United States Department of Agriculture

Natural Resources Conservation Service

In cooperation with Tennessee Agricultural Experiment Station, Overton County Board of Commissioners, and Tennessee Department of Agriculture

Soil Survey of Overton County, Tennessee

How To Use This Soil Survey

General Soil Map

The general soil map, which is a color map, shows the survey area divided into groups of associated soils called general soil map units. This map is useful in planning the use and management of large areas.

To find information about your area of interest, locate that area on the map, identify the name of the map unit in the area on the color-coded map legend, then refer to the section **General Soil Map Units** for a general description of the soils in your area.

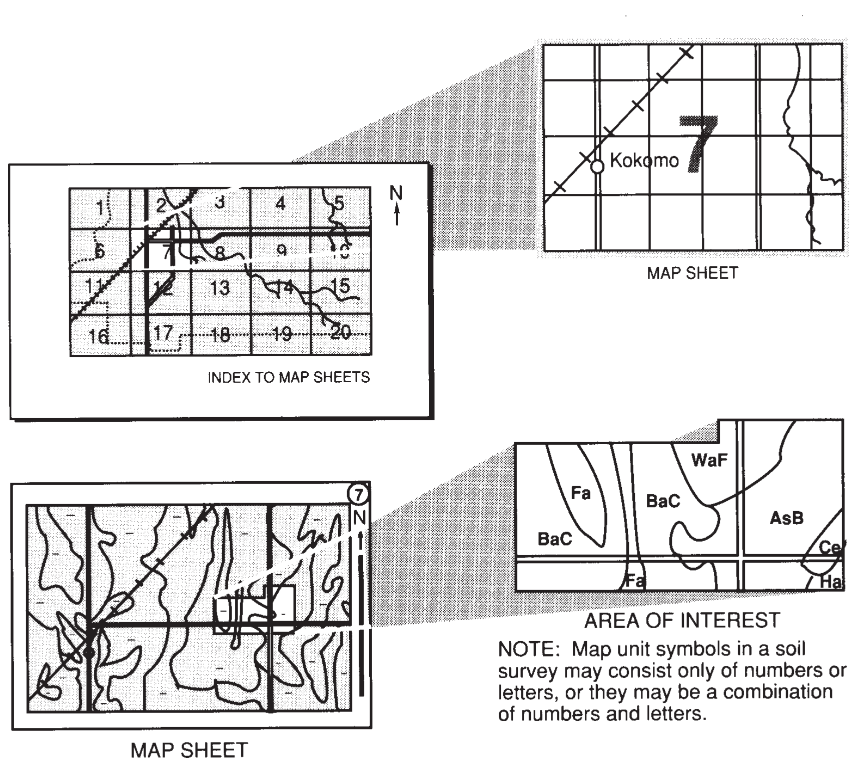
Detailed Soil Maps

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 go to that sheet.

Locate your area of interest on the map sheet. Note the map unit symbols that are in that area. Go 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.



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.

Major fieldwork for this soil survey was completed in August 2003. Soil names and descriptions were approved in August 2003. Unless otherwise indicated, statements in this publication refer to conditions in the survey area in 2003. This survey was made cooperatively by the Natural Resources Conservation Service, the Tennessee Agricultural Experiment Station, the Overton County Board of Commissioners, and the Tennessee Department of Agriculture. The survey is part of the technical assistance furnished to the Overton County Soil Conservation District.

Cover: A valley area that includes Etowah, Waynesboro, and Sengtown soils. These soils are well suited to cropland, pasture, and hay. The steeper hills in the background include Nella and Talbott soils. These soils are suited to woodland.

Additional information about the Nation's natural resources is available online from the Natural Resources Conservation Service at http://www.nrcs.usda.gov.

Contents

Issued 2005

Foreword

This soil survey contains information that affects land use planning in Overton County. It contains predictions of soil behavior for selected land uses. The survey also highlights soil limitations, improvements needed to overcome the limitations, and the impact of selected land uses on the environment.

This soil survey is designed for many different users. Farmers, foresters, and agronomists can use it 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 survey 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 survey 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.

Great differences in soil properties can occur within short distances. Some soils are seasonally wet or subject to flooding. Some are shallow to bedrock. 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. Broad areas of soils are shown on the general soil map. The location of each soil is shown on the detailed soil maps. Each soil in the survey area is described. Information on specific uses is given for each soil. 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.

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Soil Survey of
Overton County, Tennessee

By Carlie McCowan, Natural Resources Conservation Service

Fieldwork by Carlie McCowan, Gabe S. Krantz, Caleb D. Gully, David K. Hargis, and Darlene M. Dypolt, Natural Resources Conservation Service, and David Young, Overton County

United States Department of Agriculture, Natural Resources Conservation Service, in cooperation with
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OVERTON COUNTY is in north-central Tennessee (fig. 1). It encompasses 288,000 acres, or 450 square miles. It is bordered on the north by Clay and Pickett Counties, on the east by Fentress County, on the south by Putnam County, and on the west by Jackson County. Livingston, the county seat, is located near the center of the county. According to the 2000 census, the population of Overton County was 20,118 and the population of Livingston was 3,498. About 59 percent of the acreage in the county is woodland, 1.3 percent is cropland, and 20 percent is in pasture and hay. The remaining acreage in the county has been developed and is used for residential, industrial, or commercial purposes *(3)*.

This soil survey updates the survey of Overton County, Tennessee, published in 1908 *(4)*. It provides additional data and soil interpretations.

General Nature of the Survey Area

This section gives information about the county. It describes history and development; physiography, relief, and drainage; natural resources; geology; and climate.

History and Development

Cherokee Indians inhabited the survey area until they were pushed west following the Treaty of Holston in 1791. The earliest settlers were Colonel Stephen Copeland, John Goodpasture, Edward Irons, and Robert Hill. The families of Barber, Stone, Mitchell, Biles, Allen, Seviere, Windle, Nelson, Totten, McDonald, Matthew, and Cross were also early settlers in the survey area. Benjamen Totten was the first County Court Clerk, and John B. Cross was the first County Sheriff.

Overton County was originally a part of Davidson County and later Jackson County. In 1805, Moses Fisk surveyed the first village in what is now the community of Hilham. He also started the Fisk Female Academy—the first school for women south of the Ohio River. On September 12, 1806, the survey area was established as a county by the State Legislature. The Indian Territory that had been within it, which was presided

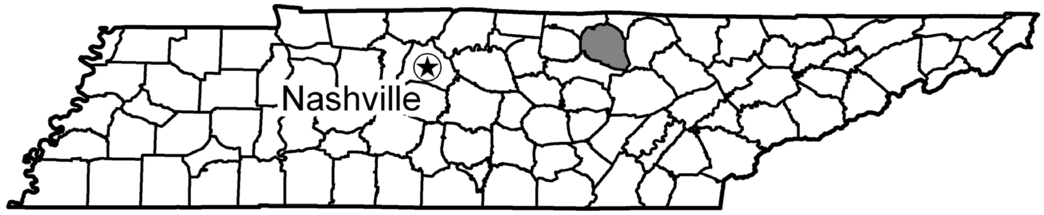

Figure 1.—Location of Overton County in Tennessee.

over by Chief Nettle Carrier, was ceded to Tennessee for use by the white settlers. Overton County at this time included Fentress County and large parts of Clay, Putnam, Morgan, and Scott Counties. It was named for Judge John Overton, who was a friend of Andrew Jackson and who owned two tracts of land in the area.

In 1835, the county seat moved from Monroe to Livingston. Livingston was named for the Honorable Edward Livingston and became incorporated in 1907 by an act of the General Assembly of Tennessee.

Dale Hollow Reservoir, an important flood-control impoundment and tourist attraction, consists of 27,700 acres of water at the northern boundary of Overton County. Its construction was authorized by the Flood Control Act of 1938 and completed in 1943. The reservoir serves as a very popular recreation area and is used for the hydro-electric generation of electricity.

Physiography, Relief, and Drainage

Overton County is in the Highland Rim and Cumberland Plateau Major Land Resource Areas (MLRAs). The Highland Rim MLRA consists of rolling to hilly topography dissected by many dendritic drainageways. This area is underlain by various layers of limestone. In some karst areas, streams are absent and the surface drainage is all through sinks (fig. 2). The area known as the Brotherton Bench is a narrow band of sandstone between the layers of limestone. This resistant layer forms prominent flat benches with steep hills above and below. The extreme northern part of the county, adjacent to the Dale Hollow Reservoir, consists of steep, highly dissected hills that are underlain by calcareous shale. The central and southern parts of Overton County are rolling to hilly areas that are underlain by various limestone formations. This area also has extensive deposits of old alluvium. In the eastern part of the county is the Cumberland Plateau MLRA, which consists of high rugged mountains. This area has broad rolling flats surrounded by sandstone escarpments that drop into valleys as deep as 1,000 feet. The highest point in Overton County is 2,010 feet in elevation, near the Anderson community. The lowest point, 580 feet in elevation, is where the Roaring River leaves the county.

All of Overton County is in the drainage area of the Cumberland River. The eastern portion of the county is drained by the Obey River. The northern part is drained by Eagle Creek and Mill Creek. The Roaring River and Spring Creek drain the southwestern portion of Overton County. The south-central part has no major streams, and surface drainage discharges into large sinkholes. The county has many impoundments of various sizes. Some of the larger impoundments are Dale Hollow Reservoir, Standing Stone State Park Lake, and Livingston City Lake.

Natural Resources

Overton County has an abundance of natural resources. Soil is the most important natural resource in the county. It is the medium for growing crops, pasture, lawns, and

Figure 2.—An area of Waynesboro soils on karst topography. Areas of karst topography are underlain by limestone and commonly have sinkholes.

trees. It is also used as sites for buildings and roads. It is highly important to protect this valuable resource from erosion and degradation through misuse.

Timber is a very economically important resource in the county. About 169,500 acres is in woodland, which is a source of a wide variety of forestry products. Stone is another important resource. Limestone is mined in the county and is used for road gravel and as a source of agricultural lime. Sandstone is mined and is used as building stone. It is also the source material for naturally weathered field stones that are picked up on the surface and used in construction and landscaping throughout the county. Coal has been mined in the past, with the use of both strip pits and shaft mines. Although coal supplies still exist, there is little mining at present.

Water is clear and plentiful in most of Overton County. There are many miles of fresh, flowing streams. Many water impoundments have been constructed throughout the county, including Dale Hollow Reservoir, Standing Stone State Park Lake, and Livingston City Lake. They are used for municipal water supplies and recreation. Many smaller impoundments have been built for livestock water supplies and recreation.

Geology

Overton County has fourteen geologic formations in three physiographic regions, thus providing some of the most diverse geology and topography in Tennessee. The sandstone, shale, and limestone in these formations have experienced different amounts of weathering, resulting in the development of many benches, narrow valleys, and escarpments. The least resistant bedrock is in steeply sloping areas where geologic processes have been most active. Areas with the more resistant bedrock are in flatter places and are considered as local base levels. These base levels typically have temporary water tables and accumulations of transported materials.

The highest areas of the county are in the Cumberland Plateau physiographic region (fig. 3). Large flats are underlain by the resistant Rockcastle and Sewanee conglomerate sandstones. The steeper areas are underlain by shales of the Vandever and Signal Point formations. The Anderson, Crawford, and Hanging Limb communities

Figure 3.—The edge of the Cumberland Plateau has many escarpments where the resistant sandstone is underlain by softer shale.

are on the Cumberland Plateau. Associated with these areas are Gilpin, Lily, Shelocta, and Ramsey soils.

A minor geologic formation, the Warren Point sandstone, is one of the most important formations that influence the soils associated with the plateau escarpment area of the county. Locally, this formation comprises the highest base level and its associated network of streams in the county. It consists of massive sandstone bedrock at approximately 1,600 feet above sea level. Above this formation, the soils are loamy. Below this elevation, soils are associated with the Pennington and Bangor formations and have numerous pebbles and boulders that originated from the Warren Point sandstone and then were transported to the steeper sloping areas.

The next base level forms on the Hartselle sandstone. Differential weathering is pronounced immediately above and below this formation because of its unusual position between the Bangor and Monteagle limestone formations. The Hartselle sandstone extends from northern Alabama into Kentucky. The Brotherton community in Putnam County and the Allons, Linder Mountain, and Thorn Gap communities are located on what locally is known as the Brotherton Bench. Clarkrange, Lonewood, and Purdy soils are typically on the smoother flats and benches that have formed over this formation. Ground water, becoming slightly acid while moving across this sandstone, increases the weathering rate and creates many vertical sinkholes in the lower-lying Monteagle limestone. Nella and Minvale soils formed in colluvium on the dissected hillsides below the Hartselle sandstone.

More than 50 percent of the total land area in Overton County is in the Highland Rim physiographic region. The St. Louis and Warsaw formations, consisting dominantly of limestone, underlie most of the Highland Rim physiographic region of Tennessee. These formations are extensive in Overton County. The Monroe, Livingston, and Rickman communities are located on these formations. Christian and Sengtown soils formed in the residuum of these limestones. Dozens of other soils formed where these formations are buried under alluvium, colluvium, and loess deposits.

Below the Warsaw formation is the Ft. Payne formation, which underlies the steep Highland Rim escarpment. The Spring Creek and Roaring River drainages have incised into this formation. Hillsides are dominated by Hawthorne and Bodine soils. Near the Baptist Ridge community, this formation transitions from interbedded limestone and siltstone to calcareous shale. Garmon and Newbern soils are dominant north of this area and on hillsides around Dale Hollow Lake. The Leipers Catheys limestone is the oldest and lowest geologic formation in Overton County. Mimosa soils are commonly associated with this formation where the phosphatic limestone has weathered into clayey residuum. Dellrose and Humphreys soils are dominantly in colluvial areas over this formation.

Climate

Table 1 gives data on temperature and precipitation for the survey area as recorded at Livingston, Tennessee, in the period 1961 to 1990. 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 38.0 degrees F and the average daily minimum temperature is 27.5 degrees. The lowest temperature on record, which occurred at Livingston on January 21, 1985, was -25 degrees. In summer, the average temperature is 74.1 degrees and the average daily maximum temperature is 86.1 degrees. The highest temperature on record, which occurred at Livingston on July 12, 1980, was 108 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 total annual precipitation is 52.28 inches. Of this, 29.54 inches, or about 57 percent, usually falls in April through October. The growing season for most crops falls within this period. The heaviest 1-day rainfall during the period of record was 5.43 inches, which occurred at Livingston on December 25, 1987. Thunderstorms occur on about 53 days each year, and most occur between May and August.

The average seasonal snowfall is 11.7 inches. The greatest snow depth at any one time during the period of record was 9 inches, recorded on January 20, 1978. On average, 5 days per year have at least 1 inch of snow on the ground. The heaviest 1-day snowfall on record was 8.0 inches, recorded on November 2, 1966.

The average relative humidity in midafternoon is about 57 percent. Humidity is higher at night, and the average at dawn is about 84 percent. The sun shines 64 percent of the time possible in summer and 43 percent in winter. The prevailing wind is from the south. Average windspeed is highest, about 10 miles per hour, from December to April.

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.

General Soil Map Units

The general soil map shows broad areas that have a distinctive pattern of soils, relief, and drainage. Each map unit on the general soil map is a unique natural landscape. Typically, it consists of one or more major soils and some minor soils or miscellaneous areas. It is named for the major soils. The components of one map unit can occur in another but in a different pattern.

The general soil map can be used to compare the suitability of large areas for general land uses. Areas of suitable soils can be identified on the map. Likewise, areas where the soils are not suitable can be identified.

Because of its small scale, the map is not suitable for planning the management of a farm or field or for selecting a site for a road or building or other structure. The soils in any one map unit differ from place to place in slope, depth, drainage, and other characteristics that affect management.

The following units comprise the General Soils Map Legend:

1. Christian-Sengtown

Deep and very deep, rolling to steep, well drained soils that formed in residuum from cherty limestone *(fig. 4)*

2. Nella-Talbott

Very deep and moderately deep, rolling to very steep, well drained soils that formed in colluvium and residuum from limestone *(fig. 5)*

3. Gilpin-Shelocta-Bouldin

Moderately deep to very deep, rolling to very steep, well drained soils that formed in residuum from cherty limestone and siltstone *(fig. 6)*

4. Etowah-Waynesboro-Sengtown

Very deep, undulating to steep, well drained soils that formed in old alluvium and residuum from cherty limestone

5. Mountview-Christian-Dickson

Very deep and deep, undulating to steep, well drained and moderately well drained soils that formed in loess and limestone residuum *(fig. 7)*

6. Lonewood-Clarkrange

Deep and very deep, undulating to rolling, well drained and moderately well drained soils that formed in transported material and residuum from sandstone *(fig. 5)*

7. Hawthorne-Bodine

Moderately deep and very deep, rolling to very steep, somewhat excessively drained soils that formed in residuum from cherty limestone and siltstone

8. Garmon-Newbern

Moderately deep and shallow, very steep, well drained and somewhat excessively drained soils that formed in residuum from calcareous shale *(figs. 4 and 8)*

9. Lily-Gilpin

Moderately deep, rolling to very steep, well drained soils that formed in residuum from sandstone and shale *(fig. 6)*

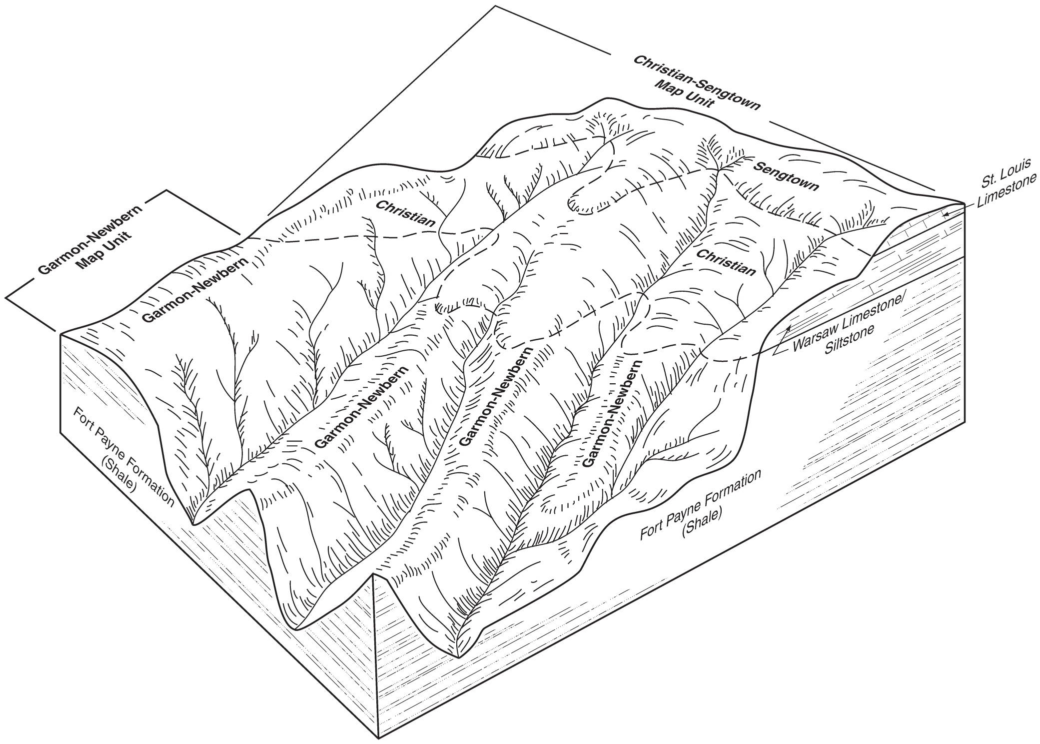

Figure 4.—The relationship of soils and landscapes in the Garmon-Newbern and Christian-Sengtown general soil map units.

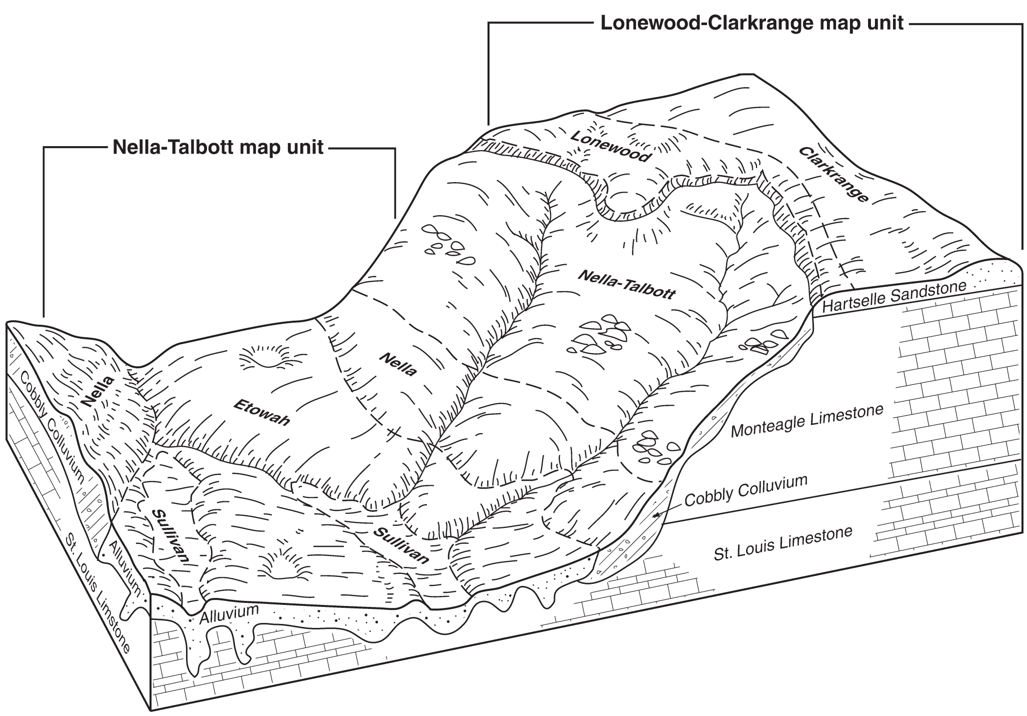

Figure 5.—The relationship of soils and landscapes in the Nella-Talbott and Lonewood-Clarkrange general soil map units.

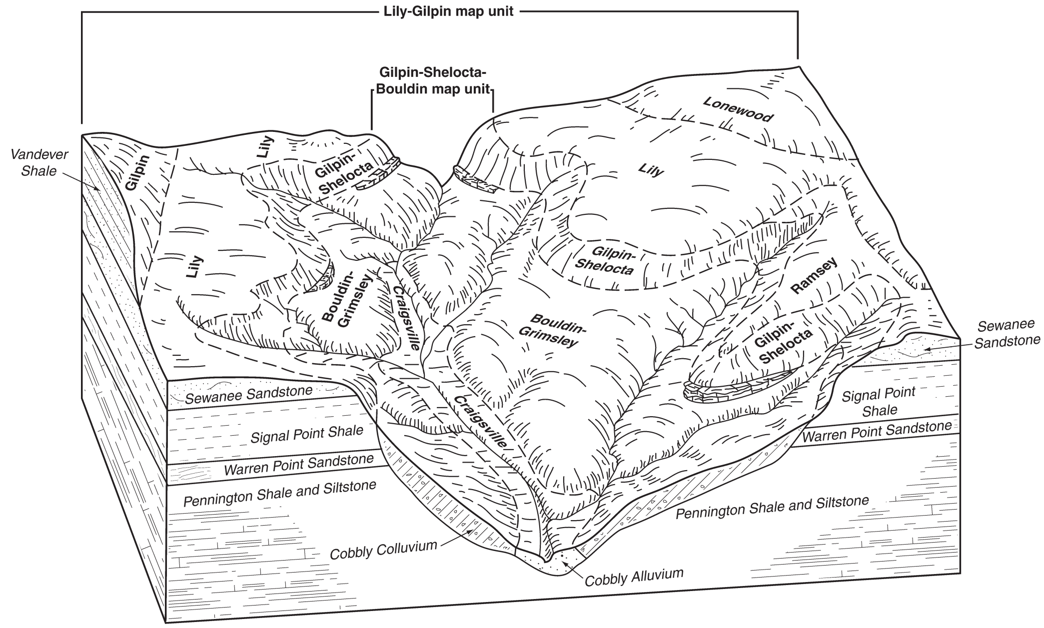

Figure 6.—The relationship of soils and landscapes in the Lily-Gilpin and Gilpin-Shelocta-Bouldin general soil map units.

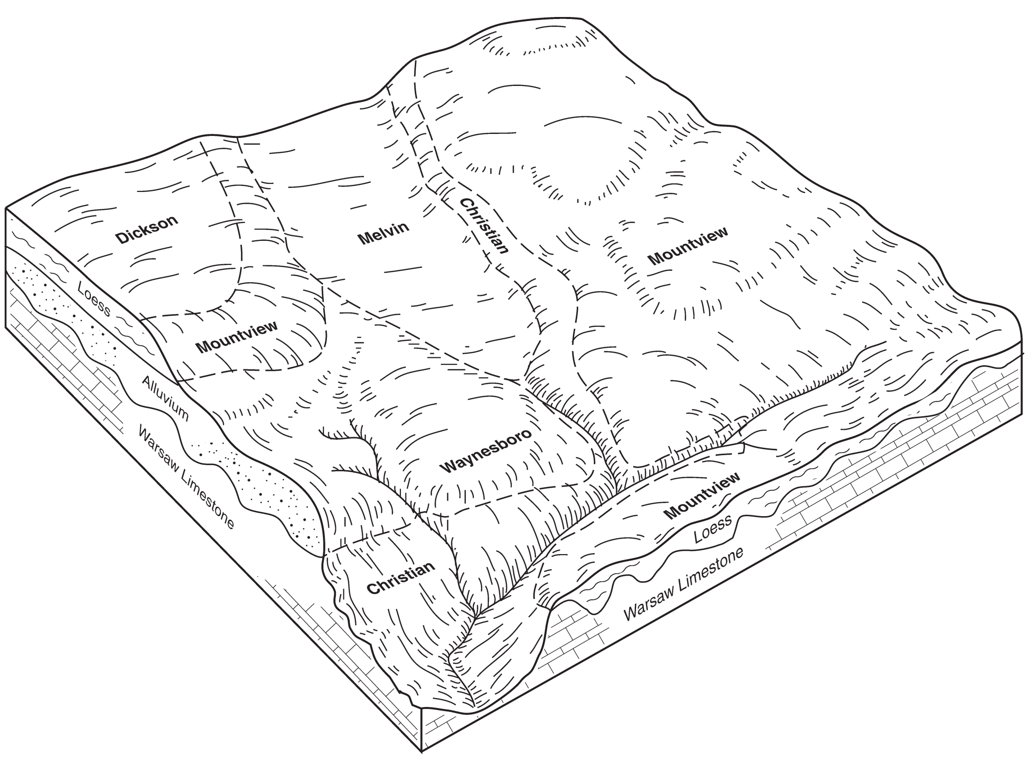

Figure 7.—The relationship of soils and landscape in the Mountview-Christian-Dickson general soil map unit.

Figure 8.—An area of the Garmon-Newbern general soil map unit. Soils in this map unit make up the highly dissected hills around the Dale Hollow Reservoir.

Detailed Soil Map Units

The map units delineated on the detailed soil maps 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 non-contrasting, or similar, components. They 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 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 and agronomic interpretations. If intensive use of a small area is planned, an 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*. Except for differences in texture of the surface layer, all the soils of a series have major horizons that are similar in composition, thickness, and arrangement.

Soils of one series can differ in texture of the surface layer, slope, stoniness, 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, Christian loam, 12 to 20 percent slopes, eroded, is a phase of the Christian 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. Carbo-Rock outcrop complex, 20 to 50 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. Bouldin and Grimsley soils, 20 to 70 percent slopes, very stony, 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, quarry, is an example of a miscellaneous area.

Table 4 gives the acreage and proportionate extent of each map unit. 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 or miscellaneous areas.

Ak—Atkins loam, occasionally flooded

Setting

Landscape position: Floodplains
Parent material: Alluvium

Composition

Atkins soil and similar inclusions: 85 percent
Contrasting inclusions: 15 percent

Contrasting Inclusions

- Ealy soils in the slightly higher positions
- Hamblen soils in landscape positions similar to those of the Atkins soil

Typical Profile

Surface layer:
0 to 6 inches—brown loam

Subsoil:
6 to 20 inches—grayish brown loam
20 to 36 inches—light brownish gray loam

Substratum:
36 to 65 inches—light brownish gray sandy loam

Soil Properties and Qualities

Drainage class: Poorly drained
Permeability: Moderate
Available water capacity: High
Soil reaction: Strongly acid or very strongly acid
Depth to bedrock: More than 60 inches

Seasonal high water table: At a depth of less than 1 foot from December to May
Flooding: Occasional flooding for very brief duration from December to May

Use and Management

Cropland

Land capability classification: 4w
Suitability: Poorly suited
Management measures and considerations:
- Spring planting and fall harvesting operations may be delayed because of wetness and flooding.
- Seasonal flooding limits the production of most crops.
- Delaying planting in spring helps to prevent damage from flooding.

Pasture and hay

Suitability: Poorly suited
Management measures and considerations:
- Restricting grazing during periods of wetness helps to limit compaction of the surface layer and damage to desirable plants.
- Flooding can cause the loss of forage plants and can hinder grazing by livestock.

Woodland

Suitability: Suited
Management measures and considerations:
- See table 8 for information on woodland management.

Dwellings

Suitability: Unsuited
Management measures and considerations:
- Structures should be located in other areas that are not subject to flooding.

Septic tank absorption fields

Suitability: Unsuited
Management measures and considerations:
- Because of the seasonal high water table and hazard of flooding, this soil is unsuited to septic systems.

BA—Bethesda-Pits complex, 5 to 90 percent slopes

Setting

Landscape position: Hillsides and benches
Parent material: Strip-mining spoil areas

Composition

Bethesda soil and similar inclusions: 50 percent
Mine pits and spoil areas: 40 percent
Contrasting inclusions: 10 percent

Contrasting Inclusions

- Areas of Udarents where soil materials have been cut, filled, and graded during operations for road building

Typical Profile

Bethesda

Surface layer:
0 to 1 inch—dark brown channery loam

Substratum:
1 to 18 inches—brown very channery loam
18 to 39 inches—yellowish brown very channery loam
39 to 65 inches—yellowish brown very channery loam

Pits

Pits consist of linear excavations along the contour of mountains. The areas range from 50 to 100 feet in width and from 50 to more than 200 feet in length. The pit has a vertical rock wall as the upslope side, about 25 to 75 feet in height, and the downslope side consists of rock debris, coal, and spoil material.

Properties and Qualities of the Bethesda Soil

Drainage class: Well drained
Permeability: Moderately slow
Available water capacity: Moderate
Soil reaction: Strongly acid to extremely acid
Depth to bedrock: More than 60 inches

Use and Management

Cropland

Land capability classification: Bethesda—7e; Rock outcrop—none assigned
Suitability: Unsuited
Management measures and considerations:
- In most of the map unit, the slope restricts agricultural use.
- The very low reaction, numerous rock fragments, and other undesirable physical properties limit plant growth.

Pasture and hay

Suitability: Unsuited
Management measures and considerations:
- The slope restricts the use of equipment.
- The very low reaction and other undesirable physical properties limit plant growth and species adaptability.

Woodland

Suitability: Poorly suited
Management measures and considerations:
- The very low reaction and other undesirable physical properties limit tree growth and species adaptability.
- The use of planting and harvesting equipment is severely limited on the very steep slopes.
- See table 8 for more information on woodland management.

Dwellings

Suitability: Unsuited
Management measures and considerations:
- The slope and unstable fill material are limitations affecting residential uses.

Septic tank absorption fields

Suitability: Unsuited
Management measures and considerations:
- This map unit is unsuited to septic systems because of the slope and variable permeabililty.

BeB2—Bewleyville silt loam, 2 to 5 percent slopes, eroded

Setting

Landscape position: Stream terraces
Parent material: Alluvium and loess

Composition

Bewleyville soil and similar inclusions: 85 percent
Contrasting inclusions: 15 percent

Contrasting Inclusions

- Dickson soils in saddles
- Dewey soils in landscape positions similar to those of the Bewleyville soil

Typical Profile

Surface layer:
0 to 9 inches—brown and strong brown silt loam

Subsoil:
9 to 30 inches—strong brown silt loam
30 to 57 inches—yellowish red silty clay loam
57 to 77 inches—red clay

Soil Properties and Qualities

Drainage class: Well drained
Permeability: Moderate
Available water capacity: High
Soil reaction: Very strongly acid or strongly acid
Depth to bedrock: More than 60 inches

Use and Management

Cropland

Land capability classification: 2e
Suitability: Well suited
Management measures and considerations:
- Minimum tillage, no-till planting, grassed waterways, and winter cover crops reduce the hazard of erosion.
- Nutrient management practices, such as soil tests, returning crop residue to the soil, and proper timing of fertilizer and chemical treatments, improve soil health and productivity.

Pasture and hay

Suitability: Well suited
Management measures and considerations:
- Periodic clipping and mowing helps to maintain uniform growth and discourages weed competition.

- Proper stocking rates, lime and fertilizer programs, and rotational grazing increase the quality and quantity of forages.

Woodland

Suitability: Well suited
Management measures and considerations:
- This soil has few limitations affecting forestry management.
- The soil rutting hazard is a limitation affecting harvesting operations.
- See table 8 for more information on woodland management.

Dwellings

Suitability: Well suited
Management measures and considerations:
- Topsoil should be stockpiled for the reclamation of areas that are disturbed during construction.
- The careful use of equipment and good design practices prevent off-site sediment runoff.

Septic tank absorption fields

Suitability: Well suited
Management measures and considerations:
- This soil has few limitations affecting septic tank filter fields.

BeC2—Bewleyville silt loam, 5 to 12 percent slopes, eroded

Setting

Landscape position: Stream terraces
Parent material: Alluvium and loess

Composition

Bewleyville soil and similar inclusions: 88 percent
Contrasting inclusions: 12 percent

Contrasting Inclusions

- Dewey soils in convex areas
- Dickson soils in saddles
- Mountview soils in landscape positions similar to those of the Bewleyville soil

Typical Profile

Surface layer:
0 to 9 inches—brown and strong brown silt loam

Subsoil:
9 to 30 inches—strong brown silt loam
30 to 57 inches—yellowish red silty clay loam
57 to 77 inches—red clay

Soil Properties and Qualities

Drainage class: Well drained
Permeability: Moderate
Available water capacity: High
Soil reaction: Very strongly acid or strongly acid
Depth to bedrock: More than 60 inches

Use and Management

Cropland

Land capability classification: 3e
Suitability: Suited
Management measures and considerations:
- Minimum tillage, farming on the contour, grassed waterways, and winter cover crops reduce the hazard of soil erosion. These practices should be intensified as slope increases.
- Nutrient management practices, such as soil tests, returning crop residue to the soil, and proper timing of fertilizer and chemical treatments, improve soil health and productivity.
- Site-specific recommendations are needed.

Pasture and hay

Suitability: Well suited
Management measures and considerations:
- Periodic clipping and mowing helps to maintain uniform growth and discourages weed competition.
- Proper stocking rates, lime and fertilizer programs, and pasture rotation increase the quality and quantity of forages.

Woodland

Suitability: Well suited
Management measures and considerations:
- Water turnouts and diversions help to prevent erosion on roads and trails.
- Soil rutting is a limitation affecting harvesting operations.
- See table 8 for information on woodland management.

Dwellings

Suitability: Well suited
Management measures and considerations:
- Topsoil should be stockpiled for the reclamation of areas that are disturbed during construction.
- The careful use of equipment and good design practices prevent off-site sediment runoff.

Septic tank absorption fields

Suitability: Suited
Management measures and considerations:
- Field lines should be installed along the contour of the slope.

BoC—Bodine gravelly silt loam, 5 to 12 percent slopes

Setting

Landscape position: Ridgetops and shoulder slopes
Parent material: Colluvium and residuum from cherty limestone

Composition

Bodine soil and similar inclusions: 90 percent
Contrasting inclusions: 10 percent

Contrasting Inclusions

- Sengtown and Minvale soils in landscape positions similar to those of the Bodine soil

Typical Profile

Surface layer:
0 to 6 inches—brown gravelly silt loam

Subsoil:
6 to 12 inches—brown very gravelly silt loam
12 to 44 inches—yellowish brown and strong brown very cobbly silty clay loam
44 to 70 inches—yellowish red very cobbly clay

Soil Properties and Qualities

Drainage class: Somewhat excessively drained
Permeability: Moderately rapid
Available water capacity: Low or moderate
Soil reaction: Very strongly acid or strongly acid
Depth to bedrock: More than 60 inches

Use and Management

Cropland

Land capability classification: 4s
Suitability: Poorly suited
Management measures and considerations:
- Rock fragments in the surface layer can hinder tillage and reduce the available water capacity.
- Nutrient management practices, such as soil tests, returning crop residue to the soil, and proper timing of fertilizer and chemical treatments, improve soil health and productivity.

Pasture and hay

Suitability: Suited
Management measures and considerations:
- Periodic clipping and mowing helps to maintain uniform growth and discourages weed competition.
- Proper stocking rates, lime and fertilizer programs, and pasture rotations increase the quality and quantity of forages.
- Hay yields in dry years may be low because of the limited available water capacity.

Woodland

Suitability: Well suited
Management measures and considerations:
- See table 8 for information on woodland management.

Dwellings

Suitability: Well suited
Management measures and considerations:
- Topsoil should be stockpiled for the reclamation of areas that are disturbed during construction.
- The careful use of equipment and good design practices prevent off-site sediment runoff.

Septic tank absorption fields

Suitability: Well suited
Management measures and considerations:
- Field lines should be installed along the contour of the slope.

BoD—Bodine gravelly silt loam, 12 to 20 percent slopes

Setting

Landscape position: Hillsides
Parent material: Colluvium and residuum from cherty limestone

Composition

Bodine soil and similar inclusions: 85 percent
Contrasting inclusions: 15 percent

Contrasting Inclusions

- Sengtown and Minvale soils in landscape positions similar to those of the Bodine soil

Typical Profile

Surface layer:
0 to 6 inches—brown gravelly silt loam

Subsoil:
6 to 12 inches—brown very gravelly silt loam
12 to 44 inches—yellowish brown and strong brown very cobbly silty clay loam
44 to 70 inches—yellowish red very cobbly clay

Soil Properties and Qualities

Drainage class: Somewhat excessively drained
Permeability: Moderately rapid
Available water capacity: Low or moderate
Soil reaction: Very strongly acid or strongly acid
Depth to bedrock: More than 60 inches

Use and Management

Cropland

Land capability classification: 6s
Suitability: Poorly suited
Management measures and considerations:
- The rock fragments in the surface layer and subsoil and the slope are limitations affecting cropland.
- Nutrient management practices, such as soil tests, returning crop residue to the soil, and proper timing of fertilizer and chemical treatments, improve soil health and productivity.

Pasture and hay

Suitability: Suited
Management measures and considerations:
- Periodic clipping and mowing helps to maintain uniform growth and discourages weed competition.
- Proper stocking rates, lime and fertilizer programs, and pasture rotation increase the quality and quantity of forages.
- Hay yields in dry years may be low because of the limited available water capacity.

Woodland

Suitability: Suited
Management measures and considerations:
- See table 8 for information on woodland management.

Dwellings

Suitability: Suited
Management measures and considerations:
- Structures should be designed to conform to the natural slope.
- Topsoil should be stockpiled for the reclamation of areas that are disturbed during construction.
- The careful use of equipment and good design practices prevent off-site sediment runoff.

Septic tank absorption fields

Suitability: Suited
Management measures and considerations:
- Field lines should be installed along the contour of the slope.

BoF—Bodine gravelly silt loam, 20 to 70 percent slopes

Setting

Landscape position: Steep hillsides
Parent material: Colluvium and residuum from cherty limestone

Composition

Bodine soil and similar inclusions: 85 percent
Contrasting inclusions: 15 percent

Contrasting Inclusions

- Hawthorne soils on the upper slopes
- Minvale soils on footslopes
- Rock outcrops occurring as small ledges

Typical Profile

Surface layer:
0 to 6 inches—brown gravelly silt loam

Subsoil:
6 to 12 inches—brown very gravelly silt loam
12 to 44 inches—yellowish brown and strong brown very cobbly silty clay loam
44 to 70 inches—yellowish red very cobbly clay

Soil Properties and Qualities

Drainage class: Somewhat excessively drained
Permeability: Moderately rapid
Available water capacity: Low
Soil reaction: Very strongly acid or strongly acid
Depth to bedrock: More than 60 inches

Use and Management

Cropland

Land capability classification: 7s

Suitability: Unsuited
Management measures and considerations:
- Because of a severe erosion hazard, the slope, high runoff rates, and the limited available water capacity, this map unit is unsuited to cropland.

Pasture and hay

Suitability: Unsuited
Management measures and considerations:
- The operation of farm equipment on very steep slopes is unsafe, and most forage management practices are limited.

Woodland

Suitability: Poorly suited
Management measures and considerations:
- Equipment use is limited because of the slope.
- Locating roads along the contour reduces the erosion hazard.
- The construction of water turnouts and water bars and the seeding of disturbed areas help to minimize erosion and keep sediment away from streams.
- See table 8 for more information on woodland management.

Dwellings

Suitability: Unsuited
Management measures and considerations:
- The slope is a severe limitation affecting the construction of dwellings.
- This soil has a hazard of slippage when roads and sites for houses are excavated.

Septic tank absorption fields

Suitability: Unsuited
Management measures and considerations:
- Because of the slope and a hazard of downslope seepage, this map unit is unsuited to septic tank filter fields.

ByF—Bouldin and Grimsley soils, 20 to 70 percent slopes, very stony

Setting

Landscape position: Lower parts of steep hillsides, footslopes, and benches
Parent material: Stony and cobbly colluvium

Composition

Bouldin soil and similar inclusions: 50 percent
Grimsley soil and similar inclusions: 35 percent
Contrasting inclusions: 15 percent

Contrasting Inclusions

- Sequoia soils on the lower parts of steep hillsides
- Gilpin soils in landscape positions similar to those of the Bouldin and Grimsley soils
- Nella soils in the lower positions

Typical Profile

Bouldin

Surface layer:
0 to 7 inches—brown gravelly loam

Subsoil:
7 to 24 inches—dark yellowish brown and strong brown very cobbly loam
24 to 87 inches—strong brown very cobbly clay loam

Grimsley

Surface layer:
0 to 2 inches—very dark grayish brown gravelly loam

Subsoil:
2 to 12 inches—brown very cobbly loam
12 to 25 inches—strong brown very cobbly clay loam
25 to 44 inches—strong brown cobbly clay loam
44 to 55 inches—strong brown channery silty clay loam

Bedrock:
55 inches—weathered, multicolored shale

Soil Properties and Qualities

Drainage class: Somewhat excessively drained
Permeability: Moderately rapid
Available water capacity: Bouldin—low; Grimsley—low or moderate
Soil reaction: Strongly acid or very strongly acid
Depth to bedrock: Bouldin—more than 60 inches; Grimsley—40 to 60 inches

Use and Management

Cropland

Land capability classification: 7s
Suitability: Unsuited
Management measures and considerations:
- These soils are not suited to cropland.

Pasture and hay

Suitability: Unsuited
Management measures and considerations:
- Because of the large stones on the surface and the slope, the establishment and maintenance of pasture are impractical.

Woodland

Suitability: Poorly suited
Management measures and considerations:
- The large stones on the surface and the slope limit equipment use.
- The stones on the surface interfere with felling, yarding, and other operations that involve the use of equipment.
- Roads are very difficult to build and maintain because of slippage.
- Log landings and yards are limited to the less sloping areas above and below areas of this map unit.
- Locating roads and skid trails as close to the contour as possible can reduce the hazard of erosion.
- Water diversions, water bars, and broad-based dips should be used to direct water and sediment away from the road and streams and into duff layers or filter strips.
- Cuts and fills need to be seeded to permanent cover.
- See table 8 for more information on woodland management.

Dwellings

Suitability: Unsuited
Management measures and considerations:
- Because of the slope, stones on the surface, and a hazard of slippage, this map unit is unsuited to dwellings.

Septic tank absorption fields

Suitability: Unsuited
Management measures and considerations:
- Because of the slope, stones on the surface, depth to bedrock, and a hazard of downslope seepage, this map unit is unsuited to septic tank absorption fields.

CaE—Carbo-Rock outcrop complex, 20 to 50 percent slopes

Setting

Landscape position: Hillsides
Parent material: Clayey residuum weathered from limestone

Composition

Carbo soil and similar inclusions: 70 percent
Rock outcrop: 20 percent
Contrasting inclusions: 10 percent

Contrasting Inclusions

- Colbert soils in landscape positions similar to those of the Carbo soil
- Clayey soils that have bedrock at a depth of less than 20 inches

Typical Profile

Carbo

Surface layer:
0 to 4 inches—dark grayish brown silt loam

Subsoil:
4 to 12 inches—yellowish brown silty clay
12 to 38 inches—yellowish brown silty clay

Bedrock:
38 inches—hard limestone bedrock

Rock outcrop

This part of the map unit consists of limestone outcrops at the surface that range from 10 to 25 feet in length and from 1 to 5 feet in height.

Properties and Qualities of the Carbo Soil

Drainage class: Well drained
Permeability: Slow or very slow
Available water capacity: Low or moderate
Soil reaction: Moderately acid or strongly acid
Shrink-swell potential: High
Depth to bedrock: 20 to 40 inches

Use and Management

Cropland

Land capability classification: Carbo—7s; Rock outcrop—none assigned
Suitability: Unsuited
Management measures and considerations:
- Because of the Rock outcrop and slope, tillage is impractical.

Pasture and hay

Suitability: Unsuited
Management measures and considerations:
- The slope and Rock outcrop severely limit forage management.

Woodland

Suitability: Poorly suited
Management measures and considerations:
- Because the moderate depth to bedrock and high clay content reduce the available water capacity, the growth rate is lowered and the adaptability of the more desirable timber species is restricted.
- Woodland management and harvest operations are difficult because of the Rock outcrop.
- See table 8 for more information on woodland management.

Dwellings

Suitability: Unsuited
Management measures and considerations:
- Because of the Rock outcrop, slope, and a high shrink-swell potential, this map unit is unsuited to residential and commercial structures.

Septic tank absorption fields

Suitability: Unsuited
Management measures and considerations:
- This map unit is not suited to the installation of septic tank absorption systems because of the Rock outcrop, slope, and very slow permeability.

ChC2—Christian loam, 5 to 12 percent slopes, eroded

Setting

Landscape position: Rolling ridgetops
Parent material: Residuum from limestone, sandstone, and siltstone

Composition

Christian soil and similar inclusions: 90 percent
Contrasting inclusions: 10 percent

Contrasting Inclusions

- Etowah soils on the lower landscapes
- Soils that have bedrock at a depth of less than 40 inches

Typical Profile

Surface layer:
0 to 3 inches—brown loam

Subsurface layer:
3 to 8 inches—yellowish brown loam

Subsoil:
8 to 18 inches—strong brown clay loam
18 to 48 inches—strong brown clay
48 to 57 inches—strong brown extremely channery clay loam

Substratum:
57 inches—weathered siltstone bedrock

Soil Properties and Qualities

Drainage class: Well drained
Permeability: Slow or very slow
Available water capacity: Moderate or high
Soil reaction: Strongly acid to slightly acid
Depth to bedrock: 40 to 72 inches

Use and Management

Cropland

Land capability classification: 3e
Suitability: Suited
Management measures and considerations:
- Minimum tillage, farming on the contour, grassed waterways, and winter cover crops reduce the hazard of soil erosion. These practices should be intensified as slope increases.
- Nutrient management practices, such as soil tests, returning crop residue to the soil, and proper timing of fertilizer and chemical treatments, improve soil health and productivity.
- Site-specific recommendations are needed.

Pasture and hay (fig. 9)

Suitability: Well suited
Management measures and considerations:
- Periodic clipping and mowing helps to maintain uniform growth and discourages weed competition.
- Proper stocking rates, lime and fertilizer programs, and pasture rotation increase the quality and quantity of forages.

Woodland

Suitability: Suited
Management measures and considerations:
- Roads and landings should have water turnouts and diversions to prevent erosion.
- See table 8 for more information on woodland management.

Dwellings

Suitability: Suited
Management measures and considerations:
- Structures should be designed to conform with the natural slope.
- Topsoil should be stockpiled for the reclamation of areas that are disturbed during construction.
- The depth to bedrock is a concern for deep excavations.
- The careful use of equipment and good design practices prevent off-site sediment runoff.

Figure 9.—An area of Christian loam, 5 to 12 percent slopes, eroded. Most of this map unit is in hay and pasture.

Septic tank absorption fields

Suitability: Unsuited
Management measures and considerations:
- This soil is not suited to septic systems because of the slow or very slow permeability and the depth to bedrock.
- An onsite investigation is needed to determine a suitable site.

ChD2—Christian loam, 12 to 20 percent slopes, eroded

Setting

Landscape position: Hillsides
Parent material: Residuum from limestone, sandstone, and siltstone

Composition

Christian soil and similar inclusions: 90 percent
Contrasting inclusions: 10 percent

Contrasting Inclusions

- Etowah soils on the lower landscapes
- Soils that have bedrock at a depth of less than 40 inches

Typical Profile

Surface layer:
0 to 3 inches—brown loam

Subsurface layer:
3 to 8 inches—yellowish brown loam

Subsoil:
8 to 18 inches—strong brown clay loam
18 to 48 inches—strong brown clay
48 to 57 inches—strong brown extremely channery clay loam

Substratum:
57 inches—weathered siltstone bedrock

Soil Properties and Qualities

Drainage class: Well drained
Permeability: Slow or very slow
Available water capacity: Moderate or high
Soil reaction: Strongly acid to slightly acid
Depth to bedrock: 40 to 72 inches

Use and Management

Cropland

Land capability classification: 4e
Suitability: Poorly suited
Management measures and considerations:
- Long rotations into grasses and legumes are needed to reduce the hazard of erosion.
- Minimal tillage, farming on the contour, grassed waterways, and planting winter cover crops are essential in controlling erosion.
- Nutrient management practices, such as soil tests, returning crop residue to the soil, and proper timing of fertilizer and chemical treatments, improve soil health and productivity.
- Site-specific recommendations are needed.

Pasture and hay

Suitability: Suited
Management measures and considerations:
- The slope limits some forage management practices.

Woodland

Suitability: Well suited
Management measures and considerations:
- Water turnouts and diversions help to prevent erosion on roads and landings.
- The slope may limit the use of some equipment.
- See table 8 for more information on woodland management.

Dwellings

Suitability: Poorly suited
Management measures and considerations:
- Topsoil should be stockpiled for the reclamation of areas that are disturbed during construction.
- The careful use of equipment and good design practices prevent off-site sediment runoff.
- The depth to bedrock is a concern for deep excavations.

Septic tank absorption fields

Suitability: Unsuited

Management measures and considerations:
- This soil is not suited to septic systems because of the slow or very slow permeability, depth to bedrock, and slope.
- An onsite investigation is needed to determine a suitable site.

ChE2—Christian loam, 20 to 40 percent slopes, eroded

Setting

Landscape position: Hillsides
Parent material: Residuum from limestone, sandstone, and siltstone

Composition

Christian soil and similar inclusions: 90 percent
Contrasting inclusions: 10 percent

Contrasting Inclusions

- Etowah soils on the lower landscapes
- Soils that have bedrock at a depth of less than 40 inches

Typical Profile

Surface layer:
0 to 3 inches—brown loam

Subsurface layer:
3 to 8 inches—yellowish brown loam

Subsoil:
8 to 18 inches—strong brown clay loam
18 to 48 inches—strong brown clay
48 to 57 inches—strong brown extremely channery clay loam

Substratum:
57 inches—weathered siltstone bedrock

Soil Properties and Qualities

Drainage class: Well drained
Permeability: Slow or very slow
Available water capacity: Moderate or high
Soil reaction: Strongly acid to slightly acid
Depth to bedrock: 40 to 72 inches

Use and Management

Cropland

Land capability classification: 6e
Suitability: Unsuited
Management measures and considerations:
- This soil is unsuited to cropland because of the slope and a severe erosion hazard.

Pasture and hay

Suitability: Poorly suited
Management measures and considerations:
- The operation of farm equipment on steep slopes is unsafe, and most forage management practices are limited.

Woodland

Suitability: Suited
Management measures and considerations:
- Locating roads along the contour helps to reduce the hazard of erosion.
- The construction of water turnouts and water bars and the seeding of disturbed areas help to keep sediment away from streams.
- The use of planting and harvesting equipment is limited by the slope.
- See table 8 for more information on woodland management.

Dwellings

Suitability: Unsuited
Management measures and considerations:
- Because of the slope, slow or very slow permeability, and depth to bedrock, this soil is unsuited to commercial and residential uses.

Septic tank absorption fields

Suitability: Unsuited
Management measures and considerations:
- This soil is not suited to septic systems because of the slow or very slow permeability.
- An onsite investigation is needed to determine a suitable site.

ChE3—Christian loam, 20 to 40 percent slopes, severely eroded

Setting

Landscape position: Hillsides
Parent material: Residuum from siltstone, limestone, and sandy limestone

Composition

Christian soil and similar inclusions: 90 percent
Contrasting inclusions: 10 percent

Contrasting Inclusions

- Clayey soils that have bedrock at a depth of less than 40 inches

Typical Profile

Surface layer:
0 to 5 inches—strong brown loam

Subsoil:
5 to 22 inches—strong brown clay
22 to 52 inches—yellowish red clay

Substratum:
52 to 57 inches—yellowish red and brown clay

Bedrock:
57 inches—limestone bedrock

Soil Properties and Qualities

Drainage class: Well drained
Permeability: Slow or very slow
Available water capacity: Moderate or low

Soil reaction: Strongly acid or very strongly acid
Depth to bedrock: More than 40 inches

Use and Management

Cropland

Land capability classification: 7e
Suitability: Unsuited
Management measures and considerations:
- This soil is unsuited to cropland because of the severe erosion hazard, the slope, and the limited available water capacity.

Pasture and hay

Suitability: Unsuited
Management measures and considerations:
- The operation of farm equipment on very steep slopes is unsafe, and most forage management practices are limited.
- A limited available water capacity reduces pasture growth and the sustainability of forage plants.

Woodland

Suitability: Suited
Management measures and considerations:
- The use of planting and harvesting equipment is limited because of the slope.
- Locating roads along the contour reduces the hazard of erosion.
- The construction of water turnouts and water bars and the seeding of disturbed areas help to minimize erosion and keep sediment away from streams.
- See table 8 for more information on woodland management.

Dwellings

Suitability: Unsuited
Management measures and considerations:
- This soil is unsuited to residential or commercial uses because of the slope and the depth to bedrock.

Septic tank absorption fields

Suitability: Unsuited
Management measures and considerations:
- This soil is not suited to septic systems because of the slow or very slow permeability, slope, and depth to bedrock.
- An onsite investigation is needed to determine a more suitable site.

CkB—Clarkrange loam, 2 to 5 percent slopes

Setting

Landscape position: Broad ridgetops on the Brotherton Bench
Parent material: Loess or colluvium over residuum from sandstone

Composition

Clarkrange soil and similar inclusions: 90 percent
Contrasting inclusions: 10 percent

Contrasting Inclusions

- Lonewood soils in convex positions

Typical Profile

Surface layer:
0 to 9 inches—brown loam

Subsoil:
9 to 18 inches—yellowish brown silt loam
18 to 24 inches—yellowish brown silty clay loam
24 to 41 inches—fragipan of firm, light yellowish brown clay loam
41 to 53 inches—red clay loam

Bedrock:
53 inches—hard sandstone bedrock

Soil Properties and Qualities

Drainage class: Moderately well drained
Permeability: Moderate above the fragipan and slow or very slow in the fragipan
Available water capacity: Moderate (4 to 6 inches)
Soil reaction: Strongly acid or very strongly acid
Depth to bedrock: More than 40 inches
Seasonal high water table: Perched at a depth of 1.5 to 2.5 feet from December to April

Use and Management

Cropland

Land capability classification: 2e
Suitability: Well suited
Management measures and considerations:
- Minimum tillage or tillage on the contour and stripcropping reduce the hazard of erosion.
- Maintaining crop residue on the surface and seeding a cover crop are needed.
- Including grasses and legumes in rotations helps to minimize erosion.
- The limited depth to the fragipan reduces the amount of water available to plants.
- Site-specific recommendations are needed.

Pasture and hay

Suitability: Well suited
Management measures and considerations:
- A proper lime and fertilization program, rotational grazing, mowing and clipping, and prevention of overgrazing help to maintain the quality and quantity of forage.

Woodland

Suitability: Well suited
Management measures and considerations:
- The seasonal wetness restricts the use of equipment to dry periods from summer to early fall, when the water table is lowest.
- Equipment use during wet periods produces ruts, compacts the soil, and damages the tree roots.
- Reforestation after harvest must be carefully managed to reduce plant competition.
- See table 8 for more information on woodland management.

Dwellings

Suitability: Suited
Management measures and considerations:
- Providing drainage around buildings and shaping the land so that surface water moves away from buildings help to minimize wetness.

Septic tank absorption fields

Suitability: Poorly suited
Management measures and considerations:
- This soil has slow or very slow permeability in the fragipan.
- Other areas should be considered as sites for septic tank absorption fields.

CkC—Clarkrange loam, 5 to 12 percent slopes

Setting

Landscape position: Rolling ridgetops on the Brotherton Bench
Parent material: Loess or colluvium over residuum from sandstone

Composition

Clarkrange soil and similar inclusions: 90 percent
Contrasting inclusions: 10 percent

Contrasting Inclusions

- Lonewood soils on convex slopes

Typical Profile

Surface layer:
0 to 9 inches—brown loam

Subsoil:
9 to 18 inches—yellowish brown silt loam
18 to 24 inches—yellowish brown silty clay loam
24 to 41 inches—fragipan of firm, light yellowish brown silty clay loam
41 to 53 inches—red clay loam

Bedrock:
53 inches—hard sandstone bedrock

Soil Properties and Qualities

Drainage class: Moderately well drained
Permeability: Moderate above the fragipan and slow or very slow in the fragipan
Available water capacity: Moderate (4 to 6 inches)
Soil reaction: Strongly acid or very strongly acid
Depth to bedrock: More than 40 inches
Seasonal high water table: Perched at a depth of 1.5 to 2.5 feet from December to April

Use and Management

Cropland

Land capability classification: 3e
Suitability: Suited
Management measures and considerations:
- Minimum tillage or tillage on the contour and stripcropping reduce the hazard of erosion.
- Maintaining crop residue on the surface and seeding a cover crop are needed practices.
- Including grasses and legumes in rotations helps to minimize erosion.
- The limited depth to the fragipan reduces the amount of water available to plants.
- Site-specific recommendations are needed.

Pasture and hay

Suitability: Well suited
Management measures and considerations:
- A proper lime and fertilizer program, rotational grazing, mowing and clipping, and prevention of overgrazing maintain the quality and quantity of forage.

Woodland

Suitability: Well suited
Management measures and considerations:
- The seasonal wetness restricts the use of equipment to dry periods from summer to early fall, when the water table is lowest.
- Equipment use during wet periods produces ruts, compacts the soil, and damages the tree roots.
- Reforestation after harvest must be carefully managed to reduce plant competition.
- See table 8 for more information on woodland management.

Dwellings

Suitability: Suited
Management measures and considerations:
- Providing drainage around buildings and shaping the land so that surface water moves away from buildings help to minimize wetness.

Septic tank absorption fields

Suitability: Poorly suited
Management measures and considerations:
- This soil is limited by slow or very slow permeability.
- Other areas should be considered as sites for septic tank absorption fields.

CoC—Colbert silt loam, 5 to 12 percent slopes

Setting

Landscape position: Footslopes
Parent material: Clayey residuum weathered from limestone

Composition

Colbert soil and similar inclusions: 90 percent
Contrasting inclusions: 10 percent

Contrasting Inclusions

- Carbo soils in landscape positions similar to those of the Colbert soil
- Rock outcrop intermingled in spots on the landscape

Typical Profile

Surface layer:
0 to 7 inches—brown silt loam

Subsoil:
7 to 20 inches—yellowish brown silty clay loam
20 to 60 inches—yellowish brown clay that has grayish mottles
60 inches—hard limestone bedrock

Soil Properties and Qualities

Drainage class: Moderately well drained

Permeability: Very slow
Available water capacity: Low or moderate
Soil reaction: Moderately acid to mildly alkaline
Depth to bedrock: 40 to 72 inches

Use and Management

Cropland

Land capability classification: 4e
Suitability: Poorly suited
Management measures and considerations:
- Yields are low because of the limited available water capacity in the subsoil.
- This soil has a limited range of moisture in which it can be tilled if crusting and clodding on the surface are to be prevented.
- The dense clay subsoil limits root penetration and the rooting depth of seedlings.
- Site-specific recommendations are needed.

Pasture and hay

Suitability: Poorly suited
Management measures and considerations:
- Yields are lowered by the limited available water capacity during dry periods.
- Periodic clipping and mowing helps to maintain uniform growth and discourages weed competition.
- Reduced stocking rates, lime and fertilizer applications, and pasture rotation increase the quality and quantity of forages and help to minimize compaction of the surface.
- Restricting grazing until summer helps to prevent compaction and damage to forage plants.

Woodland

Suitability: Poorly suited
Management measures and considerations:
- The limited available water capacity and rooting depth are limitations affecting seedlings.
- The growth rate is slow for most species because of the dense clayey subsoil.
- Reforestation must be carefully managed to reduce plant competition.
- See table 8 for more information on woodland management.

Dwellings

Suitability: Unsuited
Management measures and considerations:
- Foundations and masonry walls of structures are subject to extensive damage from shrinking and swelling.
- The depth to bedrock is a limitation affecting dwellings with basements.

Septic tank absorption fields

Suitability: Unsuited
Management measures and considerations:
- This soil is unsuited to the installation of septic absorption systems because of the very slow permeability, the depth to bedrock, and the high shrink-swell potential.
- Other areas should be considered as sites for septic tank absorption fields.

Cv—Craigsville cobbly loam, occasionally flooded

Setting

Landscape position: Narrow floodplains
Parent material: Cobbly and gravelly alluvium

Composition

Craigsville soil and similar inclusions: 85 percent
Contrasting inclusions: 15 percent

Contrasting Inclusions

- Ealy soils in landscape positions similar to those of the Craigsville soil

Typical Profile

Surface layer:
0 to 2 inches—very dark grayish brown cobbly loam

Subsoil:
2 to 12 inches—dark yellowish brown very cobbly loam
12 to 34 inches—dark yellowish brown very cobbly sandy loam

Substratum:
34 to 65 inches—dark yellowish brown very cobbly sandy loam

Soil Properties and Qualities

Drainage class: Somewhat excessively drained
Permeability: Moderately rapid
Available water capacity: Low (3 to 4 inches)
Soil reaction: Very strongly acid or strongly acid
Depth to bedrock: More than 60 inches
Seasonal high water table: None
Flooding: Occasional flooding for very brief duration from December to May

Use and Management

Cropland

Land capability classification: 4s
Suitability: Poorly suited
Management measures and considerations:
- The amount of coarse rock fragments reduces the available water capacity.
- Flooding can damage crops unless the crops are planted later in spring.

Pasture and hay

Suitability: Suited
Management measures and considerations:
- A proper lime and fertilization program, rotational grazing, mowing and clipping, and prevention of overgrazing help to maintain the quality and quantity of forage.

Woodland

Suitability: Well suited
Management measures and considerations:
- Undesirable plants can prevent adequate reforestation by seedlings unless intensive site preparation and maintenance are provided.

- Seedling mortality may be high in areas that are subject to flooding.
- See table 8 for more information on woodland management.

Dwellings

Suitability: Unsuited
Management measures and considerations:
- This soil is unsuited to dwellings because of the hazard of flooding.

Septic tank absorption fields

Suitability: Unsuited
Management measures and considerations:
- This soil is unsuited to septic tank absorption fields because of the flooding and a hazard of seepage into adjacent streams and ground water.

DeD2—Dellrose gravelly silt loam, 12 to 20 percent slopes, eroded

Setting

Landscape position: Hillsides
Parent material: Colluvium or colluvium over residuum

Composition

Dellrose soil and similar inclusions: 85 percent
Contrasting inclusions: 15 percent

Contrasting Inclusions

- Mimosa soils in convex areas

Typical Profile

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

Subsoil:
5 to 22 inches—dark brown gravelly silt loam
22 to 66 inches—strong brown gravelly silty clay loam
66 to 80 inches—strong brown clay

Soil Properties and Qualities

Drainage class: Well drained
Permeability: Moderately rapid in the upper part of the profile and slow or very slow in the lower subsoil
Available water capacity: Moderate (4 to 6 inches)
Soil reaction: Moderately acid or strongly acid
Depth to bedrock: More than 60 inches

Use and Management

Cropland

Land capability classification: 4e
Suitability: Poorly suited
Management measures and considerations:
- Long rotations into grasses and legumes are needed to reduce the hazard of erosion.
- Minimal tillage, grassed waterways, farming on the contour, and winter cover crops are essential for cropland.

- Nutrient management practices, such as soil tests, returning crop residue to the soil, and proper timing of fertilizer and chemical treatments, improve soil health and productivity.
- Site-specific recommendations are needed.

Pasture and hay

Suitability: Well suited
Management measures and considerations:
- The slope limits some management practices.

Woodland

Suitability: Well suited
Management measures and considerations:
- Water turnouts and diversions help to prevent erosion on roads and landings.
- The slope may limit the use of some equipment.
- See table 8 for more information on woodland management.

Dwellings

Suitability: Suited
Management measures and considerations:
- Structures should be designed to conform to the natural slope.
- Soil slippage is a concern when sites for houses are excavated into hillsides.

Septic tank absorption fields

Suitability: Suited
Management measures and considerations:
- Septic lines need to be installed along the contour of the slope.
- Onsite investigation is needed to determine the depth to the clayey subsoil.

DeF—Dellrose and Mimosa soils, 20 to 60 percent slopes

Setting

Landscape position: Steep hillsides
Parent material: Dellrose—cherty colluvium; Mimosa—clayey limestone residuum

Composition

Dellrose soil: 65 percent
Mimosa soil: 30 percent
Contrasting inclusions: 5 percent

Contrasting Inclusions

- Soils that have bedrock at a depth of less than 40 inches

Typical Profile

Dellrose

Surface layer:
0 to 7 inches—dark yellowish brown gravelly silt loam

Subsoil:
7 to 22 inches—dark brown gravelly silt loam
22 to 66 inches—strong brown gravelly silty clay loam
66 to 80 inches—strong brown clay

Mimosa

Surface layer:
0 to 11 inches—yellowish brown silt loam

Subsoil:
11 to 51 inches—yellowish brown clay

Bedrock:
51 inches—limestone bedrock

Soil Properties and Qualities

Drainage class: Well drained
Permeability: Dellrose—moderately rapid in the upper part and slow or very slow in the lower part; Mimosa—slow or very slow
Available water capacity: Moderate (4 to 6 inches)
Soil reaction: Dellrose—moderately acid or strongly acid; Mimosa—moderately acid to very strongly acid
Depth to bedrock: Dellrose—more than 60 inches; Mimosa—40 to 60 inches

Use and Management

Cropland

Land capability classification: 7e
Suitability: Unsuited
Management measures and considerations:
- Because of the slope, a severe erosion hazard, and other soil properties, these soils should not be used as cropland.

Pasture and hay

Suitability: Poorly suited
Management measures and considerations:
- Because of the slope, the use of farm equipment is unsafe and most management practices are limited.

Woodland

Suitability: Poorly suited
Management measures and considerations:
- Locating roads along the contour reduces the severe erosion hazard.
- Water turnouts, water bars, and seeding of disturbed areas keep sediment away from streams.
- The use of equipment is limited because of the slope.
- See table 8 for more information on woodland management.

Dwellings

Suitability: Unsuited
Management measures and considerations:
- The slope is a severe limitation affecting road designs and commercial and residential uses.
- Soil slippage is a serious concern when sites for houses are excavated into hillsides.

Septic tank absorption fields

Suitability: Unsuited
Management measures and considerations:
- Because of the slope and slow permeability, other areas should be considered as sites for septic tanks absorption fields.

