carbo	60	Poorly suited		Poorly suited		Moderately suited	
		Stickiness; high plasticity index	0.75	Slope	0.75	Low strength	0.50
				Stickiness; high plasticity index	0.75	Slope	0.50
Rock outcrop	25	Not rated		Not rated		Not rated	

Table 9.—Forestland Management, Part III—Continued

Map symbol and soil name	Pct. of map unit	Suitability for hand planting: Rating class and limiting features	Value	Suitability for mechanical planting: Rating class and limiting features	Value	Suitability for use of harvesting equipment: Rating class and limiting features	Value
11F:							
Carbo	60	Poorly suited		Unsuited		Poorly suited	
		Stickiness; high plasticity index	0.75	Slope	1.00	Slope	1.00
		Slope	0.50	Stickiness; high plasticity index	0.75	Low strength	0.50
Rock outcrop	25	Not rated		Not rated		Not rated	
12E:							
Carbo, karst	60	Poorly suited		Poorly suited		Moderately suited	
		Stickiness; high plasticity index	0.75	Slope	0.75	Low strength	0.50
				Stickiness; high plasticity index	0.75	Slope	0.50
Rock outcrop	25	Not rated		Not rated		Not rated	
13A:							
Coursey	85	Well suited		Well suited		Moderately suited	
						Low strength	0.50
13B:							
Coursey	85	Well suited		Moderately suited		Moderately suited	
				Slope	0.50	Low strength	0.50
14C:							
Culleoka	50	Well suited		Moderately suited		Moderately suited	
				Slope	0.50	Low strength	0.50
				Rock fragments	0.50		
Berks	40	Moderately suited		Poorly suited		Well suited	
		Rock fragments	0.50	Rock fragments	0.75		
				Slope	0.50		
14D:							
Culleoka	50	Well suited		Poorly suited		Moderately suited	
				Slope	0.75	Low strength	0.50
				Rock fragments	0.50	Slope	0.50
Berks	40	Moderately suited		Poorly suited		Moderately suited	
		Rock fragments	0.50	Slope	0.75	Slope	0.50
				Rock fragments	0.75		
15E:							
Dekalb	90	Moderately suited		Poorly suited		Moderately suited	
		Rock fragments	0.50	Slope	0.75	Rock fragments	0.50
				Rock fragments	0.75	Slope	0.50
15F:							
Dekalb	85	Moderately suited		Unsuited		Poorly suited	
		Slope	0.50	Slope	1.00	Slope	1.00
		Rock fragments	0.50	Rock fragments	0.75	Rock fragments	0.50
16E:							
Dekalb	75	Moderately suited		Poorly suited		Moderately suited	
		Rock fragments	0.50	Slope	0.75	Rock fragments	0.50
				Rock fragments	0.75	Slope	0.50
Rock outcrop	15	Not rated		Not rated		Not rated	

Table 9.—Forestland Management, Part III—Continued

Map symbol and soil name	Pct. of map unit	Suitability for hand planting: Rating class and limiting features	Value	Suitability for mechanical planting: Rating class and limiting features	Value	Suitability for use of harvesting equipment: Rating class and limiting features	Value
16G:							
Dekalb	75	Moderately suited		Unsuited		Poorly suited	
		Slope	0.50	Slope	1.00	Slope	1.00
		Rock fragments	0.50	Rock fragments	0.75	Rock fragments	0.50
Rock outcrop	15	Not rated		Not rated		Not rated	
17B:							
Escatawba	90	Well suited		Moderately suited		Moderately suited	
				Slope	0.50	Low strength	0.50
17C:							
Escatawba	90	Well suited		Moderately suited		Moderately suited	
				Slope	0.50	Low strength	0.50
18C:							
Escatawba, very stony	90	Well suited		Moderately suited		Moderately suited	
				Slope	0.50	Low strength	0.50
				Rock fragments	0.50	Rock fragments	0.50
18E:							
Escatawba, very stony	85	Well suited		Poorly suited		Moderately suited	
				Slope	0.75	Low strength	0.50
				Rock fragments	0.50	Rock fragments	0.50
						Slope	0.50
19B:							
Frederick	90	Moderately suited		Moderately suited		Moderately suited	
		Stickiness; high plasticity index	0.50	Slope	0.50	Low strength	0.50
				Stickiness; high plasticity index	0.50		
19C:							
Frederick	90	Moderately suited		Moderately suited		Moderately suited	
		Stickiness; high plasticity index	0.50	Slope	0.50	Low strength	0.50
				Stickiness; high plasticity index	0.50		
19D:							
Frederick	90	Moderately suited		Poorly suited		Moderately suited	
		Stickiness; high plasticity index	0.50	Slope	0.75	Low strength	0.50
				Stickiness; high plasticity index	0.50	Slope	0.50
19E:							
Frederick	90	Moderately suited		Unsuited		Moderately suited	
		Stickiness; high plasticity index	0.50	Slope	1.00	Low strength	0.50
				Stickiness; high plasticity index	0.50	Slope	0.50
20C:							
Frederick	50	Well suited		Moderately suited		Moderately suited	
				Slope	0.50	Low strength	0.50
				Rock fragments	0.50		
Watahala	35	Well suited		Moderately suited		Moderately suited	
				Rock fragments	0.50	Low strength	0.50
				Slope	0.50		

Table 9.—Forestland Management, Part III—Continued

Map symbol and soil name	Pct. of map unit	Suitability for hand planting: Rating class and limiting features	Value	Suitability for mechanical planting: Rating class and limiting features	Value	Suitability for use of harvesting equipment: Rating class and limiting features	Value
20D:							
Frederick	50	Well suited		Poorly suited		Moderately suited	
				Slope	0.75	Low strength	0.50
				Rock fragments	0.50	Slope	0.50
Watahala	35	Well suited		Poorly suited		Moderately suited	
				Slope	0.75	Low strength	0.50
				Rock fragments	0.50	Slope	0.50
21C:							
Gilpin	85	Well suited		Moderately suited		Moderately suited	
				Slope	0.50	Low strength	0.50
21D:							
Gilpin	85	Well suited		Poorly suited		Moderately suited	
				Slope	0.75	Low strength	0.50
						Slope	0.50
22B:							
Jefferson	90	Well suited		Moderately suited		Moderately suited	
				Rock fragments	0.50	Low strength	0.50
				Slope	0.50		
22C:							
Jefferson	90	Well suited		Moderately suited		Moderately suited	
				Rock fragments	0.50	Low strength	0.50
				Slope	0.50		
22D:							
Jefferson	90	Well suited		Poorly suited		Moderately suited	
				Slope	0.75	Low strength	0.50
				Rock fragments	0.50	Slope	0.50
23C:							
Lily	90	Well suited		Moderately suited		Well suited	
				Slope	0.50		
				Rock fragments	0.50		
23E:							
Lily	85	Well suited		Poorly suited		Moderately suited	
				Slope	0.75	Slope	0.50
				Rock fragments	0.50		
23F:							
Lily	85	Moderately suited		Unsuited		Poorly suited	
		Slope	0.50	Slope	1.00	Slope	1.00
				Rock fragments	0.50		
24A:							
Maurertown	90	Poorly suited		Poorly suited		Poorly suited	
		Wetness	0.75	Wetness	0.75	Wetness	1.00
		Stickiness; high plasticity index	0.50	Stickiness; high plasticity index	0.50	Low strength	0.50
25B:							
Nicelytown	90	Well suited		Moderately suited		Moderately suited	
				Slope	0.50	Low strength	0.50
25C:							
Nicelytown	90	Well suited		Moderately suited		Moderately suited	
				Slope	0.50	Low strength	0.50

Table 9.—Forestland Management, Part III—Continued

Map symbol and soil name	Pct. of map unit	Suitability for hand planting: Rating class and limiting features	Value	Suitability for mechanical planting: Rating class and limiting features	Value	Suitability for use of harvesting equipment: Rating class and limiting features	Value
26B:							
Ogles	90	Moderately suited		Unsuited		Moderately suited	
		Rock fragments	0.50	Rock fragments	1.00	Low strength	0.50
27C:							
Oriskany, extremely stony	90	Moderately suited		Unsuited		Moderately suited	
		Rock fragments	0.50	Rock fragments	1.00	Rock fragments	0.50
				Slope	0.50		
27E:							
Oriskany, extremely stony	90	Moderately suited		Unsuited		Moderately suited	
		Rock fragments	0.50	Rock fragments	1.00	Rock fragments	0.50
				Slope	0.75	Slope	0.50
28F:							
Oriskany, very rubbly	90	Unsuited		Unsuited		Poorly suited	
		Rock fragments	1.00	Rock fragments	1.00	Rock fragments	1.00
		Slope	0.50	Slope	1.00	Slope	0.50
29A:							
Philo	85	Well suited		Well suited		Well suited	
30:							
Pits	50	Not rated		Not rated		Not rated	
Dumps	45	Not rated		Not rated		Not rated	
31A:							
Pope	90	Well suited		Moderately suited		Well suited	
				Rock fragments	0.50		
32C:							
Schaffenaker	85	Well suited		Moderately suited		Well suited	
				Slope	0.50		
33B:							
Shelocta	90	Well suited		Moderately suited		Moderately suited	
				Slope	0.50	Low strength	0.50
33C:							
Shelocta	90	Well suited		Moderately suited		Moderately suited	
				Slope	0.50	Low strength	0.50
33D:							
Shelocta	90	Well suited		Poorly suited		Moderately suited	
				Slope	0.75	Low strength	0.50
						Slope	0.50
34B:							
Slabtown	90	Well suited		Moderately suited		Moderately suited	
				Slope	0.50	Low strength	0.50
34C:							
Slabtown	90	Well suited		Moderately suited		Moderately suited	
				Slope	0.50	Low strength	0.50

Table 9.—Forestland Management, Part III—Continued

Map symbol and soil name	Pct. of map unit	Suitability for hand planting: Rating class and limiting features	Value	Suitability for mechanical planting: Rating class and limiting features	Value	Suitability for use of harvesting equipment: Rating class and limiting features	Value
35B:							
Sugarhol	90	Moderately suited		Moderately suited		Moderately suited	
		Stickiness; high plasticity index	0.50	Stickiness; high plasticity index	0.50	Low strength	0.50
				Slope	0.50		
35C:							
Sugarhol	85	Moderately suited		Moderately suited		Moderately suited	
		Stickiness; high plasticity index	0.50	Stickiness; high plasticity index	0.50	Low strength	0.50
				Slope	0.50		
36B:							
Tumbling	80	Well suited		Moderately suited		Moderately suited	
				Rock fragments	0.50	Low strength	0.50
				Slope	0.50		
36C:							
Tumbling	85	Well suited		Moderately suited		Moderately suited	
				Rock fragments	0.50	Low strength	0.50
				Slope	0.50		
36D:							
Tumbling	80	Well suited		Poorly suited		Moderately suited	
				Slope	0.75	Low strength	0.50
				Rock fragments	0.50	Slope	0.50
37C:							
Tumbling, very stony	80	Moderately suited		Moderately suited		Moderately suited	
		Rock fragments	0.50	Rock fragments	0.50	Low strength	0.50
				Slope	0.50	Rock fragments	0.50
37E:							
Tumbling, very stony	80	Moderately suited		Poorly suited		Moderately suited	
		Rock fragments	0.50	Slope	0.75	Low strength	0.50
				Rock fragments	0.50	Rock fragments	0.50
						Slope	0.50
38:							
Udorthents, unstable fill	50	Not rated		Not rated		Not rated	
Urban land	40	Not rated		Not rated		Not rated	
39C:							
Watahala	90	Well suited		Moderately suited		Moderately suited	
				Rock fragments	0.50	Low strength	0.50
				Slope	0.50		
39D:							
Watahala	90	Well suited		Poorly suited		Moderately suited	
				Slope	0.75	Low strength	0.50
				Rock fragments	0.50	Slope	0.50
39E:							
Watahala	90	Well suited		Unsuited		Moderately suited	
				Slope	1.00	Low strength	0.50
				Rock fragments	0.50	Slope	0.50

Table 9.—Forestland Management, Part III—Continued

Map symbol and soil name	Pct. of map unit	Suitability for hand planting: Rating class and limiting features	Value	Suitability for mechanical planting: Rating class and limiting features	Value	Suitability for use of harvesting equipment: Rating class and limiting features	Value
40C:							
Watahala, extremely stony	90	Moderately suited		Poorly suited		Moderately suited	
		Rock fragments	0.50	Rock fragments	0.75	Rock fragments	0.50
				Slope	0.50	Low strength	0.50
40E:							
Watahala, extremely stony	90	Moderately suited		Poorly suited		Moderately suited	
		Rock fragments	0.50	Slope	0.75	Rock fragments	0.50
				Rock fragments	0.75	Low strength	0.50
						Slope	0.50
40F:							
Watahala, extremely stony	90	Moderately suited		Unsuited		Poorly suited	
		Slope	0.50	Slope	1.00	Slope	1.00
		Rock fragments	0.50	Rock fragments	0.75	Rock fragments	0.50
						Low strength	0.50
41G:							
Weikert	35	Poorly suited		Unsuited		Poorly suited	
		Slope	0.75	Slope	1.00	Slope	1.00
		Rock fragments	0.75	Rock fragments	1.00	Low strength	0.50
Rough	30	Unsuited		Unsuited		Poorly suited	
		Restrictive layer	1.00	Restrictive layer	1.00	Slope	1.00
		Slope	0.75	Slope	1.00	Low strength	0.50
		Rock fragments	0.75	Rock fragments	1.00		
Rock outcrop	25	Not rated		Not rated		Not rated	
W:							
Water	100	Not rated		Not rated		Not rated	

Table 9.—Forestland Management, Part IV

(The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation. The numbers in the value columns range from 0.01 to 1.00. The larger the value, the greater the limitation. See text for further explanation of ratings in this table)

Map symbol and soil name	Pct. of map unit	Suitability for mechanical site preparation (surface): Rating class and limiting features	Value	Suitability for mechanical site preparation (deep): Rating class and limiting features	Value
1A:					
Alonzville, rarely flooded	85	Well suited		Well suited	
1B:					
Alonzville, rarely flooded	85	Well suited		Well suited	
2B:					
Alonzville	85	Well suited		Well suited	
3A:					
Atkins	90	Poorly suited		Unsuited	
		Wetness	0.75	Wetness	1.00
4C:					
Bailegap	90	Well suited		Well suited	
4E:					
Bailegap	90	Poorly suited		Poorly suited	
		Slope	0.50	Slope	0.50
5G:					
Bailegap	35	Unsuited		Unsuited	
		Slope	1.00	Slope	1.00
Lily	30	Unsuited		Unsuited	
		Slope	1.00	Slope	1.00
				Restrictive layer	0.50
Dekalb	25	Unsuited		Unsuited	
		Slope	1.00	Slope	1.00
		Rock fragments	0.50	Rock fragments	0.50
				Restrictive layer	0.50
6E:					
Berks	55	Poorly suited		Unsuited	
		Slope	0.50	Restrictive layer	1.00
		Rock fragments	0.50	Slope	0.50
Culleoka	35	Poorly suited		Unsuited	
		Slope	0.50	Restrictive layer	1.00
				Slope	0.50
6G:					
Berks	60	Unsuited		Unsuited	
		Slope	1.00	Restrictive layer	1.00
		Rock fragments	0.50	Slope	1.00
Culleoka	30	Unsuited		Unsuited	
		Slope	1.00	Restrictive layer	1.00
				Slope	1.00

Table 9.—Forestland Management, Part IV—Continued

Map symbol and soil name	Pct. of map unit	Suitability for mechanical site preparation (surface): Rating class and limiting features	Value	Suitability for mechanical site preparation (deep): Rating class and limiting features	Value
7C:					
Berks	45	Poorly suited		Unsuited	
		Rock fragments	0.50	Restrictive layer	1.00
Weikert	40	Poorly suited		Unsuited	
		Rock fragments	0.50	Restrictive layer	1.00
7E:					
Berks	50	Poorly suited		Unsuited	
		Slope	0.50	Restrictive layer	1.00
		Rock fragments	0.50	Slope	0.50
Weikert	35	Poorly suited		Unsuited	
		Slope	0.50	Restrictive layer	1.00
		Rock fragments	0.50	Slope	0.50
7G:					
Berks	45	Unsuited		Unsuited	
		Slope	1.00	Restrictive layer	1.00
		Rock fragments	0.50	Slope	1.00
Weikert	40	Unsuited		Unsuited	
		Slope	1.00	Restrictive layer	1.00
		Rock fragments	0.50	Slope	1.00
8G:					
Brushy	90	Unsuited		Unsuited	
		Slope	1.00	Slope	1.00
		Rock fragments	0.50	Restrictive layer	0.50
9E:					
Calvin	80	Poorly suited		Poorly suited	
		Slope	0.50	Slope	0.50
		Rock fragments	0.50	Restrictive layer	0.50
10G:					
Calvin	55	Unsuited		Unsuited	
		Slope	1.00	Slope	1.00
		Rock fragments	0.50	Restrictive layer	0.50
Rough	30	Unsuited		Unsuited	
		Restrictive layer	1.00	Restrictive layer	1.00
		Slope	1.00	Slope	1.00
		Rock fragments	0.50		
11E:					
Carbo	60	Poorly suited		Poorly suited	
		Stickiness; high plasticity index	0.50	Slope	0.50
				Restrictive layer	0.50
		Slope	0.50		
Rock outcrop	25	Not rated		Not rated	
11F:					
Carbo	60	Unsuited		Unsuited	
		Slope	1.00	Slope	1.00
		Stickiness; high plasticity index	0.50	Restrictive layer	0.50
Rock outcrop	25	Not rated		Not rated	

Table 9.—Forestland Management, Part IV—Continued

Map symbol and soil name	Pct. of map unit	Suitability for mechanical site preparation (surface): Rating class and limiting features	Value	Suitability for mechanical site preparation (deep): Rating class and limiting features	Value
12E:					
Carbo, karst	60	Poorly suited		Poorly suited	
		Stickiness; high plasticity index	0.50	Slope	0.50
				Restrictive layer	0.50
		Slope	0.50		
Rock outcrop	25	Not rated		Not rated	
13A:					
Coursey	85	Well suited		Well suited	
13B:					
Coursey	85	Well suited		Well suited	
14C:					
Culleoka	50	Well suited		Unsuited	
				Restrictive layer	1.00
Berks	40	Poorly suited		Unsuited	
		Rock fragments	0.50	Restrictive layer	1.00
14D:					
Culleoka	50	Poorly suited		Unsuited	
		Slope	0.50	Restrictive layer	1.00
				Slope	0.50
Berks	40	Poorly suited		Unsuited	
		Slope	0.50	Restrictive layer	1.00
		Rock fragments	0.50	Slope	0.50
15E:					
Dekalb	90	Poorly suited		Poorly suited	
		Rock fragments	0.50	Rock fragments	0.50
		Slope	0.50	Slope	0.50
				Restrictive layer	0.50
15F:					
Dekalb	85	Unsuited		Unsuited	
		Slope	1.00	Slope	1.00
		Rock fragments	0.50	Rock fragments	0.50
				Restrictive layer	0.50
16E:					
Dekalb	75	Poorly suited		Poorly suited	
		Rock fragments	0.50	Rock fragments	0.50
		Slope	0.50	Slope	0.50
				Restrictive layer	0.50
Rock outcrop	15	Not rated		Not rated	
16G:					
Dekalb	75	Unsuited		Unsuited	
		Slope	1.00	Slope	1.00
		Rock fragments	0.50	Rock fragments	0.50
				Restrictive layer	0.50
Rock outcrop	15	Not rated		Not rated	
17B:					
Escatawba	90	Well suited		Well suited	

Table 9.—Forestland Management, Part IV—Continued

Map symbol and soil name	Pct. of map unit	Suitability for mechanical site preparation (surface): Rating class and limiting features	Value	Suitability for mechanical site preparation (deep): Rating class and limiting features	Value
17C:					
Escatawba	90	Well suited		Well suited	
18C:					
Escatawba, very stony	90	Poorly suited		Well suited	
		Rock fragments	0.50		
18E:					
Escatawba, very stony	85	Poorly suited		Poorly suited	
		Slope	0.50	Slope	0.50
		Rock fragments	0.50		
19B:					
Frederick	90	Well suited		Well suited	
19C:					
Frederick	90	Well suited		Well suited	
19D:					
Frederick	90	Poorly suited		Poorly suited	
		Slope	0.50	Slope	0.50
19E:					
Frederick	90	Poorly suited		Poorly suited	
		Slope	0.50	Slope	0.50
20C:					
Frederick	50	Well suited		Well suited	
Watahala	35	Well suited		Well suited	
20D:					
Frederick	50	Poorly suited		Poorly suited	
		Slope	0.50	Slope	0.50
Watahala	35	Poorly suited		Poorly suited	
		Slope	0.50	Slope	0.50
21C:					
Gilpin	85	Well suited		Well suited	
21D:					
Gilpin	85	Poorly suited		Poorly suited	
		Slope	0.50	Slope	0.50
22B:					
Jefferson	90	Well suited		Well suited	
22C:					
Jefferson	90	Well suited		Well suited	
22D:					
Jefferson	90	Poorly suited		Poorly suited	
		Slope	0.50	Slope	0.50
23C:					
Lily	90	Well suited		Poorly suited	
				Restrictive layer	0.50

Table 9.—Forestland Management, Part IV—Continued

Map symbol and soil name	Pct. of map unit	Suitability for mechanical site preparation (surface)		Suitability for mechanical site preparation (deep)	
		Rating class and limiting features	Value	Rating class and limiting features	Value
23E:					
Lily	85	Poorly suited		Poorly suited	
		Slope	0.50	Slope	0.50
				Restrictive layer	0.50
23F:					
Lily	85	Unsuited		Unsuited	
		Slope	1.00	Slope	1.00
				Restrictive layer	0.50
24A:					
Maurertown	90	Poorly suited		Unsuited	
		Wetness	0.75	Wetness	1.00
25B:					
Nicelytown	90	Well suited		Well suited	
25C:					
Nicelytown	90	Well suited		Well suited	
26B:					
Ogles	90	Poorly suited		Poorly suited	
		Rock fragments	0.50	Rock fragments	0.50
27C:					
Oriskany, extremely stony	90	Poorly suited		Poorly suited	
		Rock fragments	0.50	Rock fragments	0.50
27E:					
Oriskany, extremely stony	90	Poorly suited		Poorly suited	
		Rock fragments	0.50	Rock fragments	0.50
		Slope	0.50	Slope	0.50
28F:					
Oriskany, very rubbly	90	Unsuited		Unsuited	
		Rock fragments	1.00	Rock fragments	1.00
		Slope	0.50	Slope	0.50
29A:					
Philo	85	Well suited		Well suited	
30:					
Pits	50	Not rated		Not rated	
Dumps	45	Not rated		Not rated	
31A:					
Pope	90	Well suited		Well suited	
32C:					
Schaffenaker	85	Well suited		Well suited	
33B:					
Shelocta	90	Well suited		Well suited	
33C:					
Shelocta	90	Well suited		Well suited	

Table 9.—Forestland Management, Part IV—Continued

Map symbol and soil name	Pct. of map unit	Suitability for mechanical site preparation (surface): Rating class and limiting features	Value	Suitability for mechanical site preparation (deep): Rating class and limiting features	Value
33D:					
Shelocta	90	Poorly suited		Poorly suited	
		Slope	0.50	Slope	0.50
34B:					
Slabtown	90	Well suited		Well suited	
34C:					
Slabtown	90	Well suited		Well suited	
35B:					
Sugarhol	90	Well suited		Well suited	
35C:					
Sugarhol	85	Well suited		Well suited	
36B:					
Tumbling	80	Well suited		Well suited	
36C:					
Tumbling	85	Well suited		Well suited	
36D:					
Tumbling	80	Poorly suited		Poorly suited	
		Slope	0.50	Slope	0.50
37C:					
Tumbling, very stony	80	Poorly suited		Poorly suited	
		Rock fragments	0.50	Rock fragments	0.50
37E:					
Tumbling, very stony	80	Poorly suited		Poorly suited	
		Slope	0.50	Slope	0.50
		Rock fragments	0.50	Rock fragments	0.50
38:					
Udorthents, unstable fill	50	Not rated		Not rated	
Urban land	40	Not rated		Not rated	
39C:					
Watahala	90	Well suited		Well suited	
39D:					
Watahala	90	Poorly suited		Poorly suited	
		Slope	0.50	Slope	0.50
39E:					
Watahala	90	Poorly suited		Poorly suited	
		Slope	0.50	Slope	0.50
40C:					
Watahala, extremely stony	90	Poorly suited		Poorly suited	
		Rock fragments	0.50	Rock fragments	0.50

Table 9.—Forestland Management, Part IV—Continued

Map symbol and soil name	Pct. of map unit	Suitability for mechanical site preparation (surface): Rating class and limiting features	Value	Suitability for mechanical site preparation (deep): Rating class and limiting features	Value
40E:					
Watahala, extremely stony	90	Poorly suited		Poorly suited	
		Slope	0.50	Slope	0.50
		Rock fragments	0.50	Rock fragments	0.50
40F:					
Watahala, extremely stony	90	Unsuited		Unsuited	
		Slope	1.00	Slope	1.00
		Rock fragments	0.50	Rock fragments	0.50
41G:					
Weikert	35	Unsuited		Unsuited	
		Slope	1.00	Slope	1.00
		Rock fragments	0.50	Restrictive layer	1.00
Rough	30	Unsuited		Unsuited	
		Slope	1.00	Slope	1.00
		Restrictive layer	1.00	Restrictive layer	1.00
		Rock fragments	0.50		
Rock outcrop	25	Not rated		Not rated	
W:					
Water	100	Not rated		Not rated	

Table 9.—Forestland Management, Part V

(The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation. The numbers in the value columns range from 0.01 to 1.00. The larger the value, the greater the limitation. See text for further explanation of ratings in this table)

Map symbol and soil name	Pct. of map unit	Potential for damage to soil by fire: Rating class and limiting features	Potential for damage to soil by fire: Value	Potential for seedling mortality: Rating class and limiting features	Potential for seedling mortality: Value
1A:					
Alonzville, rarely flooded	85	Low		Low	
		Texture/rock fragments	0.10		
1B:					
Alonzville, rarely flooded	85	Low		Low	
		Texture/rock fragments	0.10		
2B:					
Alonzville	85	Low		Low	
		Texture/rock fragments	0.10		
3A:					
Atkins	90	Low		High	
		Texture/rock fragments	0.10	Wetness	1.00
4C:					
Bailegap	90	Moderate		Low	
		Texture/surface depth/rock fragments	0.50		
4E:					
Bailegap	90	Moderate		Low	
		Texture/surface depth/rock fragments	0.50		
5G:					
Bailegap	35	High		Low	
		Texture/slope/ surface depth/ rock fragments	1.00		
Lily	30	Moderate		Low	
		Texture/slope/ rock fragments	0.50		
Dekalb	25	Moderate		Low	
		Texture/slope/ rock fragments	0.50		
6E:					
Berks	55	High		Low	
		Texture/slope/ rock fragments	1.00		

Table 9.—Forestland Management, Part V—Continued

Map symbol and soil name	Pct. of map unit	Potential for damage to soil by fire: Rating class and limiting features	Value	Potential for seedling mortality: Rating class and limiting features	Value
6E:					
Culleoka	35	Moderate Texture/slope/ surface depth/ rock fragments	0.50	Low	
6G:					
Berks	60	High Texture/slope/ rock fragments	1.00	Low	
Culleoka	30	Moderate Texture/slope/ surface depth/ rock fragments	0.50	Low	
7C:					
Berks	45	Moderate Texture/rock fragments	0.50	Low	
Weikert	40	Moderate Texture/surface depth/rock fragments	0.50	Low	
7E:					
Berks	50	Moderate Texture/rock fragments	0.50	Low	
Weikert	35	Moderate Texture/surface depth/rock fragments	0.50	Low	
7G:					
Berks	45	High Texture/slope/ rock fragments	1.00	Low	
Weikert	40	High Texture/slope/ surface depth/ rock fragments	1.00	Low	
8G:					
Brushy	90	Low		Moderate Soil reaction	0.50
9E:					
Calvin	80	Moderate Texture/surface depth/rock fragments	0.50	Low	
10G:					
Calvin	55	High Texture/slope/ surface depth/ rock fragments	1.00	Low	

Table 9.—Forestland Management, Part V—Continued

Map symbol and soil name	Pct. of map unit	Potential for damage to soil by fire: Rating class and limiting features	Value	Potential for seedling mortality: Rating class and limiting features	Value
10G:					
Rough	30	High		Low	
		Texture/slope/ surface depth/ rock fragments	1.00		
11E:					
Carbo	60	Moderate		Low	
		Texture/rock fragments	0.50		
Rock outcrop	25	Not rated		Not rated	
11F:					
Carbo	60	High		Low	
		Texture/slope/ rock fragments	1.00		
Rock outcrop	25	Not rated		Not rated	
12E:					
Carbo, karst	60	Moderate		Low	
		Texture/rock fragments	0.50		
Rock outcrop	25	Not rated		Not rated	
13A:					
Coursey	85	Low		Low	
		Texture/rock fragments	0.10		
13B:					
Coursey	85	Low		Low	
		Texture/rock fragments	0.10		
14C:					
Culleoka	50	Low		Low	
		Texture/surface depth/rock fragments	0.10		
Berks	40	Moderate		Low	
		Texture/rock fragments	0.50		
14D:					
Culleoka	50	Low		Low	
		Texture/surface depth/rock fragments	0.10		
Berks	40	Moderate		Low	
		Texture/rock fragments	0.50		
15E:					
Dekalb	90	Moderate		Low	
		Texture/rock fragments	0.50		

Table 9.—Forestland Management, Part V—Continued

Map symbol and soil name	Pct. of map unit	Potential for damage to soil by fire: Rating class and limiting features	Value	Potential for seedling mortality: Rating class and limiting features	Value
15F:					
Dekalb	85	Moderate		Low	
		Texture/slope/ rock fragments	0.50		
16E:					
Dekalb	75	Moderate		Low	
		Texture/rock fragments	0.50		
Rock outcrop	15	Not rated		Not rated	
16G:					
Dekalb	75	Moderate		Low	
		Texture/slope/ rock fragments	0.50		
Rock outcrop	15	Not rated		Not rated	
17B:					
Escatawba	90	Moderate		Low	
		Texture/surface depth/rock fragments	0.50		
17C:					
Escatawba	90	Moderate		Low	
		Texture/surface depth/rock fragments	0.50		
18C:					
Escatawba, very stony	90	Moderate		Low	
		Texture/surface depth/rock fragments	0.50		
18E:					
Escatawba, very stony	85	Moderate		Low	
		Texture/surface depth/rock fragments	0.50		
19B:					
Frederick	90	Moderate		Low	
		Texture/rock fragments	0.50		
19C:					
Frederick	90	Moderate		Low	
		Texture/rock fragments	0.50		
19D:					
Frederick	90	Moderate		Low	
		Texture/rock fragments	0.50		

Table 9.—Forestland Management, Part V—Continued

Map symbol and soil name	Pct. of map unit	Potential for damage to soil by fire: Rating class and limiting features	Value	Potential for seedling mortality: Rating class and limiting features	Value
19E:					
Frederick	90	Moderate		Low	
		Texture/slope/ rock fragments	0.50		
20C:					
Frederick	50	Moderate		Low	
		Texture/rock fragments	0.50		
Watahala	35	Moderate		Low	
		Texture/surface depth/rock fragments	0.50		
20D:					
Frederick	50	Moderate		Low	
		Texture/rock fragments	0.50		
Watahala	35	Moderate		Low	
		Texture/surface depth/rock fragments	0.50		
21C:					
Gilpin	85	Moderate		Low	
		Texture/rock fragments	0.50		
21D:					
Gilpin	85	Moderate		Low	
		Texture/rock fragments	0.50		
22B:					
Jefferson	90	Moderate		Low	
		Texture/rock fragments	0.50		
22C:					
Jefferson	90	Moderate		Low	
		Texture/rock fragments	0.50		
22D:					
Jefferson	90	Moderate		Low	
		Texture/rock fragments	0.50		
23C:					
Lily	90	Moderate		Low	
		Texture/rock fragments	0.50		
23E:					
Lily	85	Moderate		Low	
		Texture/rock fragments	0.50		

Table 9.—Forestland Management, Part V—Continued

Map symbol and soil name	Pct. of map unit	Potential for damage to soil by fire: Rating class and limiting features	Value	Potential for seedling mortality: Rating class and limiting features	Value
23F:					
Lily	85	Moderate		Low	
		Texture/slope/ rock fragments	0.50		
24A:					
Maurertown	90	Low		High	
		Texture/rock fragments	0.10	Wetness	1.00
25B:					
Nicelytown	90	Moderate		Low	
		Texture/rock fragments	0.50		
25C:					
Nicelytown	90	Moderate		Low	
		Texture/rock fragments	0.50		
26B:					
Ogles	90	Low		Low	
		Texture/rock fragments	0.10		
27C:					
Oriskany, extremely stony	90	Moderate		Low	
		Texture/rock fragments	0.50		
27E:					
Oriskany, extremely stony	90	Moderate		Low	
		Texture/rock fragments	0.50		
28F:					
Oriskany, very rubbly	90	Moderate		Low	
		Texture/slope/ rock fragments	0.50		
29A:					
Philo	85	Low		Low	
		Texture/rock fragments	0.10		
30:					
Pits	50	Not rated		Not rated	
Dumps	45	Not rated		Not rated	
31A:					
Pope	90	Low		Low	
		Texture/rock fragments	0.10		
32C:					
Schaffenaker	85	High		Low	
		Texture/rock fragments	1.00		

Table 9.—Forestland Management, Part V—Continued

Map symbol and soil name	Pct. of map unit	Potential for damage to soil by fire: Rating class and limiting features	Value	Potential for seedling mortality: Rating class and limiting features	Value
33B:					
Shelocta	90	Moderate		Low	
		Texture/rock fragments	0.50		
33C:					
Shelocta	90	Moderate		Low	
		Texture/rock fragments	0.50		
33D:					
Shelocta	90	Moderate		Low	
		Texture/rock fragments	0.50		
34B:					
Slabtown	90	Low		Low	
		Texture/rock fragments	0.10		
34C:					
Slabtown	90	Low		Low	
		Texture/rock fragments	0.10		
35B:					
Sugarhol	90	Moderate		Moderate	
		Texture/surface depth/rock fragments	0.50	Soil reaction	0.50
35C:					
Sugarhol	85	Moderate		Moderate	
		Texture/surface depth/rock fragments	0.50	Soil reaction	0.50
36B:					
Tumbling	80	Moderate		Low	
		Texture/rock fragments	0.50		
36C:					
Tumbling	85	Moderate		Low	
		Texture/rock fragments	0.50		
36D:					
Tumbling	80	Moderate		Low	
		Texture/rock fragments	0.50		
37C:					
Tumbling, very stony	80	Moderate		Low	
		Texture/rock fragments	0.50		
37E:					
Tumbling, very stony	80	Moderate		Low	
		Texture/rock fragments	0.50		

Table 9.—Forestland Management, Part V—Continued

Map symbol and soil name	Pct. of map unit	Potential for damage to soil by fire: Rating class and limiting features	Value	Potential for seedling mortality: Rating class and limiting features	Value
38:					
Udorthents, unstable fill	50	Not rated		Not rated	
Urban land	40	Not rated		Not rated	
39C:					
Watahala	90	Moderate		Low	
		Texture/surface depth/rock fragments	0.50		
39D:					
Watahala	90	Moderate		Low	
		Texture/surface depth/rock fragments	0.50		
39E:					
Watahala	90	High		Low	
		Texture/slope/ surface depth/ rock fragments	1.00		
40C:					
Watahala, extremely stony	90	Moderate		Low	
		Texture/surface depth/rock fragments	0.50		
40E:					
Watahala, extremely stony	90	Moderate		Low	
		Texture/surface depth/rock fragments	0.50		
40F:					
Watahala, extremely stony	90	High		Low	
		Texture/slope/ surface depth/ rock fragments	1.00		
41G:					
Weikert	35	High		Low	
		Texture/slope/ surface depth/ rock fragments	1.00		
Rough	30	High		Low	
		Texture/slope/ surface depth/ rock fragments	1.00		
Rock outcrop	25	Not rated		Not rated	
W:					
Water	100	Not rated		Not rated	

Table 10.—Recreational Development, Part I

(The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation. The numbers in the value columns range from 0.01 to 1.00. The larger the value, the greater the limitation. See text for further explanation of ratings in this table)

Map symbol and soil name	Pct. of map unit	Camp areas: Rating class and limiting features	Camp areas: Value	Picnic areas: Rating class and limiting features	Picnic areas: Value	Playgrounds: Rating class and limiting features	Playgrounds: Value
1A:							
Alonzville, rarely flooded	85	Very limited		Not limited		Somewhat limited	
		Flooding	1.00			Gravel	0.44
1B:							
Alonzville, rarely flooded	85	Very limited		Not limited		Somewhat limited	
		Flooding	1.00			Slope	0.88
						Gravel	0.44
2B:							
Alonzville	85	Not limited		Not limited		Somewhat limited	
						Slope	0.88
						Gravel	0.44
3A:							
Atkins	90	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Ponding	1.00	Depth to saturated zone	1.00
		Flooding	1.00	Depth to saturated zone	1.00	Flooding	1.00
		Ponding	1.00	Slow water movement	0.96	Ponding	1.00
4C:							
Bailegap	90	Somewhat limited		Somewhat limited		Very limited	
		Large stones content	0.76	Large stones content	0.76	Slope	1.00
		Slope	0.37	Slope	0.37	Large stones content	0.76
4E:							
Bailegap	90	Very limited		Very limited		Very limited	
		Too steep	1.00	Too steep	1.00	Slope	1.00
		Large stones content	0.76	Large stones content	0.76	Large stones content	0.76
5G:							
Bailegap	35	Very limited		Very limited		Very limited	
		Too steep	1.00	Too steep	1.00	Slope	1.00
		Large stones content	0.76	Large stones content	0.76	Large stones content	0.76
Lily	30	Very limited		Very limited		Very limited	
		Too steep	1.00	Too steep	1.00	Slope	1.00
		Large stones content	0.47	Large stones content	0.47	Large stones content	0.47
						Depth to bedrock	0.46
Dekalb	25	Very limited		Very limited		Very limited	
		Too steep	1.00	Too steep	1.00	Slope	1.00
		Large stones content	1.00	Large stones content	1.00	Gravel	1.00
		Gravel	0.01	Gravel	0.01	Large stones content	1.00

Table 10.—Recreational Development, Part I—Continued

Map symbol and soil name	Pct. of map unit	Camp areas: Rating class and limiting features	Value	Picnic areas: Rating class and limiting features	Value	Playgrounds: Rating class and limiting features	Value
6E:							
Berks	55	Very limited		Very limited		Very limited	
		Too steep	1.00	Too steep	1.00	Slope	1.00
		Gravel	0.94	Gravel	0.94	Gravel	1.00
						Depth to bedrock	0.65
Culleoka	35	Very limited		Very limited		Very limited	
		Too steep	1.00	Too steep	1.00	Slope	1.00
		Gravel	0.32	Gravel	0.32	Gravel	1.00
						Depth to bedrock	0.71
6G:							
Berks	60	Very limited		Very limited		Very limited	
		Too steep	1.00	Too steep	1.00	Slope	1.00
		Gravel	0.94	Gravel	0.94	Gravel	1.00
						Depth to bedrock	0.65
Culleoka	30	Very limited		Very limited		Very limited	
		Too steep	1.00	Too steep	1.00	Slope	1.00
		Gravel	0.32	Gravel	0.32	Gravel	1.00
						Depth to bedrock	0.71
7C:							
Berks	45	Somewhat limited		Somewhat limited		Very limited	
		Gravel	0.94	Gravel	0.94	Slope	1.00
		Slope	0.37	Slope	0.37	Gravel	1.00
						Depth to bedrock	0.65
Weikert	40	Very limited		Very limited		Very limited	
		Depth to bedrock	1.00	Depth to bedrock	1.00	Slope	1.00
		Gravel	0.57	Gravel	0.57	Depth to bedrock	1.00
		Slope	0.37	Slope	0.37	Gravel	1.00
7E:							
Berks	50	Very limited		Very limited		Very limited	
		Too steep	1.00	Too steep	1.00	Slope	1.00
		Gravel	0.94	Gravel	0.94	Gravel	1.00
						Depth to bedrock	0.65
Weikert	35	Very limited		Very limited		Very limited	
		Too steep	1.00	Too steep	1.00	Slope	1.00
		Depth to bedrock	1.00	Depth to bedrock	1.00	Depth to bedrock	1.00
		Gravel	0.57	Gravel	0.57	Gravel	1.00
7G:							
Berks	45	Very limited		Very limited		Very limited	
		Too steep	1.00	Too steep	1.00	Slope	1.00
		Gravel	0.94	Gravel	0.94	Gravel	1.00
						Depth to bedrock	0.65
Weikert	40	Very limited		Very limited		Very limited	
		Too steep	1.00	Too steep	1.00	Slope	1.00
		Depth to bedrock	1.00	Depth to bedrock	1.00	Depth to bedrock	1.00
		Gravel	0.57	Gravel	0.57	Gravel	1.00
8G:							
Brushy	90	Very limited		Very limited		Very limited	
		Too steep	1.00	Too steep	1.00	Gravel	1.00
		Gravel	1.00	Gravel	1.00	Slope	1.00
		Large stones content	0.76	Large stones content	0.76	Large stones content	0.76

Table 10.—Recreational Development, Part I—Continued

Map symbol and soil name	Pct. of map unit	Camp areas: Rating class and limiting features	Camp areas: Value	Picnic areas: Rating class and limiting features	Picnic areas: Value	Playgrounds: Rating class and limiting features	Playgrounds: Value
9E:							
Calvin	80	Very limited		Very limited		Very limited	
		Too steep	1.00	Too steep	1.00	Slope	1.00
		Large stones content	0.53	Large stones content	0.53	Gravel	1.00
		Gravel	0.04	Gravel	0.04	Depth to bedrock	0.71
10G:							
Calvin	55	Very limited		Very limited		Very limited	
		Too steep	1.00	Too steep	1.00	Slope	1.00
		Large stones content	0.53	Large stones content	0.53	Gravel	1.00
		Gravel	0.04	Gravel	0.04	Depth to bedrock	0.71
Rough	30	Very limited		Very limited		Very limited	
		Too steep	1.00	Too steep	1.00	Slope	1.00
		Depth to bedrock	1.00	Depth to bedrock	1.00	Depth to bedrock	1.00
		Large stones content	0.53	Large stones content	0.53	Gravel	1.00
11E:							
Carbo	60	Very limited		Very limited		Very limited	
		Too steep	1.00	Too steep	1.00	Slope	1.00
		Slow water movement	0.96	Slow water movement	0.96	Slow water movement	0.96
						Depth to bedrock	0.90
Rock outcrop	25	Not rated		Not rated		Not rated	
11F:							
Carbo	60	Very limited		Very limited		Very limited	
		Too steep	1.00	Too steep	1.00	Slope	1.00
		Slow water movement	0.96	Slow water movement	0.96	Slow water movement	0.96
						Depth to bedrock	0.90
Rock outcrop	25	Not rated		Not rated		Not rated	
12E:							
Carbo, karst	60	Very limited		Very limited		Very limited	
		Too steep	1.00	Too steep	1.00	Slope	1.00
		Slow water movement	0.96	Slow water movement	0.96	Slow water movement	0.96
						Depth to bedrock	0.90
Rock outcrop	25	Not rated		Not rated		Not rated	
13A:							
Coursey	85	Very limited		Somewhat limited		Somewhat limited	
		Flooding	1.00	Depth to saturated zone	0.48	Depth to saturated zone	0.81
		Depth to saturated zone	0.81				
13B:							
Coursey	85	Very limited		Somewhat limited		Somewhat limited	
		Flooding	1.00	Depth to saturated zone	0.48	Slope	0.88
		Depth to saturated zone	0.81			Depth to saturated zone	0.81

Table 10.—Recreational Development, Part I—Continued

Map symbol and soil name	Pct. of map unit	Camp areas: Rating class and limiting features	Camp areas: Value	Picnic areas: Rating class and limiting features	Picnic areas: Value	Playgrounds: Rating class and limiting features	Playgrounds: Value
14C:							
Culleoka	50	Somewhat limited		Somewhat limited		Very limited	
		Slope	0.37	Slope	0.37	Slope	1.00
		Gravel	0.32	Gravel	0.32	Gravel	1.00
						Depth to bedrock	0.71
Berks	40	Somewhat limited		Somewhat limited		Very limited	
		Gravel	0.94	Gravel	0.94	Slope	1.00
		Slope	0.37	Slope	0.37	Gravel	1.00
						Depth to bedrock	0.65
14D:							
Culleoka	50	Very limited		Very limited		Very limited	
		Too steep	1.00	Too steep	1.00	Slope	1.00
		Gravel	0.32	Gravel	0.32	Gravel	1.00
						Depth to bedrock	0.71
Berks	40	Very limited		Very limited		Very limited	
		Too steep	1.00	Too steep	1.00	Slope	1.00
		Gravel	0.94	Gravel	0.94	Gravel	1.00
						Depth to bedrock	0.65
15E:							
Dekalb	90	Very limited		Very limited		Very limited	
		Large stones content	1.00	Large stones content	1.00	Large stones content	1.00
		Too steep	1.00	Too steep	1.00	Slope	1.00
		Gravel	0.01	Gravel	0.01	Gravel	1.00
15F:							
Dekalb	85	Very limited		Very limited		Very limited	
		Too steep	1.00	Large stones content	1.00	Large stones content	1.00
		Large stones content	1.00	Too steep	1.00	Slope	1.00
		Gravel	0.01	Gravel	0.01	Gravel	1.00
16E:							
Dekalb	75	Very limited		Very limited		Very limited	
		Large stones content	1.00	Large stones content	1.00	Large stones content	1.00
		Too steep	1.00	Too steep	1.00	Slope	1.00
		Gravel	0.01	Gravel	0.01	Gravel	1.00
Rock outcrop	15	Not rated		Not rated		Not rated	
16G:							
Dekalb	75	Very limited		Very limited		Very limited	
		Too steep	1.00	Large stones content	1.00	Large stones content	1.00
		Large stones content	1.00	Too steep	1.00	Slope	1.00
		Gravel	0.01	Gravel	0.01	Gravel	1.00
Rock outcrop	15	Not rated		Not rated		Not rated	
17B:							
Escatawba	90	Somewhat limited		Somewhat limited		Somewhat limited	
		Slow water movement	0.26	Slow water movement	0.26	Slope	0.88
						Slow water movement	0.26

Table 10.—Recreational Development, Part I—Continued

Map symbol and soil name	Pct. of map unit	Camp areas: Rating class and limiting features	Camp areas: Value	Picnic areas: Rating class and limiting features	Picnic areas: Value	Playgrounds: Rating class and limiting features	Playgrounds: Value
17C:							
Escatawba	90	Somewhat limited		Somewhat limited		Very limited	
		Slope	0.37	Slope	0.37	Slope	1.00
		Slow water movement	0.26	Slow water movement	0.26	Slow water movement	0.26
18C:							
Escatawba, very stony	90	Somewhat limited		Somewhat limited		Very limited	
		Large stones content	0.94	Large stones content	0.94	Slope	1.00
		Slope	0.37	Slope	0.37	Large stones content	0.94
		Slow water movement	0.26	Slow water movement	0.26	Slow water movement	0.26
18E:							
Escatawba, very stony	85	Very limited		Very limited		Very limited	
		Too steep	1.00	Too steep	1.00	Slope	1.00
		Large stones content	0.94	Large stones content	0.94	Large stones content	0.94
		Slow water movement	0.26	Slow water movement	0.26	Slow water movement	0.26
19B:							
Frederick	90	Not limited		Not limited		Somewhat limited	
						Slope	0.88
19C:							
Frederick	90	Somewhat limited		Somewhat limited		Very limited	
		Slope	0.37	Slope	0.37	Slope	1.00
19D:							
Frederick	90	Very limited		Very limited		Very limited	
		Too steep	1.00	Too steep	1.00	Slope	1.00
19E:							
Frederick	90	Very limited		Very limited		Very limited	
		Too steep	1.00	Too steep	1.00	Slope	1.00
20C:							
Frederick	50	Somewhat limited		Somewhat limited		Very limited	
		Slope	0.37	Slope	0.37	Gravel	1.00
		Gravel	0.01	Gravel	0.01	Slope	1.00
Watahala	35	Somewhat limited		Somewhat limited		Very limited	
		Gravel	0.68	Gravel	0.68	Slope	1.00
		Slope	0.37	Slope	0.37	Gravel	1.00
20D:							
Frederick	50	Very limited		Very limited		Very limited	
		Too steep	1.00	Too steep	1.00	Gravel	1.00
		Gravel	0.01	Gravel	0.01	Slope	1.00
Watahala	35	Very limited		Very limited		Very limited	
		Too steep	1.00	Too steep	1.00	Slope	1.00
		Gravel	0.68	Gravel	0.68	Gravel	1.00
21C:							
Gilpin	85	Somewhat limited		Somewhat limited		Very limited	
		Slope	0.37	Slope	0.37	Slope	1.00
						Depth to bedrock	0.23

Table 10.—Recreational Development, Part I—Continued

Map symbol and soil name	Pct. of map unit	Camp areas: Rating class and limiting features	Camp areas: Value	Picnic areas: Rating class and limiting features	Picnic areas: Value	Playgrounds: Rating class and limiting features	Playgrounds: Value
21D:							
Gilpin	85	Very limited		Very limited		Very limited	
		Too steep	1.00	Too steep	1.00	Slope	1.00
						Depth to bedrock	0.23
22B:							
Jefferson	90	Not limited		Not limited		Somewhat limited	
						Slope	0.88
						Gravel	0.44
22C:							
Jefferson	90	Somewhat limited		Somewhat limited		Very limited	
		Slope	0.37	Slope	0.37	Slope	1.00
						Gravel	0.44
22D:							
Jefferson	90	Very limited		Very limited		Very limited	
		Too steep	1.00	Too steep	1.00	Slope	1.00
						Gravel	0.44
23C:							
Lily	90	Somewhat limited		Somewhat limited		Very limited	
		Large stones content	0.76	Large stones content	0.76	Slope	1.00
		Slope	0.37	Slope	0.37	Large stones content	0.76
						Depth to bedrock	0.46
23E:							
Lily	85	Very limited		Very limited		Very limited	
		Too steep	1.00	Too steep	1.00	Slope	1.00
		Large stones content	0.76	Large stones content	0.76	Large stones content	0.76
						Depth to bedrock	0.46
23F:							
Lily	85	Very limited		Very limited		Very limited	
		Too steep	1.00	Too steep	1.00	Slope	1.00
		Large stones content	0.76	Large stones content	0.76	Large stones content	0.76
						Depth to bedrock	0.46
24A:							
Maurertown	90	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Ponding	1.00	Depth to saturated zone	1.00
		Flooding	1.00	Depth to saturated zone	1.00	Ponding	1.00
		Ponding	1.00	Slow water movement	1.00	Slow water movement	1.00
25B:							
Nicelytown	90	Somewhat limited		Somewhat limited		Somewhat limited	
		Depth to saturated zone	0.98	Depth to saturated zone	0.75	Depth to saturated zone	0.98
		Slow water movement	0.60	Slow water movement	0.60	Slope	0.88
						Slow water movement	0.60

Table 10.—Recreational Development, Part I—Continued

Map symbol and soil name	Pct. of map unit	Camp areas: Rating class and limiting features	Camp areas: Value	Picnic areas: Rating class and limiting features	Picnic areas: Value	Playgrounds: Rating class and limiting features	Playgrounds: Value
25C:							
Nicelytown	90	Somewhat limited		Somewhat limited		Very limited	
		Depth to saturated zone	0.98	Depth to saturated zone	0.75	Slope	1.00
		Slow water movement	0.60	Slow water movement	0.60	Depth to saturated zone	0.98
		Slope	0.37	Slope	0.37	Slow water movement	0.60
26B:							
Ogles	90	Very limited		Somewhat limited		Very limited	
		Flooding	1.00	Large stones content	0.77	Flooding	1.00
		Large stones content	0.77	Flooding	0.40	Large stones content	0.77
						Slope	0.12
27C:							
Oriskany, extremely stony	90	Very limited		Very limited		Very limited	
		Large stones content	1.00	Large stones content	1.00	Gravel	1.00
		Gravel	0.68	Gravel	0.68	Slope	1.00
		Slope	0.37	Slope	0.37	Large stones content	1.00
27E:							
Oriskany, extremely stony	90	Very limited		Very limited		Very limited	
		Too steep	1.00	Too steep	1.00	Gravel	1.00
		Large stones content	1.00	Large stones content	1.00	Slope	1.00
		Gravel	0.68	Gravel	0.68	Large stones content	1.00
28F:							
Oriskany, very rubbly	90	Very limited		Very limited		Very limited	
		Too steep	1.00	Large stones content	1.00	Large stones content	1.00
		Large stones content	1.00	Too steep	1.00	Gravel	1.00
		Gravel	0.68	Gravel	0.68	Slope	1.00
29A:							
Philo	85	Very limited		Somewhat limited		Somewhat limited	
		Flooding	1.00	Depth to saturated zone	0.28	Flooding	0.60
		Depth to saturated zone	0.56			Depth to saturated zone	0.56
30:							
Pits	50	Not rated		Not rated		Not rated	
Dumps	45	Not rated		Not rated		Not rated	
31A:							
Pope	90	Very limited		Somewhat limited		Very limited	
		Flooding	1.00	Flooding	0.40	Flooding	1.00
32C:							
Schaffenaker	85	Somewhat limited		Somewhat limited		Very limited	
		Too sandy	0.59	Too sandy	0.59	Slope	1.00
		Slope	0.37	Slope	0.37	Too sandy	0.59
						Depth to bedrock	0.01

Table 10.—Recreational Development, Part I—Continued

Map symbol and soil name	Pct. of map unit	Camp areas: Rating class and limiting features	Camp areas: Value	Picnic areas: Rating class and limiting features	Picnic areas: Value	Playgrounds: Rating class and limiting features	Playgrounds: Value
33B:							
Shelocta	90	Not limited		Not limited		Somewhat limited	
						Slope	0.88
33C:							
Shelocta	90	Somewhat limited		Somewhat limited		Very limited	
		Slope	0.37	Slope	0.37	Slope	1.00
33D:							
Shelocta	90	Very limited		Very limited		Very limited	
		Too steep	1.00	Too steep	1.00	Slope	1.00
34B:							
Slabtown	90	Somewhat limited		Somewhat limited		Somewhat limited	
		Depth to saturated zone	0.07	Depth to saturated zone	0.03	Slope	0.88
						Gravel	0.22
						Depth to saturated zone	0.07
34C:							
Slabtown	90	Somewhat limited		Somewhat limited		Very limited	
		Slope	0.37	Slope	0.37	Slope	1.00
		Depth to saturated zone	0.07	Depth to saturated zone	0.03	Gravel	0.22
						Depth to saturated zone	0.07
35B:							
Sugarhol	90	Not limited		Not limited		Somewhat limited	
						Slope	0.88
35C:							
Sugarhol	85	Somewhat limited		Somewhat limited		Very limited	
		Slope	0.37	Slope	0.37	Slope	1.00
36B:							
Tumbling	80	Not limited		Not limited		Somewhat limited	
						Slope	0.88
36C:							
Tumbling	85	Somewhat limited		Somewhat limited		Very limited	
		Slope	0.37	Slope	0.37	Slope	1.00
36D:							
Tumbling	80	Very limited		Very limited		Very limited	
		Too steep	1.00	Too steep	1.00	Slope	1.00
37C:							
Tumbling, very stony	80	Very limited		Very limited		Very limited	
		Large stones content	1.00	Large stones content	1.00	Slope	1.00
		Slope	0.37	Slope	0.37	Large stones content	1.00
37E:							
Tumbling, very stony	80	Very limited		Very limited		Very limited	
		Too steep	1.00	Too steep	1.00	Slope	1.00
		Large stones content	1.00	Large stones content	1.00	Large stones content	1.00