DfC2—Dewey silt loam, 5 to 12 percent slopes, eroded

Setting

Landscape position: Ridgetops
Parent material: Older alluvium and residuum

Composition

Dewey soil and similar inclusions: 90 percent
Contrasting inclusions: 10 percent

Contrasting Inclusions

- Bewleyville soils in concave areas

Typical Profile

Surface layer:
0 to 7 inches—brown silt loam

Subsoil:
7 to 14 inches—yellowish red silty clay loam
14 to 70 inches—red clay

Soil Properties and Qualities

Drainage class: Well drained
Permeability: Moderately slow
Available water capacity: Moderate (4 to 6 inches)
Soil reaction: Typically strongly acid or very strongly acid; the surface layer is less acid in limed areas
Depth to bedrock: More than 60 inches

Use and Management

Cropland

Land capability classification: 3e
Suitability: Well suited
Management measures and considerations:
- Minimum tillage, seeding a cover crop, and other erosion-control practices reduce the hazard of erosion.
- Site-specific recommendations are needed.

Pasture and hay

Suitability: Well suited
Management measures and considerations:
- Rotating grazing, mowing and clipping, and fertilizing help to maintain the quality and quantity of forage.

Woodland

Suitability: Well suited
Management measures and considerations:
- Water turnouts and diversions help to prevent erosion on roads and landings.
- See table 8 for more information on woodland management.

Dwellings

Suitability: Suited

Management measures and considerations:
- Structures should be designed to conform to the natural slope.

Septic tank absorption fields

Suitability: Suited
Management measures and considerations:
- The size of the septic tank absorption area should be increased to compensate for the slower permeability.

DkB2—Dickson silt loam, 2 to 5 percent slopes, eroded

Setting

Landscape position: Concave areas and undulating divides
Parent material: Loess over residuum or alluvium

Composition

Dickson soil and similar inclusions: 85 percent
Contrasting inclusions: 15 percent

Contrasting Inclusions

- Sengtown soils on convex shoulder slopes
- Mountview soils on the slightly higher knolls
- Somewhat poorly drained soils in the lower positions

Typical Profile

Surface layer:
0 to 9 inches—brown silt loam

Subsoil:
9 to 23 inches—yellowish brown and light yellowish brown silt loam
23 to 38 inches—light yellowish brown silt loam; very firm fragipan
38 to 79 inches—red clay

Soil Properties and Qualities

Drainage class: Moderately well drained
Permeability: Moderate above the fragipan and slow or very slow within the fragipan
Available water capacity: Moderate (4 to 5 inches)
Soil reaction: Very strongly acid or strongly acid
Depth to bedrock: More than 60 inches
Seasonal high water table: At a depth of 1.5 to 2.5 feet from December to April

Use and Management

Cropland

Land capability classification: 2e
Suitability: Well suited
Management measures and considerations:
- The limited depth to the fragipan reduces the amount of water available to plants.
- Minimum tillage, farming on the contour, grassed waterways, and winter cover crops reduce the hazard of soil erosion.
- Nutrient management practices, such as soil tests, returning crop residue to the soil, and proper timing of fertilizer and chemical treatments, improve soil health and productivity.
- Site-specific recommendations are needed.

Pasture and hay

Suitability: Well suited
Management measures and considerations:
- Periodic clipping and mowing helps to maintain uniform growth and discourages weed competition.
- Proper stocking rates, lime and fertilizer programs, and pasture rotation increase the quality and quantity of forages.

Woodland

Suitability: Well suited
Management measures and considerations:
- See table 8 for information on woodland management.

Dwellings

Suitability: Suited
Management measures and considerations:
- Topsoil should be stockpiled for the reclamation of areas that are disturbed during construction.
- The careful use of equipment and good design practices prevent off-site sediment runoff.
- Subsurface drainage and land shaping help to remove excess water.

Septic tank absorption fields

Suitability: Poorly suited
Management measures and considerations:
- The size of the septic tank filter field should be increased to compensate for the slower permeability.
- Curtain drains and landscape design may be needed to remove excess water.

Ea—Ealy fine sandy loam, occasionally flooded

Setting

Landscape position: Narrow floodplains
Parent material: Alluvium

Composition

Ealy soil and similar inclusions: 90 percent
Contrasting inclusions: 10 percent

Contrasting Inclusions

- Hamblen soils in slight depressions
- Areas near drainageways that have sandy textures

Typical Profile

Surface layer:
0 to 8 inches—dark yellowish brown fine sandy loam

Subsoil:
8 to 30 inches—dark yellowish brown fine sandy loam
30 to 38 inches—yellowish brown fine sandy loam

Substratum:
38 to 60 inches—stratified yellowish brown very gravelly loamy sand and loamy sand

Soil Properties and Qualities

Drainage class: Well drained
Permeability: Moderately rapid
Available water capacity: High (6 to 8 inches)
Soil reaction: Very strongly acid or strongly acid
Depth to bedrock: More than 60 inches
Seasonal high water table: None
Flooding: Occasional flooding for very brief duration from December to April

Use and Management

Cropland

Land capability classification: 2w
Suitability: Suited
Management measures and considerations:
- The risk of flooding may limit the production of small grains and early season annuals.

Pasture and hay

Suitability: Well suited
Management measures and considerations:
- A proper lime and fertilization program, rotational grazing, mowing and clipping, and the prevention of overgrazing help to maintain the quality and quantity of forage.

Woodland

Suitability: Well suited
Management measures and considerations:
- Undesirable plants can prevent adequate reforestation by seedlings unless intensive site preparation and maintenance are provided.
- Seedling mortality may be high in areas that are subject to flooding.
- See table 8 for more information on woodland management.

Dwellings

Suitability: Unsuited
Management measures and considerations:
- This soil is unsuited to dwellings because of the hazard of flooding.
- Other sites that are not subject to flooding should be considered.

Septic tank absorption fields

Suitability: Suited
Management measures and considerations:
- Septic tank filter fields should be located in higher areas that are not subject to flooding.

EwB—Etowah loam, 2 to 5 percent slopes

Setting

Landscape position: Undulating stream terraces
Parent material: Alluvium

Composition

Etowah soil and similar inclusions: 90 percent
Contrasting inclusions: 10 percent

Contrasting Inclusions

- Waynesboro soils in landscape positions similar to those fo the Etowah soil
- Sullivan soils in depressions

Typical Profile

Surface layer:
0 to 8 inches—brown loam

Subsoil:
8 to 20 inches—strong brown clay loam
20 to 72 inches—yellowish red clay loam

Soil Properties and Qualities

Drainage class: Well drained
Permeability: Moderate
Available water capacity: High (6 to 8 inches)
Soil reaction: Very strongly acid or strongly acid
Depth to bedrock: More than 60 inches

Use and Management

Cropland

Land capability classification: 2e
Suitability: Well suited
Management measures and considerations:
- Minimum tillage, farming on the contour, grassed waterways, and winter cover crops reduce the hazard of soil erosion.
- Nutrient management practices, such as soil tests, returning crop residue to the soil, and proper timing of fertilizer and chemical treatments, improve soil health and productivity.
- Site-specific recommendations are needed.

Pasture and hay (fig. 10)

Suitability: Well suited
Management measures and considerations:
- Periodic clipping and mowing helps to maintain uniform growth and discourages weed competition.
- Proper stocking rates, lime and fertilizer programs, and pasture rotations increase the quality and quantity of forages.

Woodland

Suitability: Well suited
Management measures and considerations:
- This soil has few limitations affecting forestry management.
- See table 8 for more information on woodland management.

Dwellings

Suitability: Well suited
Management measures and considerations:
- Topsoil should be stockpiled for the reclamation of areas that are disturbed during construction.
- The careful use of equipment and good design practices prevent off-site sediment runoff.

Figure 10.—Hay harvested on Etowah loam, 2 to 5 percent slopes. This soil is well suited to cropland, hayland, and pasture. Nella and Talbott soils and some rock outcrops are on the wooded hill in the background.

Septic tank absorption fields

Suitability: Well suited
Management measures and considerations:
- This soil has few limitations affecting septic tank filter fields.

EwC2—Etowah loam, 5 to 12 percent slopes, eroded

Setting

Landscape position: Rolling stream terraces
Parent material: Alluvium

Composition

Etowah soil and similar inclusions: 85 percent
Contrasting inclusions: 15 percent

Contrasting Inclusions

- Waynesboro soils on convex shoulder slopes
- Sullivan soils in depressions

Typical Profile

Surface layer:
0 to 5 inches—brown loam

Subsoil:
5 to 20 inches—strong brown clay loam
20 to 72 inches—yellowish red clay loam

Soil Properties and Qualities

Drainage class: Well drained
Permeability: Moderate
Available water capacity: High (6 to 8 inches)
Soil reaction: Very strongly acid or strongly acid
Depth to bedrock: More than 60 inches

Use and Management

Cropland

Land capability classification: 3e
Suitability: Suited
Management measures and considerations:
- Minimum tillage, farming on the contour, grassed waterways, and winter cover crops reduce the hazard of soil erosion.
- Nutrient management practices, such as soil tests, returning crop residue to the soil, and proper timing of fertilizer and chemical treatments, improve soil health and productivity.
- Site-specific recommendations are needed.

Pasture and hay

Suitability: Well suited
Management measures and considerations:
- Periodic clipping and mowing helps to maintain uniform growth and discourages weed competition.
- Proper stocking rates, lime and fertilizer programs, and pasture rotations increase the quality and quantity of forages.

Woodland

Suitability: Well suited
Management measures and considerations:
- Water turnouts and diversions help to prevent erosion on roads and landings.
- See table 8 for more information on woodland management.

Dwellings

Suitability: Suited
Management measures and considerations:
- Structures should be designed to conform to the natural slope.

Septic tank absorption fields

Suitability: Suited
Management measures and considerations:
- Field lines should be installed along the contour of the slope.

EwD2—Etowah loam, 12 to 20 percent slopes, eroded

Setting

Landscape position: Stream terrace hillsides
Parent material: Alluvium

Composition

Etowah soil and similar inclusions: 85 percent
Contrasting inclusions: 15 percent

Contrasting Inclusions

- Waynesboro soils in landscape positions similar to those of the Etowah soil
- Severely eroded areas on hillsides

Typical Profile

Surface layer:
0 to 5 inches—brown loam

Subsoil:
5 to 20 inches—strong brown clay loam
20 to 72 inches—yellowish red clay loam

Soil Properties and Qualities

Drainage class: Well drained
Permeability: Moderate
Available water capacity: High (6 to 8 inches)
Soil reaction: Strongly acid or very strongly acid
Depth to bedrock: More than 60 inches

Use and Management

Cropland

Land capability classification: 4e
Suitability: Poorly suited
Management measures and considerations:
- Long rotations into grasses and legumes are needed to reduce the hazard of erosion.
- Minimal tillage, farming on the contour, grassed waterways, and winter cover crops are essential for cropland.
- Nutrient management practices, such as soil tests, returning crop residue to the soil, and proper timing of fertilizer and chemical treatments, improve soil health and productivity.

Pasture and hay

Suitability: Suited
Management measures and considerations:
- The slope limits some forage management practices.

Woodland

Suitability: Well suited
Management measures and considerations:
- Some equipment use may be limited because of the slope.
- See table 8 for more information on woodland management.

Dwellings

Suitability: Suited
Management measures and considerations:
- Structures should be designed to conform to the natural slope.

Septic tank absorption fields

Suitability: Suited

Management measures and considerations:
- Increasing the size of the septic tank filter field helps to compensate for the slower percolation rate.
- Field lines should be installed along the contour of the slope.

FhC—Faywood-Hawthorne complex, 5 to 12 percent slopes

Setting

Landscape position: Rolling ridges and shoulder slopes
Parent material: Residuum weathered from shale and siltstone bedrock

Composition

Faywood soil: 50 percent
Hawthorne soil: 40 percent
Contrasting inclusions: 10 percent

Contrasting Inclusions

- Christian soils in landscape positions similar to those of the Faywood and Hawthorne soils
- Gilpin soils in landscape positions similar to those of the Faywood and Hawthorne soils

Typical Profile

Faywood

Surface layer:
0 to 1 inch—very dark grayish brown silt loam

Subsoil:
1 to 8 inches—yellowish brown silty clay loam
8 to 25 inches—yellowish brown clay

Bedrock:
25 inches—hard shale bedrock

Hawthorne

Surface layer:
0 to 1 inch—brown gravelly silt loam

Subsurface layer:
1 to 4 inches—pale brown very gravelly silt loam

Subsoil:
4 to 14 inches—light yellowish brown very channery silt loam
14 to 23 inches—yellowish brown extremely channery silt loam

Bedrock:
23 inches—weathered siltstone

Soil Properties and Qualities

Drainage class: Faywood—well drained; Hawthorne—somewhat excessively drained
Permeability: Faywood—slow or very slow; Hawthorne—moderately rapid
Available water capacity: Low (2 to 4 inches)

Soil reaction: Faywood—strongly acid to slightly acid; Hawthorne—strongly acid or very strongly acid
Depth to bedrock: 20 to 40 inches

Use and Management

Cropland

Land capability classification: 4s
Suitability: Poorly suited
Management measures and considerations:
- Because of the limited depth to bedrock, low available water capacity, and fragments in the soil, this map unit is poorly suited to cropland.

Pasture and hay

Suitability: Poorly suited
Management measures and considerations:
- The limited depth to bedrock, low available water capacity, and fragments in the soil reduce hay yields and hinder forage production.
- Drought-tolerant forage species should be selected for planting.
- Proper stocking rates, lime and fertilizer programs, and pasture rotations increase the quality and quantity of forages.

Woodland

Suitability: Poorly suited
Management measures and considerations:
- The limited depth to bedrock and fragments in the soil reduce the available water capacity and limit tree growth.
- Drought-tolerant species should be selected for planting.
- See table 8 for more information on woodland management.

Dwellings

Suitability: Poorly suited
Management measures and considerations:
- Topsoil should be stockpiled for the reclamation of areas that are disturbed during construction.
- The difficulty of excavations is increased by the limited depth to bedrock.
- The shrink-swell potential is a concern in areas of the Faywood soil.

Septic tank absorption fields

Suitability: Poorly suited
Management measures and considerations:
- The depth to bedrock limits the installation of septic systems.
- The hazard of seepage into downslope areas is a concern.
- The Faywood soil is limited by the slow or very slow permeability.

GnF—Garmon-Newbern complex, 40 to 80 percent slopes, rocky

Setting

Landscape position: Very steep hillsides
Parent material: Residuum from shale and siltstone

Composition

Garmon soil: 50 percent
Newbern soil: 40 percent
Contrasting inclusions: 10 percent

Contrasting Inclusions

- Faywood soils on the upper shoulders on hillsides
- Dellrose soils on concave footslopes

Typical Profile

Garmon

Surface layer:
0 to 3 inches—dark yellowish brown channery silt loam

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

Subsoil:
6 to 20 inches—yellowish brown channery silt loam
20 to 29 inches—yellowish brown very channery silt loam

Bedrock:
29 inches—shale bedrock

Newbern

Surface layer:
0 to 3 inches—dark grayish brown and brown channery silt loam

Subsoil:
3 to 14 inches—yellowish brown very channery silt loam

Substratuum:
14 to 18 inches—weathered shale

Bedrock:
18 inches—hard shale bedrock

Soil Properties and Qualities

Drainage class: Garmon—well drained or somewhat excessively drained; Newbern—somewhat excessively drained
Permeability: Moderately rapid
Available water capacity: Garmon—low or moderate (3 to 5 inches); Newbern—very low or low (1 to 3 inches)
Soil reaction: Moderately acid to neutral
Depth to bedrock: Garmon—20 to 40 inches; Newbern—10 to 20 inches

Use and Management

Cropland

Land capability classification: 7s
Suitability: Unsuited
Management measures and considerations:
- This map unit is unsuited to cropland because of the slope and low available water capacity.

Pasture and hay

Suitability: Unsuited

Management measures and considerations:
- The slope inhibits all forage management practices and the use of farm equipment.

Woodland

Suitability: Poorly suited
Management measures and considerations:
- The shallow depth to bedrock, rock outcrops, and numerous fragments in the surface layer and subsoil severely restrict forestry operations and limit the amount of water available to plants.
- The rooting depth is restricted and trees are susceptible to windthrow because of the depth to bedrock.
- Only drought-tolerant species should be selected for planting.
- See table 8 for more information on woodland management.

Dwellings

Suitability: Unsuited
Management measures and considerations:
- This map unit is unsuited to dwellings because of the slope, depth to bedrock, and hazard of slippage.

Septic tank absorption fields

Suitability: Unsuited
Management measures and considerations:
- This map unit is unsuited to septic tank absorption fields because of the slope and depth to bedrock.

GpC—Gilpin loam, 5 to 12 percent slopes

Setting

Landscape position: Rolling ridgetops
Parent material: Residuum from shale

Composition

Gilpin soil and similar inclusions: 85 percent
Contrasting inclusions: 15 percent

Contrasting Inclusions

- Sequoia soils in the lower positions
- Lily soils in landscape positions similar to those of the Gilpin soil
- Shelocta soils in landscape positions similar to those of the Gilpin soil

Typical Profile

Surface layer:
0 to 4 inches—dark yellowish brown loam

Subsurface layer:
4 to 13 inches—yellowish brown loam

Subsoil:
13 to 29 inches—strong brown silty clay loam
29 to 36 inches—yellowish brown channery silty clay loam

Substratum:
36 inches—weathered shale

Soil Properties and Qualities

Drainage class: Well drained
Permeability: Moderate
Available water capacity: Moderate (4 to 6 inches)
Soil reaction: Strongly acid or very strongly acid
Depth to bedrock: 20 to 40 inches

Use and Management

Cropland

Land capability classification: 3e
Suitability: Suited
Management measures and considerations:
- Minimum tillage, farming on the contour, grassed waterways, and winter cover crops reduce the hazard of soil erosion. These practices should be intensified as slope increases.
- Nutrient management practices, such as soil tests, returning crop residue to the soil, and proper timing of fertilizer and chemical treatments, improve soil health and productivity.
- Site-specific recommendations are needed.

Pasture and hay

Suitability: Well suited
Management measures and considerations:
- Periodic clipping and mowing helps to maintain uniform growth and discourages weed competition.
- Proper stocking rates, lime and fertilizer programs, and pasture rotations increase the quality and quantity of forages.

Woodland

Suitability: Well suited
Management measures and considerations:
- See table 8 for information on woodland management.

Dwellings

Suitability: Well suited
Management measures and considerations:
- Structures should be designed to conform to the natural slope.
- The depth to bedrock is a limitation affecting excavations and local roads and streets.

Septic tank absorption fields

Suitability: Suited
Management measures and considerations:
- Field lines should be installed along the contour of the slope.
- The depth to bedrock can hinder the installation of filter field lines and reduce the permeability rate.

GpD—Gilpin loam, 12 to 20 percent slopes

Setting

Landscape position: Hillsides
Parent material: Residuum from shale

Composition

Gilpin soil and similar inclusions: 85 percent
Contrasting inclusions: 15 percent

Contrasting Inclusions

- Shelocta soils in landscape positions similar to those of the Gilpin soil
- Sequoia soils in the lower positions

Typical Profile

Surface layer:
0 to 4 inches—dark yellowish brown loam

Subsurface layer:
4 to 13 inches—yellowish brown loam

Subsoil:
13 to 29 inches—strong brown silty clay loam
29 to 36 inches—yellowish brown channery silty clay loam

Substratum:
36 inches—weathered shale

Soil Properties and Qualities

Drainage class: Well drained
Permeability: Moderate
Available water capacity: Moderate (4 to 6 inches)
Soil reaction: Strongly acid or very strongly acid
Depth to bedrock: 20 to 40 inches

Use and Management

Cropland

Land capability classification: 4e
Suitability: Poorly suited
Management measures and considerations:
- Long rotations into grasses and legumes are needed to reduce the hazard of erosion.
- Minimal tillage, farming on the contour, grassed waterways, and winter cover crops are essential for cropland.
- Nutrient management practices, such as soil tests, returning crop residue to the soil, and proper timing of fertilizer and chemical treatments, improve soil health and productivity.

Pasture and hay

Suitability: Suited
Management measures and considerations:
- The slope limits some forage management practices.
- Periodic clipping and mowing helps to maintain uniform growth and discourages weed competition.
- Proper stocking rates, lime and fertilizer programs, and pasture rotations increase the quality and quantity of forages.

Woodland

Suitability: Suited
Management measures and considerations:
- Constructing diversions and water turnouts and seeding cuts and fills help to prevent erosion on roads and landings.

- The slope may limit the use of some planting and harvesting equipment.
- See table 8 for more information on woodland management.

Dwellings

Suitability: Suited
Management measures and considerations:
- Structures should be designed to conform to the natural slope.
- The depth to bedrock is a limitation affecting excavations and local roads and streets.

Septic tank absorption fields

Suitability: Suited
Management measures and considerations:
- Field lines should be installed along the contour of the slope.
- The limited depth to bedrock can hinder the installation of filter lines.

GpE—Gilpin loam, 20 to 40 percent slopes

Setting

Landscape position: Hillsides
Parent material: Residuum from shale

Composition

Gilpin soil and similar inclusions: 85 percent
Contrasting inclusions: 15 percent

Contrasting Inclusions

- Sequoia soils in the lower positions
- Lily soils in landscape positions similar to those of the Gilpin soil

Typical Profile

Surface layer:
0 to 4 inches—dark yellowish brown loam

Subsurface layer:
4 to 13 inches—yellowish brown loam

Subsoil:
13 to 29 inches—strong brown silty clay loam
29 to 36 inches—yellowish brown channery silty clay loam

Substratum:
36 inches—weathered shale

Soil Properties and Qualities

Drainage class: Well drained
Permeability: Moderate
Available water capacity: Moderate (4 to 6 inches)
Soil reaction: Strongly acid or very strongly acid
Depth to bedrock: 20 to 40 inches

Use and Management

Cropland

Land capability classification: 6e
Suitability: Unsuited

Figure 11.—A forested area of Gilpin loam, 20 to 40 percent slopes. Chestnut oak and Virginia pine are the dominant trees growing on the south aspect of this mountainside.

Management measures and considerations:
- This soil is unsuited to cropland because of the slope, a severe erosion hazard, and the depth to bedrock.

Pasture and hay

Suitability: Unsuited
Management measures and considerations:
- Because of the slope, the use of farm equipment is unsafe and forage management practices are limited.

Woodland (fig. 11)

Suitability: Suited
Management measures and considerations:
- Locating roads and skid trails as close to the contour as possible can help reduce the hazard of erosion.
- Water diversions, water bars, and broad-based dips should be used to direct water and sediment away from the road and streams and into duff layers or filter strips.
- Cuts and fills need to be seeded to permanent cover.
- Equipment use is limited on the steep slopes.
- See table 8 for more information on woodland management.

Dwellings

Suitability: Unsuited

Management measures and considerations:
- The slope and depth to bedrock greatly limit the building of structures and local roads and streets.

Septic tank absorption fields

Suitability: Unsuited
Management measures and considerations:
- The slope and depth to bedrock are limitations affecting septic system filter lines.

GsF—Gilpin-Shelocta complex, 40 to 70 percent slopes

Setting

Landscape position: Steep hillsides
Parent material: Residuum and colluvium from shale and siltstone

Composition

Gilpin soil: 50 percent
Shelocta soil: 40 percent
Contrasting inclusions: 10 percent

Contrasting Inclusions

- Sequoia soils in the lower positions

Typical Profile

Gilpin

Surface layer:
0 to 4 inches—dark yellowish brown loam

Subsurface layer:
4 to 13 inches—yellowish brown loam

Subsoil:
13 to 29 inches—strong brown silty clay loam
29 to 36 inches—yellowish brown channery silty clay loam

Substratum:
36 inches—weathered shale

Shelocta

Surface layer:
0 to 2 inches—brown loam

Subsurface layer:
2 to 10 inches—dark yellowish brown gravelly loam

Subsoil:
10 to 29 inches—yellowish brown gravelly clay loam
29 to 52 inches—yellowish brown channery silty clay loam

Substratum:
52 inches—weathered shale

Soil Properties and Qualities

Drainage class: Well drained

Permeability: Moderate
Available water capacity: Moderate (4 to 6 inches)
Soil reaction: Strongly acid or very strongly acid
Depth to bedrock: Gilpin—20 to 40 inches; Shelocta—more than 40 inches

Use and Management

Cropland

Land capability classification: 7e
Suitability: Unsuited
Management measures and considerations:
- Because of the severe hazard of erosion and the slope, this map unit is unsuited to cropland.

Pasture and hay

Suitability: Unsuited
Management measures and considerations:
- Because of the slope, the use of farm equipment is unsafe and forage management practices are limited.

Woodland

Suitability: Suited
Management measures and considerations:
- This map unit is unsuited to roads and yard areas because of the slope.
- Logs should be yarded in the less sloping areas below or above areas of this map unit.
- Equipment use is limited on the very steep slopes.
- See table 8 for more information on woodland management.

Dwellings

Suitability: Unsuited
Management measures and considerations:
- The slope and depth to bedrock are severe limitations affecting the building of structures and local roads and streets.

Septic tank absorption fields

Suitability: Unsuited
Management measures and considerations:
- Because of the slope, depth to bedrock, and hazard of seepage into downslope areas, this map unit is unsuited to septic tank absorption fields.

Ha—Hamblen loam, occasionally flooded

Setting

Landscape position: Flood plains
Parent material: Alluvium

Composition

Hamblen soil and similar inclusions: 90 percent
Contrasting inclusions: 10 percent

Contrasting Inclusions

- Somewhat poorly drained soils and Melvin soils in the lower positions

Figure 12.—An area of Hamblen loam, occasionally flooded. This soil is subject to flooding usually during winter and early spring.

Typical Profile

Surface layer:
0 to 6 inches—brown loam

Subsoil:
6 to 23 inches—dark yellowish brown loam
23 to 36 inches—brown loam that has grayish mottles

Substratum:
36 to 65 inches—brown loam that has grayish mottles

Soil Properties and Qualities

Drainage class: Moderately well drained
Permeability: Moderate
Available water capacity: High (6 to 8 inches)
Soil reaction: Moderately acid or slightly acid
Depth to bedrock: More than 60 inches
Seasonal high water table: At a depth of 1.5 to 3.0 feet from December to April
Flooding: Occasional flooding for brief duration from December to April (fig. 12)

Use and Management

Cropland

Land capability classification: 2w
Suitability: Moderately suited
Management measures and considerations:
- The seasonal high water table limits the planting of crops until later in spring.
- The risk of flooding may limit the production of small grains and early season annuals.

Pasture and hay

Suitability: Well suited
Management measures and considerations:
- Only hay and pasture plants that can tolerate periodic inundation and seasonal wetness should be planted.
- Grazing when the soil is wet results in compaction and destruction of forage plants.

Woodland

Suitability: Well suited
Management measures and considerations:
- The seasonal high water table restricts the use of equipment to dry periods during summer and fall, when the water table is lowest.
- Undesirable plants can prevent adequate reforestation by seedlings unless intensive site preparation and maintenance are provided.

Dwellings

Suitability: Unsuited
Management measures and considerations:
- This soil is not suited to dwellings because of the flooding and seasonal wetness.
- Other areas that are not subject to flooding should be selected as sites for dwellings.

Septic tank absorption fields

Suitability: Poorly suited
Management measures and considerations:
- This soil is poorly suited to septic tank absorption fields because of the hazard of flooding and seasonal wetness.

HhC—Hawthorne gravelly silt loam, 5 to 20 percent slopes

Setting

Landscape position: Rolling ridges
Parent material: Residuum from cherty limestone and siltstone

Composition

Hawthorne soil and similar inclusions: 85 percent
Contrasting inclusions: 15 percent

Contrasting Inclusions

- Mountview soils on the broader ridges
- Soils that have less than 35 percent fragments in the subsoil

Typical Profile

Surface layer:
0 to 1 inch—brown gravelly silt loam

Subsoil:
1 to 4 inches—pale brown very gravelly silt loam
4 to 14 inches—light yellowish brown very channery silt loam
14 to 23 inches—yellowish brown extremely channery silt loam

Bedrock:
23 inches—weathered siltstone bedrock

Soil Properties and Qualities

Drainage class: Somewhat excessively drained
Permeability: Moderately rapid
Available water capacity: Very low or low (1 to 3 inches)
Soil reaction: Very strongly acid or strongly acid
Depth to bedrock: 20 to 40 inches

Use and Management

Cropland

Land capability classification: 6s
Suitability: Unsuited
Management measures and considerations:
- Because of the limited depth to bedrock, low available water capacity, numerous rock fragments, and slope, this soil is unsuited to cropland.

Pasture and hay

Suitability: Poorly suited
Management measures and considerations:
- The low available water capacity and depth to bedrock limit the rooting depth.
- Forage plants that can tolerate droughty conditions should be selected for planting.
- Rock fragments on the surface and in the subsoil hinder management practices.

Woodland

Suitability: Poorly suited
Management measures and considerations:
- Large amounts of rock fragments inhibit some equipment use and forestry practices.
- Limited soil depth and large amounts of fragments reduce the amount of water available to plants.
- Species that can tolerate droughty conditions should be selected for planting.
- See table 8 for more information on woodland management.

Dwellings

Suitability: Suited
Management measures and considerations:
- Excavations for buildings and roads are limited by the depth to bedrock.
- Fragments on the surface and throughout the soil hinder the establishment of lawns and landscaping.

Septic tank absorption fields

Suitability: Unsuited
Management measures and considerations:
- The depth to bedrock hinders the installation of septic systems and reduces the permeability.
- Because of the high content of coarse fragments in the soil, the ability to filter effluent properly is limited and downslope seepage may result.
- An onsite investigation is needed to determine site suitability.

HhF—Hawthorne gravelly silt loam, 20 to 70 percent slopes

Setting

Landscape position: Steep hillsides
Parent material: Residuum from cherty limestone and siltstone

Composition

Hawthorne soil and similar inclusions: 85 percent
Contrasting inclusions: 15 percent

Contrasting Inclusions

- Dellrose and Humphreys soils on concave footslopes
- Areas of rock outcrop on the lower slopes

Typical Profile

Surface layer:
0 to 1 inch—brown gravelly silt loam

Subsoil:
1 to 4 inches—pale brown very gravelly silt loam
4 to 14 inches—light yellowish brown very channery silt loam
14 to 23 inches—yellowish brown extremely channery silt loam

Bedrock:
23 inches—weathered siltstone bedrock

Soil Properties and Qualities

Drainage class: Somewhat excessively drained
Permeability: Moderately rapid
Available water capacity: Very low or low (1 to 3 inches)
Soil reaction: Very strongly acid or strongly acid
Depth to bedrock: 20 to 40 inches

Use and Management

Cropland

Land capability classification: 7s
Suitability: Unsuited
Management measures and considerations:
- Because of the slope, limited depth to bedrock, low available water capacity, and numerous rock fragments on the surface and in the subsoil, this soil is unsuited to crops.

Pasture and hay

Suitability: Unsuited
Management measures and considerations:
- The slope hinders all management practices and is a limitation affecting the use of farm equipment.

Woodland

Suitability: Poorly suited
Management measures and considerations:
- The large amounts of rock fragments and the slope limit the use of most equipment and forestry practices.
- See table 8 for more information on woodland management.

Dwellings

Suitability: Unsuited
Management measures and considerations:
- The slope is a severe limitation affecting road designs and structures.

• A hazard of soil slippage is a limitation where roads and dwellings are excavated into hillsides.

Septic tank absorption fields

Suitability: Unsuited
Management measures and considerations:
• The slope, depth to bedrock, and hazard of seepage into downslope areas are limitations affecting septic systems.

HmF—Hawthorne-Rock outcrop complex, 40 to 80 percent slopes

Setting

Landscape position: Very steep bluffs along the Roaring River adjacent to Overton County
Parent material: Residuum from cherty limestone and siltstone

Composition

Hawthorne soil and similar soils: 48 percent
Rock outcrop: 47 percent
Contrasting inclusions: 5 percent

Contrasting Inclusions

• Areas of rock rubble on narrow shelves and at the base of bluffs
• Small intermingled areas of soils that have hard bedrock at a depth of less than 40 inches; on benches

Typical Profile

Hawthorne

Surface layer:
0 to 1 inch—brown gravelly silt loam

Subsoil:
1 to 4 inches—pale brown very gravelly silt loam
4 to 14 inches—light yellowish brown very channery silt loam
14 to 23 inches—yellowish brown extremely channery silt loam

Bedrock:
23 inches—weathered siltstone bedrock

Rock outcrop

This part of the map unit consists of large vertical bluffs of hard limestone rock stratified with siltstone and soil material. Many areas have vegetation growing horizontally from the seams in the bedrock and large stones and cobbles deposited as talus at the base of the bluffs.

Properties and Qualities of the Hawthorne Soil

Drainage class: Somewhat excessively drained
Permeability: Moderately rapid
Available water capacity: Very low or low (1 to 3 inches)
Soil reaction: Very strongly acid or strongly acid
Depth to bedrock: 20 to 40 inches

Use and Management

Cropland

Land capability classification: Hawthorne—7s; Rock outcrop—none assigned
Suitability: Unsuited
Management measures and considerations:
- This map unit is not suited to cropland because of the slope and the limestone bluffs.

Pasture and hay

Suitability: Unsuited
Management measures and considerations:
- This map unit is unsuited to pasture and hay because of the slope and the vertical rock bluffs.

Woodland

Suitability: Unsuited
Management measures and considerations:
- This map unit is unsuited to woodland because of the slope and the vertical rock bluffs.
- See table 8 for more information on woodland management.

Dwellings

Suitability: Unsuited
Management measures and considerations:
- Other areas should be considered as sites for dwellings.

Septic tank absorption fields

Suitability: Unsuited
Management measures and considerations:
- Other areas should be considered as sites for septic tank absorption fields.

HnF—Hayter-Talbott-Rock outcrop complex, 20 to 70 percent slopes, very stony

Setting

Landscape position: Mountains
Parent material: Colluvium and residuum of limestone

Composition

Hayter soil: 45 percent
Talbott soil: 25 percent
Rock outcrop: 20 percent
Contrasting inclusions: 10 percent

Contrasting Inclusions

- Bouldin soils in concave positions

Typical Profile

Hayter

Surface layer:
0 to 8 inches—dark brown gravelly loam

Subsoil:
8 to 19 inches—dark yellowish brown gravelly loam
19 to 34 inches—strong brown gravelly loam
34 to 46 inches—strong brown gravelly clay loam
46 to 72 inches—yellowish red very gravelly clay loam

Talbott

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

Subsoil:
5 to 33 inches—red clay

Bedrock:
33 inches—limestone bedrock

Rock outcrop

This part of the map unit consists of nearly vertical ledges of limestone that extend 1 to 10 feet above the surface.

Properties and Qualities of the Hayter and Talbott Soils

Drainage class: Well drained
Permeability: Hayter—moderate; Talbott—slow or very slow
Available water capacity: Hayter—high (6 to 8 inches); Talbott—low or moderate (2 to 5 inches)
Soil reaction: Hayter—typically very strongly acid to moderately acid but reaction ranges to slightly acid in lower part; Talbott—moderately acid or strongly acid
Depth to bedrock: Hayter—more than 60 inches; Talbott—20 to 40 inches

Use and Management

Cropland

Land capability classification: Hayter and Talbott—7s; Rock outcrop—none assigned
Suitability: Unsuited
Management measures and considerations:
- Because of the slope, Rock outcrop, and stones on the surface, this map unit is unsuited to cropland.

Pasture and hay

Suitability: Unsuited
Management measures and considerations:
- Because of the slope, Rock outcrop, and stones on the surface, operating farm equipment is hazardous and this map unit is unsuited to pasture and hay.

Woodland

Suitability: Poorly suited
Management measures and considerations:
- The map unit is unsuited to roads and yard areas because of the slope and Rock outcrop.
- Logs should be yarded in the less sloping areas below or above areas of this map unit.
- Reforestation must be carefully managed to reduce plant competition.
- Equipment use is limited on the steep slopes.
- See table 8 for more information on woodland management.

Dwellings

Suitability: Unsuited
Management measures and considerations:
- Because of the slope, depth to bedrock, and Rock outcrop, this map unit is unsuited to structures and roads and streets.

Septic tank absorption fields

Suitability: Unsuited
Management measures and considerations:
- The slope, depth to bedrock, Rock outcrop, high shrink-swell potential, and stones on the surface are limitations that are difficult to overcome by special designs.

HoB—Holston loam, 2 to 5 percent slopes

Setting

Landscape position: Cumberland River terrace
Parent material: Alluvium

Composition

Holston soil and similar inclusions: 90 percent
Contrasting inclusions: 10 percent

Contrasting Inclusions

- Moderately well drained soils in slight depressions

Typical Profile

Surface layer:
0 to 9 inches—dark yellowish brown loam

Subsoil:
9 to 20 inches—yellowish brown loam
20 to 65 inches—yellowish brown clay loam

Soil Properties and Qualities

Drainage class: Well drained
Permeability: Moderate
Available water capacity: High (6 to 8 inches)
Soil reaction: Very strongly acid or strongly acid
Depth to bedrock: More than 60 inches

Use and Management

Cropland

Land capability classification: 2e
Suitability: Well suited
Management measures and considerations:
- Minimum tillage, farming on the contour, grassed waterways, and winter cover crops reduce the hazard of soil erosion.
- Nutrient management practices, such as soil tests, returning crop residue to the soil, and proper timing of fertilizer and chemical treatments, improve soil health and productivity.

Pasture and hay

Suitability: Well suited
Management measures and considerations:
- Periodic clipping and mowing helps to maintain uniform growth and discourages weed competition.
- Proper stocking rates, lime and fertilizer programs, and pasture rotations increase the quality and quantity of forages.

Woodland

Suitability: Well suited
Management measures and considerations:
- See table 8 for information on woodland management.

Dwellings

Suitability: Well suited
Management measures and considerations:
- Topsoil should be stockpiled for the reclamation of areas that are disturbed during construction.
- The careful use of equipment and good design practices prevent off-site sediment runoff.

Septic tank absorption fields

Suitability: Well suited
Management measures and considerations:
- This soil has few limitations affecting septic tank filter fields.

HoC2—Holston loam, 5 to 12 percent slopes, eroded

Setting

Landscape position: Cumberland River terrace
Parent material: Alluvium

Composition

Holston soil and similar inclusions: 90 percent
Contrasting inclusions: 10 percent

Contrasting Inclusions

- Moderately well drained soils in slight depressions

Typical Profile

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

Subsoil:
5 to 20 inches—yellowish brown loam
20 to 65 inches—yellowish brown clay loam

Soil Properties and Qualities

Drainage class: Well drained
Permeability: Moderate
Available water capacity: High (6 to 8 inches)
Soil reaction: Very strongly acid or strongly acid
Depth to bedrock: More than 60 inches

Use and Management

Cropland

Land capability classification: 3e
Suitability: Suited
Management measures and considerations:
- Minimum tillage, farming on the contour, grassed waterways, and winter cover crops reduce the hazard of soil erosion.
- Nutrient management practices, such as soil tests, returning crop residue to the soil, and proper timing of fertilizer and chemical treatments, improve soil health and productivity.
- Site-specific recommendations are needed.

Pasture and hay

Suitability: Well suited
Management measures and considerations:
- Periodic clipping and mowing helps to maintain uniform growth and discourages weed competition.
- Proper stocking rates, lime and fertilizer programs, and pasture rotation increase the quality and quantity of forages.

Woodland

Suitability: Well suited
Management measures and considerations:
- See table 8 for information on woodland management.

Dwellings

Suitability: Well suited
Management measures and considerations:
- Topsoil should be stockpiled for the reclamation of areas that are disturbed during construction.
- The careful use of equipment and good design practices prevent off-site sediment runoff.
- Structures should be designed to conform to the natural slope.

Septic tank absorption fields

Suitability: Suited
Management measures and considerations:
- Septic tank filter lines should be installed along the contour of the slope.

HuB—Humphreys gravelly silt loam, 2 to 5 percent slopes

Setting

Landscape position: Footslopes and stream terraces
Parent material: Gravelly alluvium

Composition

Humphreys soil and similar inclusions: 95 percent
Contrasting inclusions: 5 percent

Contrasting Inclusions

- Ocana soils on flood plains

Typical Profile

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

Subsoil:
5 to 17 inches—brown gravelly silty clay loam
17 to 35 inches—dark yellowish brown gravelly clay loam
35 to 55 inches—dark yellowish brown gravelly silty clay loam

Substratum:
55 to 80 inches—yellowish brown very gravelly silty clay loam

Soil Properties and Qualities

Drainage class: Well drained
Permeability: Moderately rapid
Available water capacity: Moderate (4 to 6 inches)
Soil reaction: Very strongly acid to moderately acid
Depth to bedrock: More than 60 inches
Seasonal high water table: At a depth of 5 to 6 feet from December to March

Use and Management

Cropland

Land capability classification: 2e
Suitability: Well suited
Management measures and considerations:
- Minimum tillage, farming on the contour, grassed waterways, and winter cover crops reduce the hazard of soil erosion.
- Nutrient management practices, such as soil tests, returning crop residue to the soil, and proper timing of fertilizer and chemical treatments, improve soil health and productivity.
- Site-specific recommendations are needed.

Pasture and hay

Suitability: Well suited
Management measures and considerations:
- Periodic clipping and mowing helps to maintain uniform growth and discourages weed competition.
- Proper stocking rates, lime and fertilizer programs, and pasture rotation increase the quality and quantity of forages.

Woodland

Suitability: Well suited
Management measures and considerations:
- See table 8 for information on woodland management.

Dwellings

Suitability: Well suited
Management measures and considerations:
- Topsoil should be stockpiled for the reclamation of areas that are disturbed during construction.
- The careful use of equipment and good design practices prevent off-site sediment runoff.
- Subsurface drainage may be needed for dwellings with basements.

Septic tank absorption fields

Suitability: Well suited
Management measures and considerations:
- This soil has few limitations affecting septic tank filter fields.

HuC—Humphreys gravelly silt loam, 5 to 12 percent slopes

Setting

Landscape position: Footslopes and stream terraces
Parent material: Gravelly alluvium and colluvium

Composition

Humphreys soil and similar inclusions: 95 percent
Contrasting inclusions: 5 percent

Contrasting Inclusions

- Ocana soils on flood plains

Typical Profile

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

Subsoil:
5 to 17 inches—brown gravelly silty clay loam
17 to 35 inches—dark yellowish brown gravelly clay loam
35 to 55 inches—dark yellowish brown gravelly silty clay loam

Substratum:
55 to 80 inches—yellowish brown very gravelly silty clay loam

Soil Properties and Qualities

Drainage class: Well drained
Permeability: Moderately rapid
Available water capacity: Moderate (4 to 6 inches)
Soil reaction: Very strongly acid to moderately acid
Depth to bedrock: More than 60 inches
Seasonal high water table: At a depth of 5 to 6 feet from December to March

Use and Management

Cropland

Land capability classification: 3e
Suitability: Suited
Management measures and considerations:
- Minimum tillage, farming on the contour, grassed waterways, and winter cover crops reduce the hazard of soil erosion.
- Nutrient management practices, such as soil tests, returning crop residue to the soil, and proper timing of fertilizer and chemical treatments, improve soil health and productivity.
- Site-specific recommendations are needed.

Pasture and hay

Suitability: Well suited
Management measures and considerations:
- Periodic clipping and mowing helps to maintain uniform growth and discourages weed competition.
- Proper stocking rates, lime and fertilizer programs, and pasture rotations increase the quality and quantity of forages.

Woodland

Suitability: Well suited
Management measures and considerations:
- See table 8 for information on woodland management.

Dwellings

Suitability: Well suited
Management measures and considerations:
- Structures should be designed to conform to the natural slope.
- Topsoil should be stockpiled for the reclamation of areas that are disturbed during construction.
- The careful use of equipment and good design practices prevent off-site sediment runoff.

Septic tank absorption fields

Suitability: Suited
Management measures and considerations:
- Septic tank filter lines should be installed along the contour of the slope.

LIB—Lily loam, 2 to 5 percent slopes

Setting

Landscape position: Undulating ridgetops
Parent material: Residuum from sandstone

Composition

Lily soil and similar inclusions: 87 percent
Contrasting inclusions: 13 percent

Contrasting Inclusions

- Lonewood and Ramsey soils

Typical Profile

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

Subsurface layer:
3 to 7 inches—yellowish brown loam

Subsoil:
7 to 16 inches—dark yellowish brown loam
16 to 31 inches—yellowish brown clay loam

Bedrock:
31 inches—hard sandstone bedrock

Soil Properties and Qualities

Drainage class: Well drained
Permeability: Moderately rapid
Available water capacity: Moderate or low (2 to 6 inches)
Soil reaction: Strongly acid or very strongly acid
Depth to bedrock: 20 to 40 inches

Use and Management

Cropland

Land capability classification: 2e
Suitability: Suited
Management measures and considerations:
- Minimum tillage or tillage on the contour and stripcropping reduce the hazard of erosion.
- Maintaining crop residue on the surface and seeding a cover crop help to conserve soil moisture and improve soil quality.
- Including grasses and legumes in the rotation helps to minimize erosion and conserve soil moisture.
- Site-specific recommendations are needed.

Pasture and hay

Suitability: Well suited
Management measures and considerations:
- A proper lime and fertilization program, rotational grazing, and prevention of overgrazing help to maintain the quality and quantity of forage.
- Hay yields may be low in dry years because of the limited amount of water available for plants.

Woodland

Suitability: Well suited
Management measures and considerations:
- See table 8 for information on woodland management.

Dwellings

Suitability: Suited
Management measures and considerations:
- The depth to bedrock is a limitation affecting excavations and local roads and streets.

Septic tank absorption fields

Suitability: Suited
Management measures and considerations:
- The installation of septic tank filter fields can be hindered by the limited depth to bedrock.
- The hazard of seepage into downslope areas is a concern in some areas.

LIC—Lily loam, 5 to 12 percent slopes

Setting

Landscape position: Rolling ridgetops
Parent material: Residuum from sandstone

Composition

Lily soil and similar inclusions: 85 percent
Contrasting inclusions: 15 percent

Contrasting Inclusions

- Lonewood and Ramsey soils

Typical Profile

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

Subsurface layer:
3 to 7 inches—yellowish brown loam

Subsoil:
7 to 16 inches—dark yellowish brown loam
16 to 31 inches—yellowish brown clay loam

Bedrock:
31 inches—hard sandstone bedrock

Soil Properties and Qualities

Drainage class: Well drained
Permeability: Moderately rapid
Available water capacity: Low or moderate (2 to 6 inches)
Soil reaction: Strongly acid or very strongly acid
Depth to bedrock: 20 to 40 inches

Use and Management

Cropland

Land capability classification: 3e
Suitability: Suited
Management measures and considerations:
- Minimum tillage, farming on the contour, grassed waterways, and winter cover crops reduce the hazard of soil erosion.
- Maintaining crop residue on the surface and seeding a cover crop help to conserve soil moisture and improve soil quality.
- Including grasses and legumes in a rotation helps to minimize erosion and conserve soil moisture.
- Nutrient management practices, such as soil tests, returning crop residue to the soil, and proper timing of fertilizer and chemical treatments, improve soil health and productivity.
- Site-specific recommendations are needed.

Pasture and hay

Suitability: Suited
Management measures and considerations:
- Periodic clipping and mowing helps to maintain uniform growth and discourages weed competition.
- Proper stocking rates, lime and fertilizer programs, and pasture rotations increase the quality and quantity of forages.
- Hay yields may be low in dry years because of the limited amount of water available for plants.

Woodland

Suitability: Well suited
Management measures and considerations:
- See table 8 for information on woodland management.

Dwellings

Suitability: Suited
Management measures and considerations:
- Structures should be designed to conform to the natural slope.
- The depth to bedrock is a limitation affecting excavations and local roads and streets.

Septic tank absorption fields

Suitability: Suited
Management measures and considerations:
- Field lines should be installed along the contour of the slope.
- The installation of septic tank filter fields can be limited by the depth to bedrock.
- The hazard of seepage into downslope areas is a concern.

LID—Lily loam, 12 to 20 percent slopes

Setting

Landscape position: Hillsides
Parent material: Residuum from sandstone

Composition

Lily soil and similar inclusions: 85 percent
Contrasting inclusions: 15 percent

Contrasting Inclusions

- Ramsey and Lonewood soils

Typical Profile

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

Subsurface layer:
3 to 7 inches—yellowish brown loam

Subsoil:
7 to 16 inches—dark yellowish brown loam
16 to 31 inches—yellowish brown clay loam

Bedrock:
31 inches—hard sandstone bedrock

Soil Properties and Qualities

Drainage class: Well drained
Permeability: Moderately rapid
Available water capacity: Low (2 to 4 inches)
Soil reaction: Strongly acid or very strongly acid
Depth to bedrock: 20 to 40 inches

Use and Management

Cropland

Land capability classification: 4e
Suitability: Poorly suited
Management measures and considerations:
- Minimum tillage, farming on the contour, grassed waterways, and winter cover crops reduce the hazard of soil erosion.
- Crop yields may be reduced by the limited rooting depth and the low amount of water available for plants.
- Including grasses and legumes in rotations is essential in minimizing erosion and conserving soil moisture.
- Nutrient management practices, such as soil tests, returning crop residue to the soil, and proper timing of fertilizer and chemical treatments, improve soil health and productivity.
- Site-specific recommendations are needed.

Pasture and hay

Suitability: Suited
Management measures and considerations:
- The slope limits some forage management practices.
- Proper stocking rates, lime and fertilizer programs, and pasture rotation increase the quality and quantity of forages.
- Hay yields may be low in dry years because of the limited amount of water available for plants.

Woodland

Suitability: Suited
Management measures and considerations:
- See table 8 for information on woodland management.

Dwellings

Suitability: Poorly suited
Management measures and considerations:
- Structures should be designed to conform to the natural slope.
- The depth to bedrock is a limitation affecting excavations and local roads and streets.

Septic tank absorption fields

Suitability: Poorly suited
Management measures and considerations:
- Field lines should be installed along the contour of the slope.
- The installation of septic tank filter fields can be limited by the depth to bedrock.
- The hazard of seepage into downslope areas is a concern.

LwB—Lonewood loam, 2 to 5 percent slopes

Setting

Landscape position: Undulating ridgetops
Parent material: Residuum from sandstone and shale

Composition

Lonewood soil and similar inclusions: 90 percent
Contrasting inclusions: 10 percent

Contrasting Inclusions

- Lily soils and moderately well drained soils

Typical Profile

Surface layer:
0 to 4 inches—dark grayish brown loam

Subsurface layer:
4 to 9 inches—yellowish brown loam

Subsoil:
9 to 29 inches—dark yellowish brown loam
29 to 45 inches—strong brown clay loam
45 to 65 inches—yellowish red sandy loam

Soil Properties and Qualities

Drainage class: Well drained
Permeability: Moderate
Available water capacity: Moderate (4 to 6 percent)
Soil reaction: Strongly acid or very strongly acid
Depth to bedrock: 40 to 70 inches

Use and Management

Cropland

Land capability classification: 2e
Suitability: Well suited
Management measures and considerations:
- Minimum tillage, farming on the contour, grassed waterways, and winter cover crops reduce the hazard of soil erosion.
- Nutrient management practices, such as soil tests, returning crop residue to the soil, and proper timing of fertilizer and chemical treatments, improve soil health and productivity.
- Site-specific recommendations are needed.

Pasture and hay

Suitability: Well suited
Management measures and considerations:
- Periodic clipping and mowing helps to maintain uniform growth and discourages weed competition.
- Proper stocking rates, lime and fertilizer programs, and pasture rotations increase the quality and quantity of forages.

Woodland

Suitability: Well suited
Management measures and considerations:
- See table 8 for information on woodland management.

Dwellings

Suitability: Well suited
Management measures and considerations:
- Topsoil should be stockpiled for the reclamation of areas that are disturbed during construction.
- The careful use of equipment and good design practices prevent off-site sediment runoff.

Septic tank absorption fields

Suitability: Well suited
Management measures and considerations:
- Septic tank filter lines should be installed on the contour.

LwC—Lonewood loam, 5 to 12 percent slopes

Setting

Landscape position: Rolling ridgetops
Parent material: Residuum from sandstone and shale

Composition

Lonewood soil and similar inclusions: 90 percent
Contrasting inclusions: 10 percent

Contrasting Inclusions

- Lily soils in landscape positions similar to those of the Lonewood soil

Typical Profile

Surface layer:
0 to 4 inches—dark grayish brown loam

Subsurface layer:
4 to 9 inches—yellowish brown loam

Subsoil:
9 to 29 inches—dark yellowish brown loam
29 to 45 inches—strong brown clay loam
45 to 65 inches—yellowish red sandy loam

Soil Properties and Qualities

Drainage class: Well drained
Permeability: Moderate
Available water capacity: Moderate (4 to 6 inches)
Soil reaction: Strongly acid or very strongly acid
Depth to bedrock: 40 to 70 inches

Use and Management

Cropland

Land capability classification: 3e
Suitability: Suited
Management measures and considerations:
- Minimum tillage, farming on the contour, grassed waterways, and winter cover crops reduce the hazard of soil erosion.
- Nutrient management practices, such as soil tests, returning crop residue to the soil, and proper timing of fertilizer and chemical treatments, improve soil health and productivity.
- Site-specific recommendations are needed.

Pasture and hay

Suitability: Well suited

Management measures and considerations:
- Periodic clipping and mowing helps to maintain uniform growth and discourages weed competition.
- Proper stocking rates, lime and fertilizer programs, and pasture rotations increase the quality and quantity of forages.

Woodland

Suitability: Well suited
Management measures and considerations:
- See table 8 for information on woodland management.

Dwellings

Suitability: Well suited
Management measures and considerations:
- Structures should be designed to conform to the natural slope.

Septic tank absorption fields

Suitability: Well suited
Management measures and considerations:
- Field lines should be installed along the contour of the slope.

Me—Melvin silt loam, ponded

Setting

Landscape position: Depressions on floodplains
Slope range: 0 to 2 percent
Parent material: Alluvium

Composition

Melvin soil and similar inclusions: 88 percent
Contrasting inclusions: 12 percent

Contrasting Inclusions

- Somewhat poorly drained soils and Dickson soils in the slightly higher positions

Typical Profile

Surface layer:
0 to 7 inches—grayish brown silt loam

Subsoil:
7 to 20 inches—grayish brown silt loam
20 to 39 inches—gray silt loam

Substratum:
39 to 65 inches—light brownish gray silty clay loam

Soil Properties and Qualities

Drainage class: Poorly drained
Permeability: Moderate
Available water capacity: High or very high (7 to 9 inches)
Soil reaction: Moderately acid to neutral
Depth to bedrock: More than 60 inches
Seasonal high water table: At or above the surface from December to May
Ponding: Frequent ponding for long duration from December to May

Use and Management

Cropland

Land capability classification: 5w
Suitability: Unsuited
Management measures and considerations:
- Because of the ponding on the surface and seasonal wetness, this soil is unsuited to crop production.

Pasture and hay

Suitability: Poorly suited
Management measures and considerations:
- Restricting grazing during periods of wetness helps to limit soil compaction and destruction of desirable plants.
- Forage plants that can tolerate inundation and saturation for long periods should be selected for planting.

Woodland

Suitability: Poorly suited
Management measures and considerations:
- Ponding on the surface limits the selection of species to those that can tolerate inundation.
- Roots are restricted and trees are susceptible to windthrow because of the high water table.
- Seasonal wetness limits the use of equipment to dry periods in late summer and early fall.
- Equipment use during wet periods may cause ruts, compacts the soil, and damages tree roots.
- Chemical or mechanical treatments may be needed to decrease plant competition from undesirable species.
- Landings and roads should be located in areas adjacent to this map unit that do not pond.
- See table 8 for more information on woodland management.

Dwellings

Suitability: Unsuited
Management measures and considerations:
- This map unit is unsuited to all commercial and residential uses because of the ponding and seasonal wetness.

Septic tank absorption fields

Suitability: Unsuited
Management measures and considerations:
- Because of the ponding and seasonal high water table, this soil is unsuited to septic tank filter fields.

MnC2—Minvale gravelly loam, 5 to 12 percent slopes, eroded

Setting

Landscape position: Rolling benches
Parent material: Colluvium or alluvium underlain by limestone residuum

Composition

Minvale soil and similar inclusions: 90 percent
Contrasting inclusions: 10 percent

Contrasting Inclusions

- Sengtown soils on hillsides
- Sullivan and Hamblen soils in depressions

Typical Profile

Surface layer:
0 to 3 inches—dark brown gravelly loam

Subsurface layer:
3 to 12 inches—dark yellowish brown gravelly loam

Subsoil:
12 to 20 inches—brown gravelly clay loam
20 to 48 inches—yellowish red gravelly clay loam
48 to 65 inches—red very gravelly clay

Soil Properties and Qualities

Drainage class: Well drained
Permeability: Moderate
Available water capacity: Moderate or high (5 to 7 inches)
Soil reaction: Very strongly acid or strongly acid
Depth to bedrock: More than 60 inches

Use and Management

Cropland

Land capability classification: 3e
Suitability: Suited
Management measures and considerations:
- The gravel reduces the available water capacity and hinders cultivation.
- Minimum tillage, farming on the contour, grassed waterways, and winter cover crops reduce the hazard of soil erosion.
- Nutrient management practices, such as soil tests, returning crop residue to the soil, and proper timing of fertilizer and chemical treatments, improve soil health and productivity.
- Site-specific recommendations are needed.

Pasture and hay

Suitability: Well suited
Management measures and considerations:
- Periodic clipping and mowing helps to maintain uniform growth and discourages weed competition.
- Proper stocking rates, lime and fertilizer programs, and pasture rotations increase the quality and quantity of forages.

Woodland

Suitability: Well suited
Management measures and considerations:
- Water turnouts and diversions help to prevent erosion on roads and landings.
- See table 8 for more information on woodland management.

Dwellings

Suitability: Well suited
Management measures and considerations:
- Topsoil should be stockpiled for the reclamation of areas that are disturbed during construction.
- The careful use of equipment and good design practices prevent off-site sediment runoff.

Septic tank absorption fields

Suitability: Well suited
Management measures and considerations:
- Field lines should be installed along the contour of the slope.

MnD2—Minvale gravelly loam, 12 to 20 percent slopes, eroded

Setting

Landscape position: Footslopes and benches
Parent material: Colluvium or alluvium underlain by limestone residuum

Composition

Minvale soil and similar inclusions: 90 percent
Contrasting inclusions: 10 percent

Contrasting Inclusions

- Sengtown soils on hillsides
- Sullivan and Hamblen soils in depressions

Typical Profile

Surface layer:
0 to 3 inches—dark brown gravelly loam

Subsurface layer:
3 to 12 inches—dark yellowish brown gravelly loam

Subsoil:
12 to 20 inches—brown gravelly clay loam
20 to 48 inches—yellowish red gravelly clay loam
48 to 65 inches—red very gravelly clay

Soil Properties and Qualities

Drainage class: Well drained
Permeability: Moderate
Available water capacity: Moderate or high (5 to 7 inches)
Soil reaction: Very strongly acid or strongly acid
Depth to bedrock: More than 60 inches

Use and Management

Cropland

Land capability classification: 4e
Suitability: Poorly suited

Management measures and considerations:
- The gravel reduces the available water capacity and hinders cultivation.
- Long rotations into grasses and legumes are needed to reduce the hazard of erosion.
- Minimal tillage, farming on the contour, grassed waterways, and winter cover crops help to minimize erosion and maintain soil quality.

Pasture and hay

Suitability: Suited
Management measures and considerations:
- The slope limits some forage management practices.

Woodland

Suitability: Suited
Management measures and considerations:
- See table 8 for information on woodland management.

Dwellings

Suitability: Suited
Management measures and considerations:
- Structures should be designed to conform to the natural slope.

Septic tank absorption fields

Suitability: Suited
Management measures and considerations:
- Septic tank filter lines should be installed along the contour of the slope.

MoB2—Monongahela silt loam, 2 to 5 percent slopes, eroded

Setting

Landscape position: Stream terraces
Parent material: Alluvium

Composition

Monongahela soil and similar inclusions: 90 percent
Contrasting inclusions: 10 percent

Contrasting Inclusions

- Holston soils in landscape positions similar to those of the Monogahela soil

Typical Profile

Surface layer:
0 to 5 inches—brown silt loam

Subsoil:
5 to 24 inches—yellowish brown silt loam
24 to 28 inches—light yellowish brown silt loam
28 to 50 inches—light olive brown loam; firm fragipan
50 to 68 inches—light yellowish brown gravelly loam; firm fragipan
68 to 80 inches—brownish yellow gravelly loam

Soil Properties and Qualities

Drainage class: Moderately well drained

Permeability: Moderate above the fragipan and slow or very slow in the fragipan
Available water capacity: Moderate (4 to 6 inches)
Soil reaction: Very strongly acid or strongly acid
Depth to bedrock: More than 60 inches
Seasonal high water table: At a depth of 1.5 to 2.5 feet from December to April

Use and Management

Cropland

Land capability classification: 2e
Suitability: Well suited
Management measures and considerations:
- The limited depth to the fragipan reduces the amount of water available to plants.
- Minimum tillage, farming on the contour, grassed waterways, and winter cover crops reduce the hazard of soil erosion.
- Nutrient management practices, such as soil tests, returning crop residue to the soil, and proper timing of fertilizer and chemical treatments, improve soil health and productivity.
- Site-specific recommendations are needed.

Pasture and hay

Suitability: Well suited
Management measures and considerations:
- Restricting grazing during periods of wetness helps to limit soil compaction and destruction of desirable plants.

Woodland

Suitability: Well suited
Management measures and considerations:
- See table 8 for information on woodland management.

Dwellings

Suitability: Suited
Management measures and considerations:
- Subsurface drainage and land shaping help to remove excess water around footings.
- This soil is unsuited to dwellings with basements because of the wetness.

Septic tank absorption fields

Suitability: Suited
Management measures and considerations:
- Increasing the size of the septic tank filter field helps to compensate for the slower permeability.
- Subsurface drainage and landscape design are needed to remove excess water.

MoC2—Monongahela silt loam, 5 to 12 percent slopes, eroded

Setting

Landscape position: Stream terraces
Parent material: Alluvium

Composition

Monongahela soil and similar inclusions: 90 percent
Contrasting inclusions: 10 percent

Contrasting Inclusions

- Holston soils in landscape positions similar to those of the Monongahela soil

Typical Profile

Surface layer:
0 to 5 inches—brown silt loam

Subsoil:
5 to 24 inches—yellowish brown silt loam
24 to 28 inches—light yellowish brown silt loam
28 to 50 inches—light olive brown loam; firm fragipan
50 to 68 inches—light yellowish brown gravelly loam; firm fragipan
68 to 80 inches—brownish yellow gravelly loam

Soil Properties and Qualities

Drainage class: Moderately well drained
Permeability: Moderate above the fragipan and slow or very slow in the fragipan
Available water capacity: Moderate (4 to 6 inches)
Soil reaction: Very strongly acid or strongly acid
Depth to bedrock: More than 60 inches
Seasonal high water table: At a depth of 1.5 to 2.5 feet from December to April

Use and Management

Cropland

Land capability classification: 3e
Suitability: Suited
Management measures and considerations:
- The limited depth to the fragipan reduces the amount of water available to plants.
- Minimum tillage, farming on the contour, grassed waterways, and winter cover crops reduce the hazard of soil erosion.
- Nutrient management practices, such as soil tests, returning crop residue to the soil, and proper timing of fertilizer and chemical treatments, improve soil health and productivity.
- Site-specific recommendations are needed.

Pasture and hay

Suitability: Suited
Management measures and considerations:
- Restricting grazing during periods of wetness helps to limit soil compaction and destruction of desirable plants.
- Periodic clipping and mowing helps to maintain uniform growth and discourages weed competition.
- Proper stocking rates, lime and fertilizer programs, and pasture rotations increase the quality and quantity of forages.

Woodland

Suitability: Suited
Management measures and considerations:
- Equipment use during wet periods may cause ruts, compacts the soil, and damages tree roots.

- Water turnouts and diversions help to prevent erosion on roads and landings.
- See table 8 for more information on woodland management.

Dwellings

Suitability: Suited
Management measures and considerations:
- Structures should be designed to conform to the natural slope.
- Subsurface drainage and land shaping help to remove excess water around footings.
- This soil is unsuited to dwellings with basements because of the wetness.

Septic tank absorption fields

Suitability: Suited
Management measures and considerations:
- Increasing the size of the septic tank filter field helps to compensate for the slower permeability.
- Subsurface drainage and landscape design are needed to remove excess water.

MtB2—Mountview silt loam, 2 to 5 percent slopes, eroded

Setting

Landscape position: Undulating ridgetops
Parent material: Loess over residuum of limestone

Composition

Mountview soil and similar inclusions: 85 percent
Contrasting inclusions: 15 percent

Contrasting Inclusions

- Dickson soils in the slightly lower positions
- Sengtown and Christian soils on shoulder slopes

Typical Profile

Surface layer:
0 to 8 inches—brown silt loam

Subsoil:
8 to 28 inches—yellowish brown silt loam
28 to 34 inches—strong brown silty clay loam
34 to 45 inches—yellowish red silty clay loam
45 to 80 inches—red clay

Soil Properties and Qualities

Drainage class: Moderately well drained
Permeability: Moderate
Available water capacity: High (6 to 8 inches)
Soil reaction: Very strongly acid or strongly acid
Depth to bedrock: More than 60 inches
Seasonal high water table: Perched at a depth of 1.5 to 3.0 feet for short duration from December to April

Figure 13.—A field of snap beans on Mountview silt loam, 2 to 5 percent slopes, eroded. This soil is highly productive for most row crops.

Use and Management

Cropland (fig. 13)

Land capability classification: 2e
Suitability: Well suited
Management measures and considerations:
- Minimum tillage, farming on the contour, grassed waterways, and winter cover crops reduce the hazard of soil erosion.
- Nutrient management practices, such as soil tests, returning crop residue to the soil, and proper timing of fertilizer and chemical treatments, improve soil health and productivity.
- Site-specific recommendations are needed.

Pasture and hay

Suitability: Well suited
Management measures and considerations:
- Periodic clipping and mowing helps to maintain uniform growth and discourages weed competition.
- Proper stocking rates, lime and fertilizer programs, and pasture rotation increase the quality and quantity of forages.

Woodland

Suitability: Well suited
Management measures and considerations:
- See table 8 for information on woodland management.

Dwellings

Suitability: Well suited
Management measures and considerations:
- Subsurface drainage and land shaping are needed to remove excess water in some areas.
- Topsoil should be stockpiled for the reclamation of areas that are disturbed during construction.
- The careful use of equipment and good design practices prevent off-site sediment runoff.

Septic tank absorption fields

Suitability: Suited
Management measures and considerations:
- Increasing the size of the septic tank filter field helps to compensate for the slower permeability.
- Subsurface drainage and landscape design may be needed to remove excess water.

MtC2—Mountview silt loam, 5 to 12 percent slopes, eroded

Setting

Landscape position: Rolling ridges
Parent material: Loess over residuum of limestone

Composition

Mountview soil and similar inclusions: 85 percent
Contrasting inclusions: 15 percent

Contrasting Inclusions

- Dickson soils in the lower positions on the landscape
- Hawthorne soils on the steeper hillsides
- Sengtown and Christian soils on shoulder slopes

Typical Profile

Surface layer:
0 to 8 inches—brown silt loam

Subsoil:
8 to 28 inches—yellowish brown silt loam
28 to 34 inches—strong brown silty clay loam
34 to 45 inches—yellowish red silty clay loam
45 to 80 inches—red clay

Soil Properties and Qualities

Drainage class: Well drained
Permeability: Moderate
Available water capacity: High (6 to 8 inches)
Soil reaction: Very strongly acid or strongly acid
Depth to bedrock: More than 60 inches
Seasonal high water table: None

Use and Management

Cropland

Land capability classification: 3e
Suitability: Suited
Management measures and considerations:
- Minimum tillage, farming on the contour, grassed waterways, and winter cover crops reduce the hazard of soil erosion.
- Nutrient management practices, such as soil tests, returning crop residue to the soil, and proper timing of fertilizer and chemical treatments, improve soil health and productivity.
- Site-specific recommendations are needed.

Pasture and hay

Suitability: Well suited
Management measures and considerations:
- Periodic clipping and mowing helps to maintain uniform growth and discourages weed competition.
- Proper stocking rates, lime and fertilizer programs, and pasture rotation increase the quality and quantity of forages.

Woodland

Suitability: Well suited
Management measures and considerations:
- Water turnouts and diversions help to prevent erosion on roads and landings.
- See table 8 for more information on woodland management.

Dwellings

Suitability: Suited
Management measures and considerations:
- Subsurface drainage and land shaping are needed to remove excess water in some areas.
- Structures should be designed to conform to the natural slope.

Septic tank absorption fields

Suitability: Suited
Management measures and considerations:
- Increasing the size of the septic tank filter field helps to compensate for the slower permeability.
- Subsurface drainage and landscape design may be needed to remove excess water.
- Filter field lines should be installed along the contour of the slope.

NeC—Nella cobbly loam, 5 to 12 percent slopes

Setting

Landscape position: Rolling benches and footslopes
Parent material: Colluvium from sandstone and limestone

Composition

Nella soil and similar inclusions: 96 percent
Contrasting inclusions: 4 percent

Contrasting Inclusions

- Limestone rock outcrops in small scattered areas
- Talbott soils in convex areas

Typical Profile

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

Subsoil:
3 to 30 inches—yellowish red cobbly clay loam
30 to 70 inches—yellowish red very cobbly clay loam

Soil Properties and Qualities

Drainage class: Well drained
Permeability: Moderate
Available water capacity: Moderate or low (3 to 6 inches)
Soil reaction: Strongly acid or very strongly acid
Depth to bedrock: More than 72 inches

Use and Management

Cropland

Land capability classification: 3e
Suitability: Suited
Management measures and considerations:
- Cobbles in the surface layer and subsoil can hinder cultivation practices.
- The available water capacity is reduced and yields are lower because of the rock fragments.
- Minimum tillage, farming on the contour, grassed waterways, and winter cover crops reduce the hazard of soil erosion.
- Nutrient management practices, such as soil tests, returning crop residue to the soil, and proper timing of fertilizer and chemical treatments, improve soil health and productivity.
- Site-specific recommendations are needed.

Pasture and hay

Suitability: Well suited
Management measures and considerations:
- Periodic clipping and mowing helps to maintain uniform growth and discourages weed competition.
- Proper stocking rates, lime and fertilizer programs, and pasture rotations increase the quality and quantity of forages.

Woodland

Suitability: Well suited
Management measures and considerations:
- Reforestation must be carefully managed to reduce plant competition.
- See table 8 for more information on woodland management.

Dwellings

Suitability: Well suited
Management measures and considerations:
- Topsoil should be stockpiled for the reclamation of areas that are disturbed during construction.

- The careful use of equipment and good design practices prevent off-site sediment runoff.

Septic tank absorption fields

Suitability: Well suited
Management measures and considerations:
- Filter field lines should be installed on the contour.

NeD—Nella cobbly loam, 12 to 20 percent slopes

Setting

Landscape position: Mountains and hillsides
Parent material: Colluvium from sandstone and limestone

Composition

Nella soil and similar inclusions: 96 percent
Contasting inclusions: 4 percent

Contrasting Inclusions

- Limestone rock outcrops in small scattered areas
- Talbott soils in convex areas

Typical Profile

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

Subsoil:
3 to 30 inches—yellowish red cobbly clay loam
30 to 70 inches—yellowish red very cobbly clay loam

Soil Properties and Qualities

Drainage class: Well drained
Permeability: Moderate
Available water capacity: Moderate or low (3 to 6 inches)
Soil reaction: Strongly acid or very strongly acid
Depth to bedrock: More than 72 inches

Use and Management

Cropland

Land capability classification: 4e
Suitability: Poorly suited
Management measures and considerations:
- Cobbles in the surface layer and in the subsoil can hinder cultivation practices.
- The available water capacity is reduced and yields are lower because of the rock fragments.
- Nutrient management practices, such as soil tests, returning crop residue to the soil, and proper timing of fertilizer and chemical treatments, improve soil health and productivity.
- Long rotations into grasses and legumes are needed to reduce the hazard of erosion.
- Site-specific recommendations are needed.

Pasture and hay

Suitability: Suited
Management measures and considerations:
- The slope limits some forage management practices.

Woodland

Suitability: Suited
Management measures and considerations:
- The slope may limit the use of some equipment.
- Reforestation must be carefully managed to reduce plant competition.
- See table 8 for more information on woodland management.

Dwellings

Suitability: Suited
Management measures and considerations:
- Structures should be designed to conform to the natural slope.

Septic tank absorption fields

Suitability: Suited
Management measures and considerations:
- Increasing the size of the septic tank filter field helps to compensate for slower percolation rates.
- Filter field lines should be installed along the contour.

NeE—Nella cobbly loam, 20 to 40 percent slopes

Setting

Landscape position: Mountains and hillsides
Parent material: Colluvium from sandstone and limestone

Composition

Nella soil and similar inclusions: 90 percent
Contrasting inclusions: 10 percent

Contrasting Inclusions

- Limestone rock outcrops in small scattered areas
- Talbott soils in convex areas

Typical Profile

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

Subsoil:
3 to 30 inches—yellowish red cobbly clay loam
30 to 70 inches—yellowish red very cobbly clay loam

Soil Properties and Qualities

Drainage class: Well drained
Permeability: Moderate
Available water capacity: Moderate or low (3 to 6 inches)
Soil reaction: Strongly acid or very strongly acid
Depth to bedrock: More than 72 inches

Use and Management

Cropland

Land capability classification: 6e
Suitability: Unsuited
Management measures and considerations:
- Because of the slope and the hazard of erosion, this map unit is unsuited to cropland.

Pasture and hay

Suitability: Poorly suited
Management measures and considerations:
- Because of the slope, the use of farm equipment is unsafe and most management practices are limited.

Woodland

Suitability: Suited
Management measures and considerations:
- The slope limits the use of planting and harvesting equipment.
- Locating roads along the contour reduces the erosion hazard.
- Water turnouts, water bars, and seeding of disturbed areas minimize erosion and keep sediment away from streams.
- See table 8 for more information on woodland management.

Dwellings

Suitability: Unsuited
Management measures and considerations:
- The slope is a limitation affecting most residential and commercial uses.
- Slippage is a hazard when excavations are made into hillsides.

Septic tank absorption fields

Suitability: Unsuited
Management measures and considerations:
- The installation of septic systems is difficult because of the slope.
- There is a hazard of seepage into downslope areas.

NrF—Nella-Talbott-Rock outcrop complex, 20 to 70 percent slopes, very stony

Setting

Landscape position: Mountains and hillsides
Parent material: Colluvium from sandstone and limestone and residuum of limestone

Composition

Nella soil and similar inclusions: 50 percent
Talbott soil and similar inclusions: 25 percent
Rock outcrop: 15 percent
Contrasting inclusions: 10 percent

Contrasting Inclusions

Bouldin soils in concave positions

Typical Profile

Nella

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

Subsoil:
3 to 30 inches—yellowish red cobbly clay loam
30 to 70 inches—yellowish red very cobbly clay loam

Talbott

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

Subsoil:
5 to 33 inches—red clay

Bedrock:
33 inches—limestone bedrock

Rock outcrop

This part of the map unit consists of nearly vertical limestone ledges that extend 1 to 10 feet above the surface.

Properties and Qualities of the Nella and Talbott Soils

Drainage class: Well drained
Permeability: Nella—moderate; Talbott—slow or very slow
Available water capacity: Nella—low or moderate (3 to 6 inches); Talbott—low or moderate (2 to 5 inches)
Soil reaction: Nella—strongly acid or very strongly acid; Talbott—slightly acid to strongly acid
Depth to bedrock: Nella—more than 72 inches; Talbott—20 to 40 inches

Use and Management

Cropland

Land capability classification: Nella and Talbott—7s; Rock outcrop—none assigned
Suitability: Unsuited
Management measures and considerations:
- Because of the slope, numerous stones on the surface, and Rock outcrop, this map unit is unsuited to cropland.

Pasture and hay

Suitability: Unsuited
Management measures and considerations:
- Because of the slope, stones on the surface, and Rock outcrop, the use of farm equipment is unsafe and most management practices are limited.

Woodland

Suitability: Poorly suited
Management measures and considerations:
- Reforestation must be carefully managed to reduce plant competition.
- Equipment use is limited because of the slope, stones, and Rock outcrop.
- Locating roads along the contour reduces the erosion hazard.
- Water turnouts, water bars, and seeding of disturbed areas minimize erosion and keep sediment away from streams.

Dwellings

Suitability: Unsuited
Management measures and considerations:
- The slope and Rock outcrop limit the use of this map unit for dwellings and local roads and streets.

Septic tank absorption fields

Suitability: Unsuited
Management measures and considerations:
- The depth to bedrock, Rock outcrop, and variable permeability limit the use of this map unit for septic tank filter fields.

Oc—Ocana gravelly silt loam, occasionally flooded

Setting

Landscape position: Floodplains
Parent material: Gravelly alluvium

Composition

Ocana soil and similar inclusions: 85 percent
Contrasting inclusions: 15 percent

Contrasting Inclusions

- Humphreys soils in the higher areas that do not flood
- Sullivan soils in landscape positions similar to those of the Ocana soil

Typical Profile

Surface layer:
0 to 7 inches—brown gravelly silt loam

Subsoil:
7 to 17 inches—dark yellowish brown gravelly silt loam
17 to 36 inches—dark yellowish brown gravelly loam
36 to 48 inches—dark yellowish brown gravelly clay loam

Substratum:
48 to 65 inches—brown very gravelly loam

Soil Properties and Qualities

Drainage class: Well drained
Permeability: Moderately rapid
Available water capacity: Moderate (4 to 6 inches)
Soil reaction: Moderately acid to neutral
Depth to bedrock: More than 60 inches
Seasonal high water table: At a depth of 4 to 6 feet from December to March
Flooding: Occasional flooding for brief duration from December to March

Use and Management

Cropland

Land capability classification: 2w
Suitability: Well suited

Management measures and considerations:
- Nutrient management practices, such as soil tests, returning crop residue to the soil, and proper timing of fertilizer and chemical treatments, improve soil health and productivity.
- Site-specific recommendations are needed.

Pasture and hay

Suitability: Well suited
Management measures and considerations:
- Restricting grazing during periods of flooding helps to limit soil compaction and destruction of desirable plants.

Woodland

Suitability: Well suited
Management measures and considerations:
- Chemical or mechanical treatments may be needed to decrease plant competition.
- See table 8 for more information on woodland management.

Dwellings

Suitability: Unsuited
Management measures and considerations:
- This map unit is unsuited to commercial and residential uses because of the flooding.

Septic tank absorption fields

Suitability: Suited
Management measures and considerations:
- Because of the flooding, this soil is limited for septic tank filter fields.
- Septic tank filter fields should be located in areas of the map unit that are not subject to flooding.

Pd—Purdy silt loam, ponded

Setting

Landscape position: Upland depressions
Slope range: 0 to 2 percent
Parent material: Alluvium

Composition

Purdy soil and similar inclusions: 85 percent
Contrasting inclusions: 15 percent

Contrasting Inclusions

- Somewhat poorly drained soils in the slightly higher areas

Typical Profile

Surface layer:
0 to 8 inches—dark grayish brown silt loam

Subsoil:
8 to 14 inches—dark grayish brown silty clay loam
14 to 65 inches—dark gray clay

Soil Properties and Qualities

Drainage class: Poorly drained
Permeability: Slow or very slow
Available water capacity: High
Soil reaction: Very strongly acid or strongly acid
Seasonal high water table: Within a depth of 1 foot from December to May
Ponding: Frequent ponding for long duration from December to May
Depth to bedrock: More than 60 inches

Use and Management

Cropland

Land capability classification: 5w
Suitability: Unsuited
Management measures and considerations:
- Because of the ponding and a high water table, this soil is unsuited to cropland.

Pasture and hay

Suitability: Unsuited
Management measures and considerations:
- Because of the ponding and long periods of saturation, this soil is difficult to manage for forages.

Woodland

Suitability: Poorly suited
Management measures and considerations:
- Water-tolerant species should be selected for planting.
- Seedling mortality may be high because of ponded water and long periods of saturation.
- See table 8 for more information on woodland management.

Dwellings

Suitability: Unsuited
Management measures and considerations:
- This soil is unsuited to dwellings because of the ponding and long periods of saturation.

Septic tank absorption fields

Suitability: Unsuited
Management measures and considerations:
- This soil is unsuited to septic tank absorption fields because of the ponding, slow or very slow permeability, and long periods of saturation.

Qr—Pits, quarry

This map unit consists of areas that are actively being used as stone quarries. The areas have had soil material removed down to the hard bedrock. The hard bedrock is being drilled and blasted for a variety of uses in the local area. The major use is for gravel in the transportation and construction industries. The vertical sidewalls consist of hard limestone bedrock. Normally, an area adjacent to the site is used to deposit the soil overburden and undesirable rock material. These spoil areas are used when the area is being reclaimed to vegetation. Several of these areas adjacent to active quarries have been planted to trees and permanent grasses.

No land capability classification is assigned to this map unit.

RaC—Ramsey loam, 5 to 12 percent slopes

Setting

Landscape position: Rolling ridgetops
Parent material: Residuum from sandstone

Composition

Ramsey soil and similar inclusions: 90 percent
Contrasting inclusions: 10 percent

Contrasting Inclusions

- Lily soils in landscape positions similar to those of the Ramsey soil
- Sandstone rock outcrops

Typical Profile

Surface layer:
0 to 2 inches—dark brown loam

Subsoil:
2 to 18 inches—dark yellowish brown sandy loam

Bedrock:
18 inches—hard sandstone bedrock

Soil Properties and Qualities

Drainage class: Somewhat excessively drained
Permeability: Rapid
Available water capacity: Very low (less than 2 inches)
Soil reaction: Strongly acid or very strongly acid
Depth to bedrock: 7 to 20 inches

Use and Management

Cropland

Land capability classification: 4s
Suitability: Unsuited
Management measures and considerations:
- The shallow depth to bedrock limits the amount of water available to plants.
- Droughtiness and nutrient leaching are major concerns for crop production.

Pasture and hay

Suitability: Poorly suited
Management measures and considerations:
- The low available water capacity limits the production of pasture and hay plants.
- Plants that can tolerate droughty conditions should be selected for planting.

Woodland

Suitability: Poorly suited
Management measures and considerations:
- Droughty conditions reduce tree growth and limit the adaptability of desirable species.
- The rooting depth is restricted and trees are susceptible to windthrow because of the shallow depth to bedrock.
- See table 8 for more information on woodland management.

Dwellings

Suitability: Unsuited
Management measures and considerations:
- The shallow depth to bedrock is a limitation affecting excavations for structures and local roads and streets.

Septic tank absorption fields

Suitability: Unsuited
Management measures and considerations:
- A shallow depth to bedrock hinders the installation of septic systems.
- The seepage of effluent across bedrock layers into downslope areas is a health concern.

RaD—Ramsey loam, 12 to 20 percent slopes

Setting

Landscape position: Hillsides and shoulder slopes
Parent material: Residuum from sandstone

Composition

Ramsey soil and similar inclusions: 90 percent
Contrasting inclusions: 10 percent

Contrasting Inclusions

- Lily soils on shoulder slopes
- Sandstone rock outcrops

Typical Profile

Surface layer:
0 to 2 inches—dark brown loam

Subsoil:
2 to 18 inches—dark yellowish brown sandy loam

Bedrock:
18 inches—hard sandstone bedrock

Soil Properties and Qualities

Drainage class: Somewhat excessively drained
Permeability: Rapid
Available water capacity: Very low (less than 2 inches)
Soil reaction: Strongly acid or very strongly acid
Depth to bedrock: 7 to 20 inches

Use and Management

Cropland

Land capability classification: 6s
Suitability: Unsuited
Management measures and considerations:
- Because of the shallow depth to bedrock, slope, and severe erosion hazard, this map unit is unsuited to cropland.

Pasture and hay

Suitability: Poorly suited
Management measures and considerations:
- The low available water capacity limits the production of forage and hay plants.
- Plants that can tolerate droughty conditions should be selected for planting.

Woodland

Suitability: Poorly suited
Management measures and considerations:
- Droughty conditions reduce tree growth and limit the adaptability of desirable species.
- The rooting depth is restricted and trees are susceptible to windthrow because of the shallow depth to bedrock.
- See table 8 for more information on woodland management.

Dwellings

Suitability: Unsuited
Management measures and considerations:
- The slope and a shallow depth to bedrock interfere with excavations for structures and local roads and streets.

Septic tank absorption fields

Suitability: Unsuited
Management measures and considerations:
- The slope and the shallow depth to bedrock are severe limitations affecting the installation of septic systems.
- The seepage of effluent across bedrock layers into downslope areas is a health concern.

RrC—Ramsey-Rock outcrop complex, 5 to 12 percent slopes

Setting

Landscape position: Ridgetops
Parent material: Residuum from sandstone

Composition

Ramsey soil: 65 percent
Rock outcrop: 25 percent
Contrasting inclusions: 10 percent

Contrasting Inclusions

- Lily soils in landscape positions similar to those of the Ramsey soil

Typical Profile

Ramsey

Surface layer:
0 to 2 inches—dark brown loam

Subsoil:
2 to 18 inches—dark yellowish brown sandy loam

Bedrock:
18 inches—hard sandstone bedrock

Rock outcrop

This part of the map unit consists of nearly vertical sandstone ledges that extend 1 to 10 feet above the surface.

Properties and Qualities of the Ramsey Soil

Drainage class: Somewhat excessively drained
Permeability: Rapid
Available water capacity: Very low (less than 2 inches)
Soil reaction: Strongly acid or very strongly acid
Depth to bedrock: 7 to 20 inches

Use and Management

Cropland

Land capability classification: Ramsey—6s; Rock outcrop—none assigned
Suitability: Unsuited
Management measures and considerations:
- Because of the shallow depth to bedrock and the Rock outcrop, this map unit is unsuited to cropland.

Pasture and hay

Suitability: Unsuited
Management measures and considerations:
- Because of the shallow depth to bedrock, numerous rock outcrops, low available water capacity, and difficulty in conducting forage management operations, this map unit is unsuited to pasture and hay.

Woodland

Suitability: Poorly suited
Management measures and considerations:
- Droughty conditions reduce tree growth and limit the adaptability of desirable species.
- The rooting depth is restricted and trees are susceptible to windthrow because of the shallow depth to bedrock.
- The numerous rock outcrops hinder the operation of equipment.
- See table 8 for more information on woodland management.

Dwellings

Suitability: Unsuited
Management measures and considerations:
- The shallow depth to bedrock and numerous rock outcrops are severe limitations affecting excavations for structures and local roads and streets.

Septic tank absorption fields

Suitability: Unsuited
Management measures and considerations:
- The numerous rock outcrops and the shallow depth to bedrock are severe limitations affecting the installation of septic systems.
- The seepage of effluent across bedrock layers into downslope areas is a health concern.

RrE—Ramsey-Rock outcrop complex, 12 to 40 percent slopes

Setting

Landscape position: Hillsides
Parent material: Residuum from sandstone

Composition

Ramsey soil: 55 percent
Rock outcrop: 40 percent
Contrasting inclusions: 5 percent

Contrasting Inclusions

- Lily soils on shoulder slopes

Typical Profile

Ramsey

Surface layer:
0 to 2 inches—dark brown loam

Subsoil:
2 to 18 inches—dark yellowish brown sandy loam

Bedrock:
18 inches—hard sandstone bedrock

Rock outcrop

This part of the map unit consists of nearly vertical sandstone ledges that extend 1 to 10 feet above the surface.

Properties and Qualities of the Ramsey Soil

Drainage class: Somewhat excessively drained
Permeability: Rapid
Available water capacity: Very low (less than 2 inches)
Soil reaction: Strongly acid or very strongly acid
Depth to bedrock: 7 to 20 inches

Use and Management

Cropland

Land capability classification: Ramsey—7s; Rock outcrop—none assigned
Suitability: Unsuited
Management measures and considerations:
- Because of the slope, shallow depth to bedrock, numerous rock outcrops, and low available water capacity, this map unit is unsuited to cropland.

Pasture and hay

Suitability: Unsuited
Management measures and considerations:
- Because of the slope, shallow depth to bedrock, numerous rock outcrops, and low available water capacity, this map unit is unsuited to pasture and hay.

Woodland

Suitability: Poorly suited

Management measures and considerations:
- Droughty conditions reduce tree growth and limit the adaptability of desirable species.
- The rooting depth is restricted and trees are susceptible to windthrow because of the shallow depth to bedrock.
- The slope and numerous rock outcrops hinder the operation of equipment.
- See table 8 for more information on woodland management.

Dwellings

Suitability: Unsuited
Management measures and considerations:
- The slope, shallow depth to bedrock, and numerous rock outcrops are severe limitations affecting excavations for structures and local roads and streets.

Septic tank absorption fields

Suitability: Unsuited
Management measures and considerations:
- The numerous rock outcrops, slope, and shallow depth to bedrock are severe limitations affecting the installation of septic systems.
- The seepage of effluent across bedrock layers into downslope areas is a health concern.

SeC2—Sengtown cobbly loam, 5 to 12 percent slopes, eroded

Setting

Landscape position: Rolling ridgetops
Parent material: Residuum from cherty and cobbly limestone

Composition

Sengtown soil and similar inclusions: 85 percent
Contrasting inclusions: 15 percent

Contrasting Inclusions

- Etowah and Mountview soils in concave areas
- Soils that have bedrock at a depth of less than 60 inches

Typical Profile

Surface layer:
0 to 3 inches—brown cobbly loam

Subsurface layer:
3 to 15 inches—light yellowish brown cobbly loam

Subsoil:
15 to 20 inches—yellowish red gravelly silty clay loam
20 to 70 inches—red gravelly clay

Soil Properties and Qualities

Drainage class: Well drained
Permeability: Moderate
Available water capacity: Moderate or high (5 to 7 inches)
Soil reaction: Very strongly acid or strongly acid
Depth to bedrock: More than 60 inches

Use and Management

Cropland

Land capability classification: 3e
Suitability: Suited
Management measures and considerations:
- Minimum tillage, farming on the contour, grassed waterways, and winter cover crops reduce the hazard of erosion.
- Nutrient management practices, such as soil tests, returning crop residue to the soil, and proper timing of fertilizer and chemical treatments, improve soil health and productivity.
- Site-specific recommendations are needed.

Pasture and hay

Suitability: Well suited
Management measures and considerations:
- Periodic clipping and mowing helps to maintain uniform growth and discourages weed competition.
- Proper stocking rates, lime and fertilizer programs, and pasture rotations increase the quality and quantity of forages.

Woodland

Suitability: Well suited
Management measures and considerations:
- Water turnouts and diversions are needed on roads and landings to prevent erosion.
- See table 8 for more information on woodland management.

Dwellings

Suitability: Well suited
Management measures and considerations:
- Topsoil should be stockpiled for the reclamation of areas that are disturbed during construction.
- The careful use of equipment and good design practices prevent the runoff of sediment to off-site areas.

Septic tank absorption fields

Suitability: Suited
Management measures and considerations:
- Increasing the size of the septic tank filter field helps to compensate for the slower permeability.

SeD2—Sengtown cobbly loam, 12 to 20 percent slopes, eroded

Setting

Landscape position: Hillsides
Parent material: Residuum from cherty and cobbly limestone

Composition

Sengtown soil and similar inclusions: 85 percent
Contrasting inclusions: 15 percent

Contrasting Inclusions

- Etowah and Mountview soils in concave areas
- Soils that have bedrock at a depth of less than 60 inches

Typical Profile

Surface layer:
0 to 3 inches—brown cobbly loam

Subsurface layer:
3 to 15 inches—light yellowish brown cobbly loam

Subsoil:
15 to 20 inches—yellowish red gravelly silty clay loam
20 to 70 inches—red gravelly clay

Soil Properties and Qualities

Drainage class: Well drained
Permeability: Moderate
Available water capacity: Moderate or high (5 to 7 inches)
Soil reaction: Very strongly acid or strongly acid
Depth to bedrock: More than 60 inches

Use and Management

Cropland

Land capability classification: 4e
Suitability: Poorly suited
Management measures and considerations:
- Long rotations into grasses and legumes are needed to reduce the hazard of erosion.
- Minimal tillage, farming on the contour, grassed waterways, and winter cover crops are essential in managing cropland.
- Nutrient management practices, such as soil tests, returning crop residue to the soil, and proper timing of fertilizer and chemical treatments, improve soil health and productivity.

Pasture and hay

Suitability: Suited
Management measures and considerations:
- The slope limits some management practices.

Woodland

Suitability: Suited
Management measures and considerations:
- The slope may limit the use of some equipment.
- Water turnouts and diversions are needed on roads and landings to prevent erosion.
- See table 8 for more information on woodland management.

Dwellings

Suitability: Suited
Management measures and considerations:
- Structures should be designed to conform to the natural slope.

Septic tank absorption fields

Suitability: Suited

Management measures and considerations:
- Increasing the size of the septic tank filter field helps to compensate for the slower permeability.

SeE2—Sengtown cobbly loam, 20 to 40 percent slopes, eroded

Setting

Landscape position: Hillsides
Parent material: Residuum from cherty limestone

Composition

Sengtown soil and similar inclusions: 85 percent
Contrasting inclusions: 15 percent

Contrasting Inclusions

- Soils that have bedrock at a depth of less than 60 inches
- Minvale soils on footslopes

Typical Profile

Surface layer:
0 to 3 inches—brown cobbly loam

Subsurface layer:
3 to 15 inches—light yellowish brown cobbly loam

Subsoil:
15 to 20 inches—yellowish red gravelly silty clay loam
20 to 70 inches—red gravelly clay

Soil Properties and Qualities

Drainage class: Well drained
Permeability: Moderate
Available water capacity: Moderate or high (5 to 7 inches)
Soil reaction: Very strongly acid or strongly acid
Depth to bedrock: More than 60 inches

Use and Management

Cropland

Land capability classification: 6e
Suitability: Unsuited
Management measures and considerations:
- Because of the slope and hazard of erosion, this soil is unsuited to cropland.

Pasture and hay

Suitability: Poorly suited
Management measures and considerations:
- The slope is a limitation affecting most management practices.
- The use of farm equipment is unsafe because of the slope.

Woodland

Suitability: Poorly suited

Management measures and considerations:
- Constructing roads and skid trails as close to the contour as possible can reduce the hazard of erosion.
- Water diversions, water bars, and broad-based dips should be used to direct water and sediment away from roads and streams and into duff layers or filter strips.
- Cuts and fills need to be seeded to permanent cover.
- The use of most equipment use is limited on the steep slopes.
- See table 8 for more information on woodland management.

Dwellings

Suitability: Unsuited
Management measures and considerations:
- The slope greatly limits the building of structures and local roads and streets.

Septic tank absorption fields

Suitability: Unsuited
Management measures and considerations:
- Areas of less sloping soils should be selected as sites for septic tank absorption fields.
- An onsite investigation is needed.

SfE—Sequoia gravelly silt loam, 20 to 40 percent slopes

Setting

Landscape position: Hillsides
Parent material: Residuum from interbedded siltstone and shale

Composition

Sequoia soil and similar inclusions: 80 percent
Contrasting inclusions: 20 percent

Contrasting Inclusions

- Gilpin soils in landscape positions similar to those of the Sequoia soil
- Grimsley soils in concave positions
- Shelocta and Pineville soils in landscape positions similar to those of the Sequoia soil

Typical Profile

Surface layer:
0 to 3 inches—dark yellowish brown gravelly silt loam

Subsoil:
3 to 11 inches—brown gravelly silty clay loam
11 to 38 inches—brown silty clay

Substratum:
38 inches—weathered shale and siltstone

Soil Properties and Qualities

Drainage class: Well drained
Permeability: Slow or very slow
Available water capacity: Moderate (4 to 6 inches)
Soil reaction: Strongly acid or very strongly acid
Depth to bedrock: 20 to 40 inches

Use and Management

Cropland

Land capability classification: 7e
Suitability: Unsuited
Management measures and considerations:
- Because of the slope and a severe hazard of erosion, this soil is unsuited to cropland.

Pasture and hay

Suitability: Poorly suited
Management measures and considerations:
- The slope is a limitation affecting most management practices.
- The use of farm equipment is unsafe because of the slope.

Woodland

Suitability: Suited
Management measures and considerations:
- The limited depth to bedrock reduces the available water capacity and limits tree growth.
- Locating roads and skid trails as close to the contour as possible can reduce the hazard of erosion.
- Water diversions, water bars, and broad-based dips should be used to direct water and sediment away from the road and streams and into duff layers or filter strips.
- Cuts and fills need to be seeded to permanent cover.
- Equipment use is limited on the steep slopes.
- See table 8 for more information on woodland management.

Dwellings

Suitability: Unsuited
Management measures and considerations:
- The slope and depth to bedrock greatly hinder the building of structures and local roads and streets.

Septic tank absorption fields

Suitability: Unsuited
Management measures and considerations:
- Septic system field lines may not function properly because of the slope, the slow or very slow permeability, and the depth to bedrock.

ShB—Shady loam, 2 to 5 percent slopes

Setting

Landscape position: Stream terraces
Parent material: Alluvium

Composition

Shady soil and similar inclusions: 90 percent
Contrasting inclusions: 10 percent

Contrasting Inclusions

- Sullivan soils in slight depressions

Typical Profile

Surface layer:
0 to 7 inches—dark yellowish brown loam

Subsoil:
7 to 20 inches—yellowish brown loam
20 to 28 inches—yellowish brown clay loam
28 to 50 inches—yellowish brown loam

Substratum:
50 to 65 inches—yellowish brown very gravelly sandy loam

Soil Properties and Qualities

Drainage class: Well drained
Permeability: Moderate
Available water capacity: High (6 to 8 inches)
Soil reaction: Very strongly acid or strongly acid
Depth to bedrock: More than 60 inches

Use and Management

Cropland

Land capability classification: 2e
Suitability: Well suited
Management measures and considerations:
- Minimum tillage, farming on the contour, grassed waterways, and winter cover crops reduce the hazard of soil erosion.
- Nutrient management practices, such as soil tests, returning crop residue to the soil, and proper timing of fertilizer and chemical treatments, improve soil health and productivity.

Pasture and hay

Suitability: Well suited
Management measures and considerations:
- Periodic clipping and mowing helps to maintain uniform growth and discourages weed competition.
- Proper stocking rates, lime and fertilizer programs, and pasture rotations increase the quality and quantity of forages.

Woodland

Suitability: Well suited
Management measures and considerations:
- Equipment use during wet periods causes ruts, compacts the soil, and damages tree roots.
- See table 8 for more information on woodland management.

Dwellings

Suitability: Well suited
Management measures and considerations:
- Topsoil should be stockpiled for the reclamation of areas that are disturbed during construction.
- The careful use of equipment and good design practices prevent off-site sediment runoff.

Septic tank absorption fields

Suitability: Well suited
Management measures and considerations:
- This soil has few limitations affecting septic tank absorption fields.

ShC2—Shady loam, 5 to 12 percent slopes, eroded

Setting

Landscape position: Stream terraces
Parent material: Alluvium

Composition

Shady soil and similar inclusions: 90 percent
Contrasting inclusions: 10 percent

Contrasting Inclusions

- Sullivan soils in slight depressions

Typical Profile

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

Subsoil:
5 to 20 inches—yellowish brown loam
20 to 28 inches—yellowish brown clay loam
28 to 50 inches—yellowish brown loam

Substratum:
50 to 65 inches—yellowish brown very gravelly sandy loam

Soil Properties and Qualities

Drainage class: Well drained
Permeability: Moderate
Available water capacity: High (6 to 8 inches)
Soil reaction: Very strongly acid or strongly acid
Depth to bedrock: More than 60 inches

Use and Management

Cropland

Land capability classification: 3e
Suitability: Suited
Management measures and considerations:
- Minimum tillage, farming on the contour, grassed waterways, and winter cover crops reduce the hazard of soil erosion.
- Nutrient management practices, such as soil tests, returning crop residue to the soil, and proper timing of fertilizer and chemical treatments, improve soil health and productivity.
- Site-specific recommendations are needed.

Pasture and hay

Suitability: Well suited

Management measures and considerations:
- Periodic clipping and mowing helps to maintain uniform growth and discourages weed competition.
- Proper stocking rates, lime and fertilizer programs, and pasture rotations increase the quality and quantity of forages.

Woodland

Suitability: Well suited
Management measures and considerations:
- Reforestation must be carefully managed to reduce plant competition.
- Water turnouts and diversions help to prevent erosion on roads and landings.
- See table 8 for more information on woodland management.

Dwellings

Suitability: Well suited
Management measures and considerations:
- Topsoil should be stockpiled for the reclamation of areas that are disturbed during construction.
- The careful use of equipment and good design practices prevent off-site sediment runoff.
- Structures should be designed to conform to the natural slope.

Septic tank absorption fields

Suitability: Well suited
Management measures and considerations:
- Field lines should be installed along the contour of the slope.

SpF—Shelocta-Pineville complex, 20 to 70 percent slopes, very stony

Setting

Landscape position: Hillsides and benches
Parent material: Colluvium from sandstone and shale

Composition

Shelocta soil: 50 percent
Pineville soil: 40 percent
Contrasting inclusions: 10 percent

Contrasting Inclusions

- Grimsley soils in landscape positions similar to those of the Shelocta and Pineville soils
- Gilpin soils in concave positions

Typical Profile

Shelocta

Surface layer:
0 to 2 inches—brown loam

Subsoil:
2 to 10 inches—dark yellowish brown gravelly loam
10 to 29 inches—yellowish brown gravelly clay loam
29 to 52 inches—yellowish brown channery silty clay loam

Substratum:
52 inches—hard shale

Pineville

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

Subsoil:
2 to 58 inches—yellowish brown gravelly loam
58 to 72 inches—dark yellowish brown clay loam

Soil Properties and Qualities

Drainage class: Well drained
Permeability: Shelocta—moderate; Pineville—moderately rapid
Available water capacity: Moderate (4 to 6 inches)
Soil reaction: Strongly acid or very strongly acid
Depth to bedrock: Shelocta—more than 40 inches; Pineville—more than 6 feet

Use and Management

Cropland

Land capability classification: 7e
Suitability: Unsuited
Management measures and considerations:
- Because of the slope, these soils are unsuited to cropland.

Pasture and hay

Suitability: Unsuited
Management measures and considerations:
- The slope is a limitation affecting most management practices.
- The use of farm equipment is unsafe because of the slope.

Woodland

Suitability: Suited
Management measures and considerations:
- The slope is a limitation affecting roads and yard areas.
- Log landings should be located in the less sloping areas below or above areas of this map unit.
- The construction of water turnouts and water bars and the seeding of disturbed areas minimize erosion and keep sediment away from streams.
- Equipment use is limited on the steep slopes.
- See table 8 for more information on woodland management.

Dwellings

Suitability: Unsuited
Management measures and considerations:
- The slope greatly limits the building of structures and local roads and streets.
- This map unit has a hazard of slippage where excavations are cut into hillsides.

Septic tank absorption fields

Suitability: Unsuited
Management measures and considerations:
- Septic system field lines may not function properly because of the slope.
- The hazard of seepage into downslope areas can be a health concern.

St—Staser fine sandy loam, occasionally flooded

Setting

Landscape position: Cumberland River floodplain levee
Parent material: Alluvium

Composition

Staser soil and similar inclusions: 95 percent
Contrasting inclusions: 5 percent

Contrasting Inclusions

- Melvin soils in the lower areas
- Moderately well drained soils in landscape positions similar to those of the Staser soil

Typical Profile

Surface layer:
0 to 13 inches—dark brown fine sandy loam

Subsoil:
13 to 88 inches—dark brown and dark yellowish brown loam

Soil Properties and Qualities

Drainage class: Well drained
Permeability: Moderate
Available water capacity: High (6 to 8 inches)
Soil reaction: Moderately acid or slightly acid
Depth to bedrock: More than 60 inches
Flooding: Occasional flooding for very brief duration from December to March

Use and Management

Cropland

Land capability classification: 2w
Suitability: Well suited
Management measures and considerations:
- Nutrient management practices, such as soil tests, returning crop residue to the soil, and proper timing of fertilizer and chemical treatments, improve soil health and productivity.
- Site-specific recommendations are needed.

Pasture and hay

Suitability: Well suited
Management measures and considerations:
- Periodic clipping and mowing helps to maintain uniform growth and discourages weed competition.
- Proper stocking rates, lime and fertilizer programs, and pasture rotation increase the quality and quantity of forages.

Woodland

Suitability: Well suited
Management measures and considerations:
- Chemical or mechanical treatments may be needed to decrease plant competition.
- See table 8 for more information on woodland management.

Dwellings

Suitability: Unsuited
Management measures and considerations:
- This map unit is unsuited to commercial and residential uses because of the hazard of flooding.

Septic tank absorption fields

Suitability: Poorly suited
Management measures and considerations:
- Septic tank filter fields should be located in the higher areas that are not subject to flooding.

Su—Sullivan silt loam, depressional

Setting

Landscape position: Depressions
Slope range: 0 to 2 percent
Parent material: Alluvium

Composition

Sullivan soil and similar inclusions: 90 percent
Contrasting inclusions: 10 percent

Contrasting Inclusions

- Hamblen soils in landscape positions similar to those of the Sullivan soil
- Somewhat poorly drained soils

Typical Profile

Surface layer:
0 to 5 inches—brown silt loam

Subsoil:
5 to 26 inches—dark yellowish brown silt loam
26 to 32 inches—dark brown loam
32 to 62 inches—brown loam

Soil Properties and Qualities

Drainage class: Well drained
Permeability: Moderate
Available water capacity: High (6 to 8 inches)
Soil reaction: Strongly acid or moderately acid
Depth to bedrock: More than 60 inches
Seasonal high water table: Below a depth of 4 feet from December to March
Ponding: Occasional ponding for very brief duration from December to March

Use and Management

Cropland

Land capability classification: 3w
Suitability: Suited
Management measures and considerations:
- Seasonal ponding restricts the production of some water-sensitive crops.
- Crops may be damaged by inundation during wet periods.

Pasture and hay

Suitability: Well suited
Management measures and considerations:
- Periodic clipping and mowing helps to maintain uniform growth and discourages weed competition.
- Proper stocking rates, lime and fertilizer programs, and pasture rotations increase the quality and quantity of forages.
- Restricting grazing during periods of wetness helps to limit soil compaction and destruction of desirable plants.

Woodland

Suitability: Suited
Management measures and considerations:
- Seedlings may be damaged by inundation of water for short periods.
- Species that can tolerate periods of saturation and ponding should be selected for planting.

Dwellings

Suitability: Unsuited
Management measures and considerations:
- This map unit is unsuited to all commercial and residential uses because of ponding and soil instability.

Septic tank absorption fields

Suitability: Unsuited
Management measures and considerations:
- Because of the ponding, this soil is unsuited to septic tank filter fields.

Sv—Sullivan silt loam, occasionally flooded

Setting

Landscape position: Floodplains
Slope range: 0 to 2 percent
Parent material: Alluvium

Composition

Sullivan soil and similar inclusions: 90 percent
Contrasting inclusions: 10 percent

Contrasting Inclusions

- Hamblen soils in landscape positions similar to those of the Sullivan soil

Typical Profile

Surface layer:
0 to 5 inches—brown silt loam

Subsoil:
5 to 26 inches—dark yellowish brown silt loam
26 to 32 inches—dark brown loam
32 to 62 inches—brown loam

Soil Properties and Qualities

Drainage class: Well drained

Permeability: Moderate
Available water capacity: High (6 to 8 inches)
Soil reaction: Strongly acid or moderately acid
Depth to bedrock: More than 60 inches
Seasonal high water table: Below a depth of 4 feet from December to April
Flooding: Occasional flooding for brief duration from December to March

Use and Management

Cropland

Land capability classification: 2w
Suitability: Well suited
Management measures and considerations:
- Nutrient management practices, such as soil tests, returning crop residue to the soil, and proper timing of fertilizer and chemical treatments, improve soil health and productivity.
- Site-specific recommendations are needed.

Pasture and hay

Suitability: Well suited
Management measures and considerations:
- Periodic clipping and mowing helps to maintain uniform growth and discourages weed competition.
- Proper stocking rates, lime and fertilizer programs, and pasture rotations increase the quality and quantity of forages.
- Restricting grazing during periods of wetness helps to limit soil compaction and the destruction of desirable plants.

Woodland

Suitability: Well suited
Management measures and considerations:
- Chemical or mechanical treatments may be needed to decrease plant competition.
- See table 8 for more information on woodland management.

Dwellings

Suitability: Unsuited
Management measures and considerations:
- This map unit is unsuited to most commercial and residential uses because of the flooding.

Septic tank absorption fields

Suitability: Suited
Management measures and considerations:
- Septic tank filter fields should be located in areas that are not subject to flooding.

TrD—Talbott-Rock outcrop complex, 5 to 20 percent slopes

Setting

Landscape position: Rolling ridgetops and small hills
Parent material: Limestone residuum

Composition

Talbott soil: 60 percent
Rock outcrop: 30 percent
Contrasting inclusions: 10 percent

Contrasting Inclusions

- Nella soils in concave areas
- Soils that have bedrock at a depth of less than 20 inches

Typical Profile

Talbott

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

Subsoil:
5 to 33 inches—red clay

Bedrock:
33 inches—limestone bedrock

Rock outcrop

This part of the map unit consists of nearly vertical limestone ledges that extend 1 to 10 feet above the surface.

Properties and Qualities of the Talbott Soil

Drainage class: Well drained
Permeability: Slow or very slow
Available water capacity: Low or moderate (2 to 6 inches)
Soil reaction: Moderately acid or strongly acid
Depth to bedrock: 20 to 40 inches

Use and Management

Cropland

Land capability classification: Talbott—6s; Rock outcrop—none assigned
Suitability: Unsuited
Management measures and considerations:
- Because of the Rock outcrop, limited available water capacity, and hazard of erosion, this map unit is unsuited to cropland.

Pasture and hay

Suitability: Poorly suited
Management measures and considerations:
- Because the Rock outcrop cannot be traversed with farm equipment, most forage management practices are limited.
- Pasture and hay yields are low in dry seasons because of the limited available water capacity.

Woodland (fig. 14)

Suitability: Poorly suited
Management measures and considerations:
- Locating logging roads along the contour reduces the severe erosion hazard.
- Water turnouts, water bars, and seeding of disturbed areas keep sediment away from streams.

Figure 14.—An area of Talbott-Rock outcrop complex, 5 to 20 percent slopes. This map unit has common outcrops of limestone. Vegetation is mostly red cedar and hickory.

- A high clay content in the subsoil reduces the amount of water available to plants.
- Equipment use is limited because of the Rock outcrop and the slope.
- See table 8 for more information on woodland management.

Dwellings

Suitability: Unsuited
Management measures and considerations:
- The Rock outcrop, depth to bedrock, and shrink-swell potential limit the use of this map unit for dwellings and local roads and streets.

Septic tank absorption fields

Suitability: Unsuited
Management measures and considerations:
- The Rock outcrop, a depth to rock restriction, and the slow permeability in the subsoil limit the use of this map unit for septic tank filter fields.

TrE—Talbott-Rock outcrop complex, 20 to 40 percent slopes

Setting

Landscape position: Hillsides
Parent material: Limestone residuum

Composition

Talbott soil: 65 percent
Rock outcrop: 20 percent
Contrasting inclusions: 15 percent

Contrasting Inclusions

- Soils that have bedrock at a depth of less than 20 inches
- Nella soils in concave areas

Typical Profile

Talbott

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

Subsoil:
5 to 33 inches—red clay

Bedrock:
33 inches—limestone bedrock

Rock outcrop

This part of the map unit consists of nearly vertical limestone ledges that extend 1 to 10 feet above the surface.

Properties and Qualities of the Talbott Soil

Drainage class: Well drained
Permeability: Slow or very slow
Available water capacity: Low or moderate (2 to 6 inches)
Soil reaction: Moderately acid or strongly acid
Depth to bedrock: 20 to 40 inches

Use and Management

Cropland

Land capability classification: Talbott—7s; Rock outcrop—none assigned
Suitability: Unsuited
Management measures and considerations:
- Because of the Rock outcrop, slope, limited available water capacity, and hazard of erosion, this map unit is unsuited to cropland.

Pasture and hay

Suitability: Unsuited
Management measures and considerations:
- Because of the Rock outcrop and slope, the use of farm equipment is unsafe and most management practices are limited.

Woodland

Suitability: Poorly suited
Management measures and considerations:
- Locating logging roads along the contour reduces the severe erosion hazard.
- Water turnouts, water bars, and seeding of disturbed areas keep sediment away from streams.
- The high clay content in the subsoil reduces the amount of water available to plants.
- Equipment use is limited because of the Rock outcrop and the slope.
- See table 8 for more information on woodland management.

Dwellings

Suitability: Unsuited
Management measures and considerations:
- The Rock outcrop, slope, depth to bedrock, and shrink-swell potential limit the use of this map unit for dwellings and local roads and streets.

Septic tank absorption fields

Suitability: Unsuited
Management measures and considerations:
- The Rock outcrop, slope, a depth to rock restriction, and slow permeability in the subsoil limit the use of this map unit for septic tank filter fields.

Ud—Udarents

This map unit consists of two major areas: areas that have been filled, graded, and disturbed during construction of the Livingston Airport and areas where fill material was used in sanitary landfills.

In areas that have been filled, graded, and disturbed during urbanization, soil material has been added in the upper 2 to 5 feet from various sources and reworked. The remaining soil material consists of clay that has gravel, cobbles, and stones.

In sanitary landfills the original soil material has been removed and filled with solid waste in alternating layers. Areas that are no longer receiving waste material have been revegetated with trees or permanent grasses.

No land capability classification is assigned to this map unit.

W—Water

This map unit consists of areas inundated with water year-round and generally includes rivers, lakes, and small ponds.

No land capability classification is assigned to this map unit.

WaB2—Waynesboro loam, 2 to 5 percent slopes, eroded

Setting

Landscape position: High stream terraces
Parent material: Older clayey alluvium and valley fill

Composition

Waynesboro soil and similar inclusions: 90 percent
Contrasting inclusions: 10 percent

Contrasting Inclusions

- Etowah soils in landscape positions similar to those of the Waynesboro soil

Typical Profile

Surface layer:
0 to 5 inches—strong brown loam

Subsoil:
5 to 21 inches—red clay
21 to 68 inches—dark red clay

Soil Properties and Qualities

Drainage class: Well drained
Permeability: Moderate
Available water capacity: Moderate or high (5 to 7 inches)
Soil reaction: Very strongly acid or strongly acid
Depth to bedrock: More than 60 inches

Use and Management

Cropland

Land capability classification: 2e
Suitability: Well suited
Management measures and considerations:
- Minimum tillage, farming on the contour, grassed waterways, and winter cover crops reduce the hazard of soil erosion.
- Nutrient management practices, such as soil tests, returning crop residue to the soil, and proper timing of fertilizer and chemical treatments, improve soil health and productivity.
- Site-specific recommendations are needed.

Pasture and hay

Suitability: Well suited
Management measures and considerations:
- Periodic clipping and mowing helps to maintain uniform growth and discourages weed competition.
- Proper stocking rates, lime and fertilizer programs, and pasture rotation increase the quality and quantity of forages.

Woodland

Suitability: Well suited
Management measures and considerations:
- See table 8 for information on woodland management.

Dwellings

Suitability: Well suited
Management measures and considerations:
- Topsoil should be stockpiled for the reclamation of areas that are disturbed during construction.
- The careful use of equipment and good design practices prevent off-site sediment runoff.

Septic tank absorption fields

Suitability: Well suited
Management measures and considerations:
- Increasing the size of the septic tank filter field helps to compensate for the slower permeability.

WaC2—Waynesboro loam, 5 to 12 percent slopes, eroded

Setting

Landscape position: High stream terraces
Parent material: Old alluvium and valley fill

Composition

Waynesboro soil and similar inclusions: 85 percent
Contrasting inclusions: 15 percent

Contrasting Inclusions

- Etowah soils in landscape positions similar to those of the Waynesboro soil
- Severely eroded areas that have clay surface layers

Typical Profile

Surface layer:
0 to 5 inches—strong brown loam

Subsoil:
5 to 21 inches—red clay
21 to 68 inches—dark red clay

Soil Properties and Qualities

Drainage class: Well drained
Permeability: Moderate
Available water capacity: Moderate or high (5 to 7 inches)
Soil reaction: Strongly acid or very strongly acid
Depth to bedrock: More than 60 inches

Use and Management

Cropland

Land capability classification: 3e
Suitability: Suited
Management measures and considerations:
- Minimum tillage, farming on the contour, grassed waterways, and winter cover crops reduce the hazard of soil erosion.
- Nutrient management practices, such as soil tests, returning crop residue to the soil, and proper timing of fertilizer and chemical treatments, improve soil health and productivity.
- Site-specific recommendations are needed.

Pasture and hay

Suitability: Well suited
Management measures and considerations:
- Periodic clipping and mowing helps to maintain uniform growth and discourages weed competition.
- Proper stocking rates, lime and fertilizer programs, and pasture rotations increase the quality and quantity of forages.

Woodland

Suitability: Well suited
Management measures and considerations:
- Water turnouts and diversions help to prevent erosion on roads and landings.
- See table 8 for more information on woodland management.

Dwellings

Suitability: Well suited
Management measures and considerations:
- Topsoil should be stockpiled for the reclamation of areas that are disturbed during construction.

- The careful use of equipment and good design practices prevent off-site sediment runoff.

Septic tank absorption fields

Suitability: Suited
Management measures and considerations:
- Increasing the size of the septic tank filter field helps to compensate for the slower permeability.
- Field lines should be installed along the contour of the slope.

WaD2—Waynesboro loam, 12 to 20 percent slopes, eroded

Setting

Landscape position: High stream terrace side slopes
Parent material: Old alluvium and valley fill

Composition

Waynesboro soil and similar inclusions: 85 percent
Contrasting inclusions: 15 percent

Contrasting Inclusions

- Severely eroded areas that have clay surface layers
- Etowah soils in concave areas

Typical Profile

Surface layer:
0 to 5 inches—strong brown loam

Subsoil:
5 to 21 inches—red clay
21 to 68 inches—dark red clay

Soil Properties and Qualities

Drainage class: Well drained
Permeability: Moderate
Available water capacity: Moderate or high (5 to 7 inches)
Soil reaction: Very strongly acid or strongly acid
Depth to bedrock: More than 60 inches

Use and Management

Cropland

Land capability classification: 4e
Suitability: Poorly suited
Management measures and considerations:
- Long rotations into grasses and legumes are needed to reduce the hazard of erosion.
- Minimal tillage, farming on the contour, grassed waterways, and winter cover crops are essential for cropland.
- Nutrient management practices, such as soil tests, returning crop residue to the soil, and proper timing of fertilizer and chemical treatments, improve soil health and productivity.

Pasture and hay

Suitability: Suited
Management measures and considerations:
- The slope limits some forage management practices.

Woodland

Suitability: Suited
Management measures and considerations:
- Water turnouts and diversions help to prevent erosion on roads and landings.
- The use of some forest management equipment may be limited because of the slope.

Dwellings

Suitability: Suited
Management measures and considerations:
- Structures should be designed to conform to the natural slope.

Septic tank absorption fields

Suitability: Suited
Management measures and considerations:
- Increasing the size of the septic tank filter field helps to compensate for the slower permeability.
- Septic tank filter field lines should be installed along the contour of the slope.

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; forestland; as sites for buildings, sanitary facilities, highways and other transportation systems, and parks and other recreational facilities; 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 help locate sources of sand and gravel, roadfill, and topsoil. They can use it to identify areas where bedrock, wetness, or very firm soil layers can cause difficulty in excavation.

Environmental 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 some of 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, slightly 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 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 prime farmland is described.

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.

In 2001, farmers in Overton County planted about 1,100 acres of corn, 1,200 acres of snap beans, 900 acres of soybeans, and 330 acres of tobacco. About 4,000 acres were used for row crops and 55,000 acres were used for pasture and hay *(3)*. Snap beans are the main cash crop; about 1,200 acres are planted annually and most of these areas are double cropped. The yearly income from the sale of snap beans is about 2.4 million dollars.

The field crops suited to the soils and climate of Overton County include many that are not commonly grown. Corn, burley tobacco, and snap beans are the dominant row crops. Grain sorghum, canola, nursery stock, and similar crops can be grown if economic conditions are favorable. Less sloping areas of deep, well drained soils, such as Bewleyville, Etowah, Minvale, and Holston, are well suited to most row crops. Tobacco should only be grown on well drained upland soils that have good drainage.

Most of the well drained soils in the survey area are suited to fruits, vegetables, and other specialty crops. Soils in low areas, where frost is frequent and air drainage is poor, are poorly suited to early vegetables, small fruits, and orchard crops.

The latest information about growing specialty crops can be obtained from the local office of the University of Tennessee Cooperative Extension Service or the Natural Resources Conservation Service.

Many of the soils in Overton County are better suited to pasture than row crops. Most of the soils are too sloping for intensive row cropping. Crop yields can be increased by applying the latest crop production technology to all of the cropland in the county. This soil survey can help facilitate the application of such technology.

Cropland Management

Erosion is a major management concern in Overton County because there is a large acreage of highly erodible soils. Erosion is a hazard with most cropping systems if slope is 2 percent or more.

Soil loss through erosion is damaging for a number of reasons. Productivity is reduced as the surface layer, which has a higher content of organic matter than the subsoil, is lost and part of the subsoil is incorporated into the plow layer. Loss of the surface layer is especially damaging on soils that are underlain by bedrock. As more soil is lost through erosion, the root zone becomes thinner, the amount of available water is reduced, and yields may be lower than typical if crops do not have an adequate supply of moisture. Loss of the original surface layer also results in the formation of puddles and a crust on the soil surface. Most of the plant nutrients in the soil are in the surface layer. These nutrients can easily be lost through erosion. Control of erosion minimizes the pollution of streams by sediments, herbicides, and fertilizers and improves the quality of water for recreational activities and for fish and wildlife.

Erosion-control practices help to provide a protective surface cover, control runoff, and increase the rate of water infiltration. A cropping system that keeps a plant cover on the surface for extended periods generally can help to hold soil losses to an amount that does not reduce the productivity of the soil. Including grasses and legumes in the cropping sequence on livestock farms helps to control erosion, provide nitrogen, and improve tilth.

Conservation tillage systems that leave protective amounts of crop residue on the surface and winter cover crops help to increase the rate of water infiltration and reduce the hazard of erosion and the runoff rate. They also increase the amount of organic matter in the surface layer, minimize compaction, and save time and fuel. Contour farming, contour stripcropping, crop residue management, field borders, filter strips, crop rotations that include grasses and legumes, and grassed waterways also help to keep soil losses to an acceptable level. These practices can be effective on most of the soils in the county.

Information about erosion-control measures for each kind of soil in the county is available at the local office of the Natural Resources Conservation Service.

Wetness is a management concern on a small part of the acreage in the county used for crops and pasture. Some soils, such as Melvin and Atkins, are so wet that production of the crops commonly grown in the county is difficult.

Many soils in the county are strongly acid or very strongly acid unless they are limed. Applications of agricultural limestone are needed to raise the pH level sufficiently for the production of most crops. Most soils in the county also respond favorably to applications of commercial fertilizer. Additions of lime and fertilizer should be based on the results of soil tests, the needs of the crop, and realistic yield expectations. The Tennessee Agricultural Extension Service can test soils, provide the test results, and make recommendations for the kinds and amounts of fertilizer and lime to apply.

Pasture and Hay Management

In 2001, there were about 29,000 beef and dairy cattle in Overton County *(3)*. Most of the hay and pasture in the county is a mixture of grasses and legumes. Much of the hay is grown in rotation with pasture. The main grasses are tall fescue, orchardgrass, and timothy. The most common legumes are white clover, red clover, alfalfa, annual lespedeza, and sericea lespedeza. Legumes should be included in the seeding mixture when establishing pasture. They also should be reintroduced in perennial grass stands if they are not present.

The soils in the survey area vary widely in their ability to produce grasses and legumes because of differences in depth to bedrock, drainage, available water capacity, and many other properties. The forage species selected for planting should be suited to the different kinds of soils (fig. 15).

The less sloping, deep and very deep, well drained soils should be planted to the highest producing crops, such as corn silage, alfalfa, orchardgrass, and timothy. Sod-forming grasses, such as tall fescue, minimize erosion in the steeper areas. Alfalfa should be planted only in areas where the soils are at least 2 feet deep over bedrock and are well drained. Soils with a high water table, such as Hamblen, Melvin, and Atkins, are best suited to tall fescue and white clover.

Some annual grasses and legumes are used for hay or supplemental grazing. Millet and soybeans are commonly planted together and cut for hay. Sudan/sorghum crosses, pearl millet, and sudangrass make good summer pasture and can also be used for hay or silage. Small grain and annual ryegrass provide excellent grazing in late fall and early spring. Most harvested hay is the surplus growth of grass-legume pastures. Hay crops should be cut at the stage of growth that provides the best quality feed and does not damage the grass-legume stand. Hay that is cut late, after seed heads are mature, produces extra tonnage but is less palatable and much lower in protein content than

Figure 15.—Holston and Monongahela soils (in the foreground) are well suited to pasture and hay. Nella and Talbott soils are on the hills in the background.

hay cut at the proper stage of growth. The tonnage gained by cutting late does not offset the loss of the nutritional value. When cutting perennial hay crops, care should be taken so that the stubble is of an adequate height, in order to prevent premature loss of the stand.

Warm-season grasses and legumes help to alleviate the “summer slump” of cool-season grasses, such as tall fescue and orchardgrass. Their greatest growth occurs from May to September, which is the period when the growth of cool-season grasses is slowest. Examples of warm-season grasses are switchgrass, indiangrass, big bluestem, and eastern gamagrass. These grasses are highly palatable to livestock and produce very high yields. The major disadvantage of these grasses is the high level of management required to establish an adequate stand. In the first year, growth is minimal and practices that help to control competing grasses and weeds are needed. Thereafter, the stand needs minimal maintenance and is drought tolerant and winter hardy. Warm-season grasses produce high yields with a minimal amount of fertilizer. They should be grazed to a height of no less than 10 inches and, if mowed for hay, they should be left with stubble 6 to 8 inches high.

Warm-season legumes provide excellent summer grazing when seeded in established grass stands. They include Korean and Kobe lespedeza.

Yields per Acre

The average yields per acre that can be expected of the principal crops grown 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 of map units in the survey area also is shown in the table.

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

The management needed to obtain the indicated yields of the various crops depends on the kind of soil and the crop. Management can include drainage, erosion control, and protection from flooding; the proper planting and seeding rates; suitable 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 residues, manure, and green manure crops; and harvesting that ensures the smallest possible loss.

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 more 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 production of field crops *(10)*. Crops that require special management are excluded. The soils are grouped according to their limitations for crop production, the risk of damage by erosion if they are used for crops, and the way they respond to management. The criteria used in grouping the soils do not include major landshaping that would change slope, depth, or other characteristics of the soils, nor do they include major reclamation projects. Capability classification is not an interpretation designed to show suitability and limitations of groups of soils for forestry, for engineering, or for environmental or residential purposes.

In the capability system, soils are generally grouped at two levels—capability class and subclass.

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, forestland, or wildlife habitat.

Class 6 soils have severe limitations that make them unsuitable for cultivation and that restrict their use mainly to pasture, 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 are unsuited for commercial plant production and that restrict their use to recreational purposes, wildlife habitat, watershed, or aesthetic purposes.

Capability subclasses are soil groups within one class. They are designated by adding a small letter, *e, w,* or *s* 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); and *s* shows that the soil is limited mainly because it is shallow, droughty, or stony.

In classes 1 and 8 there are no subclasses. Class 5 contains only the subclasses indicated by *w* or *s* because the soils in class 5 are subject to little or no erosion. They have other significant limitations that restrict their use to pasture, forestland, wildlife habitat, or recreation.

The capability classification of map units in this survey area is given in the section "Detailed Soil Map Units" and in the yields table.

Prime Farmland

Prime farmland is one of several kinds of important farmland defined by the U.S. Department of Agriculture. It 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, pasture, forest, or idle land, but it is not urban or built-up land or water areas. The soil qualities, growing season, and moisture supply are those needed for the soil to economically produce sustained high yields of crops where 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. It is permeable to water and air. It is not excessively erodible or saturated with water for long periods, and it is not frequently flooded during the growing season or is protected from flooding. Slope ranges 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.

A recent trend in land use in some parts of the survey area has been the loss of prime farmland to industrial and residential uses. The loss of prime farmland to other uses puts pressure on marginal lands, which generally are more erodible, droughty, less productive, and cannot be easily cultivated.

The map units in the survey area that are considered prime farmland are listed in table 6. This list does not constitute a recommendation for a particular land use. On some soils included in the list, 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. The extent of each listed map unit is shown in table 4. Their location is shown on the detailed soil maps. The soil qualities that affect use and management are described under the heading "Detailed Soil Map Units."

Forestland Productivity and Management

The tables in this section can help forest owners or managers plan the use of soils for timber production. They show the potential productivity of the soils and rate the soils according to the limitations that affect various aspects of forest management.

Forestland Productivity

In table 7, 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. Common trees are those that forest managers generally favor in intermediate or improvement cuttings and are selected on the basis of soil suitability, growth rate, quality, value, and current marketability. More detailed information regarding site index is available in the “National Forestry Manual” *(8)*, which is available at the local office 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 8, parts I through V, interpretive ratings are given for various aspects of forest management. The ratings are both verbal and numerical.

Some rating class terms indicate the degree to which the soils are suited to a specified forest management practice. *Well suited* indicates that the soil has features that are favorable for the specified practice 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 practice. 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 practice. Overcoming these unfavorable properties requires special design, extra maintenance, and costly alteration. *Unsuited* indicates that the expected performance of the soil is unacceptable for the specified practice or that extreme measures are needed to overcome the undesirable soil properties.

Numerical ratings in the tables indicate the 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 specified forest management practice (1.00) and the point at which the soil feature is not a limitation (0.00).

Rating class terms for fire damage, utilized in substory management, 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 for forest management practices. More detailed information about the criteria used in the ratings is available in the “National Forestry Manual” *(8)*, which is available at the local office 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, 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, 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 forestry 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 well 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 or bedrock, soil reaction, 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.

Recreation

The soils of the survey area are rated in table 9, parts I and II, according to limitations that affect their suitability for recreation. 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. *Slightly limited* indicates that the soil has features that are favorable for the specified use. The limitations are minor and can be easily overcome. Good performance and 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 0.00 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 table 9 can be supplemented by other information in this survey, for example, interpretations for building site development, construction materials, sanitary facilities, and water management.

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 fragipan 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 fragipan, 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 fragipan, 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 fragipan, 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 fragipan; 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.

In table 10, the soils in the survey area are rated according to their potential for providing habitat for various kinds of wildlife. This information can be used in planning parks, wildlife refuges, nature study areas, and other developments for wildlife; in selecting soils that are suitable for establishing, improving, or maintaining specific elements of wildlife habitat; and in determining the intensity of management needed for each element of the habitat.

The potential of the soil is rated good, fair, poor, or very poor. A rating of *good* indicates that the element or kind of habitat is easily established, improved, or maintained. Few or no limitations affect management, and satisfactory results can be expected. A rating of *fair* indicates that the element or kind of habitat can be established, improved, or maintained in most places. Moderately intensive management is required for satisfactory results. A rating of *poor* indicates that limitations are severe for the designated element or kind of habitat. Habitat can be created, improved, or maintained in most places, but management is difficult and must be intensive. A rating of *very poor* indicates that restrictions for the element or kind of habitat are very severe and that unsatisfactory results can be expected. Creating, improving, or maintaining habitat is impractical or impossible.

The elements of wildlife habitat are described in the following paragraphs.

Grain and seed crops are domestic grains and seed-producing herbaceous plants. Soil properties and features that affect the growth of grain and seed crops are depth of the root zone, texture of the surface layer, available water capacity, wetness, slope, surface stoniness, and flooding. Soil temperature and soil moisture also are considerations. Examples of grain and seed crops are corn, wheat, oats, and barley.

Grasses and legumes are domestic perennial grasses and herbaceous legumes. Soil properties and features that affect the growth of grasses and legumes are depth of the root zone, texture of the surface layer, available water capacity, wetness, surface stoniness, flooding, and slope. Soil temperature and soil moisture also are considerations. Examples of grasses and legumes are fescue, lovegrass, bromegrass, clover, and alfalfa.

Wild herbaceous plants are native or naturally established grasses and forbs, including weeds. Soil properties and features that affect the growth of these plants are depth of the root zone, texture of the surface layer, available water capacity, wetness, surface stoniness, and flooding. Soil temperature and soil moisture also are considerations. Examples of wild herbaceous plants are bluestem, goldenrod, beggarweed, wheatgrass, and grama.

Hardwood trees and woody understory produce nuts or other fruit, buds, catkins, twigs, bark, and foliage. Soil properties and features that affect the growth of hardwood trees and shrubs are depth of the root zone, available water capacity, and wetness. Examples of these plants are oak, poplar, cherry, sweetgum, apple, hawthorn, dogwood, hickory, blackberry, and blueberry. Examples of fruit-producing shrubs that are suitable for planting on soils rated *good* are Russian-olive, autumn-olive, and crabapple.

Coniferous plants furnish browse and seeds. Soil properties and features that affect the growth of coniferous trees, shrubs, and ground cover are depth of the root zone, available water capacity, and wetness. Examples of coniferous plants are pine, spruce, fir, cedar, and juniper.

Wetland plants are annual and perennial wild herbaceous plants that grow on moist or wet sites. Submerged or floating aquatic plants are excluded. Soil properties and features affecting wetland plants are texture of the surface layer, wetness, reaction, salinity, slope, and surface stoniness. Examples of wetland plants are smartweed, wild millet, wildrice, saltgrass, cordgrass, rushes, sedges, and reeds.

Shallow water areas have an average depth of less than 5 feet. Some are naturally wet areas. Others are created by dams, levees, or other water-control structures. Soil properties and features affecting shallow water areas are depth to bedrock, wetness, surface stoniness, slope, and permeability. Examples of shallow water areas are marshes, waterfowl feeding areas, and ponds.

The habitat for various kinds of wildlife is described in the following paragraphs.

Habitat for openland wildlife consists of cropland, pasture, meadows, and areas that are overgrown with grasses, herbs, shrubs, and vines. These areas produce grain and seed crops, grasses and legumes, and wild herbaceous plants. Wildlife attracted to these areas include bobwhite quail, pheasant, meadowlark, field sparrow, cottontail, and red fox.

Habitat for woodland wildlife consists of areas of deciduous and/or coniferous plants and associated grasses, legumes, and wild herbaceous plants. Wildlife attracted to these areas include wild turkey, ruffed grouse, woodcock, thrushes, woodpeckers, squirrels, gray fox, raccoon, deer, and bear.

Habitat for wetland wildlife consists of open, marshy or swampy shallow water areas. Some of the wildlife attracted to such areas are ducks, geese, herons, shore birds, muskrat, mink, and beaver.

Engineering

This section provides information for planning land uses related to urban and residential 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 estimated data and test data in the “Soil Properties” section.

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 have been 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.

State ordinances and local regulations that restrict certain land uses or impose specific design criteria were not considered in preparing the information in this section. Complying with local ordinances and regulations should be a consideration 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, soil wetness, depth to a water table, ponding, slope, 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.

In general, 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, fill material, and topsoil; plan drainage systems, ponds, terraces, and other structures for soil and water conservation; 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 about the soils in this survey area, depending upon the intended use and the degree of confidence required.

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 modifications, 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 the table 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. *Slightly limited* indicates that the soil has features that are favorable for the specified use. The limitations are minor and can be easily overcome. Good performance and 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 0.00 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, 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 depth to a water table, ponding, flooding, slope, depth to bedrock or a fragipan, hardness of bedrock or a fragipan, 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, 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 depth to a water table, ponding, flooding, slope, depth to bedrock or a fragipan, hardness of bedrock or a fragipan, 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 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 (tar). 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 and amount of excavation include depth to a water table, ponding, flooding, slope, depth to bedrock or a fragipan, hardness of bedrock or a fragipan, and the amount and size of rock fragments. The properties that affect the traffic-supporting capacity are soil strength (as inferred from the AASHTO group index number), linear extensibility (shrink-swell potential), depth to a water table, and ponding or flooding.

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 fragipan, hardness of bedrock or a fragipan, 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 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 fragipan; 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 landfills. 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. *Slightly limited* indicates that the soil has features that are favorable for the specified use. The limitations are minor and can be easily overcome. Good performance and 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 0.00 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 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 concerns. Permeability, depth to a water table, ponding, depth to bedrock or a restrictive layer, and flooding affect absorption of the effluent. Stones and boulders, hard bedrock, or a dense fragipan interfere with installation. Excessive slope can cause lateral seepage and surfacing of the effluent in downslope areas in addition to installation difficulties.

Some soils are underlain by loose sand, gravel, or highly 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 or seepage may occur in downslope areas.

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 fragipan, 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 very 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 in karst landscapes if highly 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 overflows the lagoon.