Table 10.—Recreational Development, Part I—Continued

Map symbol and soil name	Pct. of map unit	Camp areas: Rating class and limiting features	Camp areas: Value	Picnic areas: Rating class and limiting features	Picnic areas: Value	Playgrounds: Rating class and limiting features	Playgrounds: Value
38:							
Udorthents, unstable fill	50	Not rated		Not rated		Not rated	
Urban land	40	Not rated		Not rated		Not rated	
39C:							
Watahala	90	Somewhat limited		Somewhat limited		Very limited	
		Gravel	0.68	Gravel	0.68	Slope	1.00
		Slope	0.37	Slope	0.37	Gravel	1.00
39D:							
Watahala	90	Very limited		Very limited		Very limited	
		Too steep	1.00	Too steep	1.00	Slope	1.00
		Gravel	0.68	Gravel	0.68	Gravel	1.00
39E:							
Watahala	90	Very limited		Very limited		Very limited	
		Too steep	1.00	Too steep	1.00	Slope	1.00
		Gravel	0.68	Gravel	0.68	Gravel	1.00
40C:							
Watahala, extremely stony	90	Very limited		Very limited		Very limited	
		Large stones content	1.00	Large stones content	1.00	Large stones content	1.00
		Gravel	0.68	Gravel	0.68	Slope	1.00
		Slope	0.37	Slope	0.37	Gravel	1.00
40E:							
Watahala, extremely stony	90	Very limited		Very limited		Very limited	
		Too steep	1.00	Large stones content	1.00	Large stones content	1.00
		Large stones content	1.00	Too steep	1.00	Slope	1.00
		Gravel	0.68	Gravel	0.68	Gravel	1.00
40F:							
Watahala, extremely stony	90	Very limited		Very limited		Very limited	
		Too steep	1.00	Large stones content	1.00	Large stones content	1.00
		Large stones content	1.00	Too steep	1.00	Slope	1.00
		Gravel	0.68	Gravel	0.68	Gravel	1.00
41G:							
Weikert	35	Very limited		Very limited		Very limited	
		Too steep	1.00	Too steep	1.00	Slope	1.00
		Depth to bedrock	1.00	Depth to bedrock	1.00	Depth to bedrock	1.00
		Gravel	0.57	Gravel	0.57	Gravel	1.00
Rough	30	Very limited		Very limited		Very limited	
		Too steep	1.00	Too steep	1.00	Slope	1.00
		Depth to bedrock	1.00	Depth to bedrock	1.00	Depth to bedrock	1.00
		Gravel	0.13	Gravel	0.13	Gravel	1.00
Rock outcrop	25	Not rated		Not rated		Not rated	
W:							
Water	100	Not rated		Not rated		Not rated	

Table 10.—Recreational Development, Part II

(The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation. The numbers in the value columns range from 0.01 to 1.00. The larger the value, the greater the limitation. See text for further explanation of ratings in this table)

Map symbol and soil name	Pct. of map unit	Paths and trails: Rating class and limiting features	Value	Off-road motorcycle trails: Rating class and limiting features	Value	Golf fairways: Rating class and limiting features	Value
1A:							
Alonzville, rarely flooded	85	Not limited		Not limited		Not limited	
1B:							
Alonzville, rarely flooded	85	Not limited		Not limited		Not limited	
2B:							
Alonzville	85	Not limited		Not limited		Not limited	
3A:							
Atkins	90	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Ponding	1.00
		Ponding	1.00	Ponding	1.00	Flooding	1.00
		Flooding	0.40	Flooding	0.40	Depth to saturated zone	1.00
4C:							
Bailegap	90	Somewhat limited		Somewhat limited		Somewhat limited	
		Large stones content	0.76	Large stones content	0.76	Slope	0.37
4E:							
Bailegap	90	Very limited		Somewhat limited		Very limited	
		Slope	1.00	Large stones content	0.76	Too steep	1.00
		Large stones content	0.76				
5G:							
Bailegap	35	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Too steep	1.00
		Large stones content	0.76	Large stones content	0.76		
Lily	30	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Too steep	1.00
		Large stones content	0.47	Large stones content	0.47	Depth to bedrock	0.46
						Droughty	0.01
Dekalb	25	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Too steep	1.00
		Large stones content	1.00	Large stones content	1.00	Droughty	0.99
						Depth to bedrock	0.35
6E:							
Berks	55	Very limited		Somewhat limited		Very limited	
		Slope	1.00	Slope	0.22	Too steep	1.00
						Gravel	0.94
						Depth to bedrock	0.65
Culleoka	35	Very limited		Somewhat limited		Very limited	
		Slope	1.00	Slope	0.22	Too steep	1.00
						Depth to bedrock	0.71
						Gravel	0.32

Table 10.—Recreational Development, Part II—Continued

Map symbol and soil name	Pct. of map unit	Paths and trails: Rating class and limiting features	Value	Off-road motorcycle trails: Rating class and limiting features	Value	Golf fairways: Rating class and limiting features	Value
6G:							
Berks	60	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Too steep	1.00
						Gravel	0.94
						Depth to bedrock	0.65
Culleoka	30	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Too steep	1.00
						Depth to bedrock	0.71
						Gravel	0.32
7C:							
Berks	45	Not limited		Not limited		Somewhat limited	
						Gravel	0.94
						Depth to bedrock	0.65
						Large stones	0.46
Weikert	40	Not limited		Not limited		Very limited	
						Depth to bedrock	1.00
						Droughty	1.00
						Gravel	0.57
7E:							
Berks	50	Very limited		Not limited		Very limited	
		Slope	1.00			Too steep	1.00
						Gravel	0.94
						Depth to bedrock	0.65
Weikert	35	Very limited		Not limited		Very limited	
		Slope	1.00			Too steep	1.00
						Depth to bedrock	1.00
						Droughty	1.00
7G:							
Berks	45	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Too steep	1.00
						Gravel	0.94
						Depth to bedrock	0.65
Weikert	40	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Too steep	1.00
						Depth to bedrock	1.00
						Droughty	1.00
8G:							
Brushy	90	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Too steep	1.00
		Gravel	1.00	Gravel	1.00	Gravel	1.00
		Large stones content	0.76	Large stones content	0.76	Droughty	1.00
9E:							
Calvin	80	Very limited		Somewhat limited		Very limited	
		Slope	1.00	Large stones content	0.53	Too steep	1.00
		Large stones content	0.53			Depth to bedrock	0.71
						Droughty	0.32

Table 10.—Recreational Development, Part II—Continued

Map symbol and soil name	Pct. of map unit	Paths and trails: Rating class and limiting features	Value	Off-road motorcycle trails: Rating class and limiting features	Value	Golf fairways: Rating class and limiting features	Value
10G:							
Calvin	55	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Too steep	1.00
		Large stones content	0.53	Large stones content	0.53	Depth to bedrock	0.71
						Droughty	0.32
Rough	30	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Depth to bedrock	1.00
		Large stones content	0.53	Large stones content	0.53	Too steep	1.00
						Droughty	1.00
11E:							
Carbo	60	Somewhat limited		Not limited		Very limited	
		Slope	0.82			Too steep	1.00
						Depth to bedrock	0.90
						Droughty	0.44
Rock outcrop	25	Not rated		Not rated		Not rated	
11F:							
Carbo	60	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Too steep	1.00
						Depth to bedrock	0.90
						Droughty	0.44
Rock outcrop	25	Not rated		Not rated		Not rated	
12E:							
Carbo, karst	60	Somewhat limited		Not limited		Very limited	
		Slope	0.50			Too steep	1.00
						Depth to bedrock	0.90
						Droughty	0.44
Rock outcrop	25	Not rated		Not rated		Not rated	
13A:							
Coursey	85	Somewhat limited		Somewhat limited		Somewhat limited	
		Depth to saturated zone	0.11	Depth to saturated zone	0.11	Depth to saturated zone	0.48
13B:							
Coursey	85	Somewhat limited		Somewhat limited		Somewhat limited	
		Depth to saturated zone	0.11	Depth to saturated zone	0.11	Depth to saturated zone	0.48
14C:							
Culleoka	50	Not limited		Not limited		Somewhat limited	
						Depth to bedrock	0.71
						Slope	0.37
						Gravel	0.32
Berks	40	Not limited		Not limited		Somewhat limited	
						Gravel	0.94
						Depth to bedrock	0.65
						Large stones	0.46
14D:							
Culleoka	50	Somewhat limited		Not limited		Very limited	
		Slope	0.50			Too steep	1.00
						Depth to bedrock	0.71
						Gravel	0.32

Table 10.—Recreational Development, Part II—Continued

Map symbol and soil name	Pct. of map unit	Paths and trails: Rating class and limiting features	Value	Off-road motorcycle trails: Rating class and limiting features	Value	Golf fairways: Rating class and limiting features	Value
14D:							
Berks	40	Somewhat limited		Not limited		Very limited	
		Slope	0.50			Too steep	1.00
						Gravel	0.94
						Depth to bedrock	0.65
15E:							
Dekalb	90	Very limited		Very limited		Very limited	
		Large stones content	1.00	Large stones content	1.00	Too steep	1.00
						Droughty	0.99
		Slope	1.00			Depth to bedrock	0.35
15F:							
Dekalb	85	Very limited		Very limited		Very limited	
		Large stones content	1.00	Large stones content	1.00	Too steep	1.00
						Droughty	0.99
		Slope	1.00	Slope	1.00	Depth to bedrock	0.35
16E:							
Dekalb	75	Very limited		Very limited		Very limited	
		Large stones content	1.00	Large stones content	1.00	Too steep	1.00
						Droughty	0.99
		Slope	0.82			Depth to bedrock	0.35
Rock outcrop	15	Not rated		Not rated		Not rated	
16G:							
Dekalb	75	Very limited		Very limited		Very limited	
		Large stones content	1.00	Large stones content	1.00	Too steep	1.00
						Droughty	0.99
		Slope	1.00	Slope	1.00	Depth to bedrock	0.35
Rock outcrop	15	Not rated		Not rated		Not rated	
17B:							
Escatawba	90	Not limited		Not limited		Not limited	
17C:							
Escatawba	90	Not limited		Not limited		Somewhat limited	
						Slope	0.37
18C:							
Escatawba, very stony	90	Somewhat limited		Somewhat limited		Somewhat limited	
		Large stones content	0.94	Large stones content	0.94	Slope	0.37
18E:							
Escatawba, very stony	85	Very limited		Somewhat limited		Very limited	
		Slope	1.00	Large stones content	0.94	Too steep	1.00
		Large stones content	0.94				
19B:							
Frederick	90	Not limited		Not limited		Not limited	
19C:							
Frederick	90	Very limited		Very limited		Somewhat limited	
		Water erosion	1.00	Water erosion	1.00	Slope	0.37

Table 10.—Recreational Development, Part II—Continued

Map symbol and soil name	Pct. of map unit	Paths and trails: Rating class and limiting features	Value	Off-road motorcycle trails: Rating class and limiting features	Value	Golf fairways: Rating class and limiting features	Value
19D:							
Frederick	90	Very limited		Very limited		Very limited	
		Water erosion	1.00	Water erosion	1.00	Too steep	1.00
		Slope	0.50				
19E:							
Frederick	90	Very limited		Very limited		Very limited	
		Slope	1.00	Water erosion	1.00	Too steep	1.00
		Water erosion	1.00	Slope	0.22		
20C:							
Frederick	50	Not limited		Not limited		Somewhat limited	
						Slope	0.37
						Gravel	0.01
Watahala	35	Not limited		Not limited		Somewhat limited	
						Gravel	0.68
						Slope	0.37
20D:							
Frederick	50	Somewhat limited		Not limited		Very limited	
		Slope	0.50			Too steep	1.00
						Gravel	0.01
Watahala	35	Somewhat limited		Not limited		Very limited	
		Slope	0.50			Too steep	1.00
						Gravel	0.68
21C:							
Gilpin	85	Very limited		Very limited		Somewhat limited	
		Water erosion	1.00	Water erosion	1.00	Slope	0.37
						Depth to bedrock	0.23
21D:							
Gilpin	85	Very limited		Very limited		Very limited	
		Water erosion	1.00	Water erosion	1.00	Too steep	1.00
		Slope	0.50			Depth to bedrock	0.23
22B:							
Jefferson	90	Not limited		Not limited		Somewhat limited	
						Large stones	0.32
22C:							
Jefferson	90	Not limited		Not limited		Somewhat limited	
						Slope	0.37
						Large stones	0.32
22D:							
Jefferson	90	Somewhat limited		Not limited		Very limited	
		Slope	0.50			Too steep	1.00
						Large stones	0.32
23C:							
Lily	90	Somewhat limited		Somewhat limited		Somewhat limited	
		Large stones content	0.76	Large stones content	0.76	Depth to bedrock	0.46
						Slope	0.37
						Droughty	0.01

Table 10.—Recreational Development, Part II—Continued

Map symbol and soil name	Pct. of map unit	Paths and trails: Rating class and limiting features	Value	Off-road motorcycle trails: Rating class and limiting features	Value	Golf fairways: Rating class and limiting features	Value
23E:							
Lily----------------	85	Very limited		Somewhat limited		Very limited	
		Slope	1.00	Large stones content	0.76	Too steep	1.00
		Large stones content	0.76			Depth to bedrock	0.46
						Droughty	0.01
23F:							
Lily----------------	85	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Too steep	1.00
		Large stones content	0.76	Large stones content	0.76	Depth to bedrock	0.46
						Droughty	0.01
24A:							
Maurertown----------	90	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Ponding	1.00
		Ponding	1.00	Ponding	1.00	Depth to saturated zone	1.00
25B:							
Nicelytown----------	90	Somewhat limited		Somewhat limited		Somewhat limited	
		Depth to saturated zone	0.44	Depth to saturated zone	0.44	Depth to saturated zone	0.75
25C:							
Nicelytown----------	90	Very limited		Very limited		Somewhat limited	
		Water erosion	1.00	Water erosion	1.00	Depth to saturated zone	0.75
		Depth to saturated zone	0.44	Depth to saturated zone	0.44	Slope	0.37
26B:							
Ogles---------------	90	Somewhat limited		Somewhat limited		Very limited	
		Large stones content	0.77	Large stones content	0.77	Flooding	1.00
		Flooding	0.40	Flooding	0.40	Large stones	1.00
27C:							
Oriskany, extremely stony--------------	90	Very limited		Very limited		Somewhat limited	
		Large stones content	1.00	Large stones content	1.00	Gravel	0.68
						Slope	0.37
27E:							
Oriskany, extremely stony--------------	90	Very limited		Very limited		Very limited	
		Large stones content	1.00	Large stones content	1.00	Too steep	1.00
		Slope	1.00			Gravel	0.68
28F:							
Oriskany, very rubbly-------------	90	Very limited		Very limited		Very limited	
		Large stones content	1.00	Large stones content	1.00	Too steep	1.00
		Slope	1.00	Slope	0.78	Gravel	0.68
29A:							
Philo---------------	85	Somewhat limited		Somewhat limited		Somewhat limited	
		Depth to saturated zone	0.01	Depth to saturated zone	0.01	Flooding	0.60
						Depth to saturated zone	0.28

Table 10.—Recreational Development, Part II—Continued

Map symbol and soil name	Pct. of map unit	Paths and trails: Rating class and limiting features	Paths and trails: Value	Off-road motorcycle trails: Rating class and limiting features	Off-road motorcycle trails: Value	Golf fairways: Rating class and limiting features	Golf fairways: Value
30:							
Pits	50	Not rated		Not rated		Not rated	
Dumps	45	Not rated		Not rated		Not rated	
31A:							
Pope	90	Somewhat limited		Somewhat limited		Very limited	
		Flooding	0.40	Flooding	0.40	Flooding	1.00
32C:							
Schaffenaker	85	Somewhat limited		Somewhat limited		Somewhat limited	
		Too sandy	0.59	Too sandy	0.59	Droughty	0.75
						Slope	0.37
						Depth to bedrock	0.01
33B:							
Shelocta	90	Not limited		Not limited		Not limited	
33C:							
Shelocta	90	Very limited		Very limited		Somewhat limited	
		Water erosion	1.00	Water erosion	1.00	Slope	0.37
33D:							
Shelocta	90	Very limited		Very limited		Very limited	
		Water erosion	1.00	Water erosion	1.00	Too steep	1.00
		Slope	0.50				
34B:							
Slabtown	90	Not limited		Not limited		Somewhat limited	
						Depth to saturated zone	0.03
34C:							
Slabtown	90	Very limited		Very limited		Somewhat limited	
		Water erosion	1.00	Water erosion	1.00	Slope	0.37
						Depth to saturated zone	0.03
35B:							
Sugarhol	90	Not limited		Not limited		Not limited	
35C:							
Sugarhol	85	Very limited		Very limited		Somewhat limited	
		Water erosion	1.00	Water erosion	1.00	Slope	0.37
36B:							
Tumbling	80	Not limited		Not limited		Somewhat limited	
						Large stones	0.08
36C:							
Tumbling	85	Not limited		Not limited		Somewhat limited	
						Slope	0.37
						Large stones	0.08
36D:							
Tumbling	80	Somewhat limited		Not limited		Very limited	
		Slope	0.50			Too steep	1.00
						Large stones	0.08

Table 10.—Recreational Development, Part II—Continued

Map symbol and soil name	Pct. of map unit	Paths and trails: Rating class and limiting features	Value	Off-road motorcycle trails: Rating class and limiting features	Value	Golf fairways: Rating class and limiting features	Value
37C:							
Tumbling, very stony	80	Very limited		Very limited		Somewhat limited	
		Large stones content	1.00	Large stones content	1.00	Slope	0.37
						Large stones	0.08
37E:							
Tumbling, very stony	80	Very limited		Very limited		Very limited	
		Large stones content	1.00	Large stones content	1.00	Too steep	1.00
						Large stones	0.08
		Slope	1.00				
38:							
Udorthents, unstable fill	50	Not rated		Not rated		Not rated	
Urban land	40	Not rated		Not rated		Not rated	
39C:							
Watahala	90	Not limited		Not limited		Somewhat limited	
						Gravel	0.68
						Slope	0.37
39D:							
Watahala	90	Somewhat limited		Not limited		Very limited	
		Slope	0.50			Too steep	1.00
						Gravel	0.68
39E:							
Watahala	90	Very limited		Somewhat limited		Very limited	
		Slope	1.00	Slope	0.22	Too steep	1.00
						Gravel	0.68
40C:							
Watahala, extremely stony	90	Very limited		Very limited		Somewhat limited	
		Large stones content	1.00	Large stones content	1.00	Gravel	0.68
						Slope	0.37
40E:							
Watahala, extremely stony	90	Very limited		Very limited		Very limited	
		Large stones content	1.00	Large stones content	1.00	Too steep	1.00
						Gravel	0.68
		Slope	1.00				
40F:							
Watahala, extremely stony	90	Very limited		Very limited		Very limited	
		Large stones content	1.00	Large stones content	1.00	Too steep	1.00
						Gravel	0.68
		Slope	1.00	Slope	1.00		
41G:							
Weikert	35	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Too steep	1.00
						Depth to bedrock	1.00
						Droughty	1.00

Table 10.—Recreational Development, Part II—Continued

Map symbol and soil name	Pct. of map unit	Paths and trails: Rating class and limiting features	Value	Off-road motorcycle trails: Rating class and limiting features	Value	Golf fairways: Rating class and limiting features	Value
41G:							
Rough	30	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Depth to bedrock	1.00
						Too steep	1.00
						Droughty	1.00
Rock outcrop	25	Not rated		Not rated		Not rated	
W:							
Water	100	Not rated		Not rated		Not rated	

Table 11.—Building Site Development, Part I

(The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation. The numbers in the value columns range from 0.01 to 1.00. The larger the value, the greater the limitation. See text for further explanation of ratings in this table)

Map symbol and soil name	Pct. of map unit	Dwellings without basements: Rating class and limiting features	Value	Dwellings with basements: Rating class and limiting features	Value	Small commercial buildings: Rating class and limiting features	Value
1A:							
Alonzville, rarely flooded	85	Very limited		Very limited		Very limited	
		Flooding	1.00	Flooding	1.00	Flooding	1.00
1B:							
Alonzville, rarely flooded	85	Very limited		Very limited		Very limited	
		Flooding	1.00	Flooding	1.00	Flooding	1.00
						Slope	0.12
2B:							
Alonzville	85	Not limited		Not limited		Somewhat limited	
						Slope	0.12
3A:							
Atkins	90	Very limited		Very limited		Very limited	
		Ponding	1.00	Ponding	1.00	Ponding	1.00
		Flooding	1.00	Flooding	1.00	Flooding	1.00
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
4C:							
Bailegap	90	Somewhat limited		Somewhat limited		Very limited	
		Slope	0.37	Depth to hard bedrock	0.77	Slope	1.00
				Slope	0.37		
4E:							
Bailegap	90	Very limited		Very limited		Very limited	
		Too steep	1.00	Too steep	1.00	Slope	1.00
				Depth to hard bedrock	0.77		
5G:							
Bailegap	35	Very limited		Very limited		Very limited	
		Too steep	1.00	Too steep	1.00	Slope	1.00
				Depth to hard bedrock	0.77		
Lily	30	Very limited		Very limited		Very limited	
		Too steep	1.00	Too steep	1.00	Slope	1.00
		Depth to hard bedrock	0.46	Depth to hard bedrock	1.00	Depth to hard bedrock	0.46
Dekalb	25	Very limited		Very limited		Very limited	
		Too steep	1.00	Too steep	1.00	Slope	1.00
		Depth to hard bedrock	0.35	Depth to hard bedrock	1.00	Depth to hard bedrock	0.35
6E:							
Berks	55	Very limited		Very limited		Very limited	
		Too steep	1.00	Too steep	1.00	Slope	1.00
		Depth to hard bedrock	0.64	Depth to hard bedrock	1.00	Depth to hard bedrock	0.64

Table 11.—Building Site Development, Part I—Continued

Map symbol and soil name	Pct. of map unit	Dwellings without basements: Rating class and limiting features	Value	Dwellings with basements: Rating class and limiting features	Value	Small commercial buildings: Rating class and limiting features	Value
6E:							
Culleoka	35	Very limited Too steep Depth to hard bedrock	 1.00 0.71	Very limited Too steep Depth to hard bedrock	 1.00 1.00	Very limited Slope Depth to hard bedrock	 1.00 0.71
6G:							
Berks	60	Very limited Too steep Depth to hard bedrock	 1.00 0.64	Very limited Too steep Depth to hard bedrock	 1.00 1.00	Very limited Slope Depth to hard bedrock	 1.00 0.64
Culleoka	30	Very limited Too steep Depth to hard bedrock	 1.00 0.71	Very limited Too steep Depth to hard bedrock	 1.00 1.00	Very limited Slope Depth to hard bedrock	 1.00 0.71
7C:							
Berks	45	Somewhat limited Depth to hard bedrock Slope	 0.64 0.37	Very limited Depth to hard bedrock Slope	 1.00 0.37	Very limited Slope Depth to hard bedrock	 1.00 0.64
Weikert	40	Very limited Depth to hard bedrock Slope	 1.00 0.37	Very limited Depth to hard bedrock Slope	 1.00 0.37	Very limited Slope Depth to hard bedrock	 1.00 1.00
7E:							
Berks	50	Very limited Too steep Depth to hard bedrock	 1.00 0.64	Very limited Too steep Depth to hard bedrock	 1.00 1.00	Very limited Slope Depth to hard bedrock	 1.00 0.64
Weikert	35	Very limited Too steep Depth to hard bedrock	 1.00 1.00	Very limited Too steep Depth to hard bedrock	 1.00 1.00	Very limited Slope Depth to hard bedrock	 1.00 1.00
7G:							
Berks	45	Very limited Too steep Depth to hard bedrock	 1.00 0.64	Very limited Too steep Depth to hard bedrock	 1.00 1.00	Very limited Slope Depth to hard bedrock	 1.00 0.64
Weikert	40	Very limited Too steep Depth to hard bedrock	 1.00 1.00	Very limited Too steep Depth to hard bedrock	 1.00 1.00	Very limited Slope Depth to hard bedrock	 1.00 1.00
8G:							
Brushy	90	Very limited Too steep Depth to hard bedrock	 1.00 0.15	Very limited Too steep Depth to hard bedrock	 1.00 1.00	Very limited Slope Depth to hard bedrock	 1.00 0.15
9E:							
Calvin	80	Very limited Too steep Depth to hard bedrock	 1.00 0.71	Very limited Too steep Depth to hard bedrock	 1.00 1.00	Very limited Slope Depth to hard bedrock	 1.00 0.71

Table 11.—Building Site Development, Part I—Continued

Map symbol and soil name	Pct. of map unit	Dwellings without basements: Rating class and limiting features	Value	Dwellings with basements: Rating class and limiting features	Value	Small commercial buildings: Rating class and limiting features	Value
10G:							
Calvin	55	Very limited		Very limited		Very limited	
		Too steep	1.00	Too steep	1.00	Slope	1.00
		Depth to hard bedrock	0.71	Depth to hard bedrock	1.00	Depth to hard bedrock	0.71
Rough	30	Very limited		Very limited		Very limited	
		Too steep	1.00	Too steep	1.00	Slope	1.00
		Depth to hard bedrock	1.00	Depth to hard bedrock	1.00	Depth to hard bedrock	1.00
		Large stones	0.03	Large stones	0.03	Large stones	0.03
11E:							
Carbo	60	Very limited		Very limited		Very limited	
		Shrink-swell	1.00	Shrink-swell	1.00	Slope	1.00
		Too steep	1.00	Depth to hard bedrock	1.00	Shrink-swell	1.00
		Depth to hard bedrock	0.90	Too steep	1.00	Depth to hard bedrock	0.90
Rock outcrop	25	Not rated		Not rated		Not rated	
11F:							
Carbo	60	Very limited		Very limited		Very limited	
		Too steep	1.00	Too steep	1.00	Slope	1.00
		Shrink-swell	1.00	Shrink-swell	1.00	Shrink-swell	1.00
		Depth to hard bedrock	0.90	Depth to hard bedrock	1.00	Depth to hard bedrock	0.90
Rock outcrop	25	Not rated		Not rated		Not rated	
12E:							
Carbo, karst	60	Very limited		Very limited		Very limited	
		Shrink-swell	1.00	Shrink-swell	1.00	Slope	1.00
		Too steep	1.00	Depth to hard bedrock	1.00	Shrink-swell	1.00
		Depth to hard bedrock	0.90	Too steep	1.00	Depth to hard bedrock	0.90
Rock outcrop	25	Not rated		Not rated		Not rated	
13A:							
Coursey	85	Very limited		Very limited		Very limited	
		Flooding	1.00	Flooding	1.00	Flooding	1.00
		Depth to saturated zone	0.81	Depth to saturated zone	1.00	Depth to saturated zone	0.81
13B:							
Coursey	85	Very limited		Very limited		Very limited	
		Flooding	1.00	Flooding	1.00	Flooding	1.00
		Depth to saturated zone	0.81	Depth to saturated zone	1.00	Depth to saturated zone	0.81
						Slope	0.12
14C:							
Culleoka	50	Somewhat limited		Very limited		Very limited	
		Depth to hard bedrock	0.71	Depth to hard bedrock	1.00	Slope	1.00
		Slope	0.37	Slope	0.37	Depth to hard bedrock	0.71
Berks	40	Somewhat limited		Very limited		Very limited	
		Depth to hard bedrock	0.64	Depth to hard bedrock	1.00	Slope	1.00
		Slope	0.37	Slope	0.37	Depth to hard bedrock	0.64

Table 11.—Building Site Development, Part I—Continued

Map symbol and soil name	Pct. of map unit	Dwellings without basements: Rating class and limiting features	Value	Dwellings with basements: Rating class and limiting features	Value	Small commercial buildings: Rating class and limiting features	Value
14D:							
Culleoka	50	Very limited		Very limited		Very limited	
		Too steep	1.00	Too steep	1.00	Slope	1.00
		Depth to hard bedrock	0.71	Depth to hard bedrock	1.00	Depth to hard bedrock	0.71
Berks	40	Very limited		Very limited		Very limited	
		Too steep	1.00	Too steep	1.00	Slope	1.00
		Depth to hard bedrock	0.64	Depth to hard bedrock	1.00	Depth to hard bedrock	0.64
15E:							
Dekalb	90	Very limited		Very limited		Very limited	
		Too steep	1.00	Depth to hard bedrock	1.00	Slope	1.00
		Depth to hard bedrock	0.35	Too steep	1.00	Depth to hard bedrock	0.35
15F:							
Dekalb	85	Very limited		Very limited		Very limited	
		Too steep	1.00	Too steep	1.00	Slope	1.00
		Depth to hard bedrock	0.35	Depth to hard bedrock	1.00	Depth to hard bedrock	0.35
16E:							
Dekalb	75	Very limited		Very limited		Very limited	
		Too steep	1.00	Depth to hard bedrock	1.00	Slope	1.00
		Depth to hard bedrock	0.35	Too steep	1.00	Depth to hard bedrock	0.35
Rock outcrop	15	Not rated		Not rated		Not rated	
16G:							
Dekalb	75	Very limited		Very limited		Very limited	
		Too steep	1.00	Too steep	1.00	Slope	1.00
		Depth to hard bedrock	0.35	Depth to hard bedrock	1.00	Depth to hard bedrock	0.35
Rock outcrop	15	Not rated		Not rated		Not rated	
17B:							
Escatawba	90	Not limited		Somewhat limited		Somewhat limited	
				Depth to saturated zone	0.99	Slope	0.12
17C:							
Escatawba	90	Somewhat limited		Somewhat limited		Very limited	
		Slope	0.37	Depth to saturated zone	0.99	Slope	1.00
				Slope	0.37		
18C:							
Escatawba, very stony	90	Somewhat limited		Somewhat limited		Very limited	
		Slope	0.37	Depth to saturated zone	0.99	Slope	1.00
				Slope	0.37		

Table 11.—Building Site Development, Part I—Continued

Map symbol and soil name	Pct. of map unit	Dwellings without basements: Rating class and limiting features	Value	Dwellings with basements: Rating class and limiting features	Value	Small commercial buildings: Rating class and limiting features	Value
18E:							
Escatawba, very stony	85	Very limited		Very limited		Very limited	
		Too steep	1.00	Too steep	1.00	Slope	1.00
				Depth to saturated zone	0.99		
19B:							
Frederick	90	Somewhat limited		Somewhat limited		Somewhat limited	
		Shrink-swell	0.62	Shrink-swell	0.62	Shrink-swell	0.62
						Slope	0.12
19C:							
Frederick	90	Somewhat limited		Somewhat limited		Very limited	
		Shrink-swell	0.62	Shrink-swell	0.62	Slope	1.00
		Slope	0.37	Slope	0.37	Shrink-swell	0.62
19D:							
Frederick	90	Very limited		Very limited		Very limited	
		Too steep	1.00	Too steep	1.00	Slope	1.00
		Shrink-swell	0.62	Shrink-swell	0.62	Shrink-swell	0.62
19E:							
Frederick	90	Very limited		Very limited		Very limited	
		Too steep	1.00	Too steep	1.00	Slope	1.00
		Shrink-swell	0.62	Shrink-swell	0.62	Shrink-swell	0.62
20C:							
Frederick	50	Somewhat limited		Somewhat limited		Very limited	
		Slope	0.37	Shrink-swell	0.73	Slope	1.00
		Shrink-swell	0.18	Slope	0.37	Shrink-swell	0.18
Watahala	35	Somewhat limited		Somewhat limited		Very limited	
		Slope	0.37	Shrink-swell	0.50	Slope	1.00
		Shrink-swell	0.22	Slope	0.37	Shrink-swell	0.22
20D:							
Frederick	50	Very limited		Very limited		Very limited	
		Too steep	1.00	Too steep	1.00	Slope	1.00
		Shrink-swell	0.18	Shrink-swell	0.73	Shrink-swell	0.18
Watahala	35	Very limited		Very limited		Very limited	
		Too steep	1.00	Too steep	1.00	Slope	1.00
		Shrink-swell	0.22	Shrink-swell	0.50	Shrink-swell	0.22
21C:							
Gilpin	85	Somewhat limited		Somewhat limited		Very limited	
		Slope	0.37	Slope	0.37	Slope	1.00
				Depth to soft bedrock	0.23		
21D:							
Gilpin	85	Very limited		Very limited		Very limited	
		Too steep	1.00	Too steep	1.00	Slope	1.00
				Depth to soft bedrock	0.23		
22B:							
Jefferson	90	Not limited		Not limited		Somewhat limited	
						Slope	0.12

Table 11.—Building Site Development, Part I—Continued

Map symbol and soil name	Pct. of map unit	Dwellings without basements: Rating class and limiting features	Value	Dwellings with basements: Rating class and limiting features	Value	Small commercial buildings: Rating class and limiting features	Value
22C:							
Jefferson-----------	90	Somewhat limited		Somewhat limited		Very limited	
		Slope	0.37	Slope	0.37	Slope	1.00
22D:							
Jefferson-----------	90	Very limited		Very limited		Very limited	
		Too steep	1.00	Too steep	1.00	Slope	1.00
23C:							
Lily----------------	90	Somewhat limited		Very limited		Very limited	
		Depth to hard bedrock	0.46	Depth to hard bedrock	1.00	Slope	1.00
		Slope	0.37	Slope	0.37	Depth to hard bedrock	0.46
23E:							
Lily----------------	85	Very limited		Very limited		Very limited	
		Too steep	1.00	Too steep	1.00	Slope	1.00
		Depth to hard bedrock	0.46	Depth to hard bedrock	1.00	Depth to hard bedrock	0.46
23F:							
Lily----------------	85	Very limited		Very limited		Very limited	
		Too steep	1.00	Too steep	1.00	Slope	1.00
		Depth to hard bedrock	0.46	Depth to hard bedrock	1.00	Depth to hard bedrock	0.46
24A:							
Maurertown----------	90	Very limited		Very limited		Very limited	
		Ponding	1.00	Ponding	1.00	Ponding	1.00
		Flooding	1.00	Flooding	1.00	Flooding	1.00
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
25B:							
Nicelytown----------	90	Somewhat limited		Very limited		Somewhat limited	
		Depth to saturated zone	0.98	Depth to saturated zone	1.00	Depth to saturated zone	0.98
						Slope	0.12
25C:							
Nicelytown----------	90	Somewhat limited		Very limited		Very limited	
		Depth to saturated zone	0.98	Depth to saturated zone	1.00	Slope	1.00
		Slope	0.37	Slope	0.37	Depth to saturated zone	0.98
26B:							
Ogles---------------	90	Very limited		Very limited		Very limited	
		Flooding	1.00	Flooding	1.00	Flooding	1.00
		Large stones	1.00	Large stones	1.00	Large stones	1.00
				Depth to saturated zone	0.24		
27C:							
Oriskany, extremely stony--------------	90	Very limited		Very limited		Very limited	
		Large stones	1.00	Large stones	1.00	Slope	1.00
		Slope	0.37	Slope	0.37	Large stones	1.00

Table 11.—Building Site Development, Part I—Continued

Map symbol and soil name	Pct. of map unit	Dwellings without basements: Rating class and limiting features	Value	Dwellings with basements: Rating class and limiting features	Value	Small commercial buildings: Rating class and limiting features	Value
27E:							
Oriskany, extremely stony	90	Very limited		Very limited		Very limited	
		Too steep	1.00	Too steep	1.00	Slope	1.00
		Large stones	1.00	Large stones	1.00	Large stones	1.00
28F:							
Oriskany, very rubbly	90	Very limited		Very limited		Very limited	
		Too steep	1.00	Too steep	1.00	Slope	1.00
		Large stones	1.00	Large stones	1.00	Large stones	1.00
29A:							
Philo	85	Very limited		Very limited		Very limited	
		Flooding	1.00	Flooding	1.00	Flooding	1.00
		Depth to saturated zone	0.56	Depth to saturated zone	1.00	Depth to saturated zone	0.56
30:							
Pits	50	Not rated		Not rated		Not rated	
Dumps	45	Not rated		Not rated		Not rated	
31A:							
Pope	90	Very limited		Very limited		Very limited	
		Flooding	1.00	Flooding	1.00	Flooding	1.00
32C:							
Schaffenaker	85	Somewhat limited		Very limited		Very limited	
		Slope	0.37	Depth to hard bedrock	1.00	Slope	1.00
		Depth to hard bedrock	0.01	Slope	0.37	Depth to hard bedrock	0.01
33B:							
Shelocta	90	Not limited		Not limited		Somewhat limited	
						Slope	0.12
33C:							
Shelocta	90	Somewhat limited		Somewhat limited		Very limited	
		Slope	0.37	Slope	0.37	Slope	1.00
33D:							
Shelocta	90	Very limited		Very limited		Very limited	
		Too steep	1.00	Too steep	1.00	Slope	1.00
34B:							
Slabtown	90	Somewhat limited		Very limited		Somewhat limited	
		Shrink-swell	0.50	Depth to saturated zone	1.00	Shrink-swell	0.50
		Depth to saturated zone	0.07	Shrink-swell	1.00	Slope	0.12
						Depth to saturated zone	0.07
34C:							
Slabtown	90	Somewhat limited		Very limited		Very limited	
		Shrink-swell	0.50	Depth to saturated zone	1.00	Slope	1.00
		Slope	0.37	Shrink-swell	1.00	Shrink-swell	0.50
		Depth to saturated zone	0.07	Slope	0.37	Depth to saturated zone	0.07

Table 11.—Building Site Development, Part I—Continued

Map symbol and soil name	Pct. of map unit	Dwellings without basements: Rating class and limiting features	Value	Dwellings with basements: Rating class and limiting features	Value	Small commercial buildings: Rating class and limiting features	Value
35B:							
Sugarhol	90	Somewhat limited		Not limited		Somewhat limited	
		Shrink-swell	0.01			Slope	0.12
						Shrink-swell	0.01
35C:							
Sugarhol	85	Somewhat limited		Somewhat limited		Very limited	
		Slope	0.37	Slope	0.37	Slope	1.00
		Shrink-swell	0.01			Shrink-swell	0.01
36B:							
Tumbling	80	Somewhat limited		Somewhat limited		Somewhat limited	
		Shrink-swell	0.01	Shrink-swell	0.01	Slope	0.12
						Shrink-swell	0.01
36C:							
Tumbling	85	Somewhat limited		Somewhat limited		Very limited	
		Slope	0.37	Slope	0.37	Slope	1.00
		Shrink-swell	0.01	Shrink-swell	0.01	Shrink-swell	0.01
36D:							
Tumbling	80	Very limited		Very limited		Very limited	
		Too steep	1.00	Too steep	1.00	Slope	1.00
		Shrink-swell	0.01	Shrink-swell	0.01	Shrink-swell	0.01
37C:							
Tumbling, very stony	80	Somewhat limited		Somewhat limited		Very limited	
		Slope	0.37	Slope	0.37	Slope	1.00
		Shrink-swell	0.01	Shrink-swell	0.01	Shrink-swell	0.01
37E:							
Tumbling, very stony	80	Very limited		Very limited		Very limited	
		Too steep	1.00	Too steep	1.00	Slope	1.00
		Shrink-swell	0.01	Shrink-swell	0.01	Shrink-swell	0.01
38:							
Udorthents, unstable fill	50	Not rated		Not rated		Not rated	
Urban land	40	Not rated		Not rated		Not rated	
39C:							
Watahala	90	Somewhat limited		Somewhat limited		Very limited	
		Slope	0.37	Shrink-swell	0.50	Slope	1.00
		Shrink-swell	0.22	Slope	0.37	Shrink-swell	0.22
39D:							
Watahala	90	Very limited		Very limited		Very limited	
		Too steep	1.00	Too steep	1.00	Slope	1.00
		Shrink-swell	0.22	Shrink-swell	0.50	Shrink-swell	0.22
39E:							
Watahala	90	Very limited		Very limited		Very limited	
		Too steep	1.00	Too steep	1.00	Slope	1.00
		Shrink-swell	0.22	Shrink-swell	0.50	Shrink-swell	0.22
40C:							
Watahala, extremely stony	90	Somewhat limited		Somewhat limited		Very limited	
		Slope	0.37	Shrink-swell	0.50	Slope	1.00
		Shrink-swell	0.22	Slope	0.37	Shrink-swell	0.22

Table 11.—Building Site Development, Part I—Continued

Map symbol and soil name	Pct. of map unit	Dwellings without basements: Rating class and limiting features	Value	Dwellings with basements: Rating class and limiting features	Value	Small commercial buildings: Rating class and limiting features	Value
40E:							
Watahala, extremely stony	90	Very limited		Very limited		Very limited	
		Too steep	1.00	Too steep	1.00	Slope	1.00
		Shrink-swell	0.22	Shrink-swell	0.50	Shrink-swell	0.22
40F:							
Watahala, extremely stony	90	Very limited		Very limited		Very limited	
		Too steep	1.00	Too steep	1.00	Slope	1.00
		Shrink-swell	0.22	Shrink-swell	0.50	Shrink-swell	0.22
41G:							
Weikert	35	Very limited		Very limited		Very limited	
		Too steep	1.00	Too steep	1.00	Slope	1.00
		Depth to hard bedrock	1.00	Depth to hard bedrock	1.00	Depth to hard bedrock	1.00
Rough	30	Very limited		Very limited		Very limited	
		Too steep	1.00	Too steep	1.00	Slope	1.00
		Depth to hard bedrock	1.00	Depth to hard bedrock	1.00	Depth to hard bedrock	1.00
		Large stones	0.03	Large stones	0.03	Large stones	0.03
Rock outcrop	25	Not rated		Not rated		Not rated	
W:							
Water	100	Not rated		Not rated		Not rated	

Table 11.—Building Site Development, Part II

(The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation. The numbers in the value columns range from 0.01 to 1.00. The larger the value, the greater the limitation. See text for further explanation of ratings in this table)

Map symbol and soil name	Pct. of map unit	Local roads and streets: Rating class and limiting features	Value	Shallow excavations: Rating class and limiting features	Value	Lawns and landscaping: Rating class and limiting features	Value
1A:							
Alonzville, rarely flooded	85	Somewhat limited		Very limited		Not limited	
		Frost action	0.50	Unstable excavation walls	1.00		
		Flooding	0.40				
1B:							
Alonzville, rarely flooded	85	Somewhat limited		Very limited		Not limited	
		Frost action	0.50	Unstable excavation walls	1.00		
		Flooding	0.40				
2B:							
Alonzville	85	Somewhat limited		Very limited		Not limited	
		Frost action	0.50	Unstable excavation walls	1.00		
3A:							
Atkins	90	Very limited		Very limited		Very limited	
		Ponding	1.00	Ponding	1.00	Ponding	1.00
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Flooding	1.00
		Frost action	1.00	Unstable excavation walls	1.00	Depth to saturated zone	1.00
4C:							
Bailegap	90	Somewhat limited		Somewhat limited		Somewhat limited	
		Frost action	0.50	Depth to hard bedrock	0.77	Slope	0.37
		Slope	0.37	Slope	0.37		
				Unstable excavation walls	0.10		
4E:							
Bailegap	90	Very limited		Very limited		Very limited	
		Too steep	1.00	Too steep	1.00	Too steep	1.00
		Frost action	0.50	Depth to hard bedrock	0.77		
				Unstable excavation walls	0.10		
5G:							
Bailegap	35	Very limited		Very limited		Very limited	
		Too steep	1.00	Too steep	1.00	Too steep	1.00
		Frost action	0.50	Depth to hard bedrock	0.77		
				Unstable excavation walls	0.10		
Lily	30	Very limited		Very limited		Very limited	
		Too steep	1.00	Depth to hard bedrock	1.00	Too steep	1.00
		Low strength	0.78	Too steep	1.00	Depth to bedrock	0.46
		Frost action	0.50	Unstable excavation walls	0.10	Droughty	0.01

Table 11.—Building Site Development, Part II—Continued

Map symbol and soil name	Pct. of map unit	Local roads and streets: Rating class and limiting features	Value	Shallow excavations: Rating class and limiting features	Value	Lawns and landscaping: Rating class and limiting features	Value
5G:							
Dekalb	25	Very limited		Very limited		Very limited	
		Too steep	1.00	Depth to hard bedrock	1.00	Too steep	1.00
		Frost action	0.50	Too steep	1.00	Droughty	0.99
		Depth to hard bedrock	0.35	Unstable excavation walls	0.10	Depth to bedrock	0.35
6E:							
Berks	55	Very limited		Very limited		Very limited	
		Too steep	1.00	Depth to hard bedrock	1.00	Too steep	1.00
		Depth to hard bedrock	0.64	Too steep	1.00	Gravel	0.94
		Frost action	0.50	Unstable excavation walls	0.10	Depth to bedrock	0.65
Culleoka	35	Very limited		Very limited		Very limited	
		Too steep	1.00	Depth to hard bedrock	1.00	Too steep	1.00
		Depth to hard bedrock	0.71	Too steep	1.00	Depth to bedrock	0.71
		Frost action	0.50	Unstable excavation walls	0.10	Gravel	0.32
6G:							
Berks	60	Very limited		Very limited		Very limited	
		Too steep	1.00	Depth to hard bedrock	1.00	Too steep	1.00
		Depth to hard bedrock	0.64	Too steep	1.00	Gravel	0.94
		Frost action	0.50	Unstable excavation walls	0.10	Depth to bedrock	0.65
Culleoka	30	Very limited		Very limited		Very limited	
		Too steep	1.00	Depth to hard bedrock	1.00	Too steep	1.00
		Depth to hard bedrock	0.71	Too steep	1.00	Depth to bedrock	0.71
		Frost action	0.50	Unstable excavation walls	0.10	Gravel	0.32
7C:							
Berks	45	Somewhat limited		Very limited		Somewhat limited	
		Depth to hard bedrock	0.64	Depth to hard bedrock	1.00	Gravel	0.94
		Frost action	0.50	Slope	0.37	Depth to bedrock	0.65
		Slope	0.37	Unstable excavation walls	0.10	Large stones	0.46
Weikert	40	Very limited		Very limited		Very limited	
		Depth to hard bedrock	1.00	Depth to hard bedrock	1.00	Depth to bedrock	1.00
		Frost action	0.50	Slope	0.37	Droughty	1.00
		Slope	0.37	Unstable excavation walls	0.10	Gravel	0.57
7E:							
Berks	50	Very limited		Very limited		Very limited	
		Too steep	1.00	Depth to hard bedrock	1.00	Too steep	1.00
		Depth to hard bedrock	0.64	Too steep	1.00	Gravel	0.94
		Frost action	0.50	Unstable excavation walls	0.10	Depth to bedrock	0.65

Table 11.—Building Site Development, Part II—Continued

Map symbol and soil name	Pct. of map unit	Local roads and streets: Rating class and limiting features	Value	Shallow excavations: Rating class and limiting features	Value	Lawns and landscaping: Rating class and limiting features	Value
7E:							
Weikert	35	Very limited		Very limited		Very limited	
		Depth to hard bedrock	1.00	Depth to hard bedrock	1.00	Too steep	1.00
		Too steep	1.00	Too steep	1.00	Depth to bedrock	1.00
		Frost action	0.50	Unstable excavation walls	0.10	Droughty	1.00
7G:							
Berks	45	Very limited		Very limited		Very limited	
		Too steep	1.00	Depth to hard bedrock	1.00	Too steep	1.00
		Depth to hard bedrock	0.64	Too steep	1.00	Gravel	0.94
		Frost action	0.50	Unstable excavation walls	0.10	Depth to bedrock	0.65
Weikert	40	Very limited		Very limited		Very limited	
		Depth to hard bedrock	1.00	Depth to hard bedrock	1.00	Too steep	1.00
		Too steep	1.00	Too steep	1.00	Depth to bedrock	1.00
		Frost action	0.50	Unstable excavation walls	0.10	Droughty	1.00
8G:							
Brushy	90	Very limited		Very limited		Very limited	
		Too steep	1.00	Depth to hard bedrock	1.00	Too steep	1.00
		Frost action	0.50	Too steep	1.00	Gravel	1.00
		Depth to hard bedrock	0.15	Unstable excavation walls	1.00	Droughty	1.00
9E:							
Calvin	80	Very limited		Very limited		Very limited	
		Too steep	1.00	Depth to hard bedrock	1.00	Too steep	1.00
		Depth to hard bedrock	0.71	Too steep	1.00	Depth to bedrock	0.71
		Frost action	0.50	Unstable excavation walls	0.10	Droughty	0.32
10G:							
Calvin	55	Very limited		Very limited		Very limited	
		Too steep	1.00	Depth to hard bedrock	1.00	Too steep	1.00
		Depth to hard bedrock	0.71	Too steep	1.00	Depth to bedrock	0.71
		Frost action	0.50	Unstable excavation walls	0.10	Droughty	0.32
Rough	30	Very limited		Very limited		Very limited	
		Depth to hard bedrock	1.00	Depth to hard bedrock	1.00	Depth to bedrock	1.00
		Too steep	1.00	Too steep	1.00	Too steep	1.00
		Frost action	0.50	Large stones	0.03	Droughty	1.00
11E:							
Carbo	60	Very limited		Very limited		Very limited	
		Low strength	1.00	Depth to hard bedrock	1.00	Too steep	1.00
		Shrink-swell	1.00	Too clayey	1.00	Depth to bedrock	0.90
		Too steep	1.00	Too steep	1.00	Droughty	0.44
Rock outcrop	25	Not rated		Not rated		Not rated	

Table 11.—Building Site Development, Part II—Continued

Map symbol and soil name	Pct. of map unit	Local roads and streets: Rating class and limiting features	Value	Shallow excavations: Rating class and limiting features	Value	Lawns and landscaping: Rating class and limiting features	Value
11F:							
Carbo	60	Very limited		Very limited		Very limited	
		Too steep	1.00	Depth to hard bedrock	1.00	Too steep	1.00
		Low strength	1.00			Depth to bedrock	0.90
		Shrink-swell	1.00	Too steep	1.00	Droughty	0.44
				Too clayey	1.00		
Rock outcrop	25	Not rated		Not rated		Not rated	
12E:							
Carbo, karst	60	Very limited		Very limited		Very limited	
		Low strength	1.00	Depth to hard bedrock	1.00	Too steep	1.00
		Shrink-swell	1.00			Depth to bedrock	0.90
		Too steep	1.00	Too clayey	1.00	Droughty	0.44
				Too steep	1.00		
Rock outcrop	25	Not rated		Not rated		Not rated	
13A:							
Coursey	85	Somewhat limited		Very limited		Somewhat limited	
		Frost action	0.50	Depth to saturated zone	1.00	Depth to saturated zone	0.48
		Depth to saturated zone	0.48				
				Unstable excavation walls	1.00		
		Flooding	0.40				
13B:							
Coursey	85	Somewhat limited		Very limited		Somewhat limited	
		Frost action	0.50	Depth to saturated zone	1.00	Depth to saturated zone	0.48
		Depth to saturated zone	0.48				
				Unstable excavation walls	1.00		
		Flooding	0.40				
14C:							
Culleoka	50	Somewhat limited		Very limited		Somewhat limited	
		Depth to hard bedrock	0.71	Depth to hard bedrock	1.00	Depth to bedrock	0.71
						Slope	0.37
		Frost action	0.50	Slope	0.37	Gravel	0.32
		Slope	0.37	Unstable excavation walls	0.10		
Berks	40	Somewhat limited		Very limited		Somewhat limited	
		Depth to hard bedrock	0.64	Depth to hard bedrock	1.00	Gravel	0.94
						Depth to bedrock	0.65
		Frost action	0.50	Slope	0.37	Large stones	0.46
		Slope	0.37	Unstable excavation walls	0.10		
14D:							
Culleoka	50	Very limited		Very limited		Very limited	
		Too steep	1.00	Depth to hard bedrock	1.00	Too steep	1.00
		Depth to hard bedrock	0.71			Depth to bedrock	0.71
				Too steep	1.00	Gravel	0.32
		Frost action	0.50	Unstable excavation walls	0.10		
Berks	40	Very limited		Very limited		Very limited	
		Too steep	1.00	Depth to hard bedrock	1.00	Too steep	1.00
		Depth to hard bedrock	0.64			Gravel	0.94
				Too steep	1.00	Depth to bedrock	0.65
		Frost action	0.50	Unstable excavation walls	0.10		

Table 11.—Building Site Development, Part II—Continued

Map symbol and soil name	Pct. of map unit	Local roads and streets: Rating class and limiting features	Value	Shallow excavations: Rating class and limiting features	Value	Lawns and landscaping: Rating class and limiting features	Value
15E:							
Dekalb	90	Very limited		Very limited		Very limited	
		Too steep	1.00	Depth to hard bedrock	1.00	Too steep	1.00
		Frost action	0.50	Too steep	1.00	Droughty	0.99
		Depth to hard bedrock	0.35	Unstable excavation walls	0.10	Depth to bedrock	0.35
15F:							
Dekalb	85	Very limited		Very limited		Very limited	
		Too steep	1.00	Depth to hard bedrock	1.00	Too steep	1.00
		Frost action	0.50	Too steep	1.00	Droughty	0.99
		Depth to hard bedrock	0.35	Unstable excavation walls	0.10	Depth to bedrock	0.35
16E:							
Dekalb	75	Very limited		Very limited		Very limited	
		Too steep	1.00	Depth to hard bedrock	1.00	Too steep	1.00
		Frost action	0.50	Too steep	1.00	Droughty	0.99
		Depth to hard bedrock	0.35	Unstable excavation walls	0.10	Depth to bedrock	0.35
Rock outcrop	15	Not rated		Not rated		Not rated	
16G:							
Dekalb	75	Very limited		Very limited		Very limited	
		Too steep	1.00	Depth to hard bedrock	1.00	Too steep	1.00
		Frost action	0.50	Too steep	1.00	Droughty	0.99
		Depth to hard bedrock	0.35	Unstable excavation walls	0.10	Depth to bedrock	0.35
Rock outcrop	15	Not rated		Not rated		Not rated	
17B:							
Escatawba	90	Somewhat limited		Somewhat limited		Not limited	
		Frost action	0.50	Depth to saturated zone	0.99		
				Unstable excavation walls	0.10		
17C:							
Escatawba	90	Somewhat limited		Somewhat limited		Somewhat limited	
		Frost action	0.50	Depth to saturated zone	0.99	Slope	0.37
		Slope	0.37	Slope	0.37		
				Unstable excavation walls	0.10		
18C:							
Escatawba, very stony	90	Somewhat limited		Somewhat limited		Somewhat limited	
		Frost action	0.50	Depth to saturated zone	0.99	Slope	0.37
		Slope	0.37	Slope	0.37		
				Unstable excavation walls	0.10		