A high content of organic matter is detrimental to proper functioning of the lagoon because it inhibits aerobic activity. Slope, bedrock, and fragipans 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 fragipan 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 fragipan, depth to a water table, ponding, slope, flooding, texture, stones and boulders, 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, an onsite investigation is needed.

Hard bedrock, creviced bedrock, or highly fractured rock 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 fragipan.

Flooding is a serious problem because it can result in pollution in areas downstream from the landfill. If permeability is too rapid or if highly fractured bedrock or a 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 or in fractured bedrock layers in the steeper areas and cause 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 off site, 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. Some of these properties include soil texture, depth to a water table, ponding, rock fragments, slope, depth to bedrock, 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 or any root restricting layer 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, topsoil, reclamation material, and roadfill. Normal compaction, minor processing, and other standard construction practices are assumed.

The soils are rated *good, fair,* or *poor* as potential sources of topsoil, reclamation material, and roadfill. The features that limit the soils as sources of these materials are specified in the tables. The numerical ratings given after the specified features indicate the degree to which the features limit the soils as sources of topsoil, reclamation material, or roadfill. The lower the number, the greater the limitation.

The soils are rated as a *good, fair,* or *poor* source 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 numerical ratings in these columns indicate the degree of probability. The number 0.00

indicates that the soil is an improbable source. A number between 0.00 and 1.00 indicates the degree to which the soil is a probable source of sand or gravel.

Sand and *gravel* 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, only the probability 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 lowest layer of the soil contains sand or gravel, the soil is rated as a probable source regardless of thickness. The assumption is that the sand or gravel layer below the depth of observation exceeds the minimum thickness.

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 in such a way that the reconstructed soil favors plant growth. The ratings in the table do not apply to quarries and other mined or borrowed areas that require an off-site source of reconstruction material. The ratings are based on the soil properties that affect erosion, stability of the surface and subsoil, and the productive potential of the reconstructed soil. Some of these properties include the content of sodium, salts, and calcium carbonate; reaction; available water capacity; erodibility; texture; content of rock fragments; content of organic matter; and other features that dominantly affect fertility and productivity.

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, 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 limitations are considered *not limited* if soil properties and site features are generally favorable for the indicated use and limitations are minor and are easily overcome; *somewhat limited* if soil properties or site features are not favorable for the indicated use and special planning, design, or maintenance is needed to overcome or minimize the limitations; and *very limited* if soil properties or site features are so unfavorable or so difficult to overcome that special design, significant increase in construction costs, and possibly increased maintenance are required.

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. 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 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 ascertained by field examination of the soils and by laboratory index testing of some benchmark soils. Established standard procedures are followed *(6)*. 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 the tables. They include engineering index properties, physical and chemical properties, and pertinent soil and water features.

Engineering Index Properties

Table 15 gives the engineering classifications and the range of index properties for the layers of each soil in the survey area.

Depth to the upper and lower boundaries of each layer is indicated in inches.

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 a mass of the soil. “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 gravel 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 *(2)* and the system adopted by the American Association of State Highway and Transportation Officials *(1)*.

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 Properties

Table 16 shows 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 in inches.

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, 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. 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. 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, agronomic, residential, and commercial 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, root penetration, and earthmoving operations.

Moist bulk density is the weight of soil (oven dry) 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 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 movement of water, roots, and air. Depending on soil texture, a bulk density of more than 1.4 restricts water storage and root penetration. Moist bulk density is influenced by texture, kind of clay, content of organic matter, and soil structure.

Permeability refers to the ability of a soil to transmit water or air. The term "permeability," as used in soil surveys, indicates saturated hydraulic conductivity (K_{sat}). The estimates in the table indicate the approximate rate of water movement, in inches per hour (in/hr), when the soil is saturated and under atmospheric pressure. They are based on soil characteristics observed in the field, most importantly structure, porosity, and texture. Permeability is a major consideration 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 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, depth to bedrock or a restrictive layer, 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 a 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 and other structures, roads, and to plant roots. Special design and materials are needed to help overcome this limitation in construction of structures, roads, and other permanent installations.

Organic matter is the plant and animal residue in the soil at various stages of decomposition. In table 16, 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 residues to the soil, using no-till planting practices, maintaining the soil in permanent vegetative cover for long periods, spreading mulch on the surface, and leaving duff on the surface after timber operations. 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 plants and soil organisms.

Erosion factors are shown in table 16 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 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 water that can occur without affecting crop productivity over a sustained period. The rate is in tons per acre per year.

Chemical 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 in inches.

Cation-exchange capacity is the total amount of extractable bases that can be held by the soil, expressed in terms of milliequivalents per 100 grams of soil at neutrality (pH 7.0). 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 bases 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 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. Table 18 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 gray 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. Table 18 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 or rivers, 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; little or no horizon development; and local and flood gauging station records.

Also considered are local information about the extent and levels of flooding and the relation of each soil on the landscape to historically recorded 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 and chemical properties that significantly impede the movement of water and air through the soil or that restrict roots or otherwise provide an unfavorable rooting environment. Examples are bedrock, fragipans, 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 *(7, 9)*. 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. Table 20 shows the classification of the soils in the survey area. 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 Alfisol.

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 Udalf (*Ud*, meaning humid, plus *alf*, from Alfisol).

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 Hapludalfs (*Hapl*, meaning minimal horizonation, plus *udalf*, the suborder of the Alfisols 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 Hapludalfs.

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, mineral content, soil temperature regime, clay activity, soil depth, and reaction. 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 Hapludalfs.

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.

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” *(5)*. Many of the technical terms used in the descriptions are defined in “Soil Taxonomy” *(9)* and in “Keys to Soil Taxonomy” *(7)*. 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.

Atkins Series

Depth class: Very deep
Drainage class: Poorly drained
Permeability: Moderate
Physiographic area: Cumberland Plateau
Landform: Depressions and floodplains
Parent material: Alluvium
Slope range: 0 to 2 percent
Associated soils: Ealy and Hamblen
Taxonomic class: Fine-loamy, mixed, active, acid, mesic Fluvaquentic Endoaquepts

Typical Pedon

Atkins loam, occasionally flooded; 1.1 miles north of the Lovejoy community on Highway 164, about 100 feet west of the road; USGS Obey City, TN Quadrangle; lat. 36 degrees 11 minutes 56.2 seconds N. and long. 85 degrees 10 minutes 43.9 seconds W.

Ap—0 to 6 inches; brown (10YR 4/3) loam; moderate medium granular structure; friable; common fine and very fine roots; few fine and medium grayish brown (10YR 5/2) iron depletions; common very fine prominent brown (7.5YR 4/4) iron accumulations in root channels; strongly acid; clear smooth boundary.

Bg1—6 to 20 inches; grayish brown (10YR 5/2) loam; weak medium subangular blocky structure; friable; common fine roots; common fine prominent brown (7.5YR 4/4) iron accumulations; strongly acid; gradual smooth boundary.

Bg2—20 to 36 inches; light brownish gray (10YR 6/2) loam; weak medium subangular blocky structure; friable; few fine roots; common black (10YR 2/1) iron and manganese concretions; common medium distinct yellowish brown (10YR 5/6) and few fine prominent yellowish red (5YR 5/6) iron acccumulations; strongly acid; gradual smooth boundary.

Cg—36 to 65 inches; light brownish gray (10YR 6/2) sandy loam; massive; friable; common black (10YR 2/1) manganese concretions; common fine and medium strong brown (7.5YR 5/8) and brown (7.5YR 4/4) iron concentrations; strongly acid.

Range in Characteristics

Depth to bedrock: More than 60 inches
Kind of rock fragments: Rounded sandstone
Reaction: Strongly acid or very strongly acid

A horizon:
Hue—10YR
Value—4 to 6
Chroma—1 to 4
Texture of the fine-earth fraction—loam
Content of rock fragments—0 to 5 percent

Bg horizon:
Hue—10YR or 2.5Y
Value—4 to 6
Chroma—1 or 2
Texture of the fine-earth fraction—loam

Content of rock fragments—0 to 5 percent
Redoximorphic features—few or common iron-manganese concretions and common or many iron concentrations

C horizon:
Hue—10YR or 2.5Y
Value—4 to 6
Chroma—1 or 2
Texture of the fine-earth fraction—loam or sandy loam
Content of rock fragments—0 to 20 percent
Redoximorphic features—few or common iron-manganese concretions and common or many iron concentrations

Bethesda Series

Depth class: Very deep
Drainage class: Well drained
Permeability: Moderate
Physiographic area: Cumberland Plateau
Landform: Hillsides and benches
Parent material: Acid regolith from surface-mining operations
Slope range: 5 to 90 percent
Associated soils: Gilpin, Ramsey, and Lily
Taxonomic class: Loamy-skeletal, mixed, active, acid, mesic Typic Udorthents

Typical Pedon

Bethesda channery loam in an area of Bethesda-Pits complex, 5 to 90 percent slopes; 0.6 mile west of Highway 64 on Branch Road, 0.2 mile north on an unimproved road, 20 feet west of the road; USGS Crawford Quadrangle; lat. 36 degrees 11 minutes 16.7 seconds N. and long. 85 degrees 11 minutes 16.4 seconds W.

A—0 to 1 inch; dark brown (10YR 4/3) channery loam; weak fine granular structure; very friable; 20 percent shale channers less than 3 inches in diameter; very strongly acid; clear smooth boundary.
C1—1 to 18 inches; brown (10YR 5/3) very channery loam; massive; friable; 30 percent shale fragments as much as 3 inches in diameter; 10 percent sandstone fragments as much as 6 inches in diameter; few coal fragments; very strongly acid; gradual smooth boundary.
C2—18 to 39 inches; yellowish brown (10YR 5/6) very channery loam; massive; friable; 45 percent shale fragments as much as 3 inches in diameter; 5 percent sandstone fragments as much as 6 inches in diameter; few coal fragments; very strongly acid; gradual smooth boundary.
C3—39 to 65 inches; yellowish brown (7.5YR 5/6) very channery loam; massive; friable; 25 percent shale fragments as much as 3 inches in diameter; 10 percent sandstone fragments as much as 6 inches in diameter; very strongly acid.

Range in Characteristics

Depth to bedrock: More than 60 inches
Kind of rock fragments: Shale, sandstone, and coal
Reaction: Strongly acid to extremely acid

A horizon:
Hue—7.5YR or 10YR
Value—3 to 5
Chroma—2 to 4

Texture of the fine-earth fraction—loam, silt loam, or clay loam
Content of rock fragments—15 to 35 percent

C horizon:
Hue—7.5YR or 10YR
Value—3 to 6
Chroma—1 to 8
Texture of the fine-earth fraction—loam, silt loam, or clay loam
Content of rock fragments—35 to 60 percent

Bewleyville Series

Depth class: Very deep
Drainage class: Well drained
Permeability: Moderate
Physiographic area: Highland Rim
Landform: Broad divides and high terraces
Parent material: Alluvium and loess
Slope range: 2 to 12 percent
Associated soils: Christian, Dickson, and Mountview
Taxonomic class: Fine-silty, siliceous, semiactive, thermic Typic Paleudults

Typical Pedon

Bewleyville silt loam, 5 to 12 percent slopes, eroded (fig. 16); in Clay County; 5.45 miles south on Union Hill Road from its intersection with Tennessee Highway 52 at Moss, 0.6 mile south on McCormick Ridge Road, 750 feet west of the road, in pasture; USGS Union Hill Quadrangle; UTM coordinates: Easting 616635 Northing 4044720; lat. 36 degrees 32 minutes 26 seconds N. and long. 85 degrees 41 minutes 49 seconds W.

Ap—0 to 9 inches; brown (7.5YR 4/3) silt loam; common medium distinct strong brown (7.5YR 4/6) mottles; moderate fine granular structure; friable; common very fine roots; slightly acid; abrupt smooth boundary.
Bt1—9 to 19 inches; strong brown (7.5YR 4/6) silt loam; moderate fine subangular blocky structure; friable; few fine roots; few faint clay films on faces of peds and in pores; 5 percent chert gravel; strongly acid; gradual smooth boundary.
Bt2—19 to 30 inches; strong brown (7.5YR 4/6) silt loam; moderate fine subangular blocky structure; friable; few distinct reddish yellow (5YR 4/6) clay films on faces of peds and in pores; common fine black (10YR 2/1) manganese nodules; strongly acid; clear wavy boundary.
2Bt3—30 to 40 inches; yellowish red (5YR 4/6) silty clay loam; moderate fine subangular blocky structure; friable; many distinct strong brown (7.5YR 4/6) clay films on faces of peds and in pores; common fine black (10YR 2/1) manganese nodules; strongly acid; clear wavy boundary.
2Bt4—40 to 57 inches; red (2.5YR 5/6) silty clay loam; strong fine subangular blocky structure; friable; many distinct yellowish red (5YR 4/6) clay films on faces of peds and in pores; common fine black (10YR 2/1) manganese nodules; strongly acid; gradual wavy boundary.
2Bt5—57 to 77 inches; red (2.5YR 4/6) clay; strong fine angular blocky structure; firm; many distinct yellowish red (5YR 4/6) clay films on faces of peds and in pores; 4 percent subrounded chert gravel; strongly acid.

Range in Characteristics

Depth to bedrock: More than 60 inches
Kind of rock fragments: Chert
Reaction: Very strongly acid to moderately acid

Figure 16.—A typical profile of a Bewleyville soil. Bewleyville soils are very deep, highly productive, upland soils. Depth is marked in inches.

A horizon:
- Hue—10YR or 7.5YR
- Value—4 or 5
- Chroma—3 or 4
- Texture of the fine-earth fraction—silt loam
- Content of rock fragments—0 to 5 percent

Bt horizon:
- Hue—7.5YR or 5YR
- Value—4 or 5
- Chroma—4 to 8
- Texture of the fine-earth fraction—silt loam or silty clay loam
- Content of rock fragments—0 to 5 percent

2Bt horizon:
- Hue—5YR or 2.5YR

Figure 17.—A typical profile of a Bodine soil. Bodine soils have many rock fragments throughout that reduce the available water capacity. Depth is marked in inches.

Value—3 to 6
Chroma—4 to 8
Texture of the fine-earth fraction—clay loam, silty clay loam, or clay
Content of rock fragments—0 to 15 percent

Bodine Series

Depth class: Very deep
Drainage class: Somewhat excessively drained
Permeability: Moderately rapid
Physiographic area: Highland Rim
Landform: Ridges and hillsides
Parent material: Residuum from cherty limestone
Slope range: 5 to 60 percent
Associated soils: Sengtown and Minvale
Taxonomic class: Loamy-skeletal, siliceous, semiactive, thermic Typic Paleudults

Typical Pedon

Bodine gravelly silt loam, 20 to 70 percent slopes (fig. 17); 3.3 miles southwest of Rickman, 3.2 miles west of the intersection of Tennessee Highway 111 and Netherland Road, 0.7 mile southwest of the intersection of Netherland Road and Comer Bolton Road, 0.6 mile west of the intersection of Comer Bolton Road and Willard Brown Road; USGS Windle Quadrangle; lat. 36 degrees 15 minutes 12.7 seconds N. and long. 85 degrees 26 minutes 5.9 seconds W.

Ap—0 to 6 inches; brown (10YR 4/3) gravelly silt loam; moderate fine granular structure; very friable; many very fine and fine roots throughout; 30 percent chert fragments 1 to 3 inches in diameter; moderately acid; abrupt smooth boundary.

BE—6 to 12 inches; brown (10YR 5/3) very gravelly silt loam; weak medium subangular blocky structure; friable; common very fine and fine roots; 45 percent chert fragments 1 to 6 inches in diameter; strongly acid; gradual smooth boundary.

Bt1—12 to 28 inches; yellowish brown (10YR 5/4) very cobbly silty clay loam; weak medium subangular blocky structure; friable; common very fine and fine roots; few faint discontinuous clay films on faces of peds; 45 percent chert cobbles and gravel as much as 10 inches in diameter; very strongly acid; gradual smooth boundary.

Bt2—28 to 44 inches; strong brown (7.5YR 5/6) very cobbly silt clay loam; moderate medium subangular blocky structure; friable; few very fine and fine roots throughout; few faint discontinuous clay films on faces of peds; 50 percent chert cobbles, gravel, and stones as much as 12 inches in diameter; strongly acid; abrupt smooth boundary.

Bt3—44 to 70 inches; yellowish red (5YR 5/6) very cobbly clay; moderate medium angular and subangular blocky structure; firm; common distinct discontinuous clay films on faces of peds; 50 percent chert cobbles, gravel, and stones as much as 12 inches in diameter; strongly acid.

Range in Characteristics

Depth to bedrock: More than 60 inches
Kind of rock fragments: Chert and siltstone
Reaction: Very strongly acid or strongly acid

Ap or A horizon:
Hue—10YR
Value—3 to 5
Chroma—2 to 4
Texture of the fine-earth fraction—silt loam
Content of rock fragments—15 to 35 percent

BE or E horizon:
Hue—10YR
Value—4 to 6
Chroma—2 to 4
Texture of the fine-earth fraction—silt loam or loam
Content of rock fragments—35 to 60 percent

Bt horizon:
Hue—10YR or 7.5YR; range includes 5YR in the lower part of horizon
Value—4 or 5
Chroma—4 to 8
Texture of the fine-earth fraction—silty clay loam or clay loam; range includes clay in the lower part of horizon
Content of rock fragments—35 to 60 percent

Bouldin Series

Depth class: Very deep
Drainage class: Somewhat excessively drained
Permeability: Moderately rapid
Physiographic area: Dissected Plateau
Landform: Hillsides, footslopes, and benches
Parent material: Colluvium from sandstone
Slope range: 20 to 70 percent
Associated soils: Grimsley and Nella
Taxonomic class: Loamy-skeletal, siliceous, subactive, mesic Typic Paleudults

Typical Pedon

Bouldin gravelly loam in an area of Bouldin and Grimsley soils, 20 to 70 percent slopes, very stony; 2.9 miles southeast of the Allred community on Tennessee Highway 85, about 1.8 miles southeast of the intersection of Tennessee Highway 85 and Shiloh Road, 20 feet south of the road; USGS Crawford Quadrangle; lat. 36 degrees 18 minutes 7.2 seconds N. and long. 85 degrees 10 minutes 4.6 seconds W.

A—0 to 7 inches; dark brown (10YR 4/3) gravelly loam; weak fine granular structure; very friable; 30 percent sandstone fragments less than 3 inches in diameter; strongly acid; clear smooth boundary.

BE—7 to 16 inches; dark yellowish brown (10YR 4/4) very cobbly loam; weak medium subangular blocky structure; friable; 40 percent rounded sandstone cobbles and gravel as much as 6 inches in diameter; strongly acid; gradual smooth boundary.

Bt1—16 to 24 inches; strong brown (7.5YR 4/6) very cobbly loam; weak medium subangular blocky structure; friable; few faint clay films on faces of peds and coating fragments; 50 percent rounded sandstone cobbles and gravel as much as 8 inches in diameter; strongly acid; gradual smooth boundary.

Bt2—24 to 40 inches; strong brown (7.5YR 5/6) very cobbly clay loam; moderate medium subangular blocky structure; friable; few faint clay films on faces of peds and coating fragments; 50 percent rounded sandstone cobbles as much as 8 inches in diameter; strongly acid; gradual smooth boundary.

Bt3—40 to 87 inches; strong brown (7.5YR 4/6) very cobbly clay loam; moderate medium subangular blocky structure; friable; few faint clay films on faces of peds and coating fragments; 55 percent rounded sandstone cobbles and stones as much as 15 inches in diameter; strongly acid.

Range in Characteristics

Depth to bedrock: More than 60 inches
Kind of rock fragments: Sandstone stones, cobbles, and gravel
Reaction: Strongly acid or very strongly acid

A horizon:
Hue—10YR
Value—3 or 4
Chroma—1 to 3
Texture of the fine-earth fraction—loam
Content of rock fragments—15 to 40 percent

BE horizon:
Hue—10YR
Value—4 or 5
Chroma—4 to 6
Texture of the fine-earth fraction—loam
Content of rock fragments—35 to 65 percent

Bt horizon:
Hue—7.5YR, 5YR, or 2.5YR
Value—4 or 5
Chroma—6 to 8
Texture of the fine-earth fraction—clay loam or loam
Content of rock fragments—35 to 65 percent

Carbo Series

Depth class: Moderately deep
Drainage class: Well drained

Permeability: Slow and very slow
Physiographic area: Highland Rim
Landform: Hillsides
Parent material: Residuum from limestone and shale
Slope range: 20 to 50 percent
Associated soils: Colbert and Talbott
Taxonomic class: Very-fine, mixed, active, mesic Typic Hapludalfs

Typical Pedon

Carbo silt loam in area of Carbo-Rock outcrop complex, 20 to 50 percent slopes; 1.5 miles southeast of Livingston on Rock Crusher Road, 1,668 feet southeast of the intersection of Oak Grove Road and Rolan Vaughn Road, 300 feet northwest of a water tank; USGS Okalona Quadrangle; lat. 36 degrees 22 minutes 15.0 seconds N. and long. 85 degrees 18 minutes 3.7 seconds W.

A—0 to 4 inches; dark grayish brown (10YR 4/2) silt loam; moderate medium granular structure; friable; moderately acid; abrupt smooth boundary.
Bt1—4 to 12 inches; yellowish brown (10YR 5/4) silty clay; many medium and coarse distinct yellowish brown (10YR 5/6) mottles; moderate medium subangular blocky structure; firm, moderately sticky, moderately plastic; common distinct dark yellowish brown (10YR 4/4) clay films on faces of peds; moderately acid; gradual smooth boundary.
Bt2—12 to 38 inches; yellowish brown (10YR 5/6) silty clay; common fine and medium distinct light olive brown (2.5Y 5/4) mottles; moderate fine subangular blocky structure; firm, very sticky, very plastic; many prominent yellowish brown (10YR 5/4) clay films on faces of peds; common very fine black (10YR 2/1) manganese concretions; slightly acid; abrupt wavy boundary.
R—38 inches; limestone bedrock.

Range in Characteristics

Depth to bedrock: 20 to 40 inches
Kind of rock fragments: Limestone flagstones
Reaction: Moderately acid or slightly acid in the upper part of the profile and slightly acid to mildly alkaline in the lower part

A horizon:
Hue—10YR
Value—4 or 5
Chroma—2 to 4
Texture of the fine-earth fraction—silt loam
Content of rock fragments—less than 10 percent

Bt horizon:
Hue—7.5YR or 10YR
Value—4 or 5
Chroma—4 to 6
Mottles—few to many mottles in shades of red, gray, and brown
Texture of the fine-earth fraction—clay or silty clay
Content of rock fragments—less than 10 percent

C horizon (if it occurs):
Hue—10YR or 2.5Y
Value—4 or 5
Chroma—4 to 8
Texture of the fine-earth fraction—clay or silty clay
Content of rock fragments—less than 10 percent

Christian Series

Depth class: Deep and very deep
Drainage class: Well drained
Permeability: Slow
Physiographic area: Highland Rim
Landform: Ridges and hillsides
Parent material: Residuum from siltstone, limestone, and sandy limestone
Slope range: 5 to 40 percent
Associated soils: Faywood, Sengtown, and Talbott
Taxonomic class: Fine, mixed, semiactive, mesic Typic Hapludults

Typical Pedon

Christian loam, 12 to 20 percent slopes, eroded; 2.5 miles south of Hilham on Tennessee Highway 136, about 400 feet southwest of Campground Church in a wooded area; USGS Hilham Quadrangle; UTM coordinates: Easting 6040460 Northing 4026465; lat. 36 degrees 22 minutes 23 seconds N. and long. 85 degrees 26 minutes 3 seconds W.

Oi—1 inch to 0; slightly decomposed and fresh leaf litter.
A—0 to 3 inches; brown (10YR 4/3) loam; moderate medium granular structure; friable; strongly acid; abrupt smooth boundary.
BE—3 to 8 inches; yellowish brown (10YR 5/4) loam; weak medium subangular blocky structure; friable; strongly acid; gradual smooth boundary.
Bt1—8 to 18 inches; strong brown (7.5YR 5/8) clay loam; common medium distinct strong brown (7.5YR 4/6) mottles; moderate medium subangular blocky structure; friable; few faint clay films on faces of peds; strongly acid; gradual smooth boundary.
Bt2—18 to 30 inches; strong brown (7.5YR 5/8) clay; strong fine and medium angular blocky structure; firm; few distinct strong brown (7.5YR 4/6) clay films on faces of peds; strongly acid; gradual smooth boundary.
Bt3—30 to 48 inches; strong brown (7.5YR 5/8) clay; common fine and medium distinct brownish yellow (10YR 6/8) and common medium distinct yellowish red (5YR 5/6) mottles; moderate medium subangular blocky structure; firm; common distinct strong brown (7.5YR 4/6) clay films on faces of peds; 10 percent siltstone channers; strongly acid; gradual wavy boundary.
Bt4—48 to 57 inches; strong brown (7.5YR 5/8) extremely channery clay loam; weak medium subangular blocky structure; friable; few distinct strong brown (7.5YR 4/6) clay films on faces of peds and in pores; 70 percent siltstone channers; strongly acid; gradual wavy boundary.
Cr—57 to 62 inches; weathered siltstone bedrock.

Range in Characteristics

Depth to bedrock: More than 40 inches
Kind of rock fragments: Siltstone and chert
Reaction: Strongly acid or very strongly acid

A horizon:
Color—horizon dominantly has hue of 7.5YR or 10YR, value or 4 or 5, and chroma of 3 or 4; horizon has value of 3 and chroma of 2 or 3 in some pedons in wooded areas
Texture of the fine-earth fraction—loam
Content of rock fragments—0 to 15 percent

BA horizon (if it occurs):
Hue—10YR

Value—4 or 5
Chroma—3 or 4
Texture of the fine-earth fraction—loam
Content of rock fragments—0 to 20 percent

BE horizon (if it occurs):
Hue—10YR
Value—5 or 6
Chroma—3 or 4
Texture of the fine-earth fraction—loam
Content of rock fragments—0 to 20 percent

Bt horizon:
Hue—5YR, 7.5YR, or 10YR
Value—3 to 5
Chroma—4 to 8
Texture of the fine-earth fraction—clay
Content of rock fragments—commonly 0 to 35 percent; range can exceed 60 percent in the lower layers of horizon

Clarkrange Series

Depth class: Deep
Drainage class: Moderately well drained
Permeability: Slow
Physiographic area: Brotherton Bench
Landform: Broad benches and ridgetops
Parent material: Mixed colluvium over residuum from sandstone
Slope range: 2 to 12 percent
Associated soils: Lonewood
Taxonomic class: Fine-silty, siliceous, semiactive, mesic Typic Fragiudults

Typical Pedon

Clarkrange loam, 2 to 5 percent slopes; 1.6 miles north of Livingston on Airport Road, 0.7 mile east of the intersection of Airport Road and Bill White Lane, 376 feet north of Bill White Lane; USGS Livingston Quadrangle; lat. 36 degrees 24 minutes 59.6 seconds N. and long. 85 degrees 18 minutes 23.9 seconds W.

A—0 to 9 inches; brown (10YR 4/3) loam; weak fine granular structure; friable; common very fine and fine roots; moderately acid; abrupt smooth boundary.
Bt1—9 to 18 inches; yellowish brown (10YR 5/6) silt loam; moderate medium subangular blocky structure; friable; common very fine and fine roots; few faint clay films on faces of peds and in pores; strongly acid; gradual smooth boundary.
Bt2—18 to 24 inches; yellowish brown (10YR 5/6) silty clay loam; common fine distinct light yellowish brown (10YR 6/4) mottles; moderate medium subangular blocky structure; friable; common fine and very fine roots; few distinct brown (10YR 5/4) clay films on faces of peds; very strongly acid; clear smooth boundary.
2Btx—24 to 41 inches; light yellowish brown (10YR 6/4) clay loam; massive parting to weak very coarse subangular blocky structure; firm; few very fine and fine roots; few faint clay films on faces of peds; common medium distinct strong brown (7.5YR 4/6) iron concentrations; common fine distinct light brownish gray (10YR 6/2) iron depletions; brittle in 60 percent of the mass; very strongly acid; gradual wavy boundary.
2Bt—41 to 53 inches; red (2.5YR 4/6) clay loam; common medium distinct yellowish brown (10YR 5/6) and common fine prominent gray (10YR 6/1) mottles; weak

coarse subangular blocky structure with some thick platy strata; firm; very strongly acid; abrupt smooth boundary.
R—53 inches; hard sandstone bedrock.

Range in Characteristics

Depth to bedrock: 40 to 60 inches
Depth to fragipan: 20 to 36 inches
Kind of rock fragments: Sandstone gravel
Reaction: Strongly acid or very strongly acid

A horizon:
Hue—10YR
Value—3 to 5
Chroma—2 to 4
Texture of the fine-earth fraction—loam
Content of rock fragments—less than 10 percent

Bt horizon:
Hue—2.5Y, 10YR, or 7.5YR
Value—5 or 6
Chroma—4 to 6
Texture of the fine-earth fraction—silt loam or silty clay loam
Content of rock fragments—less than 10 percent

2Btx horizon:
Hue—2.5Y, 10YR, or 7.5YR
Value—5 or 6
Chroma—4 to 6
Texture of the fine-earth fraction—loam, silt loam, or clay loam
Content of rock fragments—less than 10 percent

2Bt horizon:
Hue—10YR, 7.5YR, or 5YR
Value—5 or 6
Chroma—6 to 8
Texture of the fine-earth fraction—silt loam, loam, or clay loam
Content of rock fragments—less than 10 percent

BC and C horizons (if they occur):
Hue—10YR, 7.5YR, or 5YR
Value—4 or 5
Chroma—4 to 8
Texture of the fine-earth fraction—clay loam, loam, or sandy loam
Content of rock fragments—less than 35 percent

R horizon:
Texture—hard sandstone

Colbert Series

Depth class: Deep
Drainage class: Moderately well drained
Permeability: Very slow
Physiographic area: Highland Rim
Landform: Footslopes
Parent material: Residuum from limestone
Slope range: 5 to 12 percent

Associated soils: Nella, Carbo, and Talbott
Taxonomic class: Fine, smectitic, thermic Vertic Hapludalfs

Typical Pedon

Colbert silt loam, 5 to 12 percent slopes; 8.9 miles south of Livingston on Tennessee Highway 84, about 746 feet southwest of the intersection of Tennessee Highway 84 and Highland Road, in woods; USGS Okalona Quadrangle; lat. 36 degrees 16 minutes 20.5 seconds N. and long. 85 degrees 18 minutes 15.8 seconds W.

A—0 to 7 inches; brown (10YR 5/3) silt loam; moderate medium granular structure; friable; moderately acid; abrupt smooth boundary.
Bt1—7 to 20 inches; yellowish brown (10YR 5/8) silty clay loam; moderate medium subangular blocky structure; firm, moderately sticky, moderately plastic; common distinct yellowish brown (10YR 5/6) clay films on faces of peds; moderately acid; gradual smooth boundary.
Bt2—20 to 31 inches; yellowish brown (10YR 5/8) clay; strong and moderate fine subangular blocky structure; very firm, very sticky, very plastic; few pressure faces; many distinct yellowish brown (10YR 5/6) clay films throughout; few very fine black (10YR 2/1) manganese concretions; common medium prominent light gray (10YR 7/1) iron depletions and few fine distinct yellowish red (5YR 5/8) iron concentrations; slightly acid; gradual smooth boundary.
Bt3—31 to 60 inches; yellowish brown (10YR 5/8) clay; weak medium and coarse subangular blocky structure; very firm, very sticky, very plastic; common pressure faces; many distinct yellowish brown (10YR 5/6) clay films throughout; common very fine black (10YR 2/1) manganese concretions; common medium distinct light yellowish brown (10YR 6/4) iron depletions and common fine distinct yellowish red (5YR 5/8) iron concentrations; neutral.
R—60 inches; hard limestone bedrock.

Range in Characteristics

Depth to bedrock: 40 to 60 inches
Kind of rock fragments: Limestone
Reaction: Moderately acid or slightly acid in the upper part of the profile and slightly acid to mildly alkaline in the lower part

A horizon:
Hue—10YR
Value—4 to 6
Chroma—2 to 4
Texture of the fine-earth fraction—silt loam
Content of rock fragments—less than 5 percent

Bt horizon:
Hue—7.5YR to 2.5Y
Value—5 to 7
Chroma—4 to 8
Texture of the fine-earth fraction—clay or silty clay
Redoximorphic features—few or common features in varying shades of red, gray, and brown in the lower part of horizon
Content of rock fragments—less than 5 percent

C horizon (if it occurs):
Hue—10YR or 2.5Y
Value—5 or 6
Chroma—2 to 8

Texture of the fine-earth fraction—clay
Content of rock fragments—less than 10 percent limestone flagstones

Craigsville Series

Depth class: Very deep
Drainage class: Somewhat excessively drained
Permeability: Moderately rapid
Physiographic area: Cumberland Plateau and Highland Rim
Landform: Floodplains
Parent material: Gravelly alluvium
Slope range: 0 to 3 percent
Associated soils: Shady, Nella, and Lily
Taxonomic class: Loamy-skeletal, mixed, superactive, mesic Fluventic Dystrudepts

Typical Pedon

Craigsville cobbly loam, occasionally flooded (fig. 18); 2.2 miles southeast of the Allred community on Tennessee Highway 85, about 0.9 mile southeast of the intersection of Tennessee Highway 85 and Shiloh Road, 303 feet northwest of Tennessee Highway 85 at the junction of Cub Creek and Scott Branch; USGS Crawford Quadrangle; lat. 36 degrees 18 minutes 14.0 seconds N. and long. 85 degrees 10 minutes 17.0 seconds W.

A—0 to 2 inches; very dark grayish brown (10YR 3/2) cobbly loam; weak fine granular structure; very friable; common very fine and fine roots throughout; 25 percent sandstone cobbles as much as 5 inches across; strongly acid; clear smooth boundary.
Bw1—2 to 12 inches; dark yellowish brown (10YR 4/4) very cobbly loam; weak fine and medium subangular blocky structure; very friable; common very fine roots throughout; 40 percent sandstone cobbles as much as 5 inches across; strongly acid; clear smooth boundary.
Bw2—12 to 34 inches; dark yellowish brown (10YR 4/4) very cobbly sandy loam; weak medium subangular blocky structure; very friable; common fine roots throughout; 40 percent sandstone cobbles as much as 5 inches across; strongly acid; clear smooth boundary.
C—34 to 60 inches; dark yellowish brown (10YR 4/4) very cobbly sandy loam; massive; very friable; 50 percent sandstone cobbles as much as 6 inches across; strongly acid.

Range in Characteristics

Depth to bedrock: More than 60 inches
Kind of rock fragments: Rounded quartz and sandstone
Reaction: Very strongly acid or strongly acid

A horizon:
Hue—10YR
Value—3 or 4
Chroma—2 to 4
Texture of the fine-earth fraction—loam
Content of rock fragments—15 to 35 percent

Bw horizon:
Hue—10YR
Value—4 or 5
Chroma—4 to 6

Figure 18.—A typical profile of a Craigsville soil. Rock fragments interfere with tillage operations if the Craigsville soils are cultivated. These soils are well suited to forestry production. Depth is marked in inches.

Texture of the fine-earth fraction—loam or sandy loam
Content of rock fragments—35 to 50 percent

C horizon:
Hue—10YR
Value—4 or 5
Chroma—3 to 6

Texture of the fine-earth fraction—loamy sand or sandy loam
Content of rock fragments—35 to 60 percent

Dellrose Series

Depth class: Very deep
Drainage class: Well drained
Permeability: Moderately rapid
Physiographic area: Nashville Basin
Landform: Hillsides and fans
Parent material: Colluvium from cherty limestone, siltstone, and shale
Slope range: 12 to 60 percent
Associated soils: Garmon, Hawthorne, Mimosa, and Newbern
Taxonomic class: Fine-loamy, mixed, semiactive, thermic Typic Paleudults

Typical Pedon

Dellrose gravelly silt loam, 20 to 45 percent slopes; in Clay County; 1.0 mile west of Celina on Tennessee Highway 52, about 1.6 miles north on Proctor Road, 600 feet northwest of the road, in pasture; USGS Celina Quadrangle; UTM coordinates: Easting 631845 Northing 4049231; lat. 36 degrees 34 minutes 36 seconds N. and long. 85 degrees 31 minutes 35 seconds W.

Ap—0 to 7 inches; dark yellowish brown (10YR 3/4) gravelly silt loam; moderate medium granular structure; friable; many fine and very fine roots; 30 percent angular fragments of chert; moderately acid; clear smooth boundary.

Bt1—7 to 22 inches; dark brown (7.5YR 3/4) gravelly silt loam; weak medium subangular blocky structure; friable; common fine and very fine roots; common distinct dark yellowish brown (10YR 4/4) clay films on faces of peds and in pores; 30 percent angular fragments of chert; moderately acid; clear smooth boundary.

Bt2—22 to 66 inches; strong brown (7.5YR 4/6) gravelly silty clay loam; moderate medium subangular blocky structure; friable; few fine roots; common distinct dark yellowish brown (10YR 4/4) clay films on faces of peds and in pores; 15 percent angular fragments of chert; moderately acid; gradual smooth boundary.

2Bt3—66 to 80 inches; strong brown (10YR 4/6) clay; weak coarse subangular blocky structure; common distinct dark yellowish brown (10YR 4/4) clay films on faces of peds and in pores; common fine black (10YR 2/1) soft iron-manganese masses; slightly acid.

Range in Characteristics

Depth to bedrock: More than 60 inches
Kind of rock fragments: Chert and siltstone
Reaction: Moderately acid to very strongly acid

A horizon:
Hue—10YR
Value—3 or 4
Chroma—2 to 4
Texture of the fine-earth fraction—silt loam
Content of rock fragments—10 to 35 percent

Bt horizon:
Hue—10YR or 7.5YR
Value—4 or 5
Chroma—4 to 8
Texture of the fine-earth fraction—silt loam or silty clay loam

Content of rock fragments—typically 10 to 35 percent; content ranges to 50 percent in the lower part of horizon in some areas

2Bt horizon (if it occurs):
Hue—10YR, 7.5YR, or 5YR
Value—4 or 5
Chroma—4 to 8
Texture of the fine-earth fraction—silty clay, clay, or silty clay loam
Content of rock fragments—0 to 15 percent

Dewey Series

Depth class: Very deep
Drainage class: Well drained
Permeability: Moderate
Physiographic area: Highland Rim
Landscape position: Broad rolling uplands
Parent material: Older fine textured alluvium
Slope range: 5 to 12 percent
Associated soils: Bewleyville, Mountview, and Christian
Taxonomic class: Fine, kaolinitic, thermic Typic Paleudults

Typical Pedon

Dewey silt loam, 5 to 12 percent slopes, eroded; 4.0 miles west of Rickman on Tennessee Highway 293, about 0.1 mile east of Spring Creek, 300 feet south, in a field; USGS Windle Quadrangle; UTM coordinates: Easting 640120 Northing 4016230; lat. 36 degrees 16 minutes 51 seconds N. and long. 85 degrees 26 minutes 23 seconds W.

Ap—0 to 7 inches; brown (7.5YR 4/3) silt loam; moderate medium granular structure; friable; many fine and very fine roots; moderately acid; abrupt smooth boundary.
Bt1—7 to 14 inches; yellowish red (5YR 4/6) silty clay loam; moderate fine subangular blocky structure; common fine roots; common distinct reddish brown (5YR 4/6) clay films on faces of peds and in pores; strongly acid; gradual smooth boundary.
Bt2—14 to 70 inches; red (2.5YR 4/6) clay; moderate and strong fine subangular blocky structure; few fine roots; many distinct reddish brown (2.5YR 4/4) clay films on faces of peds and in pores; few rounded gravel; strongly acid.

Range in Characteristics

Depth to bedrock: More than 60 inches
Kind of rock fragments: Chert or quartzite pebbles
Reaction: Strongly acid or very strongly acid

Ap horizon:
Hue—10YR or 7.5YR
Value—4 or 5
Chroma—3 to 6
Texture of the fine-earth fraction—silt loam
Content of rock fragments—0 to 10 percent

Bt horizon:
Hue—5YR or 2.5YR
Value—4 or 5
Chroma—6 to 8
Texture of the fine-earth fraction—silty clay or clay
Content of rock fragments—0 to 10 percent

Dickson Series

Depth class: Very deep
Drainage class: Moderately well drained
Permeability: Moderate above the fragipan; slow and very slow in the fragipan
Physiographic area: Highland Rim
Landscape position: Undulating divides
Parent material: Loess over alluvium or residuum
Slope range: 2 to 5 percent
Associated soils: Bewleyville, Christian, and Mountview
Taxonomic class: Fine-silty, siliceous, semiactive, thermic Glossic Fragidults

Typical Pedon

Dickson silt loam, 2 to 5 percent slopes, eroded (fig. 19); in Clay County; 0.75 mile west on Union Hill Road from its intersection with McCormick Ridge Road, 0.5 mile north on Terry Odele Road, 125 feet west of the road, in a field; USGS Union Hill Quadrangle; UTM coordinates: Easting 615798 Northing 4046086; lat. 36 degrees 33 minutes 11 seconds N. and long. 85 degrees 42 minutes 22 seconds W.

A—0 to 9 inches; brown (10YR 5/3) silt loam; moderate medium granular structure; friable; common very fine roots; moderately acid; abrupt smooth boundary.
Bw1—9 to 20 inches; yellowish brown (10YR 5/6) silt loam; moderate fine subangular blocky structure; friable; common very fine roots; few fine iron-manganese nodules; very strongly acid; clear wavy boundary.
Bw2—20 to 23 inches; light yellowish brown (2.5Y 5/4) silt loam; weak fine subangular blocky structure; friable; common very fine roots; common fine prominent light gray (10YR 7/2) iron depletions; common fine and medium iron-manganese nodules; very strongly acid; abrupt irregular boundary.
Btx—23 to 38 inches; light yellowish brown (2.5Y 6/4) silt loam; moderate very coarse prismatic structure parting to moderate thin platy; very firm; common medium and coarse black (10YR 2/1) soft iron-manganese masses; common fine prominent light gray (10YR 7/2) iron depletions on faces of prisms and as seams; common fine yellowish red (5YR 4/6) iron accumulations on faces of prisms; 5 percent chert gravel; brittle in 80 percent of the mass; strongly acid; abrupt irregular boundary.
2Bt—38 to 79 inches; red (2.5YR 4/6) clay; common prominent strong brown (7.5YR 5/6) mottles; strong medium subangular blocky structure; firm; many distinct yellowish red (5YR 4/6) clay films on faces of peds and in pores; common fine and medium prominent light gray (10YR 7/1) iron depletions; strongly acid.

Range in Characteristics

Depth to bedrock: More than 60 inches
Depth to fragipan: 18 to 36 inches
Kind of rock fragments: Chert
Reaction: Very strongly acid or strongly acid

A horizon:
Hue—10YR
Value—4 or 5
Chroma—2 to 4
Texture of the fine-earth fraction—silt loam
Content of rock fragments—0 to 5 percent

Bw horizon:
Hue—10YR or 2.5Y
Value—4 or 5
Chroma—3 to 6

Figure 19.—A typical profile of Dickson silt loam. Dickson soils have a fragipan in the subsoil. Depth is marked in centimeters.

Texture of the fine-earth fraction—silt loam
Redoximorphic features—few or common iron-manganese nodules and grayish iron depletions
Content of rock fragments—0 to 5 percent

B/E or E horizon (if it occurs):
Hue—10YR or 2.5Y
Value—5 or 6
Chroma—3 or 4
Texture of the fine-earth fraction—silt loam
Redoximorphic features—few or common iron-manganese nodules and grayish iron depletions
Content of rock fragments—0 to 5 percent

Btx horizon:
Hue—10YR or 2.5Y
Value—5 or 6
Chroma—3 to 6
Texture of the fine-earth fraction—silt loam
Redoximorphic features—few or common iron-manganese nodules, grayish iron depletions, and reddish iron accumulations
Content of rock fragments—0 to 10 percent

2Bt horizon:
Hue—7.5YR, 5YR, or 2.5YR
Value—3 to 5
Chroma—4 to 8
Texture of the fine-earth fraction—silty clay loam, clay loam, or clay
Redoximorphic features—few or common iron-manganese nodules, grayish iron depletions, and reddish iron accumulations
Content of rock fragments—0 to 35 percent

Ealy Series

Depth class: Very deep
Drainage class: Well drained
Permeability: Moderately rapid
Physiographic area: Cumberland Plateau and Highland Rim
Landform: Floodplains
Parent material: Alluvium
Slope range: 0 to 3 percent
Associated soils: Shady, Nella, and Hamblen
Taxonomic class: Coarse-loamy, siliceous, semiactive, mesic Fluventic Dystrudepts

Typical Pedon

Ealy fine sandy loam, occasionally flooded; 2.0 miles south of Allred on Tennessee Highway 85, about 1.3 miles southwest of the intersection of Tennessee Highway 85 and Shiloh Road, 292 feet east of the intersection of Shiloh Road and Hickory Flat Road, in a field along the West Fork of the Obey River; USGS Crawford Quadrangle; lat. 36 degrees 18 minutes 5.6 seconds N. and long. 85 degrees 11 minutes 38.1 seconds W.

Ap—0 to 8 inches; dark yellowish brown (10YR 4/4) fine sandy loam; weak fine granular structure; very friable; many very fine and fine roots throughout; moderately acid; clear smooth boundary.
Bw1—8 to 22 inches; dark yellowish brown (10YR 4/4) fine sandy loam; weak fine and

medium subangular blocky structure; very friable; common very fine roots throughout; strongly acid; clear smooth boundary.

Bw2—22 to 30 inches; dark yellowish brown (10YR 4/4) fine sandy loam; common medium faint brown (10YR 5/3) mottles; weak medium subangular blocky structure; very friable; common fine roots throughout; strongly acid; clear smooth boundary.

BC—30 to 38 inches; yellowish brown (10YR 5/4) fine sandy loam; common medium brown (10YR 5/3) mottles; weak fine subangular blocky structure; very friable; few fine roots; strongly acid; clear smooth boundary.

C—38 to 60 inches; stratified yellowish brown (10YR 5/6) very gravelly loamy sand and loamy sand; single grain; loose; 35 percent rounded sandstone gravel as much as 4 inches across; strongly acid.

Range in Characteristics

Depth to bedrock: More than 60 inches
Kind of rock fragments: Rounded quartz and sandstone
Reaction: Very strongly acid or strongly acid

A horizon:
Hue—10YR
Value—4 or 5
Chroma—2 to 4
Texture of the fine-earth fraction—fine sandy loam
Content of rock fragments—0 to 15 percent

Bw horizon:
Hue—10YR or 7.5YR
Value—4 or 5
Chroma—3 to 6
Texture of the fine-earth fraction—loam or fine sandy loam
Content of rock fragments—0 to 15 percent

C horizon:
Hue—10YR
Value—4 or 5
Chroma—3 or 4
Texture of the fine-earth fraction—loamy sand or sandy loam
Content of rock fragments—0 to 40 percent

Etowah Series

Depth class: Very deep
Drainage class: Well drained
Permeability: Moderate
Physiographic area: Highland Rim
Landform: Terraces
Parent material: Alluvium
Slope range: 2 to 20 percent
Associated soils: Bewleyville, Holston, and Shady
Taxonomic class: Fine-loamy, siliceous, semiactive, thermic Typic Paleudults

Typical Pedon

Etowah loam, 5 to 12 percent slopes, eroded; 6.1 miles south on Tennessee Highway 85 from its intersection with Tennessee Highway 52 at West Fork, 300 feet west of the road, in a field; USGS Crawford Quadrangle; UTM coordinates: Easting 663305 Northing 4019514; lat. 36 degrees 18 minutes 25 seconds N. and long. 85 degrees 10 minutes 52 seconds W.

Ap—0 to 5 inches; brown (10YR 4/3) loam; moderate fine granular structure; friable; common very fine and fine roots throughout; moderately acid; clear smooth boundary.

Bt1—5 to 20 inches; strong brown (7.5YR 4/6) clay loam; moderate medium subangular blocky structure; friable; few very fine and fine roots; few faint clay films on faces of peds and in pores; very few black (10YR 2/1) iron-manganese concretions; strongly acid; gradual smooth boundary.

Bt2—20 to 48 inches; yellowish red (5YR 5/6) clay loam; moderate medium subangular blocky structure; friable; few very fine and fine roots; common distinct strong brown (7.5YR 4/6) clay films on faces of peds and in pores; common black (10YR 2/1) iron-manganese concretions; strongly acid; clear smooth boundary.

Bt3—48 to 72 inches; yellowish red (5YR 5/6) clay loam; common medium reddish yellow (7.5YR 6/6) and common fine and medium light brown (7.5YR 6/4) mottles; weak coarse subangular blocky structure; very friable; common distinct strong brown (7.5YR 4/6) clay films on faces of peds and in pores; strongly acid.

Range in Characteristics

Depth to bedrock: More than 60 inches
Kind of rock fragments: Quartzite pebbles, rounded chert, and sandstone gravel
Reaction: Strongly acid or very strongly acid

A horizon:
Hue—10YR or 7.5YR
Value—3 or 4
Chroma—2 to 4
Texture of the fine-earth fraction—loam
Content of rock fragments—0 to 15 percent

Bt horizon:
Hue—7.5YR, 5YR, or 2.5YR
Value—4 or 5
Chroma—6 to 8
Texture of the fine-earth fraction—silty clay loam or clay loam
Content of rock fragments—0 to 10 percent

Faywood Series

Depth class: Moderately deep
Drainage class: Well drained
Permeability: Slow and very slow
Physiographic area: Highland Rim
Landscape position: Hillsides and ridges
Parent material: Residuum weathered from limestone bedrock
Slope range: 5 to 12 percent
Associated soils: Hawthorne and Christian
Taxonomic class: Fine, mixed, active, mesic Typic Hapludalfs

Typical Pedon

Faywood silt loam in an area of Christian-Faywood complex, 12 to 20 percent slopes, rocky; in Clay County; from the intersection of Tennessee Highway 52 and Old Highway 52 in Allons, 0.5 mile on Old Highway 52, about 12.0 miles on Oakley-Allons Road, 6.1 miles on Willow Grove Highway, 0.75 mile on Hogan Road, 10 feet northeast in woods; USGS Dale Hollow Reservoir SE Quadrangle; UTM coordinates: Easting 650329 Northing 4049124; lat. 36 degrees 34 minutes 32 seconds N. and long. 85 degrees 19 minutes 11 seconds W.

A—0 to 1 inch; very dark grayish brown (10YR 3/2) silt loam; weak fine granular structure; very friable; common fine and medium roots; 5 percent channers of shale; moderately acid; abrupt smooth boundary.

Bt1—1 to 8 inches; yellowish brown (10YR 5/6) silty clay loam; common distinct yellowish red (5YR 4/6) mottles; strong fine subangular blocky structure; firm, moderately sticky, moderately plastic; few fine and medium roots; strongly acid; clear smooth boundary.

Bt2—8 to 17 inches; yellowish brown (10YR 5/4) clay; common strong brown (7.5YR 5/6) mottles; strong medium angular blocky structure; firm, moderately sticky, moderately plastic; few fine roots; common distinct dark brown (7.5YR 4/4) clay films on faces of peds; strongly acid; clear smooth boundary.

Bt3—17 to 25 inches; yellowish brown (10YR 5/4) clay; many fine distinct light yellowish brown (2.5Y 6/4) and many fine distinct strong brown (7.5YR 5/6) mottles; weak medium subangular blocky structure; firm, moderately sticky, moderately plastic; 10 percent channers of shale; strongly acid; abrupt smooth boundary.

R—25 inches; hard shale bedrock.

Range in Characteristics

Depth to bedrock: 20 to 40 inches
Kind of rock fragments: Hard chert and shale
Reaction: Strongly acid to slightly acid

Ap horizon (if it occurs):
Hue—10YR
Value—4 or 5
Chroma—3 or 4
Texture of the fine-earth fraction—silt loam
Content of rock fragments—0 to 15 percent

A horizon:
Hue—10YR
Value—3
Chroma—2 to 4
Texture of the fine-earth fraction—silt loam
Content of rock fragments—0 to 15 percent

BE horizon (if it occurs):
Hue—10YR
Value—5 or 6
Chroma—2 to 4
Texture of the fine-earth fraction—silt loam
Content of rock fragments—0 to 15 percent

Bt horizon:
Hue—7.5YR, 10YR, or 2.5Y
Value—4 to 6
Chroma—4 to 8
Texture of the fine-earth fraction—silty clay or clay with silty clay loam
Content of rock fragments—5 to 15 percent

Garmon Series

Depth class: Moderately deep
Drainage class: Well drained
Permeability: Moderately rapid
Physiographic area: Highland Rim Escarpment

Landscape position: Hillsides
Parent material: Residuum from shale and siltstone
Slope range: 40 to 80 percent
Associated soils: Newbern and Hawthorne
Taxonomic class: Fine-loamy, mixed, semiactive, mesic Dystric Eutrudepts

Typical Pedon

Garmon channery silt loam in an area of Garmon-Newbern complex, 40 to 80 percent slopes, rocky; 0.7 mile southeast of Livingston Boat Dock, 800 feet north of Livingston Boat Dock Road, in a wooded area; USGS Dale Hollow Dam, TN-KY Quadrangle; UTM coordinates: Easting 645180 Northing 4042145; lat. 36 degrees 30 minutes 49 seconds N. and long. 85 degrees 22 minutes 43 seconds W.

Oi—1 inch to 0; slightly decomposed and fresh leaf litter.
A—0 to 3 inches; brown (10YR 4/3) channery silt loam; moderate fine and medium granular structure; friable; common fine and few medium roots; 20 percent channers of shale; slightly acid; abrupt smooth boundary.
BA—3 to 6 inches; dark yellowish brown (10YR 4/4) channery silt loam; weak medium subangular blocky structure; friable; common fine and common medium roots; 20 percent channers of shale; slightly acid; clear smooth boundary.
Bw1—6 to 20 inches; yellowish brown (10YR 5/4) channery silt loam; moderate medium subangular blocky structure; friable; few fine and few medium roots; 20 percent channers of shale; moderately acid; gradual wavy boundary.
Bw2—20 to 29 inches; yellowish brown (10YR 5/4) very channery silt loam; moderate medium subangular blocky structure; friable; few fine and few medium roots; 40 percent channers of shale; moderately acid; abrupt wavy boundary.
R—29 inches; black calcareous shale bedrock.

Range in Characteristics

Depth to bedrock: 20 to 40 inches
Kind of rock fragments: Shale
Reaction: Slightly acid or neutral

A horizon:
Hue—10YR or 2.5Y
Value—4 to 6
Chroma—2 to 4
Texture of the fine-earth fraction—silt loam or loam
Content of rock fragments—5 to 35 percent

BA horizon (if it occurs):
Hue—10YR or 2.5Y
Value—4 or 5
Chroma—2 to 4
Texture of the fine-earth fraction—silt loam or loam
Content of rock fragments—5 to 35 percent

Bw horizon:
Hue—10YR or 2.5Y
Value—4 to 6
Chroma—4 to 8
Texture of the fine-earth fraction—silt loam or loam
Content of rock fragments—5 to 45 percent

BC horizon (if it occurs):
Hue—10YR or 2.5Y
Value—4 or 5

Chroma—4 to 6
Texture of the fine-earth fraction—silt loam or silty clay loam
Content of rock fragments—30 to 45 percent

Gilpin Series

Depth class: Moderately deep (depth of 20 to 40 inches)
Drainage class: Well drained
Permeability: Moderate
Physiographic area: Cumberland Plateau
Landform: Ridges and hillsides
Parent material: Residuum from shale
Slope range: 5 to 70 percent
Associated soils: Shelocta, Lily, and Sequoia
Taxonomic class: Fine-loamy, mixed, active, mesic Typic Hapludults

Typical Pedon

Gilpin loam, 12 to 20 percent slopes (fig. 20); 1.4 miles northwest of Crawford, 1.3 miles northwest of the intersection of Bear Knob Road and Honey Springs Road, 150 feet west of the road, in a wooded area; USGS Crawford Quadrangle; lat. 36 degrees 17 minutes 3.2 seconds N. and long. 85 degrees 10 minutes 12.52 seconds W.

Oi—1 inch to 0; leaf litter.
Oe—0 to 1 inch; partially decomposed leaf litter; many very fine and fine roots.
A—1 to 4 inches; dark yellowish brown (10YR 4/4) loam; weak medium granular structure; very friable; many very fine and fine roots; 10 percent sandstone gravel; strongly acid; clear smooth boundary.
BE—4 to 13 inches; yellowish brown (10YR 5/4) loam; weak medium subangular blocky structure; friable; common very fine and fine roots; 10 percent sandstone gravel; strongly acid; gradual smooth boundary.
Bt1—13 to 29 inches; strong brown (7.5YR 5/8) silty clay loam; moderate medium subangular blocky structure; friable; few very fine and fine roots; 12 percent sandstone gravel; strongly acid; clear smooth boundary.
Bt2—29 to 36 inches; yellowish brown (10YR 5/6) channery silty clay loam; weak medium and coarse subangular blocky structure; friable; 25 percent shale channers; strongly acid; clear smooth boundary.
Cr—36 inches; weathered shale.

Range in Characteristics

Depth to bedrock: 20 to 40 inches
Kind of rock fragments: Sandstone gravel and shale channers
Reaction: Strongly acid or very strongly acid

A horizon:
Hue—10YR
Value—3 or 4
Chroma—2 to 4
Texture of the fine-earth fraction—loam
Content of rock fragments—5 to 35 percent

BE horizon:
Hue—10YR
Value—4 to 6
Chroma—4 to 6

Figure 20.—A typical profile of a Gilpin soil. Gilpin soils have a moderate available water capacity and have soft shale bedrock at a depth of 20 to 40 inches. Depth is marked in inches.

Texture of the fine-earth fraction—loam
Content of rock fragments—5 to 35 percent

Bt horizon and 2Bt horizon (if it occurs):
Hue—10YR or 7.5YR
Value—4 to 6
Chroma—4 to 6
Texture of the fine-earth fraction—silt loam, loam, silty clay loam, or clay loam
Content of rock fragments—5 to 35 percent

Cr horizon:
Texture—weathered shale

Grimsley Series

Depth class: Deep
Drainage class: Somewhat excessively drained
Permeability: Moderately rapid
Physiographic area: Dissected Plateau
Landform: Hillsides, footslopes, and benches
Parent material: Colluvium from sandstone over shale residuum
Slope range: 20 to 50 percent
Associated soils: Bouldin, Gilpin, and Nella
Taxonomic class: Loamy-skeletal, siliceous, semiactive, mesic Typic Hapludults

Typical Pedon

Grimsley gravelly loam in an area of Bouldin and Grimsley soils, 20 to 70 percent slopes, very stony; 4.2 miles southeast of the Allred community on Tennessee Highway 85, about 3.1 miles southeast of the intersection of Tennessee Highway 85 and Shiloh Road, 25 feet west of the road; USGS Crawford Quadrangle; lat. 36 degrees 17 minutes 40.5 seconds N. and long. 85 degrees 9 minutes 53.6 seconds W.

A—0 to 2 inches; very dark grayish brown (10YR 3/2) gravelly loam; weak fine granular structure; very friable; 30 percent sandstone gravel and cobbles as much as 6 inches in diameter; strongly acid; clear smooth boundary.
BA—2 to 12 inches; brown (10YR 4/3) very cobbly loam; weak fine subangular blocky structure; friable; 40 percent sandstone cobbles and gravel as much as 6 inches in diameter; very strongly acid; gradual smooth boundary.
Bt1—12 to 25 inches; strong brown (7.5YR 4/6) very cobbly clay loam; moderate medium subangular blocky structure; friable; few faint clay films on faces of peds; 45 percent sandstone cobbles and gravel as much as 6 inches in diameter; very strongly acid; gradual smooth boundary.
Bt2—25 to 44 inches; strong brown (7.5YR 5/6) cobbly clay loam; moderate medium subangular blocky structure; friable; few faint clay films on faces of peds; 30 percent sandstone cobbles as much as 8 inches in diameter and channers of hard shale; very strongly acid; gradual smooth boundary.
2Bt3—44 to 55 inches; strong brown (7.5YR 4/6) channery silty clay loam; moderate medium subangular blocky structure; firm, moderately sticky, moderately plastic; common distinct brown (7.5YR 4/4) clay films on faces of peds; 30 percent channers of shale; very strongly acid.
2Cr—55 inches; multicolored shale.

Range in Characteristics

Depth to bedrock: 40 to 60 inches
Kind of rock fragments: Sandstone and shale
Reaction: Strongly acid or very strongly acid

A horizon:
Hue—10YR
Value—3 or 4
Chroma—2 or 3
Texture of the fine-earth fraction—loam
Content of rock fragments—15 to 35 percent

Bt horizon:
Hue—7.5YR or 10YR
Value—4 to 6
Chroma—4 to 8

Texture of the fine-earth fraction—loam or clay loam
Content of rock fragments—30 to 60 percent

2Bt horizon:
Hue—7.5YR or 10YR
Value—4 to 6
Chroma—4 to 8
Texture of the fine-earth fraction—silty clay loam, clay loam, or clay
Content of rock fragments—30 to 60 percent

Cr horizon:
Texture—shale bedrock

Hamblen Series

Depth class: Very deep
Drainage class: Moderately well drained
Permeability: Moderate
Physiographic area: Highland Rim and Cumberland Plateau
Landscape position: Flood plains
Parent material: Loamy alluvium
Slope range: 0 to 2 percent
Associated soils: Ealy, Sullivan, and Ocana
Taxonomic class: Fine-loamy, siliceous, semiactive, thermic Fluvaquentic Eutrudepts

Typical Pedon

Hamblen loam, occasionally flooded; 3.7 miles northwest of Livingston, 3.4 miles west on Tennessee Highway 85, about 1.4 miles north on Flatt Creek Road, 25 feet southeast of Flatt Creek Road, in a field; USGS Hilham Quadrangle; UTM coordinates: Easting 44698 Northing 29934; lat. 36 degrees 24 minutes 13 seconds N. and long. 85 degrees 23 minutes 11 seconds W.

A—0 to 6 inches; brown (10YR 4/3) loam; moderate medium granular structure; friable; common fine and very fine roots; moderately acid; clear smooth boundary.
Bw1—6 to 23 inches; dark yellowish brown (10YR 4/4) loam; weak medium subangular blocky structure; friable; common fine roots; common fine and medium black (10YR 2/1) manganese concretions; moderately acid; clear smooth boundary.
Bw2—23 to 36 inches; brown (10YR 5/3) loam; weak medium subangular blocky structure; friable; few fine roots; common fine and medium black (10YR 2/1) manganese concretions; common fine and medium light brownish gray (10YR 6/2) iron depletions; strongly acid; gradual smooth boundary.
C—36 to 65 inches; brown (10YR 5/3) loam; massive; friable; few fine black (10YR 2/1) manganese concretions; common fine and medium light brownish gray (10YR 6/2) iron depletions; strongly acid.

Range in Characteristics

Depth to bedrock: More than 60 inches
Kind of rock fragments: Rounded chert gravel
Reaction: Moderately acid or slightly acid

A horizon:
Hue—10YR
Value—3 to 5
Chroma—2 or 3
Texture of the fine-earth fraction—loam
Content of rock fragments—0 to 5 percent

Bw horizon:
Hue—10YR or 2.5Y
Value—4 or 5
Chroma—3 to 6
Texture of the fine-earth fraction—silt loam or loam
Redoximorphic features—few or common iron-manganese concentrations and common or many grayish iron depletions
Content of rock fragments—0 to 5 percent

C horizon (if it occurs):
Hue—10YR or 2.5Y
Value—4 or 5
Chroma—3 to 6
Texture of the fine-earth fraction—silt loam, silty clay loam, or loam
Redoximorphic features—few or common iron-manganese concentrations and common or many grayish iron depletions
Content of rock fragments—0 to 30 percent

Hawthorne Series

Depth class: Moderately deep
Drainage class: Somewhat excessively drained
Permeability: Moderately rapid
Physiographic area: Highland Rim
Landform: Ridges and steep hillsides
Parent material: Residuum from cherty limestone and siltstone
Slope range: 5 to 80 percent
Associated soils: Dellrose, Mimosa, and Faywood
Taxonomic class: Loamy-skeletal, siliceous, semiactive, thermic Typic Dystrudepts

Typical Pedon

Hawthorne gravelly silt loam, 20 to 70 percent slopes; in Clay County; 5.55 miles south on Bakerton Road from its intersection with Tennessee Highway 52 west of Moss, 0.4 mile east on Crabtree Creek Road, 1.0 mile east on North Fork Road, 20 feet east of the road; USGS Union Hill Quadrangle; UTM coordinates: Easting 613383 Northing 4040660; lat. 36 degrees 30 minutes 16 seconds N. and long. 85 degrees 44 minutes 2 seconds W.

Oi—1 inch to 0; slightly decomposed leaf and organic matter.
A—0 to 1 inch; brown (10YR 4/3) gravelly silt loam; moderate fine granular structure; very friable; many very fine and fine and common medium roots throughout; 30 percent angular chert fragments; neutral; abrupt smooth boundary.
E—1 to 4 inches; pale brown (10YR 6/3) very gravelly silt loam; moderate medium granular structure; very friable; common very fine, fine, and medium roots throughout; 45 percent subangular chert fragments; strongly acid; gradual smooth boundary.
Bw1—4 to 14 inches; light yellowish brown (10YR 6/4) very channery silt loam; weak fine subangular blocky structure; friable; common very fine and fine roots throughout; 60 percent channers of siltstone; very strongly acid; gradual smooth boundary.
Bw2—14 to 23 inches; yellowish brown (10YR 6/6) extremely channery silt loam; weak fine subangular blocky structure; friable; common very fine and fine roots throughout; 70 percent channers of siltstone; strongly acid; abrupt wavy boundary.
Cr—23 inches; thinly bedded weathered siltstone that is highly fractured with very thin seams of very pale brown silt loam.

Range in Characteristics

Depth to bedrock: 20 to 40 inches
Kind of rock fragments: Chert and siltstone
Reaction: Very strongly acid or strongly acid

A horizon:
Hue—10YR
Value—4 or 5
Chroma—2 to 4
Texture of the fine-earth fraction—silt loam
Content of rock fragments—10 to 35 percent

E horizon:
Hue—10YR
Value—5 or 6
Chroma—3 or 4
Texture of the fine-earth fraction—silt loam
Content of rock fragments—35 to 60 percent

Bw horizon:
Hue—10YR or 7.5YR
Value—4 or 5
Chroma—4 to 6
Texture of the fine-earth fraction—silt loam
Content of rock fragments—35 to 70 percent

Hayter Series

Depth class: Very deep
Drainage class: Well drained
Permeability: Moderate
Physiographic area: Plateau Escarpment
Landform: Mountainsides
Parent material: Colluvium
Slope range: 20 to 70 percent
Associated soils: Talbott and Nella
Taxonomic class: Fine-loamy, mixed, semiactive, mesic Ultic Hapludalfs

Typical Pedon

Hayter gravelly loam in an area of Hayter-Talbott-Rock outcrop complex, 20 to 70 percent slopes, very stony; 2.4 miles northwest of the Hanging Limb community, 0.4 mile southeast of the intersection of Dry Hollow Road and Shiloh Road on Skunk Cane Road, 25 feet south of Skunk Cane Road, in woods; USGS Crawford Quadrangle; lat. 36 degrees 15 minutes 22.8 seconds N. and long. 85 degrees 11 minutes 50.8 seconds W.

A—0 to 8 inches; dark brown (10YR 3/3) gravelly loam; weak fine granular structure; very friable; 15 percent sandstone gravel; moderately acid; abrupt smooth boundary.

BA—8 to 19 inches; dark yellowish brown (10YR 4/4) gravelly loam; weak fine subangular blocky structure; very friable; 15 percent sandstone gravel; moderately acid; clear smooth boundary.

Bt1—19 to 34 inches; strong brown (7.5YR 4/6) gravelly loam; moderate medium subangular blocky structure; friable; few faint clay films on faces of peds and in pores; 15 percent sandstone gravel; moderately acid; gradual smooth boundary.

Bt2—34 to 46 inches; strong brown (7.5YR 4/6) gravelly clay loam; moderate medium subangular blocky structure; friable; few faint clay films on faces of peds and in pores; 15 percent sandstone gravel; moderately acid; gradual smooth boundary.

2Bt3—46 to 72 inches; yellowish red (5YR 4/6) very gravelly clay loam; moderate medium subangular blocky structure; friable; few distinct reddish brown (5YR 4/4) clay films on faces of peds and in pores; 40 percent rounded sandstone gravel; moderately acid.

Range in Characteristics

Depth to bedrock: More than 60 inches
Kind of rock fragments: Sandstone gravel
Reaction: Very strongly acid to moderately acid

A horizon:
Hue—10YR
Value—3 or 4
Chroma—2 or 3
Texture of the fine-earth fraction—loam
Content of rock fragments—less than 35 percent

BA horizon:
Hue—10YR
Value—4 or 5
Chroma—4 to 6
Texture of the fine-earth fraction—loam
Content of rock fragments—less than 35 percent

Bt horizon:
Hue—10YR to 5YR
Value—4 or 5
Chroma—4 to 8
Texture of the fine-earth fraction—loam or clay loam
Content of rock fragments—0 to 40 percent with a weighted average of less than 35 percent

2Bt horizon (if it occurs):
Hue—7.5YR or 5YR
Value—4 or 5
Chroma—4 to 8
Texture of the fine-earth fraction—clay loam or, rarely, clay
Content of rock fragments—5 to 50 percent

Holston Series

Depth class: Very deep
Drainage class: Well drained
Permeability: Moderate
Physiographic area: Nashville Basin
Landform: Terraces
Parent material: Alluvium
Slope range: 2 to 12 percent
Associated soils: Etowah and Monongahela
Taxonomic class: Fine-loamy, siliceous, semiactive, thermic Typic Paleudults

Typical Pedon

Holston loam, 5 to 12 percent slopes, eroded; in Clay County; 1.0 mile north of Celina on Tennessee Highway 53, about 0.8 mile southeast on Peterman Bend Road, 75 feet north of the road, in pasture; USGS Dale Hollow Dam Quadrangle; UTM coordinates: Easting 635692 Northing 4043696; lat. 36 degrees 31 minutes 44 seconds N. and long. 85 degrees 29 minutes 4 seconds W.

Ap—0 to 9 inches; dark yellowish brown (10YR 4/4) loam; weak fine granular structure; friable; common fine and very fine roots; slightly acid; clear smooth boundary.

Bt1—9 to 20 inches; yellowish brown (10YR 5/6) loam; moderate medium subangular blocky structure; friable; common fine roots; moderately acid; gradual smooth boundary.

Bt2—20 to 32 inches; yellowish brown (10YR 5/6) clay loam; common medium brownish yellow (10YR 6/6) mottles; moderate medium subangular blocky structure; friable; few fine roots; strongly acid; gradual smooth boundary.

Bt3—32 to 45 inches; yellowish brown (10YR 5/6) clay loam; common medium faint brownish yellow (10YR 6/6) and common medium distinct strong brown (7.5YR 5/8) mottles; moderate medium subangular blocky structure; friable; few fine roots; strongly acid; gradual smooth boundary.

Bt4—45 to 60 inches; yellowish brown (10YR 5/6) clay loam; common medium faint brownish yellow (10YR 6/6) mottles; moderate medium subangular blocky structure; friable; few fine roots; 10 percent rounded gravel; strongly acid.

Range in Characteristics

Depth to bedrock: More than 60 inches
Kind of rock fragments: Well rounded chert and sandstone gravel
Reaction: Strongly acid or very strongly acid

A horizon:
Hue—10YR
Value—4 or 5
Chroma—2 to 4
Texture of the fine-earth fraction—loam
Content of rock fragments—0 to 15 percent

Bt horizon:
Hue—10YR or 7.5YR
Value—4 to 6
Chroma—4 to 8
Texture of the fine-earth fraction—loam or clay loam
Content of rock fragments—0 to 15 percent

Humphreys Series

Depth class: Very deep
Drainage class: Well drained
Permeability: Moderately rapid
Physiographic area: Highland Rim and Nashville Basin
Landform: Footslopes, terraces, and alluvial fans
Parent material: Colluvium and gravelly alluvium
Slope range: 2 to 12 percent
Associated soils: Dellrose and Ocana
Taxonomic class: Fine-loamy, mixed, semiactive, thermic Ultic Hapludalfs

Typical Pedon

Humphreys gravelly silt loam, 5 to 12 percent slopes; in Jackson County; 2.8 miles northwest of the intersection of Tennessee Highway 56 and Hunting Creek Road, 1.8

miles north of the intersection of Tennessee Highway 56 and Crabtree Creek Road, 500 feet west of Crabtree Creek Road, in pasture; USGS Willette Quadrangle; UTM coordinates: Easting 611327 Northing 4037858; lat. 36 degrees 28 minutes 46 seconds N. and long. 85 degrees 45 minutes 26 seconds W.

Ap—0 to 5 inches; dark yellowish brown (10YR 3/4) gravelly silt loam; weak medium granular structure; very friable; many fine and very fine roots; 15 percent chert, shale, and siltstone fragments; moderately acid; gradual wavy boundary.

BA—5 to 17 inches; brown (10YR 4/3) gravelly silty clay loam; weak medium subangular blocky structure; friable; many fine and very fine roots; 25 percent chert, shale, and siltstone fragments; moderately acid; clear wavy boundary.

Bt1—17 to 35 inches; dark yellowish brown (10YR 4/4) gravelly clay loam; moderate fine and medium subangular blocky structure; friable; common fine and very fine roots; common faint dark yellowish brown (10YR 4/6) clay films on faces of peds and coating fragments; 35 percent chert, shale, and siltstone fragments; moderately acid; clear smooth boundary.

Bt2—35 to 55 inches; dark yellowish brown (10YR 4/4) gravelly silty clay loam; moderate medium subangular blocky structure; friable; few fine and very fine roots; common faint distinct dark yellowish brown (10YR 4/6) clay films on faces of peds; 30 percent chert, shale, and siltstone fragments; strongly acid; gradual wavy boundary.

C—55 to 80 inches; yellowish brown (10YR 5/4) very gravelly silty clay loam; massive; very friable; 60 percent chert, shale, and siltstone fragments; strongly acid.

Range in Characteristics

Depth to bedrock: More than 60 inches
Kind of rock fragments: Chert, shale, and siltstone
Reaction: Strongly acid to neutral

A horizon:
Hue—10YR
Value—3 or 4
Chroma—2 to 4
Texture of the fine-earth fraction—silt loam
Content of rock fragments—15 to 35 percent

BA horizon:
Hue—10YR
Value—4 or 5
Chroma—3 or 4
Texture of the fine-earth fraction—silt loam
Content of rock fragments—15 to 35 percent

Bt horizon:
Hue—10YR or 7.5YR
Value—4 or 5
Chroma—4 to 6
Texture of the fine-earth fraction—silt loam, loam, silty clay loam, or clay loam
Content of rock fragments—15 to 35 percent

C horizon:
Hue—10YR
Value—4 or 5
Chroma—4 to 6
Texture of the fine-earth fraction—silt loam, sandy loam, silty clay loam, or clay loam
Content of rock fragments—35 to 80 percent

Lily Series

Depth class: Moderately deep
Drainage class: Well drained
Permeability: Moderately rapid
Physiographic area: Cumberland Plateau
Landform: Ridgetops and hillsides
Parent material: Residuum from sandstone
Slope range: 2 to 20 percent
Associated soils: Gilpin, Ramsey, and Lonewood
Taxonomic class: Fine-loamy, siliceous, semiactive, mesic Typic Hapludults

Typical Pedon

Lily loam, 5 to 12 percent slopes; 0.3 mile north of Crawford on Highway 164, about 50 feet west of the road; USGS Crawford Quadrangle; lat. 36 degrees 16 minutes 24.0 seconds N. and long. 85 degrees 9 minutes 29.2 seconds W.

A—0 to 3 inches; very dark grayish brown (10YR 3/2) loam; weak fine granular structure; very friable; common very fine and fine roots; slightly acid; clear smooth boundary.
BE—3 to 7 inches; yellowish brown (10YR 5/4) loam; weak fine subangular blocky structure; very friable; common very fine and fine roots; slightly acid; clear smooth boundary.
Bt1—7 to 16 inches; dark yellowish brown (10YR 4/6) loam; moderate medium subangular blocky structure; friable; few fine roots; common distinct dark yellowish brown (10YR 4/4) clay films on faces of peds and in pores; very strongly acid; gradual smooth boundary.
Bt2—16 to 31 inches; yellowish brown (10YR 5/6) clay loam; moderate medium subangular blocky structure; friable; few fine roots; few faint clay films on faces of peds and in pores; strongly acid.
R—31 inches; hard sandstone bedrock.

Range in Characteristics

Depth to bedrock: 20 to 40 inches
Kind of rock fragments: Sandstone gravel
Reaction: Strongly acid or very strongly acid

A horizon:
Hue—10YR
Value—3 or 4
Chroma—2 to 4
Texture of the fine-earth fraction—loam
Content of rock fragments—less than 15 percent

BE horizon:
Hue—10YR
Value—4 to 6
Chroma—3 or 4
Texture of the fine-earth fraction—loam
Content of rock fragments—less than 35 percent

Bt horizon:
Hue—10YR or 7.5YR
Value—4 to 6
Chroma—4 to 8

Texture of the fine-earth fraction—loam or clay loam
Content of rock fragments—less than 35 percent

Lonewood Series

Depth class: Deep and very deep
Drainage class: Well drained
Permeability: Moderate
Physiographic area: Cumberland Plateau
Landform: Broad ridgetops
Parent material: Residuum from sandstone and shale
Slope range: 2 to 12 percent
Associated soils: Gilpin, Lily, and Ramsey
Taxonomic class: Fine-loamy, siliceous, semiactive, mesic Typic Hapludults

Typical Pedon

Lonewood loam, 2 to 5 percent slopes; 0.4 mile north of Wilson School on Tennessee Highway 164, about 50 feet east of the road; USGS Obey Quadrangle; UTM coordinates: Easting 664730 Northing 4009785; lat. 36 degrees 13 minutes 8 seconds N. and long. 85 degrees 10 minutes 2 seconds W.

A—0 to 4 inches; dark grayish brown (10YR 4/2) loam; weak medium granular structure; very friable; many very fine and fine roots; strongly acid; abrupt smooth boundary.
BE—4 to 9 inches; yellowish brown (10YR 5/4) loam; weak fine subangular blocky structure; very friable; common very fine and fine roots; few sandstone gravel; strongly acid; gradual smooth boundary.
Bt1—9 to 29 inches; dark yellowish brown (10YR 4/4) loam; moderate fine and medium subangular blocky structure; friable; few fine roots; few faint clay films on faces of peds; few sandstone pebbles; strongly acid; clear wavy boundary.
2Bt2—29 to 45 inches; strong brown (7.5YR 4/6) clay loam; common fine and medium distinct yellowish brown (10YR 5/6) mottles; moderate medium subangular blocky structure; friable; few fine roots; common distinct brown (7.5YR 4/4) clay films on faces of peds; strongly acid; gradual smooth boundary.
2BC—45 to 60 inches; yellowish red (5YR 5/6) sandy loam; common medium and coarse distinct yellowish brown (10YR 5/6) mottles; weak coarse subangular blocky structure; friable; strongly acid.

Range in Characteristics

Depth to bedrock: 40 to 72 inches
Kind of rock fragments: Sandstone gravel and shale channers
Reaction: Very strongly acid or strongly acid

A horizon:
Hue—10YR
Value—3 to 5
Chroma—2 to 4
Texture of the fine-earth fraction—loam
Content of rock fragments—0 to 5 percent

BE horizon:
Hue—10YR
Value—4 or 5
Chroma—4 to 6
Texture of the fine-earth fraction—loam
Content of rock fragments—0 to 15 percent

Bt horizon:
Hue—10YR or 7.5YR
Value—4 or 5
Chroma—4 to 6
Texture of the fine-earth fraction—loam or clay loam
Content of rock fragments—0 to 15 percent

2Bt horizon:
Hue—7.5YR or 5YR
Value—4 to 6
Chroma—4 to 8
Texture of the fine-earth fraction—sandy clay loam or clay loam
Content of rock fragments—0 to 30 percent

2BC and 2C horizons (if they occur):
Hue—10YR, 7.5YR, or 5YR
Value—4 to 6
Chroma—4 to 8
Texture of the fine-earth fraction—loam or sandy loam
Content of rock fragments—5 to 35 percent

Melvin Series

Depth class: Very deep
Drainage class: Poorly drained
Permeability: Moderate
Physiographic area: Highland Rim and Nashville Basin
Landform: Depressions
Parent material: Alluvium
Slope range: 0 to 2 percent
Associated soils: Dickson and Mountview
Taxonomic class: Fine-silty, mixed, active, nonacid, mesic Fluvaquentic Endoaquepts

Typical Pedon

Melvin silt loam, ponded; 1.0 mile east of Hilham on Rocky Mound Road, 300 feet south in a field; USGS Hilham Quadrangle; UTM coordinates: Easting 54117 Northing 18709; lat. 36 degrees 18 minutes 4 seconds N. and long. 85 degrees 17 minutes 1 second W.

A—0 to 7 inches; grayish brown (10YR 5/2) silt loam; moderate medium granular structure; friable; common fine and very fine roots; common fine strong brown (7.5YR 5/6) iron concentrations; moderately acid; clear smooth boundary.
Bg1—7 to 20 inches; grayish brown (10YR 5/2) silt loam; weak medium subangular blocky structure; friable; common fine roots; common fine strong brown (7.5YR 5/6) iron concentrations; moderately acid; clear smooth boundary.
Bg2—20 to 39 inches; gray (10YR 5/1) silt loam; weak medium subangular blocky structure; friable; few fine roots; common fine and medium strong brown (7.5YR 5/6) iron concentrations; moderately acid; gradual smooth boundary.
Cg—39 to 65 inches; light brownish gray (10YR 6/2) silty clay loam; massive; friable; few manganese concretions; many medium and coarse brownish yellow (10YR 6/8) iron concentrations; moderately acid.

Range in Characteristics

Depth to bedrock: More than 60 inches
Kind of rock fragments: Rounded chert
Reaction: Moderately acid or slightly acid

A horizon:
Hue—10YR
Value—4 to 6
Chroma—1 to 4
Texture of the fine-earth fraction—silt loam
Content of rock fragments—0 to 5 percent

Bg horizon:
Hue—10YR or 2.5Y
Value—4 to 6
Chroma—1 or 2
Texture of the fine-earth fraction—silt loam or silty clay loam
Redoximorphic features—few or common iron-manganese concentrations and common or many reddish iron concentrations
Content of rock fragments—0 to 5 percent

Cg horizon:
Hue—10YR or 2.5Y
Value—4 to 6
Chroma—1 or 2
Texture of the fine-earth fraction—silt loam, silty clay loam, or clay
Redoximorphic features—few or common iron-manganese concentrations and common or many reddish iron concentrations
Content of rock fragments—0 to 20 percent

Mimosa Series

Depth class: Deep
Drainage class: Well drained
Permeability: Slow and very slow
Physiographic area: Nashville Basin
Landscape position: Hillsides
Parent material: Limestone residuum
Slope range: 20 to 60 percent
Associated soils: Dellrose
Taxonomic class: Fine, mixed, semiactive, thermic Typic Hapludalfs

Typical Pedon

Mimosa silt loam, 12 to 20 slopes, eroded; in Clay County; 5.7 miles southwest of Celina on Tennessee Highway 53, about 3.0 miles southeast on Tennessee Highway 292, about 1.05 miles northeast of the intersection of Tennessee Highway 292 and Oil Hollow Road, 2,447 feet south into Muddy Hollow, in pasture; USGS Burristown Quadrangle; UTM coordinates: Easting 0634072 Northing 4037859; lat. 36 degrees 28 minutes 36 seconds N. and long. 85 degrees 30 minutes 12 seconds W.

A—0 to 11 inches; yellowish brown (10YR 5/4) silt loam; weak fine granular structure; friable; common medium and fine roots; 10 percent angular fragments of chert; moderately acid; clear smooth boundary.

Bt1—11 to 23 inches; dark yellowish brown (10YR 4/6) clay; moderate coarse subangular blocky structure; firm, moderately sticky, moderately plastic; few fine roots; common pressure faces throughout; common distinct dark yellowish brown (10YR 4/4) clay films on faces of peds and in pores; strongly acid; clear smooth boundary.

Bt2—23 to 34 inches; yellowish brown (10YR 5/6) clay; moderate coarse subangular blocky structure; firm, very sticky, very plastic; common pressure faces on peds;

common distinct dark yellowish brown (10YR 4/4) clay films on faces of peds and in pores; many iron-manganese stains throughout; strongly acid; gradual smooth boundary.

Bt3—34 to 51 inches; yellowish brown (10YR 5/6) clay; many coarse faint light olive brown (2.5Y 5/6) and common fine distinct light yellowish brown (2.5Y 6/4) mottles; weak coarse subangular blocky structure; firm, very sticky, very plastic; many distinct dark yellowish brown (10YR 4/4) clay films on faces of peds and in pores; moderately acid; abrupt smooth boundary.

R—51 inches; hard limestone bedrock.

Range in Characteristics

Depth to bedrock: 40 to 60 inches
Kind of rock fragments: Chert
Reaction: Strongly acid or moderately acid

A horizon:
Hue—10YR or 2.5Y
Value—3 to 5
Chroma—3 to 6
Texture of the fine-earth fraction—silt loam
Content of rock fragments—0 to 10 percent

Bt horizon:
Hue—7.5YR or 10YR
Value—4 or 5
Chroma—4 to 8
Texture of the fine-earth fraction—clay or silty clay
Content of rock fragments—0 to 5 percent

Minvale Series

Depth class: Very deep
Drainage class: Well drained
Permeability: Moderate
Physiographic area: Highland Rim
Landform: Hillsides and footslopes
Parent material: Colluvium or alluvium underlain by limestone residuum
Slope range: 5 to 20 percent
Associated soils: Etowah, Talbott, Sengtown, and Waynesboro
Taxonomic class: Fine-loamy, siliceous, subactive, thermic Typic Paleudults

Typical Pedon

Minvale gravelly loam, 5 to 12 percent slopes, eroded; 2.0 miles east of Rickman on Tennessee Highway 293, about 0.5 mile north on Oak Hill Road, 250 feet east of the road, in woods; USGS Okalona Quadrangle; UTM coordinates: Easting 648525 Northing 4014025; lat. 36 degrees 15 minutes 35 seconds N. and long. 85 degrees 20 minutes 48 seconds W.

A1—0 to 3 inches; dark brown (10YR 3/3) gravelly loam; moderate medium granular structure; very friable; common fine and medium roots throughout; 15 percent chert fragments; strongly acid; clear smooth boundary.

A2—3 to 5 inches; dark yellowish brown (10YR 3/4) gravelly loam; moderate medium granular structure; friable; few fine and medium roots throughout; 15 percent chert fragments; strongly acid; clear smooth boundary.

BA—5 to 12 inches; dark yellowish brown (10YR 4/4) gravelly loam; weak medium subangular blocky structure; friable; few very fine and fine roots throughout; 20 percent chert fragments; strongly acid; gradual smooth boundary.

Bt1—12 to 20 inches; brown (7.5YR 4/4) gravelly clay loam; moderate medium subangular blocky structure; friable; few fine and medium roots throughout; few faint discontinuous clay films on faces of peds; 20 percent chert fragments; strongly acid; gradual smooth boundary.

Bt2—20 to 48 inches; yellowish red (5YR 4/6) gravelly clay loam; moderate medium subangular blocky structure; friable; common faint discontinuous clay films on faces of peds; 30 percent chert fragments; strongly acid; gradual smooth boundary.

2Bt3—48 to 65 inches; red (2.5YR 4/6) very gravelly clay; strong fine and medium subangular blocky structure; firm; many distinct reddish brown (2.5YR 4/4) clay films on faces of peds; 40 percent chert fragments; strongly acid.

Range in Characteristics

Depth to bedrock: More than 60 inches
Kind of rock fragments: Sandstone and chert
Reaction: Very strongly acid or strongly acid

A horizon:
Hue—10YR
Value—3 to 5
Chroma—2 to 4
Texture of the fine-earth fraction—loam
Content of rock fragments—10 to 35 percent

BA horizon:
Hue—10YR or 7.5YR
Value—4 or 5
Chroma—4 to 6
Texture of the fine-earth fraction—loam
Content of rock fragments—10 to 35 percent

Bt horizon:
Hue—10YR to 5YR
Value—4 or 5
Chroma—4 to 6
Texture of the fine-earth fraction—loam, clay loam, or silty clay loam
Content of rock fragments—10 to 35 percent

2Bt horizon:
Hue—5YR or 2.5YR
Value—4 or 5
Chroma—4 to 8
Texture of the fine-earth fraction—clay
Content of rock fragments—15 to 45 percent

Monongahela Series

Depth class: Very deep
Drainage class: Moderately well drained
Permeability: Moderate above the fragipan; slow and very slow within the fragipan
Physiographic area: Highland Rim
Landform: Terraces
Parent material: Alluvium
Slope range: 2 to 12 percent

Associated soils: Ealy, Hamblen, Sullivan, and Holston
Taxonomic class: Fine-loamy, mixed, semiactive, mesic Typic Fragiudults

Typical Pedon

Monongahela silt loam, 2 to 5 percent slopes, eroded; in Clay County; 4.8 miles west of Moss on Tennessee Highway 52, about 0.8 mile northeast of the intersection of Tennessee Highway 52 and Tennessee Highway 135, about 690 feet south of Tennessee Highway 52, in a field; USGS Union Hill Quadrangle; UTM coordinates: Easting 616602 Northing 4050859; lat. 36 degrees 5 minutes 46 seconds N. and long. 85 degrees 41 minutes 47 seconds W.

A—0 to 5 inches; brown (10YR 4/3) silt loam; moderate medium granular structure; very friable; many very fine roots; moderately acid; abrupt smooth boundary.

Bt1—5 to 24 inches; yellowish brown (10YR 5/4) silt loam; moderate fine subangular blocky structure; friable; common very fine and fine roots; strongly acid; clear smooth boundary.

Bt2—24 to 28 inches; light yellowish brown (10YR 6/4) silt loam; moderate fine subangular blocky structure; friable; common very fine and fine roots; common medium black (10YR 2/1) soft iron-manganese masses; common prominent light gray (10YR 7/1) iron depletions; very strongly acid; abrupt irregular boundary.

Btx1—28 to 50 inches; light olive brown (2.5Y 5/4) loam; moderate very coarse prismatic structure parting to strong very coarse platy; very firm; many distinct yellowish brown (10YR 5/6) clay films on faces of peds and in pores; common medium black (10YR 2/1) soft iron-manganese masses; common medium prominent light gray (10YR 7/1) iron depletions; brittle in 90 percent of the mass; very strongly acid; gradual wavy boundary.

Btx2—50 to 68 inches; light yellowish brown (2.5Y 6/4) gravelly loam; common medium distinct brownish yellow (10YR 6/6) mottles; moderate very coarse prismatic structure parting to moderate very coarse platy; very firm; many distinct yellowish brown (10YR 5/6) clay films on faces of peds and in pores; common medium black (10YR 2/1) soft iron-manganese masses; common medium prominent light gray (10YR 7/1) iron depletions; brittle in 80 percent of the mass; very strongly acid; clear smooth boundary.

BC—68 to 80 inches; brownish yellowish (10YR 6/6) gravelly loam; weak very coarse platy structure; firm; many medium black (10YR 2/1) soft iron-manganese masses; common prominent light gray (10YR 7/1) iron depletions; common prominent yellowish red (5YR 5/6) iron accumulations; very strongly acid.

Range in Characteristics

Depth to bedrock: More than 60 inches
Depth to fragipan: 20 to 30 inches
Kind of rock fragments: Chert and siltstone
Reaction: Very strongly acid or strongly acid

A horizon:
Hue—10YR
Value—4 or 5
Chroma—2 to 4
Texture of the fine-earth fraction—silt loam
Content of rock fragments—less than 5 percent

Bt horizon:
Hue—10YR
Value—4 to 6
Chroma—4 to 8
Texture of the fine-earth fraction—silt loam

Redoximorphic features—few or common iron-manganese nodules and concretions and grayish iron depletions
Content of rock fragments—less than 5 percent

Btx horizon:
Hue—10YR or 2.5Y
Value—4 to 6
Chroma—2 to 6
Texture of the fine-earth fraction—silt loam, loam, or clay loam
Redoximorphic features—few or common soft iron-manganese masses and grayish iron depletions
Content of rock fragments—less than 35 percent

2Bt horizon (if it occurs):
Hue—10YR or 7.5YR
Value—4 to 6
Chroma—3 to 8
Texture of the fine-earth fraction—silty clay loam or clay loam
Redoximorphic features—few or common soft iron-manganese masses and grayish iron depletions
Content of rock fragments—less than 35 percent

BC horizon (if it occurs):
Hue—10YR or 2.5Y
Value—4 to 7
Chroma—2 to 8
Texture of the fine-earth fraction—loam, sandy loam, or clay loam
Redoximorphic features—few or common soft masses of iron-manganese and grayish iron depletions
Content of rock fragments—10 to 35 percent

Mountview Series

Depth class: Very deep
Drainage class: Well drained and moderately well drained
Permeability: Moderately slow at the discontinuity
Physiographic area: Highland Rim
Landform: Divides
Parent material: Loess over residuum or alluvium
Slope range: 2 to 12 percent
Associated soils: Bewleyville, Sengtown, and Dickson
Taxonomic class: Fine-silty, siliceous, semiactive, thermic Oxyaquic Paleudults

Typical Pedon

Mountview silt loam, 5 to 12 slopes, eroded (fig. 21); in Clay County; 7.8 miles northeast of Moss, 3.2 miles northwest on Clementsville Road from its intersection with Tennessee Highway 52 at Oak Grove, 0.45 mile south on Ritter Road, 370 feet east, in a field; USGS Union Hill Quadrangle; UTM coordinates: Easting 612606 Northing 4052515; lat. 36 degrees 36 minutes 41 seconds N. and long. 85 degrees 44 minutes 27 seconds W.

Ap—0 to 8 inches; brown (10YR 4/3) silt loam; moderate medium granular structure; friable; many very fine and fine roots; neutral; abrupt smooth boundary.
Bt1—8 to 21 inches; yellowish brown (10YR 5/6) silt loam; moderate fine subangular blocky structure; friable; common very fine and fine roots; few faint clay films on faces of peds and in pores; slightly acid; clear wavy boundary.

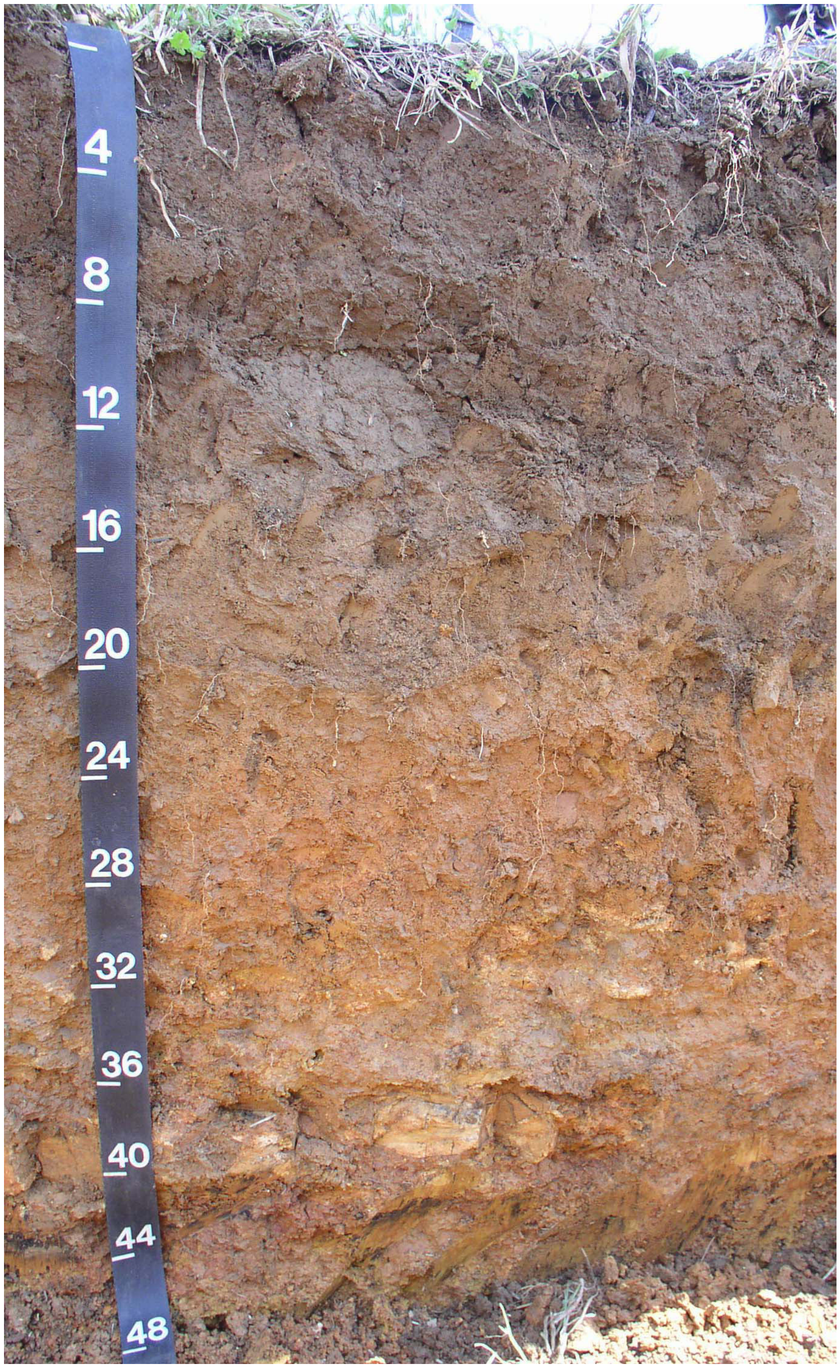

Figure 21.—A typical profile of a Mountview soil. Mountview soils have few limitations affecting crop production. Depth is marked in inches.

Bt2—21 to 28 inches; yellowish brown (10YR 5/6) silt loam; moderate fine subangular blocky structure; friable; common very fine and fine roots; firm; few faint clay films on faces of peds and in pores; common coarse black (10YR 2/1) manganese concretions; common medium pale brown (10YR 6/3) iron depletions; 3 percent chert fragments; brittle in 15 to 20 percent of the mass; slightly acid; clear wavy boundary.

2Bt3—28 to 34 inches; strong brown (7.5YR 5/6) silty clay loam; many medium distinct yellowish red (5YR 5/6) and common fine prominent light yellowish brown (10YR 6/4) mottles; moderate fine subangular blocky structure; friable; common very fine and fine roots; common distinct brown (7.5YR 5/4) clay films on faces of peds and in pores; common black (10YR 2/1) soft iron-manganese masses on faces of peds; 2 percent subangular chert fragments; strongly acid; gradual smooth boundary.

2Bt4—34 to 45 inches; yellowish red (5YR 5/6) silty clay loam; common fine prominent light yellowish brown (10YR 6/4) and common medium distinct reddish yellow (7.5YR 6/6) mottles; moderate fine angular blocky structure; friable; common very fine and fine roots; many distinct strong brown (7.5YR 4/6) clay films on faces of peds and in pores; few fine prominent light gray (10YR 7/2) iron depletions; 1 percent chert fragments; strongly acid; clear wavy boundary.

2Bt5—45 to 80 inches; red (2.5YR 4/6) clay; common fine and medium prominent brownish yellow (10YR 6/8) and common fine and medium prominent reddish yellow (7.5YR 6/6) mottles; strong medium subangular blocky structure; firm; very few very fine and fine roots; many distinct yellowish red (5YR 5/6) clay films on faces of peds and in pores; few fine prominent light gray (10YR 7/2) iron depletions; 2 percent subangular chert fragments; strongly acid.

Range in Characteristics

Depth to bedrock: More than 60 inches
Depth to brittle zone: 18 to 36 inches
Kind of rock fragments: Chert and siltstone
Reaction: Very strongly acid or strongly acid

A horizon:
Hue—10YR
Value—4 to 6
Chroma—2 to 4
Texture of the fine-earth fraction—silt loam
Content of rock fragments—0 to 5 percent

Bt horizon:
Hue—10YR or 7.5YR
Value—4 or 5
Chroma—4 to 8
Texture of the fine-earth fraction—silt loam or silty clay loam
Redoximorphic features—few or common iron-manganese nodules and grayish iron depletions
Content of rock fragments—0 to 5 percent

2Bt horizon:
Hue—2.5YR, 5YR, or 7.5YR
Value—4 or 5
Chroma—6 to 8
Texture of the fine-earth fraction—silty clay loam, silty clay, or clay
Content of rock fragments—0 to 35 percent

Nella Series

Depth class: Very deep
Drainage class: Well drained
Permeability: Moderate
Physiographic area: Plateau Escarpment
Landscape position: Mountainsides and benches
Parent material: Colluvium from sandstone and limestone

Figure 22.—A typical profile of a Nella soil. Nella soils are very deep and on mountain footslopes. They support highly productive woodlands of yellow-poplar, maple, and oak. Depth is marked in inches.

Slope range: 5 to 70 percent
Associated soils: Talbott and Bouldin
Taxonomic class: Fine-loamy, siliceous, semiactive, thermic Typic Paleudults

Typical Pedon

Nella cobbly loam, 20 to 40 percent slopes (fig. 22); 4.85 miles southwest of Monterey, 0.5 mile southwest of Potato Hill, 729 feet southwest of the intersection of Cedar Chapel Road and Bassell Phillips Road, in woods; USGS Obey City Quadrangle; UTM coordinates: Easting 659010 Northing 4008525; lat. 36 degrees 12 minutes 37.13 seconds N. and long. 85 minutes 13 seconds 52.11 seconds W.

Oi—1 inch to 0; slightly decomposed leaf litter.

A—0 to 3 inches; very dark grayish brown (10YR 3/2) cobbly loam; moderate medium granular structure; friable; common fine roots; 15 percent sandstone cobbles and gravel; strongly acid; clear smooth boundary.

Bt1—3 to 19 inches; yellowish red (5YR 4/6) cobbly clay loam; moderate fine subangular blocky structure; friable; common fine and medium roots; few faint clay films on faces of peds and in pores; 15 percent sandstone cobbles and gravel; strongly acid; clear smooth boundary.

Bt2—19 to 30 inches; yellowish red (5YR 4/6) cobbly clay loam; moderate medium subangular blocky structure; friable; few fine roots; few distinct reddish brown (5YR 5/4) clay films on faces of peds and in pores; 30 percent sandstone cobbles and gravel; strongly acid; gradual smooth boundary.

Bt3—30 to 70 inches; yellowish red (5YR 4/6) very cobbly clay loam; common fine prominent reddish yellow (7.5YR 6/6) mottles; moderate medium subangular blocky structure; friable; few fine roots; few distinct reddish brown (5YR 5/4) clay films on faces of peds and in pores; 40 percent sandstone cobbles and gravel; strongly acid.

Range in Characteristics

Depth to bedrock: More than 60 inches
Kind of rock fragments: Sandstone cobbles and gravel
Reaction: Strongly acid or very strongly acid

A horizon:
Hue—10YR
Value—3 to 5
Chroma—2 to 4
Texture of the fine-earth fraction—loam
Content of rock fragments—15 to 35 percent

Ap horizon (if it occurs):
Hue—10YR or 7.5YR
Value—4 or 5
Chroma—3 to 6
Texture of the fine-earth fraction—loam
Content of rock fragments—15 to 35 percent

E horizon (if it occurs):
Hue—10YR or 7.5YR
Value—4 to 6
Chroma—2 to 4
Texture of the fine-earth fraction—loam
Content of rock fragments—15 to 35 percent

Bt horizon:
Hue—5YR or 2.5YR
Value—4 to 6
Chroma—6 to 8
Texture of the fine-earth fraction—clay loam or loam
Content of rock fragments—15 to 40 percent

Newbern Series

Depth class: Shallow
Drainage class: Somewhat excessively drained
Permeability: Moderately rapid
Physiographic area: Highland Rim
Landform: Steep hillsides
Parent material: Residuum from calcareous shale
Slope range: 40 to 80 percent
Associated soils: Garmon
Taxonomic class: Loamy, mixed, active, mesic Lithic Eutrudepts

Typical Pedon

Newbern channery silt loam in an area of Garmon-Newbern complex, 40 to 80 slopes, rocky; 0.7 mile southeast of Livingston Boat Dock, 850 feet north of Livingston Boat Dock Road; USGS Dale Hollow Dam TN-KY Quadrangle; UTM coordinates: Easting 645230 Northing 4042265; lat. 36 degrees 30 minutes 53 seconds N. and long. 85 degrees 22 minutes 41 seconds W.

Oi—1 inch to 0; slightly decomposed and fresh leaf litter.
A—0 to 1 inch; dark grayish brown (10YR 4/2) channery silt loam; moderate fine and medium granular structure; friable; common fine and very fine and few medium roots; 20 percent shale channers; slightly acid; clear smooth boundary.
BA—1 to 3 inches; brown (10YR 4/3) channery silt loam; weak medium subangular blocky structure; friable; common fine and very fine roots; 20 percent shale channers; slightly acid; clear smooth boundary.
Bw1—3 to 10 inches; yellowish brown (10YR 5/6) channery silt loam; moderate medium subangular blocky structure; friable; common fine and very fine roots; 20 percent shale channers; moderately acid; gradual smooth boundary.
Bw2—10 to 14 inches; yellowish brown (10YR 5/6) very channery silt loam; weak medium subangular blocky structure; friable; few fine and very fine roots; 40 percent shale channers; slightly acid; abrupt wavy boundary.
Cr—14 to 18 inches; highly fractured shale that has thin seams of yellowish brown (10YR 5/6) silt loam.
R—18 inches; black calcareous shale bedrock.

Range in Characteristics

Depth to bedrock: 10 to 20 inches
Kind of rock fragments: Shale
Reaction: Moderately acid to neutral

A horizon:
Hue—10YR
Value—3 to 5
Chroma—2 to 6
Texture of the fine-earth fraction—silt loam
Content of rock fragments—15 to 35 percent

Bw horizon:
Hue—10YR or 7.5YR
Value—4 to 6
Chroma—3 to 8
Texture of the fine-earth fraction—silt loam or loam
Content of rock fragments—15 to 50 percent

C horizon (if it occurs):
Hue—10YR or 2.5Y
Value—5 or 6
Chroma—6 to 8
Texture of the fine-earth fraction—silt loam or loam
Content of rock fragments—0 to 65 percent

Ocana Series

Depth class: Very deep
Drainage class: Well drained
Permeability: Moderately rapid
Physiographic area: Highland Rim and Nashville Basin
Landform: Floodplains
Parent material: Gravelly alluvium
Slope range: 0 to 2 percent
Associated soils: Humphreys and Sullivan
Taxonomic class: Fine-loamy, mixed, active, thermic Dystric Fluventic Eutrudepts

Typical Pedon

Ocana gravelly silt loam, occasionally flooded; in Jackson County; 0.5 mile west of North Springs, 1.1 miles southeast of the intersection of Long Hollow Road and Hudson Creek Road, 0.3 mile northwest of the intersection of Tennessee Highway 56 and Hudson Creek Road, 400 feet northeast of Hudson Creek Road, in pasture; USGS Willette Quadrangle; UTM coordinates: Easting 610875 Northing 4036223; lat. 36 degrees 27 minutes 54 seconds N. and long. 85 degrees 45 minutes 45 seconds W.

Ap—0 to 7 inches; brown (10YR 4/3) gravelly silt loam; weak fine granular structure; very friable; many fine and very fine roots; 15 percent rounded chert fragments; slightly acid; clear smooth boundary.

Bw1—7 to 17 inches; dark yellowish brown (10YR 4/4) gravelly silt loam; weak fine and medium subangular blocky structure; very friable; common fine roots; 20 percent rounded chert fragments; slightly acid; clear wavy boundary.

Bw2—17 to 36 inches; dark yellowish brown (10YR 4/4) gravelly loam; weak medium subangular blocky structure; friable; few very fine roots; 20 percent rounded chert fragments; slightly acid; clear wavy boundary.

Bw3—36 to 48 inches; dark yellowish brown (10YR 4/4) gravelly clay loam; weak medium subangular blocky structure; friable; 30 percent rounded chert fragments; slightly acid; gradual wavy boundary.

C—48 to 65 inches; brown (10YR 4/3) very gravelly loam; massive; friable; 55 percent rounded chert fragments; neutral.

Range in Characteristics

Depth to bedrock: More than 60 inches
Kind of rock fragments: Rounded chert and shale
Reaction: Moderately acid to neutral

A horizon:
Hue—10YR
Value—3 or 4
Chroma—2 to 4
Texture of the fine-earth fraction—silt loam
Content of rock fragments—15 to 35 percent

Bw horizon:
Hue—10YR
Value—4 or 5
Chroma—3 or 4
Texture of the fine-earth fraction—silt loam, loam, or clay loam
Content of rock fragments—15 to 35 percent

C horizon (if it occurs):
Hue—10YR
Value—4 or 5
Chroma—3 to 6
Texture of the fine-earth fraction—silt loam, loam, clay loam, or sandy loam
Content of rock fragments—15 to 60 percent

Pineville Series

Depth class: Very deep
Drainage class: Well drained
Permeability: Moderately rapid
Physiographic area: Dissected Plateau
Landform: Side slopes and benches
Parent material: Colluvium from sandstone and shale
Slope range: 20 to 50 percent
Associated soils: Shelocta and Gilpin
Taxonomic class: Fine-loamy, mixed, active, mesic Typic Hapludults

Typical Pedon

Pineville loam in an area of Shelocta-Pineville complex, 20 to 70 percent slopes, very stony; 4.41 miles northeast of Monterey, 1.23 miles northeast of Tyler Mountain on Cedar Chapel Road, 25 feet north of Cedar Chapel Road, in woods; USGS Obey City Quadrangle; lat. 36 degrees 12 minutes 13.48 seconds N. and long. 85 degrees 13 minutes 52.53 seconds W.

A—0 to 2 inches; dark brown (10YR 3/3) gravelly loam; moderate medium granular structure; very friable; 15 percent sandstone and shale fragments less than 3 inches in diameter; moderately acid; gradual smooth boundary.

BA—2 to 11 inches; yellowish brown (10YR 5/4) gravelly loam; common medium prominent dark yellowish brown (10YR 3/4) mottles; weak medium subangular blocky structure; friable; 15 percent sandstone and shale fragments less than 3 inches in diameter; strongly acid; gradual smooth boundary.

Bt1—11 to 29 inches; yellowish brown (10YR 5/6) gravelly loam; moderate medium subangular blocky structure; friable; few faint clay films on faces of peds; 15 percent sandstone and shale fragments less than 3 inches in diameter; strongly acid; gradual smooth boundary.

Bt2—29 to 58 inches; yellowish brown (10YR 5/6) gravelly loam; moderate medium subangular blocky structure; friable; few faint clay films on faces of peds; 25 percent sandstone and shale fragments less than 3 inches in diameter; strongly acid; gradual smooth boundary.

2Bt3—58 to 72 inches; dark yellowish brown (10YR 4/6) clay loam; common medium prominent light yellowish brown (10YR 6/4) mottles; weak medium and coarse subangular blocky structure; friable; few faint clay films in root channels and in pores; 10 percent shale channers; strongly acid.

Range in Characteristics

Depth to bedrock: More than 6 feet

Kind of rock fragments: Sandstone and shale
Reaction: Strongly acid or moderately acid in the A horizon and strongly acid or very strongly acid in the B and C horizons

A horizon:
Hue—10YR
Value—2 to 4
Chroma—1 to 3
Texture of the fine-earth fraction—loam
Content of rock fragments—15 to 35 percent

BA horizon:
Hue—10YR
Value—4 or 5
Chroma—3 or 4
Texture of the fine-earth fraction—loam
Content of rock fragments—15 to 35 percent

Bt horizon:
Hue—10YR or 7.5YR
Value—4 to 6
Chroma—4 to 8
Texture of the fine-earth fraction—loam or clay loam
Content of rock fragments—15 to 50 percent

2Bt horizon:
Hue—10YR or 7.5YR
Value—4 to 6
Chroma—4 to 8
Texture of the fine-earth fraction—clay loam
Content of rock fragments—10 to 50 percent

Purdy Series

Depth class: Very deep
Drainage class: Poorly drained
Permeability: Slow and very slow
Physiographic area: Brotherton Bench
Landform: Depressions
Parent material: Clayey alluvium
Slope range: 0 to 2 percent
Associated soils: Lonewood, Clarkrange, and Lily
Taxonomic class: Fine, mixed, active, mesic Typic Endoaquults

Typical Pedon

Purdy silt loam, ponded; 4.51 miles northwest of Monterey, 1,819 feet southwest of the intersection of Tennessee Highway 84 and Arnold Norrod Road, 1,247 feet northwest of the intersection of Tennessee Highway 84 and Lewis Street, 1,501 feet west of Tennessee Highway 84, in pasture; USGS Monterey Quadrangle; lat. 36 degrees 12 minutes 16.8 seconds N. and long. 85 degrees 18 minutes 24.3 seconds W.

Ap—0 to 8 inches; dark grayish brown (10YR 4/2) silt loam; weak fine granular structure; friable; common fine and very fine roots; few prominent reddish brown (5YR 4/4) iron accumulations in root channels and pores; strongly acid; clear smooth boundary.
BAg—8 to 14 inches; dark grayish brown (10YR 4/2) silty clay loam; moderate medium

subangular blocky structure; friable; common fine roots; few fine black (10YR 2/1) manganese concretions; common fine prominent yellowish brown (10YR 5/8) iron concentrations; strongly acid; gradual smooth boundary.

Btg1—14 to 32 inches; dark gray (10YR 4/1) clay; moderate medium subangular blocky structure; firm, moderately sticky, moderately plastic; few fine roots; few faint clay films on faces of peds; few fine black (10YR 2/1) manganese concretions; common fine prominent strong brown (10YR 5/8) iron concentrations; strongly acid; gradual smooth boundary.

Btg2—32 to 60 inches; dark gray (10YR 4/1) clay; weak subangular blocky structure; firm, moderately sticky, moderately plastic; few faint clay films on faces of peds; few fine black (10YR 2/1) manganese concretions; common fine distinct light brownish gray (10YR 6/2) clay depletions and common fine prominent strong brown (7.5YR 5/8) iron concentrations; strongly acid.

Range in Characteristics

Depth to bedrock: More than 60 inches
Reaction: Strongly acid or very strongly acid

Ap horizon:
Hue—10YR
Value—4 or 5
Chroma—2 or 3
Texture of the fine-earth fraction—silt loam
Content of rock fragments—0 to 5 percent

BAg horizon:
Hue—10YR or 2.5Y
Value—4 or 5
Chroma—1 or 2
Texture of the fine-earth fraction—silty clay loam
Redoximorphic features—few or common iron-manganese concretions and common or many brownish or reddish iron concentrations
Content of rock fragments—0 to 5 percent

Btg horizon:
Hue—10YR or 2.5Y
Value—4 or 5
Chroma—1 or 2
Texture of the fine-earth fraction—clay
Redoximorphic features—few or common iron-manganese concretions and common or many brownish or reddish iron concentrations
Content of rock fragments—0 to 5 percent

Cg horizon (if it occurs):
Hue—10YR or 2.5Y
Value—4 or 5
Chroma—1 or 2
Texture of the fine-earth fraction—clay or clay loam
Redoximorphic features—few or common iron-manganese concretions and common or many grayish iron and clay depletions
Content of rock fragments—0 to 30 percent

Ramsey Series

Depth class: Shallow and very shallow
Drainage class: Somewhat excessively drained

Permeability: Rapid
Physiographic area: Cumberland Plateau
Landform: Narrow ridgetops and hillsides
Parent material: Residuum from sandstone
Slope range: 5 to 40 percent
Associated soils: Gilpin, Lily, and Lonewood
Taxonomic class: Loamy, siliceous, subactive, mesic Lithic Dystrudepts

Typical Pedon

Ramsey loam in an area of Ramsey-Rock outcrop complex, 5 to 12 percent slopes; 1.15 miles southwest of Crawford, 1.05 miles northwest of the intersection of Tennessee Highway 164 and Bloomkey Road, 50 feet west of Bloomkey Road, in woods; USGS Crawford Quadrangle; lat. 36 degrees 15 minutes 13.19 seconds N. and long. 85 degrees 10 minutes 6.07 seconds W.

Oi—1 inch to 0; leaf litter.
A—0 to 2 inches; dark brown (10YR 3/3) sandy loam; weak fine granular structure; friable; common fine and few medium roots; very strongly acid; clear smooth boundary.
BE—2 to 4 inches; dark yellowish brown (10YR 4/4) sandy loam; weak fine granular structure; very friable; common fine and few medium roots; very strongly acid; gradual smooth boundary.
Bw—4 to 18 inches; dark yellowish brown (10YR 4/6) sandy loam; weak fine subangular blocky structure; very friable; few fine and very fine roots; very strongly acid.
R—18 inches; hard sandstone bedrock.

Range in Characteristics

Depth to bedrock: 7 to 20 inches
Kind of rock fragments: Sandstone gravel and cobbles
Reaction: Strongly acid or very strongly acid

A horizon:
Hue—10YR
Value—3 to 5
Chroma—2 to 4
Texture of the fine-earth fraction—sandy loam
Content of rock fragments—less than 35 percent

BE horizon:
Hue—10YR
Value—4 or 5
Chroma—3 or 4
Texture of the fine-earth fraction—sandy loam
Content of rock fragments—less than 35 percent

Bw horizon:
Hue—10YR
Value—4 to 6
Chroma—4 to 6
Texture of the fine-earth fraction—loam or sandy loam
Content of rock fragments—less than 35 percent

R horizon:
Texture—sandstone bedrock

Sengtown Series

Depth class: Very deep
Drainage class: Well drained
Permeability: Moderately slow and slow
Physiographic area: Highland Rim
Landform: Ridgetops and hillsides
Parent material: Residuum from cherty limestone
Slope range: 5 to 40 percent
Associated soils: Christian and Mountview
Taxonomic class: Fine, mixed, semiactive, thermic Typic Paleudalfs

Typical Pedon

Sengtown cobbly loam, 20 to 40 percent slopes, eroded (fig. 23); 0.1 mile north of Palestine Road on Livingston Boat Dock Road, on the east side of the road, in a wooded area; USGS Livingston Quadrangle; UTM coordinates: Easting 646475 Northing 4039350; lat. 36 degrees 29 minutes 18 seconds N. and long. 85 degrees 21 minutes 53 seconds W.

A—0 to 3 inches; brown (10YR 4/3) cobbly loam; weak fine granular structure; very friable; common very fine and fine roots; 15 percent cobbles and 15 percent chert gravel; strongly acid; abrupt smooth boundary.

E—3 to 15 inches; light yellowish brown (10YR 6/4) cobbly loam; weak fine and medium subangular blocky structure; very friable; common fine and few medium roots; 15 percent cobbles and 15 percent chert fragments; strongly acid; clear wavy boundary.

Bt1—15 to 20 inches; yellowish red (5YR 5/8) gravelly silty clay loam; moderate medium subangular blocky structure; friable; few fine and medium roots; few distinct yellowish red (5YR 5/6) clay films on faces of peds; 25 percent chert fragments; strongly acid; gradual smooth boundary.

Bt2—20 to 48 inches; red (2.5YR 4/8) gravelly clay; strong fine and medium angular blocky structure; firm; few fine roots; many distinct red (2.5YR 4/6) clay films on faces of peds; 20 percent chert fragments; very strongly acid; gradual smooth boundary.

Bt3—48 to 70 inches; red (2.5YR 5/8) gravelly clay; common fine prominent strong brown (7.5YR 5/6) mottles; moderate fine subangular blocky structure; firm; common distinct red (2.5YR 4/6) clay films on faces of peds; 15 percent chert fragments; very strongly acid.

Range in Characteristics

Depth to bedrock: More than 60 inches
Kind of rock fragments: Angular chert and cobbles
Reaction: Very strongly acid or strongly acid

A horizon:
Hue—10YR or 7.5YR
Value—3 to 5
Chroma—2 to 6
Texture of the fine-earth fraction—loam
Content of rock fragments—15 to 35 percent

E horizon:
Hue—10YR
Value—5 or 6
Chroma—3 or 4

Figure 23.—A typical profile of a Sengtown soil. Sengtown soils are very deep and have common chert fragments which weathered from limestone residuum. Depth is marked in inches.

Texture of the fine-earth fraction—loam
Content of rock fragments—15 to 35 percent

Bt horizon:
Hue—5YR or 2.5YR
Value—4 or 5
Chroma—6 to 8

Texture of the fine-earth fraction—typically clay; range includes silty clay loam in the upper part of horizon
Content of rock fragments—15 to 35 percent

Sequoia Series

Depth class: Moderately deep (depth of 20 to 40 inches)
Drainage class: Well drained
Permeability: Moderately slow
Physiographic area: Plateau Escarpment
Landform: Mountainsides
Parent material: Residuum from interbedded siltstone and shale
Slope range: 20 to 40 percent
Associated soils: Shelocta, Gilpin, and Pineville
Taxonomic class: Fine, mixed, active, mesic Typic Hapludults

Typical Pedon

Sequoia gravelly silt loam, 20 to 40 percent slopes; 2.09 miles northeast of Beaver Hill, 1.35 miles northeast of the intersection of Tennessee Highway 84 and Curtis Norrod Road, 1.85 miles north of the intersection of Curtis Norrod Road and a radio tower road, 250 feet east of the radio tower road; USGS Okalona Quadrangle; lat. 36 degrees 15 minutes 45.4 seconds N. and long. 85 degrees 16 minutes 44.5 seconds W.

A—0 to 3 inches; dark yellowish brown (10YR 3/4) gravelly silt loam; moderate fine granular structure; friable; many very fine and fine roots; 20 percent siltstone fragments less than 3 inches in diameter; strongly acid; clear smooth boundary.
Bt1—3 to 11 inches; brown (7.5YR 4/4) gravelly silty clay loam; moderate medium subangular blocky structure; friable, slightly sticky, slightly plastic; common very fine and fine roots; 25 percent siltstone fragments less than 3 inches in diameter; strongly acid; gradual smooth boundary.
Bt2—11 to 22 inches; brown (7.5YR 4/4) silty clay; moderate medium subangular blocky structure; firm, moderately sticky, moderately plastic; few very fine and fine roots; 5 percent siltstone fragments less than 3 inches in diameter; strongly acid; gradual smooth boundary.
BC—22 to 32 inches; brown (7.5YR 5/4) silty clay; many medium distinct yellowish brown (10YR 5/8) and common fine prominent light gray (10YR 7/1) mottles; weak fine subangular blocky structure; firm, moderately sticky, moderately plastic; few fine roots; strongly acid; clear smooth boundary.
C—32 to 38 inches; brown (7.5YR 5/4) silty clay; common medium distinct yellowish brown (10YR 5/8) and common fine and medium prominent light gray (10YR 7/1) mottles; massive; very firm, very sticky, very plastic; strongly acid; clear irregular boundary.
Cr—38 to 40 inches; weathered shale.

Range in Characteristics

Depth to bedrock: 20 to 40 inches
Kind of rock fragments: Shale, siltstone, and sandstone
Reaction: Strongly acid or very strongly acid

A horizon:
Hue—10YR
Value—3 or 4
Chroma—2 to 4
Texture of the fine-earth fraction—silt loam
Content of rock fragments—15 to 20 percent

B horizon:
Hue—10YR, 7.5YR, or 5YR
Value—4 or 5
Chroma—4 to 8
Texture of the fine-earth fraction—silty clay loam, silty clay, or clay
Content of rock fragments—10 to 25 percent

BC horizon:
Hue—10YR, 7.5YR, or 5YR
Value—4 or 5
Chroma—4 to 8
Texture of the fine-earth fraction—silty clay loam, silty clay, or clay
Content of rock fragments—5 to 25 percent

C horizon:
Hue—10YR, 7.5YR, or 5YR
Value—4 or 5
Chroma—4 to 8
Texture of the fine-earth fraction—silty clay or clay
Content of rock fragments—5 to 25 percent

Cr horizon:
Texture—weathered shale

Shady Series

Depth class: Very deep
Drainage class: Well drained
Permeability: Moderate
Physiographic area: Highland Rim and Plateau Escarpment
Landform: Stream terraces
Parent material: Alluvium
Slope range: 2 to 12 percent
Associated soils: Ealy, Sullivan, and Craigsville
Taxonomic class: Fine-loamy, mixed, subactive, thermic Typic Hapludults

Typical Pedon

Shady loam, 2 to 5 percent slopes; 2.0 miles south of Allred, 1.28 miles southwest of the intersection of Tennessee Highway 84 and Shiloh Road, 256 feet northeast of the intersection of Shiloh Road and Hickory Flat Road, in a field; USGS Crawford Quadrangle; lat. 36 degrees 18 minutes 6.8 seconds N. and long. 85 degrees 11 minutes 39.3 seconds W.

Ap—0 to 7 inches; dark yellowish brown (10YR 4/4) loam; weak medium granular structure; friable; many very fine and fine roots throughout; moderately acid; abrupt smooth boundary.

Bt1—7 to 20 inches; yellowish brown (10YR 5/6) loam; few fine faint brownish yellow (10YR 6/6) mottles; moderate medium subangular blocky structure; friable; common very fine and fine roots; few faint clay films on faces of peds; strongly acid; gradual smooth boundary.

Bt2—20 to 28 inches; yellowish brown (10YR 5/6) clay loam; common fine distinct light yellowish brown (10YR 6/4) mottles; moderate medium subangular blocky structure; friable; common very fine roots; few faint clay films on faces of peds; few fine black (10YR 2/1) manganese concretions; strongly acid; gradual smooth boundary.

BC—28 to 50 inches; yellowish brown (10YR 5/4) loam; many fine faint light yellowish brown (10YR 6/4) mottles; weak coarse subangular blocky structure; friable; few fine roots; common fine black (10YR 2/1) manganese concretions; strongly acid; gradual smooth boundary.

C—50 to 60 inches; yellowish brown (10YR 5/4) very gravelly sandy loam; massive; very friable; 40 percent rounded sandstone fragments as much as 4 inches across; strongly acid.

Range in Characteristics

Depth to bedrock: More than 60 inches
Kind of rock fragments: Rounded quartz and sandstone fragments
Reaction: Very strongly acid or strongly acid

Ap horizon:
Hue—10YR
Value—3 or 4
Chroma—3 or 4
Texture of the fine-earth fraction—loam
Content of rock fragments—0 to 15 percent

Bt horizon:
Hue—10YR or 7.5YR
Value—4 or 5
Chroma—4 to 8
Texture of the fine-earth fraction—loam or clay loam
Content of rock fragments—0 to 30 percent

BC horizon:
Hue—10YR or 7.5YR
Value—4 or 5
Chroma—4 to 8
Texture of the fine-earth fraction—loam or clay loam
Content of rock fragments—0 to 35 percent

C horizon:
Hue—10YR or 7.5YR
Value—4 or 5
Chroma—3 to 6
Texture of the fine-earth fraction—sandy loam, fine sandy loam, or loam
Content of rock fragments—5 to 60 percent

Shelocta Series

Soil depth: More than 40 inches
Drainage class: Well drained
Permeability: Moderate
Physiographic area: Cumberland Plateau
Landform: Mountainsides
Parent material: Colluvium from sandstone and shale
Slope range: 40 to 80 percent
Associated soils: Gilpin
Taxonomic class: Fine-loamy, mixed, active, mesic Typic Hapludults

Typical Pedon

Shelocta loam in an area of Gilpin-Shelocta complex, 40 to 70 percent slopes; 1.2 miles northeast of the Hanging Limb community on Tennessee Highway 164, about 0.7 mile northeast of the intersection of Tennessee Highway 164 and Bloomkey Road, 585 feet east of the road, in woods; USGS Obey City Quadrangle; lat. 36 degrees 14 minutes 55.5 seconds N. and long. 85 degrees 9 minutes 11.2 seconds W.

Oi—1 inch to 0; slightly decomposed leaf litter.
A—0 to 2 inches; brown (10YR 4/3) loam; moderate medium granular structure; 10 percent sandstone and shale gravel and channers; strongly acid; abrupt smooth boundary.
BA—2 to 10 inches; dark yellowish brown (10YR 4/4) gravelly loam; weak medium subangular blocky structure; 15 percent sandstone and shale gravel and channers; strongly acid; clear smooth boundary.
Bt1—10 to 29 inches; yellowish brown (10YR 5/6) gravelly clay loam; moderate medium subangular blocky structure; few faint patchy clay films on faces of peds and in pores; 20 percent sandstone and shale gravel and channers; very strongly acid; gradual smooth boundary.
Bt2—29 to 52 inches; yellowish brown (10YR 5/8) channery silty clay loam; moderate medium subangular blocky structure; few faint patchy clay films on faces of peds and in pores; 25 percent shale channers; very strongly acid; clear wavy boundary.
Cr—52 inches; highly fractured shale.

Range in Characteristics

Depth to bedrock: More than 40 inches
Kind of rock fragments: Sandstone gravel in the upper part of the profile and shale channers in the lower part
Reaction: Strongly acid or very strongly acid

A horizon:
Hue—10YR
Value—3 or 4
Chroma—2 or 3
Texture of the fine-earth fraction—loam
Content of rock fragments—less than 35 percent

BA horizon (if it occurs):
Hue—10YR
Value—4 or 5
Chroma—4
Texture of the fine-earth fraction—loam
Content of rock fragments—less than 35 percent

Bt horizon:
Hue—7.5YR or 10YR
Value—4 to 6
Chroma—4 to 8
Texture of the fine-earth fraction—loam
Content of rock fragments—5 to 35 percent

C horizon:
Hue—10YR
Value—4 to 6
Chroma—4 to 6
Texture of the fine-earth fraction—silty clay loam, clay loam, or loam
Content of rock fragments—15 to 70 percent

Cr horizon:
Texture—weathered shale

Staser Series

Depth class: Very deep
Drainage class: Well drained
Permeability: Moderate
Physiographic area: Nashville Basin
Landform: Floodplains
Parent material: Alluvium
Slope range: 0 to 2 percent
Associated soils: Holston and Sullivan
Taxonomic class: Fine-loamy, mixed, active, thermic Cumulic Hapludolls

Typical Pedon

Staser fine sandy loam, rarely flooded; in Clay County; 1.35 miles north of Celina from the intersection of Tennessee Highway 52 and Proctor Creek Road, 0.7 mile northeast on Proctor Creek Road, 1.1 miles east on Old Stone Road, 750 feet east of the road, in a field; USGS Celina Quadrangle; UTM coordinates: Easting 633863 Northing 4048249; lat. 36 degrees 34 minutes 13 seconds N. and long. 85 degrees 30 minutes 14 seconds W.

Ap—0 to 13 inches; dark brown (10YR 3/3) fine sandy loam; weak fine granular structure; very friable; many fine and very fine roots; slightly acid; clear smooth boundary.

Bw1—13 to 24 inches; dark brown (10YR 3/3) loam; few medium faint dark yellowish brown (10YR 3/4) mottles; moderate medium subangular blocky structure; friable; common fine and very fine roots; moderately acid; gradual smooth boundary.

Bw2—24 to 40 inches; dark yellowish brown (10YR 3/4) loam; moderate medium subangular blocky structure; friable; few fine roots; moderately acid; gradual smooth boundary.

Bw3—40 to 61 inches; dark yellowish brown (10YR 4/6) loam; weak medium subangular blocky structure; friable; moderately acid; gradual smooth boundary.

Bw4—61 to 88 inches; dark yellowish brown (10YR 4/4) loam; few medium distinct light yellowish brown (10YR 6/4) mottles; weak coarse subangular blocky structure; friable; moderately acid.

Range in Characteristics

Depth to bedrock: More than 60 inches
Kind of rock fragments: Well rounded chert, sandstone, and shale
Reaction: Slightly acid or moderately acid

A horizon:
Hue—10YR
Value—3
Chroma—2 or 3
Texture of the fine-earth fraction—fine sandy loam
Content of rock fragments—0 to 5 percent

Bw horizon:
Hue—10YR
Value—3 or 4
Chroma—2 to 4
Texture of the fine-earth fraction—fine sandy loam or loam
Content of rock fragments—0 to 5 percent

C horizon (if it occurs):
Hue—10YR

Value—3 or 4
Chroma—2 to 4
Texture of the fine-earth fraction—fine sandy loam or loam
Content of rock fragments—0 to 15 percent

Sullivan Series

Depth class: Very deep
Drainage class: Well drained
Permeability: Moderate
Physiographic area: Highland Rim
Landscape position: Floodplains and bottoms of depressions
Parent material: Alluvium
Slope range: 0 to 2 percent
Associated soils: Bewleyville, Christian, Etowah, and Waynesboro
Taxonomic class: Fine-loamy, siliceous, active, thermic Dystric Fluventic Eutrudepts

Typical Pedon

Sullivan silt loam, occasionally flooded; 1.0 miles north of Rickman on Tennessee Highway 42, about 600 feet east, in a field; USGS Okalona Quadrangle; UTM coordinates: Easting 646800 Northing 4015500; lat. 36 degrees 16 minutes 24 seconds N. and long. 85 degrees 21 minutes 56 seconds W.

A—0 to 5 inches; brown (10YR 4/3) silt loam; moderate medium granular structure; friable; common fine and very fine roots; moderately acid; clear smooth boundary.
Bw—5 to 26 inches; dark yellowish brown (10YR 4/4) silt loam; weak medium subangular blocky structure; friable; common fine roots; few fine black (10YR 2/1) manganese concretions; strongly acid; gradual smooth boundary.
Ab—26 to 32 inches; dark brown (10YR 3/3) loam; weak medium subangular blocky structure; friable; few fine roots; few fine black (10YR 2/1) manganese concretions; strongly acid; gradual smooth boundary.
Bwb—32 to 62 inches; brown (10YR 4/3) loam; weak medium subangular blocky structure; friable; few fine black (10YR 2/1) manganese concretions; strongly acid.

Range in Characteristics

Depth to bedrock: More than 60 inches
Kind of rock fragments: Chert and sandstone
Reaction: Strongly acid or moderately acid

A and Ab horizons:
Hue—10YR
Value—3 or 4
Chroma—2 to 4
Texture of the fine-earth fraction—silt loam or loam
Redoximorphic features—few or common manganese concretions
Content of rock fragments—0 to 15 percent

Bw and Bwb horizons:
Hue—10YR
Value—4 or 5
Chroma—3 or 4
Texture of the fine-earth fraction—silt loam or loam
Redoximorphic features—few or common manganese concretions
Content of rock fragments—0 to 15 percent

Talbott Series

Depth class: Moderately deep
Drainage class: Well drained
Permeability: Slow and very slow
Physiographic area: Highland Rim
Landscape position: Hillsides
Parent material: Residuum from limestone
Slope range: 5 to 70 percent
Associated soils: Christian, Nella, and Faywood
Taxonomic class: Fine, mixed, semiactive, thermic Typic Hapludalfs

Typical Pedon

Talbott silty clay loam in an area of Talbott-Rock outcrop complex, 20 to 40 percent slopes; 5.3 miles southeast of Rickman, 270 feet east of the intersection of Tennessee Highway 293 and Tennessee Highway 84, about 180 feet northeast of the intersection of Dry Hollow Road and Tennessee Highway 84, in woods; USGS Monterey Quadrangle; UTM coordinates: Easting 653393 Northing 4011381; lat. 36 degrees 14 minutes 7 seconds N. and long. 85 degrees 17 minutes 35 seconds W.

A—0 to 5 inches; dark brown (7.5YR 3/2) silty clay loam; strong medium granular structure; friable; strongly acid; clear smooth boundary.
Bt1—5 to 25 inches; red (2.5YR 4/8) clay; strong fine angular blocky structure; very firm, moderately sticky, moderately plastic; many prominent red (2.5YR 4/6) clay films throughout; moderately acid; gradual smooth boundary.
Bt2—25 to 33 inches; red (2.5YR 4/6) clay; moderate fine angular blocky structure; very firm, very sticky, very plastic; many prominent reddish brown (2.5YR 4/4) clay films throughout; common fine black (10YR 2/1) irregular masses of manganese accumulations throughout; moderately acid; abrupt wavy boundary.
R—33 inches; hard limestone bedrock.