Table 11.—Building Site Development, Part II—Continued

Map symbol and soil name	Pct. of map unit	Local roads and streets: Rating class and limiting features	Value	Shallow excavations: Rating class and limiting features	Value	Lawns and landscaping: Rating class and limiting features	Value
18E:							
Escatawba, very stony	85	Very limited		Very limited		Very limited	
		Too steep	1.00	Too steep	1.00	Too steep	1.00
		Frost action	0.50	Depth to saturated zone	0.99		
				Unstable excavation walls	0.10		
19B:							
Frederick	90	Very limited		Somewhat limited		Not limited	
		Low strength	1.00	Too clayey	0.99		
		Shrink-swell	0.62	Unstable excavation walls	0.10		
		Frost action	0.50				
19C:							
Frederick	90	Very limited		Somewhat limited		Somewhat limited	
		Low strength	1.00	Too clayey	0.99	Slope	0.37
		Shrink-swell	0.62	Slope	0.37		
		Frost action	0.50	Unstable excavation walls	0.10		
19D:							
Frederick	90	Very limited		Very limited		Very limited	
		Too steep	1.00	Too steep	1.00	Too steep	1.00
		Low strength	1.00	Too clayey	0.99		
		Shrink-swell	0.62	Unstable excavation walls	0.10		
19E:							
Frederick	90	Very limited		Very limited		Very limited	
		Too steep	1.00	Too steep	1.00	Too steep	1.00
		Low strength	1.00	Too clayey	0.99		
		Shrink-swell	0.62	Unstable excavation walls	0.10		
20C:							
Frederick	50	Very limited		Somewhat limited		Somewhat limited	
		Low strength	1.00	Too clayey	0.99	Slope	0.37
		Frost action	0.50	Slope	0.37	Gravel	0.01
		Slope	0.37	Unstable excavation walls	0.10		
Watahala	35	Somewhat limited		Very limited		Somewhat limited	
		Frost action	0.50	Unstable excavation walls	1.00	Gravel	0.68
		Slope	0.37			Slope	0.37
		Shrink-swell	0.22	Too clayey	0.98		
				Slope	0.37		
20D:							
Frederick	50	Very limited		Very limited		Very limited	
		Too steep	1.00	Too steep	1.00	Too steep	1.00
		Low strength	1.00	Too clayey	0.99	Gravel	0.01
		Frost action	0.50	Unstable excavation walls	0.10		
Watahala	35	Very limited		Very limited		Very limited	
		Too steep	1.00	Too steep	1.00	Too steep	1.00
		Frost action	0.50	Unstable excavation walls	1.00	Gravel	0.68
		Shrink-swell	0.22				
				Too clayey	0.98		

Table 11.—Building Site Development, Part II—Continued

Map symbol and soil name	Pct. of map unit	Local roads and streets: Rating class and limiting features	Value	Shallow excavations: Rating class and limiting features	Value	Lawns and landscaping: Rating class and limiting features	Value
21C:							
Gilpin--------------	85	Very limited		Somewhat limited		Somewhat limited	
		Low strength	1.00	Slope	0.37	Slope	0.37
		Frost action	0.50	Depth to soft bedrock	0.23	Depth to bedrock	0.23
		Slope	0.37	Unstable excavation walls	0.10		
21D:							
Gilpin--------------	85	Very limited		Very limited		Very limited	
		Too steep	1.00	Too steep	1.00	Too steep	1.00
		Low strength	1.00	Depth to soft bedrock	0.23	Depth to bedrock	0.23
		Frost action	0.50	Unstable excavation walls	0.10		
22B:							
Jefferson-----------	90	Somewhat limited		Somewhat limited		Somewhat limited	
		Frost action	0.50	Unstable excavation walls	0.10	Large stones	0.32
22C:							
Jefferson-----------	90	Somewhat limited		Somewhat limited		Somewhat limited	
		Frost action	0.50	Slope	0.37	Slope	0.37
		Slope	0.37	Unstable excavation walls	0.10	Large stones	0.32
22D:							
Jefferson-----------	90	Very limited		Very limited		Very limited	
		Too steep	1.00	Too steep	1.00	Too steep	1.00
		Frost action	0.50	Unstable excavation walls	0.10	Large stones	0.32
23C:							
Lily----------------	90	Somewhat limited		Very limited		Somewhat limited	
		Low strength	0.78	Depth to hard bedrock	1.00	Depth to bedrock	0.46
		Frost action	0.50	Slope	0.37	Slope	0.37
		Depth to hard bedrock	0.46	Unstable excavation walls	0.10	Droughty	0.01
23E:							
Lily----------------	85	Very limited		Very limited		Very limited	
		Too steep	1.00	Depth to hard bedrock	1.00	Too steep	1.00
		Low strength	0.78	Too steep	1.00	Depth to bedrock	0.46
		Frost action	0.50	Unstable excavation walls	0.10	Droughty	0.01
23F:							
Lily----------------	85	Very limited		Very limited		Very limited	
		Too steep	1.00	Depth to hard bedrock	1.00	Too steep	1.00
		Low strength	0.78	Too steep	1.00	Depth to bedrock	0.46
		Frost action	0.50	Unstable excavation walls	0.10	Droughty	0.01

Table 11.—Building Site Development, Part II—Continued

Map symbol and soil name	Pct. of map unit	Local roads and streets: Rating class and limiting features	Value	Shallow excavations: Rating class and limiting features	Value	Lawns and landscaping: Rating class and limiting features	Value
24A:							
Maurertown	90	Very limited		Very limited		Very limited	
		Ponding	1.00	Ponding	1.00	Ponding	1.00
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Frost action	1.00	Unstable excavation walls	1.00		
25B:							
Nicelytown	90	Very limited		Very limited		Somewhat limited	
		Low strength	1.00	Depth to saturated zone	1.00	Depth to saturated zone	0.75
		Depth to saturated zone	0.75	Unstable excavation walls	0.10		
		Frost action	0.50				
25C:							
Nicelytown	90	Very limited		Very limited		Somewhat limited	
		Low strength	1.00	Depth to saturated zone	1.00	Depth to saturated zone	0.75
		Depth to saturated zone	0.75	Slope	0.37	Slope	0.37
		Frost action	0.50	Unstable excavation walls	0.10		
26B:							
Ogles	90	Very limited		Very limited		Very limited	
		Large stones	1.00	Large stones	1.00	Flooding	1.00
		Flooding	1.00	Unstable excavation walls	1.00	Large stones	1.00
		Frost action	0.50	Flooding	0.80		
27C:							
Oriskany, extremely stony	90	Very limited		Very limited		Somewhat limited	
		Large stones	1.00	Large stones	1.00	Gravel	0.68
		Frost action	0.50	Slope	0.37	Slope	0.37
		Slope	0.37	Unstable excavation walls	0.10		
27E:							
Oriskany, extremely stony	90	Very limited		Very limited		Very limited	
		Too steep	1.00	Too steep	1.00	Too steep	1.00
		Large stones	1.00	Large stones	1.00	Gravel	0.68
		Frost action	0.50	Unstable excavation walls	0.10		
28F:							
Oriskany, very rubbly	90	Very limited		Very limited		Very limited	
		Too steep	1.00	Too steep	1.00	Too steep	1.00
		Large stones	1.00	Large stones	1.00	Gravel	0.68
		Frost action	0.50	Unstable excavation walls	0.10		
29A:							
Philo	85	Very limited		Very limited		Somewhat limited	
		Flooding	1.00	Depth to saturated zone	1.00	Flooding	0.60
		Frost action	0.50	Flooding	0.60	Depth to saturated zone	0.28
		Depth to saturated zone	0.28	Unstable excavation walls	0.10		

Table 11.—Building Site Development, Part II—Continued

Map symbol and soil name	Pct. of map unit	Local roads and streets: Rating class and limiting features	Value	Shallow excavations: Rating class and limiting features	Value	Lawns and landscaping: Rating class and limiting features	Value
30:							
Pits	50	Not rated		Not rated		Not rated	
Dumps	45	Not rated		Not rated		Not rated	
31A:							
Pope	90	Very limited		Very limited		Very limited	
		Flooding	1.00	Unstable excavation walls	1.00	Flooding	1.00
		Frost action	0.50	Flooding	0.80		
32C:							
Schaffenaker	85	Somewhat limited		Very limited		Somewhat limited	
		Slope	0.37	Depth to hard bedrock	1.00	Droughty	0.75
		Depth to hard bedrock	0.01	Unstable excavation walls	1.00	Slope	0.37
				Slope	0.37	Depth to bedrock	0.01
33B:							
Shelocta	90	Somewhat limited		Somewhat limited		Not limited	
		Frost action	0.50	Unstable excavation walls	0.10		
33C:							
Shelocta	90	Somewhat limited		Somewhat limited		Somewhat limited	
		Frost action	0.50	Slope	0.37	Slope	0.37
		Slope	0.37	Unstable excavation walls	0.10		
33D:							
Shelocta	90	Very limited		Very limited		Very limited	
		Too steep	1.00	Too steep	1.00	Too steep	1.00
		Frost action	0.50	Unstable excavation walls	0.10		
34B:							
Slabtown	90	Very limited		Very limited		Somewhat limited	
		Low strength	1.00	Depth to saturated zone	1.00	Depth to saturated zone	0.03
		Shrink-swell	0.50	Too clayey	0.50		
		Frost action	0.50	Unstable excavation walls	0.10		
34C:							
Slabtown	90	Very limited		Very limited		Somewhat limited	
		Low strength	1.00	Depth to saturated zone	1.00	Slope	0.37
		Shrink-swell	0.50	Too clayey	0.50	Depth to saturated zone	0.03
		Frost action	0.50	Slope	0.37		
35B:							
Sugarhol	90	Very limited		Somewhat limited		Not limited	
		Low strength	1.00	Too clayey	0.12		
		Frost action	0.50	Unstable excavation walls	0.10		
		Shrink-swell	0.01				

Table 11.—Building Site Development, Part II—Continued

Map symbol and soil name	Pct. of map unit	Local roads and streets: Rating class and limiting features	Value	Shallow excavations: Rating class and limiting features	Value	Lawns and landscaping: Rating class and limiting features	Value
35C:							
Sugarhol------------	85	Very limited		Somewhat limited		Somewhat limited	
		Low strength	1.00	Slope	0.37	Slope	0.37
		Frost action	0.50	Too clayey	0.12		
		Slope	0.37	Unstable excavation walls	0.10		
36B:							
Tumbling------------	80	Somewhat limited		Somewhat limited		Somewhat limited	
		Frost action	0.50	Unstable excavation walls	0.10	Large stones	0.08
		Low strength	0.11				
		Shrink-swell	0.01				
36C:							
Tumbling------------	85	Somewhat limited		Somewhat limited		Somewhat limited	
		Frost action	0.50	Slope	0.37	Slope	0.37
		Slope	0.37	Unstable excavation walls	0.10	Large stones	0.08
		Low strength	0.11				
36D:							
Tumbling------------	80	Very limited		Very limited		Very limited	
		Too steep	1.00	Too steep	1.00	Too steep	1.00
		Frost action	0.50	Unstable excavation walls	0.10	Large stones	0.08
		Low strength	0.11				
37C:							
Tumbling, very stony	80	Somewhat limited		Somewhat limited		Somewhat limited	
		Frost action	0.50	Slope	0.37	Slope	0.37
		Slope	0.37	Unstable excavation walls	0.10	Large stones	0.08
		Low strength	0.11				
37E:							
Tumbling, very stony	80	Very limited		Very limited		Very limited	
		Too steep	1.00	Too steep	1.00	Too steep	1.00
		Frost action	0.50	Unstable excavation walls	0.10	Large stones	0.08
		Low strength	0.11				
38:							
Udorthents, unstable fill---------------	50	Not rated		Not rated		Not rated	
Urban land----------	40	Not rated		Not rated		Not rated	
39C:							
Watahala------------	90	Somewhat limited		Very limited		Somewhat limited	
		Frost action	0.50	Unstable excavation walls	1.00	Gravel	0.68
		Slope	0.37			Slope	0.37
		Shrink-swell	0.22	Too clayey	0.98		
				Slope	0.37		
39D:							
Watahala------------	90	Very limited		Very limited		Very limited	
		Too steep	1.00	Too steep	1.00	Too steep	1.00
		Frost action	0.50	Unstable excavation walls	1.00	Gravel	0.68
		Shrink-swell	0.22				
				Too clayey	0.98		
39E:							
Watahala------------	90	Very limited		Very limited		Very limited	
		Too steep	1.00	Too steep	1.00	Too steep	1.00
		Frost action	0.50	Unstable excavation walls	1.00	Gravel	0.68
		Shrink-swell	0.22				
				Too clayey	0.98		

Table 11.—Building Site Development, Part II—Continued

Map symbol and soil name	Pct. of map unit	Local roads and streets: Rating class and limiting features	Value	Shallow excavations: Rating class and limiting features	Value	Lawns and landscaping: Rating class and limiting features	Value
40C:							
Watahala, extremely stony	90	Somewhat limited		Very limited		Somewhat limited	
		Frost action	0.50	Unstable excavation walls	1.00	Gravel	0.68
		Slope	0.37	Too clayey	0.98	Slope	0.37
		Shrink-swell	0.22	Slope	0.37		
40E:							
Watahala, extremely stony	90	Very limited		Very limited		Very limited	
		Too steep	1.00	Too steep	1.00	Too steep	1.00
		Frost action	0.50	Unstable excavation walls	1.00	Gravel	0.68
		Shrink-swell	0.22	Too clayey	0.98		
40F:							
Watahala, extremely stony	90	Very limited		Very limited		Very limited	
		Too steep	1.00	Too steep	1.00	Too steep	1.00
		Frost action	0.50	Unstable excavation walls	1.00	Gravel	0.68
		Shrink-swell	0.22	Too clayey	0.98		
41G:							
Weikert	35	Very limited		Very limited		Very limited	
		Depth to hard bedrock	1.00	Depth to hard bedrock	1.00	Too steep	1.00
		Too steep	1.00	Too steep	1.00	Depth to bedrock	1.00
		Frost action	0.50	Unstable excavation walls	0.10	Droughty	1.00
Rough	30	Very limited		Very limited		Very limited	
		Depth to hard bedrock	1.00	Depth to hard bedrock	1.00	Depth to bedrock	1.00
		Too steep	1.00	Too steep	1.00	Too steep	1.00
		Frost action	0.50	Large stones	0.03	Droughty	1.00
Rock outcrop	25	Not rated		Not rated		Not rated	
W:							
Water	100	Not rated		Not rated		Not rated	

Table 12.—Sanitary Facilities, Part I

(The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation. The numbers in the value columns range from 0.01 to 1.00. The larger the value, the greater the limitation. See text for further explanation of ratings in this table)

Map symbol and soil name	Pct. of map unit	Septic tank absorption fields: Rating class and limiting features	Value	Sewage lagoons: Rating class and limiting features	Value
1A:					
Alonzville, rarely flooded	85	Somewhat limited		Somewhat limited	
		Slow water movement	0.50	Seepage	0.50
		Flooding	0.40	Flooding	0.40
1B:					
Alonzville, rarely flooded	85	Somewhat limited		Somewhat limited	
		Slow water movement	0.50	Slope	0.68
		Flooding	0.40	Seepage	0.50
				Flooding	0.40
2B:					
Alonzville	85	Somewhat limited		Somewhat limited	
		Slow water movement	0.50	Slope	0.68
				Seepage	0.50
3A:					
Atkins	90	Very limited		Very limited	
		Flooding	1.00	Ponding	1.00
		Slow water movement	1.00	Flooding	1.00
		Ponding	1.00	Depth to saturated zone	1.00
4C:					
Bailegap	90	Somewhat limited		Very limited	
		Depth to bedrock	0.98	Slope	1.00
		Slow water movement	0.50	Depth to soft bedrock	0.93
		Slope	0.37	Depth to hard bedrock	0.77
4E:					
Bailegap	90	Very limited		Very limited	
		Too steep	1.00	Slope	1.00
		Depth to bedrock	0.98	Depth to soft bedrock	0.93
		Slow water movement	0.50	Depth to hard bedrock	0.77
5G:					
Bailegap	35	Very limited		Very limited	
		Too steep	1.00	Slope	1.00
		Depth to bedrock	0.98	Depth to soft bedrock	0.93
		Slow water movement	0.50	Depth to hard bedrock	0.77
Lily	30	Very limited		Very limited	
		Too steep	1.00	Depth to hard bedrock	1.00
		Depth to bedrock	1.00	Slope	1.00
		Seepage, bottom layer	1.00	Seepage	1.00

Table 12.—Sanitary Facilities, Part I—Continued

Map symbol and soil name	Pct. of map unit	Septic tank absorption fields		Sewage lagoons	
		Rating class and limiting features	Value	Rating class and limiting features	Value
5G:					
Dekalb	25	Very limited		Very limited	
		Too steep	1.00	Depth to hard bedrock	1.00
		Seepage, bottom layer	1.00	Slope	1.00
		Depth to bedrock	1.00	Seepage	1.00
6E:					
Berks	55	Very limited		Very limited	
		Too steep	1.00	Depth to hard bedrock	1.00
		Depth to bedrock	1.00	Slope	1.00
		Seepage, bottom layer	1.00	Seepage	1.00
Culleoka	35	Very limited		Very limited	
		Too steep	1.00	Depth to hard bedrock	1.00
		Depth to bedrock	1.00	Slope	1.00
		Seepage, bottom layer	1.00	Seepage	1.00
6G:					
Berks	60	Very limited		Very limited	
		Too steep	1.00	Depth to hard bedrock	1.00
		Depth to bedrock	1.00	Slope	1.00
		Seepage, bottom layer	1.00	Seepage	1.00
Culleoka	30	Very limited		Very limited	
		Too steep	1.00	Depth to hard bedrock	1.00
		Depth to bedrock	1.00	Slope	1.00
		Seepage, bottom layer	1.00	Seepage	1.00
7C:					
Berks	45	Very limited		Very limited	
		Depth to bedrock	1.00	Depth to hard bedrock	1.00
		Seepage, bottom layer	1.00	Slope	1.00
		Slope	0.37	Seepage	1.00
Weikert	40	Very limited		Very limited	
		Depth to bedrock	1.00	Depth to hard bedrock	1.00
		Seepage, bottom layer	1.00	Slope	1.00
		Slope	0.37	Seepage	1.00
7E:					
Berks	50	Very limited		Very limited	
		Too steep	1.00	Depth to hard bedrock	1.00
		Depth to bedrock	1.00	Slope	1.00
		Seepage, bottom layer	1.00	Seepage	1.00
Weikert	35	Very limited		Very limited	
		Depth to bedrock	1.00	Depth to hard bedrock	1.00
		Too steep	1.00	Slope	1.00
		Seepage, bottom layer	1.00	Seepage	1.00

Table 12.—Sanitary Facilities, Part I—Continued

Map symbol and soil name	Pct. of map unit	Septic tank absorption fields: Rating class and limiting features	Value	Sewage lagoons: Rating class and limiting features	Value
7G:					
Berks	45	Very limited		Very limited	
		Too steep	1.00	Depth to hard bedrock	1.00
		Depth to bedrock	1.00		
		Seepage, bottom layer	1.00	Slope	1.00
				Seepage	1.00
Weikert	40	Very limited		Very limited	
		Depth to bedrock	1.00	Depth to hard bedrock	1.00
		Too steep	1.00		
		Seepage, bottom layer	1.00	Slope	1.00
				Seepage	1.00
8G:					
Brushy	90	Very limited		Very limited	
		Too steep	1.00	Depth to hard bedrock	1.00
		Depth to bedrock	1.00		
		Slow water movement	0.50	Slope	1.00
				Seepage	0.50
9E:					
Calvin	80	Very limited		Very limited	
		Too steep	1.00	Depth to hard bedrock	1.00
		Depth to bedrock	1.00		
		Seepage, bottom layer	1.00	Slope	1.00
				Seepage	1.00
10G:					
Calvin	55	Very limited		Very limited	
		Too steep	1.00	Depth to hard bedrock	1.00
		Depth to bedrock	1.00		
		Seepage, bottom layer	1.00	Slope	1.00
				Seepage	1.00
Rough	30	Very limited		Very limited	
		Depth to bedrock	1.00	Depth to hard bedrock	1.00
		Too steep	1.00		
		Seepage, bottom layer	1.00	Slope	1.00
11E:					
Carbo	60	Very limited		Very limited	
		Slow water movement	1.00	Depth to hard bedrock	1.00
		Depth to bedrock	1.00	Slope	1.00
		Too steep	1.00		
Rock outcrop	25	Not rated		Not rated	
11F:					
Carbo	60	Very limited		Very limited	
		Slow water movement	1.00	Depth to hard bedrock	1.00
		Too steep	1.00	Slope	1.00
		Depth to bedrock	1.00		
Rock outcrop	25	Not rated		Not rated	

Table 12.—Sanitary Facilities, Part I—Continued

Map symbol and soil name	Pct. of map unit	Septic tank absorption fields: Rating class and limiting features	Value	Sewage lagoons: Rating class and limiting features	Value
12E:					
Carbo, karst	60	Very limited		Very limited	
		Slow water movement	1.00	Depth to hard bedrock	1.00
		Depth to bedrock	1.00	Slope	1.00
		Too steep	1.00		
Rock outcrop	25	Not rated		Not rated	
13A:					
Coursey	85	Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Slow water movement	0.50	Seepage	0.50
				Flooding	0.40
		Flooding	0.40		
13B:					
Coursey	85	Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Slow water movement	0.50	Slope	0.68
				Seepage	0.50
		Flooding	0.40		
14C:					
Culleoka	50	Very limited		Very limited	
		Depth to bedrock	1.00	Depth to hard bedrock	1.00
		Seepage, bottom layer	1.00	Slope	1.00
		Slope	0.37	Seepage	1.00
Berks	40	Very limited		Very limited	
		Depth to bedrock	1.00	Depth to hard bedrock	1.00
		Seepage, bottom layer	1.00	Slope	1.00
		Slope	0.37	Seepage	1.00
14D:					
Culleoka	50	Very limited		Very limited	
		Too steep	1.00	Depth to hard bedrock	1.00
		Depth to bedrock	1.00	Slope	1.00
		Seepage, bottom layer	1.00	Seepage	1.00
Berks	40	Very limited		Very limited	
		Too steep	1.00	Depth to hard bedrock	1.00
		Depth to bedrock	1.00	Slope	1.00
		Seepage, bottom layer	1.00	Seepage	1.00
15E:					
Dekalb	90	Very limited		Very limited	
		Seepage, bottom layer	1.00	Depth to hard bedrock	1.00
		Depth to bedrock	1.00	Slope	1.00
		Too steep	1.00	Seepage	1.00

Table 12.—Sanitary Facilities, Part I—Continued

Map symbol and soil name	Pct. of map unit	Septic tank absorption fields		Sewage lagoons	
		Rating class and limiting features	Value	Rating class and limiting features	Value
15F:					
Dekalb	85	Very limited		Very limited	
		Too steep	1.00	Depth to hard bedrock	1.00
		Seepage, bottom layer	1.00	Slope	1.00
		Depth to bedrock	1.00	Seepage	1.00
16E:					
Dekalb	75	Very limited		Very limited	
		Seepage, bottom layer	1.00	Depth to hard bedrock	1.00
		Depth to bedrock	1.00	Slope	1.00
		Too steep	1.00	Seepage	1.00
Rock outcrop	15	Not rated		Not rated	
16G:					
Dekalb	75	Very limited		Very limited	
		Too steep	1.00	Depth to hard bedrock	1.00
		Seepage, bottom layer	1.00	Slope	1.00
		Depth to bedrock	1.00	Seepage	1.00
Rock outcrop	15	Not rated		Not rated	
17B:					
Escatawba	90	Very limited		Somewhat limited	
		Depth to saturated zone	1.00	Slope	0.68
		Slow water movement	1.00	Seepage	0.50
				Depth to saturated zone	0.19
17C:					
Escatawba	90	Very limited		Very limited	
		Depth to saturated zone	1.00	Slope	1.00
		Slow water movement	1.00	Seepage	0.50
		Slope	0.37	Depth to saturated zone	0.19
18C:					
Escatawba, very stony	90	Very limited		Very limited	
		Depth to saturated zone	1.00	Slope	1.00
		Slow water movement	1.00	Seepage	0.50
		Slope	0.37	Depth to saturated zone	0.19
18E:					
Escatawba, very stony	85	Very limited		Very limited	
		Depth to saturated zone	1.00	Slope	1.00
		Too steep	1.00	Seepage	0.50
		Slow water movement	1.00	Depth to saturated zone	0.19
19B:					
Frederick	90	Somewhat limited		Somewhat limited	
		Slow water movement	0.50	Slope	0.68
				Seepage	0.50

Table 12.—Sanitary Facilities, Part I—Continued

Map symbol and soil name	Pct. of map unit	Septic tank absorption fields: Rating class and limiting features	Value	Sewage lagoons: Rating class and limiting features	Value
19C:					
Frederick	90	Somewhat limited		Very limited	
		Slow water movement	0.50	Slope	1.00
				Seepage	0.50
		Slope	0.37		
19D:					
Frederick	90	Very limited		Very limited	
		Too steep	1.00	Slope	1.00
		Slow water movement	0.50	Seepage	0.50
19E:					
Frederick	90	Very limited		Very limited	
		Too steep	1.00	Slope	1.00
		Slow water movement	0.50	Seepage	0.50
20C:					
Frederick	50	Somewhat limited		Very limited	
		Slow water movement	0.50	Slope	1.00
				Seepage	0.50
		Slope	0.37		
Watahala	35	Somewhat limited		Very limited	
		Slow water movement	0.68	Slope	1.00
				Seepage	1.00
		Slope	0.37		
20D:					
Frederick	50	Very limited		Very limited	
		Too steep	1.00	Slope	1.00
		Slow water movement	0.50	Seepage	0.50
Watahala	35	Very limited		Very limited	
		Too steep	1.00	Slope	1.00
		Slow water movement	0.68	Seepage	1.00
21C:					
Gilpin	85	Very limited		Very limited	
		Depth to bedrock	1.00	Depth to soft bedrock	1.00
		Slow water movement	0.50	Slope	1.00
		Slope	0.37	Seepage	0.50
21D:					
Gilpin	85	Very limited		Very limited	
		Too steep	1.00	Depth to soft bedrock	1.00
		Depth to bedrock	1.00		
		Slow water movement	0.50	Slope	1.00
				Seepage	0.50
22B:					
Jefferson	90	Very limited		Very limited	
		Seepage, bottom layer	1.00	Seepage	1.00
				Slope	0.68

Table 12.—Sanitary Facilities, Part I—Continued

Map symbol and soil name	Pct. of map unit	Septic tank absorption fields: Rating class and limiting features	Value	Sewage lagoons: Rating class and limiting features	Value
22C:					
Jefferson	90	Very limited		Very limited	
		Seepage, bottom layer	1.00	Slope	1.00
		Slope	0.37	Seepage	1.00
22D:					
Jefferson	90	Very limited		Very limited	
		Too steep	1.00	Slope	1.00
		Seepage, bottom layer	1.00	Seepage	1.00
23C:					
Lily	90	Very limited		Very limited	
		Depth to bedrock	1.00	Depth to hard bedrock	1.00
		Seepage, bottom layer	1.00	Slope	1.00
		Slope	0.37	Seepage	1.00
23E:					
Lily	85	Very limited		Very limited	
		Too steep	1.00	Depth to hard bedrock	1.00
		Depth to bedrock	1.00	Slope	1.00
		Seepage, bottom layer	1.00	Seepage	1.00
23F:					
Lily	85	Very limited		Very limited	
		Too steep	1.00	Depth to hard bedrock	1.00
		Depth to bedrock	1.00	Slope	1.00
		Seepage, bottom layer	1.00	Seepage	1.00
24A:					
Maurertown	90	Very limited		Very limited	
		Slow water movement	1.00	Ponding	1.00
		Ponding	1.00	Depth to saturated zone	1.00
		Depth to saturated zone	1.00	Flooding	0.40
25B:					
Nicelytown	90	Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Slow water movement	1.00	Slope	0.68
25C:					
Nicelytown	90	Very limited		Very limited	
		Depth to saturated zone	1.00	Slope	1.00
		Slow water movement	1.00	Depth to saturated zone	1.00
		Slope	0.37		
26B:					
Ogles	90	Very limited		Very limited	
		Flooding	1.00	Flooding	1.00
		Large stones	1.00	Large stones	1.00
		Seepage, bottom layer	1.00	Seepage	1.00

Table 12.—Sanitary Facilities, Part I—Continued

Map symbol and soil name	Pct. of map unit	Septic tank absorption fields: Rating class and limiting features	Value	Sewage lagoons: Rating class and limiting features	Value
27C:					
Oriskany, extremely stony	90	Very limited		Very limited	
		Large stones	1.00	Slope	1.00
		Seepage, bottom layer	1.00	Seepage	1.00
				Large stones	1.00
		Slope	0.37		
27E:					
Oriskany, extremely stony	90	Very limited		Very limited	
		Too steep	1.00	Slope	1.00
		Large stones	1.00	Seepage	1.00
		Seepage, bottom layer	1.00	Large stones	1.00
28F:					
Oriskany, very rubbly	90	Very limited		Very limited	
		Too steep	1.00	Slope	1.00
		Large stones	1.00	Seepage	1.00
		Seepage, bottom layer	1.00	Large stones	1.00
29A:					
Philo	85	Very limited		Very limited	
		Flooding	1.00	Flooding	1.00
		Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Slow water movement	0.50	Seepage	0.99
30:					
Pits	50	Not rated		Not rated	
Dumps	45	Not rated		Not rated	
31A:					
Pope	90	Very limited		Very limited	
		Flooding	1.00	Flooding	1.00
		Seepage, bottom layer	1.00	Seepage	1.00
32C:					
Schaffenaker	85	Very limited		Very limited	
		Seepage, bottom layer	1.00	Depth to hard bedrock	1.00
		Depth to bedrock	1.00	Slope	1.00
		Filtering capacity	1.00	Seepage	1.00
33B:					
Shelocta	90	Very limited		Very limited	
		Seepage, bottom layer	1.00	Seepage	1.00
				Slope	0.68
		Slow water movement	0.50		

Table 12.—Sanitary Facilities, Part I—Continued

Map symbol and soil name	Pct. of map unit	Septic tank absorption fields: Rating class and limiting features	Value	Sewage lagoons: Rating class and limiting features	Value
33C:					
Shelocta	90	Very limited		Very limited	
		Seepage, bottom layer	1.00	Slope	1.00
				Seepage	1.00
		Slow water movement	0.50		
		Slope	0.37		
33D:					
Shelocta	90	Very limited		Very limited	
		Too steep	1.00	Slope	1.00
		Seepage, bottom layer	1.00	Seepage	1.00
		Slow water movement	0.50		
34B:					
Slabtown	90	Very limited		Somewhat limited	
		Depth to saturated zone	1.00	Slope	0.68
				Seepage	0.50
		Slow water movement	1.00	Depth to saturated zone	0.44
34C:					
Slabtown	90	Very limited		Very limited	
		Depth to saturated zone	1.00	Slope	1.00
				Seepage	0.55
		Slow water movement	1.00	Depth to saturated zone	0.44
		Slope	0.37		
35B:					
Sugarhol	90	Somewhat limited		Somewhat limited	
		Slow water movement	0.50	Slope	0.68
				Seepage	0.50
35C:					
Sugarhol	85	Somewhat limited		Very limited	
		Slow water movement	0.50	Slope	1.00
				Seepage	0.50
		Slope	0.37		
36B:					
Tumbling	80	Somewhat limited		Somewhat limited	
		Slow water movement	0.50	Slope	0.68
				Seepage	0.50
36C:					
Tumbling	85	Somewhat limited		Very limited	
		Slow water movement	0.50	Slope	1.00
				Seepage	0.50
		Slope	0.37		
36D:					
Tumbling	80	Very limited		Very limited	
		Too steep	1.00	Slope	1.00
		Slow water movement	0.50	Seepage	0.50

Table 12.—Sanitary Facilities, Part I—Continued

Map symbol and soil name	Pct. of map unit	Septic tank absorption fields: Rating class and limiting features	Value	Sewage lagoons: Rating class and limiting features	Value
37C:					
Tumbling, very stony	80	Somewhat limited		Very limited	
		Slow water movement	0.50	Slope	1.00
				Seepage	0.50
		Slope	0.37		
37E:					
Tumbling, very stony	80	Very limited		Very limited	
		Too steep	1.00	Slope	1.00
		Slow water movement	0.50	Seepage	0.50
38:					
Udorthents, unstable fill	50	Not rated		Not rated	
Urban land	40	Not rated		Not rated	
39C:					
Watahala	90	Somewhat limited		Very limited	
		Slow water movement	0.68	Slope	1.00
				Seepage	1.00
		Slope	0.37		
39D:					
Watahala	90	Very limited		Very limited	
		Too steep	1.00	Slope	1.00
		Slow water movement	0.68	Seepage	1.00
39E:					
Watahala	90	Very limited		Very limited	
		Too steep	1.00	Slope	1.00
		Slow water movement	0.68	Seepage	1.00
40C:					
Watahala, extremely stony	90	Somewhat limited		Very limited	
		Slow water movement	0.68	Slope	1.00
				Seepage	1.00
		Slope	0.37		
40E:					
Watahala, extremely stony	90	Very limited		Very limited	
		Too steep	1.00	Slope	1.00
		Slow water movement	0.68	Seepage	1.00
40F:					
Watahala, extremely stony	90	Very limited		Very limited	
		Too steep	1.00	Slope	1.00
		Slow water movement	0.68	Seepage	1.00

Table 12.—Sanitary Facilities, Part I—Continued

Map symbol and soil name	Pct. of map unit	Septic tank absorption fields: Rating class and limiting features	Value	Sewage lagoons: Rating class and limiting features	Value
41G:					
Weikert	35	Very limited		Very limited	
		Depth to bedrock	1.00	Depth to hard bedrock	1.00
		Too steep	1.00	Slope	1.00
		Seepage, bottom layer	1.00	Seepage	1.00
Rough	30	Very limited		Very limited	
		Depth to bedrock	1.00	Depth to hard bedrock	1.00
		Too steep	1.00	Slope	1.00
		Seepage, bottom layer	1.00		
Rock outcrop	25	Not rated		Not rated	
W:					
Water	100	Not rated		Not rated	

Table 12.—Sanitary Facilities, Part II

(The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation. The numbers in the value columns range from 0.01 to 1.00. The larger the value, the greater the limitation. See text for further explanation of ratings in this table)

Map symbol and soil name	Pct. of map unit	Trench sanitary landfill: Rating class and limiting features	Value	Area sanitary landfill: Rating class and limiting features	Value	Daily cover for landfill: Rating class and limiting features	Value
1A:							
Alonzville, rarely flooded	85	Somewhat limited		Somewhat limited		Somewhat limited	
		Too clayey	0.50	Flooding	0.40	Too clayey	0.50
		Flooding	0.40				
1B:							
Alonzville, rarely flooded	85	Somewhat limited		Somewhat limited		Somewhat limited	
		Too clayey	0.50	Flooding	0.40	Too clayey	0.50
		Flooding	0.40				
2B:							
Alonzville	85	Somewhat limited		Not limited		Somewhat limited	
		Too clayey	0.50			Too clayey	0.50
3A:							
Atkins	90	Very limited		Very limited		Very limited	
		Flooding	1.00	Flooding	1.00	Ponding	1.00
		Depth to saturated zone	1.00	Ponding	1.00	Depth to saturated zone	1.00
		Ponding	1.00	Depth to saturated zone	1.00		
4C:							
Bailegap	90	Very limited		Somewhat limited		Somewhat limited	
		Depth to bedrock	1.00	Depth to bedrock	0.94	Depth to bedrock	0.94
		Slope	0.37	Slope	0.37	Slope	0.37
4E:							
Bailegap	90	Very limited		Very limited		Very limited	
		Too steep	1.00	Too steep	1.00	Too steep	1.00
		Depth to bedrock	1.00	Depth to bedrock	0.94	Depth to bedrock	0.94
5G:							
Bailegap	35	Very limited		Very limited		Very limited	
		Too steep	1.00	Too steep	1.00	Too steep	1.00
		Depth to bedrock	1.00	Depth to bedrock	0.94	Depth to bedrock	0.94
Lily	30	Very limited		Very limited		Very limited	
		Too steep	1.00	Too steep	1.00	Too steep	1.00
		Depth to bedrock	1.00	Depth to bedrock	1.00	Depth to bedrock	1.00
		Seepage, bottom layer	1.00	Seepage	1.00	Seepage	0.50
Dekalb	25	Very limited		Very limited		Very limited	
		Too steep	1.00	Too steep	1.00	Too steep	1.00
		Depth to bedrock	1.00	Seepage	1.00	Seepage	1.00
		Seepage, bottom layer	1.00	Depth to bedrock	1.00	Depth to bedrock	1.00
6E:							
Berks	55	Very limited		Very limited		Very limited	
		Too steep	1.00	Too steep	1.00	Too steep	1.00
		Depth to bedrock	1.00	Depth to bedrock	1.00	Depth to bedrock	1.00
		Seepage, bottom layer	1.00	Seepage	1.00	Gravel content	0.41

Table 12.—Sanitary Facilities, Part II—Continued

Map symbol and soil name	Pct. of map unit	Trench sanitary landfill: Rating class and limiting features	Value	Area sanitary landfill: Rating class and limiting features	Value	Daily cover for landfill: Rating class and limiting features	Value
6E:							
Culleoka	35	Very limited		Very limited		Very limited	
		Too steep	1.00	Too steep	1.00	Too steep	1.00
		Depth to bedrock	1.00	Depth to bedrock	1.00	Depth to bedrock	1.00
		Seepage, bottom layer	1.00	Seepage	1.00	Too clayey	0.50
6G:							
Berks	60	Very limited		Very limited		Very limited	
		Too steep	1.00	Too steep	1.00	Too steep	1.00
		Depth to bedrock	1.00	Depth to bedrock	1.00	Depth to bedrock	1.00
		Seepage, bottom layer	1.00	Seepage	1.00	Gravel content	0.41
Culleoka	30	Very limited		Very limited		Very limited	
		Too steep	1.00	Too steep	1.00	Too steep	1.00
		Depth to bedrock	1.00	Depth to bedrock	1.00	Depth to bedrock	1.00
		Seepage, bottom layer	1.00	Seepage	1.00	Too clayey	0.50
7C:							
Berks	45	Very limited		Very limited		Very limited	
		Depth to bedrock	1.00	Depth to bedrock	1.00	Depth to bedrock	1.00
		Seepage, bottom layer	1.00	Seepage	1.00	Gravel content	0.41
		Slope	0.37	Slope	0.37	Slope	0.37
Weikert	40	Very limited		Very limited		Very limited	
		Depth to bedrock	1.00	Depth to bedrock	1.00	Depth to bedrock	1.00
		Seepage, bottom layer	1.00	Slope	0.37	Gravel content	0.94
		Slope	0.37			Seepage	0.50
7E:							
Berks	50	Very limited		Very limited		Very limited	
		Too steep	1.00	Too steep	1.00	Too steep	1.00
		Depth to bedrock	1.00	Depth to bedrock	1.00	Depth to bedrock	1.00
		Seepage, bottom layer	1.00	Seepage	1.00	Gravel content	0.41
Weikert	35	Very limited		Very limited		Very limited	
		Too steep	1.00	Too steep	1.00	Depth to bedrock	1.00
		Depth to bedrock	1.00	Depth to bedrock	1.00	Too steep	1.00
		Seepage, bottom layer	1.00			Gravel content	0.94
7G:							
Berks	45	Very limited		Very limited		Very limited	
		Too steep	1.00	Too steep	1.00	Too steep	1.00
		Depth to bedrock	1.00	Depth to bedrock	1.00	Depth to bedrock	1.00
		Seepage, bottom layer	1.00	Seepage	1.00	Gravel content	0.41
Weikert	40	Very limited		Very limited		Very limited	
		Too steep	1.00	Too steep	1.00	Depth to bedrock	1.00
		Depth to bedrock	1.00	Depth to bedrock	1.00	Too steep	1.00
		Seepage, bottom layer	1.00			Gravel content	0.94

Table 12.—Sanitary Facilities, Part II—Continued

Map symbol and soil name	Pct. of map unit	Trench sanitary landfill: Rating class and limiting features	Value	Area sanitary landfill: Rating class and limiting features	Value	Daily cover for landfill: Rating class and limiting features	Value
8G:							
Brushy	90	Very limited		Very limited		Very limited	
		Too steep	1.00	Too steep	1.00	Too steep	1.00
		Depth to bedrock	1.00	Depth to bedrock	1.00	Gravel content	1.00
		Too clayey	0.50			Depth to bedrock	1.00
9E:							
Calvin	80	Very limited		Very limited		Very limited	
		Too steep	1.00	Too steep	1.00	Too steep	1.00
		Depth to bedrock	1.00	Depth to bedrock	1.00	Depth to bedrock	1.00
		Seepage, bottom layer	1.00	Seepage	1.00	Seepage	0.50
10G:							
Calvin	55	Very limited		Very limited		Very limited	
		Too steep	1.00	Too steep	1.00	Too steep	1.00
		Depth to bedrock	1.00	Depth to bedrock	1.00	Depth to bedrock	1.00
		Seepage, bottom layer	1.00	Seepage	1.00	Seepage	0.50
Rough	30	Very limited		Very limited		Very limited	
		Too steep	1.00	Too steep	1.00	Depth to bedrock	1.00
		Depth to bedrock	1.00	Depth to bedrock	1.00	Too steep	1.00
		Seepage, bottom layer	1.00			Seepage	0.50
11E:							
Carbo	60	Very limited		Very limited		Very limited	
		Depth to bedrock	1.00	Depth to bedrock	1.00	Too clayey	1.00
		Too clayey	1.00	Too steep	1.00	Hard to compact	1.00
		Too steep	1.00			Depth to bedrock	1.00
Rock outcrop	25	Not rated		Not rated		Not rated	
11F:							
Carbo	60	Very limited		Very limited		Very limited	
		Too steep	1.00	Too steep	1.00	Too steep	1.00
		Depth to bedrock	1.00	Depth to bedrock	1.00	Too clayey	1.00
		Too clayey	1.00			Hard to compact	1.00
Rock outcrop	25	Not rated		Not rated		Not rated	
12E:							
Carbo, karst	60	Very limited		Very limited		Very limited	
		Depth to bedrock	1.00	Depth to bedrock	1.00	Too clayey	1.00
		Too clayey	1.00	Too steep	1.00	Hard to compact	1.00
		Too steep	1.00			Depth to bedrock	1.00
Rock outcrop	25	Not rated		Not rated		Not rated	
13A:							
Coursey	85	Very limited		Very limited		Somewhat limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	0.96
		Too clayey	0.50	Flooding	0.40	Too clayey	0.50
		Flooding	0.40				

Table 12.—Sanitary Facilities, Part II—Continued

Map symbol and soil name	Pct. of map unit	Trench sanitary landfill: Rating class and limiting features	Value	Area sanitary landfill: Rating class and limiting features	Value	Daily cover for landfill: Rating class and limiting features	Value
13B:							
Coursey	85	Very limited		Very limited		Somewhat limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	0.96
		Too clayey	0.50	Flooding	0.40	Too clayey	0.50
		Flooding	0.40				
14C:							
Culleoka	50	Very limited		Very limited		Very limited	
		Depth to bedrock	1.00	Depth to bedrock	1.00	Depth to bedrock	1.00
		Seepage, bottom layer	1.00	Seepage	1.00	Too clayey	0.50
		Too clayey	0.50	Slope	0.37	Slope	0.37
Berks	40	Very limited		Very limited		Very limited	
		Depth to bedrock	1.00	Depth to bedrock	1.00	Depth to bedrock	1.00
		Seepage, bottom layer	1.00	Seepage	1.00	Gravel content	0.41
		Slope	0.37	Slope	0.37	Slope	0.37
14D:							
Culleoka	50	Very limited		Very limited		Very limited	
		Too steep	1.00	Too steep	1.00	Too steep	1.00
		Depth to bedrock	1.00	Depth to bedrock	1.00	Depth to bedrock	1.00
		Seepage, bottom layer	1.00	Seepage	1.00	Too clayey	0.50
Berks	40	Very limited		Very limited		Very limited	
		Too steep	1.00	Too steep	1.00	Too steep	1.00
		Depth to bedrock	1.00	Depth to bedrock	1.00	Depth to bedrock	1.00
		Seepage, bottom layer	1.00	Seepage	1.00	Gravel content	0.41
15E:							
Dekalb	90	Very limited		Very limited		Very limited	
		Depth to bedrock	1.00	Seepage	1.00	Seepage	1.00
		Seepage, bottom layer	1.00	Depth to bedrock	1.00	Depth to bedrock	1.00
		Too steep	1.00	Too steep	1.00	Too steep	1.00
15F:							
Dekalb	85	Very limited		Very limited		Very limited	
		Too steep	1.00	Too steep	1.00	Too steep	1.00
		Depth to bedrock	1.00	Seepage	1.00	Seepage	1.00
		Seepage, bottom layer	1.00	Depth to bedrock	1.00	Depth to bedrock	1.00
16E:							
Dekalb	75	Very limited		Very limited		Very limited	
		Depth to bedrock	1.00	Seepage	1.00	Seepage	1.00
		Seepage, bottom layer	1.00	Depth to bedrock	1.00	Depth to bedrock	1.00
		Too steep	1.00	Too steep	1.00	Too steep	1.00
Rock outcrop	15	Not rated		Not rated		Not rated	
16G:							
Dekalb	75	Very limited		Very limited		Very limited	
		Too steep	1.00	Too steep	1.00	Too steep	1.00
		Depth to bedrock	1.00	Seepage	1.00	Seepage	1.00
		Seepage, bottom layer	1.00	Depth to bedrock	1.00	Depth to bedrock	1.00

Table 12.—Sanitary Facilities, Part II—Continued

Map symbol and soil name	Pct. of map unit	Trench sanitary landfill: Rating class and limiting features	Value	Area sanitary landfill: Rating class and limiting features	Value	Daily cover for landfill: Rating class and limiting features	Value
16G:							
Rock outcrop	15	Not rated		Not rated		Not rated	
17B:							
Escatawba	90	Somewhat limited		Somewhat limited		Somewhat limited	
		Depth to saturated zone	0.86	Depth to saturated zone	0.19	Too clayey	0.50
		Too clayey	0.50			Depth to saturated zone	0.47
17C:							
Escatawba	90	Somewhat limited		Somewhat limited		Somewhat limited	
		Depth to saturated zone	0.86	Slope	0.37	Too clayey	0.50
		Too clayey	0.50	Depth to saturated zone	0.19	Depth to saturated zone	0.47
		Slope	0.37			Slope	0.37
18C:							
Escatawba, very stony	90	Somewhat limited		Somewhat limited		Somewhat limited	
		Depth to saturated zone	0.86	Slope	0.37	Too clayey	0.50
		Too clayey	0.50	Depth to saturated zone	0.19	Depth to saturated zone	0.47
		Slope	0.37			Slope	0.37
18E:							
Escatawba, very stony	85	Very limited		Very limited		Very limited	
		Too steep	1.00	Too steep	1.00	Too steep	1.00
		Depth to saturated zone	0.86	Depth to saturated zone	0.19	Too clayey	0.50
		Too clayey	0.50			Depth to saturated zone	0.47
19B:							
Frederick	90	Very limited		Not limited		Very limited	
		Too clayey	1.00			Too clayey	1.00
						Hard to compact	1.00
19C:							
Frederick	90	Very limited		Somewhat limited		Very limited	
		Too clayey	1.00	Slope	0.37	Too clayey	1.00
		Slope	0.37			Hard to compact	1.00
						Slope	0.37
19D:							
Frederick	90	Very limited		Very limited		Very limited	
		Too steep	1.00	Too steep	1.00	Too steep	1.00
		Too clayey	1.00			Too clayey	1.00
						Hard to compact	1.00
19E:							
Frederick	90	Very limited		Very limited		Very limited	
		Too steep	1.00	Too steep	1.00	Too steep	1.00
		Too clayey	1.00			Too clayey	1.00
						Hard to compact	1.00
20C:							
Frederick	50	Very limited		Somewhat limited		Very limited	
		Too clayey	1.00	Slope	0.37	Too clayey	1.00
		Slope	0.37			Hard to compact	1.00
						Slope	0.37

Table 12.—Sanitary Facilities, Part II—Continued

Map symbol and soil name	Pct. of map unit	Trench sanitary landfill: Rating class and limiting features	Value	Area sanitary landfill: Rating class and limiting features	Value	Daily cover for landfill: Rating class and limiting features	Value
20C:							
Watahala	35	Very limited		Somewhat limited		Very limited	
		Too clayey	1.00	Slope	0.37	Too clayey	1.00
		Slope	0.37			Hard to compact	1.00
						Slope	0.37
20D:							
Frederick	50	Very limited		Very limited		Very limited	
		Too steep	1.00	Too steep	1.00	Too steep	1.00
		Too clayey	1.00			Too clayey	1.00
						Hard to compact	1.00
Watahala	35	Very limited		Very limited		Very limited	
		Too steep	1.00	Too steep	1.00	Too steep	1.00
		Too clayey	1.00			Too clayey	1.00
						Hard to compact	1.00
21C:							
Gilpin	85	Very limited		Very limited		Very limited	
		Depth to bedrock	1.00	Depth to bedrock	1.00	Depth to bedrock	1.00
		Too clayey	0.50	Slope	0.37	Too clayey	0.50
		Slope	0.37			Slope	0.37
21D:							
Gilpin	85	Very limited		Very limited		Very limited	
		Too steep	1.00	Too steep	1.00	Too steep	1.00
		Depth to bedrock	1.00	Depth to bedrock	1.00	Depth to bedrock	1.00
		Too clayey	0.50			Too clayey	0.50
22B:							
Jefferson	90	Very limited		Very limited		Somewhat limited	
		Seepage, bottom layer	1.00	Seepage	1.00	Seepage	0.50
		Too clayey	0.50			Too clayey	0.50
22C:							
Jefferson	90	Very limited		Very limited		Somewhat limited	
		Seepage, bottom layer	1.00	Seepage	1.00	Seepage	0.50
		Too clayey	0.50	Slope	0.37	Too clayey	0.50
		Slope	0.37			Slope	0.37
22D:							
Jefferson	90	Very limited		Very limited		Very limited	
		Too steep	1.00	Too steep	1.00	Too steep	1.00
		Seepage, bottom layer	1.00	Seepage	1.00	Seepage	0.50
		Too clayey	0.50			Too clayey	0.50
23C:							
Lily	90	Very limited		Very limited		Very limited	
		Depth to bedrock	1.00	Depth to bedrock	1.00	Depth to bedrock	1.00
		Seepage, bottom layer	1.00	Seepage	1.00	Seepage	0.50
		Too clayey	0.50	Slope	0.37	Too clayey	0.50
23E:							
Lily	85	Very limited		Very limited		Very limited	
		Too steep	1.00	Too steep	1.00	Too steep	1.00
		Depth to bedrock	1.00	Depth to bedrock	1.00	Depth to bedrock	1.00
		Seepage, bottom layer	1.00	Seepage	1.00	Seepage	0.50

Table 12.—Sanitary Facilities, Part II—Continued

Map symbol and soil name	Pct. of map unit	Trench sanitary landfill		Area sanitary landfill		Daily cover for landfill	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
23F:							
Lily	85	Very limited		Very limited		Very limited	
		Too steep	1.00	Too steep	1.00	Too steep	1.00
		Depth to bedrock	1.00	Depth to bedrock	1.00	Depth to bedrock	1.00
		Seepage, bottom layer	1.00	Seepage	1.00	Seepage	0.50
24A:							
Maurertown	90	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Ponding	1.00	Ponding	1.00
		Ponding	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Too clayey	1.00	Flooding	0.40	Too clayey	1.00
25B:							
Nicelytown	90	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	0.99
		Too clayey	0.50			Too clayey	0.50
25C:							
Nicelytown	90	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	0.99
		Too clayey	0.50	Slope	0.37	Too clayey	0.50
		Slope	0.37			Slope	0.37
26B:							
Ogles	90	Very limited		Very limited		Very limited	
		Flooding	1.00	Flooding	1.00	Large stones	1.00
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Seepage	0.50
		Large stones	1.00	Seepage	1.00	Too sandy	0.50
27C:							
Oriskany, extremely stony	90	Very limited		Very limited		Very limited	
		Large stones	1.00	Seepage	1.00	Large stones	1.00
		Seepage, bottom layer	1.00	Slope	0.37	Seepage	0.50
		Slope	0.37			Slope	0.37
27E:							
Oriskany, extremely stony	90	Very limited		Very limited		Very limited	
		Too steep	1.00	Too steep	1.00	Too steep	1.00
		Large stones	1.00	Seepage	1.00	Large stones	1.00
		Seepage, bottom layer	1.00			Seepage	0.50
28F:							
Oriskany, very rubbly	90	Very limited		Very limited		Very limited	
		Too steep	1.00	Too steep	1.00	Too steep	1.00
		Large stones	1.00	Seepage	1.00	Large stones	1.00
		Seepage, bottom layer	1.00			Seepage	0.50

Table 12.—Sanitary Facilities, Part II—Continued

Map symbol and soil name	Pct. of map unit	Trench sanitary landfill: Rating class and limiting features	Trench sanitary landfill: Value	Area sanitary landfill: Rating class and limiting features	Area sanitary landfill: Value	Daily cover for landfill: Rating class and limiting features	Daily cover for landfill: Value
29A:							
Philo	85	Very limited		Very limited		Somewhat limited	
		Flooding	1.00	Flooding	1.00	Depth to saturated zone	0.91
		Depth to saturated zone	1.00	Depth to saturated zone	1.00		
30:							
Pits	50	Not rated		Not rated		Not rated	
Dumps	45	Not rated		Not rated		Not rated	
31A:							
Pope	90	Very limited		Very limited		Somewhat limited	
		Flooding	1.00	Flooding	1.00	Seepage	0.50
		Seepage, bottom layer	1.00	Seepage	1.00	Gravel content	0.20
32C:							
Schaffenaker	85	Very limited		Very limited		Very limited	
		Depth to bedrock	1.00	Seepage	1.00	Seepage	1.00
		Seepage, bottom layer	1.00	Depth to bedrock	1.00	Depth to bedrock	1.00
		Too sandy	0.50	Slope	0.37	Too sandy	0.50
33B:							
Shelocta	90	Very limited		Not limited		Not limited	
		Seepage, bottom layer	1.00				
33C:							
Shelocta	90	Very limited		Somewhat limited		Somewhat limited	
		Seepage, bottom layer	1.00	Slope	0.37	Slope	0.37
		Slope	0.37				
33D:							
Shelocta	90	Very limited		Very limited		Very limited	
		Too steep	1.00	Too steep	1.00	Too steep	1.00
		Seepage, bottom layer	1.00				
34B:							
Slabtown	90	Very limited		Somewhat limited		Very limited	
		Too clayey	1.00	Depth to saturated zone	0.44	Hard to compact	1.00
		Depth to saturated zone	0.95			Depth to saturated zone	0.68
34C:							
Slabtown	90	Very limited		Somewhat limited		Very limited	
		Too clayey	1.00	Depth to saturated zone	0.44	Hard to compact	1.00
		Depth to saturated zone	0.95	Slope	0.37	Depth to saturated zone	0.68
		Slope	0.37			Slope	0.37
35B:							
Sugarhol	90	Very limited		Not limited		Very limited	
		Too clayey	1.00			Too clayey	1.00
35C:							
Sugarhol	85	Very limited		Somewhat limited		Very limited	
		Too clayey	1.00	Slope	0.37	Too clayey	1.00
		Slope	0.37			Slope	0.37