Range in Characteristics

Depth to bedrock: 20 to 40 inches
Kind of rock fragments: Limestone flagstones and chert gravel in the upper part of the profile
Reaction: Generally moderately acid or strongly acid; reaction ranges to neutral in the layer just above bedrock

A horizon:
Hue—10YR or 7.5YR
Value—3 to 5
Chroma—2 to 4
Texture of the fine-earth fraction—silty clay loam
Content of rock fragments—typically less than 10 percent; in some pedons the A horizon formed in loamy colluvium and has 5 to 20 percent fragments

E horizon (if it occurs):
Hue—10YR
Value—4 to 6
Chroma—4
Texture of the fine-earth fraction—silty clay loam
Content of rock fragments—0 to 20 percent

Bt horizon:
Hue—7.5YR to 2.5YR
Value—4 or 5

Chroma—4 to 8
Texture of the fine-earth fraction—clay
Content of rock fragments—0 to 10 percent

C horizon (if it occurs):
Hue—2.5YR or 5YR
Value—4 to 6
Chroma—4 to 8
Texture of the fine-earth fraction—clay
Content of rock fragments—less than 10 percent

Waynesboro Series

Depth class: Very deep
Drainage class: Well drained
Permeability: Moderate
Physiographic area: Highland Rim
Landform: Stream terraces
Parent material: Older clayey alluvium
Slope range: 2 to 20 percent
Associated soils: Christian, Dickson, Etowah, and Mountview
Taxonomic class: Fine, kaolinitic, thermic Typic Paleudults

Typical Pedon

Waynesboro loam, 5 to 12 percent slopes, eroded (fig. 24); 3.1 miles south of Livingston, 1.25 miles southeast from the intersection of Highway 84 and Rickman Road, 1.0 mile southeast of the intersection of Rickman Road and Bilbrey Road, 10 feet west of the road, in pasture; USGS Okalona Quadrangle; UTM coordinates: Easting 650640 Northing 4020180; lat. 36 degrees 20 minutes 0.9 second N. and long. 85 degrees 19 minutes 30 seconds W.

Ap—0 to 5 inches; strong brown (7.5YR 4/6) loam; moderate medium granular structure; friable; common fine and medium roots; strongly acid; clear wavy boundary.
Bt1—5 to 21 inches; red (2.5YR 4/8) clay; moderate fine and medium angular blocky structure; firm; few fine and medium roots; common distinct strong brown (7.5YR 4/6) clay films on faces of peds and in pores; strongly acid; gradual smooth boundary.
Bt2—21 to 42 inches; dark red (2.5YR 3/6) clay; strong fine and medium angular blocky structure; firm; few fine and medium roots; common distinct dark reddish brown (2.5YR 3/4) clay films on faces of peds and in pores; strongly acid; gradual smooth boundary.
Bt3—42 to 68 inches; red (2.5YR 4/8) clay; common medium prominent yellowish red (5YR 5/6) mottles; weak medium subangular blocky structure; firm; common distinct yellowish red (5YR 4/6) clay films on faces of peds and in pores; very strongly acid.

Range in Characteristics

Depth to bedrock: More than 60 inches
Kind of rock fragments: Chert gravel and rounded quartzite pebbles
Reaction: Strongly acid or very strongly acid

Ap horizon:
Hue—10YR or 7.5YR
Value—4 or 5

Figure 24.—A typical profile of a Waynesboro soil. Waynesboro soils are very deep and well drained and have a clay subsoil. Depth is marked in inches.

Chroma—3 to 6
Texture of the fine-earth fraction—loam
Content of rock fragments—0 to 15 percent

Bt horizon (upper part):
Hue—7.5YR or 2.5YR
Value—4 or 5
Chroma—6 to 8

Texture of the fine-earth fraction—clay loam or clay
Content of rock fragments—0 to 10 percent

Bt horizon (lower part):
Hue—5YR or 2.5YR
Value—3 to 5
Chroma—6 to 8
Texture of the fine-earth fraction—clay
Content of rock fragments—0 to 10 percent

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Glossary

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.
Alluvial fan. The fanlike deposit of a stream where it issues from a gorge upon a plain or of a tributary stream near or at its junction with its main stream.
Alluvium. Material, such as sand, silt, or clay, deposited on land by streams.
Alpha,alpha-dipyridyl. A dye that when dissolved in 1N ammonium acetate is used to detect the presence of reduced iron (Fe II) in the soil. A positive reaction indicates a type of redoximorphic feature.
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 in which a slope faces.
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 40-inch profile or to a limiting layer is expressed as:

Very low	0 to 2
Low	2 to 4
Moderate	4 to 6
High	more than 6

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.
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.
Bedding planes. Fine strata, less than 5 millimeters thick, in unconsolidated alluvial, eolian, lacustrine, or marine sediment.
Bedrock. The solid rock that underlies the soil and other unconsolidated material or that is exposed at the surface.
Bottom land. The normal flood plain of a stream, subject to flooding.
Boulders. Rock fragments larger than 2 feet (60 centimeters) in diameter.
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.

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 but 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.

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.

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. Low-chroma zones having a low content of iron, manganese, and clay because of the chemical reduction of iron and manganese and the removal of iron, manganese, and clay. A type of redoximorphic depletion.

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.

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. Soil material or rock fragments, or both, moved by creep, slide, or local wash and deposited at the base of steep slopes.

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.

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.

Corrosion. 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.

Cropping system. Growing crops according to a planned system of rotation and management practices.

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.

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.

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.

Deferred grazing. Postponing grazing or resting grazing land for a prescribed period.

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 soils, 20 to 40 inches; shallow soils, 10 to 20 inches; and very shallow soils, less than 10 inches.

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.

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.

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 soil material. Earthy parent material accumulated through wind action; commonly refers to sandy material in dunes or to loess in blankets on the surface.

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.

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. Synonym: scarp.

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.

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. The normal flood plain of a stream, subject to frequent or occasional 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.

Floodplain. A nearly level alluvial plain that borders a stream and is subject to flooding unless protected artificially.

Fluvial. Of or pertaining to rivers; produced by river action, as a fluvial plain.

Footslope. The position that forms the inner, gently inclined surface at the base of a hillslope. In profile, footslopes are commonly concave. 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.

Gleyed soil. Soil that formed under poor drainage, resulting in the reduction of iron and other elements in the profile and in gray colors.

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 miniature valley with steep sides cut by running water and through which water ordinarily runs only after rainfall. 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.

Head slope. 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.

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 natural elevation 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; hillsides generally have slopes of more than 15 percent. The distinction between a hill and a mountain is arbitrary and is dependent on local usage.

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.

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.

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.

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.

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 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.

Interfluve. An elevated area between two drainageways that sheds water to those drainageways.

Intermittent stream. A stream, or reach of a stream, that flows for prolonged periods only when it receives ground-water discharge or long, continued contributions from melting snow or other surface and shallow subsurface sources.

Iron depletions. Low-chroma zones having a low content of iron and manganese oxide because of chemical reduction and removal, but having a clay content similar to that of the adjacent matrix. A type of redoximorphic depletion.

Karst (topography). The relief of an area underlain by limestone that dissolves in differing degrees, thus forming numerous depressions or small basins.

Knoll. A small, low, rounded hill rising above adjacent landforms.

K$_{sat}$. Saturated hydraulic conductivity. (See Permeability.)

Landslide. The rapid downhill movement of a mass of soil and loose rock, generally when wet or saturated. The speed and distance of movement, as well as the amount of soil and rock material, vary greatly.

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. Fine-grained material, dominantly of silt-sized particles, deposited by the wind.

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.

Low strength. The soil is not strong enough to support loads.

Masses. Concentrations of substances in the soil matrix that do not have a clearly defined boundary with the surrounding soil material and cannot be removed as a discrete unit. Common compounds making up masses are calcium carbonate, gypsum or other soluble salts, iron oxide, and manganese oxide. Masses consisting of iron oxide or manganese oxide generally are considered a type of redoximorphic concentration.

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.

Minimum tillage. Only the tillage essential to crop production and prevention of soil damage.

Miscellaneous area. An area 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).

Mudstone. Sedimentary rock formed by induration of silt and clay in approximately equal amounts.

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. Cemented bodies lacking visible internal structure. Calcium carbonate, iron oxide, and manganese oxide are common compounds making up nodules. If formed in place, nodules of iron oxide or manganese oxide are considered types of redoximorphic concentrations.

Nose slope. A geomorphic component of hills consisting of the projecting end (laterally convex area) of a hillside. The overland waterflow is predominantly divergent.

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

Parent material. The unconsolidated organic and mineral material in which soil forms.

Ped. An individual natural soil aggregate, such as a granule, a prism, or a block.

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.

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:

Extremely slow	0.0 to 0.01 inch
Very slow	0.01 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

Phase, soil. A subdivision of a soil series based on features that affect its use and management, such as slope, stoniness, and flooding.

pH value. A numerical designation of acidity and alkalinity in soil. (See Reaction, soil.)

Plasticity index. The numerical difference between the liquid limit and the plastic limit; the range of moisture content within which the soil remains plastic.

Plastic limit. The moisture content at which a soil changes from semisolid to plastic.

Plateau. An extensive upland mass with relatively flat summit area that is considerably elevated (more than 100 meters) above adjacent lowlands and separated from them on one or more sides by escarpments.

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.

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.

Reaction, soil. A measure of acidity or alkalinity of a soil, expressed in pH values. A soil that tests at 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

Redoximorphic concentrations. Nodules, concretions, soft masses, pore linings, and other features resulting from the accumulation of iron or manganese oxide. An indication of chemical reduction and oxidation resulting from saturation.

Redoximorphic depletions. Low-chroma zones from which iron and manganese oxide or a combination of iron and manganese oxide and clay has been removed. These zones are indications of the chemical reduction of iron resulting from saturation.

Redoximorphic features. Redoximorphic concentrations, redoximorphic depletions, reduced matrices, a positive reaction to alpha,alpha-dipyridyl, and other features indicating the chemical reduction and oxidation of iron and manganese compounds resulting from saturation.

Reduced matrix. A soil matrix that has low chroma in situ because of chemically reduced iron (Fe II). The chemical reduction results from nearly continuous wetness. The matrix undergoes a change in hue or chroma within 30 minutes after exposure to air as the iron is oxidized (Fe III). A type of redoximorphic feature.

Regolith. The unconsolidated mantle of weathered rock and soil material on the earth's surface; the loose earth material above the solid rock.

Relief. The elevations or inequalities of a land surface, considered collectively.

Residuum (residual soil material). Unconsolidated, weathered or partly weathered mineral material that accumulated as consolidated rock disintegrated in place.

Rill. A steep-sided channel resulting from accelerated erosion. A rill generally is a few inches deep and not wide enough to be an obstacle to farm machinery.

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.

Sand. As a soil separate, individual rock or mineral fragments ranging 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.

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.

Sedimentary rock. Rock made up of particles deposited from suspension in water. The chief kinds of sedimentary rock are conglomerate, formed from gravel; sandstone, formed from sand; shale, formed from clay; and limestone, formed from soft masses of calcium carbonate. There are many intermediate types. Some wind-deposited sand is consolidated into sandstone.

Series, soil. A group of soils that have profiles that are almost alike, except for differences in texture of the surface layer. All the soils of a series have horizons that are similar in composition, thickness, and arrangement.

Shale. Sedimentary rock formed by the hardening of a clay deposit.

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 position that forms the uppermost inclined surface near the top of a hillslope. It is a transition from backslope to summit. The surface is dominantly convex in profile and erosional in origin.

Side slope. A geomorphic component of hills consisting of a laterally planar area of a hillside. The overland waterflow is predominantly parallel.

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. Sedimentary rock made up of dominantly silt-sized particles.

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 depression in the landscape where limestone has been dissolved.

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. Polished and grooved surfaces produced by one mass sliding past another. In soils, slickensides may occur at the bases of slip surfaces on the steeper slopes; on faces of blocks, prisms, and columns; and in swelling clayey soils, where there is marked change in moisture content.

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:

Level	0 to 1 percent
Nearly level	0 to 3 percent
Gently sloping	2 to 5 percent
Strongly sloping	5 to 12 percent
Moderately steep	12 to 20 percent
Steep	20 to 60 percent
Very steep	45 percent and higher

Classes for complex slopes are as follows:

Level	0 to 1 percent
Nearly level	0 to 3 percent
Undulating	2 to 5 percent
Rolling	5 to 12 percent
Hilly	12 to 20 percent
Steep	20 to 60 percent
Very steep	45 percent and higher

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 over periods of time.

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. A concentration of coarse fragments in a soil. Generally, it is indicative of an old weathered surface. In a cross section, the line may be one fragment or more thick. It generally overlies material that weathered in place and is overlain by recent sediment of variable thickness.

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.

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.

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. Fragments of rock and other soil material accumulated by gravity at the foot of cliffs or steep slopes.

Terrace. 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 (geologic). An old alluvial plain, ordinarily flat or undulating, bordering a river, a lake, or the sea.

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."

Tilth, soil. The physical condition of the soil as related to tillage, seedbed preparation, seedling emergence, and root penetration.

Toeslope. The position that forms 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.

Upland. Land at a higher elevation, in general, than the alluvial plain or stream terrace; land above the lowlands along streams.

Tables

Table 1.—Temperature and Precipitation

(Recorded in the period 1961-90 at Livingston, Tennessee)

Month	Temperature						Precipitation				
	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
	°F	°F	°F	°F	°F	Units	In	In	In		In
January--	45.5	25.3	35.4	70	-9	84	4.17	2.01	6.04	8	4.7
February-	50.3	27.6	38.9	74	-3	117	4.00	2.03	5.71	7	3.9
March----	61.2	36.8	49.0	82	11	311	5.03	2.76	7.03	9	0.6
April----	70.9	44.5	57.7	87	23	531	4.32	2.40	6.30	7	0.2
May------	77.8	52.2	65.0	89	32	772	5.07	3.05	6.88	7	0.0
June-----	84.8	60.0	72.4	95	42	968	3.77	2.28	5.11	6	0.0
July-----	87.4	63.9	75.7	98	49	1,105	5.32	2.86	7.49	7	0.0
August---	86.3	62.3	74.3	96	48	1,061	4.20	2.44	5.76	6	0.0
September	80.7	56.2	68.4	93	36	850	3.77	1.89	5.41	5	0.0
October--	70.7	43.9	57.3	85	23	534	3.09	1.53	4.65	5	0.0
November-	60.0	36.7	48.4	79	13	279	4.40	2.73	5.90	7	0.9
December-	50.0	29.6	39.8	72	0	134	5.14	2.43	7.48	7	1.5
Yearly:											
Average	68.8	44.9	56.9	---	---	---	---	---	---	---	---
Extreme	108	-25	---	99	-12	---	---	---	---	---	---
Total--	---	---	---	---	---	6,745	52.28	37.36	58.44	81	11.7

* 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 1961-90 at Livingston, Tennessee)

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. 11	Apr. 24	May 10
2 years in 10 later than--	Apr. 6	Apr. 18	May 5
5 years in 10 later than--	Mar. 28	Apr. 7	Apr. 24
First freezing temperature in fall:			
1 year in 10 earlier than--	Oct. 22	Oct. 6	Sept. 27
2 years in 10 earlier than--	Oct. 28	Oct. 12	Oct. 3
5 years in 10 earlier than-	Nov. 9	Oct. 24	Oct. 13

Table 3.—Growing Season

(Recorded in the period 1961-90 at Livingston, Tennessee)

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	203	174	150
8 years in 10	211	183	157
5 years in 10	226	199	171
2 years in 10	240	215	185
1 year in 10	248	223	192

Table 4.—Acreage and Proportionate Extent of the Soils

Map symbol	Soil name	Acres	Percent
Ak	Atkins loam, occasionally flooded	125	*
BA	Bethesda-Pits complex, 5 to 90 percent slopes	250	*
BeB2	Bewleyville silt loam, 2 to 5 percent slopes, eroded	225	*
BeC2	Bewleyville silt loam, 5 to 12 percent slopes, eroded	1,375	0.5
BoC	Bodine gravelly silt loam, 5 to 12 percent slopes	150	*
BoD	Bodine gravelly silt loam, 12 to 20 percent slopes	150	*
BoF	Bodine gravelly silt loam, 20 to 70 percent slopes	650	0.2
ByF	Bouldin and Grimsley soils, 20 to 70 percent slopes, very stony	12,550	4.5
CaE	Carbo-Rock outcrop complex, 20 to 50 percent slopes	3,225	1.2
ChC2	Christian loam, 5 to 12 percent slopes, eroded	10,400	3.7
ChD2	Christian loam, 12 to 20 percent slopes, eroded	23,200	8.3
ChE2	Christian loam, 20 to 40 percent slopes, eroded	11,150	4.0
ChE3	Christian loam, 20 to 40 percent slopes, severely eroded	950	0.3
CkB	Clarkrange loam, 2 to 5 percent slopes	1,880	0.7
CkC	Clarkrange loam, 5 to 12 percent slopes	1,800	0.6
CoC	Colbert silt loam, 5 to 12 percent slopes	950	0.3
Cv	Craigsville cobbly loam, occasionally flooded	550	0.2
DeD2	Dellrose gravelly silt loam, 12 to 20 percent slopes, eroded	125	*
DeF	Dellrose and Mimosa soils, 20 to 60 percent slopes	550	0.2
DfC2	Dewey silt loam, 5 to 12 percent slopes, eroded	100	*
DkB2	Dickson silt loam, 2 to 5 percent slopes, eroded	2,700	1.0
Ea	Ealy fine sandy loam, occasionally flooded	975	0.4
EwB	Etowah loam, 2 to 5 percent slopes	5,725	2.1
EwC2	Etowah loam, 5 to 12 percent slopes, eroded	7,750	2.8
EwD2	Etowah loam, 12 to 20 percent slopes, eroded	400	0.1
FhC	Faywood-Hawthorne complex, 5 to 12 percent slopes	1,000	0.4
GnF	Garmon-Newbern complex, 40 to 80 percent slopes, rocky	8,950	3.2
GpC	Gilpin loam, 5 to 12 percent slopes	1,150	0.4
GpD	Gilpin loam, 12 to 20 percent slopes	1,250	0.4
GpE	Gilpin loam, 20 to 40 percent slopes	5,100	1.8
GsF	Gilpin-Shelocta complex, 40 to 70 percent slopes	19,750	7.1
Ha	Hamblen loam, occasionally flooded	850	0.3
HhC	Hawthorne gravelly silt loam, 5 to 20 percent slopes	1,275	0.5
HhF	Hawthorne gravelly silt loam, 20 to 70 percent slopes	1,325	0.5
HmF	Hawthorne-Rock outcrop complex, 40 to 80 percent slopes	2,875	1.0
HnF	Hayter-Talbott-Rock outcrop complex, 20 to 70 percent slopes, very stony	975	0.4
HoB	Holston loam, 2 to 5 percent slopes	525	0.2
HoC2	Holston loam, 5 to 12 percent slopes, eroded	2,550	0.9
HuB	Humphreys gravelly silt loam, 2 to 5 percent slopes	100	*
HuC	Humphreys gravelly silt loam, 5 to 12 percent slopes	325	0.1
LlB	Lily loam, 2 to 5 percent slopes	100	*
LlC	Lily loam, 5 to 12 percent slopes	4,725	1.7
LlD	Lily loam, 12 to 20 percent slopes	150	*
LwB	Lonewood loam, 2 to 5 percent slopes	1,575	0.6
LwC	Lonewood loam, 5 to 12 percent slopes	4,650	1.7
Me	Melvin silt loam, ponded	2,075	0.7
MnC2	Minvale gravelly loam, 5 to 12 percent slopes, eroded	2,575	0.9
MnD2	Minvale gravelly loam, 12 to 20 percent slopes, eroded	4,175	1.5
MoB2	Monongahela silt loam, 2 to 5 percent slopes, eroded	200	*
MoC2	Monongahela silt loam, 5 to 12 percent slopes, eroded	75	*
MtB2	Mountview silt loam, 2 to 5 percent slopes, eroded	3,950	1.4
MtC2	Mountview silt loam, 5 to 12 percent slopes, eroded	7,800	2.8
NeC	Nella cobbly loam, 5 to 12 percent slopes	2,550	0.9
NeD	Nella cobbly loam, 12 to 20 percent slopes	1,950	0.7
NeE	Nella cobbly loam, 20 to 40 percent slopes	1,850	0.7
NrF	Nella-Talbott-Rock outcrop complex, 20 to 70 percent slopes, very stony	29,500	10.6
Oc	Ocana gravelly silt loam, occasionally flooded	375	0.1
Pd	Purdy silt loam, ponded	1,050	0.4

See footnote at end of table.

Table 4.—Acreage and Proportionate Extent of the Soils—Continued

Map symbol	Soil name	Acres	Percent
Qr	Pits, quarry	80	*
RaC	Ramsey loam, 5 to 12 percent slopes	200	*
RaD	Ramsey loam, 12 to 20 percent slopes	225	*
RrC	Ramsey-Rock outcrop complex, 5 to 12 percent slopes	200	*
RrE	Ramsey-Rock outcrop complex, 12 to 40 percent slopes	850	0.3
SeC2	Sengtown cobbly loam, 5 to 12 percent slopes, eroded	6,200	2.2
SeD2	Sengtown cobbly loam, 12 to 20 percent slopes, eroded	16,750	6.0
SeE2	Sengtown cobbly loam, 20 to 40 percent slopes, eroded	8,450	3.0
SfE	Sequoia gravelly silt loam, 20 to 40 percent slopes	3,200	1.2
ShB	Shady loam, 2 to 5 percent slopes	750	0.3
ShC2	Shady loam, 5 to 12 percent slopes, eroded	1,900	0.7
SpF	Shelocta-Pineville complex, 20 to 70 percent slopes, very stony	10,250	3.7
St	Staser fine sandy loam, occasionally flooded	200	*
Su	Sullivan silt loam, depressional	850	0.3
Sv	Sullivan silt loam, occasionally flooded	1,100	0.4
TrD	Talbott-Rock outcrop complex, 5 to 20 percent slopes	3,700	1.3
TrE	Talbott-Rock outcrop complex, 20 to 40 percent slopes	4,220	1.5
Ud	Udarents	50	*
W	Water	900	0.3
WaB2	Waynesboro loam, 2 to 5 percent slopes, eroded	625	0.2
WaC2	Waynesboro loam, 5 to 12 percent slopes, eroded	9,820	3.5
WaD2	Waynesboro loam, 12 to 20 percent slopes, eroded	2,350	0.8
	Total	278,100	100.0

* Less than 0.1 percent.

Table 5.—Land Capability and Yields per Acre by Map Unit

(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	Corn	Soybeans	Tall fescue-ladino	Tobacco	Wheat
		Bu	Bu	AUM	Lbs	Bu
Ak:		---	---	5.50	---	---
Atkins	4w					
BA:		---	---	---	---	---
Bethesda	7e					
Pits	---					
BeB2:		135.00	43.00	8.00	2,900.00	65.00
Bewleyville	2e					
BeC2:		115.00	38.00	7.50	2,650.00	60.00
Bewleyville	3e					
BoC:		65.00	25.00	5.50	1,700.00	35.00
Bodine	4s					
BoD:		50.00	20.00	5.00	1,250.00	28.00
Bodine	6s					
BoF:		---	---	---	---	---
Bodine	7s					
ByF:		---	---	---	---	---
Bouldin	7s					
Grimsley	7s					
CaE:		---	---	---	---	---
Carbo	7s					
Rock outcrop	---					
ChC2:		70.00	25.00	6.50	2,300.00	40.00
Christian	3e					
ChD2:		50.00	20.00	5.50	1,250.00	30.00
Christian	4e					
ChE2:		---	---	5.00	---	---
Christian	6e					
ChE3:		---	---	---	---	---
Christian	7e					
CkB:		110.00	40.00	7.00	2,300.00	50.00
Clarkrange	2e					
CkC:		75.00	25.00	6.50	1,900.00	42.00
Clarkrange	3e					
CoC:		70.00	25.00	6.50	---	40.00
Colbert	4e					
Cv:		55.00	20.00	5.00	1,400.00	40.00
Craigsville	4s					

Table 5.—Land Capability and Yields per Acre by Map Unit—Continued

Map symbol and soil name	Land capability	Corn	Soybeans	Tall fescue-ladino	Tobacco	Wheat
		Bu	Bu	AUM	Lbs	Bu
DeD2:		80.00	25.00	5.50	1,400.00	35.00
Dellrose------------	4e					
DeF:		---	---	---	---	---
Dellrose------------	7e					
Mimosa--------------	7e					
DfC2:		80.00	30.00	6.50	2,400.00	50.00
Dewey---------------	3e					
DkB2:		100.00	35.00	6.50	2,200.00	55.00
Dickson-------------	2e					
Ea:		140.00	40.00	8.00	2,900.00	60.00
Ealy----------------	2w					
EwB:		130.00	40.00	8.00	2,800.00	62.00
Etowah--------------	2e					
EwC2:		110.00	32.00	6.50	2,500.00	50.00
Etowah--------------	3e					
EwD2:		70.00	22.00	6.00	2,200.00	35.00
Etowah--------------	4e					
FhC:		70.00	25.00	4.50	1,600.00	40.00
Faywood-------------	4s					
Hawthorne-----------	4s					
GnF:		---	---	---	---	---
Garmon--------------	7s					
Newbern-------------	7s					
GpC:		80.00	25.00	6.00	1,650.00	35.00
Gilpin--------------	3e					
GpD:		65.00	20.00	5.50	1,200.00	30.00
Gilpin--------------	4e					
GpE:		---	---	4.50	---	---
Gilpin--------------	6e					
GsF:		---	---	---	---	---
Gilpin--------------	7e					
Shelocta------------	7e					
Ha:		95.00	38.00	8.00	1,400.00	50.00
Hamblen-------------	2w					
HhC:		---	---	3.50	---	---
Hawthorne-----------	6s					
HhF:		---	---	---	---	---
Hawthorne-----------	7s					
HmF:		---	---	---	---	---
Hawthorne-----------	7s					
Rock outcrop--------	---					

Table 5.—Land Capability and Yields per Acre by Map Unit—Continued

Map symbol and soil name	Land capability	Corn	Soybeans	Tall fescue-ladino	Tobacco	Wheat
		Bu	Bu	AUM	Lbs	Bu
HnF:		---	---	---	---	---
Hayter	7s					
Talbott	7s					
Rock outcrop	---					
HoB:		130.00	40.00	8.00	2,800.00	60.00
Holston	2e					
HoC2:		105.00	32.00	6.50	2,450.00	50.00
Holston	3e					
HuB:		125.00	38.00	6.50	2,750.00	50.00
Humphreys	2e					
HuC:		100.00	32.00	6.00	2,400.00	42.00
Humphreys	3e					
LlB:		95.00	30.00	6.50	2,200.00	50.00
Lily	2e					
LlC:		85.00	25.00	6.50	2,000.00	45.00
Lily	3e					
LlD:		60.00	20.00	5.00	1,300.00	30.00
Lily	4e					
LwB:		120.00	40.00	7.50	2,700.00	58.00
Lonewood	2e					
LwC:		100.00	30.00	6.50	2,400.00	50.00
Lonewood	3e					
Me:		---	---	5.50	---	---
Melvin	5w					
MnC2:		95.00	32.00	6.50	2,600.00	50.00
Minvale	3e					
MnD2:		80.00	22.00	6.00	2,200.00	35.00
Minvale	4e					
MoB2:		100.00	35.00	6.50	2,200.00	55.00
Monongahela	2e					
MoC2:		85.00	30.00	6.00	1,800.00	45.00
Monongahela	3e					
MtB2:		120.00	35.00	8.00	2,300.00	58.00
Mountview	2e					
MtC2:		95.00	30.00	6.50	2,100.00	55.00
Mountview	3e					
NeC:		85.00	30.00	6.50	2,500.00	45.00
Nella	3e					
NeD:		65.00	20.00	5.50	2,100.00	30.00
Nella	4e					

Table 5.—Land Capability and Yields per Acre by Map Unit—Continued

Map symbol and soil name	Land capability	Corn	Soybeans	Tall fescue-ladino	Tobacco	Wheat
		Bu	Bu	AUM	Lbs	Bu
NeE:		---	---	4.00	---	---
Nella	6e					
NrF:		---	---	---	---	---
Nella	7s					
Talbott	7s					
Rock outcrop	---					
Oc:		115.00	30.00	7.00	2,600.00	50.00
Ocana	2w					
Pd:		---	---	5.50	---	---
Purdy	5w					
Qr.						
Pits, quarry						
RaC:		55.00	20.00	5.50	1,200.00	30.00
Ramsey	4s					
RaD:		---	---	---	---	---
Ramsey	6s					
RrC:		---	---	---	---	---
Ramsey	6s					
Rock outcrop	---					
RrE:		---	---	---	---	---
Ramsey	7s					
Rock outcrop	---					
SeC2:		75.00	25.00	6.50	2,300.00	40.00
Sengtown	3e					
SeD2:		55.00	20.00	5.50	1,250.00	30.00
Sengtown	4e					
SeE2:		---	---	5.00	---	---
Sengtown	6e					
SfE:		---	---	---	---	---
Sequoia	7e					
ShB:		130.00	40.00	8.00	2,800.00	62.00
Shady	2e					
ShC2:		110.00	32.00	6.50	2,500.00	50.00
Shady	3e					
SpF:		---	---	---	---	---
Shelocta	7e					
Pineville	7e					
St:		145.00	45.00	8.00	2,950.00	65.00
Staser	2w					
Su:		---	40.00	8.00	---	---
Sullivan	3w					

Table 5.—Land Capability and Yields per Acre by Map Unit—Continued

Map symbol and soil name	Land capability	Corn	Soybeans	Tall fescue-ladino	Tobacco	Wheat
		Bu	Bu	AUM	Lbs	Bu
Sv:		140.00	40.00	8.00	2,900.00	60.00
Sullivan-----------	2w					
TrD:		---	---	---	---	---
Talbott------------	6s					
Rock outcrop--------	---					
TrE:		---	---	---	---	---
Talbott------------	7s					
Rock outcrop--------	---					
Ud.						
Udarents						
W.						
Water						
WaB2:		110.00	35.00	7.00	2,700.00	52.00
Waynesboro----------	2e					
WaC2:		80.00	30.00	6.50	2,400.00	45.00
Waynesboro----------	3e					
WaD2:		60.00	20.00	6.00	1,300.00	30.00
Waynesboro----------	4e					

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
BeB2	Bewleyville silt loam, 2 to 5 percent slopes, eroded
CkB	Clarkrange loam, 2 to 5 percent slopes
DkB2	Dickson silt loam, 2 to 5 percent slopes, eroded
Ea	Ealy fine sandy loam, occasionally flooded
EwB	Etowah loam, 2 to 5 percent slopes
Ha	Hamblen loam, occasionally flooded
HoB	Holston loam, 2 to 5 percent slopes
HuB	Humphreys gravelly silt loam, 2 to 5 percent slopes
LlB	Lily loam, 2 to 5 percent slopes
LwB	Lonewood loam, 2 to 5 percent slopes
MoB2	Monongahela silt loam, 2 to 5 percent slopes, eroded
MtB2	Mountview silt loam, 2 to 5 percent slopes, eroded
Oc	Ocana gravelly silt loam, occasionally flooded
ShB	Shady loam, 2 to 5 percent slopes
St	Staser fine sandy loam, occasionally flooded
Sv	Sullivan silt loam, occasionally flooded
WaB2	Waynesboro loam, 2 to 5 percent slopes, eroded

Table 7.—Forestland Productivity

Map symbol and soil name	Potential productivity: Common trees	Site index	Volume of wood fiber	Trees to manage
			cu ft/ac	
Ak:				
Atkins	green ash	62	62	green ash, swamp white oak, sweetgum
	pin oak	72	57	
	sweetgum	90	92	
BA:				
Bethesda	black locust	52	44	black locust, Virginia pine
	Virginia pine	29	41	
Pits.				
BeB2, BeC2:				
Bewleyville	shortleaf pine	75	113	black cherry, shortleaf pine, southern red oak, white oak, yellow-poplar
	yellow-poplar	100	90	
	southern red oak	80	57	
	white oak	80	52	
BoC, BoD, BoF:				
Bodine	shortleaf pine	70	114	shortleaf pine, southern red oak, yellow-poplar
	southern red oak	70	57	
	white oak	70	57	
	yellow-poplar	90	86	
ByF:				
Bouldin	northern red oak	75	57	shortleaf pine, yellow-poplar
	shortleaf pine	70	114	
	yellow-poplar	90	86	
Grimsley	northern red oak	86	72	shortleaf pine, yellow-poplar
	white oak	83	67	
	yellow-poplar	96	102	
CaE:				
Carbo	Virginia pine	55	86	chestnut oak, yellow-poplar
	yellow-poplar	80	72	
Rock outcrop.				
ChC2, ChD2:				
Christian	chestnut oak	80	62	shortleaf pine, southern red oak, yellow-poplar
	southern red oak	70	57	
	yellow-poplar	90	86	
	white oak	80	52	
	shortleaf pine	70	114	
ChE2, ChE3:				
Christian	chestnut oak	72	58	shortleaf pine, southern red oak, yellow-poplar
	shortleaf pine	70	114	
	southern red oak	70	57	
	yellow-poplar	90	86	
CkB, CkC:				
Clarkrange	eastern white pine	80	143	eastern white pine, shortleaf pine, white ash, yellow-poplar
	northern red oak	70	57	
	shortleaf pine	70	114	
	Virginia pine	70	114	
	yellow-poplar	90	86	

Table 7.—Forestland Productivity—Continued

Map symbol and soil name	Potential productivity: Common trees	Site index	Volume of wood fiber	Trees to manage
			cu ft/ac	
CoC:				
Colbert	eastern redcedar	45	57	eastern redcedar,
	shortleaf pine	60	86	shortleaf pine,
	Virginia pine	65	86	Virginia pine
Cv:				
Craigsville	black walnut	84	62	eastern white pine,
	eastern white pine	90	172	loblolly pine,
	northern red oak	80	57	yellow-poplar
	Virginia pine	80	114	
	yellow-poplar	95	100	
DeD2:				
Dellrose	yellow-poplar	100	100	black walnut,
	shortleaf pine	80	114	shortleaf pine,
	southern red oak	75	57	southern red oak,
	black walnut	75	75	yellow-poplar
DeF:				
Dellrose	yellow-poplar	100	100	black walnut,
	shortleaf pine	80	114	shortleaf pine,
	southern red oak	75	57	southern red oak,
	black walnut	75	75	yellow-poplar
Mimosa	eastern redcedar	45	57	chestnut oak,
	shortleaf pine	80	114	eastern redcedar,
	southern red oak	65	43	shortleaf pine
DfC2:				
Dewey	black walnut	70	57	black walnut,
	shortleaf pine	73	114	shortleaf pine,
	southern red oak	70	57	southern red oak,
	white oak	70	57	white oak, yellow-
	yellow-poplar	90	86	poplar
DkB2:				
Dickson	yellow-poplar	90	90	cherrybark oak,
	southern red oak	75	57	southern red oak,
	white oak	70	57	white oak, yellow-
	cherrybark oak	70	57	poplar
Ea:				
Ealy	American sycamore	90	100	black walnut,
	eastern white pine	90	172	eastern white
	northern red oak	80	57	pine, yellow-
	shortleaf pine	80	129	poplar
	yellow-poplar	105	114	
EwB, EwC2:				
Etowah	shortleaf pine	85	129	black walnut,
	southern red oak	80	57	cherrybark oak,
	white oak	70	57	shortleaf pine,
	yellow-poplar	100	86	yellow-poplar
EwD2:				
Etowah	shortleaf pine	80	129	black walnut,
	southern red oak	80	57	shortleaf pine,
	white oak	70	57	yellow-poplar
	yellow-poplar	90	86	

Table 7.—Forestland Productivity—Continued

Map symbol and soil name	Potential productivity: Common trees	Site index	Volume of wood fiber	Trees to manage
			cu ft/ac	
FhC:				
Faywood	northern red oak	70	57	eastern white pine, northern red oak, white ash, white oak
	scarlet oak	72	57	
	white oak	60	43	
Hawthorne	Virginia pine	60	75	chestnut oak, eastern redcedar, shortleaf pine
	eastern redcedar	40	35	
GnF:				
Garmon	chestnut oak	70	57	chestnut oak, eastern redcedar, scarlet oak, Virginia pine
	eastern redcedar	35	29	
	scarlet oak	75	57	
	Virginia pine	80	114	
Newbern	chestnut oak	70	57	chestnut oak, eastern redcedar, scarlet oak, Virginia pine
	eastern redcedar	35	29	
	scarlet oak	75	57	
	Virginia pine	80	114	
GpC:				
Gilpin	northern red oak	80	57	eastern white pine, northern red oak, white oak, yellow-poplar
	scarlet oak	70	57	
	white oak	73	60	
	yellow-poplar	95	100	
GpD:				
Gilpin	northern red oak	80	57	eastern white pine, Virginia pine, white oak, yellow-poplar
	scarlet oak	70	57	
	white oak	73	60	
	yellow-poplar	87	93	
GpE:				
Gilpin	northern red oak	70	57	eastern white pine, Virginia pine, white oak, yellow-poplar
	scarlet oak	70	57	
	white oak	70	57	
	yellow-poplar	87	85	
GsF:				
Gilpin	northern red oak	70	57	eastern white pine, Virginia pine, white oak, yellow-poplar
	scarlet oak	70	57	
	white oak	70	57	
	yellow-poplar	87	85	
Shelocta	northern red oak	82	57	eastern white pine, Virginia pine, white oak, yellow-poplar
	scarlet oak	80	57	
	shortleaf pine	77	129	
	white oak	77	57	
	yellow-poplar	99	100	
Ha:				
Hamblen	shortleaf pine	90	129	shortleaf pine, yellow-poplar
	southern red oak	80	57	
	yellow-poplar	100	114	
HhC:				
Hawthorne	Virginia pine	60	75	eastern redcedar, Virginia pine
	eastern redcedar	40	35	

Table 7.—Forestland Productivity—Continued

Map symbol and soil name	Potential productivity: Common trees	Site index	Volume of wood fiber	Trees to manage
			cu ft/ac	
HhF:				
Hawthorne	chestnut oak	60	43	eastern redcedar, Virginia pine
	eastern redcedar	40	35	
	Virginia pine	60	75	
HmF:				
Hawthorne	chestnut oak	60	43	eastern redcedar, Virginia pine
	eastern redcedar	40	35	
	Virginia pine	60	75	
Rock outcrop.				
HnF:				
Hayter	northern red oak	86	57	black walnut, eastern white pine, yellow-poplar
	white ash	78	75	
	yellow-poplar	96	100	
Talbott	eastern redcedar	46	57	eastern redcedar, shortleaf pine, Virginia pine
	northern red oak	65	52	
	shortleaf pine	64	100	
Rock outcrop.				
HoB, HoC2:				
Holston	northern red oak	80	57	shortleaf pine, yellow-poplar
	shortleaf pine	85	114	
	yellow-poplar	96	86	
HuB, HuC:				
Humphreys	American sycamore	75	81	American sycamore, black walnut, sweetgum, white ash, yellow-poplar
	black walnut	85	75	
	sweetgum	75	86	
	white ash	80	75	
	yellow-poplar	100	107	
LlB, LlC, LlD:				
Lily	black oak	78	57	eastern white pine, northern red oak, shortleaf pine, white oak
	chestnut oak	73	57	
	northern red oak	78	57	
	scarlet oak	77	43	
	shortleaf pine	63	100	
	Virginia pine	80	114	
	white oak	73	57	
LwB, LwC:				
Lonewood	eastern white pine	80	143	eastern white pine, shortleaf pine, Virginia pine
	northern red oak	78	57	
	shortleaf pine	70	114	
	Virginia pine	70	114	
	white oak	70	57	
Me:				
Melvin	green ash	62	43	green ash, swamp white oak, sweetgum, willow oak
	pin oak	62	43	
	swamp white oak	52	43	
	sweetgum	90	77	

Table 7.—Forestland Productivity—Continued

Map symbol and soil name	Potential productivity: Common trees	Site index	Volume of wood fiber	Trees to manage
			cu ft/ac	
MnC2, MnD2:				
Minvale	black walnut	80	62	black walnut, shortleaf pine, white oak, yellow-poplar
	shortleaf pine	80	114	
	white oak	80	57	
	yellow-poplar	100	100	
MoB2, MoC2:				
Monongahela	cherrybark oak	80	62	cherrybark oak, swamp white oak, sweetgum, yellow-poplar
	swamp white oak	80	62	
	sweetgum	95	93	
	yellow-poplar	90	107	
MtB2, MtC2:				
Mountview	shortleaf pine	65	100	shortleaf pine, southern red oak, yellow-poplar
	southern red oak	70	57	
	yellow-poplar	90	86	
NeC, NeD:				
Nella	shortleaf pine	70	114	shortleaf pine, southern red oak, Virginia pine, yellow-poplar
	southern red oak	70	57	
	yellow-poplar	96	86	
NeE:				
Nella	shortleaf pine	70	114	shortleaf pine, southern red oak, Virginia pine, yellow-poplar
	southern red oak	70	57	
	Virginia pine	70	114	
	yellow-poplar	96	86	
NrF:				
Nella	shortleaf pine	70	114	shortleaf pine, southern red oak, Virginia pine, yellow-poplar
	southern red oak	70	57	
	Virginia pine	70	114	
	yellow-poplar	96	86	
Talbott	eastern redcedar	46	57	eastern redcedar, shortleaf pine, Virginia pine
	northern red oak	65	52	
	shortleaf pine	64	100	
	Virginia pine	70	114	
Rock outcrop.				
Oc:				
Ocana	black oak	80	62	black walnut, cherrybark oak, shortleaf pine, yellow-poplar
	shortleaf pine	90	129	
	yellow-poplar	100	114	
Pd:				
Purdy	American sycamore	62	57	American sycamore, green ash, pin oak, sweetgum
	green ash	52	43	
	pin oak	52	43	
	sweetgum	77	72	
Qr.				
Pits, quarry				

Table 7.—Forestland Productivity—Continued

Map symbol and soil name	Potential productivity: Common trees	Site index	Volume of wood fiber	Trees to manage
			cu ft/ac	
RaC, RaD:				
Ramsey	chestnut oak	59	43	chestnut oak, post oak, Virginia pine
	post oak	61	43	
	scarlet oak	60	43	
	Virginia pine	70	114	
RrC, RrE:				
Ramsey	chestnut oak	59	43	chestnut oak, post oak, Virginia pine
	post oak	61	43	
	scarlet oak	60	43	
	Virginia pine	70	114	
Rock outcrop.				
SeC2, SeD2, SeE2:				
Sengtown	shortleaf pine	70	114	shortleaf pine, southern red oak, yellow-poplar
	southern red oak	70	57	
	white oak	80	52	
	yellow-poplar	90	86	
SfE:				
Sequoia	northern red oak	70	57	northern red oak, shortleaf pine, white oak
	scarlet oak	72	57	
	white oak	60	43	
	yellow-poplar	94	85	
ShB, ShC2:				
Shady	southern red oak	80	57	black walnut, white oak, yellow-poplar
	white oak	80	57	
	yellow-poplar	100	114	
SpF:				
Shelocta	northern red oak	82	57	black walnut, eastern white pine, Virginia pine, white oak, yellow-poplar
	scarlet oak	80	57	
	shortleaf pine	77	129	
	white oak	77	57	
	yellow-poplar	99	100	
Pineville	black oak	85	72	black cherry, black walnut, northern red oak, yellow-poplar
	northern red oak	86	72	
	yellow-poplar	112	100	
St:				
Staser	black walnut	96	62	black walnut, shortleaf pine, yellow-poplar
	shortleaf pine	90	129	
	white oak	80	57	
	yellow-poplar	105	114	
Su, Sv:				
Sullivan	black oak	80	62	shortleaf pine, sweetgum, yellow-poplar
	shortleaf pine	70	114	
	sweetgum	85	107	
	yellow-poplar	100	107	

Table 7.—Forestland Productivity—Continued

Map symbol and soil name	Potential productivity: Common trees	Site index	Volume of wood fiber	Trees to manage
			cu ft/ac	
TrD, TrE:				
Talbott	eastern redcedar	46	57	eastern redcedar, shortleaf pine, Virginia pine
	northern red oak	65	52	
	shortleaf pine	64	100	
Rock outcrop.				
Ud. Udarents				
W. Water				
WaB2, WaC2, WaD2:				
Waynesboro	shortleaf pine	90	114	shortleaf pine, southern red oak, white oak, yellow-poplar
	southern red oak	80	86	
	white oak	70	57	
	yellow-poplar	90	86	

Table 8.—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: 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
Ak:							
Atkins-------	85	Severe		Poorly suited		Severe	
		Flooding	1.00	Flooding	1.00	Low strength	1.00
		Low strength	0.50	Wetness	1.00		
				Low strength	0.50		
BA:							
Bethesda-----	50	Severe		Poorly suited		Moderate	
		Landslides	1.00	Landslides	1.00	Low strength	0.50
		Slope	1.00	Slope	1.00		
Pits---------	40	Not rated		Not rated		Not rated	
BeB2:							
Bewleyville--	85	Moderate		Moderately suited		Severe	
		Low strength	0.50	Low strength	0.50	Low strength	1.00
BeC2:							
Bewleyville--	85	Moderate		Moderately suited		Severe	
		Low strength	0.50	Low strength	0.50	Low strength	1.00
				Slope	0.50		
BoC:							
Bodine-------	90	Moderate		Moderately suited		Severe	
		Low strength	0.50	Low strength	0.50	Low strength	1.00
				Slope	0.50		
BoD:							
Bodine-------	85	Moderate		Poorly suited		Severe	
		Landslides	0.50	Slope	1.00	Low strength	1.00
		Slope	0.50	Low strength	0.50		
		Low strength	0.50	Landslides	0.50		
BoF:							
Bodine-------	85	Severe		Poorly suited		Severe	
		Landslides	1.00	Slope	1.00	Low strength	1.00
		Slope	1.00	Landslides	1.00		
		Low strength	0.50	Low strength	0.50		
ByF:							
Bouldin------	50	Severe		Poorly suited		Moderate	
		Landslides	1.00	Slope	1.00	Low strength	0.50
		Slope	1.00	Landslides	1.00		
Grimsley-----	35	Severe		Poorly suited		Severe	
		Landslides	1.00	Slope	1.00	Low strength	1.00
		Slope	1.00	Landslides	1.00		
		Low strength	0.50	Low strength	0.50		

Table 8.—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
CaE:							
Carbo----------	70	Severe		Poorly suited		Severe	
		Slope	1.00	Slope	1.00	Low strength	1.00
		Low strength	0.50	Low strength	0.50		
Rock outcrop-	20	Not rated		Not rated		Not rated	
ChC2:							
Christian----	90	Moderate		Moderately suited		Severe	
		Low strength	0.50	Low strength	0.50	Low strength	1.00
				Slope	0.50		
ChD2, ChE2, ChE3:							
Christian---	90	Moderate		Poorly suited		Severe	
		Slope	0.50	Slope	1.00	Low strength	1.00
		Stickiness/slope	0.50	Low strength	0.50		
		Low strength	0.50				
CkB:							
Clarkrange---	90	Moderate		Moderately suited		Severe	
		Low strength	0.50	Low strength	0.50	Low strength	1.00
CkC:							
Clarkrange---	90	Moderate		Moderately suited		Severe	
		Low strength	0.50	Low strength	0.50	Low strength	1.00
				Slope	0.50		
CoC:							
Colbert------	90	Moderate		Moderately suited		Severe	
		Low strength	0.50	Low strength	0.50	Low strength	1.00
				Slope	0.50		
Cv:							
Craigsville--	85	Severe		Poorly suited		Moderate	
		Flooding	1.00	Flooding	1.00	Low strength	0.50
DeD2:							
Dellrose-----	85	Moderate		Poorly suited		Moderate	
		Landslides	0.50	Slope	1.00	Low strength	0.50
		Slope	0.50	Landslides	0.50		
DeF:							
Dellrose-----	65	Severe		Poorly suited		Moderate	
		Landslides	1.00	Slope	1.00	Low strength	0.50
		Slope	1.00	Landslides	1.00		
		Low strength	0.50				
Mimosa-------	30	Severe		Poorly suited		Severe	
		Landslides	1.00	Slope	1.00	Low strength	1.00
		Slope	1.00	Landslides	1.00		
		Low strength	0.50	Low strength	0.50		
DfC2:							
Dewey--------	90	Moderate		Moderately suited		Severe	
		Low strength	0.50	Low strength	0.50	Low strength	1.00
				Slope	0.50		

Table 8.—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
DkB2:							
Dickson------	85	Moderate		Moderately suited		Severe	
		Low strength	0.50	Low strength	0.50	Low strength	1.00
				Wetness	0.50		
Ea:							
Ealy---------	90	Moderate		Moderately suited		Moderate	
		Flooding	0.50	Flooding	0.50	Low strength	0.50
EwB:							
Etowah-------	90	Moderate		Moderately suited		Severe	
		Low strength	0.50	Low strength	0.50	Low strength	1.00
EwC2:							
Etowah-------	85	Moderate		Moderately suited		Severe	
		Low strength	0.50	Low strength	0.50	Low strength	1.00
				Slope	0.50		
EwD2:							
Etowah-------	85	Moderate		Poorly suited		Severe	
		Slope	0.50	Slope	1.00	Low strength	1.00
		Low strength	0.50	Low strength	0.50		
FhC:							
Faywood------	50	Moderate		Moderately suited		Severe	
		Low strength	0.50	Low strength	0.50	Low strength	1.00
		Restrictive layer	0.50	Slope	0.50		
		Landslides	0.10	Landslides	0.10		
Hawthorne----	40	Slight		Moderately suited		Slight	
		Landslides	0.10	Slope	0.50	Strength	0.10
				Landslides	0.10		
GnF:							
Garmon-------	50	Severe		Poorly suited		Moderate	
		Slope	1.00	Slope	1.00	Low strength	0.50
		Landslides	1.00	Landslides	1.00		
				Rock fragments	0.50		
Newbern------	40	Severe		Poorly suited		Severe	
		Slope	1.00	Slope	1.00	Low strength	1.00
		Landslides	1.00	Landslides	1.00		
				Rock fragments	0.50		
				Low strength	0.50		
GpC:							
Gilpin-------	85	Moderate		Moderately suited		Severe	
		Low strength	0.50	Low strength	0.50	Low strength	1.00
				Slope	0.50		
GpD:							
Gilpin-------	85	Moderate		Poorly suited		Severe	
		Landslides	0.50	Slope	1.00	Low strength	1.00
		Slope	0.50	Low strength	0.50		
		Low strength	0.50	Landslides	0.50		

Table 8.—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
GpE:							
Gilpin-------	85	Severe		Poorly suited		Severe	
		Landslides	1.00	Slope	1.00	Low strength	1.00
		Slope	0.50	Landslides	1.00		
		Low strength	0.50	Low strength	0.50		
GsF:							
Gilpin-------	50	Severe		Poorly suited		Severe	
		Slope	1.00	Slope	1.00	Low strength	1.00
		Landslides	1.00	Landslides	1.00		
		Low strength	0.50	Low strength	0.50		
Shelocta-----	40	Severe		Poorly suited		Moderate	
		Slope	1.00	Slope	1.00	Low strength	0.50
		Landslides	1.00	Landslides	1.00		
		Low strength	0.50				
Ha:							
Hamblen------	90	Moderate		Moderately suited		Severe	
		Flooding	0.50	Flooding	0.50	Low strength	1.00
		Low strength	0.50	Low strength	0.50		
				Wetness	0.50		
HhC:							
Hawthorne----	85	Moderate		Poorly suited		Slight	
		Landslides	0.50	Slope	1.00	Strength	0.10
				Landslides	0.50		
HhF:							
Hawthorne----	85	Severe		Poorly suited		Slight	
		Landslides	1.00	Slope	1.00	Strength	0.10
		Slope	1.00	Landslides	1.00		
HmF:							
Hawthorne----	48	Severe		Poorly suited		Slight	
		Landslides	1.00	Slope	1.00	Strength	0.10
		Slope	1.00	Landslides	1.00		
Rock outcrop-	47	Not rated		Not rated		Not rated	
HnF:							
Hayter-------	45	Severe		Poorly suited		Moderate	
		Landslides	1.00	Slope	1.00	Low strength	0.50
		Slope	1.00	Landslides	1.00		
		Low strength	0.50				
Talbott------	25	Severe		Poorly suited		Severe	
		Slope	1.00	Slope	1.00	Low strength	1.00
		Low strength	0.50	Low strength	0.50		
Rock outcrop-	20	Not rated		Not rated		Not rated	
HoB:							
Holston------	85	Moderate		Moderately suited		Severe	
		Low strength	0.50	Low strength	0.50	Low strength	1.00

Table 8.—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
HoC2:							
Holston------	85	Moderate		Moderately suited		Severe	
		Low strength	0.50	Low strength	0.50	Low strength	1.00
				Slope	0.50		
HuB:							
Humphreys----	95	Moderate		Well suited		Slight	
		Low strength	0.50			Strength	0.10
HuC:							
Humphreys----	95	Moderate		Moderately suited		Slight	
		Low strength	0.50	Slope	0.50	Strength	0.10
LlB:							
Lily---------	87	Moderate		Moderately suited		Severe	
		Low strength	0.50	Low strength	0.50	Low strength	1.00
		Restrictive layer	0.50				
LlC:							
Lily---------	85	Moderate		Moderately suited		Severe	
		Low strength	0.50	Low strength	0.50	Low strength	1.00
		Restrictive layer	0.50	Slope	0.50		
LlD:							
Lily---------	85	Moderate		Poorly suited		Severe	
		Restrictive layer	0.50	Slope	1.00	Low strength	1.00
		Slope	0.50	Low strength	0.50		
		Low strength	0.50				
LwB:							
Lonewood-----	90	Moderate		Moderately suited		Severe	
		Low strength	0.50	Low strength	0.50	Low strength	1.00
LwC:							
Lonewood-----	90	Slight		Moderately suited		Severe	
				Low strength	0.50	Low strength	1.00
				Slope	0.50		
Me:							
Melvin-------	85	Moderate		Poorly suited		Severe	
		Low strength	0.50	Ponding	1.00	Low strength	1.00
				Wetness	1.00		
				Low strength	0.50		
MnC2:							
Minvale------	90	Slight		Moderately suited		Moderate	
				Slope	0.50	Low strength	0.50
MnD2:							
Minvale------	90	Moderate		Poorly suited		Moderate	
		Landslides	0.50	Slope	1.00	Low strength	0.50
		Slope	0.50	Landslides	0.50		
MoB2:							
Monongahela--	90	Moderate		Moderately suited		Severe	
		Low strength	0.50	Low strength	0.50	Low strength	1.00
				Wetness	0.50		

Table 8.—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
MoC2:							
Monongahela--	90	Moderate		Moderately suited		Severe	
		Low strength	0.50	Low strength	0.50	Low strength	1.00
				Slope	0.50		
				Wetness	0.50		
MtB2:							
Mountview----	85	Moderate		Moderately suited		Severe	
		Low strength	0.50	Low strength	0.50	Low strength	1.00
MtC2:							
Mountview----	85	Moderate		Moderately suited		Severe	
		Low strength	0.50	Low strength	0.50	Low strength	1.00
				Slope	0.50		
NeC:							
Nella--------	90	Moderate		Moderately suited		Moderate	
		Low strength	0.50	Slope	0.50	Low strength	0.50
		Landslides	0.10	Landslides	0.10		
NeD:							
Nella--------	85	Moderate		Poorly suited		Moderate	
		Landslides	0.50	Slope	1.00	Low strength	0.50
		Slope	0.50	Landslides	0.50		
		Low strength	0.50				
NeE:							
Nella--------	85	Severe		Poorly suited		Moderate	
		Landslides	1.00	Slope	1.00	Low strength	0.50
		Slope	0.50	Landslides	1.00		
		Low strength	0.50				
NrF:							
Nella--------	50	Severe		Poorly suited		Moderate	
		Landslides	1.00	Slope	1.00	Low strength	0.50
		Slope	1.00	Landslides	1.00		
		Low strength	0.50	Rock fragments	0.01		
		Stoniness	0.01				
Talbott------	25	Severe		Poorly suited		Severe	
		Slope	1.00	Slope	1.00	Low strength	1.00
		Low strength	0.50	Low strength	0.50		
		Stoniness	0.01	Rock fragments	0.01		
Rock outcrop-	15	Not rated		Not rated		Not rated	
Oc:							
Ocana--------	85	Moderate		Moderately suited		Severe	
		Flooding	0.50	Flooding	0.50	Low strength	1.00
		Low strength	0.50	Low strength	0.50		
Pd:							
Purdy--------	85	Severe		Poorly suited		Severe	
		Flooding	1.00	Ponding	1.00	Low strength	1.00
		Low strength	0.50	Wetness	1.00		
				Low strength	0.50		

Table 8.—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
Qr:							
Pits, quarry-	100	Not rated		Not rated		Not rated	
RaC:							
Ramsey-------	90	Severe		Moderately suited		Severe	
		Restrictive layer	1.00	Slope	0.50	Low strength	1.00
RaD:							
Ramsey-------	90	Severe		Poorly suited		Severe	
		Landslides	1.00	Landslides	1.00	Low strength	1.00
		Restrictive layer	1.00	Slope	1.00		
		Slope	0.50				
RrC:							
Ramsey-------	65	Severe		Moderately suited		Severe	
		Restrictive layer	1.00	Slope	0.50	Low strength	1.00
Rock outcrop-	25	Not rated		Not rated		Not rated	
RrE:							
Ramsey-------	55	Severe		Poorly suited		Severe	
		Landslides	1.00	Landslides	1.00	Low strength	1.00
		Stoniness	1.00	Slope	1.00		
		Restrictive layer	1.00	Rock fragments	1.00		
		Slope	0.50				
Rock outcrop-	40	Not rated		Not rated		Not rated	
SeC2:							
Sengtown-----	85	Slight		Moderately suited		Moderate	
				Slope	0.50	Low strength	0.50
SeD2, SeE2:							
Sengtown-----	85	Moderate		Poorly suited		Moderate	
		Slope	0.50	Slope	1.00	Low strength	0.50
		Stickiness/slope	0.50				
SfE:							
Sequoia------	80	Severe		Poorly suited		Moderate	
		Landslides	1.00	Slope	1.00	Low strength	0.50
		Slope	0.50	Landslides	1.00		
		Stickiness/slope	0.50				
		Low strength	0.50				
ShB:							
Shady--------	90	Moderate		Moderately suited		Severe	
		Low strength	0.50	Low strength	0.50	Low strength	1.00
ShC2:							
Shady--------	90	Moderate		Moderately suited		Severe	
		Low strength	0.50	Low strength	0.50	Low strength	1.00
				Slope	0.50		
SpF:							
Shelocta-----	50	Severe		Poorly suited		Moderate	
		Landslides	1.00	Slope	1.00	Low strength	0.50
		Slope	1.00	Landslides	1.00		
		Low strength	0.50				

Table 8.—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
SpF:							
Pineville----	40	Severe		Poorly suited		Moderate	
		Landslides	1.00	Slope	1.00	Low strength	0.50
		Slope	1.00	Landslides	1.00		
St:							
Staser-------	95	Slight		Well suited		Moderate	
						Low strength	0.50
Su:							
Sullivan-----	90	Moderate		Moderately suited		Severe	
		Low strength	0.50	Ponding	0.50	Low strength	1.00
				Low strength	0.50		
Sv:							
Sullivan-----	90	Moderate		Moderately suited		Severe	
		Flooding	0.50	Flooding	0.50	Low strength	1.00
		Low strength	0.50	Low strength	0.50		
TrD:							
Talbott------	60	Moderate		Moderately suited		Severe	
		Restrictive layer	0.50	Slope	0.50	Low strength	1.00
		Stickiness/slope	0.50	Low strength	0.50		
		Low strength	0.50				
Rock outcrop-	30	Not rated		Not rated		Not rated	
TrE:							
Talbott------	65	Moderate		Poorly suited		Severe	
		Slope	0.50	Slope	1.00	Low strength	1.00
		Restrictive layer	0.50	Low strength	0.50		
		Stickiness/slope	0.50				
		Low strength	0.50				
Rock outcrop-	20	Not rated		Not rated		Not rated	
Ud:							
Udarents-----	100	Not rated		Not rated		Not rated	
W:							
Water--------	100	Not rated		Not rated		Not rated	
WaB2:							
Waynesboro---	85	Moderate		Moderately suited		Severe	
		Low strength	0.50	Low strength	0.50	Low strength	1.00
WaC2:							
Waynesboro---	85	Moderate		Moderately suited		Severe	
		Low strength	0.50	Low strength	0.50	Low strength	1.00
				Slope	0.50		
WaD2:							
Wayensboro---	85	Moderate		Poorly suited		Severe	
		Slope	0.50	Slope	1.00	Low strength	1.00
		Low strength	0.50	Low strength	0.50		

Table 8.—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
Ak:							
Atkins	85	Slight		Slight		Poorly suited	
						Flooding	1.00
						Wetness	1.00
						Low strength	0.50
BA:							
Bethesda	50	Severe		Severe		Poorly suited	
		Slope/erodibility	0.75	Slope/erodibility	0.95	Landslides	1.00
						Slope	1.00
Pits	40	Not rated		Not rated		Not rated	
BeB2:							
Bewleyville	85	Slight		Moderate		Moderately suited	
				Slope/erodibility	0.50	Low strength	0.50
BeC2:							
Bewleyville	85	Slight		Severe		Moderately suited	
				Slope/erodibility	0.95	Low strength	0.50
						Slope	0.50
BoC:							
Bodine	90	Slight		Moderate		Moderately suited	
				Slope/erodibility	0.50	Low strength	0.50
						Slope	0.50
BoD:							
Bodine	85	Moderate		Severe		Poorly suited	
		Slope/erodibility	0.50	Slope/erodibility	0.95	Slope	1.00
						Low strength	0.50
						Landslides	0.50
BoF:							
Bodine	85	Severe		Severe		Poorly suited	
		Slope/erodibility	0.75	Slope/erodibility	0.95	Slope	1.00
						Landslides	1.00
						Low strength	0.50
ByF:							
Bouldin	50	Severe		Severe		Poorly suited	
		Slope/erodibility	0.75	Slope/erodibility	0.95	Slope	1.00
						Landslides	1.00
Grimsley	35	Severe		Severe		Poorly suited	
		Slope/erodibility	0.75	Slope/erodibility	0.95	Slope	1.00
						Landslides	1.00
						Low strength	0.50
CaE:							
Carbo	70	Severe		Severe		Poorly suited	
		Slope/erodibility	0.75	Slope/erodibility	0.95	Slope	1.00
						Low strength	0.50
Rock outcrop	20	Not rated		Not rated		Not rated	

Table 8.—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
ChC2:							
Christian---	90	Slight		Severe		Moderately suited	
				Slope/erodibility	0.95	Low strength	0.50
						Slope	0.50
ChD2:							
Christian---	90	Moderate		Severe		Poorly suited	
		Slope/erodibility	0.50	Slope/erodibility	0.95	Slope	1.00
						Low strength	0.50
ChE2, ChE3:							
Christian---	90	Severe		Severe		Poorly suited	
		Slope/erodibility	0.75	Slope/erodibility	0.95	Slope	1.00
						Low strength	0.50
CkB:							
Clarkrange--	90	Slight		Moderate		Moderately suited	
				Slope/erodibility	0.50	Low strength	0.50
CkC:							
Clarkrange--	90	Slight		Severe		Moderately suited	
				Slope/erodibility	0.95	Low strength	0.50
						Slope	0.50
CoC:							
Colbert-----	90	Slight		Severe		Moderately suited	
				Slope/erodibility	0.95	Low strength	0.50
						Slope	0.50
Cv:							
Craigsville-	85	Slight		Slight		Poorly suited	
						Flooding	1.00
DeD2:							
Dellrose----	85	Moderate		Severe		Poorly suited	
		Slope/erodibility	0.50	Slope/erodibility	0.95	Slope	1.00
						Landslides	0.50
DeF:							
Dellrose----	65	Severe		Severe		Poorly suited	
		Slope/erodibility	0.75	Slope/erodibility	0.95	Slope	1.00
						Landslides	1.00
Mimosa------	30	Severe		Severe		Poorly suited	
		Slope/erodibility	0.75	Slope/erodibility	0.95	Slope	1.00
						Landslides	1.00
						Low strength	0.50
DfC2:							
Dewey-------	90	Slight		Severe		Moderately suited	
				Slope/erodibility	0.95	Low strength	0.50
						Slope	0.50
DkB2:							
Dickson-----	85	Slight		Moderate		Moderately suited	
				Slope/erodibility	0.50	Low strength	0.50
						Wetness	0.50
Ea:							
Ealy--------	90	Slight		Slight		Moderately suited	
						Flooding	0.50

Table 8.—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
EwB:							
Etowah------	90	Slight		Moderate		Moderately suited	
				Slope/erodibility	0.50	Low strength	0.50
EwC2:							
Etowah------	85	Slight		Severe		Moderately suited	
				Slope/erodibility	0.95	Low strength	0.50
						Slope	0.50
EwD2:							
Etowah------	85	Moderate		Severe		Poorly suited	
		Slope/erodibility	0.50	Slope/erodibility	0.95	Slope	1.00
						Low strength	0.50
FhC:							
Faywood-----	50	Slight		Severe		Moderately suited	
				Slope/erodibility	0.95	Low strength	0.50
						Slope	0.50
						Landslides	0.10
Hawthorne---	40	Slight		Moderate		Moderately suited	
				Slope/erodibility	0.50	Slope	0.50
						Landslides	0.10
GnF:							
Garmon------	50	Very severe		Severe		Poorly suited	
		Slope/erodibility	0.95	Slope/erodibility	0.95	Slope	1.00
						Landslides	1.00
						Rock fragments	0.50
Newbern-----	40	Very severe		Severe		Poorly suited	
		Slope/erodibility	0.95	Slope/erodibility	0.95	Slope	1.00
						Landslides	1.00
						Rock fragments	0.50
						Low strength	0.50
GpC:							
Gilpin------	85	Slight		Severe		Moderately suited	
				Slope/erodibility	0.95	Low strength	0.50
						Slope	0.50
GpD:							
Gilpin------	85	Moderate		Severe		Poorly suited	
		Slope/erodibility	0.50	Slope/erodibility	0.95	Slope	1.00
						Low strength	0.50
						Landslides	0.50
GpE:							
Gilpin------	85	Moderate		Severe		Poorly suited	
		Slope/erodibility	0.50	Slope/erodibility	0.95	Slope	1.00
						Landslides	1.00
						Low strength	0.50
GsF:							
Gilpin------	50	Very severe		Severe		Poorly suited	
		Slope/erodibility	0.95	Slope/erodibility	0.95	Slope	1.00
						Landslides	1.00
						Low strength	0.50
Shelocta----	40	Very severe		Severe		Poorly suited	
		Slope/erodibility	0.95	Slope/erodibility	0.95	Slope	1.00
						Landslides	1.00

Table 8.—Forestland Management, Part II—Continued

Map symbol and soil name	Pct. of map unit	Hazard of off-road or off-trail erosion		Hazard of erosion on roads and trails		Suitability for roads (natural surface)	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
Ha:							
Hamblen-----	90	Slight		Slight		Moderately suited	
						Flooding	0.50
						Low strength	0.50
						Wetness	0.50
HhC:							
Hawthorne---	85	Slight		Moderate		Poorly suited	
				Slope/erodibility	0.50	Slope	1.00
						Landslides	0.50
HhF:							
Hawthorne---	85	Severe		Severe		Poorly suited	
		Slope/erodibility	0.75	Slope/erodibility	0.95	Slope	1.00
						Landslides	1.00
HmF:							
Hawthorne---	48	Severe		Severe		Poorly suited	
		Slope/erodibility	0.75	Slope/erodibility	0.95	Slope	1.00
						Landslides	1.00
Rock outcrop	47	Not rated		Not rated		Not rated	
HnF:							
Hayter------	45	Severe		Severe		Poorly suited	
		Slope/erodibility	0.75	Slope/erodibility	0.95	Slope	1.00
						Landslides	1.00
Talbott-----	25	Very severe		Severe		Poorly suited	
		Slope/erodibility	0.95	Slope/erodibility	0.95	Slope	1.00
						Low strength	0.50
Rock outcrop	20	Not rated		Not rated		Not rated	
HoB:							
Holston-----	85	Slight		Moderate		Moderately suited	
				Slope/erodibility	0.50	Low strength	0.50
HoC2:							
Holston-----	85	Slight		Severe		Moderately suited	
				Slope/erodibility	0.95	Low strength	0.50
						Slope	0.50
HuB:							
Humphreys---	95	Slight		Moderate		Well suited	
				Slope/erodibility	0.50		
HuC:							
Humphreys---	95	Slight		Severe		Moderately suited	
				Slope/erodibility	0.95	Slope	0.50
LlB:							
Lily--------	87	Slight		Moderate		Moderately suited	
				Slope/erodibility	0.50	Low strength	0.50
LlC:							
Lily--------	85	Slight		Severe		Moderately suited	
				Slope/erodibility	0.95	Low strength	0.50
						Slope	0.50
LlD:							
Lily--------	85	Moderate		Severe		Poorly suited	
		Slope/erodibility	0.50	Slope/erodibility	0.95	Slope	1.00
						Low strength	0.50