Table 12.—Sanitary Facilities, Part II—Continued

Map symbol and soil name	Pct. of map unit	Trench sanitary landfill: Rating class and limiting features	Value	Area sanitary landfill: Rating class and limiting features	Value	Daily cover for landfill: Rating class and limiting features	Value
36B:							
Tumbling	80	Somewhat limited		Not limited		Not limited	
		Too clayey	0.50				
36C:							
Tumbling	85	Somewhat limited		Somewhat limited		Somewhat limited	
		Too clayey	0.50	Slope	0.37	Slope	0.37
		Slope	0.37				
36D:							
Tumbling	80	Very limited		Very limited		Very limited	
		Too steep	1.00	Too steep	1.00	Too steep	1.00
		Too clayey	0.50				
37C:							
Tumbling, very stony	80	Somewhat limited		Somewhat limited		Somewhat limited	
		Too clayey	0.50	Slope	0.37	Slope	0.37
		Slope	0.37				
37E:							
Tumbling, very stony	80	Very limited		Very limited		Very limited	
		Too steep	1.00	Too steep	1.00	Too steep	1.00
		Too clayey	0.50				
38:							
Udorthents, unstable fill	50	Not rated		Not rated		Not rated	
Urban land	40	Not rated		Not rated		Not rated	
39C:							
Watahala	90	Very limited		Somewhat limited		Very limited	
		Too clayey	1.00	Slope	0.37	Too clayey	1.00
		Slope	0.37			Hard to compact	1.00
						Slope	0.37
39D:							
Watahala	90	Very limited		Very limited		Very limited	
		Too steep	1.00	Too steep	1.00	Too steep	1.00
		Too clayey	1.00			Too clayey	1.00
						Hard to compact	1.00
39E:							
Watahala	90	Very limited		Very limited		Very limited	
		Too steep	1.00	Too steep	1.00	Too steep	1.00
		Too clayey	1.00			Too clayey	1.00
						Hard to compact	1.00
40C:							
Watahala, extremely stony	90	Very limited		Somewhat limited		Very limited	
		Too clayey	1.00	Slope	0.37	Too clayey	1.00
		Slope	0.37			Hard to compact	1.00
						Slope	0.37
40E:							
Watahala, extremely stony	90	Very limited		Very limited		Very limited	
		Too steep	1.00	Too steep	1.00	Too steep	1.00
		Too clayey	1.00			Too clayey	1.00
						Hard to compact	1.00

Table 12.—Sanitary Facilities, Part II—Continued

Map symbol and soil name	Pct. of map unit	Trench sanitary landfill: Rating class and limiting features	Value	Area sanitary landfill: Rating class and limiting features	Value	Daily cover for landfill: Rating class and limiting features	Value
40F:							
Watahala, extremely stony	90	Very limited		Very limited		Very limited	
		Too steep	1.00	Too steep	1.00	Too steep	1.00
		Too clayey	1.00			Too clayey	1.00
						Hard to compact	1.00
41G:							
Weikert	35	Very limited		Very limited		Very limited	
		Too steep	1.00	Too steep	1.00	Depth to bedrock	1.00
		Depth to bedrock	1.00	Depth to bedrock	1.00	Too steep	1.00
		Seepage, bottom layer	1.00			Gravel content	0.94
Rough	30	Very limited		Very limited		Very limited	
		Too steep	1.00	Too steep	1.00	Depth to bedrock	1.00
		Depth to bedrock	1.00	Depth to bedrock	1.00	Too steep	1.00
		Seepage, bottom layer	1.00			Seepage	0.50
Rock outcrop	25	Not rated		Not rated		Not rated	
W:							
Water	100	Not rated		Not rated		Not rated	

Table 13.—Construction Materials, Part I

(The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation. The ratings given for the thickest layer are for the thickest layer above and excluding the bottom layer. The numbers in the value columns range from 0.00 to 0.99. The greater the value, the greater the likelihood that the bottom layer or thickest layer of the soil is a source of sand or gravel. See text for further explanation of ratings in this table)

Map symbol and soil name	Pct. of map unit	Potential source of gravel		Potential source of sand	
		Rating class	Value	Rating class	Value
1A:					
Alonzville, rarely flooded	85	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
1B:					
Alonzville, rarely flooded	85	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
2B:					
Alonzville	85	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
3A:					
Atkins	90	Poor		Poor	
		Thickest layer	0.00	Bottom layer	0.00
		Bottom layer	0.00	Thickest layer	0.00
4C:					
Bailegap	90	Poor		Poor	
		Thickest layer	0.00	Bottom layer	0.00
		Bottom layer	0.00	Thickest layer	0.00
4E:					
Bailegap	90	Poor		Poor	
		Thickest layer	0.00	Bottom layer	0.00
		Bottom layer	0.00	Thickest layer	0.00
5G:					
Bailegap	35	Poor		Poor	
		Thickest layer	0.00	Bottom layer	0.00
		Bottom layer	0.00	Thickest layer	0.00
Lily	30	Poor		Fair	
		Bottom layer	0.00	Thickest layer	0.00
		Thickest layer	0.00	Bottom layer	0.03
Dekalb	25	Poor		Fair	
		Thickest layer	0.00	Thickest layer	0.00
		Bottom layer	0.00	Bottom layer	0.03
6E:					
Berks	55	Poor		Poor	
		Thickest layer	0.00	Bottom layer	0.00
		Bottom layer	0.00	Thickest layer	0.00
Culleoka	35	Poor		Poor	
		Thickest layer	0.00	Bottom layer	0.00
		Bottom layer	0.00	Thickest layer	0.00

Table 13.—Construction Materials, Part I—Continued

Map symbol and soil name	Pct. of map unit	Potential source of gravel: Rating class	Value	Potential source of sand: Rating class	Value
6G:					
Berks	60	Poor		Poor	
		Thickest layer	0.00	Bottom layer	0.00
		Bottom layer	0.00	Thickest layer	0.00
Culleoka	30	Poor		Poor	
		Thickest layer	0.00	Bottom layer	0.00
		Bottom layer	0.00	Thickest layer	0.00
7C:					
Berks	45	Poor		Poor	
		Thickest layer	0.00	Bottom layer	0.00
		Bottom layer	0.00	Thickest layer	0.00
Weikert	40	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
7E:					
Berks	50	Poor		Poor	
		Thickest layer	0.00	Bottom layer	0.00
		Bottom layer	0.00	Thickest layer	0.00
Weikert	35	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
7G:					
Berks	45	Poor		Poor	
		Thickest layer	0.00	Bottom layer	0.00
		Bottom layer	0.00	Thickest layer	0.00
Weikert	40	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
8G:					
Brushy	90	Poor		Poor	
		Thickest layer	0.00	Bottom layer	0.00
		Bottom layer	0.00	Thickest layer	0.00
9E:					
Calvin	80	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
10G:					
Calvin	55	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
Rough	30	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
11E:					
Carbo	60	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
Rock outcrop	25	Not rated		Not rated	

Table 13.—Construction Materials, Part I—Continued

Map symbol and soil name	Pct. of map unit	Potential source of gravel: Rating class	Value	Potential source of sand: Rating class	Value
11F:					
Carbo	60	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
Rock outcrop	25	Not rated		Not rated	
12E:					
Carbo, karst	60	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
Rock outcrop	25	Not rated		Not rated	
13A:					
Coursey	85	Fair		Poor	
		Thickest layer	0.00	Bottom layer	0.00
		Bottom layer	0.05	Thickest layer	0.00
13B:					
Coursey	85	Fair		Poor	
		Thickest layer	0.00	Bottom layer	0.00
		Bottom layer	0.05	Thickest layer	0.00
14C:					
Culleoka	50	Poor		Poor	
		Thickest layer	0.00	Bottom layer	0.00
		Bottom layer	0.00	Thickest layer	0.00
Berks	40	Poor		Poor	
		Thickest layer	0.00	Bottom layer	0.00
		Bottom layer	0.00	Thickest layer	0.00
14D:					
Culleoka	50	Poor		Poor	
		Thickest layer	0.00	Bottom layer	0.00
		Bottom layer	0.00	Thickest layer	0.00
Berks	40	Poor		Poor	
		Thickest layer	0.00	Bottom layer	0.00
		Bottom layer	0.00	Thickest layer	0.00
15E:					
Dekalb	90	Poor		Fair	
		Thickest layer	0.00	Thickest layer	0.00
		Bottom layer	0.00	Bottom layer	0.03
15F:					
Dekalb	85	Poor		Fair	
		Thickest layer	0.00	Thickest layer	0.00
		Bottom layer	0.00	Bottom layer	0.03
16E:					
Dekalb	75	Poor		Fair	
		Thickest layer	0.00	Thickest layer	0.00
		Bottom layer	0.00	Bottom layer	0.03
Rock outcrop	15	Not rated		Not rated	

Table 13.—Construction Materials, Part I—Continued

Map symbol and soil name	Pct. of map unit	Potential source of gravel: Rating class	Value	Potential source of sand: Rating class	Value
16G:					
Dekalb	75	Poor		Fair	
		Thickest layer	0.00	Thickest layer	0.00
		Bottom layer	0.00	Bottom layer	0.03
Rock outcrop	15	Not rated		Not rated	
17B:					
Escatawba	90	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
17C:					
Escatawba	90	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
18C:					
Escatawba, very stony	90	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
18E:					
Escatawba, very stony	85	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
19B:					
Frederick	90	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
19C:					
Frederick	90	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
19D:					
Frederick	90	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
19E:					
Frederick	90	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
20C:					
Frederick	50	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
Watahala	35	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00

Table 13.—Construction Materials, Part I—Continued

Map symbol and soil name	Pct. of map unit	Potential source of gravel: Rating class	Value	Potential source of sand: Rating class	Value
20D:					
Frederick-----------	50	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
Watahala------------	35	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
21C:					
Gilpin--------------	85	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
21D:					
Gilpin--------------	85	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
22B:					
Jefferson-----------	90	Poor		Poor	
		Thickest layer	0.00	Bottom layer	0.00
		Bottom layer	0.00	Thickest layer	0.00
22C:					
Jefferson-----------	90	Poor		Poor	
		Thickest layer	0.00	Bottom layer	0.00
		Bottom layer	0.00	Thickest layer	0.00
22D:					
Jefferson-----------	90	Poor		Poor	
		Thickest layer	0.00	Bottom layer	0.00
		Bottom layer	0.00	Thickest layer	0.00
23C:					
Lily----------------	90	Poor		Fair	
		Bottom layer	0.00	Thickest layer	0.00
		Thickest layer	0.00	Bottom layer	0.03
23E:					
Lily----------------	85	Poor		Fair	
		Bottom layer	0.00	Thickest layer	0.00
		Thickest layer	0.00	Bottom layer	0.03
23F:					
Lily----------------	85	Poor		Fair	
		Bottom layer	0.00	Thickest layer	0.00
		Thickest layer	0.00	Bottom layer	0.03
24A:					
Maurertown----------	90	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
25B:					
Nicelytown----------	90	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00

Table 13.—Construction Materials, Part I—Continued

Map symbol and soil name	Pct. of map unit	Potential source of gravel: Rating class	Value	Potential source of sand: Rating class	Value
25C:					
Nicelytown	90	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
26B:					
Ogles	90	Poor		Poor	
		Bottom layer	0.00	Thickest layer	0.00
		Thickest layer	0.00	Bottom layer	0.00
27C:					
Oriskany, extremely stony	90	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
27E:					
Oriskany, extremely stony	90	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
28F:					
Oriskany, very rubbly	90	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
29A:					
Philo	85	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
30:					
Pits	50	Not rated		Not rated	
Dumps	45	Not rated		Not rated	
31A:					
Pope	90	Fair		Fair	
		Thickest layer	0.00	Thickest layer	0.00
		Bottom layer	0.18	Bottom layer	0.07
32C:					
Schaffenaker	85	Poor		Fair	
		Thickest layer	0.00	Bottom layer	0.08
		Bottom layer	0.00	Thickest layer	0.08
33B:					
Shelocta	90	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
33C:					
Shelocta	90	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
33D:					
Shelocta	90	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00

Table 13.—Construction Materials, Part I—Continued

Map symbol and soil name	Pct. of map unit	Potential source of gravel: Rating class	Value	Potential source of sand: Rating class	Value
34B:					
Slabtown	90	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
34C:					
Slabtown	90	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
35B:					
Sugarhol	90	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
35C:					
Sugarhol	85	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
36B:					
Tumbling	80	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
36C:					
Tumbling	85	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
36D:					
Tumbling	80	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
37C:					
Tumbling, very stony	80	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
37E:					
Tumbling, very stony	80	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
38:					
Udorthents, unstable fill	50	Not rated		Not rated	
Urban land	40	Not rated		Not rated	
39C:					
Watahala	90	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
39D:					
Watahala	90	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00

Table 13.—Construction Materials, Part I—Continued

Map symbol and soil name	Pct. of map unit	Potential source of gravel		Potential source of sand	
		Rating class	Value	Rating class	Value
39E:					
Watahala	90	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
40C:					
Watahala, extremely stony	90	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
40E:					
Watahala, extremely stony	90	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
40F:					
Watahala, extremely stony	90	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
41G:					
Weikert	35	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
Rough	30	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
Rock outcrop	25	Not rated		Not rated	
W:					
Water	100	Not rated		Not rated	

Table 13.—Construction Materials, Part II

(The information in this table indicates the dominant soil condition but does not eliminate the need for for onsite investigation. The numbers in the value columns range from 0.00 to 0.99. The smaller the value, the greater the limitation. See text for further explanation of ratings in this table)

Map symbol and soil name	Pct. of map unit	Potential source of reclamation material: Rating class and limiting features	Value	Potential source of roadfill: Rating class and limiting features	Value	Potential source of topsoil: Rating class and limiting features	Value
1A:							
Alonzville, rarely flooded	85	Fair		Good		Fair	
		Too acid	0.46			Rock fragments	0.76
		Organic matter content low	0.88			Too acid	0.95
		Water erosion	0.99				
1B:							
Alonzville, rarely flooded	85	Fair		Good		Fair	
		Too acid	0.46			Rock fragments	0.76
		Organic matter content low	0.88			Too acid	0.95
		Water erosion	0.99				
2B:							
Alonzville	85	Fair		Good		Fair	
		Too acid	0.46			Rock fragments	0.76
		Organic matter content low	0.88			Too acid	0.95
		Water erosion	0.99				
3A:							
Atkins	90	Fair		Poor		Poor	
		Too acid	0.50	Wetness depth	0.00	Wetness depth	0.00
						Rock fragments	0.82
						Too acid	0.95
4C:							
Bailegap	90	Fair		Fair		Fair	
		Organic matter content low	0.12	Depth to bedrock	0.07	Slope	0.63
		Too acid	0.50			Too acid	0.95
		Water erosion	0.99				
4E:							
Bailegap	90	Fair		Poor		Poor	
		Organic matter content low	0.12	Slope	0.00	Slope	0.00
				Depth to bedrock	0.07	Too acid	0.95
		Too acid	0.50				
		Water erosion	0.99				
5G:							
Bailegap	35	Fair		Poor		Poor	
		Organic matter content low	0.12	Slope	0.00	Slope	0.00
				Depth to bedrock	0.07	Too acid	0.95
		Too acid	0.50				
		Water erosion	0.99				
Lily	30	Fair		Poor		Poor	
		Organic matter content low	0.12	Slope	0.00	Slope	0.00
				Depth to bedrock	0.00	Depth to bedrock	0.54
		Droughty	0.20	Low strength	0.22	Too clayey	0.57
		Too acid	0.50				

Table 13.—Construction Materials, Part II—Continued

Map symbol and soil name	Pct. of map unit	Potential source of reclamation material: Rating class and limiting features	Value	Potential source of roadfill: Rating class and limiting features	Value	Potential source of topsoil: Rating class and limiting features	Value
5G:							
Dekalb	25	Poor		Poor		Poor	
		Droughty	0.00	Slope	0.00	Slope	0.00
		Organic matter content low	0.12	Depth to bedrock	0.00	Rock fragments	0.00
		Too acid	0.50	Cobble content	0.99	Depth to bedrock	0.65
6E:							
Berks	55	Fair		Poor		Poor	
		Droughty	0.01	Slope	0.00	Slope	0.00
		Organic matter content low	0.12	Depth to bedrock	0.00	Rock fragments	0.00
		Depth to bedrock	0.35	Cobble content	0.96	Depth to bedrock	0.35
Culleoka	35	Fair		Poor		Poor	
		Droughty	0.10	Slope	0.00	Slope	0.00
		Organic matter content low	0.12	Depth to bedrock	0.00	Rock fragments	0.00
		Depth to bedrock	0.29	Low strength	0.78	Depth to bedrock	0.29
6G:							
Berks	60	Fair		Poor		Poor	
		Droughty	0.01	Slope	0.00	Slope	0.00
		Organic matter content low	0.12	Depth to bedrock	0.00	Rock fragments	0.00
		Depth to bedrock	0.35	Cobble content	0.96	Depth to bedrock	0.35
Culleoka	30	Fair		Poor		Poor	
		Droughty	0.10	Slope	0.00	Slope	0.00
		Organic matter content low	0.12	Depth to bedrock	0.00	Rock fragments	0.00
		Depth to bedrock	0.29	Low strength	0.78	Depth to bedrock	0.29
7C:							
Berks	45	Fair		Poor		Poor	
		Droughty	0.01	Depth to bedrock	0.00	Rock fragments	0.00
		Organic matter content low	0.12	Cobble content	0.96	Depth to bedrock	0.35
		Depth to bedrock	0.35			Slope	0.63
Weikert	40	Poor		Poor		Poor	
		Droughty	0.00	Depth to bedrock	0.00	Rock fragments	0.00
		Depth to bedrock	0.00	Cobble content	0.99	Depth to bedrock	0.00
		Organic matter content low	0.12			Slope	0.63
7E:							
Berks	50	Fair		Poor		Poor	
		Droughty	0.01	Depth to bedrock	0.00	Slope	0.00
		Organic matter content low	0.12	Slope	0.00	Rock fragments	0.00
		Depth to bedrock	0.35	Cobble content	0.96	Depth to bedrock	0.35
Weikert	35	Poor		Poor		Poor	
		Droughty	0.00	Depth to bedrock	0.00	Slope	0.00
		Depth to bedrock	0.00	Slope	0.00	Rock fragments	0.00
		Organic matter content low	0.12	Cobble content	0.99	Depth to bedrock	0.00

Table 13.—Construction Materials, Part II—Continued

Map symbol and soil name	Pct. of map unit	Potential source of reclamation material: Rating class and limiting features	Value	Potential source of roadfill: Rating class and limiting features	Value	Potential source of topsoil: Rating class and limiting features	Value
7G:							
Berks	45	Fair		Poor		Poor	
		Droughty	0.01	Slope	0.00	Slope	0.00
		Organic matter content low	0.12	Depth to bedrock	0.00	Rock fragments	0.00
		Depth to bedrock	0.35	Cobble content	0.96	Depth to bedrock	0.35
Weikert	40	Poor		Poor		Poor	
		Droughty	0.00	Depth to bedrock	0.00	Slope	0.00
		Depth to bedrock	0.00	Slope	0.00	Rock fragments	0.00
		Organic matter content low	0.12	Cobble content	0.99	Depth to bedrock	0.00
8G:							
Brushy	90	Poor		Poor		Poor	
		Droughty	0.00	Slope	0.00	Slope	0.00
		Organic matter content low	0.12	Depth to bedrock	0.00	Rock fragments	0.00
		Too acid	0.50			Too acid	0.76
9E:							
Calvin	80	Fair		Poor		Poor	
		Droughty	0.01	Depth to bedrock	0.00	Slope	0.00
		Organic matter content low	0.12	Slope	0.00	Rock fragments	0.00
		Depth to bedrock	0.29	Cobble content	0.97	Depth to bedrock	0.29
10G:							
Calvin	55	Fair		Poor		Poor	
		Droughty	0.01	Slope	0.00	Slope	0.00
		Organic matter content low	0.12	Depth to bedrock	0.00	Rock fragments	0.00
		Depth to bedrock	0.29	Cobble content	0.97	Depth to bedrock	0.29
Rough	30	Poor		Poor		Poor	
		Droughty	0.00	Depth to bedrock	0.00	Slope	0.00
		Depth to bedrock	0.00	Slope	0.00	Depth to bedrock	0.00
		Too acid	0.50			Rock fragments	0.00
11E:							
Carbo	60	Poor		Poor		Poor	
		Too clayey	0.00	Low strength	0.00	Too clayey	0.00
		Droughty	0.00	Depth to bedrock	0.00	Slope	0.00
		Depth to bedrock	0.10	Slope	0.18	Depth to bedrock	0.10
Rock outcrop	25	Not rated		Not rated		Not rated	
11F:							
Carbo	60	Poor		Poor		Poor	
		Too clayey	0.00	Slope	0.00	Slope	0.00
		Droughty	0.00	Low strength	0.00	Too clayey	0.00
		Depth to bedrock	0.10	Depth to bedrock	0.00	Depth to bedrock	0.10
Rock outcrop	25	Not rated		Not rated		Not rated	
12E:							
Carbo, karst	60	Poor		Poor		Poor	
		Too clayey	0.00	Low strength	0.00	Too clayey	0.00
		Droughty	0.00	Depth to bedrock	0.00	Slope	0.00
		Depth to bedrock	0.10	Shrink-swell	0.22	Depth to bedrock	0.10

Table 13.—Construction Materials, Part II—Continued

Map symbol and soil name	Pct. of map unit	Potential source of reclamation material: Rating class and limiting features	Value	Potential source of roadfill: Rating class and limiting features	Value	Potential source of topsoil: Rating class and limiting features	Value
12E:							
Rock outcrop	25	Not rated		Not rated		Not rated	
13A:							
Coursey	85	Fair		Fair		Poor	
		Organic matter content low	0.12	Wetness depth	0.29	Hard to reclaim (rock fragments)	0.00
		Too acid	0.46			Wetness depth	0.29
		Water erosion	0.99			Rock fragments	0.92
13B:							
Coursey	85	Fair		Fair		Poor	
		Organic matter content low	0.12	Wetness depth	0.29	Hard to reclaim (rock fragments)	0.00
		Too acid	0.46			Wetness depth	0.29
		Water erosion	0.99			Rock fragments	0.92
14C:							
Culleoka	50	Fair		Poor		Poor	
		Droughty	0.10	Depth to bedrock	0.00	Rock fragments	0.00
		Organic matter content low	0.12	Low strength	0.78	Depth to bedrock	0.29
						Too clayey	0.57
		Depth to bedrock	0.29				
Berks	40	Fair		Poor		Poor	
		Droughty	0.01	Depth to bedrock	0.00	Rock fragments	0.00
		Organic matter content low	0.12	Cobble content	0.96	Depth to bedrock	0.35
						Slope	0.63
		Depth to bedrock	0.35				
14D:							
Culleoka	50	Fair		Poor		Poor	
		Droughty	0.10	Depth to bedrock	0.00	Slope	0.00
		Organic matter content low	0.12	Slope	0.50	Rock fragments	0.00
				Low strength	0.78	Depth to bedrock	0.29
		Depth to bedrock	0.29				
Berks	40	Fair		Poor		Poor	
		Droughty	0.01	Depth to bedrock	0.00	Slope	0.00
		Organic matter content low	0.12	Slope	0.50	Rock fragments	0.00
				Cobble content	0.96	Depth to bedrock	0.35
		Depth to bedrock	0.35				
15E:							
Dekalb	90	Poor		Poor		Poor	
		Droughty	0.00	Depth to bedrock	0.00	Rock fragments	0.00
		Organic matter content low	0.12	Slope	0.00	Slope	0.00
				Cobble content	0.99	Depth to bedrock	0.65
		Too acid	0.50				
15F:							
Dekalb	85	Poor		Poor		Poor	
		Droughty	0.00	Slope	0.00	Slope	0.00
		Organic matter content low	0.12	Depth to bedrock	0.00	Rock fragments	0.00
				Cobble content	0.99	Depth to bedrock	0.65
		Too acid	0.50				

Table 13.—Construction Materials, Part II—Continued

Map symbol and soil name	Pct. of map unit	Potential source of reclamation material: Rating class and limiting features	Value	Potential source of roadfill: Rating class and limiting features	Value	Potential source of topsoil: Rating class and limiting features	Value
16E:							
Dekalb	75	Poor		Poor		Poor	
		Droughty	0.00	Depth to bedrock	0.00	Rock fragments	0.00
		Organic matter content low	0.12	Slope	0.18	Slope	0.00
				Cobble content	0.99	Depth to bedrock	0.65
		Too acid	0.50				
Rock outcrop	15	Not rated		Not rated		Not rated	
16G:							
Dekalb	75	Poor		Poor		Poor	
		Droughty	0.00	Slope	0.00	Slope	0.00
		Organic matter content low	0.12	Depth to bedrock	0.00	Rock fragments	0.00
				Cobble content	0.99	Depth to bedrock	0.65
		Too acid	0.50				
Rock outcrop	15	Not rated		Not rated		Not rated	
17B:							
Escatawba	90	Fair		Fair		Fair	
		Too acid	0.08	Low strength	0.22	Too acid	0.50
		Organic matter content low	0.12	Wetness depth	0.89	Wetness depth	0.89
		Water erosion	0.99				
17C:							
Escatawba	90	Fair		Fair		Fair	
		Too acid	0.08	Low strength	0.22	Too acid	0.50
		Organic matter content low	0.12	Wetness depth	0.89	Slope	0.63
						Wetness depth	0.89
		Water erosion	0.99				
18C:							
Escatawba, very stony	90	Fair		Fair		Fair	
		Too acid	0.08	Low strength	0.22	Too acid	0.50
		Organic matter content low	0.12	Wetness depth	0.89	Slope	0.63
						Wetness depth	0.89
		Water erosion	0.99				
18E:							
Escatawba, very stony	85	Fair		Poor		Poor	
		Too acid	0.08	Slope	0.00	Slope	0.00
		Organic matter content low	0.12	Low strength	0.22	Too acid	0.50
				Wetness depth	0.89	Wetness depth	0.89
		Water erosion	0.99				
19B:							
Frederick	90	Poor		Poor		Poor	
		Too clayey	0.00	Low strength	0.00	Too clayey	0.00
		Organic matter content low	0.12	Shrink-swell	0.83	Too acid	0.95
		Too acid	0.46				
19C:							
Frederick	90	Poor		Poor		Poor	
		Too clayey	0.00	Low strength	0.00	Too clayey	0.00
		Organic matter content low	0.12	Shrink-swell	0.83	Slope	0.63
						Too acid	0.95
		Too acid	0.46				

Table 13.—Construction Materials, Part II—Continued

Map symbol and soil name	Pct. of map unit	Potential source of reclamation material: Rating class and limiting features	Value	Potential source of roadfill: Rating class and limiting features	Value	Potential source of topsoil: Rating class and limiting features	Value
19D:							
Frederick	90	Poor		Poor		Poor	
		Too clayey	0.00	Low strength	0.00	Slope	0.00
		Organic matter content low	0.12	Slope	0.50	Too clayey	0.00
		Too acid	0.46	Shrink-swell	0.83	Too acid	0.95
19E:							
Frederick	90	Poor		Poor		Poor	
		Too clayey	0.00	Slope	0.00	Slope	0.00
		Organic matter content low	0.12	Low strength	0.00	Too clayey	0.00
		Too acid	0.46	Shrink-swell	0.83	Too acid	0.95
20C:							
Frederick	50	Poor		Poor		Poor	
		Too clayey	0.00	Low strength	0.00	Too clayey	0.00
		Organic matter content low	0.12	Shrink-swell	0.89	Slope	0.63
		Too acid	0.50			Too acid	0.88
Watahala	35	Fair		Poor		Poor	
		Organic matter content low	0.18	Low strength	0.00	Rock fragments	0.00
		Too acid	0.50	Shrink-swell	0.96	Slope	0.63
						Too acid	0.95
20D:							
Frederick	50	Poor		Poor		Poor	
		Too clayey	0.00	Low strength	0.00	Slope	0.00
		Organic matter content low	0.12	Slope	0.50	Too clayey	0.00
		Too acid	0.50	Shrink-swell	0.89	Too acid	0.88
Watahala	35	Fair		Poor		Poor	
		Organic matter content low	0.18	Low strength	0.00	Slope	0.00
		Too acid	0.50	Slope	0.50	Rock fragments	0.00
				Shrink-swell	0.96	Too acid	0.95
21C:							
Gilpin	85	Fair		Poor		Fair	
		Organic matter content low	0.12	Depth to bedrock	0.00	Too clayey	0.57
		Too acid	0.50	Low strength	0.00	Slope	0.63
		Droughty	0.75			Depth to bedrock	0.77
21D:							
Gilpin	85	Fair		Poor		Poor	
		Organic matter content low	0.12	Depth to bedrock	0.00	Slope	0.00
		Too acid	0.50	Low strength	0.00	Too clayey	0.57
		Droughty	0.75	Slope	0.50	Depth to bedrock	0.77
22B:							
Jefferson	90	Fair		Fair		Fair	
		Too acid	0.12	Low strength	0.78	Hard to reclaim (rock fragments)	0.12
		Organic matter content low	0.12			Rock fragments	0.71
						Too acid	0.95

Table 13.—Construction Materials, Part II—Continued

Map symbol and soil name	Pct. of map unit	Potential source of reclamation material: Rating class and limiting features	Value	Potential source of roadfill: Rating class and limiting features	Value	Potential source of topsoil: Rating class and limiting features	Value
22C:							
Jefferson	90	Fair		Fair		Fair	
		Too acid	0.12	Low strength	0.78	Hard to reclaim (rock fragments)	0.12
		Organic matter content low	0.12			Slope	0.63
						Rock fragments	0.71
22D:							
Jefferson	90	Fair		Fair		Poor	
		Too acid	0.12	Slope	0.50	Slope	0.00
		Organic matter content low	0.12	Low strength	0.78	Hard to reclaim (rock fragments)	0.12
						Rock fragments	0.71
23C:							
Lily	90	Fair		Poor		Fair	
		Organic matter content low	0.12	Depth to bedrock	0.00	Depth to bedrock	0.54
				Low strength	0.22	Too clayey	0.57
		Droughty	0.20			Slope	0.63
		Too acid	0.50				
23E:							
Lily	85	Fair		Poor		Poor	
		Organic matter content low	0.12	Depth to bedrock	0.00	Slope	0.00
				Slope	0.00	Depth to bedrock	0.54
		Droughty	0.20	Low strength	0.22	Too clayey	0.57
		Too acid	0.50				
23F:							
Lily	85	Fair		Poor		Poor	
		Organic matter content low	0.12	Slope	0.00	Slope	0.00
				Depth to bedrock	0.00	Depth to bedrock	0.54
		Droughty	0.20	Low strength	0.22	Too clayey	0.57
		Too acid	0.50				
24A:							
Maurertown	90	Poor		Poor		Poor	
		Too clayey	0.00	Wetness depth	0.00	Wetness depth	0.00
		Organic matter content low	0.12	Low strength	0.00	Too clayey	0.00
				Shrink-swell	0.12		
		Water erosion	0.99				
25B:							
Nicelytown	90	Fair		Poor		Fair	
		Organic matter content low	0.12	Low strength	0.00	Wetness depth	0.14
				Wetness depth	0.14	Too clayey	0.39
		Too acid	0.46			Rock fragments	0.92
		Water erosion	0.68				
25C:							
Nicelytown	90	Fair		Poor		Fair	
		Organic matter content low	0.12	Low strength	0.00	Wetness depth	0.14
				Wetness depth	0.14	Too clayey	0.39
		Too acid	0.46			Slope	0.63
		Water erosion	0.68				
26B:							
Ogles	90	Poor		Poor		Poor	
		Stone content	0.00	Stones	0.00	Hard to reclaim (rock fragments)	0.00
		Cobble content	0.17	Cobble content	0.00		
		Too sandy	0.30			Rock fragments	0.00
						Too sandy	0.30

Table 13.—Construction Materials, Part II—Continued

Map symbol and soil name	Pct. of map unit	Potential source of reclamation material: Rating class and limiting features	Value	Potential source of roadfill: Rating class and limiting features	Value	Potential source of topsoil: Rating class and limiting features	Value
27C:							
Oriskany, extremely stony	90	Poor		Poor		Fair	
		Stone content	0.00	Stones	0.00	Too acid	0.59
		Organic matter content low	0.12			Rock fragments	0.63
		Too acid	0.50			Slope	0.63
27E:							
Oriskany, extremely stony	90	Poor		Poor		Poor	
		Stone content	0.00	Stones	0.00	Slope	0.00
		Organic matter content low	0.12	Slope	0.00	Too acid	0.59
		Too acid	0.50			Rock fragments	0.63
28F:							
Oriskany, very rubbly	90	Poor		Poor		Poor	
		Stone content	0.00	Stones	0.00	Slope	0.00
		Organic matter content low	0.12	Slope	0.00	Too acid	0.59
		Too acid	0.50			Rock fragments	0.63
29A:							
Philo	85	Fair		Fair		Fair	
		Too acid	0.50	Wetness depth	0.44	Hard to reclaim (rock fragments)	0.41
		Organic matter content low	0.50			Wetness depth	0.44
		Water erosion	0.90			Too acid	0.95
30:							
Pits	50	Not rated		Not rated		Not rated	
Dumps	45	Not rated		Not rated		Not rated	
31A:							
Pope	90	Fair		Good		Poor	
		Organic matter content low	0.50			Hard to reclaim (rock fragments)	0.00
		Too acid	0.61			Rock fragments	0.18
		Droughty	0.99			Too acid	0.99
32C:							
Schaffenaker	85	Poor		Poor		Fair	
		Wind erosion	0.00	Depth to bedrock	0.00	Too sandy	0.14
		Droughty	0.00			Slope	0.63
		Organic matter content low	0.12			Too acid	0.95
33B:							
Shelocta	90	Fair		Good		Fair	
		Organic matter content low	0.12			Too acid	0.95
		Too acid	0.46				
		Water erosion	0.90				

Table 13.—Construction Materials, Part II—Continued

Map symbol and soil name	Pct. of map unit	Potential source of reclamation material: Rating class and limiting features	Value	Potential source of roadfill: Rating class and limiting features	Value	Potential source of topsoil: Rating class and limiting features	Value
33C:							
Shelocta	90	Fair		Good		Fair	
		Organic matter content low	0.12			Slope	0.63
		Too acid	0.46			Too acid	0.95
		Water erosion	0.90				
33D:							
Shelocta	90	Fair		Fair		Poor	
		Organic matter content low	0.12	Slope	0.50	Slope	0.00
		Too acid	0.46			Too acid	0.95
		Water erosion	0.90				
34B:							
Slabtown	90	Poor		Poor		Fair	
		Organic matter content low	0.00	Low strength	0.00	Wetness depth	0.76
				Wetness depth	0.76	Rock fragments	0.88
		Water erosion	0.90	Shrink-swell	0.80		
34C:							
Slabtown	90	Poor		Poor		Fair	
		Organic matter content low	0.00	Low strength	0.00	Slope	0.63
				Wetness depth	0.76	Wetness depth	0.76
		Water erosion	0.90	Shrink-swell	0.80	Rock fragments	0.88
35B:							
Sugarhol	90	Poor		Poor		Poor	
		Too clayey	0.00	Low strength	0.00	Too clayey	0.00
		Organic matter content low	0.12			Too acid	0.76
		Too acid	0.50				
35C:							
Sugarhol	85	Poor		Poor		Poor	
		Too clayey	0.00	Low strength	0.00	Too clayey	0.00
		Organic matter content low	0.12			Slope	0.63
						Too acid	0.76
		Too acid	0.50				
36B:							
Tumbling	80	Fair		Fair		Fair	
		Too acid	0.46	Low strength	0.78	Hard to reclaim (rock fragments)	0.24
		Organic matter content low	0.50	Shrink-swell	0.99	Too clayey	0.60
		Too clayey	0.92			Rock fragments	0.94
36C:							
Tumbling	85	Fair		Fair		Fair	
		Too acid	0.46	Low strength	0.78	Hard to reclaim (rock fragments)	0.24
		Organic matter content low	0.50	Shrink-swell	0.99	Too clayey	0.60
		Too clayey	0.92			Slope	0.63
36D:							
Tumbling	80	Fair		Fair		Poor	
		Too acid	0.46	Slope	0.50	Slope	0.00
		Organic matter content low	0.50	Low strength	0.78	Hard to reclaim (rock fragments)	0.24
				Shrink-swell	0.99		
		Too clayey	0.92			Too clayey	0.60

Table 13.—Construction Materials, Part II—Continued

Map symbol and soil name	Pct. of map unit	Potential source of reclamation material: Rating class and limiting features	Value	Potential source of roadfill: Rating class and limiting features	Value	Potential source of topsoil: Rating class and limiting features	Value
37C:							
Tumbling, very stony	80	Fair		Fair		Fair	
		Too acid	0.46	Low strength	0.78	Hard to reclaim (rock fragments)	0.24
		Organic matter content low	0.50	Shrink-swell	0.99	Too clayey	0.60
		Too clayey	0.92			Slope	0.63
37E:							
Tumbling, very stony	80	Fair		Poor		Poor	
		Too acid	0.46	Slope	0.00	Slope	0.00
		Organic matter content low	0.50	Low strength	0.78	Hard to reclaim (rock fragments)	0.24
		Too clayey	0.92	Shrink-swell	0.99	Too clayey	0.60
38:							
Udorthents, unstable fill	50	Not rated		Not rated		Not rated	
Urban land	40	Not rated		Not rated		Not rated	
39C:							
Watahala	90	Fair		Poor		Poor	
		Organic matter content low	0.18	Low strength	0.00	Rock fragments	0.00
		Too acid	0.50	Shrink-swell	0.96	Slope	0.63
						Too acid	0.95
39D:							
Watahala	90	Fair		Poor		Poor	
		Organic matter content low	0.18	Low strength	0.00	Slope	0.00
				Slope	0.50	Rock fragments	0.00
		Too acid	0.50	Shrink-swell	0.96	Too acid	0.95
39E:							
Watahala	90	Fair		Poor		Poor	
		Organic matter content low	0.18	Slope	0.00	Slope	0.00
				Low strength	0.00	Rock fragments	0.00
		Too acid	0.50	Shrink-swell	0.96	Too acid	0.95
40C:							
Watahala, extremely stony	90	Fair		Poor		Poor	
		Organic matter content low	0.18	Low strength	0.00	Rock fragments	0.00
				Shrink-swell	0.96	Slope	0.63
		Too acid	0.50			Too acid	0.95
40E:							
Watahala, extremely stony	90	Fair		Poor		Poor	
		Organic matter content low	0.18	Slope	0.00	Slope	0.00
				Low strength	0.00	Rock fragments	0.00
		Too acid	0.50	Shrink-swell	0.96	Too acid	0.95
40F:							
Watahala, extremely stony	90	Fair		Poor		Poor	
		Organic matter content low	0.18	Slope	0.00	Slope	0.00
				Low strength	0.00	Rock fragments	0.00
		Too acid	0.50	Shrink-swell	0.96	Too acid	0.95

Table 13.—Construction Materials, Part II—Continued

Map symbol and soil name	Pct. of map unit	Potential source of reclamation material: Rating class and limiting features	Value	Potential source of roadfill: Rating class and limiting features	Value	Potential source of topsoil: Rating class and limiting features	Value
41G:							
Weikert	35	Poor		Poor		Poor	
		Droughty	0.00	Depth to bedrock	0.00	Slope	0.00
		Depth to bedrock	0.00	Slope	0.00	Rock fragments	0.00
		Organic matter content low	0.12	Cobble content	0.99	Depth to bedrock	0.00
Rough	30	Poor		Poor		Poor	
		Droughty	0.00	Depth to bedrock	0.00	Slope	0.00
		Depth to bedrock	0.00	Slope	0.00	Depth to bedrock	0.00
		Too acid	0.50			Rock fragments	0.00
Rock outcrop	25	Not rated		Not rated		Not rated	
W:							
Water	100	Not rated		Not rated		Not rated	

Table 14.—Water Management

(The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation. The numbers in the value columns range from 0.01 to 1.00. The larger the value, the greater the limitation. See text for further explanation of ratings in this table)

Map symbol and soil name	Pct. of map unit	Pond reservoir areas: Rating class and limiting features	Value	Embankments, dikes, and levees: Rating class and limiting features	Value	Aquifer-fed excavated ponds: Rating class and limiting features	Value
1A:							
Alonzville, rarely flooded	85	Somewhat limited		Somewhat limited		Very limited	
		Seepage	0.70	Piping	0.99	Depth to water	1.00
1B:							
Alonzville, rarely flooded	85	Somewhat limited		Somewhat limited		Very limited	
		Seepage	0.70	Piping	0.99	Depth to water	1.00
		Slope	0.32				
2B:							
Alonzville	85	Somewhat limited		Somewhat limited		Very limited	
		Seepage	0.70	Piping	0.99	Depth to water	1.00
		Slope	0.32				
3A:							
Atkins	90	Somewhat limited		Very limited		Very limited	
		Seepage	0.03	Ponding	1.00	Cutbanks cave	1.00
				Depth to saturated zone	1.00	Slow refill	0.30
4C:							
Bailegap	90	Very limited		Very limited		Very limited	
		Slope	1.00	Piping	1.00	Depth to water	1.00
		Seepage	0.70	Thin layer	0.34		
		Depth to bedrock	0.22				
4E:							
Bailegap	90	Very limited		Very limited		Very limited	
		Slope	1.00	Piping	1.00	Depth to water	1.00
		Seepage	0.70	Thin layer	0.34		
		Depth to bedrock	0.22				
5G:							
Bailegap	35	Very limited		Very limited		Very limited	
		Slope	1.00	Piping	1.00	Depth to water	1.00
		Seepage	0.70	Thin layer	0.34		
		Depth to bedrock	0.22				
Lily	30	Very limited		Somewhat limited		Very limited	
		Seepage	1.00	Thin layer	0.86	Depth to water	1.00
		Slope	1.00				
		Depth to bedrock	0.86				
Dekalb	25	Very limited		Very limited		Very limited	
		Seepage	1.00	Seepage	1.00	Depth to water	1.00
		Slope	1.00	Thin layer	0.83		
		Depth to bedrock	0.83				
6E:							
Berks	55	Very limited		Somewhat limited		Very limited	
		Seepage	1.00	Thin layer	0.91	Depth to water	1.00
		Slope	1.00				
		Depth to bedrock	0.91				

Table 14.—Water Management—Continued

Map symbol and soil name	Pct. of map unit	Pond reservoir areas: Rating class and limiting features	Value	Embankments, dikes, and levees: Rating class and limiting features	Value	Aquifer-fed excavated ponds: Rating class and limiting features	Value
6E:							
Culleoka	35	Very limited		Somewhat limited		Very limited	
		Slope	1.00	Piping	0.99	Depth to water	1.00
		Seepage	1.00	Thin layer	0.93		
		Depth to bedrock	0.93				
6G:							
Berks	60	Very limited		Somewhat limited		Very limited	
		Seepage	1.00	Thin layer	0.91	Depth to water	1.00
		Slope	1.00				
		Depth to bedrock	0.91				
Culleoka	30	Very limited		Somewhat limited		Very limited	
		Slope	1.00	Piping	0.99	Depth to water	1.00
		Seepage	1.00	Thin layer	0.93		
		Depth to bedrock	0.93				
7C:							
Berks	45	Very limited		Somewhat limited		Very limited	
		Seepage	1.00	Thin layer	0.91	Depth to water	1.00
		Slope	1.00				
		Depth to bedrock	0.91				
Weikert	40	Very limited		Very limited		Very limited	
		Slope	1.00	Seepage	1.00	Depth to water	1.00
		Depth to bedrock	1.00	Thin layer	1.00		
		Seepage	0.70				
7E:							
Berks	50	Very limited		Somewhat limited		Very limited	
		Seepage	1.00	Thin layer	0.91	Depth to water	1.00
		Slope	1.00				
		Depth to bedrock	0.91				
Weikert	35	Very limited		Very limited		Very limited	
		Slope	1.00	Seepage	1.00	Depth to water	1.00
		Depth to bedrock	1.00	Thin layer	1.00		
		Seepage	0.70				
7G:							
Berks	45	Very limited		Somewhat limited		Very limited	
		Seepage	1.00	Thin layer	0.91	Depth to water	1.00
		Slope	1.00				
		Depth to bedrock	0.91				
Weikert	40	Very limited		Very limited		Very limited	
		Slope	1.00	Seepage	1.00	Depth to water	1.00
		Depth to bedrock	1.00	Thin layer	1.00		
		Seepage	0.70				
8G:							
Brushy	90	Very limited		Somewhat limited		Very limited	
		Slope	1.00	Thin layer	0.74	Depth to water	1.00
		Depth to bedrock	0.74	Seepage	0.13		
		Seepage	0.70				
9E:							
Calvin	80	Very limited		Somewhat limited		Very limited	
		Seepage	1.00	Thin layer	0.93	Depth to water	1.00
		Slope	1.00				
		Depth to bedrock	0.93				

Table 14.—Water Management—Continued

Map symbol and soil name	Pct. of map unit	Pond reservoir areas: Rating class and limiting features	Value	Embankments, dikes, and levees: Rating class and limiting features	Value	Aquifer-fed excavated ponds: Rating class and limiting features	Value
10G:							
Calvin	55	Very limited		Somewhat limited		Very limited	
		Seepage	1.00	Thin layer	0.93	Depth to water	1.00
		Slope	1.00				
		Depth to bedrock	0.93				
Rough	30	Very limited		Very limited		Very limited	
		Slope	1.00	Thin layer	1.00	Depth to water	1.00
		Depth to bedrock	1.00	Large stones	0.03		
11E:							
Carbo	60	Very limited		Very limited		Very limited	
		Slope	1.00	Hard to pack	1.00	Depth to water	1.00
		Depth to bedrock	0.98	Thin layer	0.98		
Rock outcrop	25	Not rated		Not rated		Not rated	
11F:							
Carbo	60	Very limited		Very limited		Very limited	
		Slope	1.00	Hard to pack	1.00	Depth to water	1.00
		Depth to bedrock	0.98	Thin layer	0.98		
Rock outcrop	25	Not rated		Not rated		Not rated	
12E:							
Carbo, karst	60	Very limited		Very limited		Very limited	
		Slope	1.00	Hard to pack	1.00	Depth to water	1.00
		Depth to bedrock	0.98	Thin layer	0.98		
Rock outcrop	25	Not rated		Not rated		Not rated	
13A:							
Coursey	85	Somewhat limited		Very limited		Very limited	
		Seepage	0.70	Depth to saturated zone	1.00	Cutbanks cave	1.00
						Slow refill	0.30
13B:							
Coursey	85	Somewhat limited		Very limited		Very limited	
		Seepage	0.70	Depth to saturated zone	1.00	Cutbanks cave	1.00
		Slope	0.32			Slow refill	0.30
14C:							
Culleoka	50	Very limited		Somewhat limited		Very limited	
		Slope	1.00	Piping	0.99	Depth to water	1.00
		Seepage	1.00	Thin layer	0.93		
		Depth to bedrock	0.93				
Berks	40	Very limited		Somewhat limited		Very limited	
		Seepage	1.00	Thin layer	0.91	Depth to water	1.00
		Slope	1.00				
		Depth to bedrock	0.91				
14D:							
Culleoka	50	Very limited		Somewhat limited		Very limited	
		Slope	1.00	Piping	0.99	Depth to water	1.00
		Seepage	1.00	Thin layer	0.93		
		Depth to bedrock	0.93				
Berks	40	Very limited		Somewhat limited		Very limited	
		Seepage	1.00	Thin layer	0.91	Depth to water	1.00
		Slope	1.00				
		Depth to bedrock	0.91				

Table 14.—Water Management—Continued

Map symbol and soil name	Pct. of map unit	Pond reservoir areas: Rating class and limiting features	Value	Embankments, dikes, and levees: Rating class and limiting features	Value	Aquifer-fed excavated ponds: Rating class and limiting features	Value
15E:							
Dekalb	90	Very limited		Very limited		Very limited	
		Seepage	1.00	Seepage	1.00	Depth to water	1.00
		Slope	1.00	Thin layer	0.83		
		Depth to bedrock	0.83				
15F:							
Dekalb	85	Very limited		Very limited		Very limited	
		Seepage	1.00	Seepage	1.00	Depth to water	1.00
		Slope	1.00	Thin layer	0.83		
		Depth to bedrock	0.83				
16E:							
Dekalb	75	Very limited		Very limited		Very limited	
		Seepage	1.00	Seepage	1.00	Depth to water	1.00
		Slope	1.00	Thin layer	0.83		
		Depth to bedrock	0.83				
Rock outcrop	15	Not rated		Not rated		Not rated	
16G:							
Dekalb	75	Very limited		Very limited		Very limited	
		Seepage	1.00	Seepage	1.00	Depth to water	1.00
		Slope	1.00	Thin layer	0.83		
		Depth to bedrock	0.83				
Rock outcrop	15	Not rated		Not rated		Not rated	
17B:							
Escatawba	90	Somewhat limited		Somewhat limited		Very limited	
		Seepage	0.70	Piping	0.90	Depth to water	1.00
		Slope	0.32	Depth to saturated zone	0.86		
17C:							
Escatawba	90	Very limited		Somewhat limited		Very limited	
		Slope	1.00	Piping	0.90	Depth to water	1.00
		Seepage	0.70	Depth to saturated zone	0.86		
18C:							
Escatawba, very stony	90	Very limited		Somewhat limited		Very limited	
		Slope	1.00	Piping	0.90	Depth to water	1.00
		Seepage	0.70	Depth to saturated zone	0.86		
18E:							
Escatawba, very stony	85	Very limited		Somewhat limited		Very limited	
		Slope	1.00	Piping	0.90	Depth to water	1.00
		Seepage	0.70	Depth to saturated zone	0.86		
19B:							
Frederick	90	Somewhat limited		Somewhat limited		Very limited	
		Seepage	0.70	Hard to pack	0.07	Depth to water	1.00
		Slope	0.32				

Table 14.—Water Management—Continued

Map symbol and soil name	Pct. of map unit	Pond reservoir areas: Rating class and limiting features	Value	Embankments, dikes, and levees: Rating class and limiting features	Value	Aquifer-fed excavated ponds: Rating class and limiting features	Value
19C:							
Frederick	90	Very limited		Somewhat limited		Very limited	
		Slope	1.00	Hard to pack	0.07	Depth to water	1.00
		Seepage	0.70				
19D:							
Frederick	90	Very limited		Somewhat limited		Very limited	
		Slope	1.00	Hard to pack	0.07	Depth to water	1.00
		Seepage	0.70				
19E:							
Frederick	90	Very limited		Somewhat limited		Very limited	
		Slope	1.00	Hard to pack	0.07	Depth to water	1.00
		Seepage	0.70				
20C:							
Frederick	50	Very limited		Not limited		Very limited	
		Slope	1.00			Depth to water	1.00
		Seepage	0.70				
Watahala	35	Very limited		Somewhat limited		Very limited	
		Slope	1.00	Piping	0.18	Depth to water	1.00
		Seepage	0.70				
20D:							
Frederick	50	Very limited		Not limited		Very limited	
		Slope	1.00			Depth to water	1.00
		Seepage	0.70				
Watahala	35	Very limited		Somewhat limited		Very limited	
		Slope	1.00	Piping	0.18	Depth to water	1.00
		Seepage	0.70				
21C:							
Gilpin	85	Very limited		Somewhat limited		Very limited	
		Slope	1.00	Piping	0.96	Depth to water	1.00
		Seepage	0.70	Thin layer	0.78		
		Depth to bedrock	0.06				
21D:							
Gilpin	85	Very limited		Somewhat limited		Very limited	
		Slope	1.00	Piping	0.96	Depth to water	1.00
		Seepage	0.70	Thin layer	0.78		
		Depth to bedrock	0.06				
22B:							
Jefferson	90	Very limited		Somewhat limited		Very limited	
		Seepage	1.00	Piping	0.97	Depth to water	1.00
		Slope	0.32				
22C:							
Jefferson	90	Very limited		Somewhat limited		Very limited	
		Seepage	1.00	Piping	0.97	Depth to water	1.00
		Slope	1.00				
22D:							
Jefferson	90	Very limited		Somewhat limited		Very limited	
		Seepage	1.00	Piping	0.97	Depth to water	1.00
		Slope	1.00				

Table 14.—Water Management—Continued

Map symbol and soil name	Pct. of map unit	Pond reservoir areas: Rating class and limiting features	Value	Embankments, dikes, and levees: Rating class and limiting features	Value	Aquifer-fed excavated ponds: Rating class and limiting features	Value
23C:							
Lily----------------	90	Very limited		Somewhat limited		Very limited	
		Seepage	1.00	Thin layer	0.86	Depth to water	1.00
		Slope	1.00				
		Depth to bedrock	0.86				
23E:							
Lily----------------	85	Very limited		Somewhat limited		Very limited	
		Seepage	1.00	Thin layer	0.86	Depth to water	1.00
		Slope	1.00				
		Depth to bedrock	0.86				
23F:							
Lily----------------	85	Very limited		Somewhat limited		Very limited	
		Seepage	1.00	Thin layer	0.86	Depth to water	1.00
		Slope	1.00				
		Depth to bedrock	0.86				
24A:							
Maurertown----------	90	Not limited		Very limited		Very limited	
				Ponding	1.00	Cutbanks cave	1.00
				Depth to saturated zone	1.00	Slow refill	0.97
25B:							
Nicelytown----------	90	Somewhat limited		Very limited		Somewhat limited	
		Slope	0.32	Depth to saturated zone	1.00	Slow refill	0.99
		Seepage	0.01			Cutbanks cave	0.10
				Piping	0.92		
25C:							
Nicelytown----------	90	Very limited		Very limited		Somewhat limited	
		Slope	1.00	Depth to saturated zone	1.00	Slow refill	0.99
		Seepage	0.01			Cutbanks cave	0.10
				Piping	0.92		
26B:							
Ogles---------------	90	Very limited		Very limited		Very limited	
		Seepage	1.00	Large stones	1.00	Cutbanks cave	1.00
				Seepage	0.62	Large stones	1.00
						Depth to saturated zone	0.99
27C:							
Oriskany, extremely stony--------------	90	Very limited		Very limited		Very limited	
		Seepage	1.00	Large stones	1.00	Depth to water	1.00
		Slope	1.00				
27E:							
Oriskany, extremely stony--------------	90	Very limited		Very limited		Very limited	
		Seepage	1.00	Large stones	1.00	Depth to water	1.00
		Slope	1.00				
28F:							
Oriskany, very rubbly-------------	90	Very limited		Very limited		Very limited	
		Seepage	1.00	Large stones	1.00	Depth to water	1.00
		Slope	1.00				