Table 8.—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
LwB:							
Lonewood----	90	Slight		Moderate		Moderately suited	
				Slope/erodibility	0.50	Low strength	0.50
LwC:							
Lonewood----	90	Slight		Severe		Moderately suited	
				Slope/erodibility	0.95	Low strength	0.50
						Slope	0.50
Me:							
Melvin------	85	Slight		Slight		Poorly suited	
						Ponding	1.00
						Wetness	1.00
						Low strength	0.50
MnC2:							
Minvale-----	90	Slight		Severe		Moderately suited	
				Slope/erodibility	0.95	Slope	0.50
MnD2:							
Minvale-----	90	Moderate		Severe		Poorly suited	
		Slope/erodibility	0.50	Slope/erodibility	0.95	Slope	1.00
						Landslides	0.50
MoB2:							
Monongahela-	90	Slight		Moderate		Moderately suited	
				Slope/erodibility	0.50	Low strength	0.50
						Wetness	0.50
MoC2:							
Monongahela-	90	Slight		Severe		Moderately suited	
				Slope/erodibility	0.95	Low strength	0.50
						Slope	0.50
						Wetness	0.50
MtB2:							
Mountview---	85	Slight		Moderate		Moderately suited	
				Slope/erodibility	0.50	Low strength	0.50
MtC2:							
Mountview---	85	Slight		Severe		Moderately suited	
				Slope/erodibility	0.95	Low strength	0.50
						Slope	0.50
NeC:							
Nella-------	90	Slight		Moderate		Moderately suited	
				Slope/erodibility	0.50	Slope	0.50
						Landslides	0.10
NeD:							
Nella-------	85	Moderate		Severe		Poorly suited	
		Slope/erodibility	0.50	Slope/erodibility	0.95	Slope	1.00
						Landslides	0.50
NeE:							
Nella-------	85	Moderate		Severe		Poorly suited	
		Slope/erodibility	0.50	Slope/erodibility	0.95	Slope	1.00
						Landslides	1.00

Table 8.—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
NrF:							
Nella-------	50	Severe		Severe		Poorly suited	
		Slope/erodibility	0.75	Slope/erodibility	0.95	Slope	1.00
						Landslides	1.00
						Rock fragments	0.01
Talbott-----	25	Very severe		Severe		Poorly suited	
		Slope/erodibility	0.95	Slope/erodibility	0.95	Slope	1.00
						Low strength	0.50
						Rock fragments	0.01
Rock outcrop	15	Not rated		Not rated		Not rated	
Oc:							
Ocana-------	85	Slight		Slight		Moderately suited	
						Flooding	0.50
						Low strength	0.50
Pd:							
Purdy-------	85	Slight		Slight		Poorly suited	
						Ponding	1.00
						Wetness	1.00
						Low strength	0.50
Qr:							
Pits, quarry	100	Not rated		Not rated		Not rated	
RaC:							
Ramsey------	90	Slight		Moderate		Moderately suited	
				Slope/erodibility	0.50	Slope	0.50
RaD:							
Ramsey------	90	Moderate		Severe		Poorly suited	
		Slope/erodibility	0.50	Slope/erodibility	0.95	Landslides	1.00
						Slope	1.00
RrC:							
Ramsey------	65	Slight		Moderate		Moderately suited	
				Slope/erodibility	0.50	Slope	0.50
Rock outcrop	25	Not rated		Not rated		Not rated	
RrE:							
Ramsey------	55	Moderate		Severe		Poorly suited	
		Slope/erodibility	0.50	Slope/erodibility	0.95	Landslides	1.00
						Slope	1.00
						Rock fragments	1.00
Rock outcrop	40	Not rated		Not rated		Not rated	
SeC2:							
Sengtown----	85	Slight		Moderate		Moderately suited	
				Slope/erodibility	0.50	Slope	0.50
SeD2, SeE2:							
Sengtown----	85	Moderate		Severe		Poorly suited	
		Slope/erodibility	0.50	Slope/erodibility	0.95	Slope	1.00
SfE:							
Sequoia-----	80	Moderate		Severe		Poorly suited	
		Slope/erodibility	0.50	Slope/erodibility	0.95	Slope	1.00
						Landslides	1.00

Table 8.—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
ShB:							
Shady-------	90	Slight		Moderate		Moderately suited	
				Slope/erodibility	0.50	Low strength	0.50
ShC2:							
Shady-------	90	Slight		Severe		Moderately suited	
				Slope/erodibility	0.95	Low strength	0.50
						Slope	0.50
SpF:							
Shelocta----	50	Severe		Severe		Poorly suited	
		Slope/erodibility	0.75	Slope/erodibility	0.95	Slope	1.00
						Landslides	1.00
Pineville---	40	Severe		Severe		Poorly suited	
		Slope/erodibility	0.75	Slope/erodibility	0.95	Slope	1.00
						Landslides	1.00
St:							
Staser------	95	Slight		Slight		Well suited	
Su:							
Sullivan----	90	Slight		Slight		Moderately suited	
						Ponding	0.50
						Low strength	0.50
Sv:							
Sullivan----	90	Slight		Slight		Moderately suited	
						Flooding	0.50
						Low strength	0.50
TrD:							
Talbott-----	60	Moderate		Severe		Moderately suited	
		Slope/erodibility	0.50	Slope/erodibility	0.95	Slope	0.50
						Low strength	0.50
Rock outcrop	30	Not rated		Not rated		Not rated	
TrE:							
Talbott-----	65	Severe		Severe		Poorly suited	
		Slope/erodibility	0.75	Slope/erodibility	0.95	Slope	1.00
						Low strength	0.50
Rock outcrop	20	Not rated		Not rated		Not rated	
Ud:							
Udarents----	100	Not rated		Not rated		Not rated	
W:							
Water-------	100	Not rated		Not rated		Not rated	
WaB2:							
Waynesboro--	85	Slight		Moderate		Moderately suited	
				Slope/erodibility	0.50	Low strength	0.50
WaC2:							
Waynesboro--	85	Slight		Severe		Moderately suited	
				Slope/erodibility	0.95	Low strength	0.50
						Slope	0.50
WaD2:							
Waynesboro--	85	Moderate		Severe		Poorly suited	
		Slope/erodibility	0.50	Slope/erodibility	0.95	Slope	1.00
						Low strength	0.50

Table 8.—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		Suitability for mechanical planting		Suitability for use of harvesting equipment	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
Ak:							
Atkins------	85	Well suited		Well suited		Moderately suited	
						Low strength	0.50
BA:							
Bethesda----	50	Moderately suited		Unsuited		Poorly suited	
		Slope	0.50	Slope	1.00	Slope	1.00
				Rock fragments	0.50		
Pits--------	40	Not rated		Not rated		Not rated	
BeB2:							
Bewleyville-	85	Well suited		Well suited		Moderately suited	
						Low strength	0.50
BeC2:							
Bewleyville-	85	Well suited		Moderately suited		Moderately suited	
				Slope	0.50	Low strength	0.50
BoC:							
Bodine------	90	Moderately suited		Unsuited		Moderately suited	
		Rock fragments	0.50	Rock fragments	1.00	Low strength	0.50
				Slope	0.50		
BoD:							
Bodine------	85	Moderately suited		Unsuited		Moderately suited	
		Rock fragments	0.50	Rock fragments	1.00	Low strength	0.50
				Slope	0.75		
BoF:							
Bodine------	85	Moderately suited		Unsuited		Poorly suited	
		Slope	0.50	Slope	1.00	Slope	1.00
		Rock fragments	0.50	Rock fragments	1.00	Low strength	0.50
ByF:							
Bouldin-----	50	Moderately suited		Unsuited		Poorly suited	
		Slope	0.50	Slope	1.00	Slope	1.00
		Rock fragments	0.50	Rock fragments	0.75		
Grimsley----	35	Moderately suited		Unsuited		Poorly suited	
		Rock fragments	0.50	Slope	1.00	Slope	1.00
		Slope	0.50	Rock fragments	0.75	Low strength	0.50
CaE:							
Carbo-------	70	Poorly suited		Unsuited		Moderately suited	
		Stickiness; high plasticity index	0.75	Slope	1.00	Slope	0.50
		Slope	0.50	Stickiness; high plasticity index	0.75	Low strength	0.50
Rock outcrop	20	Not rated		Not rated		Not rated	
ChC2:							
Christian---	90	Well suited		Moderately suited		Moderately suited	
				Slope	0.50	Low strength	0.50

Table 8.—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
ChD2:							
Christian---	90	Well suited		Poorly suited		Moderately suited	
				Slope	0.75	Low strength	0.50
ChE2:							
Christian---	90	Well suited		Unsuited		Moderately suited	
				Slope	1.00	Slope	0.50
						Low strength	0.50
ChE3:							
Christian---	90	Poorly suited		Unsuited		Moderately suited	
		Stickiness; high plasticity index	0.75	Slope	1.00	Slope	0.50
				Stickiness; high plasticity index	0.75	Low strength	0.50
CkB:							
Clarkrange--	90	Well suited		Well suited		Moderately suited	
						Low strength	0.50
CkC:							
Clarkrange--	90	Well suited		Moderately suited		Moderately suited	
				Slope	0.50	Low strength	0.50
CoC:							
Colbert-----	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		
Cv:							
Craigsville-	85	Poorly suited		Unsuited		Well suited	
		Rock fragments	0.75	Rock fragments	1.00		
DeD2:							
Dellrose----	85	Well suited		Poorly suited		Well suited	
				Slope	0.75		
				Rock fragments	0.50		
DeF:							
Dellrose----	65	Moderately suited		Unsuited		Poorly suited	
		Slope	0.50	Slope	1.00	Slope	1.00
				Rock fragments	0.50		
Mimosa------	30	Moderately suited		Unsuited		Poorly suited	
		Stickiness; high plasticity index	0.50	Slope	1.00	Slope	1.00
		Slope	0.50	Stickiness; high plasticity index	0.50	Low strength	0.50
DfC2:							
Dewey-------	90	Well suited		Moderately suited		Moderately suited	
				Slope	0.50	Low strength	0.50
DkB2:							
Dickson-----	85	Well suited		Well suited		Moderately suited	
						Low strength	0.50
Ea:							
Ealy--------	90	Well suited		Well suited		Well suited	

Table 8.—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
EwB:							
Etowah------	90	Well suited		Well suited		Moderately suited	
						Low strength	0.50
EwC2:							
Etowah------	85	Well suited		Moderately suited		Moderately suited	
				Slope	0.50	Low strength	0.50
EwD2:							
Etowah------	85	Well suited		Poorly suited		Moderately suited	
				Slope	0.75	Low strength	0.50
FhC:							
Faywood-----	50	Poorly suited		Poorly suited		Moderately suited	
		Stickiness; high plasticity index	0.75	Stickiness; high plasticity index	0.75	Low strength	0.50
				Slope	0.50		
Hawthorne---	40	Well suited		Moderately suited		Well suited	
				Slope	0.50		
				Rock fragments	0.50		
GnF:							
Garmon------	50	Moderately suited		Unsuited		Poorly suited	
		Slope	0.50	Slope	1.00	Slope	1.00
				Rock fragments	0.50	Rock fragments	0.50
Newbern-----	40	Moderately suited		Unsuited		Poorly suited	
		Slope	0.50	Slope	1.00	Slope	1.00
				Rock fragments	0.50	Rock fragments	0.50
						Low strength	0.50
GpC:							
Gilpin------	85	Well suited		Moderately suited		Moderately suited	
				Slope	0.50	Low strength	0.50
GpD:							
Gilpin------	85	Well suited		Poorly suited		Moderately suited	
				Slope	0.75	Low strength	0.50
GpE:							
Gilpin------	85	Well suited		Unsuited		Moderately suited	
				Slope	1.00	Slope	0.50
						Low strength	0.50
GsF:							
Gilpin------	50	Moderately suited		Unsuited		Poorly suited	
		Slope	0.50	Slope	1.00	Slope	1.00
						Low strength	0.50
Shelocta----	40	Moderately suited		Unsuited		Poorly suited	
		Slope	0.50	Slope	1.00	Slope	1.00
Ha:							
Hamblen-----	90	Well suited		Well suited		Moderately suited	
						Low strength	0.50

Table 8.—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
HhC:							
Hawthorne---	85	Well suited		Moderately suited		Well suited	
				Slope	0.50		
				Rock fragments	0.50		
HhF:							
Hawthorne---	85	Moderately suited		Unsuited		Poorly suited	
		Slope	0.50	Slope	1.00	Slope	1.00
				Rock fragments	0.50		
HmF:							
Hawthorne---	48	Moderately suited		Unsuited		Poorly suited	
		Slope	0.50	Slope	1.00	Slope	1.00
				Rock fragments	0.50		
Rock outcrop	47	Not rated		Not rated		Not rated	
HnF:							
Hayter------	45	Moderately suited		Unsuited		Poorly suited	
		Slope	0.50	Slope	1.00	Slope	1.00
				Rock fragments	0.50		
Talbott-----	25	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 fragments	0.50		
Rock outcrop	20	Not rated		Not rated		Not rated	
HoB:							
Holston-----	85	Well suited		Well suited		Moderately suited	
						Low strength	0.50
HoC2:							
Holston-----	85	Well suited		Moderately suited		Moderately suited	
				Slope	0.50	Low strength	0.50
HuB:							
Humphreys---	95	Well suited		Moderately suited		Well suited	
				Rock fragments	0.50		
HuC:							
Humphreys---	95	Well suited		Moderately suited		Well suited	
				Slope	0.50		
				Rock fragments	0.50		
LlB:							
Lily--------	87	Well suited		Well suited		Moderately suited	
						Low strength	0.50
LlC:							
Lily--------	85	Well suited		Moderately suited		Moderately suited	
				Slope	0.50	Low strength	0.50
LlD:							
Lily--------	85	Well suited		Poorly suited		Moderately suited	
				Slope	0.75	Low strength	0.50

Table 8.—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
LwB:							
Lonewood----	90	Well suited		Well suited		Moderately suited	
						Low strength	0.50
LwC:							
Lonewood----	90	Well suited		Moderately suited		Moderately suited	
				Slope	0.50	Low strength	0.50
Me:							
Melvin------	85	Well suited		Well suited		Moderately suited	
						Low strength	0.50
MnC2:							
Minvale-----	90	Well suited		Moderately suited		Well suited	
				Slope	0.50		
				Rock fragments	0.50		
MnD2:							
Minvale-----	90	Well suited		Poorly suited		Well suited	
				Slope	0.75		
				Rock fragments	0.50		
MoB2:							
Monongahela-	90	Well suited		Well suited		Moderately suited	
						Low strength	0.50
MoC2:							
Monongahela-	90	Well suited		Moderately suited		Moderately suited	
				Slope	0.50	Low strength	0.50
MtB2:							
Mountview---	85	Well suited		Well suited		Moderately suited	
						Low strength	0.50
MtC2:							
Mountview---	85	Well suited		Moderately suited		Moderately suited	
				Slope	0.50	Low strength	0.50
NeC:							
Nella-------	90	Moderately suited		Poorly suited		Well suited	
		Rock fragments	0.50	Rock fragments	0.75		
				Slope	0.50		
NeD:							
Nella-------	85	Moderately suited		Poorly suited		Well suited	
		Rock fragments	0.50	Rock fragments	0.75		
				Slope	0.75		
NeE:							
Nella-------	85	Moderately suited		Unsuited		Moderately suited	
		Rock fragments	0.50	Slope	1.00	Slope	0.50
				Rock fragments	0.75		
NrF:							
Nella-------	50	Moderately suited		Unsuited		Poorly suited	
		Slope	0.50	Slope	1.00	Slope	1.00
		Rock fragments	0.50	Rock fragments	0.75	Rock fragments	0.01

Table 8.—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
NrF:							
Talbott-----	25	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 fragments	0.01	Rock fragments	0.50	Rock fragments	0.01
Rock outcrop	15	Not rated		Not rated		Not rated	
Oc:							
Ocana-------	85	Well suited		Moderately suited		Moderately suited	
				Rock fragments	0.50	Low strength	0.50
Pd:							
Purdy-------	85	Moderately suited		Moderately suited		Moderately suited	
		Stickiness; high plasticity index	0.50	Stickiness; high plasticity index	0.50	Low strength	0.50
Qr:							
Pits, quarry	100	Not rated		Not rated		Not rated	
RaC:							
Ramsey------	90	Well suited		Moderately suited		Well suited	
				Slope	0.50		
RaD:							
Ramsey------	90	Well suited		Poorly suited		Well suited	
				Slope	0.75		
RrC:							
Ramsey------	65	Well suited		Moderately suited		Well suited	
				Slope	0.50		
Rock outcrop	25	Not rated		Not rated		Not rated	
RrE:							
Ramsey------	55	Poorly suited		Unsuited		Poorly suited	
		Rock fragments	0.75	Slope	1.00	Rock fragments	1.00
				Rock fragments	1.00	Slope	0.50
Rock outcrop	40	Not rated		Not rated		Not rated	
SeC2:							
Sengtown----	85	Moderately suited		Moderately suited		Well suited	
		Rock fragments	0.50	Slope	0.50		
				Rock fragments	0.50		
SeD2:							
Sengtown----	85	Moderately suited		Poorly suited		Well suited	
		Rock fragments	0.50	Slope	0.75		
				Rock fragments	0.50		
SeE2:							
Sengtown----	85	Moderately suited		Unsuited		Moderately suited	
		Rock fragments	0.50	Slope	1.00	Slope	0.50
				Rock fragments	0.50		

Table 8.—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
SfE:							
Sequoia-----	80	Poorly suited		Unsuited		Moderately suited	
		Stickiness; high plasticity index	0.75	Slope	1.00	Slope	0.50
				Stickiness; high plasticity index	0.75		
				Rock fragments	0.50		
ShB:							
Shady-------	90	Well suited		Well suited		Moderately suited	
						Low strength	0.50
ShC2:							
Shady-------	90	Well suited		Moderately suited		Moderately suited	
				Slope	0.50	Low strength	0.50
SpF:							
Shelocta----	50	Moderately suited		Unsuited		Poorly suited	
		Slope	0.50	Slope	1.00	Slope	1.00
Pineville---	40	Moderately suited		Unsuited		Poorly suited	
		Slope	0.50	Slope	1.00	Slope	1.00
				Rock fragments	0.50		
St:							
Staser------	95	Well suited		Well suited		Well suited	
Su, Sv:							
Sullivan----	90	Well suited		Well suited		Moderately suited	
						Low strength	0.50
TrD:							
Talbott-----	60	Poorly suited		Poorly suited		Moderately suited	
		Stickiness; high plasticity index	0.75	Stickiness; high plasticity index	0.75	Low strength	0.50
				Slope	0.50		
Rock outcrop	30	Not rated		Not rated		Not rated	
TrE:							
Talbott-----	65	Poorly suited		Unsuited		Moderately suited	
		Stickiness; high plasticity index	0.75	Slope	1.00	Slope	0.50
				Stickiness; high plasticity index	0.75	Low strength	0.50
Rock outcrop	20	Not rated		Not rated		Not rated	
Ud:							
Udarents----	100	Not rated		Not rated		Not rated	
W:							
Water-------	100	Not rated		Not rated		Not rated	
WaB2:							
Waynesboro--	85	Moderately suited		Moderately suited		Moderately suited	
		Stickiness; high plasticity index	0.50	Stickiness; high plasticity index	0.50	Low strength	0.50

Table 8.—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
WaC2:							
Waynesboro--	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		
WaD2:							
Waynesboro--	85	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		

Table 8.—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)		Suitability for mechanical site preparation (deep)	
		Rating class and limiting features	Value	Rating class and limiting features	Value
Ak:					
Atkins	85	Well suited		Well suited	
BA:					
Bethesda	50	Unsuited		Unsuited	
		Slope	1.00	Slope	1.00
Pits	40	Not rated		Not rated	
BeB2, BeC2:					
Bewleyville	85	Well suited		Well suited	
BoC:					
Bodine	90	Poorly suited		Well suited	
		Rock fragments	0.50		
BoD:					
Bodine	85	Poorly suited		Poorly suited	
		Slope	0.50	Slope	0.50
		Rock fragments	0.50		
BoF:					
Bodine	85	Unsuited		Unsuited	
		Slope	1.00	Slope	1.00
		Rock fragments	0.50		
ByF:					
Bouldin	50	Unsuited		Unsuited	
		Slope	1.00	Slope	1.00
		Rock fragments	0.50		
Grimsley	35	Unsuited		Unsuited	
		Slope	1.00	Slope	1.00
		Rock fragments	0.50		
CaE:					
Carbo	70	Poorly suited		Poorly suited	
		Slope	0.50	Slope	0.50
		Stickiness; high plasticity index	0.50	Restrictive layer	0.50
Rock outcrop	20	Not rated		Not rated	
ChC2:					
Christian	90	Well suited		Well suited	
ChD2, ChE2:					
Christian	90	Poorly suited		Poorly suited	
		Slope	0.50	Slope	0.50

Table 8.—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
ChE3:					
Christian-----------	90	Poorly suited		Poorly suited	
		Slope	0.50	Slope	0.50
		Stickiness; high plasticity index	0.50		
CkB, CkC:					
Clarkrange----------	90	Well suited		Well suited	
CoC:					
Colbert-------------	90	Well suited		Well suited	
Cv:					
Craigsville---------	85	Poorly suited		Poorly suited	
		Rock fragments	0.50	Rock fragments	0.50
DeD2:					
Dellrose------------	85	Poorly suited		Poorly suited	
		Slope	0.50	Slope	0.50
DeF:					
Dellrose------------	65	Unsuited		Unsuited	
		Slope	1.00	Slope	1.00
Mimosa--------------	30	Unsuited		Unsuited	
		Slope	1.00	Slope	1.00
		Stickiness; high plasticity index	0.50		
DfC2:					
Dewey---------------	90	Well suited		Well suited	
DkB2:					
Dickson-------------	85	Well suited		Well suited	
Ea:					
Ealy----------------	90	Well suited		Well suited	
EwB:					
Etowah--------------	90	Well suited		Well suited	
EwC2:					
Etowah--------------	85	Well suited		Well suited	
EwD2:					
Etowah--------------	85	Poorly suited		Poorly suited	
		Slope	0.50	Slope	0.50
FhC:					
Faywood-------------	50	Poorly suited		Poorly suited	
		Stickiness; high plasticity index	0.50	Restrictive layer	0.50
Hawthorne-----------	40	Well suited		Unsuited	
				Restrictive layer	1.00

Table 8.—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
GnF:					
Garmon	50	Unsuited		Unsuited	
		Slope	1.00	Slope	1.00
		Rock fragments	0.50	Restrictive layer	1.00
Newbern	40	Unsuited		Unsuited	
		Slope	1.00	Slope	1.00
		Rock fragments	0.50	Restrictive layer	1.00
GpC:					
Gilpin	85	Well suited		Well suited	
GpD, GpE:					
Gilpin	85	Poorly suited		Poorly suited	
		Slope	0.50	Slope	0.50
GsF:					
Gilpin	50	Unsuited		Unsuited	
		Slope	1.00	Slope	1.00
Shelocta	40	Unsuited		Unsuited	
		Slope	1.00	Slope	1.00
Ha:					
Hamblen	90	Well suited		Well suited	
HhC:					
Hawthorne	85	Well suited		Unsuited	
				Restrictive layer	1.00
HhF:					
Hawthorne	85	Unsuited		Unsuited	
		Slope	1.00	Restrictive layer	1.00
				Slope	1.00
HmF:					
Hawthorne	48	Unsuited		Unsuited	
		Slope	1.00	Restrictive layer	1.00
				Slope	1.00
Rock outcrop	47	Not rated		Not rated	
HnF:					
Hayter	45	Unsuited		Unsuited	
		Slope	1.00	Slope	1.00
Talbott	25	Unsuited		Unsuited	
		Slope	1.00	Slope	1.00
		Stickiness; high plasticity index	0.50	Restrictive layer	0.50
Rock outcrop	20	Not rated		Not rated	
HoB, HoC2:					
Holston	85	Well suited		Well suited	
HuB, HuC:					
Humphreys	95	Well suited		Well suited	

Table 8.—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
LlB:					
Lily	87	Well suited		Poorly suited	
				Restrictive layer	0.50
LlC:					
Lily	85	Well suited		Poorly suited	
				Restrictive layer	0.50
LlD:					
Lily	85	Poorly suited		Poorly suited	
		Slope	0.50	Slope	0.50
				Restrictive layer	0.50
LwB, LwC:					
Lonewood	90	Well suited		Well suited	
Me:					
Melvin	85	Well suited		Well suited	
MnC2:					
Minvale	90	Well suited		Well suited	
MnD2:					
Minvale	90	Poorly suited		Poorly suited	
		Slope	0.50	Slope	0.50
MoB2, MoC2:					
Monongahela	90	Well suited		Well suited	
MtB2, MtC2:					
Mountview	85	Well suited		Well suited	
NeC:					
Nella	90	Poorly suited		Well suited	
		Rock fragments	0.50		
NeD, NeE:					
Nella	85	Poorly suited		Poorly suited	
		Slope	0.50	Slope	0.50
		Rock fragments	0.50		
NrF:					
Nella	50	Unsuited		Unsuited	
		Slope	1.00	Slope	1.00
		Rock fragments	0.50	Rock fragments	0.01
Talbott	25	Unsuited		Unsuited	
		Slope	1.00	Slope	1.00
		Stickiness; high plasticity index	0.50	Restrictive layer	0.50
		Rock fragments	0.01	Rock fragments	0.01
Rock outcrop	15	Not rated		Not rated	
Oc:					
Ocana	85	Well suited		Well suited	

Table 8.—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
Pd:					
Purdy	85	Poorly suited		Well suited	
		Stickiness; high plasticity index	0.50		
Qr:					
Pits, quarry	100	Not rated		Not rated	
RaC:					
Ramsey	90	Well suited		Unsuited	
				Restrictive layer	1.00
RaD:					
Ramsey	90	Poorly suited		Unsuited	
		Slope	0.50	Restrictive layer	1.00
				Slope	0.50
RrC:					
Ramsey	65	Well suited		Unsuited	
				Restrictive layer	1.00
Rock outcrop	25	Not rated		Not rated	
RrE:					
Ramsey	55	Unsuited		Unsuited	
		Rock fragments	1.00	Restrictive layer	1.00
		Slope	0.50	Rock fragments	1.00
				Slope	0.50
Rock outcrop	40	Not rated		Not rated	
SeC2:					
Sengtown	85	Poorly suited		Well suited	
		Rock fragments	0.50		
SeD2, SeE2:					
Sengtown	85	Poorly suited		Poorly suited	
		Slope	0.50	Slope	0.50
		Rock fragments	0.50		
SfE:					
Sequoia	80	Poorly suited		Poorly suited	
		Slope	0.50	Slope	0.50
		Stickiness; high plasticity index	0.50		
ShB, ShC2:					
Shady	90	Well suited		Well suited	
SpF:					
Shelocta	50	Unsuited		Unsuited	
		Slope	1.00	Slope	1.00
Pineville	40	Unsuited		Unsuited	
		Slope	1.00	Slope	1.00
St:					
Staser	95	Well suited		Well suited	

Table 8.—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
Su, Sv:					
Sullivan	90	Well suited		Well suited	
TrD:					
Talbott	60	Poorly suited		Poorly suited	
		Stickiness; high plasticity index	0.50	Restrictive layer	0.50
Rock outcrop	30	Not rated		Not rated	
TrE:					
Talbott	65	Poorly suited		Poorly suited	
		Slope	0.50	Slope	0.50
		Stickiness; high plasticity index	0.50	Restrictive layer	0.50
Rock outcrop	20	Not rated		Not rated	
Ud:					
Udarents	100	Not rated		Not rated	
W:					
Water	100	Not rated		Not rated	
WaB2, WaC2:					
Waynesboro	85	Well suited		Well suited	
WaD2:					
Waynesboro	85	Poorly suited		Poorly suited	
		Slope	0.50	Slope	0.50

Table 8.—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	Value	Potential for seedling mortality: Rating class and limiting features	Value
Ak:					
Atkins	85	Low		High	
		Texture/rock fragments	0.10	Wetness	1.00
BA:					
Bethesda	50	High		High	
		Texture/slope/ surface depth/ rock fragments	1.00	Droughty	1.00
Pits	40	Not rated		Not rated	
BeB2, BeC2:					
Bewleyville	85	Low		Low	
		Texture/rock fragments	0.10		
BoC:					
Bodine	90	Moderate		Moderate	
		Texture/rock fragments	0.50	Droughty	0.50
BoD:					
Bodine	85	Moderate		Moderate	
		Texture/rock fragments	0.50	Droughty	0.50
BoF:					
Bodine	85	Low		High	
				Droughty	1.00
ByF:					
Bouldin	50	Low		High	
				Droughty	1.00
Grimsley	35	Moderate		High	
		Texture/slope/ surface depth/ rock fragments	0.50	Droughty	1.00
CaE:					
Carbo	70	High		Low	
		Texture/slope/ surface depth/ rock fragments	1.00		
Rock outcrop	20	Not rated		Not rated	
ChC2, ChD2:					
Christian	90	Moderate		Low	
		Texture/rock fragments	0.50		

Table 8.—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
ChE2:					
Christian	90	Low		Low	
ChE3:					
Christian	90	Low		Moderate	
				Droughty	0.50
CkB, CkC:					
Clarkrange	90	Moderate		Low	
		Texture/rock fragments	0.50		
CoC:					
Colbert	90	Moderate		Low	
		Texture/rock fragments	0.50		
Cv:					
Craigsville	85	Low		Low	
DeD2:					
Dellrose	85	Low		Low	
		Texture/rock fragments	0.10		
DeF:					
Dellrose	65	Low		Low	
Mimosa	30	Moderate		Low	
		Texture/rock fragments	0.50		
DfC2:					
Dewey	90	Low		Low	
		Texture/rock fragments	0.10		
DkB2:					
Dickson	85	Moderate		Low	
		Texture/rock fragments	0.50		
Ea:					
Ealy	90	Low		Low	
		Texture/rock fragments	0.10		
EwB:					
Etowah	90	Low		Low	
		Texture/rock fragments	0.10		
EwC2, EwD2:					
Etowah	85	Low		Low	
		Texture/rock fragments	0.10		
FhC:					
Faywood	50	Low		Low	
Hawthorne	40	Low		Moderate	
				Droughty	0.50

Table 8.—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
GnF:					
Garmon	50	High		High	
		Texture/slope/ surface depth/ rock fragments	1.00	Droughty	1.00
Newbern	40	High		High	
		Texture/slope/ surface depth/ rock fragments	1.00	Droughty	1.00
GpC, GpD:					
Gilpin	85	Low		Low	
GpE:					
Gilpin	85	High		Low	
		Texture/slope/ surface depth/ rock fragments	1.00		
GsF:					
Gilpin	50	High		Moderate	
		Texture/slope/ surface depth/ rock fragments	1.00	Droughty	0.50
Shelocta	40	Moderate		Moderate	
		Texture/slope/ surface depth/ rock fragments	0.50	Droughty	0.50
Ha:					
Hamblen	90	Low		Low	
		Texture/rock fragments	0.10		
HhC:					
Hawthorne	85	Low		Moderate	
				Droughty	0.50
HhF:					
Hawthorne	85	Moderate		High	
		Texture/slope/ surface depth/ rock fragments	0.50	Droughty	1.00
HmF:					
Hawthorne	48	Moderate		High	
		Texture/slope/ surface depth/ rock fragments	0.50	Droughty	1.00
Rock outcrop	47	Not rated		Not rated	
HnF:					
Hayter	45	Low		Low	
Talbott	25	Low		Moderate	
				Droughty	0.75
Rock outcrop	20	Not rated		Not rated	

Table 8.—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
HoB, HoC2:					
Holston	85	Moderate		Low	
		Texture/rock fragments	0.50		
HuB, HuC:					
Humphreys	95	Low		Low	
		Texture/rock fragments	0.10		
LlB:					
Lily	87	Moderate		Low	
		Texture/rock fragments	0.50		
LlC, LlD:					
Lily	85	Moderate		Low	
		Texture/rock fragments	0.50		
LwB, LwC:					
Lonewood	90	Low		Low	
Me:					
Melvin	85	Low		High	
		Texture/rock fragments	0.10	Wetness	1.00
MnC2, MnD2:					
Minvale	90	Moderate		Low	
		Texture/rock fragments	0.50		
MoB2, MoC2:					
Monongahela	90	Low		Low	
		Texture/rock fragments	0.10		
MtB2, MtC2:					
Mountview	85	Low		Low	
		Texture/rock fragments	0.10		
NeC:					
Nella	90	Low		Low	
NeD:					
Nella	85	Low		Low	
NeE:					
Nella	85	Moderate		Low	
		Texture/slope/ surface depth/ rock fragments	0.50		
NrF:					
Nella	50	Moderate		Low	
		Texture/slope/ surface depth/ rock fragments	0.50		

Table 8.—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
NrF:					
Talbott	25	Low		Moderate	
				Droughty	0.75
Rock outcrop	15	Not rated		Not rated	
Oc:					
Ocana	85	Low		Low	
		Texture/rock fragments	0.10		
Pd:					
Purdy	85	Low		High	
		Texture/rock fragments	0.10	Wetness	1.00
Qr:					
Pits, quarry	100	Not rated		Not rated	
RaC:					
Ramsey	90	Low		Moderate	
				Droughty	0.50
RaD:					
Ramsey	90	Low		High	
				Droughty	1.00
RrC:					
Ramsey	65	Low		Moderate	
				Droughty	0.50
Rock outcrop	25	Not rated		Not rated	
RrE:					
Ramsey	55	Low		High	
				Droughty	1.00
Rock outcrop	40	Not rated		Not rated	
SeC2, SeD2, SeE2:					
Sengtown	85	Moderate		Low	
		Texture/rock fragments	0.50		
SfE:					
Sequoia	80	Moderate		Low	
		Texture/slope/ surface depth/ rock fragments	0.50		
ShB, ShC2:					
Shady	90	Low		Low	
		Texture/rock fragments	0.10		
SpF:					
Shelocta	50	Moderate		Moderate	
		Texture/slope/ surface depth/ rock fragments	0.50	Droughty	0.50

Table 8.—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
SpF:					
Pineville	40	Moderate Texture/slope/ surface depth/ rock fragments	0.50	Moderate Droughty	0.50
St:					
Staser	95	Low Texture/rock fragments	0.10	Low	
Su, Sv:					
Sullivan	90	Low Texture/rock fragments	0.10	Low	
TrD:					
Talbott	60	Moderate Texture/rock fragments	0.50	Moderate Droughty	0.50
Rock outcrop	30	Not rated		Not rated	
TrE:					
Talbott	65	Moderate Texture/slope/ rock fragments	0.50	Moderate Droughty	0.75
Rock outcrop	20	Not rated		Not rated	
Ud:					
Udarents	100	Not rated		Not rated	
W:					
Water	100	Not rated		Not rated	
WaB2, WaC2, WaD2:					
Waynesboro	85	Low Texture/rock fragments	0.10	Low	

Table 9.—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
Ak:							
Atkins-------	85	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Flooding	1.00			Flooding	0.60
BA:							
Bethesda-----	50	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Gravel content	0.23	Gravel content	0.23	Gravel content	1.00
		Restricted permeability	0.21	Restricted permeability	0.21	Restricted permeability	0.21
						Content of large stones	0.01
Pits---------	40	Not rated		Not rated		Not rated	
BeB2:							
Bewleyville--	85	Not limited		Not limited		Somewhat limited	
						Slope	0.50
BeC2:							
Bewleyville--	85	Somewhat limited		Somewhat limited		Very limited	
		Slope	0.04	Slope	0.04	Slope	1.00
BoC:							
Bodine-------	90	Somewhat limited		Somewhat limited		Very limited	
		Gravel content	0.45	Gravel content	0.45	Slope	1.00
		Slope	0.04	Slope	0.04	Gravel content	1.00
BoD, BoF:							
Bodine-------	85	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Gravel content	0.45	Gravel content	0.45	Gravel content	1.00
ByF:							
Bouldin------	50	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Too stony	0.76	Too stony	0.76	Gravel content	1.00
		Gravel content	0.05	Gravel content	0.05	Too stony	0.76
						Content of large stones	0.46
Grimsley-----	35	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Too stony	0.76	Too stony	0.76	Gravel content	1.00
		Gravel content	0.02	Gravel content	0.02	Too stony	0.76
						Content of large stones	0.01

Table 9.—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
CaE:							
Carbo--------	70	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Restricted permeability	0.99	Restricted permeability	0.99	Restricted permeability	0.99
						Depth to bedrock	0.42
Rock outcrop-	20	Not rated		Not rated		Not rated	
ChC2:							
Christian----	90	Somewhat limited		Somewhat limited		Very limited	
		Restricted permeability	0.96	Restricted permeability	0.96	Slope	1.00
		Slope	0.04	Slope	0.04	Restricted permeability	0.96
						Gravel content	0.22
ChD2, ChE2, ChE3:							
Christian---	90	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Restricted permeability	0.96	Restricted permeability	0.96	Restricted permeability	0.96
						Gravel content	0.22
CkB:							
Clarkrange---	90	Somewhat limited		Somewhat limited		Somewhat limited	
		Restricted permeability	0.99	Restricted permeability	0.99	Restricted permeability	0.99
		Depth to saturated zone	0.39	Depth to saturated zone	0.19	Gravel content	0.68
						Depth to saturated zone	0.39
						Slope	0.12
CkC:							
Clarkrange---	90	Somewhat limited		Somewhat limited		Very limited	
		Restricted permeability	0.99	Restricted permeability	0.99	Slope	1.00
		Depth to saturated zone	0.39	Depth to saturated zone	0.19	Restricted permeability	0.99
		Slope	0.04	Slope	0.04	Gravel content	0.68
						Depth to saturated zone	0.39
CoC:							
Colbert------	90	Very limited		Very limited		Very limited	
		Restricted permeability	1.00	Restricted permeability	1.00	Restricted permeability	1.00
		Slope	0.04	Slope	0.04	Slope	1.00
Cv:							
Craigsville--	85	Very limited		Somewhat limited		Very limited	
		Flooding	1.00	Content of large stones	0.23	Content of large stones	1.00
		Content of large stones	0.23			Flooding	0.60
DeD2:							
Dellrose-----	85	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Gravel content	0.73	Gravel content	0.73	Gravel content	1.00
						Content of large stones	0.01

Table 9.—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
DeF:							
Dellrose-----	65	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Gravel content	0.73	Gravel content	0.73	Gravel content	1.00
						Content of large stones	0.01
Mimosa-------	30	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Restricted permeability	0.99	Restricted permeability	0.99	Restricted permeability	0.99
						Gravel content	0.92
DfC2:							
Dewey--------	90	Somewhat limited		Somewhat limited		Very limited	
		Restricted permeability	0.26	Restricted permeability	0.26	Slope	1.00
		Slope	0.04	Slope	0.04	Restricted permeability	0.26
						Gravel content	0.22
DkB2:							
Dickson------	85	Somewhat limited		Somewhat limited		Somewhat limited	
		Restricted permeability	0.99	Restricted permeability	0.99	Restricted permeability	0.99
		Depth to saturated zone	0.56	Depth to saturated zone	0.28	Depth to saturated zone	0.56
						Slope	0.50
Ea:							
Ealy---------	90	Very limited		Not limited		Somewhat limited	
		Flooding	1.00			Flooding	0.60
						Gravel content	0.08
EwB:							
Etowah-------	90	Not limited		Not limited		Somewhat limited	
						Gravel content	0.92
						Slope	0.50
EwC2:							
Etowah-------	85	Somewhat limited		Somewhat limited		Very limited	
		Slope	0.04	Slope	0.04	Slope	1.00
						Gravel content	0.92
EwD2:							
Etowah-------	85	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
						Gravel content	0.92
FhC:							
Faywood------	50	Very limited		Very limited		Very limited	
		Restricted permeability	1.00	Restricted permeability	1.00	Restricted permeability	1.00
		Slope	0.04	Slope	0.04	Slope	1.00
						Depth to bedrock	0.46
Hawthorne----	40	Very limited		Very limited		Very limited	
		Restricted permeability	1.00	Restricted permeability	1.00	Restricted permeability	1.00
		Gravel content	0.42	Gravel content	0.42	Slope	1.00
		Slope	0.04	Slope	0.04	Gravel content	1.00
						Depth to bedrock	0.42

Table 9.—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
GnF:							
Garmon-------	50	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Gravel content	0.78	Gravel content	0.78	Gravel content	1.00
		Too stony	0.76	Too stony	0.76	Too stony	0.76
						Depth to bedrock	0.54
						Content of large stones	0.01
Newbern------	40	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Depth to bedrock	1.00	Depth to bedrock	1.00	Depth to bedrock	1.00
		Too stony	0.76	Too stony	0.76	Gravel content	0.94
						Too stony	0.76
GpC:							
Gilpin-------	85	Somewhat limited		Somewhat limited		Very limited	
		Slope	0.04	Slope	0.04	Slope	1.00
						Gravel content	0.56
						Depth to bedrock	0.06
GpD, GpE:							
Gilpin-------	85	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
						Gravel content	0.56
						Depth to bedrock	0.06
GsF:							
Gilpin-------	50	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
						Gravel content	0.56
						Depth to bedrock	0.06
Shelocta-----	40	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
						Gravel content	0.99
Ha:							
Hamblen------	90	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
						Gravel content	0.29
HhC:							
Hawthorne----	85	Somewhat limited		Somewhat limited		Very limited	
		Slope	0.84	Slope	0.84	Slope	1.00
		Gravel content	0.42	Gravel content	0.42	Gravel content	1.00
						Depth to bedrock	0.95
HhF:							
Hawthorne----	85	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Gravel content	0.42	Gravel content	0.42	Gravel content	1.00
						Depth to bedrock	0.95

Table 9.—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
HmF:							
Hawthorne----	48	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Gravel content	0.42	Gravel content	0.42	Gravel content	1.00
						Depth to bedrock	0.95
Rock outcrop-	47	Not rated		Not rated		Not rated	
HnF:							
Hayter-------	45	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Too stony	0.94	Too stony	0.94	Gravel content	1.00
		Gravel content	0.05	Gravel content	0.05	Too stony	0.94
Talbott------	25	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Restricted permeability	0.99	Restricted permeability	0.99	Restricted permeability	0.99
		Too stony	0.94	Too stony	0.94	Too stony	0.94
						Depth to bedrock	0.20
Rock outcrop-	20	Not rated		Not rated		Not rated	
HoB:							
Holston------	85	Not limited		Not limited		Somewhat limited	
						Slope	0.50
						Gravel content	0.01
HoC2:							
Holston------	85	Somewhat limited		Somewhat limited		Very limited	
		Slope	0.04	Slope	0.04	Slope	1.00
						Gravel content	0.01
HuB:							
Humphreys----	95	Somewhat limited		Somewhat limited		Very limited	
		Gravel content	0.45	Gravel content	0.45	Gravel content	1.00
						Slope	0.50
HuC:							
Humphreys----	95	Somewhat limited		Somewhat limited		Very limited	
		Gravel content	0.45	Gravel content	0.45	Slope	1.00
		Slope	0.04	Slope	0.04	Gravel content	1.00
LlB:							
Lily---------	87	Not limited		Not limited		Somewhat limited	
						Slope	0.50
						Depth to bedrock	0.35
						Gravel content	0.22
LlC:							
Lily---------	85	Somewhat limited		Somewhat limited		Very limited	
		Slope	0.04	Slope	0.04	Slope	1.00
						Depth to bedrock	0.42
						Gravel content	0.22
LlD:							
Lily---------	85	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
						Depth to bedrock	0.46
						Gravel content	0.22

Table 9.—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
LwB:							
Lonewood-----	90	Not limited		Not limited		Somewhat limited	
						Slope	0.50
LwC:							
Lonewood-----	90	Somewhat limited		Somewhat limited		Very limited	
		Slope	0.04	Slope	0.04	Slope	1.00
Me:							
Melvin-------	85	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Ponding	1.00	Depth to saturated zone	1.00
				Depth to saturated zone	1.00		
		Ponding	1.00			Ponding	1.00
MnC2:							
Minvale------	90	Somewhat limited		Somewhat limited		Very limited	
		Slope	0.04	Slope	0.04	Slope	1.00
		Gravel content	0.01	Gravel content	0.01	Gravel content	1.00
MnD2:							
Minvale------	90	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Gravel content	0.01	Gravel content	0.01	Gravel content	1.00
MoB2:							
Monongahela--	90	Somewhat limited		Somewhat limited		Somewhat limited	
		Depth to saturated zone	0.88	Depth to cemented pan	0.65	Depth to saturated zone	0.88
		Depth to cemented pan	0.65	Depth to saturated zone	0.56	Depth to cemented pan	0.64
						Slope	0.12
						Gravel content	0.04
MoC2:							
Monongahela--	90	Somewhat limited		Somewhat limited		Very limited	
						Slope	1.00
		Depth to saturated zone	0.88	Depth to cemented pan	0.65	Depth to saturated zone	0.88
		Depth to cemented pan	0.65	Depth to saturated zone	0.56	Depth to cemented pan	0.64
		Slope	0.04	Slope	0.04	Gravel content	0.04
MtB2:							
Mountview----	85	Somewhat limited		Somewhat limited		Somewhat limited	
						Slope	0.50
		Restricted permeability	0.26	Restricted permeability	0.26	Restricted permeability	0.26
MtC2:							
Mountview----	85	Somewhat limited		Somewhat limited		Very limited	
		Restricted permeability	0.26	Restricted permeability	0.26	Slope	1.00
		Slope	0.04	Slope	0.04	Restricted permeability	0.26
NeC:							
Nella--------	90	Somewhat limited		Somewhat limited		Very limited	
		Slope	0.04	Slope	0.04	Slope	1.00
		Gravel content	0.01	Gravel content	0.01	Gravel content	1.00
						Content of large stones	0.61

Table 9.—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
NeD, NeE:							
Nella--------	85	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Gravel content	0.01	Gravel content	0.01	Gravel content	1.00
						Content of large stones	0.61
NrF:							
Nella--------	50	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Too stony	0.99	Too stony	0.99	Gravel content	1.00
		Gravel content	0.01	Gravel content	0.01	Too stony	0.99
						Content of large stones	0.61
Talbott------	25	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Too stony	0.99	Too stony	0.99	Too stony	0.99
		Restricted permeability	0.99	Restricted permeability	0.99	Restricted permeability	0.99
						Depth to bedrock	0.42
Rock outcrop-	15	Not rated		Not rated		Not rated	
Oc:							
Ocana--------	85	Very limited		Somewhat limited		Very limited	
		Flooding	1.00	Gravel content	0.22	Gravel content	1.00
		Gravel content	0.22			Flooding	0.60
Pd:							
Purdy--------	85	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Ponding	1.00	Restricted permeability	0.99	Ponding	1.00
		Restricted permeability	0.99	Ponding	0.40	Restricted permeability	0.99
Qr:							
Pits, quarry-	100	Not rated		Not rated		Not rated	
RaC:							
Ramsey-------	90	Very limited		Very limited		Very limited	
		Depth to bedrock	1.00	Depth to bedrock	1.00	Depth to bedrock	1.00
		Slope	0.04	Slope	0.04	Slope	1.00
						Gravel content	0.56
RaD:							
Ramsey-------	90	Very limited		Very limited		Very limited	
		Depth to bedrock	1.00	Depth to bedrock	1.00	Slope	1.00
		Slope	1.00	Slope	1.00	Depth to bedrock	1.00
						Gravel content	0.56
RrC:							
Ramsey-------	65	Very limited		Very limited		Very limited	
		Depth to bedrock	1.00	Depth to bedrock	1.00	Depth to bedrock	1.00
		Slope	0.04	Slope	0.04	Slope	1.00
						Gravel content	0.56
Rock outcrop-	25	Not rated		Not rated		Not rated	

Table 9.—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
RrE:							
Ramsey-------	55	Very limited		Very limited		Very limited	
		Depth to bedrock	1.00	Depth to bedrock	1.00	Slope	1.00
		Slope	1.00	Slope	1.00	Depth to bedrock	1.00
						Gravel content	0.56
Rock outcrop-	40	Not rated		Not rated		Not rated	
SeC2:							
Sengtown-----	85	Somewhat limited		Somewhat limited		Very limited	
		Restricted permeability	0.26	Restricted permeability	0.26	Slope	1.00
						Gravel content	0.91
		Slope	0.04	Slope	0.04	Content of large stones	0.79
						Restricted permeability	0.26
SeD2, SeE2:							
Sengtown-----	85	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Restricted permeability	0.26	Restricted permeability	0.26	Gravel content	0.91
						Content of large stones	0.79
						Restricted permeability	0.26
SfE:							
Sequoia------	80	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Gravel content	0.99	Gravel content	0.99	Gravel content	1.00
		Restricted permeability	0.99	Restricted permeability	0.99	Restricted permeability	0.99
						Depth to bedrock	0.01
ShB:							
Shady--------	90	Not limited		Not limited		Somewhat limited	
						Slope	0.50
						Gravel content	0.01
ShC2:							
Shady--------	90	Somewhat limited		Somewhat limited		Very limited	
		Slope	0.04	Slope	0.04	Slope	1.00
						Gravel content	0.01
SpF:							
Shelocta-----	50	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
						Gravel content	0.99
Pineville----	40	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Gravel content	0.84	Gravel content	0.84	Gravel content	1.00
St:							
Staser-------	95	Very limited		Not limited		Somewhat limited	
		Flooding	1.00			Gravel content	0.22

Table 9.—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
Su:							
Sullivan-----	90	Very limited		Very limited		Very limited	
		Ponding	1.00	Ponding	1.00	Ponding	1.00
						Gravel content	0.92
Sv:							
Sullivan-----	90	Very limited		Not limited		Somewhat limited	
		Flooding	1.00			Gravel content	0.92
						Flooding	0.60
TrD:							
Talbott------	60	Somewhat limited		Somewhat limited		Very limited	
		Restricted permeability	0.99	Restricted permeability	0.99	Slope	1.00
		Slope	0.63	Slope	0.63	Restricted permeability	0.99
						Depth to bedrock	0.20
Rock outcrop-	30	Not rated		Not rated		Not rated	
TrE:							
Talbott------	65	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Restricted permeability	0.99	Restricted permeability	0.99	Restricted permeability	0.99
						Depth to bedrock	0.20
Rock outcrop-	20	Not rated		Not rated		Not rated	
Ud:							
Udarents-----	100	Not rated		Not rated		Not rated	
W:							
Water--------	100	Not rated		Not rated		Not rated	
WaB2:							
Waynesboro---	85	Not limited		Not limited		Somewhat limited	
						Slope	0.50
						Gravel content	0.49
WaC2:							
Waynesboro---	85	Somewhat limited		Somewhat limited		Very limited	
		Slope	0.04	Slope	0.04	Slope	1.00
						Gravel content	0.49
WaD2:							
Waynesboro---	85	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
						Gravel content	0.49

Table 9.—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		Off-road motorcycle trails		Golf fairways	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
Ak:							
Atkins-------	85	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
						Flooding	0.60
BA:							
Bethesda-----	50	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
						Droughty	0.63
						Gravel content	0.23
						Content of large stones	0.01
Pits---------	40	Not rated		Not rated		Not rated	
BeB2:							
Bewleyville--	85	Not limited		Not limited		Not limited	
BeC2:							
Bewleyville--	85	Very limited		Very limited		Somewhat limited	
		Water erosion	1.00	Water erosion	1.00	Slope	0.04
BoC:							
Bodine-------	90	Not limited		Not limited		Somewhat limited	
						Gravel content	0.45
						Droughty	0.25
						Slope	0.04
BoD:							
Bodine-------	85	Somewhat limited		Not limited		Very limited	
		Slope	0.02			Slope	1.00
						Gravel content	0.45
						Droughty	0.25
BoF:							
Bodine-------	85	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
						Gravel content	0.45
						Droughty	0.25
ByF:							
Bouldin------	50	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Too stony	0.76	Too stony	0.76	Droughty	0.52
						Content of large stones	0.46
						Gravel content	0.05
Grimsley-----	35	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Too stony	0.76	Too stony	0.76	Droughty	0.89
						Gravel content	0.02
						Content of large stones	0.01

Table 9.—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
CaE:							
Carbo	70	Very limited		Very limited		Very limited	
		Water erosion	1.00	Water erosion	1.00	Slope	1.00
		Slope	1.00	Slope	0.78	Depth to bedrock	0.42
						Droughty	0.01
Rock outcrop	20	Not rated		Not rated		Not rated	
ChC2:							
Christian	90	Very limited		Very limited		Somewhat limited	
		Water erosion	1.00	Water erosion	1.00	Slope	0.04
ChD2:							
Christian	90	Very limited		Very limited		Very limited	
		Water erosion	1.00	Water erosion	1.00	Slope	1.00
		Slope	0.02				
ChE2, ChE3:							
Christian	90	Very limited		Very limited		Very limited	
		Water erosion	1.00	Water erosion	1.00	Slope	1.00
		Slope	1.00	Slope	0.22		
CkB:							
Clarkrange	90	Not limited		Not limited		Somewhat limited	
						Depth to saturated zone	0.19
CkC:							
Clarkrange	90	Very limited		Very limited		Somewhat limited	
		Water erosion	1.00	Water erosion	1.00	Depth to saturated zone	0.19
						Slope	0.04
CoC:							
Colbert	90	Not limited		Not limited		Somewhat limited	
						Slope	0.04
Cv:							
Craigsville	85	Somewhat limited		Somewhat limited		Very limited	
		Content of large stones	0.23	Content of large stones	0.23	Content of large stones	1.00
						Droughty	1.00
						Flooding	0.60
DeD2:							
Dellrose	85	Somewhat limited		Not limited		Very limited	
		Slope	0.02			Slope	1.00
						Gravel content	0.73
						Content of large stones	0.01
DeF:							
Dellrose	65	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
						Gravel content	0.73
						Content of large stones	0.01

Table 9.—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
DeF:							
Mimosa-------	30	Very limited		Very limited		Very limited	
		Water erosion	1.00	Water erosion	1.00	Slope	1.00
		Slope	1.00	Slope	1.00		
DfC2:							
Dewey--------	90	Not limited		Not limited		Somewhat limited	
						Slope	0.04
DkB2:							
Dickson------	85	Somewhat limited		Somewhat limited		Somewhat limited	
		Depth to saturated zone	0.01	Depth to saturated zone	0.01	Depth to saturated zone	0.28
Ea:							
Ealy---------	90	Not limited		Not limited		Somewhat limited	
						Flooding	0.60
EwB:							
Etowah-------	90	Not limited		Not limited		Not limited	
EwC2:							
Etowah-------	85	Very limited		Very limited		Somewhat limited	
		Water erosion	1.00	Water erosion	1.00	Slope	0.04
EwD2:							
Etowah-------	85	Very limited		Very limited		Very limited	
		Water erosion	1.00	Water erosion	1.00	Slope	1.00
		Slope	0.02				
FhC:							
Faywood------	50	Very limited		Very limited		Somewhat limited	
		Water erosion	1.00	Water erosion	1.00	Depth to bedrock	0.46
						Droughty	0.10
						Slope	0.04
Hawthorne----	40	Not limited		Not limited		Very limited	
						Droughty	1.00
						Depth to bedrock	0.42
						Gravel content	0.42
						Slope	0.04
GnF:							
Garmon-------	50	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Too stony	0.76	Too stony	0.76	Gravel content	0.78
						Droughty	0.76
						Depth to bedrock	0.54
						Content of large stones	0.01
Newbern------	40	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Depth to bedrock	1.00
		Too stony	0.76	Too stony	0.76	Slope	1.00
						Droughty	1.00
GpC:							
Gilpin-------	85	Not limited		Not limited		Somewhat limited	
						Depth to bedrock	0.06
						Slope	0.04

Table 9.—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
GpD:							
Gilpin-------	85	Somewhat limited		Not limited		Very limited	
		Slope	0.02			Slope	1.00
						Depth to bedrock	0.06
GpE:							
Gilpin-------	85	Very limited		Somewhat limited		Very limited	
		Slope	1.00	Slope	0.22	Slope	1.00
						Depth to bedrock	0.06
GsF:							
Gilpin-------	50	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
						Depth to bedrock	0.06
Shelocta-----	40	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
Ha:							
Hamblen------	90	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
HhC:							
Hawthorne----	85	Not limited		Not limited		Very limited	
						Droughty	1.00
						Depth to bedrock	0.95
						Slope	0.84
						Gravel content	0.42
HhF:							
Hawthorne----	85	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
						Droughty	1.00
						Depth to bedrock	0.95
						Gravel content	0.42
HmF:							
Hawthorne----	48	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
						Droughty	1.00
						Depth to bedrock	0.95
						Gravel content	0.42
Rock outcrop-	47	Not rated		Not rated		Not rated	
HnF:							
Hayter-------	45	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Too stony	0.94	Too stony	0.94	Gravel content	0.05
						Droughty	0.01
Talbott------	25	Very limited		Very limited		Very limited	
		Water erosion	1.00	Water erosion	1.00	Slope	1.00
		Slope	1.00	Slope	1.00	Depth to bedrock	0.20
		Too stony	0.94	Too stony	0.94	Droughty	0.06
Rock outcrop-	20	Not rated		Not rated		Not rated	

Table 9.—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
HoB:							
Holston------	85	Not limited		Not limited		Not limited	
HoC2:							
Holston------	85	Not limited		Not limited		Somewhat limited	
						Slope	0.04
HuB:							
Humphreys----	95	Not limited		Not limited		Somewhat limited	
						Gravel content	0.45
HuC:							
Humphreys----	95	Not limited		Not limited		Somewhat limited	
						Gravel content	0.45
						Slope	0.04
LlB:							
Lily---------	87	Not limited		Not limited		Somewhat limited	
						Depth to bedrock	0.35
LlC:							
Lily---------	85	Not limited		Not limited		Somewhat limited	
						Depth to bedrock	0.42
						Slope	0.04
LlD:							
Lily---------	85	Somewhat limited		Not limited		Very limited	
		Slope	0.02			Slope	1.00
						Depth to bedrock	0.46
LwB:							
Lonewood-----	90	Not limited		Not limited		Not limited	
LwC:							
Lonewood-----	90	Very limited		Very limited		Somewhat limited	
		Water erosion	1.00	Water erosion	1.00	Slope	0.04
Me:							
Melvin-------	85	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
MnC2:							
Minvale------	90	Not limited		Not limited		Somewhat limited	
						Slope	0.04
						Gravel content	0.01
MnD2:							
Minvale------	90	Somewhat limited		Not limited		Very limited	
		Slope	0.02			Slope	1.00
						Gravel content	0.01
MoB2:							
Monongahela--	90	Somewhat limited		Somewhat limited		Somewhat limited	
		Depth to saturated zone	0.18	Depth to saturated zone	0.18	Depth to cemented pan	0.64
						Depth to saturated zone	0.56

Table 9.—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
MoC2:							
Monongahela--	90	Very limited Water erosion Depth to saturated zone	 1.00 0.18	Very limited Water erosion Depth to saturated zone	 1.00 0.18	Somewhat limited Depth to cemented pan Depth to saturated zone Slope	 0.64 0.56 0.04
MtB2:							
Mountview----	85	Not limited		Not limited		Not limited	
MtC2:							
Mountview----	85	Very limited Water erosion	 1.00	Very limited Water erosion	 1.00	Somewhat limited Slope	 0.04
NeC:							
Nella--------	90	Not limited		Not limited		Somewhat limited Content of large stones Slope Gravel content	 0.61 0.04 0.01
NeD:							
Nella--------	85	Somewhat limited Slope	 0.02	Not limited		Very limited Slope Content of large stones Gravel content	 1.00 0.61 0.01
NeE:							
Nella--------	85	Very limited Slope	 1.00	Somewhat limited Slope	 0.22	Very limited Slope Content of large stones Gravel content	 1.00 0.61 0.01
NrF:							
Nella--------	50	Very limited Slope Too stony	 1.00 0.99	Very limited Slope Too stony	 1.00 0.99	Very limited Slope Content of large stones Gravel content	 1.00 0.61 0.01
Talbott------	25	Very limited Water erosion Slope Too stony	 1.00 1.00 0.99	Very limited Water erosion Slope Too stony	 1.00 1.00 0.99	Very limited Slope Depth to bedrock Droughty	 1.00 0.42 0.20
Rock outcrop-	15	Not rated		Not rated		Not rated	
Oc:							
Ocana--------	85	Not limited		Not limited		Somewhat limited Flooding Gravel content	 0.60 0.22
Pd:							
Purdy--------	85	Very limited Depth to saturated zone Flooding	 1.00 0.40	Very limited Depth to saturated zone Flooding	 1.00 0.40	Very limited Flooding Depth to saturated zone	 1.00 1.00

Table 9.—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
Qr:							
Pits, quarry-	100	Not rated		Not rated		Not rated	
RaC:							
Ramsey-------	90	Not limited		Not limited		Very limited	
						Depth to bedrock	1.00
						Droughty	1.00
						Slope	0.04
RaD:							
Ramsey-------	90	Somewhat limited		Not limited		Very limited	
		Slope	0.02			Depth to bedrock	1.00
						Droughty	1.00
						Slope	1.00
RrC:							
Ramsey-------	65	Not limited		Not limited		Very limited	
						Depth to bedrock	1.00
						Droughty	1.00
						Slope	0.04
Rock outcrop-	25	Not rated		Not rated		Not rated	
RrE:							
Ramsey-------	55	Very limited		Somewhat limited		Very limited	
		Slope	1.00	Slope	0.01	Depth to bedrock	1.00
						Droughty	1.00
						Slope	1.00
Rock outcrop-	40	Not rated		Not rated		Not rated	
SeC2:							
Sengtown-----	85	Not limited		Not limited		Somewhat limited	
						Content of large stones	0.79
						Slope	0.04
SeD2:							
Sengtown-----	85	Somewhat limited		Not limited		Very limited	
		Slope	0.02			Slope	1.00
						Content of large stones	0.79
SeE2:							
Sengtown-----	85	Very limited		Somewhat limited		Very limited	
		Slope	1.00	Slope	0.22	Slope	1.00
						Content of large stones	0.79
SfE:							
Sequoia------	80	Very limited		Somewhat limited		Very limited	
		Slope	1.00	Slope	0.22	Slope	1.00
						Gravel content	0.99
						Droughty	0.05
						Depth to bedrock	0.01
ShB:							
Shady--------	90	Not limited		Not limited		Not limited	

Table 9.—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
ShC2:							
Shady--------	90	Not limited		Not limited		Somewhat limited	
						Slope	0.04
SpF:							
Shelocta-----	50	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
Pineville----	40	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
						Gravel content	0.84
St:							
Staser-------	95	Not limited		Not limited		Not limited	
Su:							
Sullivan-----	90	Very limited		Very limited		Very limited	
		Ponding	1.00	Ponding	1.00	Ponding	1.00
Sv:							
Sullivan-----	90	Not limited		Not limited		Somewhat limited	
						Flooding	0.60
TrD:							
Talbott------	60	Very limited		Very limited		Somewhat limited	
		Water erosion	1.00	Water erosion	1.00	Slope	0.63
						Depth to bedrock	0.20
						Droughty	0.06
Rock outcrop-	30	Not rated		Not rated		Not rated	
TrE:							
Talbott------	65	Very limited		Very limited		Very limited	
		Water erosion	1.00	Water erosion	1.00	Slope	1.00
		Slope	1.00	Slope	0.22	Depth to bedrock	0.20
						Droughty	0.06
Rock outcrop-	20	Not rated		Not rated		Not rated	
Ud:							
Udarents-----	100	Not rated		Not rated		Not rated	
W:							
Water--------	100	Not rated		Not rated		Not rated	
WaB2:							
Waynesboro---	85	Not limited		Not limited		Not limited	
WaC2:							
Waynesboro---	85	Not limited		Not limited		Somewhat limited	
						Slope	0.04
WaD2:							
Waynesboro---	85	Somewhat limited		Not limited		Very limited	
		Slope	0.02			Slope	1.00

Table 10.—Wildlife Habitat

(See text for definitions of terms used in this table. Absence of an entry indicates that no rating is applicable)

Map symbol and soil name	Potential for habitat elements: Grain and seed crops	Grasses and legumes	Wild herbaceous plants	Hardwood trees	Coniferous plants	Wetland plants	Shallow water areas	Potential as habitat for: Openland wildlife	Woodland wildlife	Wetland wildlife
Ak:										
Atkins	Poor	Fair	Fair	Fair	Fair	Good	Fair	Fair	Fair	Fair
BA:										
Bethesda	Very poor	Very poor	Poor	Poor	Poor	Very poor	Very poor	Very poor	Poor	Very poor
Pits.										
BeB2:										
Bewleyville	Good	Good	Good	Good	Good	Very poor	Very poor	Good	Good	Very poor
BeC2:										
Bewleyville	Fair	Good	Good	Good	Good	Very poor	Very poor	Good	Good	Very poor
BoC:										
Bodine	Fair	Fair	Fair	Fair	Fair	Very poor	Very poor	Fair	Fair	Very poor
BoD:										
Bodine	Poor	Fair	Fair	Fair	Fair	Very poor	Very poor	Fair	Fair	Very poor
BoF:										
Bodine	Very poor	Poor	Poor	Fair	Fair	Very poor	Very poor	Poor	Poor	Very poor
ByF:										
Bouldin	Very poor	Very poor	Fair	Fair	Fair	Very poor	Very poor	Poor	Fair	Very poor
Grimsley	Very poor	Very poor	Fair	Fair	Fair	Very poor	Very poor	Poor	Fair	Very poor
CaE:										
Carbo	Poor	Fair	Good	Good	Good	Very poor	Very poor	Fair	Good	Very poor
Rock outcrop.										
ChC2:										
Christian	Fair	Good	Good	Good	Good	Very poor	Very poor	Good	Good	Very poor
ChD2:										
Christian	Poor	Fair	Good	Good	Good	Very poor	Very poor	Fair	Good	Very poor
ChE2, ChE3:										
Christian	Very poor	Fair	Good	Good	Good	Very poor	Very poor	Fair	Good	Very poor

Table 10.—Wildlife Habitat—Continued

Map symbol and soil name	Potential for habitat elements: Grain and seed crops	Grasses and legumes	Wild herba-ceous plants	Hard-wood trees	Conif-erous plants	Wetland plants	Shallow water areas	Potential as habitat for: Open-land wild-life	Wood-land wild-life	Wetland wild-life
CkB:										
Clarkrange	Fair	Good	Good	Good	Poor	Poor	Very poor	Good	Good	Very poor
CkC:										
Clarkrange	Fair	Good	Good	Fair	Poor	Poor	Poor	Good	Good	Poor
CoC:										
Colbert	Fair	Good	Fair	Good	Good	Very poor	Very poor	Fair	Good	Very poor
Cv:										
Craigsville	Poor	Fair	Fair	Fair	Fair	Poor	Very poor	Fair	Fair	Very poor
DeD2:										
Dellrose	Poor	Fair	Good	Good	Good	Very poor	Very poor	Fair	Good	Very poor
DeF:										
Dellrose	Very poor	Poor	Good	Good	Good	Very poor	Very poor	Poor	Good	Very poor
Mimosa	Very poor	Fair	Good	Good	Good	Very poor	Very poor	Fair	Good	Very poor
DfC2:										
Dewey	Fair	Good	Good	Good	Good	Very poor	Very poor	Good	Good	Very poor
DkB2:										
Dickson	Good	Good	Good	Good	Good	Poor	Very poor	Good	Good	Very poor
Ea:										
Ealy	Good	Good	Good	Good	Good	Poor	Poor	Good	Good	Poor
EwB:										
Etowah	Good	Good	Good	Good	Good	Poor	Very poor	Good	Good	Very poor
EwC2:										
Etowah	Fair	Good	Good	Good	Good	Very poor	Very poor	Good	Good	Very poor
EwD2:										
Etowah	Poor	Fair	Good	Good	Good	Very poor	Very poor	Fair	Good	Very poor
FhC:										
Faywood	Fair	Good	Good	Good	Good	Very poor	Very poor	Good	Good	Very poor
Hawthorne	Poor	Fair	Fair	Fair	Fair	Very poor	Very poor	Fair	Fair	Very poor