Table 14.—Water Management—Continued

Map symbol and soil name	Pct. of map unit	Pond reservoir areas: Rating class and limiting features	Value	Embankments, dikes, and levees: Rating class and limiting features	Value	Aquifer-fed excavated ponds: Rating class and limiting features	Value
29A:							
Philo	85	Very limited		Very limited		Somewhat limited	
		Seepage	1.00	Depth to saturated zone	1.00	Cutbanks cave	0.10
30:							
Pits	50	Not rated		Not rated		Not rated	
Dumps	45	Not rated		Not rated		Not rated	
31A:							
Pope	90	Very limited		Somewhat limited		Very limited	
		Seepage	1.00	Seepage	0.30	Depth to water	1.00
32C:							
Schaffenaker	85	Very limited		Somewhat limited		Very limited	
		Seepage	1.00	Thin layer	0.56	Depth to water	1.00
		Slope	1.00	Seepage	0.20		
		Depth to bedrock	0.56				
33B:							
Shelocta	90	Very limited		Somewhat limited		Very limited	
		Seepage	1.00	Piping	0.99	Depth to water	1.00
		Slope	0.32				
33C:							
Shelocta	90	Very limited		Somewhat limited		Very limited	
		Slope	1.00	Piping	0.99	Depth to water	1.00
		Seepage	1.00				
33D:							
Shelocta	90	Very limited		Somewhat limited		Very limited	
		Slope	1.00	Piping	0.99	Depth to water	1.00
		Seepage	1.00				
34B:							
Slabtown	90	Somewhat limited		Somewhat limited		Very limited	
		Seepage	0.70	Depth to saturated zone	0.95	Depth to water	1.00
		Slope	0.32				
34C:							
Slabtown	90	Very limited		Somewhat limited		Very limited	
		Slope	1.00	Depth to saturated zone	0.95	Depth to water	1.00
		Seepage	0.70				
35B:							
Sugarhol	90	Somewhat limited		Somewhat limited		Very limited	
		Seepage	0.70	Piping	0.04	Depth to water	1.00
		Slope	0.32				
35C:							
Sugarhol	85	Very limited		Somewhat limited		Very limited	
		Slope	1.00	Piping	0.04	Depth to water	1.00
		Seepage	0.70				
36B:							
Tumbling	80	Somewhat limited		Somewhat limited		Very limited	
		Seepage	0.70	Piping	0.99	Depth to water	1.00
		Slope	0.32				

Table 14.—Water Management—Continued

Map symbol and soil name	Pct. of map unit	Pond reservoir areas: Rating class and limiting features	Value	Embankments, dikes, and levees: Rating class and limiting features	Value	Aquifer-fed excavated ponds: Rating class and limiting features	Value
36C:							
Tumbling	85	Very limited		Somewhat limited		Very limited	
		Slope	1.00	Piping	0.99	Depth to water	1.00
		Seepage	0.70				
36D:							
Tumbling	80	Very limited		Somewhat limited		Very limited	
		Slope	1.00	Piping	0.99	Depth to water	1.00
		Seepage	0.70				
37C:							
Tumbling, very stony	80	Very limited		Somewhat limited		Very limited	
		Slope	1.00	Piping	0.99	Depth to water	1.00
		Seepage	0.70				
37E:							
Tumbling, very stony	80	Very limited		Somewhat limited		Very limited	
		Slope	1.00	Piping	0.99	Depth to water	1.00
		Seepage	0.70				
38:							
Udorthents, unstable fill	50	Not rated		Not rated		Not rated	
Urban land	40	Not rated		Not rated		Not rated	
39C:							
Watahala	90	Very limited		Somewhat limited		Very limited	
		Slope	1.00	Piping	0.18	Depth to water	1.00
		Seepage	0.70				
39D:							
Watahala	90	Very limited		Somewhat limited		Very limited	
		Slope	1.00	Piping	0.18	Depth to water	1.00
		Seepage	0.70				
39E:							
Watahala	90	Very limited		Somewhat limited		Very limited	
		Slope	1.00	Piping	0.18	Depth to water	1.00
		Seepage	0.70				
40C:							
Watahala, extremely stony	90	Very limited		Somewhat limited		Very limited	
		Slope	1.00	Piping	0.18	Depth to water	1.00
		Seepage	0.70				
40E:							
Watahala, extremely stony	90	Very limited		Somewhat limited		Very limited	
		Slope	1.00	Piping	0.18	Depth to water	1.00
		Seepage	0.70				
40F:							
Watahala, extremely stony	90	Very limited		Somewhat limited		Very limited	
		Slope	1.00	Piping	0.18	Depth to water	1.00
		Seepage	0.70				

Table 14.—Water Management—Continued

Map symbol and soil name	Pct. of map unit	Pond reservoir areas: Rating class and limiting features	Value	Embankments, dikes, and levees: Rating class and limiting features	Value	Aquifer-fed excavated ponds: Rating class and limiting features	Value
41G:							
Weikert	35	Very limited		Very limited		Very limited	
		Slope	1.00	Seepage	1.00	Depth to water	1.00
		Depth to bedrock	1.00	Thin layer	1.00		
		Seepage	0.70				
Rough	30	Very limited		Very limited		Very limited	
		Slope	1.00	Thin layer	1.00	Depth to water	1.00
		Depth to bedrock	1.00	Large stones	0.03		
Rock outcrop	25	Not rated		Not rated		Not rated	
W:							
Water	100	Not rated		Not rated		Not rated	

Table 15.—Engineering Properties

(An asterisk indicates the representative value used to generate the interpretations. Absence of an entry indicates that data were not estimated)

Map symbol and soil name	Depth	USDA texture	Classification: Unified	Classification: AASHTO	Fragments: >10 inches	Fragments: 3-10 inches	Percentage passing sieve number--: 4	10	40	200	Liquid limit	Plasticity index
	In				Pct	Pct					Pct	
1A:												
Alonzville, rarely flooded	0-5	*Loam	*CL, SC-SM	*A-4	0	0	80-100	80-100	65-95	45-70	20-31	4-10
	5-15	*Loam, silt loam, fine sandy loam	*CL, SM	*A-4	0	0	80-100	80-100	60-95	40-70	16-31	2-10
	15-55	*Clay loam, silty clay loam, loam, silt loam	*CL, SC-SM	*A-6, A-4	0	0	80-100	80-100	60-95	45-75	23-38	6-14
	55-65	*Gravelly loam, clay loam, gravelly sandy clay loam	*GC, CL, GM	*A-4, A-2, A-6	0	0	60-100	55-100	40-100	30-80	16-38	2-14
1B:												
Alonzville, rarely flooded	0-5	*Loam	*CL, SC-SM	*A-4	0	0	80-100	80-100	65-95	45-70	20-31	4-10
	5-15	*Loam, silt loam, fine sandy loam	*CL, SM	*A-4	0	0	80-100	80-100	60-95	40-70	16-31	2-10
	15-55	*Clay loam, silty clay loam, loam, silt loam	*CL, SC-SM	*A-6, A-4	0	0	80-100	80-100	60-95	45-75	23-38	6-14
	55-65	*Gravelly loam, clay loam, gravelly sandy clay loam	*GC, CL, GM	*A-4, A-2, A-6	0	0	60-100	55-100	40-100	30-80	16-38	2-14
2B:												
Alonzville	0-5	*Loam	*CL, SC-SM	*A-4	0	0	80-100	80-100	65-95	45-70	20-31	4-10
	5-15	*Loam, silt loam, fine sandy loam	*CL, SM	*A-4	0	0	80-100	80-100	60-95	40-70	16-31	2-10
	15-55	*Clay loam, silty clay loam, loam, silt loam	*CL, SC-SM	*A-6, A-4	0	0	80-100	80-100	60-95	45-75	23-38	6-14
	55-65	*Gravelly loam, clay loam, gravelly sandy clay loam	*GC, CL, GM	*A-4, A-2, A-6	0	0	60-100	55-100	40-100	30-80	16-38	2-14
3A:												
Atkins	0-9	*Fine sandy loam	*CL-ML, SM	*A-4, A-2	0	0-10	75-100	75-100	50-80	35-55	16-25	2-7
	9-37	*Sandy loam, silty clay loam, gravelly loam, silt loam	*SC-SM, CL	*A-4, A-2, A-6	0	0-10	70-100	70-100	50-90	35-65	23-39	6-14
	37-62	*Gravelly sandy loam, silty clay loam, very gravelly loam, silt loam	*SC-SM, CL, GP-GM	*A-4, A-1, A-6	0	0-25	30-100	30-100	20-90	10-65	16-39	2-14

Table 15.—Engineering Properties—Continued

Map symbol and soil name	Depth	USDA texture	Classification: Unified	Classification: AASHTO	Fragments: >10 inches	Fragments: 3-10 inches	Percentage passing sieve number--: 4	10	40	200	Liquid limit	Plasticity index
	In				Pct	Pct					Pct	
4C:												
Bailegap--------	0-4	*Fine sandy loam, gravelly fine sandy loam	*SC-SM, SM	*A-4	0	0	65-95	55-90	40-75	20-50	16-25	3-8
	4-9	*Fine sandy loam, loam, gravelly sandy loam	*SC-SM, CL, ML, CL-ML	*A-4, A-2-4, A-1, A-6	0	0	65-95	55-90	30-85	15-70	16-30	3-11
	9-28	*Loam, clay loam, gravelly sandy clay loam	*CL, CL-ML	*A-4, A-2-4, A-6	0	0	65-95	55-90	45-90	20-75	23-39	7-16
	28-43	*Clay loam, gravelly sandy clay loam, very gravelly loam	*CL, CL-ML	*A-6, A-4, A-2-4	0	0	45-95	30-90	25-90	10-75	23-34	7-13
	43-46	*Bedrock	---	---	---	---	---	---	---	---	---	---
	46-56	*Bedrock	---	---	---	---	---	---	---	---	---	---
4E:												
Bailegap--------	0-4	*Fine sandy loam, gravelly fine sandy loam	*SC-SM, SM	*A-4	0	0	65-95	55-90	40-75	20-50	16-25	3-8
	4-9	*Fine sandy loam, loam, gravelly sandy loam	*SC-SM, CL, ML, CL-ML	*A-4, A-2-4, A-1, A-6	0	0	65-95	55-90	30-85	15-70	16-30	3-11
	9-28	*Loam, clay loam, gravelly sandy clay loam	*CL, CL-ML	*A-4, A-2-4, A-6	0	0	65-95	55-90	45-90	20-75	23-39	7-16
	28-43	*Clay loam, gravelly sandy clay loam, very gravelly loam	*CL, CL-ML	*A-6, A-4, A-2-4	0	0	45-95	30-90	25-90	10-75	23-34	7-13
	43-46	*Bedrock	---	---	---	---	---	---	---	---	---	---
	46-56	*Bedrock	---	---	---	---	---	---	---	---	---	---
5G:												
Bailegap--------	0-4	*Fine sandy loam, gravelly fine sandy loam	*SC-SM, SM	*A-4	0	0	65-95	55-90	40-75	20-50	16-25	3-8
	4-9	*Fine sandy loam, loam, gravelly sandy loam	*SC-SM, CL, ML, CL-ML	*A-4, A-2-4, A-1, A-6	0	0	65-95	55-90	30-85	15-70	16-30	3-11
	9-28	*Loam, clay loam, gravelly sandy clay loam	*CL, CL-ML	*A-4, A-2-4, A-6	0	0	65-95	55-90	45-90	20-75	23-39	7-16
	28-43	*Clay loam, gravelly sandy clay loam, very gravelly loam	*CL, CL-ML	*A-6, A-4, A-2-4	0	0	45-95	30-90	25-90	10-75	23-34	7-13
	43-46	*Bedrock	---	---	---	---	---	---	---	---	---	---
	46-56	*Bedrock	---	---	---	---	---	---	---	---	---	---

Table 15.—Engineering Properties—Continued

Map symbol and soil name	Depth	USDA texture	Classification: Unified	Classification: AASHTO	Fragments: >10 inches	Fragments: 3-10 inches	Percentage passing sieve number--: 4	Percentage passing sieve number--: 10	Percentage passing sieve number--: 40	Percentage passing sieve number--: 200	Liquid limit	Plasticity index
	In				Pct	Pct					Pct	
5G:												
Lily------------	0-7	*Sandy loam, gravelly sandy loam	*SC-SM, SM	*A-2, A-4	0	0	70-100	55-100	35-70	15-40	12-25	1-8
	7-13	*Sandy loam, loam, gravelly fine sandy loam	*SC-SM, CL-ML, ML, SC, SM	*A-2, A-4, A-1	0	0	70-100	55-100	35-95	15-75	12-25	1-8
	13-24	*Clay loam, sandy clay loam, gravelly loam	*CL, CL-ML	*A-6, A-2-4	0	0	70-100	60-100	45-100	20-80	23-39	7-16
	24-30	*Sandy loam, sandy clay loam, gravelly loam, gravelly loamy sand	*SC, SC-SM, CL, CL-ML, SW-SC	*A-2, A-4, A-6, A-1	0	0	65-100	50-100	25-95	10-75	21-39	6-16
	30-40	*Bedrock	---	---	---	---	---	---	---	---	---	---
Dekalb----------	0-5	*Channery sandy loam, very channery sandy loam	*SC-SM, SM, GP-GM	*A-1, A-2-4	0	10-30	55-85	40-80	25-55	10-30	16-25	3-8
	5-24	*Very channery sandy loam, channery loam, very channery fine sandy loam	*SC-SM, SM	*A-1, A-2-4, A-4	0	15-35	60-90	45-85	25-80	15-45	13-23	1-7
	24-31	*Extremely channery sandy loam, very channery sandy loam, extremely channery loamy sand	*GW-GC, GW-GM, GC-GM	*A-1	0	20-35	45-70	25-60	15-45	5-25	12-21	1-6
	31-41	*Bedrock	---	---	---	---	---	---	---	---	---	---
6E:												
Berks-----------	0-5	*Very channery silt loam, channery silt loam	*GC-GM, GM, CL	*A-2-4, A-4	0	10-22	60-85	45-80	40-80	35-70	12-28	1-10
	5-15	*Channery silt loam, very channery loam	*SC-SM, CL, CL-ML, GM, SM	*A-4, A-2-4	0	10-22	60-85	45-80	40-80	30-70	12-28	1-10
	15-26	*Very channery silt loam, channery silt loam, extremely channery loam	*GC, GC-GM, SC, SC-SM, CL	*A-2, A-6, A-1	0	22-37	45-75	25-65	25-65	15-60	21-31	6-11
	26-28	*Extremely channery silt loam, very channery silt loam, extremely channery loam	*GC-GM, GP-GM, GW-GC, SC-SM, SC, CL	*A-2, A-1, A-4	0	30-55	40-70	20-65	15-65	10-60	16-25	3-8
	28-38	*Bedrock	---	---	---	---	---	---	---	---	---	---

Table 15.—Engineering Properties—Continued

Map symbol and soil name	Depth	USDA texture	Classification: Unified	Classification: AASHTO	Fragments: >10 inches	Fragments: 3-10 inches	Percentage passing sieve number--: 4	10	40	200	Liquid limit	Plas- ticity index
	In				Pct	Pct					Pct	
6E:												
Culleoka--------	0-3	*Gravelly silt loam	*CL-ML, CL, SC-SM, SC	*A-4, A-6	0	0-4	65-100	50-100	45-100	35-90	21-31	6-11
	3-11	*Silt loam, silty clay loam, channery loam	*CL, SC, CL-ML, SC-SM	*A-4, A-2-4, A-6	0	5-12	70-90	60-85	50-85	35-80	23-39	7-16
	11-22	*Channery silty clay loam, silt loam, channery loam	*CL, CL-ML, SC, SC-SM	*A-6, A-4	0	6-15	70-90	60-85	50-85	35-80	23-39	7-16
	22-27	*Very channery silt loam, channery silt loam, extremely channery loam	*GC, SC, GC-GM, CL-ML, SC-SM, CL	*A-4, A-6, A-2-4	0	21-44	40-80	20-75	20-75	15-70	23-39	7-16
	27-37	*Bedrock	---	---	---	---	---	---	---	---	---	---
6G:												
Berks-----------	0-5	*Very channery silt loam, channery silt loam	*GC-GM, GM, CL	*A-2-4, A-4	0	10-22	60-85	45-80	40-80	35-70	12-28	1-10
	5-15	*Channery silt loam, very channery loam	*SC-SM, CL, CL-ML, GM, SM	*A-4, A-2-4	0	10-22	60-85	45-80	40-80	30-70	12-28	1-10
	15-26	*Very channery silt loam, channery silt loam, extremely channery loam	*GC, GC-GM, SC, SC-SM, CL	*A-2, A-6, A-1	0	22-37	45-75	25-65	25-65	15-60	21-31	6-11
	26-28	*Extremely channery silt loam, very channery silt loam, extremely channery loam	*GC-GM, GP-GM, GW-GC, SC-SM, SC, SM	*A-2, A-1, A-4	0	30-55	40-70	20-65	15-65	10-60	16-25	3-8
	28-38	*Bedrock	---	---	---	---	---	---	---	---	---	---
Culleoka--------	0-3	*Gravelly silt loam	*CL-ML, CL, SC-SM, SC	*A-4, A-6	0	0-4	65-100	50-100	45-100	35-90	21-31	6-11
	3-11	*Silt loam, silty clay loam, channery loam	*CL, SC, CL-ML, SC-SM	*A-4, A-2-4, A-6	0	5-12	70-90	60-85	50-85	35-80	23-39	7-16
	11-22	*Channery silty clay loam, silt loam, channery loam	*CL, CL-ML, SC, SC-SM	*A-6, A-4	0	6-15	70-90	60-85	50-85	35-80	23-39	7-16
	22-27	*Very channery silt loam, channery silt loam, extremely channery loam	*GC, SC, GC-GM, CL-ML, SC-SM, CL	*A-4, A-6, A-2-4	0	21-44	40-80	20-75	20-75	15-70	23-39	7-16
	27-37	*Bedrock	---	---	---	---	---	---	---	---	---	---

Table 15.—Engineering Properties—Continued

Map symbol and soil name	Depth	USDA texture	Classification: Unified	Classification: AASHTO	Fragments: >10 inches	Fragments: 3-10 inches	Percentage passing sieve number--: 4	10	40	200	Liquid limit	Plasticity index
	In				Pct	Pct					Pct	
7C:												
Berks-----------	0-5	*Very channery silt loam, channery silt loam	*GC-GM, GM, CL	*A-2-4, A-4	0	10-22	60-85	45-80	40-80	35-70	12-28	1-10
	5-15	*Channery silt loam, very channery loam	*SC-SM, CL, CL-ML, GM, SM	*A-4, A-2-4	0	10-22	60-85	45-80	40-80	30-70	12-28	1-10
	15-26	*Very channery silt loam, channery silt loam, extremely channery loam	*GC, GC-GM, SC, SC-SM, CL	*A-2, A-6, A-1	0	22-37	45-75	25-65	25-65	15-60	21-31	6-11
	26-28	*Extremely channery silt loam, very channery silt loam, extremely channery loam	*GC-GM, GP-GM, GW-GC, SC-SM, SC, CL	*A-2, A-1, A-4	0	30-55	40-70	20-65	15-65	10-60	16-25	3-8
	28-38	*Bedrock	---	---	---	---	---	---	---	---	---	---
Weikert---------	0-3	*Channery silt loam, silt loam, very channery silt loam	*CL-ML, GC-GM, CL	*A-4, A-6, A-1	0	2-7	50-85	40-80	35-80	25-75	21-31	6-11
	3-6	*Very channery silt loam, channery loam, silt loam	*GC-GM, CL	*A-2, A-1, A-6	0	4-13	55-90	40-85	35-85	25-75	21-31	6-11
	6-11	*Extremely channery silt loam, very channery loam	*GC, GC-GM	*A-2, A-1, A-6	0	14-18	50-65	30-55	25-55	20-50	21-31	6-11
	11-17	*Extremely channery silt loam, extremely channery loam	*GC-GM, GP-GC, GC	*A-2, A-1, A-6	0	42-50	40-55	15-40	15-40	10-40	21-31	6-11
	17-27	*Bedrock			0	---	---	---	---	---	---	---

Table 15.—Engineering Properties—Continued

Map symbol and soil name	Depth	USDA texture	Classification: Unified	Classification: AASHTO	Fragments: >10 inches	Fragments: 3-10 inches	Percentage passing sieve number--: 4	10	40	200	Liquid limit	Plasticity index
	In				Pct	Pct					Pct	
7E:												
Berks-----------	0-5	*Very channery silt loam, channery silt loam	*GC-GM, GM, CL	*A-2-4, A-4	0	10-22	60-85	45-80	40-80	35-70	12-28	1-10
	5-15	*Channery silt loam, very channery loam	*SC-SM, CL, CL-ML, GM, SM	*A-4, A-2-4	0	10-22	60-85	45-80	40-80	30-70	12-28	1-10
	15-26	*Very channery silt loam, channery silt loam, extremely channery loam	*GC, GC-GM, SC, SC-SM, CL	*A-2, A-6, A-1	0	22-37	45-75	25-65	25-65	15-60	21-31	6-11
	26-28	*Extremely channery silt loam, very channery silt loam, extremely channery loam	*GC-GM, GP-GM, GW-GC, SC-SM, SC, CL	*A-2, A-1, A-4	0	30-55	40-70	20-65	15-65	10-60	16-25	3-8
	28-38	*Bedrock	---	---	---	---	---	---	---	---	---	---
Weikert---------	0-3	*Channery silt loam, silt loam, very channery silt loam	*CL-ML, GC-GM, CL	*A-4, A-6, A-1	0	2-7	50-85	40-80	35-80	25-75	21-31	6-11
	3-6	*Very channery silt loam, channery loam, silt loam	*GC-GM, CL	*A-2, A-1, A-6	0	4-13	55-90	40-85	35-85	25-75	21-31	6-11
	6-11	*Extremely channery silt loam, very channery loam	*GC, GC-GM	*A-2, A-1, A-6	0	14-18	50-65	30-55	25-55	20-50	21-31	6-11
	11-17	*Extremely channery silt loam, extremely channery loam	*GC-GM, GP-GC, GC	*A-2, A-1, A-6	0	42-50	40-55	15-40	15-40	10-40	21-31	6-11
	17-27	*Bedrock			0	---	---	---	---	---	---	---

Table 15.—Engineering Properties—Continued

Map symbol and soil name	Depth	USDA texture	Classification: Unified	Classification: AASHTO	Fragments: >10 inches	Fragments: 3-10 inches	Percentage passing sieve number--: 4	10	40	200	Liquid limit	Plasticity index
	In				Pct	Pct					Pct	
7G:												
Berks-----------	0-5	*Very channery silt loam, channery silt loam	*GC-GM, GM, CL	*A-2-4, A-4	0	10-22	60-85	45-80	40-80	35-70	12-28	1-10
	5-15	*Channery silt loam, very channery loam	*SC-SM, CL, CL-ML, GM, SM	*A-4, A-2-4	0	10-22	60-85	45-80	40-80	30-70	12-28	1-10
	15-26	*Very channery silt loam, channery silt loam, extremely channery loam	*GC, GC-GM, SC, SC-SM, CL	*A-2, A-6, A-1	0	22-37	45-75	25-65	25-65	15-60	21-31	6-11
	26-28	*Extremely channery silt loam, very channery silt loam, extremely channery loam	*GC-GM, GP-GM, GW-GC, SC-SM, SC, CL	*A-2, A-1, A-4	0	30-55	40-70	20-65	15-65	10-60	16-25	3-8
	28-38	*Bedrock	---	---	---	---	---	---	---	---	---	---
Weikert---------	0-3	*Channery silt loam, silt loam, very channery silt loam	*CL-ML, GC-GM, CL	*A-4, A-6, A-1	0	2-7	50-85	40-80	35-80	25-75	21-31	6-11
	3-6	*Very channery silt loam, channery loam, silt loam	*GC-GM, CL	*A-2, A-1, A-6	0	4-13	55-90	40-85	35-85	25-75	21-31	6-11
	6-11	*Extremely channery silt loam, very channery loam	*GC, GC-GM	*A-2, A-1, A-6	0	14-18	50-65	30-55	25-55	20-50	21-31	6-11
	11-17	*Extremely channery silt loam, extremely channery loam	*GC-GM, GP-GC, GC	*A-2, A-1, A-6	0	42-50	40-55	15-40	15-40	10-40	21-31	6-11
	17-27	*Bedrock			0	---	---	---	---	---	---	---
8G:												
Brushy----------	0-7	*Extremely gravelly loam, gravelly loam	*GP-GC, GC-GM, SM, SC-SM	*A-1, A-2-4	0	0	45-70	15-60	15-55	10-45	16-25	3-8
	7-13	*Very gravelly loam, extremely gravelly silt loam, gravelly fine sandy loam	*GC-GM, CL, ML, SM, SC-SM, CL-ML	*A-2-4, A-4, A-1	0	0	45-70	15-60	10-60	5-50	16-30	3-11
	13-34	*Very gravelly clay loam, gravelly sandy clay loam, extremely gravelly loam	*GC, SC-SM, GW-GC	*A-2-6, A-6, A-2-4	0	0	35-70	15-60	15-60	5-50	24-38	7-15
	34-44	*Bedrock	---	---	---	---	---	---	---	---	---	---

Table 15.—Engineering Properties—Continued

Map symbol and soil name	Depth	USDA texture	Classification: Unified	Classification: AASHTO	Fragments: >10 inches	Fragments: 3-10 inches	Percentage passing sieve number--: 4	10	40	200	Liquid limit	Plas- ticity index
	In				Pct	Pct					Pct	
9E:												
Calvin----------	0-4	*Channery silt loam, silt loam	*CL-ML, ML, CL, SC, SC-SM, SM	*A-4, A-6	0	2-6	75-95	65-90	60-90	45-85	16-30	3-11
	4-9	*Channery silt loam, loam	*CL-ML, ML, CL, SM, SC-SM, SC	*A-4, A-6	0	3-10	75-95	70-90	60-90	40-85	16-30	3-11
	9-21	*Very channery silt loam, channery loam, channery silt loam	*GC, SC, SC-SM, CL, CL-ML	*A-4, A-1, A-6	0	14-23	60-80	45-70	35-70	25-65	21-31	6-11
	21-27	*Extremely channery silt loam, very channery silt loam, extremely channery loam	*GC-GM, SC-SM, SC, GC	*A-2-4, A-1, A-4, A-6	0	36-56	50-75	30-70	25-70	20-60	21-31	6-11
	27-37	*Bedrock	---	---	---	---	---	---	---	---	---	---
10G:												
Calvin----------	0-4	*Channery silt loam, silt loam	*CL-ML, ML, CL, SC, SC-SM, SM	*A-4, A-6	0	2-6	75-95	65-90	60-90	45-85	16-30	3-11
	4-9	*Channery silt loam, loam	*CL-ML, ML, CL, SM, SC-SM, SC	*A-4, A-6	0	3-10	75-95	70-90	60-90	40-85	16-30	3-11
	9-21	*Very channery silt loam, channery loam, channery silt loam	*GC, SC, SC-SM, CL, CL-ML	*A-4, A-1, A-6	0	14-23	60-80	45-70	35-70	25-65	21-31	6-11
	21-27	*Extremely channery silt loam, very channery silt loam, extremely channery loam	*GC-GM, SC-SM, SC, GC	*A-2-4, A-1, A-4, A-6	0	36-56	50-75	30-70	25-70	20-60	21-31	6-11
	27-37	*Bedrock	---	---	---	---	---	---	---	---	---	---
Rough-----------	0-3	*Channery silt loam, very channery silt loam	*CL-ML, SC, SM, CL, SC-SM, ML	*A-4	0	5-20	50-80	35-75	30-75	25-70	16-30	3-11
	3-6	*Very channery silt loam, very channery loam, extremely channery loam	*GC, SC, SC-SM, SM, CL, CL-ML, ML, GC-GM, GM	*A-4, A-1, A-2-4, A-6	0	25-40	45-70	30-65	25-65	15-55	16-31	3-11
	6-8	*Extremely channery silt loam, extremely channery loam	*GC, SC, SM, SC-SM, GC-GM, GM	*A-2-4, A-1, A-4	0	50-60	35-60	15-45	15-45	10-40	16-30	3-11
	8-18	*Bedrock	---	---	---	---	---	---	---	---	---	---

Table 15.—Engineering Properties—Continued

Map symbol and soil name	Depth	USDA texture	Classification: Unified	Classification: AASHTO	Fragments: >10 inches	Fragments: 3-10 inches	Percentage passing sieve number--: 4	10	40	200	Liquid limit	Plasticity index
	In				Pct	Pct					Pct	
11E:												
Carbo-----------	0-5	*Silty clay loam	*CL	*A-7-6	0	0	95-100	90-100	85-100	75-95	36-48	16-25
	5-24	*Clay	*CH	*A-7-6, A-7-5	0	0	95-100	90-100	80-100	70-100	66-84	39-53
	24-34	*Bedrock	---	---	---	---	---	---	---	---	---	---
Rock outcrop.												
11F:												
Carbo-----------	0-5	*Silty clay loam	*CL	*A-7-6	0	0	95-100	90-100	85-100	75-95	36-48	16-25
	5-24	*Clay	*CH	*A-7-6, A-7-5	0	0	95-100	90-100	80-100	70-100	66-84	39-53
	24-34	*Bedrock	---	---	---	---	---	---	---	---	---	---
Rock outcrop.												
12E:												
Carbo, karst----	0-5	*Silty clay loam	*CL	*A-7-6	0	0	95-100	90-100	85-100	75-95	36-48	16-25
	5-24	*Clay	*CH	*A-7-6, A-7-5	0	0	95-100	90-100	80-100	70-100	66-84	39-53
	24-34	*Bedrock	---	---	---	---	---	---	---	---	---	---
Rock outcrop.												
13A:												
Coursey---------	0-6	*Loam	*CL-ML, CL, SC-SM	*A-4	0	0-5	80-100	80-100	65-95	45-75	20-31	4-10
	6-14	*Loam, clay loam, gravelly sandy clay loam	*CL, GC-GM	*A-4, A-2, A-6	0	0-5	55-100	55-100	45-100	30-80	20-38	4-14
	14-38	*Clay loam, loam, gravelly sandy clay loam	*CL, GC-GM	*A-6, A-2	0	0-10	55-100	55-100	45-95	30-75	23-38	6-14
	38-43	*Gravelly clay loam, loam, very gravelly sandy clay loam	*SC, GM, CL	*A-6, A-1	0	0-10	40-100	40-100	30-95	20-75	16-38	2-14
	43-60	*Very gravelly fine sandy loam, loam, clay loam, very gravelly sandy clay loam	*GC-GM, GM, CL	*A-1, A-6	0	0-10	40-100	40-100	35-100	20-70	16-38	2-14

Table 15.—Engineering Properties—Continued

Map symbol and soil name	Depth	USDA texture	Classification: Unified	Classification: AASHTO	Fragments: >10 inches	Fragments: 3-10 inches	Percentage passing sieve number--: 4	10	40	200	Liquid limit	Plasticity index
	In				Pct	Pct					Pct	
13B:												
Coursey---------	0-6	*Loam	*CL-ML, CL, SC-SM	*A-4	0	0-5	80-100	80-100	65-95	45-75	20-31	4-10
	6-14	*Loam, clay loam, gravelly sandy clay loam	*CL, GC-GM	*A-4, A-2, A-6	0	0-5	55-100	55-100	45-100	30-80	20-38	4-14
	14-38	*Clay loam, loam, gravelly sandy clay loam	*CL, GC-GM	*A-6, A-2	0	0-10	55-100	55-100	45-95	30-75	23-38	6-14
	38-43	*Gravelly clay loam, loam, very gravelly sandy clay loam	*SC, GM, CL	*A-6, A-1	0	0-10	40-100	40-100	30-95	20-75	16-38	2-14
	43-60	*Very gravelly fine sandy loam, loam, clay loam, very gravelly sandy clay loam	*GC-GM, GM, CL	*A-1, A-6	0	0-10	40-100	40-100	35-100	20-70	16-38	2-14
14C:												
Culleoka--------	0-3	*Gravelly silt loam	*CL-ML, CL, SC-SM, SC	*A-4, A-6	0	0-4	65-100	50-100	45-100	35-90	21-31	6-11
	3-11	*Silt loam, silty clay loam, channery loam	*CL, SC, CL-ML, SC-SM	*A-4, A-2-4, A-6	0	5-12	70-90	60-85	50-85	35-80	23-39	7-16
	11-22	*Channery silty clay loam, silt loam, channery loam	*CL, CL-ML, SC, SC-SM	*A-6, A-4	0	6-15	70-90	60-85	50-85	35-80	23-39	7-16
	22-27	*Very channery silt loam, channery silt loam, extremely channery loam	*GC, SC, GC-GM, CL-ML, SC-SM, CL	*A-4, A-6, A-2-4	0	21-44	40-80	20-75	20-75	15-70	23-39	7-16
	27-37	*Bedrock	---	---	---	---	---	---	---	---	---	---
Berks-----------	0-5	*Very channery silt loam, channery silt loam	*GC-GM, GM, CL	*A-2-4, A-4	0	10-22	60-85	45-80	40-80	35-70	12-28	1-10
	5-15	*Channery silt loam, very channery loam	*SC-SM, CL, CL-ML, GM, SM	*A-4, A-2-4	0	10-22	60-85	45-80	40-80	30-70	12-28	1-10
	15-26	*Very channery silt loam, channery silt loam, extremely channery loam	*GC, GC-GM, SC, SC-SM, CL	*A-2, A-6, A-1	0	22-37	45-75	25-65	25-65	15-60	21-31	6-11
	26-28	*Extremely channery silt loam, very channery silt loam, extremely channery loam	*GC-GM, GP-GM, GW-GC, SC-SM, SC, CL	*A-2, A-1, A-4	0	30-55	40-70	20-65	15-65	10-60	16-25	3-8
	28-38	*Bedrock	---	---	---	---	---	---	---	---	---	---

Table 15.—Engineering Properties—Continued

Map symbol and soil name	Depth	USDA texture	Classification: Unified	Classification: AASHTO	Fragments: >10 inches	Fragments: 3-10 inches	Percentage passing sieve number--: 4	10	40	200	Liquid limit	Plasticity index
	In				Pct	Pct					Pct	
14D:												
Culleoka--------	0-3	*Gravelly silt loam	*CL-ML, CL, SC-SM, SC	*A-4, A-6	0	0-4	65-100	50-100	45-100	35-90	21-31	6-11
	3-11	*Silt loam, silty clay loam, channery loam	*CL, SC, CL-ML, SC-SM	*A-4, A-2-4, A-6	0	5-12	70-90	60-85	50-85	35-80	23-39	7-16
	11-22	*Channery silty clay loam, silt loam, channery loam	*CL, CL-ML, SC, SC-SM	*A-6, A-4	0	6-15	70-90	60-85	50-85	35-80	23-39	7-16
	22-27	*Very channery silt loam, channery silt loam, extremely channery loam	*GC, SC, GC-GM, CL-ML, SC-SM, CL	*A-4, A-6, A-2-4	0	21-44	40-80	20-75	20-75	15-70	23-39	7-16
	27-37	*Bedrock	---	---	---	---	---	---	---	---	---	---
Berks-----------	0-5	*Very channery silt loam, channery silt loam	*GC-GM, GM, CL	*A-2-4, A-4	0	10-22	60-85	45-80	40-80	35-70	12-28	1-10
	5-15	*Channery silt loam, very channery loam	*SC-SM, CL, CL-ML, GM, SM	*A-4, A-2-4	0	10-22	60-85	45-80	40-80	30-70	12-28	1-10
	15-26	*Very channery silt loam, channery silt loam, extremely channery loam	*GC, GC-GM, SC, SC-SM, CL	*A-2, A-6, A-1	0	22-37	45-75	25-65	25-65	15-60	21-31	6-11
	26-28	*Extremely channery silt loam, very channery silt loam, extremely channery loam	*GC-GM, GP-GM, GW-GC, SC-SM, SC, CL	*A-2, A-1, A-4	0	30-55	40-70	20-65	15-65	10-60	16-25	3-8
	28-38	*Bedrock	---	---	---	---	---	---	---	---	---	---
15E:												
Dekalb----------	0-5	*Channery sandy loam, very channery sandy loam	*SC-SM, SM, GP-GM	*A-1, A-2-4	0	10-30	55-85	40-80	25-55	10-30	16-25	3-8
	5-24	*Very channery sandy loam, channery loam, very channery fine sandy loam	*SC-SM, SM	*A-1, A-2-4, A-4	0	15-35	60-90	45-85	25-80	15-45	13-23	1-7
	24-31	*Extremely channery sandy loam, very channery sandy loam, extremely channery loamy sand	*GW-GC, GW-GM, GC-GM	*A-1	0	20-35	45-70	25-60	15-45	5-25	12-21	1-6
	31-41	*Bedrock	---	---	---	---	---	---	---	---	---	---

Table 15.—Engineering Properties—Continued

Map symbol and soil name	Depth	USDA texture	Classification: Unified	Classification: AASHTO	Fragments: >10 inches	Fragments: 3-10 inches	Percentage passing sieve number--: 4	Percentage passing sieve number--: 10	Percentage passing sieve number--: 40	Percentage passing sieve number--: 200	Liquid limit	Plasticity index
	In				Pct	Pct					Pct	
15F:												
Dekalb----------	0-5	*Channery sandy loam, very channery sandy loam	*SC-SM, SM, GP-GM	*A-1, A-2-4	0	10-30	55-85	40-80	25-55	10-30	16-25	3-8
	5-24	*Very channery sandy loam, channery loam, very channery fine sandy loam	*SC-SM, SM	*A-1, A-2-4, A-4	0	15-35	60-90	45-85	25-80	15-45	13-23	1-7
	24-31	*Extremely channery sandy loam, very channery sandy loam, extremely channery loamy sand	*GW-GC, GW-GM, GC-GM	*A-1	0	20-35	45-70	25-60	15-45	5-25	12-21	1-6
	31-41	*Bedrock	---	---	---	---	---	---	---	---	---	---
16E:												
Dekalb----------	0-5	*Channery sandy loam, very channery sandy loam	*SC-SM, SM, GP-GM	*A-1, A-2-4	0	10-30	55-85	40-80	25-55	10-30	16-25	3-8
	5-24	*Very channery sandy loam, channery loam, very channery fine sandy loam	*SC-SM, SM	*A-1, A-2-4, A-4	0	15-35	60-90	45-85	25-80	15-45	13-23	1-7
	24-31	*Extremely channery sandy loam, very channery sandy loam, extremely channery loamy sand	*GW-GC, GW-GM, GC-GM	*A-1	0	20-35	45-70	25-60	15-45	5-25	12-21	1-6
	31-41	*Bedrock	---	---	---	---	---	---	---	---	---	---
Rock outcrop.												
16G:												
Dekalb----------	0-5	*Channery sandy loam, very channery sandy loam	*SC-SM, SM, GP-GM	*A-1, A-2-4	0	10-30	55-85	40-80	25-55	10-30	16-25	3-8
	5-24	*Very channery sandy loam, channery loam, very channery fine sandy loam	*SC-SM, SM	*A-1, A-2-4, A-4	0	15-35	60-90	45-85	25-80	15-45	13-23	1-7
	24-31	*Extremely channery sandy loam, very channery sandy loam, extremely channery loamy sand	*GW-GC, GW-GM, GC-GM	*A-1	0	20-35	45-70	25-60	15-45	5-25	12-21	1-6
	31-41	*Bedrock	---	---	---	---	---	---	---	---	---	---
Rock outcrop.												

Table 15.—Engineering Properties—Continued

Map symbol and soil name	Depth	USDA texture	Classification: Unified	Classification: AASHTO	Fragments: >10 inches	Fragments: 3-10 inches	Percentage passing sieve number--: 4	10	40	200	Liquid limit	Plas- ticity index
	In				Pct	Pct					Pct	
17B:												
Escatawba-------	0-3	*Loam	*CL, CL-ML, ML	*A-4	0	0-10	85-100	80-100	70-95	50-75	16-30	3-11
	3-17	*Loam, silt loam, cobbly fine sandy loam	*CL, CL-ML, ML, SM, SC, SC-SM	*A-4, A-2-4	0	0-15	80-100	75-100	50-100	30-90	14-30	2-11
	17-30	*Loam, gravelly silty clay loam, cobbly clay loam, silt loam	*CL, CL-ML, SC, SC-SM	*A-4, A-6	0	0-15	70-100	60-100	50-100	35-95	23-38	7-15
	30-50	*Clay loam, gravelly clay loam, cobbly clay, gravelly silty clay loam	*CL, SC	*A-6, A-7-6	0-5	0-15	70-85	60-85	55-85	45-80	39-52	16-23
	50-60	*Cobbly clay loam, very gravelly silty clay loam, gravelly clay	*CL, CH, MH, SC, SM	*A-7, A-6	0-5	10-20	60-85	50-80	45-80	35-75	39-66	16-31
17C:												
Escatawba-------	0-3	*Loam	*CL, CL-ML, ML	*A-4	0	0-10	85-100	80-100	70-95	50-75	16-30	3-11
	3-17	*Loam, silt loam, cobbly fine sandy loam	*CL, CL-ML, ML, SM, SC, SC-SM	*A-4, A-2-4	0	0-15	80-100	75-100	50-100	30-90	14-30	2-11
	17-30	*Loam, gravelly silty clay loam, cobbly clay loam, silt loam	*CL, CL-ML, SC, SC-SM	*A-4, A-6	0	0-15	70-100	60-100	50-100	35-95	23-38	7-15
	30-50	*Clay loam, gravelly clay loam, cobbly clay, gravelly silty clay loam	*CL, SC	*A-6, A-7-6	0-5	0-15	70-85	60-85	55-85	45-80	39-52	16-23
	50-60	*Cobbly clay loam, very gravelly silty clay loam, gravelly clay	*CL, CH, MH, SC, SM	*A-7, A-6	0-5	10-20	60-85	50-80	45-80	35-75	39-66	16-31

Table 15.—Engineering Properties—Continued

Map symbol and soil name	Depth	USDA texture	Classification: Unified	Classification: AASHTO	Fragments: >10 inches	Fragments: 3-10 inches	Percentage passing sieve number--: 4	10	40	200	Liquid limit	Plasticity index
	In				Pct	Pct					Pct	
18C: Escatawba, very stony----------	0-3	*Loam	*CL, CL-ML, ML	*A-4	0	0-10	85-100	80-100	70-95	50-75	16-30	3-11
	3-17	*Loam, silt loam, cobbly fine sandy loam	*CL, CL-ML, ML, SM, SC, SC-SM	*A-4, A-2-4	0	0-15	80-100	75-100	50-100	30-90	14-30	2-11
	17-30	*Loam, gravelly silty clay loam, cobbly clay loam, silt loam	*CL, CL-ML, SC, SC-SM	*A-4, A-6	0	0-15	70-100	60-100	50-100	35-95	23-38	7-15
	30-50	*Clay loam, gravelly clay loam, cobbly clay, gravelly silty clay loam	*CL, SC	*A-6, A-7-6	0-5	0-15	70-85	60-85	55-85	45-80	39-52	16-23
	50-60	*Cobbly clay loam, very gravelly silty clay loam, gravelly clay	*CL, CH, MH, SC, SM	*A-7, A-6	0-5	10-20	60-85	50-80	45-80	35-75	39-66	16-31
18E: Escatawba, very stony----------	0-3	*Loam	*CL, CL-ML, ML	*A-4	0	0-10	85-100	80-100	70-95	50-75	16-30	3-11
	3-17	*Loam, silt loam, cobbly fine sandy loam	*CL, CL-ML, ML, SM, SC, SC-SM	*A-4, A-2-4	0	0-15	80-100	75-100	50-100	30-90	14-30	2-11
	17-30	*Loam, gravelly silty clay loam, cobbly clay loam, silt loam	*CL, CL-ML, SC, SC-SM	*A-4, A-6	0	0-15	70-100	60-100	50-100	35-95	23-38	7-15
	30-50	*Clay loam, gravelly clay loam, cobbly clay, gravelly silty clay loam	*CL, SC	*A-6, A-7-6	0-5	0-15	70-85	60-85	55-85	45-80	39-52	16-23
	50-60	*Cobbly clay loam, very gravelly silty clay loam, gravelly clay	*CL, CH, MH, SC, SM	*A-7, A-6	0-5	10-20	60-85	50-80	45-80	35-75	39-66	16-31
19B: Frederick-------	0-8	*Silt loam	*CL, CL-ML	*A-4	0	0	80-100	75-100	70-100	55-90	20-31	4-10
	8-51	*Clay, silty clay, silty clay loam	*MH, CL, CH	*A-7, A-6	0	0	80-100	75-100	70-100	55-95	31-61	10-27
	51-72	*Clay, silty clay	*MH, CH	*A-7	0	0	80-100	75-100	70-100	55-95	43-74	17-34
19C: Frederick-------	0-8	*Silt loam	*CL, CL-ML	*A-4	0	0	80-100	75-100	70-100	55-90	20-31	4-10
	8-51	*Clay, silty clay, silty clay loam	*MH, CL, CH	*A-7, A-6	0	0	80-100	75-100	70-100	55-95	31-61	10-27
	51-72	*Clay, silty clay	*MH, CH	*A-7	0	0	80-100	75-100	70-100	55-95	43-74	17-34

Table 15.—Engineering Properties—Continued

Map symbol and soil name	Depth	USDA texture	Classification: Unified	Classification: AASHTO	Fragments: >10 inches	Fragments: 3-10 inches	Percentage passing sieve number--: 4	Percentage passing sieve number--: 10	Percentage passing sieve number--: 40	Percentage passing sieve number--: 200	Liquid limit	Plasticity index
	In				Pct	Pct					Pct	
19D:												
Frederick-------	0-8	*Silt loam	*CL, CL-ML	*A-4	0	0	80-100	75-100	70-100	55-90	20-31	4-10
	8-51	*Clay, silty clay, silty clay loam	*MH, CL, CH	*A-7, A-6	0	0	80-100	75-100	70-100	55-95	31-61	10-27
	51-72	*Clay, silty clay	*MH, CH	*A-7	0	0	80-100	75-100	70-100	55-95	43-74	17-34
19E:												
Frederick-------	0-8	*Silt loam	*CL, CL-ML	*A-4	0	0	80-100	75-100	70-100	55-90	20-31	4-10
	8-51	*Clay, silty clay, silty clay loam	*MH, CL, CH	*A-7, A-6	0	0	80-100	75-100	70-100	55-95	31-61	10-27
	51-72	*Clay, silty clay	*MH, CH	*A-7	0	0	80-100	75-100	70-100	55-95	43-74	17-34
20C:												
Frederick-------	0-5	*Gravelly silt loam	*CL, CL-ML, ML	*A-4, A-6	0	0	80-100	55-75	50-75	40-65	13-31	1-11
	5-13	*Silt loam, gravelly loam	*CL-ML, ML	*A-4, A-6	0	0	70-100	60-100	60-100	35-90	13-31	1-11
	13-27	*Silty clay, clay, clay loam, gravelly silty clay loam	*CL, CH, MH	*A-7	0	0	70-100	70-100	60-100	40-95	39-66	16-31
	27-62	*Clay, silty clay, gravelly silty clay	*MH, CH, CL	*A-7	0	0	65-100	65-100	55-100	40-95	43-75	18-36
Watahala--------	0-2	*Gravelly silt loam	*GC-GM, SC-SM, CL, CL-ML	*A-4, A-2-4, A-6	0	0	55-85	40-80	35-80	30-75	23-31	7-11
	2-17	*Gravelly silt loam, very gravelly loam, fine sandy loam, gravelly sandy loam	*CL-ML, CL, SC-SM	*A-4, A-6, A-2-4	0	0	55-85	40-80	35-80	30-70	21-31	6-11
	17-29	*Gravelly loam, silty clay loam, very gravelly clay loam	*GC, SC-SM, CL, CL-ML	*A-6, A-2-4, A-2-6	0	0	65-85	50-80	45-80	30-75	23-39	7-16
	29-62	*Clay, silty clay, gravelly silty clay	*MH, CL	*A-7-5, A-7-6	0	0	60-100	50-100	45-100	40-95	43-75	18-33
20D:												
Frederick-------	0-5	*Gravelly silt loam	*CL, CL-ML, ML	*A-4, A-6	0	0	80-100	55-75	50-75	40-65	13-31	1-11
	5-13	*Silt loam, gravelly loam	*CL-ML, ML	*A-4, A-6	0	0	70-100	60-100	60-100	35-90	13-31	1-11
	13-27	*Silty clay, clay, clay loam, gravelly silty clay loam	*CL, CH, MH	*A-7	0	0	70-100	70-100	60-100	40-95	39-66	16-31
	27-62	*Clay, silty clay, gravelly silty clay	*MH, CH, CL	*A-7	0	0	65-100	65-100	55-100	40-95	43-75	18-36

Table 15.—Engineering Properties—Continued

Map symbol and soil name	Depth	USDA texture	Classification: Unified	Classification: AASHTO	Fragments: >10 inches	Fragments: 3-10 inches	Percentage passing sieve number--: 4	10	40	200	Liquid limit	Plas-ticity index
	In				Pct	Pct					Pct	
20D:												
Watahala--------	0-2	*Gravelly silt loam	*GC-GM, SC-SM, CL, CL-ML	*A-4, A-2-4, A-6	0	0	55-85	40-80	35-80	30-75	23-31	7-11
	2-17	*Gravelly silt loam, very gravelly loam, fine sandy loam, gravelly sandy loam	*CL-ML, CL, SC-SM	*A-4, A-6, A-2-4	0	0	55-85	40-80	35-80	30-70	21-31	6-11
	17-29	*Gravelly loam, silty clay loam, very gravelly clay loam	*GC, SC-SM, CL, CL-ML	*A-6, A-2-4, A-2-6	0	0	65-85	50-80	45-80	30-75	23-39	7-16
	29-62	*Clay, silty clay, gravelly silty clay	*MH, CL	*A-7-5, A-7-6	0	0	60-100	50-100	45-100	40-95	43-75	18-33
21C:												
Gilpin----------	0-5	*Silt loam, channery silt loam	*CL-ML, CL	*A-4	0	2-7	70-95	60-90	55-90	40-85	21-31	6-11
	5-9	*Silt loam, channery silt loam, channery loam	*CL, CL-ML	*A-4, A-6	0	3-11	70-100	65-90	55-90	40-85	21-31	6-11
	9-26	*Silty clay loam, channery silt loam, channery loam	*CL, CL-ML	*A-6, A-4	0	4-15	75-95	65-95	55-95	40-90	23-39	7-16
	26-33	*Very channery silt loam, channery silty clay loam, very channery loam	*GC, SC, CL, CL-ML	*A-4, A-2-4, A-6	0	27-40	60-80	45-70	40-70	30-65	21-39	6-16
	33-43	*Bedrock	---	---	---	---	---	---	---	---	---	---
21D:												
Gilpin----------	0-5	*Silt loam, channery silt loam	*CL-ML, CL	*A-4	0	2-7	70-95	60-90	55-90	40-85	21-31	6-11
	5-9	*Silt loam, channery silt loam, channery loam	*CL, CL-ML	*A-4, A-6	0	3-11	70-100	65-90	55-90	40-85	21-31	6-11
	9-26	*Silty clay loam, channery silt loam, channery loam	*CL, CL-ML	*A-6, A-4	0	4-15	75-95	65-95	55-95	40-90	23-39	7-16
	26-33	*Very channery silt loam, channery silty clay loam, very channery loam	*GC, SC, CL, CL-ML	*A-4, A-2-4, A-6	0	27-40	60-80	45-70	40-70	30-65	21-39	6-16
	33-43	*Bedrock	---	---	---	---	---	---	---	---	---	---

Table 15.—Engineering Properties—Continued

Map symbol and soil name	Depth	USDA texture	Classification: Unified	Classification: AASHTO	Fragments: >10 inches	Fragments: 3-10 inches	Percentage passing sieve number--: 4	Percentage passing sieve number--: 10	Percentage passing sieve number--: 40	Percentage passing sieve number--: 200	Liquid limit	Plasticity index
	In				Pct	Pct					Pct	
22B:												
Jefferson-------	0-5	*Cobbly loam	*CL-ML, CL, SM, ML	*A-4, A-6	0	5-30	80-100	70-95	60-90	45-70	16-30	3-11
	5-12	*Loam, cobbly loam, cobbly fine sandy loam	*CL-ML, CL, SM, ML	*A-4, A-6, A-2-4	0	5-25	80-100	75-95	50-90	30-70	16-30	3-11
	12-32	*Loam, cobbly clay loam, cobbly sandy clay loam	*CL, CL-ML, SC	*A-4, A-2-4, A-6	0	5-25	80-100	75-95	60-95	25-75	23-38	7-15
	32-61	*Cobbly clay loam, sandy clay loam, cobbly loam, fine sandy loam, cobbly sandy loam	*CL, CL-ML, SC	*A-6, A-2-4	0	5-25	80-100	75-95	45-95	20-75	23-38	7-15
	61-70	*Cobbly loam, cobbly sandy clay loam, cobbly fine sandy loam, very cobbly sandy loam	*CL, GC, CL-ML, SC	*A-4, A-1, A-2-4, A-6	0	15-45	40-85	25-80	20-75	5-60	21-31	6-11
22C:												
Jefferson-------	0-5	*Cobbly loam	*CL-ML, CL, SM, ML	*A-4, A-6	0	5-30	80-100	70-95	60-90	45-70	16-30	3-11
	5-12	*Loam, cobbly loam, cobbly fine sandy loam	*CL-ML, CL, SM, ML	*A-4, A-6, A-2-4	0	5-25	80-100	75-95	50-90	30-70	16-30	3-11
	12-32	*Loam, cobbly clay loam, cobbly sandy clay loam	*CL, CL-ML, SC	*A-4, A-2-4, A-6	0	5-25	80-100	75-95	60-95	25-75	23-38	7-15
	32-61	*Cobbly clay loam, sandy clay loam, cobbly loam, fine sandy loam, cobbly sandy loam	*CL, CL-ML, SC	*A-6, A-2-4	0	5-25	80-100	75-95	45-95	20-75	23-38	7-15
	61-70	*Cobbly loam, cobbly sandy clay loam, cobbly fine sandy loam, very cobbly sandy loam	*CL, GC, CL-ML, SC	*A-4, A-1, A-2-4, A-6	0	15-45	40-85	25-80	20-75	5-60	21-31	6-11
22D:												
Jefferson-------	0-5	*Cobbly loam	*CL-ML, CL, SM, ML	*A-4, A-6	0	5-30	80-100	70-95	60-90	45-70	16-30	3-11
	5-12	*Loam, cobbly loam, cobbly fine sandy loam	*CL-ML, CL, SM, ML	*A-4, A-6, A-2-4	0	5-25	80-100	75-95	50-90	30-70	16-30	3-11
	12-32	*Loam, cobbly clay loam, cobbly sandy clay loam	*CL, CL-ML, SC	*A-4, A-2-4, A-6	0	5-25	80-100	75-95	60-95	25-75	23-38	7-15
	32-61	*Cobbly clay loam, sandy clay loam, cobbly loam, fine sandy loam, cobbly sandy loam	*CL, CL-ML, SC	*A-6, A-2-4	0	5-25	80-100	75-95	45-95	20-75	23-38	7-15
	61-70	*Cobbly loam, cobbly sandy clay loam, cobbly fine sandy loam, very cobbly sandy loam	*CL, GC, CL-ML, SC	*A-4, A-1, A-2-4, A-6	0	15-45	40-85	25-80	20-75	5-60	21-31	6-11

Table 15.—Engineering Properties—Continued

Map symbol and soil name	Depth	USDA texture	Classification: Unified	Classification: AASHTO	Fragments: >10 inches	Fragments: 3-10 inches	Percentage passing sieve number--: 4	10	40	200	Liquid limit	Plasticity index
	In				Pct	Pct					Pct	
23C:												
Lily------------	0-7	*Sandy loam, gravelly sandy loam	*SC-SM, SM	*A-2, A-4	0	0	70-100	55-100	35-70	15-40	12-25	1-8
	7-13	*Sandy loam, loam, gravelly fine sandy loam	*SC-SM, CL-ML, ML, SC, SM	*A-2, A-4, A-1	0	0	70-100	55-100	35-95	15-75	12-25	1-8
	13-24	*Clay loam, sandy clay loam, gravelly loam	*CL, CL-ML	*A-6, A-2-4	0	0	70-100	60-100	45-100	20-80	23-39	7-16
	24-30	*Sandy loam, sandy clay loam, gravelly loam, gravelly loamy sand	*SC, SC-SM, CL, CL-ML, SW-SC	*A-2, A-4, A-6, A-1	0	0	65-100	50-100	25-95	10-75	21-39	6-16
	30-40	*Bedrock	---	---	---	---	---	---	---	---	---	---
23E:												
Lily------------	0-7	*Sandy loam, gravelly sandy loam	*SC-SM, SM	*A-2, A-4	0	0	70-100	55-100	35-70	15-40	12-25	1-8
	7-13	*Sandy loam, loam, gravelly fine sandy loam	*SC-SM, CL-ML, ML, SC, SM	*A-2, A-4, A-1	0	0	70-100	55-100	35-95	15-75	12-25	1-8
	13-24	*Clay loam, sandy clay loam, gravelly loam	*CL, CL-ML	*A-6, A-2-4	0	0	70-100	60-100	45-100	20-80	23-39	7-16
	24-30	*Sandy loam, sandy clay loam, gravelly loam, gravelly loamy sand	*SC, SC-SM, CL, CL-ML, SW-SC	*A-2, A-4, A-6, A-1	0	0	65-100	50-100	25-95	10-75	21-39	6-16
	30-40	*Bedrock	---	---	---	---	---	---	---	---	---	---
23F:												
Lily------------	0-7	*Sandy loam, gravelly sandy loam	*SC-SM, SM	*A-2, A-4	0	0	70-100	55-100	35-70	15-40	12-25	1-8
	7-13	*Sandy loam, loam, gravelly fine sandy loam	*SC-SM, CL-ML, ML, SC, SM	*A-2, A-4, A-1	0	0	70-100	55-100	35-95	15-75	12-25	1-8
	13-24	*Clay loam, sandy clay loam, gravelly loam	*CL, CL-ML	*A-6, A-2-4	0	0	70-100	60-100	45-100	20-80	23-39	7-16
	24-30	*Sandy loam, sandy clay loam, gravelly loam, gravelly loamy sand	*SC, SC-SM, CL, CL-ML, SW-SC	*A-2, A-4, A-6, A-1	0	0	65-100	50-100	25-95	10-75	21-39	6-16
	30-40	*Bedrock	---	---	---	---	---	---	---	---	---	---
24A:												
Maurertown------	0-6	*Silt loam	*CL	*A-6, A-4	0	0	75-100	75-100	70-100	65-95	28-36	10-16
	6-18	*Silty clay loam, silt loam, loam	*CL	*A-7, A-4	0	0	80-100	80-100	60-100	60-95	28-48	10-25
	18-41	*Silty clay, clay, silty clay loam	*CL, CH	*A-7	0	0	80-100	80-100	70-100	65-100	44-66	22-39
	41-62	*Gravelly silty clay loam, clay, silty clay, silty clay loam	*CL, CH	*A-7, A-6	0	0	75-100	75-100	70-100	60-100	39-66	18-39

Table 15.—Engineering Properties—Continued

Map symbol and soil name	Depth	USDA texture	Classification: Unified	Classification: AASHTO	Fragments: >10 inches	Fragments: 3-10 inches	Percentage passing sieve number--: 4	10	40	200	Liquid limit	Plasticity index
	In				Pct	Pct					Pct	
25B:												
Nicelytown------	0-6	*Silt loam	*CL-ML, CL	*A-4	0	0-10	80-100	80-100	70-100	60-90	20-31	4-10
	6-18	*Silt loam, loam, gravelly fine sandy loam	*CL-ML, CL	*A-4	0	0-10	80-100	80-100	70-100	60-90	20-31	4-10
	18-60	*Silty clay loam, gravelly clay loam, silt loam, gravelly loam, cobbly loam	*CL, GC-GM	*A-6, A-2	0	0-20	60-100	55-100	45-95	35-85	23-39	6-14
	60-62	*Very cobbly silty clay loam, gravelly clay loam, silt loam, very cobbly loam, cobbly clay loam	*CL, GC-GM	*A-6, A-2	0	0-45	60-100	55-100	45-100	35-85	23-39	6-14
25C:												
Nicelytown------	0-6	*Silt loam	*CL-ML, CL	*A-4	0	0-10	80-100	80-100	70-100	60-90	20-31	4-10
	6-18	*Silt loam, loam, gravelly fine sandy loam	*CL-ML, CL	*A-4	0	0-10	80-100	80-100	70-100	60-90	20-31	4-10
	18-60	*Silty clay loam, gravelly clay loam, silt loam, gravelly loam, cobbly loam	*CL, GC-GM	*A-6, A-2	0	0-20	60-100	55-100	45-95	35-85	23-39	6-14
	60-62	*Very cobbly silty clay loam, gravelly clay loam, silt loam, very cobbly loam, cobbly clay loam	*CL, GC-GM	*A-6, A-2	0	0-45	60-100	55-100	45-100	35-85	23-39	6-14
26B:												
Ogles-----------	0-6	*Very stony loam	*CL-ML, ML, SC-SM	*A-4	25-35	30-35	75-100	70-100	60-95	40-75	13-23	1-7
	6-10	*Very stony loam, extremely stony loam	*CL-ML, ML, SC-SM	*A-4	25-40	30-45	60-100	45-100	35-95	25-75	13-23	1-7
	10-23	*Extremely stony sandy loam, very stony loam	*SC-SM, CL-ML	*A-2-4, A-1	25-40	30-45	60-100	45-100	25-95	15-75	12-23	1-7
	23-65	*Extremely stony loamy sand, very stony sandy loam	*SC-SM	*A-2-4, A-1	25-45	30-45	70-100	60-100	30-75	8-40	12-23	1-7

Table 15.—Engineering Properties—Continued

Map symbol and soil name	Depth	USDA texture	Classification: Unified	Classification: AASHTO	Fragments: >10 inches	Fragments: 3-10 inches	Percentage passing sieve number--: 4	10	40	200	Liquid limit	Plasticity index
	In				Pct	Pct					Pct	
27C: Oriskany, extremely stony	0-6	*Gravelly fine sandy loam	*SM, SC-SM, GM, GW-GM	*A-2-4	0	0	40-80	20-70	15-60	10-40	12-25	1-8
	6-14	*Very cobbly fine sandy loam, very cobbly loam, extremely cobbly sandy loam	*SC, SM, SC-SM, ML, CL-ML	*A-4, A-2-4, A-6	0	30-80	100	100	60-95	30-75	13-31	1-11
	14-61	*Extremely stony sandy clay loam, very stony clay loam, extremely stony loam	*SC, SC-SM, CL, CL-ML	*A-4, A-2-4, A-6	50-85	0	100	100	80-100	35-80	21-39	6-16
27E: Oriskany, extremely stony	0-6	*Gravelly fine sandy loam	*SM, SC-SM, GM, GW-GM	*A-2-4	0	0	40-80	20-70	15-60	10-40	12-25	1-8
	6-14	*Very cobbly fine sandy loam, very cobbly loam, extremely cobbly sandy loam	*SC, SM, SC-SM, ML, CL-ML	*A-4, A-2-4, A-6	0	30-80	100	100	60-95	30-75	13-31	1-11
	14-61	*Extremely stony sandy clay loam, very stony clay loam, extremely stony loam	*SC, SC-SM, CL, CL-ML	*A-4, A-2-4, A-6	50-85	0	100	100	80-100	35-80	21-39	6-16
28F: Oriskany, very rubbly---------	0-6	*Gravelly fine sandy loam	*SM, SC-SM, GM, GW-GM	*A-2-4	0	0	40-80	20-70	15-60	10-40	12-25	1-8
	6-14	*Very cobbly fine sandy loam, very cobbly loam, extremely cobbly sandy loam	*SM, SC, SC-SM, ML, CL-ML	*A-4, A-2-4, A-6	0	30-80	100	100	60-95	30-75	13-31	1-11
	14-61	*Extremely stony sandy clay loam, very stony clay loam, extremely stony loam	*SC, SC-SM, CL, CL-ML	*A-4, A-2-4, A-6	50-85	0	100	100	80-100	35-80	21-39	6-16

Table 15.—Engineering Properties—Continued

Map symbol and soil name	Depth	USDA texture	Classification: Unified	Classification: AASHTO	Fragments: >10 inches	Fragments: 3-10 inches	Percentage passing sieve number--: 4	10	40	200	Liquid limit	Plasticity index
	In				Pct	Pct					Pct	
29A:												
Philo-----------	0-9	*Fine sandy loam	*SM, SC-SM, CL-ML	*A-4, A-2	0	0-16	80-100	80-100	70-95	35-55	16-23	2-6
	9-23	*Fine sandy loam, loam, gravelly sandy loam, cobbly sandy loam	*SM, SC-SM, CL-ML	*A-4, A-2	0	0-23	75-100	75-100	65-95	35-55	16-23	2-6
	23-30	*Loam, fine sandy loam, gravelly sandy loam, cobbly sandy loam	*CL-ML, SM	*A-4	0	0-23	75-100	75-100	60-90	40-65	16-23	2-6
	30-65	*Cobbly loam, loam, gravelly fine sandy loam, very cobbly sandy loam	*GC-GM, CL-ML, GM	*A-4, A-2	0	0-36	55-100	55-100	45-90	30-65	16-23	2-6
30. Pits and dumps												
31A:												
Pope------------	0-8	*Fine sandy loam	*SM, CL-ML	*A-4, A-2	0	0-15	75-100	75-100	65-95	30-55	12-20	NP-4
	8-45	*Gravelly sandy loam, sandy loam, fine sandy loam, loam, cobbly sandy loam	*SM, GM, CL-ML	*A-2, A-1, A-4	0	0-35	60-100	55-100	40-85	25-55	12-23	NP-6
	45-65	*Very gravelly loamy sand, fine sandy loam, sandy loam, extremely gravelly sandy loam, cobbly sandy loam	*GM, GP-GM, SC-SM	*A-1, A-2, A-4	0	0-30	20-100	20-100	15-95	5-45	12-23	NP-6
32C:												
Schaffenaker----	0-5	*Loamy sand	*SM	*A-2	0	0-10	75-100	75-100	55-80	20-30	8-10	NP
	5-12	*Loamy sand, loamy fine sand, sand, gravelly loamy sand	*SM	*A-2, A-1	0	0-15	60-100	55-100	45-80	15-30	8-10	NP
	12-23	*Loamy sand, loamy fine sand, sand, gravelly loamy sand	*SM	*A-2, A-1	0	0-15	60-100	60-100	45-80	15-30	8-10	NP
	23-38	*Loamy sand, loamy fine sand, sand, very gravelly loamy sand	*SM, GP-GM	*A-2, A-1	0	0-15	40-100	40-100	30-80	10-30	8-10	NP
	38-42	*Bedrock	---	---	---	---	---	---	---	---	---	---

Table 15.—Engineering Properties—Continued

Map symbol and soil name	Depth	USDA texture	Classification: Unified	Classification: AASHTO	Fragments >10 inches	Fragments 3-10 inches	Percentage passing sieve number-- 4	10	40	200	Liquid limit	Plasticity index
	In				Pct	Pct					Pct	
33B:												
Shelocta--------	0-8	*Silt loam	*CL-ML, CL, SC-SM, ML, SM, SC	*A-4	0	0-5	60-95	50-95	45-95	35-85	16-30	3-11
	8-15	*Silt loam, channery silt loam, loam	*CL-ML, SC, SC-SM, SM, ML, CL	*A-4, A-2-4, A-6	0	0-5	60-95	50-95	40-95	30-85	16-30	3-11
	15-46	*Silt loam, silty clay loam, channery loam	*CL, SC-SM, CL-ML, SC	*A-4, A-2-4, A-6	0	0-5	65-95	55-90	45-90	30-85	23-38	7-15
	46-62	*Channery silty clay loam, silt loam, channery loam	*CL, CL-ML, SC, SC-SM	*A-6, A-2-4	0	0-10	70-95	60-90	45-90	35-85	23-38	7-15
33C:												
Shelocta--------	0-8	*Silt loam	*CL-ML, CL, SC-SM, ML, SM, SC	*A-4	0	0-5	60-95	50-95	45-95	35-85	16-30	3-11
	8-15	*Silt loam, channery silt loam, loam	*CL-ML, SC, SC-SM, SM, ML, CL	*A-4, A-2-4, A-6	0	0-5	60-95	50-95	40-95	30-85	16-30	3-11
	15-46	*Silt loam, silty clay loam, channery loam	*CL, SC-SM, CL-ML, SC	*A-4, A-2-4, A-6	0	0-5	65-95	55-90	45-90	30-85	23-38	7-15
	46-62	*Channery silty clay loam, silt loam, channery loam	*CL, CL-ML, SC, SC-SM	*A-6, A-2-4	0	0-10	70-95	60-90	45-90	35-85	23-38	7-15
33D:												
Shelocta--------	0-8	*Silt loam	*CL-ML, CL, SC-SM, ML, SM, SC	*A-4	0	0-5	60-95	50-95	45-95	35-85	16-30	3-11
	8-15	*Silt loam, channery silt loam, loam	*CL-ML, SC, SC-SM, SM, ML, CL	*A-4, A-2-4, A-6	0	0-5	60-95	50-95	40-95	30-85	16-30	3-11
	15-46	*Silt loam, silty clay loam, channery loam	*CL, SC-SM, CL-ML, SC	*A-4, A-2-4, A-6	0	0-5	65-95	55-90	45-90	30-85	23-38	7-15
	46-62	*Channery silty clay loam, silt loam, channery loam	*CL, CL-ML, SC, SC-SM	*A-6, A-2-4	0	0-10	70-95	60-90	45-90	35-85	23-38	7-15
34B:												
Slabtown--------	0-18	*Silt loam, gravelly loam, loam	*CL	*A-6	0	0	55-98	50-95	40-95	30-85	22-43	6-18
	18-44	*Silt loam, gravelly silty clay loam, gravelly loam	*CL	*A-6	0	0	55-98	50-95	40-95	30-90	31-46	13-25
	44-75	*Clay, silty clay, silty clay loam	*CH, CL	*A-7-6	0	0	95-100	90-100	80-100	70-95	45-69	25-44

Table 15.—Engineering Properties—Continued

Map symbol and soil name	Depth	USDA texture	Classification: Unified	Classification: AASHTO	Fragments: >10 inches	Fragments: 3-10 inches	Percentage passing sieve number--: 4	10	40	200	Liquid limit	Plasticity index
	In				Pct	Pct					Pct	
34C:												
Slabtown--------	0-18	*Silt loam, gravelly loam, loam	*CL	*A-6	0	0	55-98	50-95	40-95	30-85	22-43	6-18
	18-44	*Silt loam, gravelly silty clay loam, gravelly loam	*CL	*A-6	0	0	55-98	50-95	40-95	30-90	31-46	13-25
	44-75	*Clay, silty clay, silty clay loam	*CH, CL	*A-7-6	0	0	95-100	90-100	80-100	70-95	45-69	25-44
35B:												
Sugarhol--------	0-2	*Silt loam, loam	*CL, CL-ML	*A-4	0	0-10	85-100	80-100	75-100	55-90	21-31	6-11
	2-11	*Silt loam, loam, clay loam	*CL, CL-ML	*A-4	0	0-10	85-100	80-100	70-100	50-90	21-34	6-13
	11-61	*Silty clay, clay, gravelly clay loam	*CL, CH, SC	*A-7, A-6	0	0-15	70-100	60-100	55-100	45-95	39-70	16-33
35C:												
Sugarhol--------	0-2	*Silt loam, loam	*CL, CL-ML	*A-4	0	0-10	85-100	80-100	75-100	55-90	21-31	6-11
	2-11	*Silt loam, loam, clay loam	*CL, CL-ML	*A-4	0	0-10	85-100	80-100	70-100	50-90	21-34	6-13
	11-61	*Silty clay, clay, gravelly clay loam	*CL, CH, SC	*A-7, A-6	0	0-15	70-100	60-100	55-100	45-95	39-70	16-33
36B:												
Tumbling--------	0-9	*Loam	*CL-ML, CL	*A-4	0	0-25	100	100	85-95	60-75	13-25	2-9
	9-44	*Clay loam, clay, cobbly clay loam, sandy clay loam	*CL	*A-6, A-4	0	0-50	100	100	80-100	35-95	25-40	9-18
	44-62	*Clay loam, clay, cobbly clay loam, sandy clay loam	*CL	*A-6, A-7	0-7	0-43	100	100	80-100	35-80	27-45	10-21
36C:												
Tumbling--------	0-9	*Loam	*CL-ML, CL	*A-4	0	0-25	100	100	85-95	60-75	13-25	2-9
	9-44	*Clay loam, clay, cobbly clay loam, sandy clay loam	*CL	*A-6, A-4	0	0-50	100	100	80-100	35-95	25-40	9-18
	44-62	*Clay loam, clay, cobbly clay loam, sandy clay loam	*CL	*A-6, A-7	0-7	0-43	100	100	80-100	35-80	27-45	10-21

Table 15.—Engineering Properties—Continued

Map symbol and soil name	Depth	USDA texture	Classification: Unified	Classification: AASHTO	Fragments: >10 inches	Fragments: 3-10 inches	Percentage passing sieve number--: 4	10	40	200	Liquid limit	Plasticity index
	In				Pct	Pct					Pct	
36D:												
Tumbling--------	0-9	*Loam	*CL-ML, CL	*A-4	0	0-25	100	100	85-95	60-75	13-25	2-9
	9-44	*Clay loam, clay, cobbly clay loam, sandy clay loam	*CL	*A-6, A-4	0	0-50	100	100	80-100	35-95	25-40	9-18
	44-62	*Clay loam, clay, cobbly clay loam, sandy clay loam	*CL	*A-6, A-7	0-7	0-43	100	100	80-100	35-80	27-45	10-21
37C:												
Tumbling, very stony----------	0-9	*Loam	*CL-ML, CL	*A-4	0	0-25	100	100	85-95	60-75	13-25	2-9
	9-44	*Clay loam, clay, cobbly clay loam, sandy clay loam	*CL	*A-6, A-4	0	0-50	100	100	80-100	35-95	25-40	9-18
	44-62	*Clay loam, clay, cobbly clay loam, sandy clay loam	*CL	*A-6, A-7	0-7	0-43	100	100	80-100	35-80	27-45	10-21
37E:												
Tumbling, very stony----------	0-9	*Loam	*CL-ML, CL	*A-4	0	0-25	100	100	85-95	60-75	13-25	2-9
	9-44	*Clay loam, clay, cobbly clay loam, sandy clay loam	*CL	*A-6, A-4	0	0-50	100	100	80-100	35-95	25-40	9-18
	44-62	*Clay loam, clay, cobbly clay loam, sandy clay loam	*CL	*A-6, A-7	0-7	0-43	100	100	80-100	35-80	27-45	10-21
38.												
Udorthents-Urban land												
39C:												
Watahala--------	0-2	*Gravelly silt loam	*GC-GM, SC-SM, CL, CL-ML	*A-4, A-2-4, A-6	0	0	55-85	40-80	35-80	30-75	23-31	7-11
	2-17	*Gravelly silt loam, very gravelly loam, fine sandy loam, gravelly sandy loam	*CL-ML, CL, SC-SM	*A-4, A-6, A-2-4	0	0	55-85	40-80	35-80	30-70	21-31	6-11
	17-29	*Gravelly loam, silty clay loam, very gravelly clay loam	*GC, SC-SM, CL, CL-ML	*A-6, A-2-4, A-2-6	0	0	65-85	50-80	45-80	30-75	23-39	7-16
	29-62	*Clay, silty clay, gravelly silty clay	*MH, CL	*A-7-5, A-7-6	0	0	60-100	50-100	45-100	40-95	43-75	18-33

Table 15.—Engineering Properties—Continued

Map symbol and soil name	Depth	USDA texture	Classification: Unified	Classification: AASHTO	Fragments: >10 inches	Fragments: 3-10 inches	Percentage passing sieve number--: 4	10	40	200	Liquid limit	Plasticity index
	In				Pct	Pct					Pct	
39D:												
Watahala--------	0-2	*Gravelly silt loam	*GC-GM, SC-SM, CL, CL-ML	*A-4, A-2-4, A-6	0	0	55-85	40-80	35-80	30-75	23-31	7-11
	2-17	*Gravelly silt loam, very gravelly loam, fine sandy loam, gravelly sandy loam	*CL-ML, CL, SC-SM	*A-4, A-6, A-2-4	0	0	55-85	40-80	35-80	30-70	21-31	6-11
	17-29	*Gravelly loam, silty clay loam, very gravelly clay loam	*GC, SC-SM, CL, CL-ML	*A-6, A-2-4, A-2-6	0	0	65-85	50-80	45-80	30-75	23-39	7-16
	29-62	*Clay, silty clay, gravelly silty clay	*MH, CL	*A-7-5, A-7-6	0	0	60-100	50-100	45-100	40-95	43-75	18-33
39E:												
Watahala--------	0-2	*Gravelly silt loam	*GC-GM, SC-SM, CL, CL-ML	*A-4, A-6, A-2-4	0	0	55-85	40-80	35-80	30-75	23-31	7-11
	2-17	*Gravelly silt loam, very gravelly loam, fine sandy loam, gravelly sandy loam	*CL-ML, CL, SC-SM	*A-4, A-6, A-2-4	0	0	55-85	40-80	35-80	30-70	21-31	6-11
	17-29	*Gravelly loam, silty clay loam, very gravelly clay loam	*GC, SC-SM, CL, CL-ML	*A-6, A-2-4, A-2-6	0	0	65-85	50-80	45-80	30-75	23-39	7-16
	29-62	*Clay, silty clay, gravelly silty clay	*MH, CL	*A-7-5, A-7-6	0	0	60-100	50-100	45-100	40-95	43-75	18-33
40C:												
Watahala, extremely stony	0-2	*Gravelly silt loam	*GC-GM, SC-SM, CL, CL-ML	*A-4, A-2-4, A-6	0	0	55-85	40-80	35-80	30-75	23-31	7-11
	2-17	*Gravelly silt loam, very gravelly loam, fine sandy loam, gravelly sandy loam	*CL-ML, CL, SC-SM	*A-4, A-6, A-2-4	0	0	55-85	40-80	35-80	30-70	21-31	6-11
	17-29	*Gravelly loam, silty clay loam, very gravelly clay loam	*GC, SC-SM, CL, CL-ML	*A-6, A-2-4, A-2-6	0	0	65-85	50-80	45-80	30-75	23-39	7-16
	29-62	*Clay, silty clay, gravelly silty clay	*MH, CL	*A-7-5, A-7-6	0	0	60-100	50-100	45-100	40-95	43-75	18-33

Table 15.—Engineering Properties—Continued

Map symbol and soil name	Depth	USDA texture	Classification: Unified	Classification: AASHTO	Fragments: >10 inches	Fragments: 3-10 inches	Percentage passing sieve number--: 4	10	40	200	Liquid limit	Plasticity index
	In				Pct	Pct					Pct	
40E:												
Watahala, extremely stony	0-2	*Gravelly silt loam	*GC-GM, SC-SM, CL, CL-ML	*A-4, A-2-4, A-6	0	0	55-85	40-80	35-80	30-75	23-31	7-11
	2-17	*Gravelly silt loam, very gravelly loam, fine sandy loam, gravelly sandy loam	*CL-ML, CL, SC-SM	*A-4, A-6, A-2-4	0	0	55-85	40-80	35-80	30-70	21-31	6-11
	17-29	*Gravelly loam, silty clay loam, very gravelly clay loam	*GC, SC-SM, CL, CL-ML	*A-6, A-2-4, A-2-6	0	0	65-85	50-80	45-80	30-75	23-39	7-16
	29-62	*Clay, silty clay, gravelly silty clay	*MH, CL	*A-7-5, A-7-6	0	0	60-100	50-100	45-100	40-95	43-75	18-33
40F:												
Watahala, extremely stony	0-2	*Gravelly silt loam	*GC-GM, SC-SM, CL, CL-ML	*A-4, A-2-4, A-6	0	0	55-85	40-80	35-80	30-75	23-31	7-11
	2-17	*Gravelly silt loam, very gravelly loam, fine sandy loam, gravelly sandy loam	*CL-ML, CL, SC-SM	*A-4, A-6, A-2-4	0	0	55-85	40-80	35-80	30-70	21-31	6-11
	17-29	*Gravelly loam, silty clay loam, very gravelly clay loam	*GC, SC-SM, CL, CL-ML	*A-6, A-2-4, A-2-6	0	0	65-85	50-80	45-80	30-75	23-39	7-16
	29-62	*Clay, silty clay, gravelly silty clay	*MH, CL	*A-7-5, A-7-6	0	0	60-100	50-100	45-100	40-95	43-75	18-33
41G:												
Weikert---------	0-3	*Channery silt loam, silt loam, very channery silt loam	*CL-ML, GC-GM, CL	*A-4, A-6, A-1	0	2-7	50-85	40-80	35-80	25-75	21-31	6-11
	3-6	*Very channery silt loam, channery loam, silt loam	*GC-GM, CL	*A-2, A-1, A-6	0	4-13	55-90	40-85	35-85	25-75	21-31	6-11
	6-11	*Extremely channery silt loam, very channery loam	*GC, GC-GM	*A-2, A-1, A-6	0	14-18	50-65	30-55	25-55	20-50	21-31	6-11
	11-17	*Extremely channery silt loam, extremely channery loam	*GC-GM, GP-GC, GC	*A-2, A-1, A-6	0	42-50	40-55	15-40	15-40	10-40	21-31	6-11
	17-27	*Bedrock			0	---	---	---	---	---	---	---

Table 15.—Engineering Properties—Continued

Map symbol and soil name	Depth	USDA texture	Classification: Unified	Classification: AASHTO	Fragments: >10 inches	Fragments: 3-10 inches	Percentage passing sieve number--: 4	10	40	200	Liquid limit	Plas- ticity index
	In				Pct	Pct					Pct	
41G:												
Rough-----------	0-3	*Channery silt loam, very channery silt loam	*CL-ML, SC, SM, CL, SC-SM, ML	*A-4	0	5-20	50-80	35-75	30-75	25-70	16-30	3-11
	3-6	*Very channery silt loam, very channery loam, extremely channery loam	*GC, SC, SC-SM, SM, CL, CL-ML, ML, GC-GM, GM	*A-4, A-1, A-2-4, A-6	0	25-40	45-70	30-65	25-65	15-55	16-31	3-11
	6-8	*Extremely channery silt loam, extremely channery loam	*GC, SC, SM, SC-SM, GC-GM, GM	*A-2-4, A-1, A-4	0	50-60	35-60	15-45	15-45	10-40	16-30	3-11
	8-18	*Bedrock	---	---	---	---	---	---	---	---	---	---
Rock outcrop.												
W. Water												

Table 16.—Physical Soil Properties, Part I

(Sand, silt, and clay are assigned low, representative, and high values. Absence of an entry indicates that data were not estimated)

Map symbol and soil name	Depth	Sand	Silt	Clay	Moist bulk density	Saturated hydraulic conductivity	Available water capacity	Linear extensibility
	In	Pct	Pct	Pct	g/cc	um/sec	In/in	Pct
1A:								
Alonzville, rarely flooded	0-5	30-42- 50	30-37- 50	15-21- 27	1.45-1.65	4.00-14.00	0.15-0.21	0.0-2.9
	5-15	15-42- 75	10-37- 70	10-21- 27	1.45-1.65	4.00-14.00	0.13-0.22	0.0-2.9
	15-55	10-34- 50	25-36- 70	18-30- 34	1.45-1.70	4.00-14.00	0.10-0.22	0.0-2.9
	55-65	25-41- 70	10-37- 45	10-22- 34	1.45-1.70	4.00-14.00	0.07-0.19	0.0-2.9
1B:								
Alonzville, rarely flooded	0-5	30-42- 50	30-37- 50	15-21- 27	1.45-1.65	4.00-14.00	0.15-0.21	0.0-2.9
	5-15	15-42- 75	10-37- 70	10-21- 27	1.45-1.65	4.00-14.00	0.13-0.22	0.0-2.9
	15-55	10-34- 50	25-36- 70	18-30- 34	1.45-1.70	4.00-14.00	0.10-0.22	0.0-2.9
	55-65	25-41- 70	10-37- 45	10-22- 34	1.45-1.70	4.00-14.00	0.07-0.19	0.0-2.9
2B:								
Alonzville	0-5	30-42- 50	30-37- 50	15-21- 27	1.45-1.65	4.00-14.00	0.15-0.21	0.0-2.9
	5-15	15-42- 75	10-37- 70	10-21- 27	1.45-1.65	4.00-14.00	0.13-0.22	0.0-2.9
	15-55	10-34- 50	25-36- 70	18-30- 34	1.45-1.70	4.00-14.00	0.10-0.22	0.0-2.9
	55-65	25-41- 70	10-37- 45	10-22- 34	1.45-1.70	4.00-14.00	0.07-0.19	0.0-2.9
3A:								
Atkins	0-9	52-55- 75	5-26- 35	10-19- 20	1.20-1.40	4.00-14.00	0.12-0.18	0.0-2.9
	9-37	15-55- 65	15-26- 65	18-19- 35	1.20-1.50	0.42-1.40	0.09-0.22	0.0-2.9
	37-62	15-59- 70	10-23- 70	10-18- 35	1.20-1.50	1.40-4.00	0.04-0.22	0.0-2.9
4C:								
Bailegap	0-4	25-55- 78	29-30- 49	10-15- 20	1.35-1.65	4.00-14.00	0.09-0.14	0.5-2.0
	4-9	25-55- 82	5-27- 49	10-18- 25	1.35-1.65	4.00-14.00	0.09-0.17	1.0-2.5
	9-28	21-35- 78	5-42- 48	18-23- 35	1.35-1.65	4.00-14.00	0.07-0.17	1.5-2.9
	28-43	21-34- 78	5-37- 48	18-29- 30	1.35-1.65	4.00-14.00	0.04-0.17	1.5-2.9
	43-46	---	---	---	---	1.40-14.00	---	---
	46-56	---	---	---	---	0.00-4.00	---	---
4E:								
Bailegap	0-4	25-55- 78	29-30- 49	10-15- 20	1.35-1.65	4.00-14.00	0.09-0.14	0.5-2.0
	4-9	25-55- 82	5-27- 49	10-18- 25	1.35-1.65	4.00-14.00	0.09-0.17	1.0-2.5
	9-28	21-35- 78	5-42- 48	18-23- 35	1.35-1.65	4.00-14.00	0.07-0.17	1.5-2.9
	28-43	21-34- 78	5-37- 48	18-29- 30	1.35-1.65	4.00-14.00	0.04-0.17	1.5-2.9
	43-46	---	---	---	---	1.40-14.00	---	---
	46-56	---	---	---	---	0.00-4.00	---	---
5G:								
Bailegap	0-4	25-55- 78	29-30- 49	10-15- 20	1.35-1.65	4.00-14.00	0.09-0.14	0.5-2.0
	4-9	25-55- 82	5-27- 49	10-18- 25	1.35-1.65	4.00-14.00	0.09-0.17	1.0-2.5
	9-28	21-35- 78	5-42- 48	18-23- 35	1.35-1.65	4.00-14.00	0.07-0.17	1.5-2.9
	28-43	21-34- 78	5-37- 48	18-29- 30	1.35-1.65	4.00-14.00	0.04-0.17	1.5-2.9
	43-46	---	---	---	---	1.40-14.00	---	---
	46-56	---	---	---	---	0.00-4.00	---	---
Lily	0-7	25-58- 82	29-32- 49	5-10- 20	1.20-1.40	4.00-42.00	0.07-0.13	0.5-2.0
	7-13	25-55- 82	5-33- 49	5-12- 25	1.25-1.35	4.00-42.00	0.07-0.19	0.5-2.0
	13-24	21-41- 78	5-28- 49	18-31- 35	1.25-1.55	14.00-42.00	0.08-0.19	1.5-2.9
	24-30	25-66- 82	5-19- 49	10-15- 35	1.25-1.55	14.00-42.00	0.05-0.19	1.0-2.9
	30-40	---	---	---	---	0.00-4.00	---	---

Table 16.—Physical Soil Properties, Part I—Continued

Map symbol and soil name	Depth	Sand	Silt	Clay	Moist bulk density	Saturated hydraulic conductivity	Available water capacity	Linear extensi-bility
	In	Pct	Pct	Pct	g/cc	um/sec	In/in	Pct
5G:								
Dekalb	0-5	50-55- 82	5-33- 40	10-12- 20	1.20-1.50	14.00-141.00	0.05-0.10	0.2-1.5
	5-24	40-58- 82	5-27- 45	7-15- 18	1.20-1.50	42.00-141.00	0.06-0.16	0.2-1.8
	24-31	50-67- 85	5-19- 45	5-14- 15	1.20-1.50	42.00-141.00	0.03-0.08	0.2-1.5
	31-41	---	---	---	---	0.00-4.00	---	---
6E:								
Berks	0-5	5-27- 45	51-58- 80	5-15- 23	1.20-1.50	4.00-42.00	0.10-0.18	0.1-1.5
	5-15	5-26- 51	29-56- 80	5-18- 23	1.20-1.50	4.00-42.00	0.09-0.18	0.1-2.0
	15-26	5-25- 51	29-51- 80	15-24- 27	1.20-1.60	4.00-42.00	0.05-0.14	1.0-2.5
	26-28	5-30- 51	29-51- 80	10-19- 20	1.20-1.60	14.00-42.00	0.04-0.14	1.0-2.0
	28-38	---	---	---	---	1.40-42.00	---	---
Culleoka	0-3	5-27- 48	51-54- 80	15-19- 27	1.20-1.40	4.00-42.00	0.11-0.22	1.0-2.0
	3-11	5-26- 51	29-54- 80	18-20- 35	1.20-1.50	14.00-42.00	0.09-0.19	1.5-2.5
	11-22	5-19- 51	29-50- 80	18-31- 35	1.20-1.50	4.00-42.00	0.09-0.19	1.5-2.9
	22-27	5-27- 51	29-52- 80	18-21- 35	1.20-1.50	4.00-42.00	0.04-0.17	1.0-2.9
	27-37	---	---	---	---	1.40-42.00	---	---
6G:								
Berks	0-5	5-27- 45	51-58- 80	5-15- 23	1.20-1.50	4.00-42.00	0.10-0.18	0.1-1.5
	5-15	5-26- 51	29-56- 80	5-18- 23	1.20-1.50	4.00-42.00	0.09-0.18	0.1-2.0
	15-26	5-25- 51	29-51- 80	15-24- 27	1.20-1.60	4.00-42.00	0.05-0.14	1.0-2.5
	26-28	5-30- 51	29-51- 80	10-19- 20	1.20-1.60	14.00-42.00	0.04-0.14	1.0-2.0
	28-38	---	---	---	---	1.40-42.00	---	---
Culleoka	0-3	5-27- 48	51-54- 80	15-19- 27	1.20-1.40	4.00-42.00	0.11-0.22	1.0-2.0
	3-11	5-26- 51	29-54- 80	18-20- 35	1.20-1.50	14.00-42.00	0.09-0.19	1.5-2.5
	11-22	5-19- 51	29-50- 80	18-31- 35	1.20-1.50	4.00-42.00	0.09-0.19	1.5-2.9
	22-27	5-27- 51	29-52- 80	18-21- 35	1.20-1.50	4.00-42.00	0.04-0.17	1.0-2.9
	27-37	---	---	---	---	1.40-42.00	---	---
7C:								
Berks	0-5	5-27- 45	51-58- 80	5-15- 23	1.20-1.50	4.00-42.00	0.10-0.18	0.1-1.5
	5-15	5-26- 51	29-56- 80	5-18- 23	1.20-1.50	4.00-42.00	0.09-0.18	0.1-2.0
	15-26	5-25- 51	29-51- 80	15-24- 27	1.20-1.60	4.00-42.00	0.05-0.14	1.0-2.5
	26-28	5-30- 51	29-51- 80	10-19- 20	1.20-1.60	14.00-42.00	0.04-0.14	1.0-2.0
	28-38	---	---	---	---	1.40-42.00	---	---
Weikert	0-3	5-26- 48	51-59- 80	15-15- 27	1.20-1.40	14.00-42.00	0.08-0.18	0.5-1.5
	3-6	5-26- 48	30-56- 80	15-18- 27	1.20-1.40	14.00-42.00	0.08-0.19	0.5-2.0
	6-11	5-26- 48	30-53- 80	15-21- 27	1.20-1.40	14.00-42.00	0.06-0.12	0.5-2.5
	11-17	5-27- 48	30-54- 80	15-19- 27	1.20-1.40	14.00-42.00	0.03-0.09	0.5-2.5
	17-27	---	---	---	---	1.40-42.00	---	---
7E:								
Berks	0-5	5-27- 45	51-58- 80	5-15- 23	1.20-1.50	4.00-42.00	0.10-0.18	0.1-1.5
	5-15	5-26- 51	29-56- 80	5-18- 23	1.20-1.50	4.00-42.00	0.09-0.18	0.1-2.0
	15-26	5-25- 51	29-51- 80	15-24- 27	1.20-1.60	4.00-42.00	0.05-0.14	1.0-2.5
	26-28	5-30- 51	29-51- 80	10-19- 20	1.20-1.60	14.00-42.00	0.04-0.14	1.0-2.0
	28-38	---	---	---	---	1.40-42.00	---	---
Weikert	0-3	5-26- 48	51-59- 80	15-15- 27	1.20-1.40	14.00-42.00	0.08-0.18	0.5-1.5
	3-6	5-26- 48	30-56- 80	15-18- 27	1.20-1.40	14.00-42.00	0.08-0.19	0.5-2.0
	6-11	5-26- 48	30-53- 80	15-21- 27	1.20-1.40	14.00-42.00	0.06-0.12	0.5-2.5
	11-17	5-27- 48	30-54- 80	15-19- 27	1.20-1.40	14.00-42.00	0.03-0.09	0.5-2.5
	17-27	---	---	---	---	1.40-42.00	---	---

Table 16.—Physical Soil Properties, Part I—Continued

Map symbol and soil name	Depth	Sand	Silt	Clay	Moist bulk density	Saturated hydraulic conductivity	Available water capacity	Linear extensi- bility
	In	Pct	Pct	Pct	g/cc	um/sec	In/in	Pct
7G:								
Berks	0-5	5-27- 45	51-58- 80	5-15- 23	1.20-1.50	4.00-42.00	0.10-0.18	0.1-1.5
	5-15	5-26- 51	29-56- 80	5-18- 23	1.20-1.50	4.00-42.00	0.09-0.18	0.1-2.0
	15-26	5-25- 51	29-51- 80	15-24- 27	1.20-1.60	4.00-42.00	0.05-0.14	1.0-2.5
	26-28	5-30- 51	29-51- 80	10-19- 20	1.20-1.60	14.00-42.00	0.04-0.14	1.0-2.0
	28-38	---	---	---	---	1.40-42.00	---	---
Weikert	0-3	5-26- 48	51-59- 80	15-15- 27	1.20-1.40	14.00-42.00	0.08-0.18	0.5-1.5
	3-6	5-26- 48	30-56- 80	15-18- 27	1.20-1.40	14.00-42.00	0.08-0.19	0.5-2.0
	6-11	5-26- 48	30-53- 80	15-21- 27	1.20-1.40	14.00-42.00	0.06-0.12	0.5-2.5
	11-17	5-27- 48	30-54- 80	15-19- 27	1.20-1.40	14.00-42.00	0.03-0.09	0.5-2.5
	17-27	---	---	---	---	1.40-42.00	---	---
8G:								
Brushy	0-7	25-43- 51	29-42- 49	10-15- 20	1.20-1.40	4.00-14.00	0.03-0.11	0.5-2.9
	7-13	25-42- 82	5-38- 51	10-20- 25	1.20-1.40	4.00-14.00	0.02-0.13	1.0-2.5
	13-34	21-39- 78	5-34- 49	19-27- 34	1.40-1.60	4.00-14.00	0.02-0.11	1.5-2.9
	34-44	---	---	---	---	0.00-4.00	---	---
9E:								
Calvin	0-4	25-31- 45	50-51- 80	10-18- 25	1.20-1.40	14.00-42.00	0.14-0.20	0.1-1.5
	4-9	5-27- 51	29-54- 80	10-19- 25	1.20-1.40	14.00-42.00	0.13-0.20	1.0-2.0
	9-21	5-27- 51	29-53- 80	15-20- 27	1.40-1.60	14.00-42.00	0.09-0.15	1.5-2.5
	21-27	5-28- 51	29-55- 80	15-17- 27	1.40-1.60	14.00-42.00	0.06-0.15	1.5-2.7
	27-37	---	---	---	---	1.40-42.00	---	---
10G:								
Calvin	0-4	25-31- 45	50-51- 80	10-18- 25	1.20-1.40	14.00-42.00	0.14-0.20	0.1-1.5
	4-9	5-27- 51	29-54- 80	10-19- 25	1.20-1.40	14.00-42.00	0.13-0.20	1.0-2.0
	9-21	5-27- 51	29-53- 80	15-20- 27	1.40-1.60	14.00-42.00	0.09-0.15	1.5-2.5
	21-27	5-28- 51	29-55- 80	15-17- 27	1.40-1.60	14.00-42.00	0.06-0.15	1.5-2.7
	27-37	---	---	---	---	1.40-42.00	---	---
Rough	0-3	15-30- 35	50-55- 70	10-15- 25	1.20-1.50	4.00-42.00	0.08-0.17	0.5-1.5
	3-6	10-26- 45	35-54- 70	10-20- 27	1.20-1.60	4.00-42.00	0.06-0.14	0.5-2.7
	6-8	10-27- 45	35-53- 70	10-20- 25	1.20-1.60	14.00-42.00	0.03-0.10	0.5-2.9
	8-18	---	---	---	---	0.01-4.00	---	---
11E:								
Carbo	0-5	5-17- 19	42-48- 70	27-35- 40	1.20-1.40	4.00-14.00	0.14-0.15	3.0-4.0
	5-24	5- 9- 30	10-21- 39	60-70- 80	1.30-1.45	0.42-1.40	0.11-0.12	6.0-8.9
	24-34	---	---	---	---	0.00-4.00	---	---
Rock outcrop.								
11F:								
Carbo	0-5	5-17- 19	42-48- 70	27-35- 40	1.20-1.40	4.00-14.00	0.14-0.15	3.0-4.0
	5-24	5- 9- 30	10-21- 39	60-70- 80	1.30-1.45	0.42-1.40	0.11-0.12	6.0-8.9
	24-34	---	---	---	---	0.00-4.00	---	---
Rock outcrop.								
12E:								
Carbo, karst	0-5	5-17- 19	42-48- 70	27-35- 40	1.20-1.40	4.00-14.00	0.14-0.15	3.0-4.0
	5-24	5- 9- 30	10-21- 39	60-70- 80	1.30-1.45	0.42-1.40	0.11-0.12	6.0-8.9
	24-34	---	---	---	---	0.00-0.42	---	---
Rock outcrop.								

Table 16.—Physical Soil Properties, Part I—Continued

Map symbol and soil name	Depth	Sand	Silt	Clay	Moist bulk density	Saturated hydraulic conductivity	Available water capacity	Linear extensi-bility
	In	Pct	Pct	Pct	g/cc	um/sec	In/in	Pct
13A:								
Coursey	0-6	30-42- 50	30-38- 50	15-20- 27	1.35-1.60	4.00-14.00	0.15-0.21	0.0-2.9
	6-14	30-41- 60	10-37- 45	15-22- 35	1.45-1.70	4.00-14.00	0.07-0.19	0.0-2.9
	14-38	30-40- 60	10-30- 45	18-30- 35	1.45-1.70	4.00-14.00	0.07-0.19	0.0-2.9
	38-43	30-40- 70	10-32- 45	10-28- 35	1.50-1.70	4.00-14.00	0.05-0.19	0.0-2.9
	43-60	30-60- 70	10-25- 45	10-15- 35	1.50-1.70	4.00-14.00	0.06-0.19	0.0-2.9
13B:								
Coursey	0-6	30-42- 50	30-38- 50	15-20- 27	1.35-1.60	4.00-14.00	0.15-0.21	0.0-2.9
	6-14	30-41- 60	10-37- 45	15-22- 35	1.45-1.70	4.00-14.00	0.07-0.19	0.0-2.9
	14-38	30-40- 60	10-30- 45	18-30- 35	1.45-1.70	4.00-14.00	0.07-0.19	0.0-2.9
	38-43	30-40- 70	10-32- 45	10-28- 35	1.50-1.70	4.00-14.00	0.05-0.19	0.0-2.9
	43-60	30-60- 70	10-25- 45	10-15- 35	1.50-1.70	4.00-14.00	0.06-0.19	0.0-2.9
14C:								
Culleoka	0-3	5-27- 48	51-54- 80	15-19- 27	1.20-1.40	4.00-42.00	0.11-0.22	1.0-2.0
	3-11	5-26- 51	29-54- 80	18-20- 35	1.20-1.50	14.00-42.00	0.09-0.19	1.5-2.5
	11-22	5-19- 51	29-50- 80	18-31- 35	1.20-1.50	4.00-42.00	0.09-0.19	1.5-2.9
	22-27	5-27- 51	29-52- 80	18-21- 35	1.20-1.50	4.00-42.00	0.04-0.17	1.0-2.9
	27-37	---	---	---	---	1.40-42.00	---	---
Berks	0-5	5-27- 45	51-58- 80	5-15- 23	1.20-1.50	4.00-42.00	0.10-0.18	0.1-1.5
	5-15	5-26- 51	29-56- 80	5-18- 23	1.20-1.50	4.00-42.00	0.09-0.18	0.1-2.0
	15-26	5-25- 51	29-51- 80	15-24- 27	1.20-1.60	4.00-42.00	0.05-0.14	1.0-2.5
	26-28	5-30- 51	29-51- 80	10-19- 20	1.20-1.60	14.00-42.00	0.04-0.14	1.0-2.0
	28-38	---	---	---	---	1.40-42.00	---	---
14D:								
Culleoka	0-3	5-27- 48	51-54- 80	15-19- 27	1.20-1.40	4.00-42.00	0.11-0.22	1.0-2.0
	3-11	5-26- 51	29-54- 80	18-20- 35	1.20-1.50	14.00-42.00	0.09-0.19	1.5-2.5
	11-22	5-19- 51	29-50- 80	18-31- 35	1.20-1.50	4.00-42.00	0.09-0.19	1.5-2.9
	22-27	5-27- 51	29-52- 80	18-21- 35	1.20-1.50	4.00-42.00	0.04-0.17	1.0-2.9
	27-37	---	---	---	---	1.40-42.00	---	---
Berks	0-5	5-27- 45	51-58- 80	5-15- 23	1.20-1.50	4.00-42.00	0.10-0.18	0.1-1.5
	5-15	5-26- 51	29-56- 80	5-18- 23	1.20-1.50	4.00-42.00	0.09-0.18	0.1-2.0
	15-26	5-25- 51	29-51- 80	15-24- 27	1.20-1.60	4.00-42.00	0.05-0.14	1.0-2.5
	26-28	5-30- 51	29-51- 80	10-19- 20	1.20-1.60	14.00-42.00	0.04-0.14	1.0-2.0
	28-38	---	---	---	---	1.40-42.00	---	---
15E:								
Dekalb	0-5	50-55- 82	5-33- 40	10-12- 20	1.20-1.50	14.00-141.00	0.05-0.10	0.2-1.5
	5-24	40-58- 82	5-27- 45	7-15- 18	1.20-1.50	42.00-141.00	0.06-0.16	0.2-1.8
	24-31	50-67- 85	5-19- 45	5-14- 15	1.20-1.50	42.00-141.00	0.03-0.08	0.2-1.5
	31-41	---	---	---	---	0.00-4.00	---	---
15F:								
Dekalb	0-5	50-55- 82	5-33- 40	10-12- 20	1.20-1.50	14.00-141.00	0.05-0.10	0.2-1.5
	5-24	40-58- 82	5-27- 45	7-15- 18	1.20-1.50	42.00-141.00	0.06-0.16	0.2-1.8
	24-31	50-67- 85	5-19- 45	5-14- 15	1.20-1.50	42.00-141.00	0.03-0.08	0.2-1.5
	31-41	---	---	---	---	0.00-4.00	---	---
16E:								
Dekalb	0-5	50-55- 82	5-33- 40	10-12- 20	1.20-1.50	14.00-141.00	0.05-0.10	0.2-1.5
	5-24	40-58- 82	5-27- 45	7-15- 18	1.20-1.50	42.00-141.00	0.06-0.16	0.2-1.8
	24-31	50-67- 85	5-19- 45	5-14- 15	1.20-1.50	42.00-141.00	0.03-0.08	0.2-1.5
	31-41	---	---	---	---	0.00-4.00	---	---
Rock outcrop.								

Table 16.—Physical Soil Properties, Part I—Continued

Map symbol and soil name	Depth	Sand	Silt	Clay	Moist bulk density	Saturated hydraulic conductivity	Available water capacity	Linear extensi- bility
	In	Pct	Pct	Pct	g/cc	um/sec	In/in	Pct
16G:								
Dekalb	0-5	50-55- 82	5-33- 40	10-12- 20	1.20-1.50	14.00-141.00	0.05-0.10	0.2-1.5
	5-24	40-58- 82	5-27- 45	7-15- 18	1.20-1.50	42.00-141.00	0.06-0.16	0.2-1.8
	24-31	50-67- 85	5-19- 45	5-14- 15	1.20-1.50	42.00-141.00	0.03-0.08	0.2-1.5
	31-41	---	---	---	---	0.00-4.00	---	---
Rock outcrop.								
17B:								
Escatawba	0-3	25-42- 50	30-38- 50	10-20- 25	1.15-1.30	4.00-14.00	0.15-0.19	0.0-2.9
	3-17	15-42- 75	15-38- 75	10-20- 25	1.30-1.55	4.00-14.00	0.12-0.22	0.0-2.9
	17-30	15-41- 50	25-37- 60	18-22- 34	1.30-1.55	4.00-14.00	0.08-0.22	0.0-2.9
	30-50	15-33- 40	25-32- 55	35-35- 50	1.30-1.55	1.40-4.00	0.07-0.13	0.0-2.9
	50-60	15-31- 35	10-31- 45	35-38- 65	1.30-1.55	1.40-4.00	0.06-0.13	0.0-2.9
17C:								
Escatawba	0-3	25-42- 50	30-38- 50	10-20- 25	1.15-1.30	4.00-14.00	0.15-0.19	0.0-2.9
	3-17	15-42- 75	15-38- 75	10-20- 25	1.30-1.55	4.00-14.00	0.12-0.22	0.0-2.9
	17-30	15-41- 50	25-37- 60	18-22- 34	1.30-1.55	4.00-14.00	0.08-0.22	0.0-2.9
	30-50	15-33- 40	25-32- 55	35-35- 50	1.30-1.55	1.40-4.00	0.07-0.13	0.0-2.9
	50-60	15-31- 35	10-31- 45	35-38- 65	1.30-1.55	1.40-4.00	0.06-0.13	0.0-2.9
18C:								
Escatawba, very stony	0-3	25-42- 50	30-38- 50	10-20- 25	1.15-1.30	4.00-14.00	0.15-0.19	0.0-2.9
	3-17	15-42- 75	15-38- 75	10-20- 25	1.30-1.55	4.00-14.00	0.12-0.22	0.0-2.9
	17-30	15-41- 50	25-37- 60	18-22- 34	1.30-1.55	4.00-14.00	0.08-0.22	0.0-2.9
	30-50	15-33- 40	25-32- 55	35-35- 50	1.30-1.55	1.40-4.00	0.07-0.13	0.0-2.9
	50-60	15-31- 35	10-31- 45	35-38- 65	1.30-1.55	1.40-4.00	0.06-0.13	0.0-2.9
18E:								
Escatawba, very stony	0-3	25-42- 50	30-38- 50	10-20- 25	1.15-1.30	4.00-14.00	0.15-0.19	0.0-2.9
	3-17	15-42- 75	15-38- 75	10-20- 25	1.30-1.55	4.00-14.00	0.12-0.22	0.0-2.9
	17-30	15-41- 50	25-37- 60	18-22- 34	1.30-1.55	4.00-14.00	0.08-0.22	0.0-2.9
	30-50	15-33- 40	25-32- 55	35-35- 50	1.30-1.55	1.40-4.00	0.07-0.13	0.0-2.9
	50-60	15-31- 35	10-31- 45	35-38- 65	1.30-1.55	1.40-4.00	0.06-0.13	0.0-2.9
19B:								
Frederick	0-8	5-20- 48	51-54- 80	15-26- 27	1.25-1.50	14.00-42.00	0.17-0.22	1.5-2.7
	8-51	2- 5- 44	10-39- 70	27-56- 60	1.20-1.50	4.00-14.00	0.09-0.15	3.0-5.5
	51-72	2-16- 44	10-25- 58	40-59- 75	1.20-1.40	4.00-14.00	0.09-0.14	3.5-5.9
19C:								
Frederick	0-8	5-20- 48	51-54- 80	15-26- 27	1.25-1.50	14.00-42.00	0.17-0.22	1.5-2.7
	8-51	2- 5- 44	10-39- 70	27-56- 60	1.20-1.50	4.00-14.00	0.09-0.15	3.0-5.5
	51-72	2-16- 44	10-25- 58	40-59- 75	1.20-1.40	4.00-14.00	0.09-0.14	3.5-5.9
19D:								
Frederick	0-8	5-20- 48	51-54- 80	15-26- 27	1.25-1.50	14.00-42.00	0.17-0.22	1.5-2.7
	8-51	2- 5- 44	10-39- 70	27-56- 60	1.20-1.50	4.00-14.00	0.09-0.15	3.0-5.5
	51-72	2-16- 44	10-25- 58	40-59- 75	1.20-1.40	4.00-14.00	0.09-0.14	3.5-5.9
19E:								
Frederick	0-8	5-20- 48	51-54- 80	15-26- 27	1.25-1.50	14.00-42.00	0.17-0.22	1.5-2.7
	8-51	2- 5- 44	10-39- 70	27-56- 60	1.20-1.50	4.00-14.00	0.09-0.15	3.0-5.5
	51-72	2-16- 44	10-25- 58	40-59- 75	1.20-1.40	4.00-14.00	0.09-0.14	3.5-5.9
20C:								
Frederick	0-5	5-28- 48	51-51- 80	7-21- 27	1.25-1.50	14.00-42.00	0.12-0.17	1.0-2.7
	5-13	5-25- 25	42-53- 70	7-22- 27	1.30-1.60	4.00-14.00	0.11-0.22	1.0-2.5
	13-27	2- 5- 44	10-49- 70	35-46- 65	1.20-1.50	4.00-14.00	0.07-0.15	3.5-5.9
	27-62	2-15- 44	10-26- 58	40-59- 75	1.20-1.40	4.00-14.00	0.07-0.14	3.5-5.9

Table 16.—Physical Soil Properties, Part I—Continued

Map symbol and soil name	Depth	Sand	Silt	Clay	Moist bulk density	Saturated hydraulic conductivity	Available water capacity	Linear extensi-bility
	In	Pct	Pct	Pct	g/cc	um/sec	In/in	Pct
20C:								
Watahala-------------	0-2	2-27- 48	51-54- 80	18-19- 27	1.25-1.45	14.00-42.00	0.09-0.18	1.5-2.5
	2-17	2-30- 51	29-51- 80	15-19- 27	1.20-1.50	14.00-42.00	0.09-0.18	1.0-2.5
	17-29	2-27- 51	18-48- 80	18-25- 35	1.20-1.50	4.00-14.00	0.07-0.15	3.5-4.5
	29-62	2- 3- 44	2-39- 58	40-58- 75	1.20-1.40	1.40-14.00	0.06-0.14	3.5-5.9
20D:								
Frederick------------	0-5	5-28- 48	51-51- 80	7-21- 27	1.25-1.50	14.00-42.00	0.12-0.17	1.0-2.7
	5-13	5-25- 25	42-53- 70	7-22- 27	1.30-1.60	4.00-14.00	0.11-0.22	1.0-2.5
	13-27	2- 5- 44	10-49- 70	35-46- 65	1.20-1.50	4.00-14.00	0.07-0.15	3.5-5.9
	27-62	2-15- 44	10-26- 58	40-59- 75	1.20-1.40	4.00-14.00	0.07-0.14	3.5-5.9
Watahala-------------	0-2	2-27- 48	51-54- 80	18-19- 27	1.25-1.45	14.00-42.00	0.09-0.18	1.5-2.5
	2-17	2-30- 51	29-51- 80	15-19- 27	1.20-1.50	14.00-42.00	0.09-0.18	1.0-2.5
	17-29	2-27- 51	18-48- 80	18-25- 35	1.20-1.50	4.00-14.00	0.07-0.15	3.5-4.5
	29-62	2- 3- 44	2-39- 58	40-58- 75	1.20-1.40	1.40-14.00	0.06-0.14	3.5-5.9
21C:								
Gilpin---------------	0-5	10-26- 35	51-55- 80	15-19- 27	1.20-1.40	4.00-14.00	0.13-0.20	1.5-2.0
	5-9	10-26- 50	29-53- 80	15-21- 27	1.20-1.40	4.00-14.00	0.12-0.20	1.5-2.5
	9-26	10-18- 50	29-51- 80	18-31- 35	1.20-1.50	4.00-14.00	0.10-0.21	1.5-2.9
	26-33	10-21- 50	29-55- 80	15-24- 35	1.20-1.50	4.00-14.00	0.07-0.15	1.0-2.9
	33-43	---	---	---	---	1.40-42.00	---	---
21D:								
Gilpin---------------	0-5	10-26- 35	51-55- 80	15-19- 27	1.20-1.40	4.00-14.00	0.13-0.20	1.5-2.0
	5-9	10-26- 50	29-53- 80	15-21- 27	1.20-1.40	4.00-14.00	0.12-0.20	1.5-2.5
	9-26	10-18- 50	29-51- 80	18-31- 35	1.20-1.50	4.00-14.00	0.10-0.21	1.5-2.9
	26-33	10-21- 50	29-55- 80	15-24- 35	1.20-1.50	4.00-14.00	0.07-0.15	1.0-2.9
	33-43	---	---	---	---	1.40-42.00	---	---
22B:								
Jefferson------------	0-5	30-51- 80	5-30- 50	10-19- 25	1.30-1.50	14.00-42.00	0.13-0.18	0.5-1.5
	5-12	30-52- 80	5-30- 50	10-19- 25	1.30-1.65	14.00-42.00	0.12-0.18	0.5-1.5
	12-32	20-38- 65	5-38- 50	18-24- 34	1.30-1.65	14.00-42.00	0.10-0.18	1.0-2.0
	32-61	20-35- 80	5-34- 50	18-31- 34	1.30-1.65	14.00-42.00	0.10-0.18	1.5-2.9
	61-70	20-51- 80	5-28- 50	15-21- 27	1.30-1.65	14.00-42.00	0.03-0.15	1.0-2.7
22C:								
Jefferson------------	0-5	30-51- 80	5-30- 50	10-19- 25	1.30-1.50	14.00-42.00	0.13-0.18	0.5-1.5
	5-12	30-52- 80	5-30- 50	10-19- 25	1.30-1.65	14.00-42.00	0.12-0.18	0.5-1.5
	12-32	20-38- 65	5-38- 50	18-24- 34	1.30-1.65	14.00-42.00	0.10-0.18	1.0-2.0
	32-61	20-35- 80	5-34- 50	18-31- 34	1.30-1.65	14.00-42.00	0.10-0.18	1.5-2.9
	61-70	20-51- 80	5-28- 50	15-21- 27	1.30-1.65	14.00-42.00	0.03-0.15	1.0-2.7
22D:								
Jefferson------------	0-5	30-51- 80	5-30- 50	10-19- 25	1.30-1.50	14.00-42.00	0.13-0.18	0.5-1.5
	5-12	30-52- 80	5-30- 50	10-19- 25	1.30-1.65	14.00-42.00	0.12-0.18	0.5-1.5
	12-32	20-38- 65	5-38- 50	18-24- 34	1.30-1.65	14.00-42.00	0.10-0.18	1.0-2.0
	32-61	20-35- 80	5-34- 50	18-31- 34	1.30-1.65	14.00-42.00	0.10-0.18	1.5-2.9
	61-70	20-51- 80	5-28- 50	15-21- 27	1.30-1.65	14.00-42.00	0.03-0.15	1.0-2.7
23C:								
Lily-----------------	0-7	25-58- 82	29-32- 49	5-10- 20	1.20-1.40	4.00-42.00	0.07-0.13	0.5-2.0
	7-13	25-55- 82	5-33- 49	5-12- 25	1.25-1.35	4.00-42.00	0.07-0.19	0.5-2.0
	13-24	21-41- 78	5-28- 49	18-31- 35	1.25-1.55	14.00-42.00	0.08-0.19	1.5-2.9
	24-30	25-66- 82	5-19- 49	10-15- 35	1.25-1.55	14.00-42.00	0.05-0.19	1.0-2.9
	30-40	---	---	---	---	0.00-4.00	---	---

Table 16.—Physical Soil Properties, Part I—Continued

Map symbol and soil name	Depth	Sand	Silt	Clay	Moist bulk density	Saturated hydraulic conductivity	Available water capacity	Linear extensi-bility
	In	Pct	Pct	Pct	g/cc	um/sec	In/in	Pct
23E:								
Lily	0-7	25-58- 82	29-32- 49	5-10- 20	1.20-1.40	4.00-42.00	0.07-0.13	0.5-2.0
	7-13	25-55- 82	5-33- 49	5-12- 25	1.25-1.35	4.00-42.00	0.07-0.19	0.5-2.0
	13-24	21-41- 78	5-28- 49	18-31- 35	1.25-1.55	14.00-42.00	0.08-0.19	1.5-2.9
	24-30	25-66- 82	5-19- 49	10-15- 35	1.25-1.55	14.00-42.00	0.05-0.19	1.0-2.9
	30-40	---	---	---	---	0.00-4.00	---	---
23F:								
Lily	0-7	25-58- 82	29-32- 49	5-10- 20	1.20-1.40	4.00-42.00	0.07-0.13	0.5-2.0
	7-13	25-55- 82	5-33- 49	5-12- 25	1.25-1.35	4.00-42.00	0.07-0.19	0.5-2.0
	13-24	21-41- 78	5-28- 49	18-31- 35	1.25-1.55	14.00-42.00	0.08-0.19	1.5-2.9
	24-30	25-66- 82	5-19- 49	10-15- 35	1.25-1.55	14.00-42.00	0.05-0.19	1.0-2.9
	30-40	---	---	---	---	0.00-4.00	---	---
24A:								
Maurertown	0-6	5-20- 30	50-58- 80	18-22- 27	1.25-1.35	1.40-4.00	0.17-0.24	3.0-4.0
	6-18	5-15- 45	30-50- 80	18-35- 40	1.30-1.50	0.01-0.42	0.13-0.22	6.0-8.9
	18-41	5-15- 35	15-43- 55	35-42- 60	1.30-1.50	0.01-0.42	0.10-0.15	6.0-8.9
	41-62	5-15- 35	15-46- 65	30-39- 60	1.30-1.50	0.01-0.42	0.09-0.15	6.0-8.9
25B:								
Nicelytown	0-6	10-20- 30	50-60- 75	15-20- 27	1.35-1.60	4.00-14.00	0.19-0.22	0.0-2.9
	6-18	10-20- 65	15-60- 75	15-20- 27	1.35-1.60	1.40-4.00	0.14-0.22	0.0-2.9
	18-60	10-18- 40	25-48- 70	18-34- 35	1.45-1.70	1.40-4.00	0.10-0.22	0.0-2.9
	60-62	10-18- 40	25-48- 70	18-34- 35	1.45-1.70	1.40-4.00	0.13-0.22	0.0-2.9
25C:								
Nicelytown	0-6	10-20- 30	50-60- 75	15-20- 27	1.35-1.60	4.00-14.00	0.19-0.22	0.0-2.9
	6-18	10-20- 65	15-60- 75	15-20- 27	1.35-1.60	1.40-4.00	0.14-0.22	0.0-2.9
	18-60	10-18- 40	25-48- 70	18-34- 35	1.45-1.70	1.40-4.00	0.10-0.22	0.0-2.9
	60-62	10-18- 40	25-48- 70	18-34- 35	1.45-1.70	1.40-4.00	0.13-0.22	0.0-2.9
26B:								
Ogles	0-6	25-44- 51	29-41- 49	7-15- 18	1.10-1.40	14.00-42.00	0.13-0.19	0.0-2.9
	6-10	25-44- 51	29-41- 49	7-15- 18	1.10-1.40	14.00-42.00	0.07-0.19	0.0-2.9
	10-23	25-67- 82	5-23- 49	5-10- 18	1.10-1.40	14.00-42.00	0.04-0.19	0.0-2.9
	23-65	50-79- 87	5-16- 49	5- 5- 18	1.10-1.40	14.00-42.00	0.05-0.13	0.0-2.9
27C:								
Oriskany, extremely stony	0-6	52-67- 80	5-20- 50	5-12- 20	1.20-1.40	14.00-42.00	0.03-0.11	0.5-1.5
	6-14	30-64- 80	5-20- 50	7-17- 27	1.20-1.40	14.00-42.00	0.13-0.19	0.5-2.0
	14-61	20-56- 65	5-20- 50	15-25- 35	1.30-1.65	14.00-42.00	0.13-0.19	1.0-2.9
27E:								
Oriskany, extremely stony	0-6	52-67- 80	5-20- 50	5-12- 20	1.20-1.40	14.00-42.00	0.03-0.11	0.5-1.5
	6-14	30-64- 80	5-20- 50	7-17- 27	1.20-1.40	14.00-42.00	0.13-0.19	0.5-2.0
	14-61	20-56- 65	5-20- 50	15-25- 35	1.30-1.65	14.00-42.00	0.13-0.19	1.0-2.9
28F:								
Oriskany, very rubbly	0-6	52-67- 80	5-20- 50	5-12- 20	1.20-1.40	14.00-42.00	0.03-0.11	0.5-1.5
	6-14	30-64- 80	5-20- 50	7-17- 27	1.20-1.40	14.00-42.00	0.13-0.19	0.5-2.0
	14-61	20-56- 65	5-20- 50	15-25- 35	1.30-1.65	14.00-42.00	0.13-0.19	1.0-2.9
29A:								
Philo	0-9	55-60- 80	5-28- 40	10-12- 18	1.20-1.40	14.00-42.00	0.13-0.18	0.0-2.9
	9-23	35-60- 80	5-28- 45	10-12- 18	1.20-1.40	4.00-14.00	0.10-0.19	0.0-2.9
	23-30	35-48- 80	5-38- 45	10-14- 18	1.20-1.40	4.00-14.00	0.10-0.19	0.0-2.9
	30-65	35-48- 80	5-38- 45	10-14- 18	1.20-1.40	4.00-42.00	0.07-0.19	0.0-2.9

Table 16.—Physical Soil Properties, Part I—Continued

Map symbol and soil name	Depth	Sand	Silt	Clay	Moist bulk density	Saturated hydraulic conductivity	Available water capacity	Linear extensi- bility
	In	Pct	Pct	Pct	g/cc	um/sec	In/in	Pct
30. Pits and dumps								
31A:								
Pope	0-8	55-60- 80	5-30- 40	5-10- 15	1.20-1.50	14.00-42.00	0.12-0.18	0.0-2.9
	8-45	35-60- 80	5-30- 45	5-10- 18	1.20-1.50	4.00-42.00	0.07-0.19	0.0-2.9
	45-65	55-78- 85	5-15- 40	5- 7- 18	1.20-1.50	4.00-42.00	0.02-0.16	0.0-2.9
32C:								
Schaffenaker	0-5	70-81- 90	0-17- 30	1- 2- 3	1.20-1.30	42.00-141.00	0.06-0.10	0.0-2.9
	5-12	70-81-100	0-17- 30	1- 2- 3	1.30-1.40	42.00-141.00	0.03-0.10	0.0-2.9
	12-23	70-81-100	0-17- 30	1- 2- 3	1.40-1.50	42.00-141.00	0.03-0.10	0.0-2.9
	23-38	70-81-100	0-17- 30	1- 2- 3	1.40-1.50	42.00-141.00	0.02-0.10	0.0-2.9
	38-42	---	---	---	---	0.42-141.00	---	---
33B:								
Shelocta	0-8	5-30- 45	51-55- 80	10-15- 25	1.15-1.30	4.00-14.00	0.11-0.21	1.0-2.0
	8-15	5-29- 50	29-52- 80	10-19- 25	1.15-1.30	4.00-14.00	0.10-0.21	1.0-2.5
	15-46	1-23- 30	29-53- 65	18-24- 34	1.30-1.55	4.00-14.00	0.08-0.20	1.5-2.9
	46-62	1-14- 30	29-52- 65	18-34- 34	1.30-1.55	4.00-42.00	0.09-0.20	1.5-2.9
33C:								
Shelocta	0-8	5-30- 45	51-55- 80	10-15- 25	1.15-1.30	4.00-14.00	0.11-0.21	1.0-2.0
	8-15	5-29- 50	29-52- 80	10-19- 25	1.15-1.30	4.00-14.00	0.10-0.21	1.0-2.5
	15-46	1-23- 30	29-53- 65	18-24- 34	1.30-1.55	4.00-14.00	0.08-0.20	1.5-2.9
	46-62	1-14- 30	29-52- 65	18-34- 34	1.30-1.55	4.00-42.00	0.09-0.20	1.5-2.9
33D:								
Shelocta	0-8	5-30- 45	51-55- 80	10-15- 25	1.15-1.30	4.00-14.00	0.11-0.21	1.0-2.0
	8-15	5-29- 50	29-52- 80	10-19- 25	1.15-1.30	4.00-14.00	0.10-0.21	1.0-2.5
	15-46	1-23- 30	29-53- 65	18-24- 34	1.30-1.55	4.00-14.00	0.08-0.20	1.5-2.9
	46-62	1-14- 30	29-52- 65	18-34- 34	1.30-1.55	4.00-42.00	0.09-0.20	1.5-2.9
34B:								
Slabtown	0-18	5-27- 48	45-54- 80	10-18- 27	1.25-1.50	4.00-14.00	0.11-0.21	1.0-2.5
	18-44	5-20- 51	18-54- 80	20-25- 35	1.30-1.60	4.00-14.00	0.07-0.21	3.5-5.0
	44-75	5-22- 44	15-28- 70	35-50- 60	1.25-1.55	1.40-4.00	0.11-0.15	6.5-8.0
34C:								
Slabtown	0-18	5-27- 48	45-54- 80	10-18- 27	1.25-1.50	4.00-14.00	0.11-0.21	1.0-2.5
	18-44	5-20- 51	18-54- 80	20-25- 35	1.30-1.60	4.00-14.00	0.07-0.21	3.5-5.0
	44-75	5-22- 44	15-28- 70	35-50- 60	1.25-1.55	1.40-4.00	0.11-0.15	6.5-8.0
35B:								
Sugarhol	0-2	15-26- 50	30-54- 70	15-20- 27	1.30-1.45	4.00-42.00	0.18-0.22	0.0-2.9
	2-11	15-26- 50	20-54- 70	15-20- 30	1.30-1.45	4.00-14.00	0.10-0.22	0.0-2.9
	11-61	5- 7- 40	10-48- 60	35-45- 70	1.45-1.60	4.00-14.00	0.07-0.15	3.0-5.9
35C:								
Sugarhol	0-2	15-26- 50	30-54- 70	15-20- 27	1.30-1.45	4.00-42.00	0.18-0.22	0.0-2.9
	2-11	15-26- 50	20-54- 70	15-20- 30	1.30-1.45	4.00-14.00	0.10-0.22	0.0-2.9
	11-61	5- 7- 40	10-48- 60	35-45- 70	1.45-1.60	4.00-14.00	0.07-0.15	3.0-5.9
36B:								
Tumbling	0-9	25-43- 51	29-39- 49	10-18- 27	1.20-1.40	4.00-14.00	0.19-0.19	1.0-2.0
	9-44	12-35- 46	15-33- 70	27-32- 50	1.20-1.45	4.00-14.00	0.12-0.13	3.0-5.0
	44-62	12-32- 46	15-31- 70	30-37- 55	1.20-1.40	4.00-14.00	0.12-0.13	3.0-5.5
36C:								
Tumbling	0-9	25-43- 51	29-39- 49	10-18- 27	1.20-1.40	4.00-14.00	0.19-0.19	1.0-2.0
	9-44	12-35- 46	15-33- 70	27-32- 50	1.20-1.45	4.00-14.00	0.12-0.13	3.0-5.0
	44-62	12-32- 46	15-31- 70	30-37- 55	1.20-1.40	4.00-14.00	0.12-0.13	3.0-5.5

Table 16.—Physical Soil Properties, Part I—Continued

Map symbol and soil name	Depth	Sand	Silt	Clay	Moist bulk density	Saturated hydraulic conductivity	Available water capacity	Linear extensibility
	In	Pct	Pct	Pct	g/cc	um/sec	In/in	Pct
36D:								
Tumbling	0-9	25-43- 51	29-39- 49	10-18- 27	1.20-1.40	4.00-14.00	0.19-0.19	1.0-2.0
	9-44	12-35- 46	15-33- 70	27-32- 50	1.20-1.45	4.00-14.00	0.12-0.13	3.0-5.0
	44-62	12-32- 46	15-31- 70	30-37- 55	1.20-1.40	4.00-14.00	0.12-0.13	3.0-5.5
37C:								
Tumbling, very stony	0-9	25-43- 51	29-39- 49	10-18- 27	1.20-1.40	4.00-14.00	0.19-0.19	1.0-2.0
	9-44	12-35- 46	15-33- 70	27-32- 50	1.20-1.45	4.00-14.00	0.12-0.13	3.0-5.0
	44-62	12-32- 46	15-31- 70	30-37- 55	1.20-1.40	4.00-14.00	0.12-0.13	3.0-5.5
37E:								
Tumbling, very stony	0-9	25-43- 51	29-39- 49	10-18- 27	1.20-1.40	4.00-14.00	0.19-0.19	1.0-2.0
	9-44	12-35- 46	15-33- 70	27-32- 50	1.20-1.45	4.00-14.00	0.12-0.13	3.0-5.0
	44-62	12-32- 46	15-31- 70	30-37- 55	1.20-1.40	4.00-14.00	0.12-0.13	3.0-5.5
38.								
Udorthents-Urban land								
39C:								
Watahala	0-2	2-27- 48	51-54- 80	18-19- 27	1.25-1.45	14.00-42.00	0.09-0.18	1.5-2.5
	2-17	2-30- 51	29-51- 80	15-19- 27	1.20-1.50	14.00-42.00	0.09-0.18	1.0-2.5
	17-29	2-27- 51	18-48- 80	18-25- 35	1.20-1.50	4.00-14.00	0.07-0.15	3.5-4.5
	29-62	2- 3- 44	2-39- 58	40-58- 75	1.20-1.40	1.40-14.00	0.06-0.14	3.5-5.9
39D:								
Watahala	0-2	2-27- 48	51-54- 80	18-19- 27	1.25-1.45	14.00-42.00	0.09-0.18	1.5-2.5
	2-17	2-30- 51	29-51- 80	15-19- 27	1.20-1.50	14.00-42.00	0.09-0.18	1.0-2.5
	17-29	2-27- 51	18-48- 80	18-25- 35	1.20-1.50	4.00-14.00	0.07-0.15	3.5-4.5
	29-62	2- 3- 44	2-39- 58	40-58- 75	1.20-1.40	1.40-14.00	0.06-0.14	3.5-5.9
39E:								
Watahala	0-2	2-27- 48	51-54- 80	18-19- 27	1.25-1.45	14.00-42.00	0.09-0.18	1.5-2.5
	2-17	2-30- 51	29-51- 80	15-19- 27	1.20-1.50	14.00-42.00	0.09-0.18	1.0-2.5
	17-29	2-27- 51	18-48- 80	18-25- 35	1.20-1.50	4.00-14.00	0.07-0.15	3.5-4.5
	29-62	2- 3- 44	2-39- 58	40-58- 75	1.20-1.40	1.40-14.00	0.06-0.14	3.5-5.9
40C:								
Watahala, extremely stony	0-2	2-27- 48	51-54- 80	18-19- 27	1.25-1.45	14.00-42.00	0.09-0.18	1.5-2.5
	2-17	2-30- 51	29-51- 80	15-19- 27	1.20-1.50	14.00-42.00	0.09-0.18	1.0-2.5
	17-29	2-27- 51	18-48- 80	18-25- 35	1.20-1.50	4.00-14.00	0.07-0.15	3.5-4.5
	29-62	2- 3- 44	2-39- 58	40-58- 75	1.20-1.40	1.40-14.00	0.06-0.14	3.5-5.9
40E:								
Watahala, extremely stony	0-2	2-27- 48	51-54- 80	18-19- 27	1.25-1.45	14.00-42.00	0.09-0.18	1.5-2.5
	2-17	2-30- 51	29-51- 80	15-19- 27	1.20-1.50	14.00-42.00	0.09-0.18	1.0-2.5
	17-29	2-27- 51	18-48- 80	18-25- 35	1.20-1.50	4.00-14.00	0.07-0.15	3.5-4.5
	29-62	2- 3- 44	2-39- 58	40-58- 75	1.20-1.40	1.40-14.00	0.06-0.14	3.5-5.9
40F:								
Watahala, extremely stony	0-2	2-27- 48	51-54- 80	18-19- 27	1.25-1.45	14.00-42.00	0.09-0.18	1.5-2.5
	2-17	2-30- 51	29-51- 80	15-19- 27	1.20-1.50	14.00-42.00	0.09-0.18	1.0-2.5
	17-29	2-27- 51	18-48- 80	18-25- 35	1.20-1.50	4.00-14.00	0.07-0.15	3.5-4.5
	29-62	2- 3- 44	2-39- 58	40-58- 75	1.20-1.40	1.40-14.00	0.06-0.14	3.5-5.9

Table 16.—Physical Soil Properties, Part I—Continued

Map symbol and soil name	Depth	Sand	Silt	Clay	Moist bulk density	Saturated hydraulic conductivity	Available water capacity	Linear extensi- bility
	In	Pct	Pct	Pct	g/cc	um/sec	In/in	Pct
41G:								
Weikert	0-3	5-26- 48	51-59- 80	15-15- 27	1.20-1.40	14.00-42.00	0.08-0.18	0.5-1.5
	3-6	5-26- 48	30-56- 80	15-18- 27	1.20-1.40	14.00-42.00	0.08-0.19	0.5-2.0
	6-11	5-26- 48	30-53- 80	15-21- 27	1.20-1.40	14.00-42.00	0.06-0.12	0.5-2.5
	11-17	5-27- 48	30-54- 80	15-19- 27	1.20-1.40	14.00-42.00	0.03-0.09	0.5-2.5
	17-27	---	---	---	---	1.40-42.00	---	---
Rough	0-3	15-30- 35	50-55- 70	10-15- 25	1.20-1.50	4.00-42.00	0.08-0.17	0.5-1.5
	3-6	10-26- 45	35-54- 70	10-20- 27	1.20-1.60	4.00-42.00	0.06-0.14	0.5-2.7
	6-8	10-27- 45	35-53- 70	10-20- 25	1.20-1.60	14.00-42.00	0.03-0.10	0.5-2.9
	8-18	---	---	---	---	0.01-4.00	---	---
Rock outcrop.								
W.								
Water								

Table 16.—Physical Soil Properties, Part II

(Entries under "Erosion factors--T" apply to the entire profile. Entries under "Wind erodibility group" and "Wind erodibility index" apply only to the surface layer. Absence of an entry indicates that data were not estimated)

Map symbol and soil name	Depth	Organic matter	Erosion factors Kw	Erosion factors Kf	Erosion factors T	Wind erodibility group	Wind erodibility index
	In	Pct					
1A:							
Alonzville, rarely flooded	0-5	1.0-3.0	.28	.28	5	6	48
	5-15	0.5-1.5	.37	.37			
	15-55	0.5-1.0	.32	.32			
	55-65	0.0-0.5	.17	.37			
1B:							
Alonzville, rarely flooded	0-5	1.0-3.0	.28	.28	5	6	48
	5-15	0.5-1.5	.37	.37			
	15-55	0.5-1.0	.32	.32			
	55-65	0.0-0.5	.17	.37			
2B:							
Alonzville	0-5	1.0-3.0	.28	.28	5	6	48
	5-15	0.5-1.5	.37	.37			
	15-55	0.5-1.0	.32	.32			
	55-65	0.0-0.5	.17	.37			
3A:							
Atkins	0-9	1.0-5.0	.24	.24	5	3	86
	9-37	0.5-2.0	.32	.32			
	37-62	0.5-1.0	.20	.28			
4C:							
Bailegap	0-4	0.5-2.5	.28	.28	3	3	86
	4-9	0.0-0.5	.28	.28			
	9-28	0.0-0.5	.37	.37			
	28-43	0.0-0.5	.37	.37			
	43-46	---	---	---			
	46-56	---	---	---			
4E:							
Bailegap	0-4	0.5-2.5	.28	.28	3	3	86
	4-9	0.0-0.5	.28	.28			
	9-28	0.0-0.5	.37	.37			
	28-43	0.0-0.5	.37	.37			
	43-46	---	---	---			
	46-56	---	---	---			
5G:							
Bailegap	0-4	0.5-2.5	.28	.28	3	3	86
	4-9	0.0-0.5	.28	.28			
	9-28	0.0-0.5	.37	.37			
	28-43	0.0-0.5	.37	.37			
	43-46	---	---	---			
	46-56	---	---	---			
Lily	0-7	0.5-2.0	.24	.24	2	3	86
	7-13	0.0-1.0	.28	.28			
	13-24	0.0-0.5	.32	.32			
	24-30	0.0-0.5	.32	.32			
	30-40	---	---	---			

Table 16.—Physical Soil Properties, Part II—Continued

Map symbol and soil name	Depth	Organic matter	Erosion factors Kw	Kf	T	Wind erodibility group	Wind erodibility index
	In	Pct					
5G:							
Dekalb	0-5	0.5-2.0	.10	.24	2	3	56
	5-24	0.0-0.5	.05	.24			
	24-31	0.0-0.5	.05	.32			
	31-41	---	---	---			
6E:							
Berks	0-5	0.5-2.0	.10	.43	2	5	38
	5-15	0.0-0.5	.24	.49			
	15-26	0.0-0.5	.10	.43			
	26-28	0.0-0.5	.05	.49			
	28-38	---	---	---			
Culleoka	0-3	1.0-4.0	.17	.28	2	5	56
	3-11	0.0-0.5	.43	.43			
	11-22	0.0-0.5	.20	.37			
	22-27	0.0-0.5	.10	.43			
	27-37	---	---	---			
6G:							
Berks	0-5	0.5-2.0	.10	.43	2	5	38
	5-15	0.0-0.5	.24	.49			
	15-26	0.0-0.5	.10	.43			
	26-28	0.0-0.5	.05	.49			
	28-38	---	---	---			
Culleoka	0-3	1.0-4.0	.17	.28	2	5	48
	3-11	0.0-0.5	.43	.43			
	11-22	0.0-0.5	.20	.37			
	22-27	0.0-0.5	.10	.43			
	27-37	---	---	---			
7C:							
Berks	0-5	0.5-2.0	.10	.43	2	5	38
	5-15	0.0-0.5	.24	.49			
	15-26	0.0-0.5	.10	.43			
	26-28	0.0-0.5	.05	.49			
	28-38	---	---	---			
Weikert	0-3	0.5-2.0	.20	.43	1	5	48
	3-6	0.0-0.5	.20	.49			
	6-11	0.0-0.5	.10	.43			
	11-17	0.0-0.5	.05	.49			
	17-27	---	---	---			
7E:							
Berks	0-5	0.5-2.0	.10	.43	2	5	38
	5-15	0.0-0.5	.24	.49			
	15-26	0.0-0.5	.10	.43			
	26-28	0.0-0.5	.05	.49			
	28-38	---	---	---			
Weikert	0-3	0.5-2.0	.20	.43	1	5	48
	3-6	0.0-0.5	.20	.49			
	6-11	0.0-0.5	.10	.43			
	11-17	0.0-0.5	.05	.49			
	17-27	---	---	---			

Table 16.—Physical Soil Properties, Part II—Continued

Map symbol and soil name	Depth	Organic matter	Erosion factors Kw	Kf	T	Wind erodibility group	Wind erodibility index
	In	Pct					
7G:							
Berks----------------	0-5	0.5-2.0	.10	.43	2	5	38
	5-15	0.0-0.5	.24	.49			
	15-26	0.0-0.5	.10	.43			
	26-28	0.0-0.5	.05	.49			
	28-38	---	---	---			
Weikert--------------	0-3	0.5-2.0	.20	.43	1	5	48
	3-6	0.0-0.5	.20	.49			
	6-11	0.0-0.5	.10	.43			
	11-17	0.0-0.5	.05	.49			
	17-27	---	---	---			
8G:							
Brushy---------------	0-7	0.5-2.0	.05	.37	2	8	0
	7-13	0.0-1.0	.10	.32			
	13-34	0.0-0.5	.10	.32			
	34-44	---	---	---			
9E:							
Calvin---------------	0-4	0.0-1.0	.24	.43	2	5	48
	4-9	0.0-0.5	.24	.43			
	9-21	0.0-0.5	.17	.49			
	21-27	0.0-0.5	.10	.55			
	27-37	---	---	---			
10G:							
Calvin---------------	0-4	0.0-1.0	.24	.43	2	5	48
	4-9	0.0-0.5	.24	.43			
	9-21	0.0-0.5	.17	.49			
	21-27	0.0-0.5	.10	.55			
	27-37	---	---	---			
Rough----------------	0-3	0.5-2.0	.24	.49	1	5	56
	3-6	0.0-0.5	.17	.55			
	6-8	0.0-0.5	.05	.55			
	8-18	---	---	---			
11E:							
Carbo----------------	0-5	0.5-2.5	.32	.32	2	6	48
	5-24	0.0-0.5	.15	.15			
	24-34	---	---	---			
Rock outcrop.							
11F:							
Carbo----------------	0-5	0.5-2.5	.32	.32	2	6	48
	5-24	0.0-0.5	.15	.15			
	24-34	---	---	---			
Rock outcrop.							
12E:							
Carbo, karst---------	0-5	0.5-2.5	.32	.32	2	6	48
	5-24	0.0-0.5	.17	.17			
	24-34	---	---	---			
Rock outcrop.							

Table 16.—Physical Soil Properties, Part II—Continued

Map symbol and soil name	Depth	Organic matter	Erosion factors Kw	Erosion factors Kf	Erosion factors T	Wind erodi-bility group	Wind erodi-bility index
	In	Pct					
13A:							
Coursey	0-6	1.0-3.0	.28	.28	4	6	48
	6-14	0.5-1.5	.37	.37			
	14-38	0.0-0.5	.28	.28			
	38-43	0.0-0.5	.17	.32			
	43-60	0.0-0.5	.10	.32			
13B:							
Coursey	0-6	1.0-3.0	.28	.28	4	6	48
	6-14	0.5-1.5	.37	.37			
	14-38	0.0-0.5	.28	.28			
	38-43	0.0-0.5	.17	.32			
	43-60	0.0-0.5	.10	.32			
14C:							
Culleoka	0-3	1.0-4.0	.17	.28	2	5	56
	3-11	0.0-0.5	.43	.43			
	11-22	0.0-0.5	.20	.37			
	22-27	0.0-0.5	.10	.43			
	27-37	---	---	---			
Berks	0-5	0.5-2.0	.10	.43	2	5	38
	5-15	0.0-0.5	.24	.49			
	15-26	0.0-0.5	.10	.43			
	26-28	0.0-0.5	.05	.49			
	28-38	---	---	---			
14D:							
Culleoka	0-3	1.0-4.0	.17	.28	2	5	56
	3-11	0.0-0.5	.43	.43			
	11-22	0.0-0.5	.20	.37			
	22-27	0.0-0.5	.10	.43			
	27-37	---	---	---			
Berks	0-5	0.5-2.0	.10	.43	2	5	38
	5-15	0.0-0.5	.24	.49			
	15-26	0.0-0.5	.10	.43			
	26-28	0.0-0.5	.05	.49			
	28-38	---	---	---			
15E:							
Dekalb	0-5	0.5-2.0	.10	.24	2	3	56
	5-24	0.0-0.5	.05	.24			
	24-31	0.0-0.5	.05	.32			
	31-41	---	---	---			
15F:							
Dekalb	0-5	0.5-2.0	.10	.24	2	3	56
	5-24	0.0-0.5	.05	.24			
	24-31	0.0-0.5	.05	.32			
	31-41	---	---	---			
16E:							
Dekalb	0-5	0.5-2.0	.10	.24	2	3	56
	5-24	0.0-0.5	.05	.24			
	24-31	0.0-0.5	.05	.32			
	31-41	---	---	---			
Rock outcrop.							

Table 16.—Physical Soil Properties, Part II—Continued

Map symbol and soil name	Depth	Organic matter	Erosion factors Kw	Erosion factors Kf	Erosion factors T	Wind erodibility group	Wind erodibility index
	In	Pct					
16G:							
Dekalb	0-5	0.5-2.0	.10	.24	2	3	56
	5-24	0.0-0.5	.05	.24			
	24-31	0.0-0.5	.05	.32			
	31-41	---	---	---			
Rock outcrop.							
17B:							
Escatawba	0-3	0.5-3.0	.28	.28	5	6	48
	3-17	0.0-0.5	.37	.37			
	17-30	0.0-0.5	.37	.37			
	30-50	0.0-0.5	.28	.28			
	50-60	0.0-0.5	.15	.28			
17C:							
Escatawba	0-3	0.5-3.0	.28	.28	5	6	48
	3-17	0.0-0.5	.37	.37			
	17-30	0.0-0.5	.37	.37			
	30-50	0.0-0.5	.28	.28			
	50-60	0.0-0.5	.15	.28			
18C:							
Escatawba, very stony	0-3	0.5-3.0	.28	.28	5	6	48
	3-17	0.0-0.5	.37	.37			
	17-30	0.0-0.5	.37	.37			
	30-50	0.0-0.5	.28	.28			
	50-60	0.0-0.5	.15	.28			
18E:							
Escatawba, very stony	0-3	0.5-3.0	.28	.28	5	6	48
	3-17	0.0-0.5	.37	.37			
	17-30	0.0-0.5	.37	.37			
	30-50	0.0-0.5	.28	.28			
	50-60	0.0-0.5	.15	.28			
19B:							
Frederick	0-8	0.5-2.5	.37	.37	5	6	48
	8-51	0.0-0.5	.20	.20			
	51-72	0.0-0.5	.15	.15			
19C:							
Frederick	0-8	0.5-2.5	.37	.37	5	6	48
	8-51	0.0-0.5	.20	.20			
	51-72	0.0-0.5	.15	.15			
19D:							
Frederick	0-8	0.5-2.5	.37	.37	5	6	48
	8-51	0.0-0.5	.20	.20			
	51-72	0.0-0.5	.15	.15			
19E:							
Frederick	0-8	0.5-2.5	.37	.37	5	6	48
	8-51	0.0-0.5	.20	.20			
	51-72	0.0-0.5	.15	.15			
20C:							
Frederick	0-5	0.5-2.5	.24	.37	5	7	38
	5-13	0.5-2.0	.43	.43			
	13-27	0.0-0.5	.28	.28			
	27-62	0.0-0.5	.15	.15			

Table 16.—Physical Soil Properties, Part II—Continued

Map symbol and soil name	Depth	Organic matter	Erosion factors Kw	Erosion factors Kf	Erosion factors T	Wind erodi-bility group	Wind erodi-bility index
	In	Pct					
20C:							
Watahala	0-2	0.5-2.5	.20	.37	4	6	48
	2-17	0.0-0.5	.24	.37			
	17-29	0.0-0.5	.20	.43			
	29-62	0.0-0.5	.20	.20			
20D:							
Frederick	0-5	0.5-2.5	.24	.37	5	7	38
	5-13	0.5-2.0	.43	.43			
	13-27	0.0-0.5	.28	.28			
	27-62	0.0-0.5	.15	.15			
Watahala	0-2	0.5-2.5	.20	.37	4	6	48
	2-17	0.0-0.5	.24	.37			
	17-29	0.0-0.5	.20	.43			
	29-62	0.0-0.5	.20	.20			
21C:							
Gilpin	0-5	0.5-2.5	.37	.37	3	5	56
	5-9	0.0-1.0	.43	.43			
	9-26	0.0-0.5	.43	.43			
	26-33	0.0-0.5	.10	.43			
	33-43	---	---	---			
21D:							
Gilpin	0-5	0.5-2.5	.37	.37	3	5	56
	5-9	0.0-1.0	.43	.43			
	9-26	0.0-0.5	.43	.43			
	26-33	0.0-0.5	.10	.43			
	33-43	---	---	---			
22B:							
Jefferson	0-5	0.5-2.0	.17	.28	5	5	56
	5-12	0.5-1.0	.28	.28			
	12-32	0.0-0.5	.32	.32			
	32-61	0.0-0.5	.15	.28			
	61-70	0.0-0.5	.15	.28			
22C:							
Jefferson	0-5	0.5-2.0	.17	.28	5	5	56
	5-12	0.5-1.0	.28	.28			
	12-32	0.0-0.5	.32	.32			
	32-61	0.0-0.5	.15	.28			
	61-70	0.0-0.5	.15	.28			
22D:							
Jefferson	0-5	0.5-2.0	.17	.28	5	5	56
	5-12	0.5-1.0	.28	.28			
	12-32	0.0-0.5	.32	.32			
	32-61	0.0-0.5	.15	.28			
	61-70	0.0-0.5	.15	.28			
23C:							
Lily	0-7	0.5-2.0	.24	.24	2	3	86
	7-13	0.0-1.0	.28	.28			
	13-24	0.0-0.5	.32	.32			
	24-30	0.0-0.5	.32	.32			
	30-40	---	---	---			

Table 16.—Physical Soil Properties, Part II—Continued

Map symbol and soil name	Depth	Organic matter	Erosion factors Kw	Kf	T	Wind erodi-bility group	Wind erodi-bility index
	In	Pct					
23E:							
Lily	0-7	0.5-2.0	.24	.24	2	3	86
	7-13	0.0-1.0	.28	.28			
	13-24	0.0-0.5	.32	.32			
	24-30	0.0-0.5	.32	.32			
	30-40	---	---	---			
23F:							
Lily	0-7	0.5-2.0	.24	.24	2	3	86
	7-13	0.0-1.0	.28	.28			
	13-24	0.0-0.5	.32	.32			
	24-30	0.0-0.5	.32	.32			
	30-40	---	---	---			
24A:							
Maurertown	0-6	1.0-4.0	.37	.37	5	6	48
	6-18	0.5-1.5	.37	.37			
	18-41	0.0-0.5	.37	.37			
	41-62	0.0-0.5	.24	.37			
25B:							
Nicelytown	0-6	0.5-3.0	.37	.37	5	6	48
	6-18	0.5-1.0	.49	.49			
	18-60	0.0-0.5	.32	.32			
	60-62	0.0-0.5	.15	.32			
25C:							
Nicelytown	0-6	0.5-3.0	.37	.37	5	6	48
	6-18	0.5-1.0	.49	.49			
	18-60	0.0-0.5	.32	.32			
	60-62	0.0-0.5	.15	.32			
26B:							
Ogles	0-6	1.0-3.0	.10	.28	5	5	38
	6-10	0.5-1.0	.10	.32			
	10-23	0.5-1.0	.02	.24			
	23-65	0.5-1.0	.02	.24			
27C:							
Oriskany, extremely stony	0-6	0.5-2.0	.10	.20	2	3	56
	6-14	0.5-1.0	.10	.24			
	14-61	0.0-0.5	.05	.20			
27E:							
Oriskany, extremely stony	0-6	0.5-2.0	.10	.20	2	3	56
	6-14	0.5-1.0	.10	.24			
	14-61	0.0-0.5	.05	.20			
28F:							
Oriskany, very rubbly	0-6	0.5-2.0	.10	.20	2	3	56
	6-14	0.5-1.0	.10	.24			
	14-61	0.0-0.5	.05	.20			
29A:							
Philo	0-9	1.0-4.0	.28	.28	5	3	86
	9-23	0.2-1.0	.37	.37			
	23-30	0.2-1.0	.43	.43			
	30-65	0.1-1.0	.20	.43			

Table 16.—Physical Soil Properties, Part II—Continued

Map symbol and soil name	Depth	Organic matter	Erosion factors Kw	Kf	T	Wind erodi-bility group	Wind erodi-bility index
	In	Pct					
30.							
Pits and dumps							
31A:							
Pope	0-8	1.0-4.0	.20	.20	4	3	86
	8-45	0.2-1.0	.24	.32			
	45-65	0.1-1.0	.05	.15			
32C:							
Schaffenaker	0-5	0.5-2.0	.17	.17	2	2	134
	5-12	0.0-0.5	.20	.20			
	12-23	0.0-0.5	.20	.20			
	23-38	0.0-0.5	.28	.28			
	38-42	---	---	---			
33B:							
Shelocta	0-8	0.5-3.0	.43	.43	5	5	56
	8-15	0.0-0.5	.43	.43			
	15-46	0.0-0.5	.37	.37			
	46-62	0.0-0.5	.24	.37			
33C:							
Shelocta	0-8	0.5-3.0	.43	.43	5	5	56
	8-15	0.0-0.5	.43	.43			
	15-46	0.0-0.5	.37	.37			
	46-62	0.0-0.5	.24	.37			
33D:							
Shelocta	0-8	0.5-3.0	.43	.43	5	5	56
	8-15	0.0-0.5	.43	.43			
	15-46	0.0-0.5	.37	.37			
	46-62	0.0-0.5	.24	.37			
34B:							
Slabtown	0-18	1.0-3.0	.37	.37	5	5	56
	18-44	0.2-0.5	.43	.43			
	44-75	0.0-0.2	.20	.20			
34C:							
Slabtown	0-18	1.0-3.0	.37	.37	5	5	56
	18-44	0.2-0.5	.43	.43			
	44-75	0.0-0.2	.20	.20			
35B:							
Sugarhol	0-2	0.5-3.0	.37	.37	5	6	48
	2-11	0.0-1.0	.43	.43			
	11-61	0.0-0.5	.28	.28			
35C:							
Sugarhol	0-2	0.5-3.0	.37	.37	5	6	48
	2-11	0.0-1.0	.43	.43			
	11-61	0.0-0.5	.28	.28			
36B:							
Tumbling	0-9	0.5-2.0	.32	.32	5	5	56
	9-44	0.0-1.0	.28	.28			
	44-62	0.0-0.5	.24	.24			

Table 16.—Physical Soil Properties, Part II—Continued

Map symbol and soil name	Depth	Organic matter	Erosion factors Kw	Kf	T	Wind erodi-bility group	Wind erodi-bility index
	In	Pct					
36C:							
Tumbling	0-9	0.5-2.0	.32	.32	5	5	56
	9-44	0.0-1.0	.28	.28			
	44-62	0.0-0.5	.24	.24			
36D:							
Tumbling	0-9	0.5-2.0	.32	.32	5	5	56
	9-44	0.0-1.0	.28	.28			
	44-62	0.0-0.5	.24	.24			
37C:							
Tumbling, very stony	0-9	0.5-2.0	.32	.32	5	5	56
	9-44	0.0-1.0	.28	.28			
	44-62	0.0-0.5	.24	.24			
37E:							
Tumbling, very stony	0-9	0.5-2.0	.32	.32	5	5	56
	9-44	0.0-1.0	.28	.28			
	44-62	0.0-0.5	.24	.24			
38.							
Udorthents-Urban land							
39C:							
Watahala	0-2	0.5-2.5	.20	.37	4	5	48
	2-17	0.0-0.5	.24	.37			
	17-29	0.0-0.5	.20	.43			
	29-62	0.0-0.5	.20	.20			
39D:							
Watahala	0-2	0.5-2.5	.20	.37	4	5	48
	2-17	0.0-0.5	.24	.37			
	17-29	0.0-0.5	.20	.43			
	29-62	0.0-0.5	.20	.20			
39E:							
Watahala	0-2	0.5-2.5	.20	.37	4	5	48
	2-17	0.0-0.5	.24	.37			
	17-29	0.0-0.5	.20	.43			
	29-62	0.0-0.5	.20	.20			
40C:							
Watahala, extremely stony	0-2	0.5-2.5	.20	.37	4	5	48
	2-17	0.0-0.5	.24	.37			
	17-29	0.0-0.5	.20	.43			
	29-62	0.0-0.5	.20	.20			
40E:							
Watahala, extremely stony	0-2	0.5-2.5	.20	.37	4	5	48
	2-17	0.0-0.5	.24	.37			
	17-29	0.0-0.5	.20	.43			
	29-62	0.0-0.5	.20	.20			
40F:							
Watahala, extremely stony	0-2	0.5-2.5	.20	.37	4	5	48
	2-17	0.0-0.5	.24	.37			
	17-29	0.0-0.5	.20	.43			
	29-62	0.0-0.5	.20	.20			

Table 16.—Physical Soil Properties, Part II—Continued

Map symbol and soil name	Depth	Organic matter	Erosion factors Kw	Kf	T	Wind erodibility group	Wind erodibility index
	In	Pct					
41G:							
Weikert---------------	0-3	0.5-2.0	.20	.43	1	5	48
	3-6	0.0-0.5	.20	.49			
	6-11	0.0-0.5	.10	.43			
	11-17	0.0-0.5	.05	.49			
	17-27	---	---	---			
Rough-----------------	0-3	0.5-2.0	.24	.49	1	5	56
	3-6	0.0-0.5	.17	.55			
	6-8	0.0-0.5	.05	.55			
	8-18	---	---	---			
Rock outcrop.							
W.							
Water							

Table 17.—Chemical Soil Properties

(Absence of an entry indicates that data were not estimated)

Map symbol and soil name	Depth	Cation-exchange capacity	Effective cation-exchange capacity	Soil reaction
	Inches	meq/100 g	meq/100 g	pH
1A:				
Alonzville, rarely flooded	0-5	6.0-14	4.5-10	4.5-6.0
	5-15	3.6-10	2.7-7.6	4.5-6.0
	15-55	5.6-11	4.2-8.1	4.5-6.0
	55-65	2.5-9.6	1.9-7.2	4.5-6.0
1B:				
Alonzville, rarely flooded	0-5	6.0-14	4.5-10	4.5-6.0
	5-15	3.6-10	2.7-7.6	4.5-6.0
	15-55	5.6-11	4.2-8.1	4.5-6.0
	55-65	2.5-9.6	1.9-7.2	4.5-6.0
2B:				
Alonzville	0-5	6.0-14	4.5-10	4.5-6.0
	5-15	3.6-10	2.7-7.6	4.5-6.0
	15-55	5.6-11	4.2-8.1	4.5-6.0
	55-65	2.5-9.6	1.9-7.2	4.5-6.0
3A:				
Atkins	0-9	4.8-16	3.6-12	4.5-5.5
	9-37	5.6-13	4.2-9.9	4.5-5.5
	37-62	3.6-11	2.7-8.2	4.5-6.0
4C:				
Bailegap	0-4	3.6-11	2.7-8.0	4.5-5.5
	4-9	2.5-7.4	1.9-5.5	4.5-5.5
	9-28	4.5-9.9	3.4-7.4	4.5-5.5
	28-43	4.5-8.6	3.4-6.5	4.5-5.5
	43-46	---	---	---
	46-56	---	---	---
4E:				
Bailegap	0-4	3.6-11	2.7-8.0	4.5-5.5
	4-9	2.5-7.4	1.9-5.5	4.5-5.5
	9-28	4.5-9.9	3.4-7.4	4.5-5.5
	28-43	4.5-8.6	3.4-6.5	4.5-5.5
	43-46	---	---	---
	46-56	---	---	---
5G:				
Bailegap	0-4	3.6-11	2.7-8.0	4.5-5.5
	4-9	2.5-7.4	1.9-5.5	4.5-5.5
	9-28	4.5-9.9	3.4-7.4	4.5-5.5
	28-43	4.5-8.6	3.4-6.5	4.5-5.5
	43-46	---	---	---
	46-56	---	---	---
Lily	0-7	2.4-9.5	1.8-7.1	3.5-5.5
	7-13	1.2-8.5	0.9-6.4	3.5-5.5
	13-24	4.5-9.9	3.4-7.4	3.5-5.5
	24-30	2.5-9.9	1.9-7.4	3.5-5.5
	30-40	---	---	---

Table 17.—Chemical Soil Properties—Continued

Map symbol and soil name	Depth	Cation-exchange capacity	Effective cation-exchange capacity	Soil reaction
	Inches	meq/100 g	meq/100 g	pH
5G:				
Dekalb	0-5	3.6-9.5	2.7-7.1	3.5-5.5
	5-24	1.8-5.6	1.3-4.2	3.5-5.5
	24-31	1.2-4.9	0.9-3.7	3.5-5.5
	31-41	---	---	---
6E:				
Berks	0-5	2.4-10	1.8-7.7	4.5-5.5
	5-15	1.2-6.9	0.9-5.2	3.5-5.5
	15-26	3.8-7.9	2.8-5.9	3.5-5.5
	26-28	2.5-6.1	1.9-4.6	3.5-5.5
	28-38	---	---	---
Culleoka	0-3	6.0-11	4.5-8.4	5.1-6.0
	3-11	4.5-9.9	3.4-7.4	5.1-6.0
	11-22	4.5-9.9	3.4-7.4	5.1-6.0
	22-27	4.5-9.9	3.4-7.4	5.1-6.5
	27-37	---	---	---
6G:				
Berks	0-5	2.4-10	1.8-7.7	4.5-5.5
	5-15	1.2-6.9	0.9-5.2	3.5-5.5
	15-26	3.8-7.9	2.8-5.9	3.5-5.5
	26-28	2.5-6.1	1.9-4.6	3.5-5.5
	28-38	---	---	---
Culleoka	0-3	6.0-11	4.5-8.4	5.1-6.0
	3-11	4.5-9.9	3.4-7.4	5.1-6.0
	11-22	4.5-9.9	3.4-7.4	5.1-6.0
	22-27	4.5-9.9	3.4-7.4	5.1-6.5
	27-37	---	---	---
7C:				
Berks	0-5	2.4-10	1.8-7.7	4.5-5.5
	5-15	1.2-6.9	0.9-5.2	3.5-5.5
	15-26	3.8-7.9	2.8-5.9	3.5-5.5
	26-28	2.5-6.1	1.9-4.6	3.5-5.5
	28-38	---	---	---
Weikert	0-3	4.9-11	3.7-8.4	4.5-5.5
	3-6	3.8-7.9	2.8-5.9	3.5-5.5
	6-11	3.8-7.9	2.8-5.9	3.5-5.5
	11-17	3.8-7.9	2.8-5.9	3.5-5.5
	17-27	---	---	---
7E:				
Berks	0-5	2.4-10	1.8-7.7	4.5-5.5
	5-15	1.2-6.9	0.9-5.2	3.5-5.5
	15-26	3.8-7.9	2.8-5.9	3.5-5.5
	26-28	2.5-6.1	1.9-4.6	3.5-5.5
	28-38	---	---	---
Weikert	0-3	4.9-11	3.7-8.4	4.5-5.5
	3-6	3.8-7.9	2.8-5.9	3.5-5.5
	6-11	3.8-7.9	2.8-5.9	3.5-5.5
	11-17	3.8-7.9	2.8-5.9	3.5-5.5
	17-27	---	---	---

Table 17.—Chemical Soil Properties—Continued

Map symbol and soil name	Depth	Cation-exchange capacity	Effective cation-exchange capacity	Soil reaction
	Inches	meq/100 g	meq/100 g	pH
7G:				
Berks	0-5	2.4-10	1.8-7.7	4.5-5.5
	5-15	1.2-6.9	0.9-5.2	3.5-5.5
	15-26	3.8-7.9	2.8-5.9	3.5-5.5
	26-28	2.5-6.1	1.9-4.6	3.5-5.5
	28-38	---	---	---
Weikert	0-3	4.9-11	3.7-8.4	4.5-5.5
	3-6	3.8-7.9	2.8-5.9	3.5-5.5
	6-11	3.8-7.9	2.8-5.9	3.5-5.5
	11-17	3.8-7.9	2.8-5.9	3.5-5.5
	17-27	---	---	---
8G:				
Brushy	0-7	3.6-9.5	2.7-7.1	3.5-6.0
	7-13	2.5-8.5	1.9-6.4	3.5-6.0
	13-34	4.8-9.6	3.6-7.2	3.5-6.0
	34-44	---	---	---
9E:				
Calvin	0-4	2.5-8.5	1.9-6.4	4.5-6.0
	4-9	2.5-7.4	1.9-5.5	4.5-6.0
	9-21	3.8-7.9	2.8-5.9	4.5-6.0
	21-27	3.8-7.9	2.8-5.9	4.5-6.0
	27-37	---	---	---
10G:				
Calvin	0-4	2.5-8.5	1.9-6.4	4.5-6.0
	4-9	2.5-7.4	1.9-5.5	4.5-6.0
	9-21	3.8-7.9	2.8-5.9	4.5-6.0
	21-27	3.8-7.9	2.8-5.9	4.5-6.0
	27-37	---	---	---
Rough	0-3	3.6-11	2.7-8.1	3.6-5.5
	3-6	2.5-7.9	1.9-5.9	3.6-5.5
	6-8	2.5-7.4	1.9-5.5	3.6-5.5
	8-18	---	---	---
11E:				
Carbo	0-5	7.9-16	5.9-12	6.1-7.8
	5-24	15-21	11-16	6.1-7.8
	24-34	---	---	---
Rock outcrop.				
11F:				
Carbo	0-5	7.9-16	5.9-12	6.1-7.8
	5-24	15-21	11-16	6.1-7.8
	24-34	---	---	---
Rock outcrop.				
12E:				
Carbo, karst	0-5	7.9-16	5.9-12	6.1-7.8
	5-24	15-21	11-16	6.1-7.8
	24-34	---	---	---
Rock outcrop.				

Table 17.—Chemical Soil Properties—Continued

Map symbol and soil name	Depth	Cation-exchange capacity	Effective cation-exchange capacity	Soil reaction
	Inches	meq/100 g	meq/100 g	pH
13A:				
Coursey	0-6	6.0-14	5.0-10	3.5-5.5
	6-14	5.0-12	4.0-9.0	3.5-5.5
	14-38	5.0-10	4.0-7.0	3.5-5.5
	38-43	3.0-10	2.0-7.0	3.5-5.5
	43-60	3.0-10	2.0-7.0	3.5-5.5
13B:				
Coursey	0-6	6.0-14	5.0-10	3.5-5.5
	6-14	5.0-12	4.0-9.0	3.5-5.5
	14-38	5.0-10	4.0-7.0	3.5-5.5
	38-43	3.0-10	2.0-7.0	3.5-5.5
	43-60	3.0-10	2.0-7.0	3.5-5.5
14C:				
Culleoka	0-3	6.0-11	4.5-8.4	5.1-6.0
	3-11	4.5-9.9	3.4-7.4	5.1-6.0
	11-22	4.5-9.9	3.4-7.4	5.1-6.0
	22-27	4.5-9.9	3.4-7.4	5.1-6.5
	27-37	---	---	---
Berks	0-5	2.4-10	1.8-7.7	4.5-5.5
	5-15	1.2-6.9	0.9-5.2	3.5-5.5
	15-26	3.8-7.9	2.8-5.9	3.5-5.5
	26-28	2.5-6.1	1.9-4.6	3.5-5.5
	28-38	---	---	---
14D:				
Culleoka	0-3	6.0-11	4.5-8.4	5.1-6.0
	3-11	4.5-9.9	3.4-7.4	5.1-6.0
	11-22	4.5-9.9	3.4-7.4	5.1-6.0
	22-27	4.5-9.9	3.4-7.4	5.1-6.5
	27-37	---	---	---
Berks	0-5	2.4-10	1.8-7.7	4.5-5.5
	5-15	1.2-6.9	0.9-5.2	3.5-5.5
	15-26	3.8-7.9	2.8-5.9	3.5-5.5
	26-28	2.5-6.1	1.9-4.6	3.5-5.5
	28-38	---	---	---
15E:				
Dekalb	0-5	3.6-9.5	2.7-7.1	3.5-5.5
	5-24	1.8-5.6	1.3-4.2	3.5-5.5
	24-31	1.2-4.9	0.9-3.7	3.5-5.5
	31-41	---	---	---
15F:				
Dekalb	0-5	3.6-9.5	2.7-7.1	3.5-5.5
	5-24	1.8-5.6	1.3-4.2	3.5-5.5
	24-31	1.2-4.9	0.9-3.7	3.5-5.5
	31-41	---	---	---
16E:				
Dekalb	0-5	3.6-9.5	2.7-7.1	3.5-5.5
	5-24	1.8-5.6	1.3-4.2	3.5-5.5
	24-31	1.2-4.9	0.9-3.7	3.5-5.5
	31-41	---	---	---
Rock outcrop.				

Table 17.—Chemical Soil Properties—Continued

Map symbol and soil name	Depth	Cation-exchange capacity	Effective cation-exchange capacity	Soil reaction
	Inches	meq/100 g	meq/100 g	pH
16G:				
Dekalb	0-5	3.6-9.5	2.7-7.1	3.5-5.5
	5-24	1.8-5.6	1.3-4.2	3.5-5.5
	24-31	1.2-4.9	0.9-3.7	3.5-5.5
	31-41	---	---	---
Rock outcrop.				
17B:				
Escatawba	0-3	3.6-13	2.7-9.8	3.5-5.5
	3-17	2.5-7.4	1.9-5.5	3.5-5.5
	17-30	4.5-9.6	3.4-7.2	4.5-5.5
	30-50	8.8-14	6.6-10	4.5-5.5
	50-60	8.8-17	6.6-13	4.5-5.5
17C:				
Escatawba	0-3	3.6-13	2.7-9.8	3.5-5.5
	3-17	2.5-7.4	1.9-5.5	3.5-5.5
	17-30	4.5-9.6	3.4-7.2	4.5-5.5
	30-50	8.8-14	6.6-10	4.5-5.5
	50-60	8.8-17	6.6-13	4.5-5.5
18C:				
Escatawba, very stony	0-3	3.6-13	2.7-9.8	3.5-5.5
	3-17	2.5-7.4	1.9-5.5	3.5-5.5
	17-30	4.5-9.6	3.4-7.2	4.5-5.5
	30-50	8.8-14	6.6-10	4.5-5.5
	50-60	8.8-17	6.6-13	4.5-5.5
18E:				
Escatawba, very stony	0-3	3.6-13	2.7-9.8	3.5-5.5
	3-17	2.5-7.4	1.9-5.5	3.5-5.5
	17-30	4.5-9.6	3.4-7.2	4.5-5.5
	30-50	8.8-14	6.6-10	4.5-5.5
	50-60	8.8-17	6.6-13	4.5-5.5
19B:				
Frederick	0-8	4.9-12	3.7-9.3	4.5-6.0
	8-51	6.8-16	5.1-12	4.5-6.0
	51-72	10-20	7.5-15	4.5-6.0
19C:				
Frederick	0-8	4.9-12	3.7-9.3	4.5-6.0
	8-51	6.8-16	5.1-12	4.5-6.0
	51-72	10-20	7.5-15	4.5-6.0
19D:				
Frederick	0-8	4.9-12	3.7-9.3	4.5-6.0
	8-51	6.8-16	5.1-12	4.5-6.0
	51-72	10-20	7.5-15	4.5-6.0
19E:				
Frederick	0-8	4.9-12	3.7-9.3	4.5-6.0
	8-51	6.8-16	5.1-12	4.5-6.0
	51-72	10-20	7.5-15	4.5-6.0
20C:				
Frederick	0-5	2.9-12	2.2-9.3	4.5-6.0
	5-13	2.9-11	2.2-8.4	4.5-6.0
	13-27	8.8-17	6.6-13	4.5-6.0
	27-62	10-20	7.5-15	4.5-6.0

Table 17.—Chemical Soil Properties—Continued

Map symbol and soil name	Depth	Cation-exchange capacity	Effective cation-exchange capacity	Soil reaction
	Inches	meq/100 g	meq/100 g	pH
20C:				
Watahala	0-2	5.6-12	4.2-9.3	3.6-5.5
	2-17	3.8-7.9	2.8-5.9	3.6-5.5
	17-29	4.5-9.9	3.4-7.4	3.6-5.5
	29-62	10-20	7.5-15	4.5-5.5
20D:				
Frederick	0-5	2.9-12	2.2-9.3	4.5-6.0
	5-13	2.9-11	2.2-8.4	4.5-6.0
	13-27	8.8-17	6.6-13	4.5-6.0
	27-62	10-20	7.5-15	4.5-6.0
Watahala	0-2	5.6-12	4.2-9.3	3.6-5.5
	2-17	3.8-7.9	2.8-5.9	3.6-5.5
	17-29	4.5-9.9	3.4-7.4	3.6-5.5
	29-62	10-20	7.5-15	4.5-5.5
21C:				
Gilpin	0-5	4.9-12	3.7-9.3	3.5-5.5
	5-9	3.8-9.0	2.8-6.8	3.5-5.5
	9-26	4.5-9.9	3.4-7.4	3.5-5.5
	26-33	3.8-9.9	2.8-7.4	3.5-5.5
	33-43	---	---	---
21D:				
Gilpin	0-5	4.9-12	3.7-9.3	3.5-5.5
	5-9	3.8-9.0	2.8-6.8	3.5-5.5
	9-26	4.5-9.9	3.4-7.4	3.5-5.5
	26-33	3.8-9.9	2.8-7.4	3.5-5.5
	33-43	---	---	---
22B:				
Jefferson	0-5	3.6-11	2.7-8.1	4.5-5.5
	5-12	3.6-8.5	2.7-7.2	4.5-5.5
	12-32	4.5-9.6	3.4-7.2	4.5-5.5
	32-61	4.5-9.6	3.4-7.2	4.5-5.5
	61-70	3.8-7.9	2.8-5.9	4.5-5.5
22C:				
Jefferson	0-5	3.6-11	2.7-8.1	4.5-5.5
	5-12	3.6-8.5	2.7-7.2	4.5-5.5
	12-32	4.5-9.6	3.4-7.2	4.5-5.5
	32-61	4.5-9.6	3.4-7.2	4.5-5.5
	61-70	3.8-7.9	2.8-5.9	4.5-5.5
22D:				
Jefferson	0-5	3.6-11	2.7-8.1	4.5-5.5
	5-12	3.6-8.5	2.7-7.2	4.5-5.5
	12-32	4.5-9.6	3.4-7.2	4.5-5.5
	32-61	4.5-9.6	3.4-7.2	4.5-5.5
	61-70	3.8-7.9	2.8-5.9	4.5-5.5
23C:				
Lily	0-7	2.4-9.5	1.8-7.1	3.5-5.5
	7-13	1.2-8.5	0.9-6.4	3.5-5.5
	13-24	4.5-9.9	3.4-7.4	3.5-5.5
	24-30	2.5-9.9	1.9-7.4	3.5-5.5
	30-40	---	---	---

Table 17.—Chemical Soil Properties—Continued

Map symbol and soil name	Depth	Cation-exchange capacity	Effective cation-exchange capacity	Soil reaction
	Inches	meq/100 g	meq/100 g	pH
23E:				
Lily	0-7	2.4-9.5	1.8-7.1	3.5-5.5
	7-13	1.2-8.5	0.9-6.4	3.5-5.5
	13-24	4.5-9.9	3.4-7.4	3.5-5.5
	24-30	2.5-9.9	1.9-7.4	3.5-5.5
	30-40	---	---	---
23F:				
Lily	0-7	2.4-9.5	1.8-7.1	3.5-5.5
	7-13	1.2-8.5	0.9-6.4	3.5-5.5
	13-24	4.5-9.9	3.4-7.4	3.5-5.5
	24-30	2.5-9.9	1.9-7.4	3.5-5.5
	30-40	---	---	---
24A:				
Maurertown	0-6	9.0-18	6.0-14	5.6-7.3
	6-18	8.0-17	6.0-13	5.6-7.3
	18-41	12-22	9.0-17	5.6-7.3
	41-62	11-22	8.0-17	5.6-7.3
25B:				
Nicelytown	0-6	5.0-14	4.0-10	4.5-5.8
	6-18	5.0-9.0	4.0-7.0	4.5-5.5
	18-60	5.0-10	3.0-7.0	4.5-5.5
	60-62	5.0-10	3.0-7.0	4.5-5.5
25C:				
Nicelytown	0-6	5.0-14	4.0-10	4.5-5.8
	6-18	5.0-9.0	4.0-7.0	4.5-5.5
	18-60	5.0-10	3.0-7.0	4.5-5.5
	60-62	5.0-10	3.0-7.0	4.5-5.5
26B:				
Ogles	0-6	4.0-11	3.0-8.0	4.5-6.0
	6-10	3.0-7.0	2.0-5.0	4.5-6.0
	10-23	2.0-7.0	2.0-5.0	4.5-6.0
	23-65	2.0-7.0	2.0-5.0	4.5-6.0
27C:				
Oriskany, extremely stony	0-6	2.4-9.5	1.8-7.1	4.5-5.5
	6-14	2.9-9.0	2.2-6.8	4.5-5.5
	14-61	3.8-9.9	2.8-7.4	4.5-5.5
27E:				
Oriskany, extremely stony	0-6	2.4-9.5	1.8-7.1	4.5-5.5
	6-14	2.9-9.0	2.2-6.8	4.5-5.5
	14-61	3.8-9.9	2.8-7.4	4.5-5.5
28F:				
Oriskany, very rubbly	0-6	2.4-9.5	1.8-7.1	4.5-5.5
	6-14	2.9-9.0	2.2-6.8	4.5-5.5
	14-61	3.8-9.9	2.8-7.4	4.5-5.5
29A:				
Philo	0-9	5.0-14	4.0-10	4.5-6.0
	9-23	3.0-7.0	2.0-5.0	4.5-6.0
	23-30	3.0-7.0	2.0-5.0	4.5-6.0
	30-65	3.0-7.0	2.0-5.0	4.5-6.0

Table 17.—Chemical Soil Properties—Continued

Map symbol and soil name	Depth	Cation-exchange capacity	Effective cation-exchange capacity	Soil reaction
	Inches	meq/100 g	meq/100 g	pH
30.				
Pits and dumps				
31A:				
Pope-----------------	0-8	4.0-13	3.0-10	3.5-6.0
	8-45	2.0-7.0	1.0-5.0	3.5-6.0
	45-65	2.0-7.0	1.0-5.0	3.5-6.0
32C:				
Schaffenaker---------	0-5	1.4-5.2	1.0-3.9	3.5-5.5
	5-12	0.2-1.9	0.2-1.4	3.5-5.5
	12-23	0.2-1.9	0.2-1.4	3.5-5.5
	23-38	0.2-1.9	0.2-1.4	3.5-5.5
	38-42	---	---	---
33B:				
Shelocta-------------	0-8	3.6-13	2.7-9.8	4.5-5.5
	8-15	2.5-7.4	1.9-5.5	4.5-5.5
	15-46	4.5-9.6	3.4-7.2	4.5-5.5
	46-62	4.5-9.6	3.4-7.2	4.5-5.5
33C:				
Shelocta-------------	0-8	3.6-13	2.7-9.8	4.5-5.5
	8-15	2.5-7.4	1.9-5.5	4.5-5.5
	15-46	4.5-9.6	3.4-7.2	4.5-5.5
	46-62	4.5-9.6	3.4-7.2	4.5-5.5
33D:				
Shelocta-------------	0-8	3.6-13	2.7-9.8	4.5-5.5
	8-15	2.5-7.4	1.9-5.5	4.5-5.5
	15-46	4.5-9.6	3.4-7.2	4.5-5.5
	46-62	4.5-9.6	3.4-7.2	4.5-5.5
34B:				
Slabtown-------------	0-18	4.8-14	3.6-10	5.6-7.8
	18-44	5.6-9.9	4.2-7.4	6.1-7.8
	44-75	8.8-16	6.6-12	6.1-7.8
34C:				
Slabtown-------------	0-18	4.8-14	3.6-10	5.6-7.8
	18-44	5.6-9.9	4.2-7.4	6.1-7.8
	44-75	8.8-16	6.6-12	6.1-7.8
35B:				
Sugarhol-------------	0-2	4.9-14	3.7-10	3.5-5.5
	2-11	3.8-9.8	2.8-7.3	3.5-5.5
	11-61	8.8-19	6.6-14	3.5-5.5
35C:				
Sugarhol-------------	0-2	4.9-14	3.7-10	3.5-5.5
	2-11	3.8-9.8	2.8-7.3	3.5-5.5
	11-61	8.8-19	6.6-14	3.5-5.5
36B:				
Tumbling-------------	0-9	3.6-11	2.7-8.4	4.5-6.0
	9-44	6.8-15	5.1-11	4.5-5.5
	44-62	7.5-15	5.6-11	4.5-5.5

Table 17.—Chemical Soil Properties—Continued

Map symbol and soil name	Depth	Cation-exchange capacity	Effective cation-exchange capacity	Soil reaction
	Inches	meq/100 g	meq/100 g	pH
36C:				
Tumbling-------------	0-9	3.6-11	2.7-8.4	4.5-6.0
	9-44	6.8-15	5.1-11	4.5-5.5
	44-62	7.5-15	5.6-11	4.5-5.5
36D:				
Tumbling-------------	0-9	3.6-11	2.7-8.4	4.5-6.0
	9-44	6.8-15	5.1-11	4.5-5.5
	44-62	7.5-15	5.6-11	4.5-5.5
37C:				
Tumbling, very stony-	0-9	3.6-11	2.7-8.4	4.5-6.0
	9-44	6.8-15	5.1-11	4.5-5.5
	44-62	7.5-15	5.6-11	4.5-5.5
37E:				
Tumbling, very stony-	0-9	3.6-11	2.7-8.4	4.5-6.0
	9-44	6.8-15	5.1-11	4.5-5.5
	44-62	7.5-15	5.6-11	4.5-5.5
38.				
Udorthents-Urban land				
39C:				
Watahala-------------	0-2	5.6-12	4.2-9.3	3.6-5.5
	2-17	3.8-7.9	2.8-5.9	3.6-5.5
	17-29	4.5-9.9	3.4-7.4	3.6-5.5
	29-62	10-20	7.5-15	4.5-5.5
39D:				
Watahala-------------	0-2	5.6-12	4.2-9.3	3.6-5.5
	2-17	3.8-7.9	2.8-5.9	3.6-5.5
	17-29	4.5-9.9	3.4-7.4	3.6-5.5
	29-62	10-20	7.5-15	4.5-5.5
39E:				
Watahala-------------	0-2	5.6-12	4.2-9.3	3.6-5.5
	2-17	3.8-7.9	2.8-5.9	3.6-5.5
	17-29	4.5-9.9	3.4-7.4	3.6-5.5
	29-62	10-20	7.5-15	4.5-5.5
40C:				
Watahala, extremely stony---------------	0-2	5.6-12	4.2-9.3	3.6-5.5
	2-17	3.8-7.9	2.8-5.9	3.6-5.5
	17-29	4.5-9.9	3.4-7.4	3.6-5.5
	29-62	10-20	7.5-15	4.5-5.5
40E:				
Watahala, extremely stony---------------	0-2	5.6-12	4.2-9.3	3.6-5.5
	2-17	3.8-7.9	2.8-5.9	3.6-5.5
	17-29	4.5-9.9	3.4-7.4	3.6-5.5
	29-62	10-20	7.5-15	4.5-5.5
40F:				
Watahala, extremely stony---------------	0-2	5.6-12	4.2-9.3	3.6-5.5
	2-17	3.8-7.9	2.8-5.9	3.6-5.5
	17-29	4.5-9.9	3.4-7.4	3.6-5.5
	29-62	10-20	7.5-15	4.5-5.5

Table 17.—Chemical Soil Properties—Continued

Map symbol and soil name	Depth	Cation-exchange capacity	Effective cation-exchange capacity	Soil reaction
	Inches	meq/100 g	meq/100 g	pH
41G:				
Weikert	0-3	4.9-11	3.7-8.4	4.5-5.5
	3-6	3.8-7.9	2.8-5.9	3.5-5.5
	6-11	3.8-7.9	2.8-5.9	3.5-5.5
	11-17	3.8-7.9	2.8-5.9	3.5-5.5
	17-27	---	---	---
Rough	0-3	3.6-11	2.7-8.1	3.6-5.5
	3-6	2.5-7.9	1.9-5.9	3.6-5.5
	6-8	2.5-7.4	1.9-5.5	3.6-5.5
	8-18	---	---	---
Rock outcrop.				
W.				
Water				

Table 18.—Water Features

(Depths of layers are in feet. See text for definitions of terms used in this table. Estimates of the frequency of ponding and flooding apply to the whole year rather than to individual months. Absence of an entry indicates that the feature is not a concern or that data were not estimated)

Map symbol and soil name	Hydrologic group	Surface runoff	Month	Water table: Upper limit	Water table: Lower limit	Ponding: Surface water depth	Ponding: Duration	Ponding: Frequency	Flooding: Duration	Flooding: Frequency
				Ft	Ft	Ft				
1A:										
Alonzville, rarely flooded	B	Low								
			January	---	---	---	---	None	---	Rare
			February	---	---	---	---	None	---	Rare
			March	---	---	---	---	None	---	Rare
			April	---	---	---	---	None	---	Rare
			May	---	---	---	---	None	---	Rare
			Jun-Oct	---	---	---	---	None	---	None
			November	---	---	---	---	None	---	Rare
			December	---	---	---	---	None	---	Rare
1B:										
Alonzville, rarely flooded	B	Medium								
			January	---	---	---	---	None	---	Rare
			February	---	---	---	---	None	---	Rare
			March	---	---	---	---	None	---	Rare
			April	---	---	---	---	None	---	Rare
			May	---	---	---	---	None	---	Rare
			Jun-Oct	---	---	---	---	None	---	None
			November	---	---	---	---	None	---	Rare
			December	---	---	---	---	None	---	Rare
2B:										
Alonzville----------------	B	Medium								
			Jan-Dec	---	---	---	---	None	---	None
3A:										
Atkins--------------------	D	Negligible								
			January	0.0-1.0	>6.0	0.5-1.0	Brief	Frequent	Very brief	Frequent
			February	0.0-1.0	>6.0	0.5-1.0	Brief	Frequent	Very brief	Frequent
			March	0.0-1.0	>6.0	0.5-1.0	Brief	Frequent	Very brief	Frequent
			April	0.0-1.0	>6.0	0.5-1.0	Brief	Frequent	Very brief	Frequent
			May	0.0-1.0	>6.0	0.3-1.0	Brief	Frequent	Very brief	Frequent
			June	1.0-6.6	>6.0	0.2-0.7	Very brief	Occasional	---	---
			July	1.0-6.6	>6.0	0.1-0.5	Very brief	Occasional	---	---
			August	1.0-6.6	>6.0	0.1-0.5	Very brief	Occasional	---	---
			September	1.0-6.6	>6.0	0.1-0.5	Very brief	Occasional	---	---
			October	1.0-6.6	>6.0	0.2-0.7	Very brief	Occasional	---	---
			November	0.0-1.0	>6.0	0.3-1.0	Brief	Frequent	Very brief	Frequent
			December	0.0-1.0	>6.0	0.5-1.0	Brief	Frequent	Very brief	Frequent

Table 18.—Water Features—Continued

Map symbol and soil name	Hydro-logic group	Surface runoff	Month	Water table: Upper limit	Water table: Lower limit	Ponding: Surface water depth	Ponding: Duration	Ponding: Frequency	Flooding: Duration	Flooding: Frequency
				Ft	Ft	Ft				
4C:										
Bailegap	B	Medium								
			Jan-Dec	---	---	---	---	None	---	None
4E:										
Bailegap	B	High								
			Jan-Dec	---	---	---	---	None	---	None
5G:										
Bailegap	B	High								
			Jan-Dec	---	---	---	---	None	---	None
Lily	B	High								
			Jan-Dec	---	---	---	---	None	---	None
Dekalb	D	High								
			Jan-Dec	---	---	---	---	None	---	None
6E:										
Berks	C	Medium								
			Jan-Dec	---	---	---	---	None	---	None
Culleoka	B	Medium								
			Jan-Dec	---	---	---	---	None	---	None
6G:										
Berks	C	Medium								
			Jan-Dec	---	---	---	---	None	---	None
culleoka	B	Medium								
			Jan-Dec	---	---	---	---	None	---	None
7C:										
Berks	C	Low								
			Jan-Dec	---	---	---	---	None	---	None
Weikert	D	Medium								
			Jan-Dec	---	---	---	---	None	---	None
7E:										
Berks	C	Medium								
			Jan-Dec	---	---	---	---	None	---	None
Weikert	D	High								
			Jan-Dec	---	---	---	---	None	---	None

Table 18.—Water Features—Continued

Map symbol and soil name	Hydro-logic group	Surface runoff	Month	Water table: Upper limit	Water table: Lower limit	Ponding: Surface water depth	Ponding: Duration	Ponding: Frequency	Flooding: Duration	Flooding: Frequency
				Ft	Ft	Ft				
7G:										
Berks	C	Medium								
			Jan-Dec	---	---	---	---	None	---	None
Weikert	D	High								
			Jan-Dec	---	---	---	---	None	---	None
8G:										
Brushy	B	High								
			Jan-Dec	---	---	---	---	None	---	None
9E:										
Calvin	C	Medium								
			Jan-Dec	---	---	---	---	None	---	None
10G:										
Calvin	C	Medium								
			Jan-Dec	---	---	---	---	None	---	None
Rough	D	Very high								
			Jan-Dec	---	---	---	---	None	---	None
11E:										
Carbo	C	High								
			Jan-Dec	---	---	---	---	None	---	None
Rock outcrop.										
11F:										
Carbo	C	High								
			Jan-Dec	---	---	---	---	None	---	None
Rock outcrop.										
12E:										
Carbo, karst	C	High								
			Jan-Dec	---	---	---	---	None	---	None
Rock outcrop.										

Table 18.—Water Features—Continued

Map symbol and soil name	Hydrologic group	Surface runoff	Month	Water table: Upper limit	Water table: Lower limit	Ponding: Surface water depth	Ponding: Duration	Ponding: Frequency	Flooding: Duration	Flooding: Frequency
				Ft	Ft	Ft				
13A:										
Coursey	C	Medium								
			January	1.5-3.0	>6.0	---	---	None	---	Rare
			February	1.5-3.0	>6.0	---	---	None	---	Rare
			March	1.5-3.0	>6.0	---	---	None	---	Rare
			April	1.5-3.0	>6.0	---	---	None	---	Rare
			May	1.5-3.0	>6.0	---	---	None	---	Rare
			June	3.0-6.6	>6.0	---	---	None	---	---
			Jul-Sep	---	---	---	---	None	---	---
			October	3.0-6.6	>6.0	---	---	None	---	---
			November	1.5-3.0	>6.0	---	---	None	---	Rare
			December	1.5-3.0	>6.0	---	---	None	---	Rare
13B:										
Coursey	C	Medium								
			January	1.5-3.0	>6.0	---	---	None	---	Rare
			February	1.5-3.0	>6.0	---	---	None	---	Rare
			March	1.5-3.0	>6.0	---	---	None	---	Rare
			April	1.5-3.0	>6.0	---	---	None	---	Rare
			May	1.5-3.0	>6.0	---	---	None	---	Rare
			June	3.0-6.6	>6.0	---	---	None	---	---
			Jul-Sep	---	---	---	---	None	---	---
			October	3.0-6.6	>6.0	---	---	None	---	---
			November	1.5-3.0	>6.0	---	---	None	---	Rare
			December	1.5-3.0	>6.0	---	---	None	---	Rare
14C:										
Culleoka	B	Low								
			Jan-Dec	---	---	---	---	None	---	None
Berks	C	Low								
			Jan-Dec	---	---	---	---	None	---	None
14D:										
Culleoka	B	Medium								
			Jan-Dec	---	---	---	---	None	---	None
Berks	C	Medium								
			Jan-Dec	---	---	---	---	None	---	None
15E:										
Dekalb	D	High								
			Jan-Dec	---	---	---	---	None	---	None
15F:										
Dekalb	D	High								
			Jan-Dec	---	---	---	---	None	---	None

Table 18.—Water Features—Continued

Map symbol and soil name	Hydrologic group	Surface runoff	Month	Water table: Upper limit	Water table: Lower limit	Ponding: Surface water depth	Ponding: Duration	Ponding: Frequency	Flooding: Duration	Flooding: Frequency
				Ft	Ft	Ft				
16E:										
Dekalb	D	High								
			Jan-Dec	---	---	---	---	None	---	None
Rock outcrop.										
16G:										
Dekalb	D	High								
			Jan-Dec	---	---	---	---	None	---	None
Rock outcrop.										
17B:										
Escatawba	B	Low								
			January	2.5-4.0	4.0-5.0	---	---	None	---	None
			February	2.5-4.0	4.0-5.0	---	---	None	---	None
			March	2.5-4.0	4.0-5.0	---	---	None	---	None
			April	2.5-4.0	4.0-5.0	---	---	None	---	None
			May	2.5-4.0	4.0-5.0	---	---	None	---	None
			June	---	---	---	---	None	---	None
			July	---	---	---	---	None	---	None
			August	---	---	---	---	None	---	None
			September	---	---	---	---	None	---	None
			October	---	---	---	---	None	---	None
			November	2.5-4.0	4.0-5.0	---	---	None	---	None
			December	2.5-4.0	4.0-5.0	---	---	None	---	None
17C:										
Escatawba	B	Low								
			January	2.5-4.0	4.0-5.0	---	---	None	---	None
			February	2.5-4.0	4.0-5.0	---	---	None	---	None
			March	2.5-4.0	4.0-5.0	---	---	None	---	None
			April	2.5-4.0	4.0-5.0	---	---	None	---	None
			May	2.5-4.0	4.0-5.0	---	---	None	---	None
			June	---	---	---	---	None	---	None
			July	---	---	---	---	None	---	None
			August	---	---	---	---	None	---	None
			September	---	---	---	---	None	---	None
			October	---	---	---	---	None	---	None
			November	2.5-4.0	4.0-5.0	---	---	None	---	None
			December	2.5-4.0	4.0-5.0	---	---	None	---	None

Table 18.—Water Features—Continued

Map symbol and soil name	Hydrologic group	Surface runoff	Month	Water table: Upper limit	Water table: Lower limit	Ponding: Surface water depth	Ponding: Duration	Ponding: Frequency	Flooding: Duration	Flooding: Frequency
				Ft	Ft	Ft				
18C:										
Escatawba, very stony-----	B	Low								
			January	2.5-4.0	4.0-5.0	---	---	None	---	None
			February	2.5-4.0	4.0-5.0	---	---	None	---	None
			March	2.5-4.0	4.0-5.0	---	---	None	---	None
			April	2.5-4.0	4.0-5.0	---	---	None	---	None
			May	2.5-4.0	4.0-5.0	---	---	None	---	None
			June	---	---	---	---	None	---	None
			July	---	---	---	---	None	---	None
			August	---	---	---	---	None	---	None
			September	---	---	---	---	None	---	None
			October	---	---	---	---	None	---	None
			November	2.5-4.0	4.0-5.0	---	---	None	---	None
			December	2.5-4.0	4.0-5.0	---	---	None	---	None
18E:										
Escatawba, very stony-----	B	Medium								
			January	2.5-4.0	4.0-5.0	---	---	None	---	None
			February	2.5-4.0	4.0-5.0	---	---	None	---	None
			March	2.5-4.0	4.0-5.0	---	---	None	---	None
			April	2.5-4.0	4.0-5.0	---	---	None	---	None
			May	2.5-4.0	4.0-5.0	---	---	None	---	None
			June	---	---	---	---	None	---	None
			July	---	---	---	---	None	---	None
			August	---	---	---	---	None	---	None
			September	---	---	---	---	None	---	None
			October	---	---	---	---	None	---	None
			November	2.5-4.0	4.0-5.0	---	---	None	---	None
			December	2.5-4.0	4.0-5.0	---	---	None	---	None
19B:										
Frederick-----------------	B	Medium								
			Jan-Dec	---	---	---	---	None	---	None
19C:										
Frederick-----------------	B	Medium								
			Jan-Dec	---	---	---	---	None	---	None
19D:										
Frederick-----------------	B	High								
			Jan-Dec	---	---	---	---	None	---	None
19E:										
Frederick-----------------	B	High								
			Jan-Dec	---	---	---	---	None	---	None

Table 18.—Water Features—Continued

Map symbol and soil name	Hydrologic group	Surface runoff	Month	Water table: Upper limit	Water table: Lower limit	Ponding: Surface water depth	Ponding: Duration	Ponding: Frequency	Flooding: Duration	Flooding: Frequency
				Ft	Ft	Ft				
20C:										
Frederick	B	Medium								
			Jan-Dec	---	---	---	---	None	---	None
Watahala	B	Low								
			Jan-Dec	---	---	---	---	None	---	None
20D:										
Frederick	B	High								
			Jan-Dec	---	---	---	---	None	---	None
Watahala	B	Medium								
			Jan-Dec	---	---	---	---	None	---	None
21C:										
Gilpin	C	Medium								
			Jan-Dec	---	---	---	---	None	---	None
21D:										
Gilpin	C	High								
			Jan-Dec	---	---	---	---	None	---	None
22B:										
Jefferson	B	Low								
			Jan-Dec	---	---	---	---	None	---	None
22C:										
Jefferson	B	Low								
			Jan-Dec	---	---	---	---	None	---	None
22D:										
Jefferson	B	Medium								
			Jan-Dec	---	---	---	---	None	---	None
23C:										
Lily	B	Medium								
			Jan-Dec	---	---	---	---	None	---	None
23E:										
Lily	B	High								
			Jan-Dec	---	---	---	---	None	---	None
23F:										
Lily	B	High								
			Jan-Dec	---	---	---	---	None	---	None

Table 18.—Water Features—Continued

Map symbol and soil name	Hydrologic group	Surface runoff	Month	Water table		Ponding			Flooding	
				Upper limit	Lower limit	Surface water depth	Duration	Frequency	Duration	Frequency
				Ft	Ft	Ft				
24A:										
Maurertown----------------	D	Negligible								
			January	0.0-0.5	>6.0	0.5-1.0	Brief	Occasional	---	Rare
			February	0.0-0.5	>6.0	0.5-1.0	Brief	Occasional	---	Rare
			March	0.0-0.5	>6.0	0.5-1.0	Brief	Occasional	---	Rare
			April	0.0-0.5	>6.0	0.5-1.0	Brief	Occasional	---	Rare
			May	0.0-0.5	>6.0	0.3-1.0	Brief	Occasional	---	Rare
			June	0.5-6.6	>6.0	0.3-1.0	Very brief	Occasional	---	---
			July	0.5-6.6	>6.0	0.3-1.0	Very brief	Occasional	---	---
			August	0.5-6.6	>6.0	0.3-1.0	Very brief	Occasional	---	---
			September	0.5-6.6	>6.0	0.3-1.0	Very brief	Occasional	---	---
			October	0.5-6.6	>6.0	0.3-1.0	Very brief	Occasional	---	---
			November	0.5-6.6	>6.0	0.3-1.0	Brief	Occasional	---	Rare
			December	0.0-0.5	>6.0	0.5-1.0	Brief	Occasional	---	Rare
25B:										
Nicelytown----------------	C	Very high								
			January	1.5-2.5	>6.0	---	---	None	---	None
			February	1.5-2.5	>6.0	---	---	None	---	None
			March	1.5-2.5	>6.0	---	---	None	---	None
			April	1.5-2.5	>6.0	---	---	None	---	None
			May	1.5-2.5	>6.0	---	---	None	---	None
			June	2.5-6.6	>6.0	---	---	None	---	None
			July	---	---	---	---	None	---	None
			August	---	---	---	---	None	---	None
			September	---	---	---	---	None	---	None
			October	2.5-6.6	>6.0	---	---	None	---	None
			November	1.5-2.5	>6.0	---	---	None	---	None
			December	1.5-2.5	>6.0	---	---	None	---	None
25C:										
Nicelytown----------------	C	Very high								
			January	1.5-2.5	>6.0	---	---	None	---	None
			February	1.5-2.5	>6.0	---	---	None	---	None
			March	1.5-2.5	>6.0	---	---	None	---	None
			April	1.5-2.5	>6.0	---	---	None	---	None
			May	1.5-2.5	>6.0	---	---	None	---	None
			June	2.5-6.6	>6.0	---	---	None	---	None
			July	---	---	---	---	None	---	None
			August	---	---	---	---	None	---	None
			September	---	---	---	---	None	---	None
			October	2.5-6.6	>6.0	---	---	None	---	None
			November	1.5-2.5	>6.0	---	---	None	---	None
			December	1.5-2.5	>6.0	---	---	None	---	None

Table 18.—Water Features—Continued

Map symbol and soil name	Hydrologic group	Surface runoff	Month	Water table: Upper limit	Water table: Lower limit	Ponding: Surface water depth	Ponding: Duration	Ponding: Frequency	Flooding: Duration	Flooding: Frequency
				Ft	Ft	Ft				
26B:										
Ogles----------------------	A	Very low								
			January	3.5-6.0	>6.0	---	---	None	Brief	Frequent
			February	3.5-6.0	>6.0	---	---	None	Brief	Frequent
			March	3.5-6.0	>6.0	---	---	None	Brief	Frequent
			April	---	---	---	---	None	Brief	Frequent
			May	---	---	---	---	None	Brief	Frequent
			June	---	---	---	---	None	Brief	Frequent
			July	---	---	---	---	None	Brief	Frequent
			August	---	---	---	---	None	Brief	Frequent
			September	---	---	---	---	None	Brief	Frequent
			October	---	---	---	---	None	Brief	Frequent
			November	3.5-6.0	>6.0	---	---	None	Brief	Frequent
			December	3.5-6.0	>6.0	---	---	None	Brief	Frequent
27C:										
Oriskany, extremely stony-	B	Low								
			Jan-Dec	---	---	---	---	None	---	None
27E:										
Oriskany, extremely stony-	B	Medium								
			Jan-Dec	---	---	---	---	None	---	None
28F:										
Oriskany, very rubbly-----	B	Medium								
			Jan-Dec	---	---	---	---	None	---	None
29A:										
Philo----------------------	B	Low								
			January	1.5-3.0	>6.0	---	---	None	Very brief	Occasional
			February	1.5-3.0	>6.0	---	---	None	Very brief	Occasional
			March	1.5-3.0	>6.0	---	---	None	Very brief	Occasional
			April	1.5-3.0	>6.0	---	---	None	Very brief	Occasional
			May	1.5-3.0	>6.0	---	---	None	Very brief	Occasional
			June	3.0-6.6	>6.0	---	---	None	---	---
			Jul-Sep	---	---	---	---	None	---	---
			October	3.0-6.6	>6.0	---	---	None	---	---
			November	1.5-3.0	>6.0	---	---	None	Very brief	Occasional
			December	1.5-3.0	>6.0	---	---	None	Very brief	Occasional
30.										
Pits and dumps										

Table 18.—Water Features—Continued

Map symbol and soil name	Hydrologic group	Surface runoff	Month	Water table		Ponding			Flooding	
				Upper limit	Lower limit	Surface water depth	Duration	Frequency	Duration	Frequency
				Ft	Ft	Ft				
31A:										
Pope	A	Very low								
			January	---	---	---	---	None	Very brief	Frequent
			February	---	---	---	---	None	Very brief	Frequent
			March	---	---	---	---	None	Very brief	Frequent
			April	---	---	---	---	None	Very brief	Frequent
			May	---	---	---	---	None	Very brief	Frequent
			Jun-Oct	---	---	---	---	None	---	---
			November	---	---	---	---	None	Very brief	Frequent
			December	---	---	---	---	None	Very brief	Frequent
32C:										
Schaffenaker	A	Low								
			Jan-Dec	---	---	---	---	None	---	None
33B:										
Shelocta	B	Medium								
			Jan-Dec	---	---	---	---	None	---	None
33C:										
Shelocta	B	Medium								
			Jan-Dec	---	---	---	---	None	---	None
33D:										
Shelocta	B	High								
			Jan-Dec	---	---	---	---	None	---	None
34B:										
Slabtown	B	Medium								
			January	1.5-3.0	2.5-4.5	---	---	None	---	None
			February	1.5-3.0	2.5-4.5	---	---	None	---	None
			March	1.5-3.0	2.5-4.5	---	---	None	---	None
			April	1.5-3.0	2.5-4.5	---	---	None	---	None
			May	1.5-3.0	2.5-4.5	---	---	None	---	None
			June	---	---	---	---	None	---	None
			July	---	---	---	---	None	---	None
			August	---	---	---	---	None	---	None
			September	---	---	---	---	None	---	None
			October	1.5-3.0	2.5-4.5	---	---	None	---	None
			November	1.5-3.0	2.5-4.5	---	---	None	---	None
			December	1.5-3.0	2.5-4.5	---	---	None	---	None

Table 18.—Water Features—Continued

Map symbol and soil name	Hydrologic group	Surface runoff	Month	Water table: Upper limit	Water table: Lower limit	Ponding: Surface water depth	Ponding: Duration	Ponding: Frequency	Flooding: Duration	Flooding: Frequency
				Ft	Ft	Ft				
34C:										
Slabtown	B	Medium								
			January	1.5-3.0	2.5-4.5	---	---	None	---	None
			February	1.5-3.0	2.5-4.5	---	---	None	---	None
			March	1.5-3.0	2.5-4.5	---	---	None	---	None
			April	1.5-3.0	2.5-4.5	---	---	None	---	None
			May	1.5-3.0	2.5-4.5	---	---	None	---	None
			June	---	---	---	---	None	---	None
			July	---	---	---	---	None	---	None
			August	---	---	---	---	None	---	None
			September	---	---	---	---	None	---	None
			October	1.5-3.0	2.5-4.5	---	---	None	---	None
			November	1.5-3.0	2.5-4.5	---	---	None	---	None
			December	1.5-3.0	2.5-4.5	---	---	None	---	None
35B:										
Sugarhol	B	Medium								
			Jan-Dec	---	---	---	---	None	---	None
35C:										
Sugarhol	B	Medium								
			Jan-Dec	---	---	---	---	None	---	None
36B:										
Tumbling	B	Medium								
			Jan-Dec	---	---	---	---	None	---	None
36C:										
Tumbling	B	Medium								
			Jan-Dec	---	---	---	---	None	---	None
36D:										
Tumbling	B	High								
			Jan-Dec	---	---	---	---	None	---	None
37C:										
Tumbling, very stony	B	Medium								
			Jan-Dec	---	---	---	---	None	---	None
37E:										
Tumbling, very stony	B	High								
			Jan-Dec	---	---	---	---	None	---	None
38.										
Udorthents-Urban land										

Table 18.—Water Features—Continued

Map symbol and soil name	Hydrologic group	Surface runoff	Month	Water table: Upper limit	Water table: Lower limit	Ponding: Surface water depth	Ponding: Duration	Ponding: Frequency	Flooding: Duration	Flooding: Frequency
				Ft	Ft	Ft				
39C:										
Watahala	B	Low								
			Jan-Dec	---	---	---	---	None	---	None
39D:										
Watahala	B	Medium								
			Jan-Dec	---	---	---	---	None	---	None
39E:										
Watahala	B	Medium								
			Jan-Dec	---	---	---	---	None	---	None
40C:										
Watahala, extremely stony	B	Low								
			Jan-Dec	---	---	---	---	None	---	None
40E:										
Watahala, extremely stony	B	Medium								
			Jan-Dec	---	---	---	---	None	---	None
40F:										
Watahala, extremely stony	B	Medium								
			Jan-Dec	---	---	---	---	None	---	None
41G:										
Weikert	D	High								
			Jan-Dec	---	---	---	---	None	---	None
Rough	D	Very high								
			Jan-Dec	---	---	---	---	None	---	None
Rock outcrop.										
W.										
Water										

Table 19.—Soil Features

(See text for definitions of terms used in this table. Absence of an entry indicates that the feature is not a concern or that data were not estimated)

Map symbol and soil name	Restrictive layer: Kind	Restrictive layer: Depth to top (In)	Restrictive layer: Hardness	Potential for frost action	Risk of corrosion: Uncoated steel	Risk of corrosion: Concrete
1A:						
Alonzville, rarely flooded	---	---	---	Moderate	Low	High
1B:						
Alonzville, rarely flooded	---	---	---	Moderate	Low	High
2B:						
Alonzville	---	---	---	Moderate	Low	High
3A:						
Atkins	---	---	---	High	High	High
4C:						
Bailegap	Paralithic bedrock	40-60	Moderately cemented	Moderate	Low	High
	Lithic bedrock	40-60	Indurated			
4E:						
Bailegap	Paralithic bedrock	40-60	Moderately cemented	Moderate	Low	High
	Lithic bedrock	40-60	Indurated			
5G:						
Bailegap	Paralithic bedrock	40-60	Moderately cemented	Moderate	Low	High
	Lithic bedrock	40-60	Indurated			
Lily	Lithic bedrock	20-40	Indurated	Moderate	Low	High
Dekalb	Lithic bedrock	20-40	Indurated	Moderate	Low	High
6E:						
Berks	Lithic bedrock	20-40	Very strongly cemented	Moderate	Low	High
Culleoka	Lithic bedrock	20-40	Very strongly cemented	Moderate	Low	High
6G:						
Berks	Lithic bedrock	20-40	Very strongly cemented	Moderate	Low	High
Culleoka	Lithic bedrock	20-40	Very strongly cemented	Moderate	Low	High
7C:						
Berks	Lithic bedrock	20-40	Very strongly cemented	Moderate	Low	High
Weikert	Lithic bedrock	10-20	Very strongly cemented	Moderate	Low	High

Table 19.—Soil Features—Continued

Map symbol and soil name	Restrictive layer: Kind	Restrictive layer: Depth to top	Restrictive layer: Hardness	Potential for frost action	Risk of corrosion: Uncoated steel	Risk of corrosion: Concrete
		In				
7E:						
Berks	Lithic bedrock	20-40	Very strongly cemented	Moderate	Low	High
Weikert	Lithic bedrock	10-20	Very strongly cemented	Moderate	Low	High
7G:						
Berks	Lithic bedrock	20-40	Very strongly cemented	Moderate	Low	High
Weikert	Lithic bedrock	10-20	Very strongly cemented	Moderate	Low	High
8G:						
Brushy	Lithic bedrock	20-40	Indurated	Moderate	Moderate	High
9E:						
Calvin	Lithic bedrock	20-40	Indurated	Moderate	Low	Moderate
10G:						
Calvin	Lithic bedrock	20-40	Indurated	Moderate	Low	Moderate
Rough	Lithic bedrock	4-10	Indurated	Moderate	Moderate	High
11E:						
Carbo	Lithic bedrock	20-40	Indurated	Moderate	High	Low
Rock outcrop	Lithic bedrock	0-0	Indurated	None	---	---
11F:						
Carbo	Lithic bedrock	20-40	Indurated	Moderate	High	Low
Rock outcrop	Lithic bedrock	0-0	Indurated	None	---	---
12E:						
Carbo, karst	Lithic bedrock	20-40	Indurated	Moderate	High	Low
Rock outcrop	Lithic bedrock	0-0	Indurated	None	---	---
13A:						
Coursey	---	---	---	Moderate	Moderate	High
13B:						
Coursey	---	---	---	Moderate	Moderate	High
14C:						
Culleoka	Lithic bedrock	20-40	Very strongly cemented	Moderate	Low	High
Berks	Lithic bedrock	20-40	Very strongly cemented	Moderate	Low	High
14D:						
Culleoka	Lithic bedrock	20-40	Very strongly cemented	Moderate	Low	High
Berks	Lithic bedrock	20-40	Very strongly cemented	Moderate	Low	High

Table 19.—Soil Features—Continued

Map symbol and soil name	Restrictive layer: Kind	Restrictive layer: Depth to top	Restrictive layer: Hardness	Potential for frost action	Risk of corrosion: Uncoated steel	Risk of corrosion: Concrete
		In				
15E:						
Dekalb	Lithic bedrock	20-40	Indurated	Moderate	Low	High
15F:						
Dekalb	Lithic bedrock	20-40	Indurated	Moderate	Low	High
16E:						
Dekalb	Lithic bedrock	20-40	Indurated	Moderate	Low	High
Rock outcrop	Lithic bedrock	0-0	Indurated	None	---	---
16G:						
Dekalb	Lithic bedrock	20-40	Indurated	Moderate	Low	High
Rock outcrop	Lithic bedrock	0-0	Indurated	None	---	---
17B:						
Escatawba	---	---	---	Moderate	High	Moderate
17C:						
Escatawba	---	---	---	Moderate	High	Moderate
18C:						
Escatawba, very stony	---	---	---	Moderate	High	Moderate
18E:						
Escatawba, very stony	---	---	---	Moderate	High	Moderate
19B:						
Frederick	---	---	---	Moderate	Moderate	High
19C:						
Frederick	---	---	---	Moderate	Moderate	High
19D:						
Frederick	---	---	---	Moderate	Moderate	High
19E:						
Frederick	---	---	---	Moderate	Moderate	High
20C:						
Frederick	---	---	---	Moderate	Moderate	High
Watahala	Strongly contrasting textural stratification	20-50	---	Moderate	High	High
20D:						
Frederick	---	---	---	Moderate	Moderate	High
Watahala	Strongly contrasting textural stratification	20-50	---	Moderate	High	High
21C:						
Gilpin	Paralithic bedrock	20-40	Moderately cemented	Moderate	Low	High

Table 19.—Soil Features—Continued

Map symbol and soil name	Restrictive layer			Potential for frost action	Risk of corrosion	
	Kind	Depth to top	Hardness		Uncoated steel	Concrete
		In				
21D:						
Gilpin	Paralithic bedrock	20-40	Moderately cemented	Moderate	Low	High
22B:						
Jefferson	---	---	---	Moderate	Moderate	High
22C:						
Jefferson	---	---	---	Moderate	Moderate	High
22D:						
Jefferson	---	---	---	Moderate	Moderate	High
23C:						
Lily	Lithic bedrock	20-40	Indurated	Moderate	Low	High
23E:						
Lily	Lithic bedrock	20-40	Indurated	Moderate	Low	High
23F:						
Lily	Lithic bedrock	20-40	Indurated	Moderate	Low	High
24A:						
Maurertown	---	---	---	High	High	High
25B:						
Nicelytown	---	---	---	Moderate	Moderate	High
25C:						
Nicelytown	---	---	---	Moderate	Moderate	High
26B:						
Ogles	---	---	---	Moderate	Low	Moderate
27C:						
Oriskany, extremely stony	---	---	---	Moderate	Moderate	High
27E:						
Oriskany, extremely stony	---	---	---	Moderate	Moderate	High
28F:						
Oriskany, very rubbly	---	---	---	Moderate	Moderate	High
29A:						
Philo	---	---	---	Moderate	Low	High
30:						
Pits and dumps						
31A:						
Pope	---	---	---	Moderate	Low	Low
32C:						
Schaffenaker	Lithic bedrock	20-40	Very strongly cemented	Low	Low	High
33B:						
Shelocta	---	---	---	Moderate	Low	High

Table 19.—Soil Features—Continued

Map symbol and soil name	Restrictive layer: Kind	Restrictive layer: Depth to top	Restrictive layer: Hardness	Potential for frost action	Risk of corrosion: Uncoated steel	Risk of corrosion: Concrete
		In				
33C:						
Shelocta	---	---	---	Moderate	Low	High
33D:						
Shelocta	---	---	---	Moderate	Low	High
34B:						
Slabtown	---	---	---	Moderate	Moderate	Low
34C:						
Slabtown	---	---	---	Moderate	Moderate	Low
35B:						
Sugarhol	---	---	---	Moderate	High	Moderate
35C:						
Sugarhol	---	---	---	Moderate	High	Moderate
36B:						
Tumbling	---	---	---	Moderate	Moderate	Moderate
36C:						
Tumbling	---	---	---	Moderate	Moderate	Moderate
36D:						
Tumbling	---	---	---	Moderate	Moderate	Moderate
37C:						
Tumbling, very stony	---	---	---	Moderate	Moderate	Moderate
37E:						
Tumbling, very stony	---	---	---	Moderate	Moderate	Moderate
38.						
Udorthents-Urban land						
39C:						
Watahala	Strongly contrasting textural stratification	20-50	---	Moderate	High	High
39D:						
Watahala	Strongly contrasting textural stratification	20-50	---	Moderate	High	High
39E:						
Watahala	Strongly contrasting textural stratification	20-50	---	Moderate	High	High
40C:						
Watahala, extremely stony	Strongly contrasting textural stratification	20-50	---	Moderate	High	High

Table 19.—Soil Features—Continued

Map symbol and soil name	Restrictive layer: Kind	Restrictive layer: Depth to top	Restrictive layer: Hardness	Potential for frost action	Risk of corrosion: Uncoated steel	Risk of corrosion: Concrete
		In				
40E:						
Watahala, extremely stony	Strongly contrasting textural stratification	20-50	---	Moderate	High	High
40F:						
Watahala, extremely stony	Strongly contrasting textural stratification	20-50	---	Moderate	High	High
41G:						
Weikert	Lithic bedrock	10-20	Very strongly cemented	Moderate	Low	High
Rough	Lithic bedrock	4-10	Very strongly cemented	Moderate	Moderate	High
Rock outcrop	Lithic bedrock	0-0	Very strongly cemented	None	---	---
W.						
Water						

Table 20.—Taxonomic Classification of the Soils

(An asterisk in the first column indicates a taxadjunct to the series. See text for a description of those characteristics that are outside the range of the series)

Soil name	Family or higher taxonomic class
Alonzville	Fine-loamy, siliceous, semiactive, mesic Typic Hapludults
Atkins	Fine-loamy, mixed, active, acid, mesic Fluvaquentic Endoaquepts
Bailegap	Fine-loamy, siliceous, semiactive, mesic Typic Hapludults
Berks	Loamy-skeletal, mixed, active, mesic Typic Dystrudepts
Brushy	Loamy-skeletal, siliceous, semiactive, mesic Typic Hapludults
Calvin	Loamy-skeletal, mixed, active, mesic Typic Dystrudepts
Carbo	Very fine, mixed, active, mesic Typic Hapludalfs
Coursey	Fine-loamy, siliceous, semiactive, mesic Aquic Hapludults
Culleoka	Fine-loamy, mixed, active, mesic Ultic Hapludalfs
Dekalb	Loamy-skeletal, siliceous, active, mesic Typic Dystrudepts
Escatawba	Fine-loamy, siliceous, semiactive, mesic Oxyaquic Paleudults
Frederick	Fine, mixed, semiactive, mesic Typic Paleudults
Gilpin	Fine-loamy, mixed, active, mesic Typic Hapludults
Jefferson	Fine-loamy, siliceous, semiactive, mesic Typic Hapludults
Lily	Fine-loamy, siliceous, semiactive, mesic Typic Hapludults
Maurertown	Fine, mixed, semiactive, mesic Typic Endoaqualfs
Nicelytown	Fine-loamy, siliceous, semiactive, mesic Aquic Paleudults
Ogles	Loamy-skeletal, siliceous, active, mesic Fluventic Dystrudepts
Oriskany	Loamy-skeletal, siliceous, semiactive, mesic Typic Hapludults
Philo	Coarse-loamy, mixed, active, mesic Fluvaquentic Dystrudepts
Pope	Coarse-loamy, mixed, active, mesic Fluventic Dystrudepts
Rough	Loamy-skeletal, mixed, active, acid, mesic Lithic Udorthents
Schaffenaker	Mesic, coated Typic Quartzipsamments
Shelocta	Fine-loamy, mixed, active, mesic Typic Hapludults
Slabtown	Fine-loamy, mixed, semiactive, mesic Aquic Paleudalfs
Sugarhol	Fine, mixed, semiactive, mesic Typic Paleudults
Tumbling	Fine, kaolinitic, mesic Typic Paleudults
Udorthents	Udorthents
Watahala	Fine-loamy over clayey, siliceous over mixed, subactive, mesic Typic Paleudults
Weikert	Loamy-skeletal, mixed, active, mesic Lithic Dystrudepts

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