Table 10.—Wildlife Habitat—Continued

Map symbol and soil name	Potential for habitat elements: Grain and seed crops	Grasses and legumes	Wild herbaceous plants	Hardwood trees	Coniferous plants	Wetland plants	Shallow water areas	Potential as habitat for: Openland wildlife	Woodland wildlife	Wetland wildlife
GnF:										
Garmon----------	Very poor	Poor	Good	Good	---	Very poor	Very poor	Poor	Fair	Very poor
Newbern---------	Very poor	Poor	Fair	Poor	Poor	Very poor	Very poor	Poor	Poor	Very poor
GpC:										
Gilpin----------	Fair	Good	Good	Fair	Fair	Very poor	Very poor	Good	Fair	Very poor
GpD:										
Gilpin----------	Poor	Fair	Good	Fair	Fair	Very poor	Very poor	Fair	Fair	Very poor
GpE:										
Gilpin----------	Very poor	Fair	Good	Fair	Fair	Very poor	Very poor	Fair	Fair	Very poor
GsF:										
Gilpin----------	Very poor	Poor	Good	Fair	Fair	Very poor	Very poor	Fair	Fair	Very poor
Shelocta--------	Very poor	Poor	Good	Fair	Fair	Very poor	Very poor	Poor	Good	Very poor
Ha:										
Hamblen---------	Good	Good	Good	Good	Good	Poor	Poor	Good	Good	Poor
HhC, HhF:										
Hawthorne-------	Poor	Fair	Fair	Fair	Fair	Very poor	Very poor	Fair	Fair	Very poor
HmF:										
Hawthorne-------	Very poor	Poor	Fair	Fair	Fair	Very poor	Very poor	Poor	Fair	Very poor
Rock outcrop.										
HnF:										
Hayter----------	Good	Good	Good	Good	Good	Poor	Very poor	Good	Good	Very poor
Talbott---------	Fair	Good	Good	Good	Good	Poor	Very poor	Good	Good	Very poor
Rock outcrop.										
HoB:										
Holston---------	Good	Good	Good	Good	Good	Poor	Very poor	Good	Good	Very poor
HoC2:										
Holston---------	Fair	Good	Good	Good	Good	Very poor	Very poor	Good	Good	Very poor
HuB:										
Humphreys-------	Good	Good	Good	Good	Good	Poor	Very poor	Good	Good	Very poor

Table 10.—Wildlife Habitat—Continued

Map symbol and soil name	Potential for habitat elements							Potential as habitat for		
	Grain and seed crops	Grasses and legumes	Wild herbaceous plants	Hardwood trees	Coniferous plants	Wetland plants	Shallow water areas	Openland wildlife	Woodland wildlife	Wetland wildlife
HuC: Humphreys	Fair	Good	Good	Good	Good	Very poor	Very poor	Good	Good	Very poor
LlB, LlC: Lily	Fair	Good	Good	Good	Good	Poor	Very poor	Good	Good	Very poor
LlD: Lily	Poor	Fair	Good	Good	Good	Very poor	Very poor	Fair	Good	Very poor
LwB: Lonewood	Good	Good	Good	Good	Good	Very poor	Very poor	Good	Good	Very poor
LwC: Lonewood	Fair	Good	Good	Good	Good	Very poor	Very poor	Good	Good	Very poor
Me: Melvin	Very poor	Poor	Poor	Poor	Poor	Good	Good	Poor	Poor	Good
MnC2: Minvale	Fair	Good	Good	Good	Good	Very poor	Very poor	Good	Good	Very poor
MnD2: Minvale	Poor	Fair	Good	Good	Good	Very poor	Very poor	Fair	Good	Very poor
MoB2: Monongahela	Fair	Good	Good	Good	Good	Poor	Very poor	Good	Good	Very poor
MoC2: Monongahela	Fair	Good	Good	Good	Fair	Very poor	Very poor	Good	Good	Very poor
MtB2: Mountview	Good	Good	Good	Good	Good	Poor	Very poor	Good	Good	Poor
MtC2: Mountview	Fair	Good	Good	Good	Good	Poor	Very poor	Good	Good	Poor
NeC, NeD: Nella	Poor	Fair	Good	Good	Good	Very poor	Very poor	Fair	Good	Very poor
NeE: Nella	Very poor	Poor	Good	Good	Good	Very poor	Very poor	Poor	Good	Very poor

Table 10.—Wildlife Habitat—Continued

Map symbol and soil name	Potential for habitat elements: Grain and seed crops	Grasses and legumes	Wild herbaceous plants	Hardwood trees	Coniferous plants	Wetland plants	Shallow water areas	Potential as habitat for: Openland wildlife	Woodland wildlife	Wetland wildlife
NrF:										
Nella-----------	Very poor	Poor	Good	Good	Good	Very poor	Very poor	Poor	Good	Very poor
Talbott---------	Fair	Good	Good	Good	Good	Very poor	Very poor	Good	Good	Very poor
Rock outcrop.										
Oc:										
Ocana-----------	Good	Good	Good	Good	Good	Poor	Very poor	Good	Good	Poor
Pd:										
Purdy-----------	Very poor	Poor	Poor	Poor	Poor	Good	Good	Poor	Poor	Good
Qr.										
Pits, quarry										
RaC:										
Ramsey----------	Very poor	Poor	Poor	Very poor	Very poor	Very poor	Very poor	Very poor	Poor	Very poor
RaD:										
Ramsey----------	Very poor	Very poor	Poor	Very poor	Very poor	Very poor	Very poor	Very poor	Very poor	Very poor
RrC, RrE:										
Ramsey----------	Very poor	Poor	Poor	Very poor	Very poor	Very poor	Very poor	Very poor	Poor	Very poor
Rock outcrop.										
SeC2:										
Sengtown--------	Fair	Good	Good	Good	Good	Very poor	Very poor	Good	Good	Very poor
SeD2:										
Sengtown--------	Poor	Fair	Good	Good	Good	Very poor	Very poor	Fair	Good	Very poor
SeE2:										
Sengtown--------	Very poor	Fair	Good	Good	Good	Very poor	Very poor	Fair	Good	Very poor
SfE:										
Sequoia---------	Poor	Fair	Good	Good	Good	Very poor	Very poor	Fair	Good	Very poor
ShB:										
Shady-----------	Good	Good	Good	Good	Good	Very poor	Very poor	Good	Good	Very poor
ShC2:										
Shady-----------	Fair	Good	Good	Good	Good	Very poor	Very poor	Good	Good	Very poor

Table 10.—Wildlife Habitat—Continued

Map symbol and soil name	Potential for habitat elements: Grain and seed crops	Grasses and legumes	Wild herbaceous plants	Hardwood trees	Coniferous plants	Wetland plants	Shallow water areas	Potential as habitat for: Openland wildlife	Woodland wildlife	Wetland wildlife
SpF:										
Shelocta--------	Very poor	Poor	Good	Good	Good	Very poor	Very poor	Poor	Good	Very poor
Pineville-------	Very poor	Poor	Good	Good	Good	Very poor	Very poor	Poor	Good	Very poor
St:										
Staser----------	Good	Good	Good	Good	Good	Poor	Very poor	Good	Good	Very poor
Su, Sv:										
Sullivan--------	Good	Good	Good	Good	Good	Poor	Very poor	Good	Good	Very poor
TrD, TrE:										
Talbott---------	Fair	Good	Good	Good	Good	Poor	Very poor	Good	Good	Very poor
Rock outcrop.										
Ud. Udarents										
W. Water										
WaB2:										
Waynesboro------	Good	Good	Good	Good	Good	Very poor	Very poor	Good	Good	Very poor
WaC2:										
Waynesboro------	Fair	Good	Good	Good	Good	Very poor	Very poor	Good	Good	Very poor
WaD2:										
Waynesboro------	Poor	Fair	Good	Good	Good	Very poor	Very poor	Fair	Good	Very poor

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		Dwellings with basements		Small commercial buildings	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
Ak:							
Atkins------	85	Very limited		Very limited		Very limited	
		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
BA:							
Bethesda----	50	Very limited		Very limited		Very limited	
		Unstable fill	1.00	Unstable fill	1.00	Unstable fill	1.00
		Slope	1.00	Slope	1.00	Slope	1.00
Pits--------	40	Not rated		Not rated		Not rated	
BeB2:							
Bewleyville-	85	Not limited		Not limited		Not limited	
BeC2:							
Bewleyville-	85	Somewhat limited		Somewhat limited		Very limited	
		Slope	0.04	Slope	0.04	Slope	1.00
BoC:							
Bodine------	90	Somewhat limited		Somewhat limited		Very limited	
		Slope	0.04	Slope	0.04	Slope	1.00
		Content of large stones	0.01	Content of large stones	0.01	Content of large stones	0.01
BoD, BoF:							
Bodine------	85	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Content of large stones	0.01	Content of large stones	0.01	Content of large stones	0.01
ByF:							
Bouldin-----	50	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Content of large stones	0.02	Content of large stones	0.02	Content of large stones	0.02
Grimsley----	35	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Content of large stones	0.10	Content of large stones	0.10	Content of large stones	0.10
		Shrink-swell	0.01			Shrink-swell	0.01
CaE:							
Carbo-------	70	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Shrink-swell	1.00	Shrink-swell	1.00	Shrink-swell	1.00
		Depth to hard bedrock	0.42	Depth to hard bedrock	1.00	Depth to hard bedrock	0.42
Rock outcrop	20	Not rated		Not rated		Not rated	

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
ChC2:							
Christian---	90	Somewhat limited		Somewhat limited		Very limited	
		Shrink-swell	0.50	Shrink-swell	0.50	Slope	1.00
		Slope	0.04	Slope	0.04	Shrink-swell	0.50
ChD2, ChE2, ChE3:							
Christian--	90	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Shrink-swell	0.50	Shrink-swell	0.50	Shrink-swell	0.50
CkB:							
Clarkrange--	90	Somewhat limited		Very limited		Somewhat limited	
		Depth to saturated zone	0.39	Depth to saturated zone	1.00	Depth to saturated zone	0.39
CkC:							
Clarkrange--	90	Somewhat limited		Very limited		Very limited	
		Depth to saturated zone	0.39	Depth to saturated zone	1.00	Slope	1.00
		Slope	0.04	Slope	0.04	Depth to saturated zone	0.39
CoC:							
Colbert-----	90	Very limited		Very limited		Very limited	
		Shrink-swell	1.00	Shrink-swell	1.00	Shrink-swell	1.00
		Slope	0.04	Depth to saturated zone	0.47	Slope	1.00
				Slope	0.04		
Cv:							
Craigsville-	85	Very limited		Very limited		Very limited	
		Flooding	1.00	Flooding	1.00	Flooding	1.00
		Content of large stones	0.87	Content of large stones	0.87	Content of large stones	0.87
DeD2:							
Dellrose----	85	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
DeF:							
Dellrose----	65	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
Mimosa------	30	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Shrink-swell	1.00	Shrink-swell	1.00	Shrink-swell	1.00
				Depth to hard bedrock	0.32		
DfC2:							
Dewey-------	90	Somewhat limited		Somewhat limited		Very limited	
		Slope	0.04	Slope	0.04	Slope	1.00
DkB2:							
Dickson-----	85	Somewhat limited		Very limited		Somewhat limited	
		Depth to saturated zone	0.56	Depth to saturated zone	1.00	Depth to saturated zone	0.56
				Shrink-swell	0.50		

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
Ea:							
Ealy	90	Very limited		Very limited		Very limited	
		Flooding	1.00	Flooding	1.00	Flooding	1.00
EwB:							
Etowah	90	Not limited		Not limited		Not limited	
EwC2:							
Etowah	85	Somewhat limited		Somewhat limited		Very limited	
		Slope	0.04	Slope	0.04	Slope	1.00
EwD2:							
Etowah	85	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
FhC:							
Faywood	50	Somewhat limited		Very limited		Very limited	
		Shrink-swell	0.50	Depth to hard bedrock	1.00	Slope	1.00
		Depth to hard bedrock	0.46	Shrink-swell	0.50	Shrink-swell	0.50
		Slope	0.04	Slope	0.04	Depth to hard bedrock	0.46
Hawthorne	40	Somewhat limited		Somewhat limited		Very limited	
		Slope	0.04	Depth to soft bedrock	0.42	Slope	1.00
				Slope	0.04		
GnF:							
Garmon	50	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Depth to hard bedrock	0.54	Depth to hard bedrock	1.00	Depth to hard bedrock	0.54
Newbern	40	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Depth to hard bedrock	1.00	Depth to hard bedrock	1.00	Depth to hard bedrock	1.00
		Depth to soft bedrock	1.00	Depth to soft bedrock	1.00	Depth to soft bedrock	1.00
GpC:							
Gilpin	85	Somewhat limited		Somewhat limited		Very limited	
		Slope	0.04	Depth to soft bedrock	0.06	Slope	1.00
				Slope	0.04		
GpD, GpE:							
Gilpin	85	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
				Depth to soft bedrock	0.06		
GsF:							
Gilpin	50	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
				Depth to soft bedrock	0.06		
Shelocta	40	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	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
Ha:							
Hamblen-----	90	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
HhC:							
Hawthorne---	85	Somewhat limited		Somewhat limited		Very limited	
		Slope	0.84	Depth to soft bedrock	0.95	Slope	1.00
				Slope	0.84		
HhF:							
Hawthorne---	85	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
				Depth to soft bedrock	0.95		
HmF:							
Hawthorne---	48	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
				Depth to soft bedrock	0.95		
Rock outcrop	47	Not rated		Not rated		Not rated	
HnF:							
Hayter------	45	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
				Depth to hard bedrock	0.61		
Talbott-----	25	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Shrink-swell	0.50	Depth to hard bedrock	1.00	Shrink-swell	0.50
		Depth to hard bedrock	0.20	Shrink-swell	0.50	Depth to hard bedrock	0.20
Rock outcrop	20	Not rated		Not rated		Not rated	
HoB:							
Holston-----	85	Not limited		Not limited		Not limited	
HoC2:							
Holston-----	85	Somewhat limited		Somewhat limited		Very limited	
		Slope	0.04	Slope	0.04	Slope	1.00
HuB:							
Humphreys---	95	Not limited		Somewhat limited		Not limited	
				Depth to saturated zone	0.03		
HuC:							
Humphreys---	95	Somewhat limited		Somewhat limited		Very limited	
		Slope	0.04	Slope	0.04	Slope	1.00
				Depth to saturated zone	0.03		

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
LlB:							
Lily--------	87	Somewhat limited		Very limited		Somewhat limited	
		Depth to hard bedrock	0.35	Depth to hard bedrock	1.00	Depth to hard bedrock	0.35
LlC:							
Lily--------	85	Somewhat limited		Very limited		Very limited	
		Depth to hard bedrock	0.42	Depth to hard bedrock	1.00	Slope	1.00
		Slope	0.04	Slope	0.04	Depth to hard bedrock	0.42
LlD:							
Lily--------	85	Very limited		Very limited		Very limited	
		Slope	1.00	Depth to hard bedrock	1.00	Slope	1.00
		Depth to hard bedrock	0.46	Slope	1.00	Depth to hard bedrock	0.46
LwB:							
Lonewood----	90	Not limited		Somewhat limited		Not limited	
				Depth to hard bedrock	0.04		
LwC:							
Lonewood----	90	Somewhat limited		Somewhat limited		Very limited	
		Slope	0.04	Slope	0.04	Slope	1.00
				Depth to hard bedrock	0.04		
Me:							
Melvin------	85	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
MnC2:							
Minvale-----	90	Somewhat limited		Somewhat limited		Very limited	
		Slope	0.04	Slope	0.04	Slope	1.00
MnD2:							
Minvale-----	90	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
MoB2:							
Monongahela-	90	Somewhat limited		Very limited		Somewhat limited	
		Depth to saturated zone	0.88	Depth to saturated zone	1.00	Depth to saturated zone	0.88
MoC2:							
Monongahela-	90	Somewhat limited		Very limited		Very limited	
		Depth to saturated zone	0.88	Depth to saturated zone	1.00	Slope	1.00
		Slope	0.04	Slope	0.04	Depth to saturated zone	0.88
MtB2:							
Mountview---	85	Not limited		Somewhat limited		Not limited	
				Shrink-swell	0.50		
MtC2:							
Mountview---	85	Somewhat limited		Somewhat limited		Very limited	
		Slope	0.04	Shrink-swell	0.50	Slope	1.00
				Slope	0.04		

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
NeC:							
Nella-------	90	Somewhat limited		Somewhat limited		Very limited	
		Content of large stones	0.12	Content of large stones	0.12	Slope	1.00
		Slope	0.04	Slope	0.04	Content of large stones	0.12
NeD, NeE:							
Nella-------	85	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Content of large stones	0.12	Content of large stones	0.12	Content of large stones	0.12
NrF:							
Nella-------	50	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Content of large stones	0.12	Content of large stones	0.12	Content of large stones	0.12
Talbott-----	25	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Shrink-swell	0.50	Depth to hard bedrock	1.00	Shrink-swell	0.50
		Depth to hard bedrock	0.42	Shrink-swell	0.50	Depth to hard bedrock	0.42
Rock outcrop	15	Not rated		Not rated		Not rated	
Oc:							
Ocana-------	85	Very limited		Very limited		Very limited	
		Flooding	1.00	Flooding	1.00	Flooding	1.00
				Depth to saturated zone	0.35		
Pd:							
Purdy-------	85	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
		Shrink-swell	0.50	Shrink-swell	0.50	Shrink-swell	0.50
Qr:							
Pits, quarry	100	Not rated		Not rated		Not rated	
RaC:							
Ramsey------	90	Very limited		Very limited		Very limited	
		Depth to hard bedrock	1.00	Depth to hard bedrock	1.00	Depth to hard bedrock	1.00
		Slope	0.04	Slope	0.04	Slope	1.00
RaD:							
Ramsey------	90	Very limited		Very limited		Very limited	
		Depth to hard bedrock	1.00	Depth to hard bedrock	1.00	Slope	1.00
		Slope	1.00	Slope	1.00	Depth to hard bedrock	1.00
RrC:							
Ramsey------	65	Very limited		Very limited		Very limited	
		Depth to hard bedrock	1.00	Depth to hard bedrock	1.00	Depth to hard bedrock	1.00
		Slope	0.04	Slope	0.04	Slope	1.00
Rock outcrop	25	Not rated		Not rated		Not rated	

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
RrE:							
Ramsey------	55	Very limited Depth to hard bedrock Slope	 1.00 1.00	Very limited Depth to hard bedrock Slope	 1.00 1.00	Very limited Slope Depth to hard bedrock	 1.00 1.00
Rock outcrop	40	Not rated		Not rated		Not rated	
SeC2:							
Sengtown----	85	Somewhat limited Shrink-swell Slope	 0.50 0.04	Somewhat limited Shrink-swell Slope	 0.50 0.04	Very limited Slope Shrink-swell	 1.00 0.50
SeD2, SeE2:							
Sengtown----	85	Very limited Slope Shrink-swell	 1.00 0.50	Very limited Slope Shrink-swell	 1.00 0.50	Very limited Slope Shrink-swell	 1.00 0.50
SfE:							
Sequoia-----	80	Very limited Slope Shrink-swell	 1.00 0.50	Very limited Slope Shrink-swell Depth to soft bedrock	 1.00 0.50 0.01	Very limited Slope Shrink-swell	 1.00 0.50
ShB:							
Shady-------	90	Not limited		Not limited		Not limited	
ShC2:							
Shady-------	90	Somewhat limited Slope	 0.04	Somewhat limited Slope	 0.04	Very limited Slope	 1.00
SpF:							
Shelocta----	50	Very limited Slope	 1.00	Very limited Slope Depth to hard bedrock	 1.00 0.26	Very limited Slope	 1.00
Pineville---	40	Very limited Slope	 1.00	Very limited Slope	 1.00	Very limited Slope	 1.00
St:							
Staser------	95	Very limited Flooding	 1.00	Very limited Flooding Depth to saturated zone	 1.00 0.82	Very limited Flooding	 1.00
Su:							
Sullivan----	90	Very limited Ponding	 1.00	Very limited Ponding Depth to saturated zone	 1.00 0.15	Very limited Ponding	 1.00
Sv:							
Sullivan----	90	Very limited Flooding	 1.00	Very limited Flooding Depth to saturated zone	 1.00 0.15	Very limited Flooding	 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
TrD:							
Talbott-----	60	Somewhat limited		Very limited		Very limited	
		Slope	0.63	Depth to hard bedrock	1.00	Slope	1.00
		Shrink-swell	0.50	Slope	0.63	Shrink-swell	0.50
		Depth to hard bedrock	0.20	Shrink-swell	0.50	Depth to hard bedrock	0.20
Rock outcrop	30	Not rated		Not rated		Not rated	
TrE:							
Talbott-----	65	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Shrink-swell	0.50	Depth to hard bedrock	1.00	Shrink-swell	0.50
		Depth to hard bedrock	0.20	Shrink-swell	0.50	Depth to hard bedrock	0.20
Rock outcrop	20	Not rated		Not rated		Not rated	
Ud:							
Udarents----	100	Not rated		Not rated		Not rated	
W:							
Water-------	100	Not rated		Not rated		Not rated	
WaB2:							
Waynesboro--	85	Not limited		Not limited		Not limited	
WaC2:							
Waynesboro--	85	Somewhat limited		Somewhat limited		Very limited	
		Slope	0.04	Slope	0.04	Slope	1.00
WaD2:							
Waynesboro--	85	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00

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
Ak:							
Atkins------	85	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Flooding	1.00	Flooding	0.60	Flooding	0.60
				Cutbanks cave	0.10		
BA:							
Bethesda----	50	Very limited		Very limited		Very limited	
		Unstable fill	1.00	Slope	1.00	Slope	1.00
		Slope	1.00	Cutbanks cave	0.10	Droughty	0.63
						Gravel content	0.23
						Content of large stones	0.01
Pits--------	40	Not rated		Not rated		Not rated	
BeB2:							
Bewleyville-	85	Very limited		Somewhat limited		Not limited	
		Low strength	1.00	Cutbanks cave	0.10		
				Too clayey	0.02		
BeC2:							
Bewleyville-	85	Very limited		Somewhat limited		Somewhat limited	
		Low strength	1.00	Cutbanks cave	0.10	Slope	0.04
		Slope	0.04	Slope	0.04		
				Too clayey	0.02		
BoC:							
Bodine------	90	Somewhat limited		Somewhat limited		Somewhat limited	
		Slope	0.04	Cutbanks cave	0.10	Gravel content	0.45
		Content of large stones	0.01	Slope	0.04	Droughty	0.25
				Too clayey	0.02	Slope	0.04
				Content of large stones	0.01		
BoD, BoF:							
Bodine------	85	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Content of large stones	0.01	Cutbanks cave	0.10	Gravel content	0.45
				Too clayey	0.02	Droughty	0.25
				Content of large stones	0.01		
ByF:							
Bouldin-----	50	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Content of large stones	0.02	Cutbanks cave	0.10	Droughty	0.52
				Content of large stones	0.02	Content of large stones	0.46
						Gravel content	0.05
Grimsley----	35	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Content of large stones	0.10	Content of large stones	0.10	Droughty	0.89
		Shrink-swell	0.01	Cutbanks cave	0.10	Gravel content	0.02
						Content of large stones	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
CaE:							
Carbo--------	70	Very limited		Very limited		Very limited	
		Slope	1.00	Depth to hard bedrock	1.00	Slope	1.00
		Low strength	1.00			Depth to bedrock	0.42
		Shrink-swell	1.00	Slope	1.00	Droughty	0.01
		Depth to hard bedrock	0.42	Too clayey	1.00		
				Cutbanks cave	0.10		
Rock outcrop	20	Not rated		Not rated		Not rated	
ChC2:							
Christian---	90	Very limited		Somewhat limited		Somewhat limited	
		Low strength	1.00	Too clayey	0.50	Slope	0.04
		Shrink-swell	0.50	Cutbanks cave	0.10		
		Slope	0.04	Slope	0.04		
ChD2, ChE2, ChE3:							
Christian--	90	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Low strength	1.00	Too clayey	0.50		
		Shrink-swell	0.50	Cutbanks cave	0.10		
CkB:							
Clarkrange--	90	Very limited		Very limited		Somewhat limited	
		Low strength	1.00	Depth to saturated zone	1.00	Depth to saturated zone	0.19
		Depth to saturated zone	0.19				
				Cutbanks cave	0.10		
CkC:							
Clarkrange--	90	Very limited		Very limited		Somewhat limited	
		Low strength	1.00	Depth to saturated zone	1.00	Depth to saturated zone	0.19
		Depth to saturated zone	0.19				
				Cutbanks cave	0.10	Slope	0.04
		Slope	0.04	Slope	0.04		
CoC:							
Colbert-----	90	Very limited		Very limited		Somewhat limited	
		Low strength	1.00	Too clayey	1.00	Slope	0.04
		Shrink-swell	1.00	Depth to saturated zone	0.47		
		Slope	0.04				
				Cutbanks cave	0.10		
				Slope	0.04		
Cv:							
Craigsville-	85	Very limited		Somewhat limited		Very limited	
		Flooding	1.00	Content of large stones	0.87	Content of large stones	1.00
		Content of large stones	0.87				
				Flooding	0.60	Droughty	1.00
				Cutbanks cave	0.10	Flooding	0.60
DeD2:							
Dellrose----	85	Very limited		Very limited		Very limited	
		Slope	1.00	Cutbanks cave	1.00	Slope	1.00
				Slope	1.00	Gravel content	0.73
				Too clayey	0.76	Content of large stones	0.01
DeF:							
Dellrose----	65	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
				Cutbanks cave	1.00	Gravel content	0.73
				Too clayey	0.76	Content of large stones	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
DeF:							
Mimosa------	30	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Low strength	1.00	Too clayey	0.72		
		Shrink-swell	1.00	Depth to hard bedrock	0.32		
				Cutbanks cave	0.10		
DfC2:							
Dewey-------	90	Somewhat limited		Somewhat limited		Somewhat limited	
		Low strength	0.10	Too clayey	0.72	Slope	0.04
		Slope	0.04	Cutbanks cave	0.10		
				Slope	0.04		
DkB2:							
Dickson-----	85	Very limited		Very limited		Somewhat limited	
		Low strength	1.00	Depth to saturated zone	1.00	Depth to saturated zone	0.28
		Depth to saturated zone	0.28	Cutbanks cave	0.10		
				Too clayey	0.03		
Ea:							
Ealy--------	90	Very limited		Very limited		Somewhat limited	
		Flooding	1.00	Cutbanks cave	1.00	Flooding	0.60
				Flooding	0.60		
EwB:							
Etowah------	90	Somewhat limited		Somewhat limited		Not limited	
		Low strength	0.78	Cutbanks cave	0.10		
EwC2:							
Etowah------	85	Somewhat limited		Somewhat limited		Somewhat limited	
		Low strength	0.78	Cutbanks cave	0.10	Slope	0.04
		Slope	0.04	Slope	0.04		
EwD2:							
Etowah------	85	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Low strength	0.78	Cutbanks cave	0.10		
FhC:							
Faywood-----	50	Very limited		Very limited		Somewhat limited	
		Low strength	1.00	Depth to hard bedrock	1.00	Depth to bedrock	0.46
		Shrink-swell	0.50	Too clayey	0.88	Droughty	0.10
		Depth to hard bedrock	0.46	Cutbanks cave	0.10	Slope	0.04
		Slope	0.04	Slope	0.04		
Hawthorne---	40	Somewhat limited		Somewhat limited		Very limited	
		Slope	0.04	Depth to soft bedrock	0.42	Droughty	1.00
				Cutbanks cave	0.10	Depth to bedrock	0.42
				Slope	0.04	Gravel content	0.42
						Slope	0.04
GnF:							
Garmon------	50	Very limited		Very limited		Very limited	
		Slope	1.00	Depth to hard bedrock	1.00	Slope	1.00
		Depth to hard bedrock	0.54	Slope	1.00	Gravel content	0.78
				Cutbanks cave	0.10	Droughty	0.76
						Depth to bedrock	0.54
						Content of large stones	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
GnF:							
Newbern	40	Very limited		Very limited		Very limited	
		Depth to hard bedrock	1.00	Depth to hard bedrock	1.00	Depth to bedrock	1.00
		Slope	1.00	Depth to soft bedrock	1.00	Slope	1.00
		Depth to soft bedrock	1.00	Slope	1.00	Droughty	1.00
				Cutbanks cave	0.10		
GpC:							
Gilpin	85	Somewhat limited		Somewhat limited		Somewhat limited	
		Slope	0.04	Cutbanks cave	0.10	Depth to bedrock	0.06
				Depth to soft bedrock	0.06	Slope	0.04
				Slope	0.04		
GpD, GpE:							
Gilpin	85	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
				Cutbanks cave	0.10	Depth to bedrock	0.06
				Depth to soft bedrock	0.06		
GsF:							
Gilpin	50	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
				Cutbanks cave	0.10	Depth to bedrock	0.06
				Depth to soft bedrock	0.06		
Shelocta	40	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Low strength	0.22	Cutbanks cave	1.00		
Ha:							
Hamblen	90	Very limited		Very limited		Somewhat limited	
		Flooding	1.00	Depth to saturated zone	1.00	Flooding	0.60
		Depth to saturated zone	0.28	Flooding	0.60	Depth to saturated zone	0.28
				Cutbanks cave	0.10		
HhC:							
Hawthorne	85	Somewhat limited		Somewhat limited		Very limited	
		Slope	0.84	Depth to soft bedrock	0.95	Droughty	1.00
						Depth to bedrock	0.95
				Slope	0.84	Slope	0.84
				Cutbanks cave	0.10	Gravel content	0.42
HhF:							
Hawthorne	85	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
				Depth to soft bedrock	0.95	Droughty	1.00
						Depth to bedrock	0.95
				Cutbanks cave	0.10	Gravel content	0.42
HmF:							
Hawthorne	48	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
				Depth to soft bedrock	0.95	Droughty	1.00
						Depth to bedrock	0.95
				Cutbanks cave	0.10	Gravel content	0.42
Rock outcrop	47	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
HnF:							
Hayter------	45	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
				Cutbanks cave	1.00	Gravel content	0.05
				Depth to hard bedrock	0.61	Droughty	0.01
Talbott-----	25	Very limited		Very limited		Very limited	
		Slope	1.00	Depth to hard bedrock	1.00	Slope	1.00
		Low strength	1.00			Depth to bedrock	0.20
		Shrink-swell	0.50	Slope	1.00	Droughty	0.06
		Depth to hard bedrock	0.20	Too clayey	0.98		
				Cutbanks cave	0.10		
Rock outcrop	20	Not rated		Not rated		Not rated	
HoB:							
Holston-----	85	Not limited		Somewhat limited		Not limited	
				Cutbanks cave	0.10		
HoC2:							
Holston-----	85	Somewhat limited		Somewhat limited		Somewhat limited	
		Slope	0.04	Cutbanks cave	0.10	Slope	0.04
				Slope	0.04		
HuB:							
Humphreys---	95	Not limited		Very limited		Somewhat limited	
				Cutbanks cave	1.00	Gravel content	0.45
				Depth to saturated zone	0.03		
HuC:							
Humphreys---	95	Somewhat limited		Very limited		Somewhat limited	
		Slope	0.04	Cutbanks cave	1.00	Gravel content	0.45
				Slope	0.04	Slope	0.04
				Depth to saturated zone	0.03		
LlB:							
Lily--------	87	Somewhat limited		Very limited		Somewhat limited	
		Depth to hard bedrock	0.35	Depth to hard bedrock	1.00	Depth to bedrock	0.35
				Cutbanks cave	0.10		
LlC:							
Lily--------	85	Somewhat limited		Very limited		Somewhat limited	
		Depth to hard bedrock	0.42	Depth to hard bedrock	1.00	Depth to bedrock	0.42
						Slope	0.04
		Slope	0.04	Cutbanks cave	0.10		
				Slope	0.04		
LlD:							
Lily--------	85	Very limited		Very limited		Very limited	
		Slope	1.00	Depth to hard bedrock	1.00	Slope	1.00
		Depth to hard bedrock	0.46			Depth to bedrock	0.46
				Slope	1.00		
				Cutbanks cave	0.10		
LwB:							
Lonewood----	90	Not limited		Somewhat limited		Not limited	
				Cutbanks cave	0.10		
				Depth to hard bedrock	0.04		

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
LwC:							
Lonewood----	90	Somewhat limited		Somewhat limited		Somewhat limited	
		Slope	0.04	Cutbanks cave	0.10	Slope	0.04
				Slope	0.04		
				Depth to hard bedrock	0.04		
Me:							
Melvin------	85	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
		Low strength	1.00	Cutbanks cave	0.10		
MnC2:							
Minvale-----	90	Somewhat limited		Very limited		Somewhat limited	
		Slope	0.04	Cutbanks cave	1.00	Slope	0.04
				Slope	0.04	Gravel content	0.01
				Too clayey	0.02		
MnD2:							
Minvale-----	90	Very limited		Very limited		Very limited	
		Slope	1.00	Cutbanks cave	1.00	Slope	1.00
				Slope	1.00	Gravel content	0.01
				Too clayey	0.02		
MoB2:							
Monongahela-	90	Somewhat limited		Very limited		Somewhat limited	
		Depth to saturated zone	0.56	Depth to saturated zone	1.00	Depth to cemented pan	0.64
		Low strength	0.22	Cutbanks cave	1.00	Depth to saturated zone	0.56
MoC2:							
Monongahela-	90	Somewhat limited		Very limited		Somewhat limited	
		Depth to saturated zone	0.56	Depth to saturated zone	1.00	Depth to cemented pan	0.64
		Frost action	0.50	Cutbanks cave	1.00	Depth to saturated zone	0.56
		Low strength	0.22	Slope	0.04		
		Slope	0.04			Slope	0.04
MtB2:							
Mountview---	85	Very limited		Somewhat limited		Not limited	
		Low strength	1.00	Too clayey	0.12		
				Cutbanks cave	0.10		
MtC2:							
Mountview---	85	Very limited		Somewhat limited		Somewhat limited	
		Low strength	1.00	Too clayey	0.12	Slope	0.04
		Slope	0.04	Cutbanks cave	0.10		
				Slope	0.04		
NeC:							
Nella-------	90	Somewhat limited		Somewhat limited		Somewhat limited	
		Content of large stones	0.12	Content of large stones	0.12	Content of large stones	0.61
		Slope	0.04	Cutbanks cave	0.10	Slope	0.04
				Slope	0.04	Gravel content	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
NeD, NeE:							
Nella-------	85	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Content of large stones	0.12	Content of large stones	0.12	Content of large stones	0.61
				Cutbanks cave	0.10	Gravel content	0.01
NrF:							
Nella-------	50	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Content of large stones	0.12	Content of large stones	0.12	Content of large stones	0.61
				Cutbanks cave	0.10	Gravel content	0.01
Talbott-----	25	Very limited		Very limited		Very limited	
		Slope	1.00	Depth to hard bedrock	1.00	Slope	1.00
		Low strength	1.00			Depth to bedrock	0.42
		Shrink-swell	0.50	Slope	1.00	Droughty	0.20
		Depth to hard bedrock	0.42	Too clayey	0.98		
				Cutbanks cave	0.10		
Rock outcrop	15	Not rated		Not rated		Not rated	
Oc:							
Ocana-------	85	Very limited		Very limited		Somewhat limited	
		Flooding	1.00	Cutbanks cave	1.00	Flooding	0.60
				Flooding	0.60	Gravel content	0.22
				Depth to saturated zone	0.35		
Pd:							
Purdy-------	85	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Flooding	1.00
						Depth to saturated zone	1.00
		Flooding	1.00	Too clayey	0.88		
		Low strength	1.00	Flooding	0.80		
		Shrink-swell	0.50	Cutbanks cave	0.10		
Qr:							
Pits, quarry	100	Not rated		Not rated		Not rated	
RaC:							
Ramsey------	90	Very limited		Very limited		Very limited	
		Depth to hard bedrock	1.00	Depth to hard bedrock	1.00	Depth to bedrock	1.00
						Droughty	1.00
		Slope	0.04	Cutbanks cave	0.10	Slope	0.04
				Slope	0.04		
RaD:							
Ramsey------	90	Very limited		Very limited		Very limited	
		Depth to hard bedrock	1.00	Depth to hard bedrock	1.00	Depth to bedrock	1.00
						Droughty	1.00
		Slope	1.00	Slope	1.00	Slope	1.00
				Cutbanks cave	0.10		
RrC:							
Ramsey------	65	Very limited		Very limited		Very limited	
		Depth to hard bedrock	1.00	Depth to hard bedrock	1.00	Depth to bedrock	1.00
						Droughty	1.00
		Slope	0.04	Cutbanks cave	0.10	Slope	0.04
				Slope	0.04		
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
RrE:							
Ramsey------	55	Very limited		Very limited		Very limited	
		Depth to hard bedrock	1.00	Depth to hard bedrock	1.00	Depth to bedrock	1.00
						Droughty	1.00
		Slope	1.00	Slope	1.00	Slope	1.00
				Cutbanks cave	0.10		
Rock outcrop	40	Not rated		Not rated		Not rated	
SeC2:							
Sengtown----	85	Very limited		Very limited		Somewhat limited	
		Low strength	1.00	Cutbanks cave	1.00	Content of large stones	0.79
		Shrink-swell	0.50	Too clayey	0.50		
		Slope	0.04	Slope	0.04	Slope	0.04
SeD2:							
Sengtown----	85	Very limited		Very limited		Very limited	
		Slope	1.00	Cutbanks cave	1.00	Slope	1.00
		Low strength	1.00	Slope	1.00	Content of large stones	0.79
		Shrink-swell	0.50	Too clayey	0.50		
SeE2:							
Sengtown----	85	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Low strength	1.00	Cutbanks cave	1.00	Content of large stones	0.79
		Shrink-swell	0.50	Too clayey	0.50		
SfE:							
Sequoia-----	80	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Low strength	1.00	Too clayey	0.99	Gravel content	0.99
		Shrink-swell	0.50	Cutbanks cave	0.10	Droughty	0.05
				Depth to soft bedrock	0.01	Depth to bedrock	0.01
ShB:							
Shady-------	90	Not limited		Very limited		Not limited	
				Cutbanks cave	1.00		
ShC2:							
Shady-------	90	Somewhat limited		Very limited		Somewhat limited	
		Slope	0.04	Cutbanks cave	1.00	Slope	0.04
				Slope	0.04		
SpF:							
Shelocta----	50	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Low strength	0.22	Cutbanks cave	1.00		
				Depth to hard bedrock	0.26		
Pineville---	40	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
				Cutbanks cave	1.00	Gravel content	0.84
St:							
Staser------	95	Somewhat limited		Somewhat limited		Not limited	
		Flooding	0.40	Depth to saturated zone	0.82		
				Cutbanks cave	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
Su:							
Sullivan----	90	Very limited		Very limited		Very limited	
		Ponding	1.00	Ponding	1.00	Ponding	1.00
				Depth to saturated zone	0.15		
				Cutbanks cave	0.10		
Sv:							
Sullivan----	90	Very limited		Somewhat limited		Somewhat limited	
		Flooding	1.00	Flooding	0.60	Flooding	0.60
				Depth to saturated zone	0.15		
				Cutbanks cave	0.10		
TrD:							
Talbott-----	60	Very limited		Very limited		Somewhat limited	
		Low strength	1.00	Depth to hard bedrock	1.00	Slope	0.63
		Slope	0.63	Too clayey	0.98	Depth to bedrock	0.20
		Shrink-swell	0.50	Slope	0.63	Droughty	0.06
		Depth to hard bedrock	0.20	Cutbanks cave	0.10		
Rock outcrop	30	Not rated		Not rated		Not rated	
TrE:							
Talbott-----	65	Very limited		Very limited		Very limited	
		Slope	1.00	Depth to hard bedrock	1.00	Slope	1.00
		Low strength	1.00	Slope	1.00	Depth to bedrock	0.20
		Shrink-swell	0.50	Too clayey	0.98	Droughty	0.06
		Depth to hard bedrock	0.20	Cutbanks cave	0.10		
Rock outcrop	20	Not rated		Not rated		Not rated	
Ud:							
Udarents----	100	Not rated		Not rated		Not rated	
W:							
Water-------	100	Not rated		Not rated		Not rated	
WaB2:							
Waynesboro--	85	Somewhat limited		Somewhat limited		Not limited	
		Low strength	0.10	Cutbanks cave	0.10		
				Too clayey	0.02		
WaC2:							
Waynesboro--	85	Somewhat limited		Somewhat limited		Somewhat limited	
		Low strength	0.10	Cutbanks cave	0.10	Slope	0.04
		Slope	0.04	Slope	0.04		
				Too clayey	0.02		
WaD2:							
Waynesboro--	85	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Low strength	0.10	Cutbanks cave	0.10		
				Too clayey	0.02		

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		Sewage lagoons	
		Rating class and limiting features	Value	Rating class and limiting features	Value
Ak:					
Atkins	85	Very limited		Very limited	
		Flooding	1.00	Flooding	1.00
		Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Seepage (bottom layer)	1.00	Seepage	1.00
		Restricted permeability	0.46		
BA:					
Bethesda	50	Very limited		Very limited	
		Unstable fill	1.00	Slope	1.00
		Restricted permeability	1.00		
		Slope	1.00		
Pits	40	Not rated		Not rated	
BeB2:					
Bewleyville	85	Somewhat limited		Somewhat limited	
		Restricted permeability	0.46	Seepage	0.53
				Slope	0.32
BeC2:					
Bewleyville	85	Somewhat limited		Very limited	
		Restricted permeability	0.46	Slope	1.00
				Seepage	0.53
		Slope	0.04		
BoC:					
Bodine	90	Very limited		Very limited	
		Seepage (bottom layer)	1.00	Seepage	1.00
				Slope	1.00
		Slope	0.04		
		Content of large stones	0.01		
BoD:					
Bodine	85	Very limited		Very limited	
		Seepage (bottom layer)	1.00	Slope	1.00
				Seepage	1.00
		Slope	1.00		
		Content of large stones	0.01		
BoF:					
Bodine	85	Very limited		Very limited	
		Slope	1.00	Slope	1.00
		Seepage (bottom layer)	1.00	Seepage	1.00
		Content of large stones	0.01		

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
ByF:					
Bouldin	50	Very limited		Very limited	
		Slope	1.00	Slope	1.00
		Seepage (bottom layer)	1.00	Seepage	1.00
		Content of large stones	0.02	Content of large stones	0.15
Grimsley	35	Very limited		Very limited	
		Slope	1.00	Slope	1.00
		Restricted permeability	1.00	Seepage	1.00
		Depth to bedrock	0.52	Content of large stones	0.72
		Content of large stones	0.10		0.72
				Depth to soft bedrock	0.08
CaE:					
Carbo	70	Very limited		Very limited	
		Depth to bedrock	1.00	Depth to hard bedrock	1.00
		Slope	1.00	Slope	1.00
Rock outcrop	20	Not rated		Not rated	
ChC2:					
Christian	90	Very limited		Very limited	
		Restricted permeability	1.00	Slope	1.00
		Depth to bedrock	0.41	Seepage	0.53
		Slope	0.04	Depth to soft bedrock	0.02
ChD2, ChE2:					
Christian	90	Very limited		Very limited	
		Restricted permeability	1.00	Slope	1.00
		Slope	1.00	Seepage	0.53
		Depth to bedrock	0.41	Depth to soft bedrock	0.02
ChE3:					
Christian	90	Very limited		Very limited	
		Restricted permeability	1.00	Slope	1.00
		Slope	1.00		
CkB:					
Clarkrange	90	Very limited		Very limited	
		Restricted permeability	1.00	Depth to saturated zone	1.00
		Depth to saturated zone	1.00	Seepage	0.53
				Slope	0.08
CkC:					
Clarkrange	90	Very limited		Very limited	
		Restricted permeability	1.00	Depth to saturated zone	1.00
		Depth to saturated zone	1.00	Slope	1.00
		Slope	0.04	Seepage	0.53

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
CoC:					
Colbert------------	90	Very limited		Very limited	
		Restricted permeability	1.00	Slope	1.00
		Depth to saturated zone	0.94	Depth to saturated zone	0.40
		Depth to bedrock	0.27		
		Slope	0.04		
Cv:					
Craigsville---------	85	Very limited		Very limited	
		Flooding	1.00	Flooding	1.00
		Filtering capacity	1.00	Seepage	1.00
		Seepage (bottom layer)	1.00	Content of large stones	1.00
		Content of large stones	0.87		
DeD2:					
Dellrose-----------	85	Very limited		Very limited	
		Restricted permeability	1.00	Slope	1.00
		Slope	1.00	Seepage	1.00
DeF:					
Dellrose-----------	65	Very limited		Very limited	
		Restricted permeability	1.00	Slope	1.00
		Slope	1.00	Seepage	1.00
Mimosa-------------	30	Very limited		Very limited	
		Restricted permeability	1.00	Slope	1.00
		Slope	1.00	Depth to hard bedrock	0.32
		Depth to bedrock	0.73		
DfC2:					
Dewey--------------	90	Very limited		Very limited	
		Restricted permeability	1.00	Slope	1.00
		Slope	0.04	Seepage	0.53
DkB2:					
Dickson------------	85	Very limited		Somewhat limited	
		Restricted permeability	1.00	Depth to saturated zone	0.83
		Depth to saturated zone	1.00	Seepage	0.53
				Slope	0.32
Ea:					
Ealy---------------	90	Very limited		Very limited	
		Flooding	1.00	Flooding	1.00
		Seepage (bottom layer)	1.00	Seepage	1.00
EwB:					
Etowah-------------	90	Somewhat limited		Somewhat limited	
		Restricted permeability	0.46	Seepage	0.53
				Slope	0.32

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
EwC2:					
Etowah	85	Somewhat limited		Very limited	
		Restricted permeability	0.46	Slope	1.00
		Slope	0.04	Seepage	0.53
EwD2:					
Etowah	85	Very limited		Very limited	
		Slope	1.00	Slope	1.00
		Restricted permeability	0.46	Seepage	0.53
FhC:					
Faywood	50	Very limited		Very limited	
		Restricted permeability	1.00	Depth to hard bedrock	1.00
		Depth to bedrock	1.00	Slope	1.00
		Slope	0.04		
Hawthorne	40	Very limited		Very limited	
		Restricted permeability	1.00	Depth to soft bedrock	1.00
		Depth to bedrock	1.00	Seepage	1.00
		Slope	0.04	Slope	1.00
GnF:					
Garmon	50	Very limited		Very limited	
		Depth to bedrock	1.00	Depth to hard bedrock	1.00
		Slope	1.00	Slope	1.00
		Seepage (bottom layer)	1.00	Seepage	1.00
Newbern	40	Very limited		Very limited	
		Depth to bedrock	1.00	Depth to hard bedrock	1.00
		Slope	1.00	Depth to soft bedrock	1.00
		Seepage (bottom layer)	1.00	Slope	1.00
				Seepage	1.00
GpC:					
Gilpin	85	Very limited		Very limited	
		Depth to bedrock	1.00	Depth to soft bedrock	1.00
		Restricted permeability	0.46	Slope	1.00
		Slope	0.04	Seepage	0.53
GpD, GpE:					
Gilpin	85	Very limited		Very limited	
		Depth to bedrock	1.00	Depth to soft bedrock	1.00
		Slope	1.00	Slope	1.00
		Restricted permeability	0.46	Seepage	0.53
GsF:					
Gilpin	50	Very limited		Very limited	
		Depth to bedrock	1.00	Depth to soft bedrock	1.00
		Slope	1.00	Slope	1.00
		Restricted permeability	0.46	Seepage	0.53

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
GsF:					
Shelocta-----------	40	Very limited		Very limited	
		Slope	1.00	Slope	1.00
		Depth to bedrock	0.69	Seepage	0.53
		Restricted permeability	0.46	Depth to soft bedrock	0.26
Ha:					
Hamblen------------	90	Very limited		Very limited	
		Flooding	1.00	Flooding	1.00
		Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Restricted permeability	0.46	Seepage	0.53
HhC:					
Hawthorne----------	85	Very limited		Very limited	
		Depth to bedrock	1.00	Depth to soft bedrock	1.00
		Seepage (bottom layer)	1.00	Seepage	1.00
		Slope	0.84	Slope	1.00
HhF:					
Hawthorne----------	85	Very limited		Very limited	
		Depth to bedrock	1.00	Depth to soft bedrock	1.00
		Slope	1.00	Slope	1.00
		Seepage (bottom layer)	1.00	Seepage	1.00
HmF:					
Hawthorne----------	48	Very limited		Very limited	
		Depth to bedrock	1.00	Depth to soft bedrock	1.00
		Slope	1.00	Slope	1.00
		Seepage (bottom layer)	1.00	Seepage	1.00
Rock outcrop--------	47	Not rated		Not rated	
HnF:					
Hayter-------------	45	Very limited		Very limited	
		Slope	1.00	Slope	1.00
		Seepage (bottom layer)	1.00	Seepage	1.00
		Depth to bedrock	0.86	Depth to hard bedrock	0.61
Talbott------------	25	Very limited		Very limited	
		Restricted permeability	1.00	Depth to hard bedrock	1.00
		Depth to bedrock	1.00	Slope	1.00
		Slope	1.00		
Rock outcrop--------	20	Not rated		Not rated	
HoB:					
Holston------------	85	Somewhat limited		Somewhat limited	
		Restricted permeability	0.46	Seepage	0.53
				Slope	0.32

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
HoC2:					
Holston-------------	85	Somewhat limited		Very limited	
		Restricted permeability	0.46	Slope	1.00
		Slope	0.04	Seepage	0.53
HuB:					
Humphreys-----------	95	Very limited		Very limited	
		Seepage (bottom layer)	1.00	Seepage	1.00
		Depth to saturated zone	0.08	Slope	0.32
HuC:					
Humphreys-----------	95	Very limited		Very limited	
		Seepage (bottom layer)	1.00	Seepage	1.00
		Depth to saturated zone	0.08	Slope	1.00
		Slope	0.04		
LlB:					
Lily----------------	87	Very limited		Very limited	
		Depth to bedrock	1.00	Depth to hard bedrock	1.00
		Seepage (bottom layer)	1.00	Seepage	1.00
				Slope	0.32
LlC:					
Lily----------------	85	Very limited		Very limited	
		Depth to bedrock	1.00	Depth to hard bedrock	1.00
		Seepage (bottom layer)	1.00	Seepage	1.00
		Slope	0.04	Slope	1.00
LlD:					
Lily----------------	85	Very limited		Very limited	
		Depth to bedrock	1.00	Depth to hard bedrock	1.00
		Seepage (bottom layer)	1.00	Slope	1.00
		Slope	1.00	Seepage	1.00
LwB:					
Lonewood------------	90	Somewhat limited		Somewhat limited	
		Restricted permeability	0.46	Seepage	0.53
		Depth to bedrock	0.45	Slope	0.32
				Depth to hard bedrock	0.04
LwC:					
Lonewood------------	90	Somewhat limited		Very limited	
		Restricted permeability	0.46	Slope	1.00
		Depth to bedrock	0.45	Seepage	0.53
		Slope	0.04	Depth to hard bedrock	0.04

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
Me:					
Melvin-------------	85	Very limited		Very limited	
		Ponding	1.00	Ponding	1.00
		Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Restricted permeability	0.46	Seepage	0.53
MnC2:					
Minvale------------	90	Somewhat limited		Very limited	
		Restricted permeability	0.46	Slope	1.00
				Seepage	0.53
		Slope	0.04		
MnD2:					
Minvale------------	90	Very limited		Very limited	
		Slope	1.00	Slope	1.00
		Restricted permeability	0.46	Seepage	0.53
MoB2:					
Monongahela---------	90	Very limited		Very limited	
		Depth to cemented pan	1.00	Depth to cemented pan	1.00
		Depth to saturated zone	1.00	Depth to saturated zone	0.96
		Restricted permeability	0.46	Seepage	0.53
				Slope	0.08
MoC2:					
Monongahela---------	90	Very limited		Very limited	
		Depth to cemented pan	1.00	Depth to cemented pan	1.00
		Depth to saturated zone	1.00	Slope	1.00
				Depth to saturated zone	0.96
		Restricted permeability	0.46	Seepage	0.53
		Slope	0.04		
MtB2:					
Mountview----------	85	Very limited		Somewhat limited	
		Restricted permeability	1.00	Seepage	0.53
				Slope	0.32
MtC2:					
Mountview----------	85	Very limited		Very limited	
		Restricted permeability	1.00	Slope	1.00
				Seepage	0.53
		Slope	0.04		
NeC:					
Nella---------------	90	Somewhat limited		Very limited	
		Restricted permeability	0.46	Slope	1.00
				Seepage	0.53
		Content of large stones	0.12	Content of large stones	0.49
		Slope	0.04		

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
NeD, NeE:					
Nella	85	Very limited		Very limited	
		Slope	1.00	Slope	1.00
		Restricted permeability	0.46	Seepage	0.53
		Content of large stones	0.12	Content of large stones	0.49
NrF:					
Nella	50	Very limited		Very limited	
		Slope	1.00	Slope	1.00
		Restricted permeability	0.46	Seepage	0.53
		Content of large stones	0.12	Content of large stones	0.49
Talbott	25	Very limited		Very limited	
		Depth to bedrock	1.00	Depth to hard bedrock	1.00
		Slope	1.00	Slope	1.00
Rock outcrop	15	Not rated		Not rated	
Oc:					
Ocana	85	Very limited		Very limited	
		Flooding	1.00	Flooding	1.00
		Seepage (bottom layer)	1.00	Seepage	1.00
		Depth to saturated zone	0.84	Depth to saturated zone	0.17
Pd:					
Purdy	85	Very limited		Very limited	
		Flooding	1.00	Flooding	1.00
		Restricted permeability	1.00	Depth to saturated zone	1.00
		Depth to saturated zone	1.00		
Qr:					
Pits, quarry	100	Not rated		Not rated	
RaC:					
Ramsey	90	Very limited		Very limited	
		Depth to bedrock	1.00	Depth to hard bedrock	1.00
		Seepage (bottom layer)	1.00	Seepage	1.00
		Slope	0.04	Slope	1.00
RaD:					
Ramsey	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	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
RrC:					
Ramsey--------------	65	Very limited		Very limited	
		Depth to bedrock	1.00	Depth to hard bedrock	1.00
		Seepage (bottom layer)	1.00	Seepage	1.00
		Slope	0.04	Slope	1.00
Rock outcrop--------	25	Not rated		Not rated	
RrE:					
Ramsey--------------	55	Very limited		Very limited	
		Depth to bedrock	1.00	Depth to hard bedrock	1.00
		Seepage (bottom layer)	1.00	Slope	1.00
		Slope	1.00	Seepage	1.00
Rock outcrop--------	40	Not rated		Not rated	
SeC2:					
Sengtown------------	85	Very limited		Very limited	
		Restricted permeability	1.00	Slope	1.00
		Slope	0.04	Seepage	0.53
SeD2:					
Sengtown------------	85	Very limited		Very limited	
		Restricted permeability	1.00	Slope	1.00
		Slope	1.00	Seepage	0.53
SeE2:					
Sengtown------------	85	Very limited		Very limited	
		Slope	1.00	Slope	1.00
		Restricted permeability	1.00	Seepage	0.53
SfE:					
Sequoia-------------	80	Very limited		Very limited	
		Restricted permeability	1.00	Depth to soft bedrock	1.00
		Depth to bedrock	1.00	Slope	1.00
		Slope	1.00		
ShB:					
Shady---------------	90	Very limited		Very limited	
		Seepage (bottom layer)	1.00	Seepage	1.00
		Restricted permeability	0.46	Slope	0.32
ShC2:					
Shady---------------	90	Very limited		Very limited	
		Seepage (bottom layer)	1.00	Seepage	1.00
		Restricted permeability	0.46	Slope	1.00
		Slope	0.04		

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
SpF:					
Shelocta------------	50	Very limited		Very limited	
		Slope	1.00	Slope	1.00
		Depth to bedrock	0.69	Seepage	0.53
		Restricted permeability	0.46	Depth to hard bedrock	0.26
Pineville-----------	40	Very limited		Very limited	
		Slope	1.00	Slope	1.00
		Restricted permeability	0.50	Seepage	0.50
St:					
Staser--------------	95	Very limited		Very limited	
		Depth to saturated zone	1.00	Seepage	1.00
		Seepage (bottom layer)	1.00	Depth to saturated zone	0.99
		Flooding	0.40	Flooding	0.40
Su:					
Sullivan------------	90	Very limited		Very limited	
		Ponding	1.00	Ponding	1.00
		Restricted permeability	0.46	Seepage	0.53
		Depth to saturated zone	0.40		
Sv:					
Sullivan------------	90	Very limited		Very limited	
		Flooding	1.00	Flooding	1.00
		Restricted permeability	0.46	Seepage	0.53
		Depth to saturated zone	0.40		
TrD:					
Talbott-------------	60	Very limited		Very limited	
		Restricted permeability	1.00	Depth to hard bedrock	1.00
		Depth to bedrock	1.00	Slope	1.00
		Slope	0.63		
Rock outcrop--------	30	Not rated		Not rated	
TrE:					
Talbott-------------	65	Very limited		Very limited	
		Restricted permeability	1.00	Depth to hard bedrock	1.00
		Depth to bedrock	1.00	Slope	1.00
		Slope	1.00		
Rock outcrop--------	20	Not rated		Not rated	
Ud:					
Udarents------------	100	Not rated		Not rated	
W:					
Water---------------	100	Not rated		Not rated	

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
WaB2:					
Waynesboro----------	85	Somewhat limited		Somewhat limited	
		Restricted permeability	0.46	Seepage	0.53
				Slope	0.32
WaC2:					
Waynesboro----------	85	Somewhat limited		Very limited	
		Restricted permeability	0.46	Slope	1.00
				Seepage	0.53
		Slope	0.04		
WaD2:					
Waynesboro----------	85	Very limited		Very limited	
		Slope	1.00	Slope	1.00
		Restricted permeability	0.46	Seepage	0.53

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		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
Ak:							
Atkins	85	Very limited		Very limited		Very limited	
		Flooding	1.00	Flooding	1.00	Depth to saturated zone	1.00
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Seepage	0.22
		Seepage (bottom layer)	1.00	Seepage	1.00		
BA:							
Bethesda	50	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
						Gravel content	0.61
Pits	40	Not rated		Not rated		Not rated	
BeB2:							
Bewleyville	85	Somewhat limited		Not limited		Somewhat limited	
		Too clayey	0.50			Too clayey	0.50
BeC2:							
Bewleyville	85	Somewhat limited		Somewhat limited		Somewhat limited	
		Too clayey	0.50	Slope	0.04	Too clayey	0.50
		Slope	0.04			Slope	0.04
BoC:							
Bodine	90	Very limited		Very limited		Somewhat limited	
		Seepage (bottom layer)	1.00	Seepage	1.00	Seepage	0.52
		Too clayey	0.50	Slope	0.04	Too clayey	0.50
		Content of large stones	0.13			Content of large stones	0.13
		Slope	0.04			Gravel content	0.09
						Slope	0.04
BoD:							
Bodine	85	Very limited		Very limited		Very limited	
		Seepage (bottom layer)	1.00	Seepage	1.00	Slope	1.00
		Slope	1.00	Slope	1.00	Seepage	0.52
		Too clayey	0.50			Too clayey	0.50
		Content of large stones	0.13			Content of large stones	0.13
						Gravel content	0.09
BoF:							
Bodine	85	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Seepage (bottom layer)	1.00	Seepage	1.00	Seepage	0.52
		Too clayey	0.50			Too clayey	0.50
		Content of large stones	0.13			Content of large stones	0.13
						Gravel content	0.09

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
ByF:							
Bouldin-----	50	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Seepage (bottom layer)	1.00	Seepage	1.00	Seepage	0.52
		Too clayey	0.50			Too clayey	0.50
		Content of large stones	0.07			Content of large stones	0.07
						Gravel content	0.01
Grimsley----	35	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Depth to bedrock	1.00	Seepage	1.00	Seepage	0.50
		Too clayey	0.50	Depth to bedrock	0.08	Too clayey	0.50
		Content of large stones	0.01			Depth to bedrock	0.08
						Content of large stones	0.01
CaE:							
Carbo-------	70	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Depth to bedrock	1.00
		Depth to bedrock	1.00	Depth to bedrock	1.00	Slope	1.00
		Too clayey	1.00			Too clayey	1.00
						Hard to compact	1.00
Rock outcrop	20	Not rated		Not rated		Not rated	
ChC2:							
Christian---	90	Very limited		Somewhat limited		Very limited	
		Depth to bedrock	1.00	Slope	0.04	Too clayey	1.00
		Too clayey	1.00	Depth to bedrock	0.02	Hard to compact	1.00
		Slope	0.04			Slope	0.04
						Depth to bedrock	0.02
						Gravel content	0.01
ChD2:							
Christian---	90	Very limited		Very limited		Very limited	
		Depth to bedrock	1.00	Slope	1.00	Too clayey	1.00
		Too clayey	1.00	Depth to bedrock	0.02	Hard to compact	1.00
		Slope	1.00			Slope	1.00
						Depth to bedrock	0.02
						Gravel content	0.01
ChE2:							
Christian---	90	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Depth to bedrock	1.00	Depth to bedrock	0.02	Too clayey	1.00
		Too clayey	1.00			Hard to compact	1.00
						Depth to bedrock	0.02
						Gravel content	0.01
ChE3:							
Christian---	90	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Too clayey	1.00			Too clayey	1.00
						Hard to compact	1.00
CkB:							
Clarkrange--	90	Very limited		Very limited		Somewhat limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	0.86
		Too clayey	0.50			Too clayey	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
CkC:							
Clarkrange--	90	Very limited		Very limited		Somewhat limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	0.86
		Too clayey	0.50	Slope	0.04	Too clayey	0.50
		Slope	0.04			Slope	0.04
CoC:							
Colbert-----	90	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Too clayey	1.00
		Depth to bedrock	1.00	Slope	0.04	Hard to compact	1.00
		Too clayey	1.00			Slope	0.04
		Slope	0.04				
Cv:							
Craigsville-	85	Very limited		Very limited		Very limited	
		Flooding	1.00	Flooding	1.00	Seepage	1.00
		Seepage (bottom layer)	1.00	Seepage	1.00	Content of large stones	0.80
		Content of large stones	0.80				
DeD2:							
Dellrose----	85	Very limited		Very limited		Very limited	
		Slope	1.00	Seepage	1.00	Slope	1.00
		Too clayey	0.50	Slope	1.00	Seepage	0.52
						Too clayey	0.50
						Gravel content	0.44
DeF:							
Dellrose----	65	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Too clayey	0.50	Seepage	1.00	Seepage	0.52
						Too clayey	0.50
						Gravel content	0.44
Mimosa------	30	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Depth to bedrock	1.00	Depth to bedrock	0.32	Too clayey	1.00
		Too clayey	1.00			Hard to compact	1.00
						Depth to bedrock	0.32
DfC2:							
Dewey-------	90	Somewhat limited		Somewhat limited		Somewhat limited	
		Too clayey	0.50	Slope	0.04	Too clayey	0.50
		Slope	0.04			Hard to compact	0.50
						Slope	0.04
DkB2:							
Dickson-----	85	Very limited		Somewhat limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	0.83	Too clayey	1.00
		Too clayey	1.00			Hard to compact	1.00
						Depth to saturated zone	0.91

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
Ea:							
Ealy	90	Very limited		Very limited		Somewhat limited	
		Flooding	1.00	Flooding	1.00	Seepage	0.52
		Seepage (bottom layer)	1.00	Seepage	1.00	Gravel content	0.12
EwB:							
Etowah	90	Somewhat limited		Not limited		Somewhat limited	
		Too clayey	0.50			Too clayey	0.50
EwC2:							
Etowah	85	Somewhat limited		Somewhat limited		Somewhat limited	
		Too clayey	0.50	Slope	0.04	Too clayey	0.50
		Slope	0.04			Slope	0.04
EwD2:							
Etowah	85	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Too clayey	0.50			Too clayey	0.50
FhC:							
Faywood	50	Very limited		Very limited		Very limited	
		Depth to bedrock	1.00	Depth to bedrock	1.00	Depth to bedrock	1.00
		Too clayey	1.00	Slope	0.04	Too clayey	1.00
		Slope	0.04			Hard to compact	1.00
						Slope	0.04
Hawthorne	40	Very limited		Very limited		Very limited	
		Depth to bedrock	1.00	Seepage	1.00	Depth to bedrock	1.00
		Slope	0.04	Depth to bedrock	1.00	Gravel content	0.92
				Slope	0.04	Seepage	0.52
						Slope	0.04
GnF:							
Garmon	50	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Depth to bedrock	1.00
		Depth to bedrock	1.00	Seepage	1.00	Slope	1.00
		Seepage (bottom layer)	1.00	Depth to bedrock	1.00	Gravel content	0.90
						Seepage	0.52
Newbern	40	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Depth to bedrock	1.00
		Depth to bedrock	1.00	Depth to bedrock	1.00	Slope	1.00
		Seepage (bottom layer)	1.00			Gravel content	1.00
						Seepage	0.50
GpC:							
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	0.04	Too clayey	0.50
		Slope	0.04			Slope	0.04
						Gravel content	0.01
GpD:							
Gilpin	85	Very limited		Very limited		Very limited	
		Depth to bedrock	1.00	Depth to bedrock	1.00	Depth to bedrock	1.00
		Slope	1.00	Slope	1.00	Slope	1.00
		Too clayey	0.50			Too clayey	0.50
						Gravel content	0.01

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
GpE:							
Gilpin------	85	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Depth to bedrock	1.00
		Depth to bedrock	1.00	Depth to bedrock	1.00	Slope	1.00
		Too clayey	0.50			Too clayey	0.50
						Gravel content	0.01
GsF:							
Gilpin------	50	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Depth to bedrock	1.00
		Depth to bedrock	1.00	Depth to bedrock	1.00	Slope	1.00
		Too clayey	0.50			Too clayey	0.50
						Gravel content	0.01
Shelocta----	40	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Depth to bedrock	1.00	Depth to bedrock	0.26	Too clayey	0.50
		Too clayey	0.50			Gravel content	0.28
						Depth to bedrock	0.26
Ha:							
Hamblen-----	90	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		
HhC:							
Hawthorne---	85	Very limited		Very limited		Very limited	
		Depth to bedrock	1.00	Seepage	1.00	Depth to bedrock	1.00
		Seepage (bottom layer)	1.00	Depth to bedrock	1.00	Gravel content	1.00
				Slope	0.84	Slope	0.84
		Slope	0.84			Seepage	0.52
HhF:							
Hawthorne---	85	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Depth to bedrock	1.00
		Depth to bedrock	1.00	Seepage	1.00	Slope	1.00
		Seepage (bottom layer)	1.00	Depth to bedrock	1.00	Gravel content	1.00
						Seepage	0.52
HmF:							
Hawthorne---	48	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Depth to bedrock	1.00
		Depth to bedrock	1.00	Seepage	1.00	Slope	1.00
		Seepage (bottom layer)	1.00	Depth to bedrock	1.00	Gravel content	1.00
						Seepage	0.52
Rock outcrop	47	Not rated		Not rated		Not rated	
HnF:							
Hayter------	45	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Depth to bedrock	1.00	Seepage	1.00	Depth to bedrock	0.61
		Seepage (bottom layer)	1.00	Depth to bedrock	0.61	Seepage	0.52
						Gravel content	0.09

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
HnF:							
Talbott-----	25	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Depth to bedrock	1.00
		Depth to bedrock	1.00	Depth to bedrock	1.00	Slope	1.00
		Too clayey	1.00			Too clayey	1.00
						Hard to compact	1.00
Rock outcrop	20	Not rated		Not rated		Not rated	
HoB:							
Holston-----	85	Somewhat limited		Not limited		Somewhat limited	
		Too clayey	0.50			Too clayey	0.50
HoC2:							
Holston-----	85	Somewhat limited		Somewhat limited		Somewhat limited	
		Too clayey	0.50	Slope	0.04	Too clayey	0.50
		Slope	0.04			Slope	0.04
HuB:							
Humphreys---	95	Very limited		Very limited		Somewhat limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Gravel content	0.78
		Seepage (bottom layer)	1.00	Seepage	1.00	Seepage	0.52
		Too clayey	0.50			Too clayey	0.50
HuC:							
Humphreys---	95	Very limited		Very limited		Somewhat limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Gravel content	0.78
		Seepage (bottom layer)	1.00	Seepage	1.00	Seepage	0.52
		Too clayey	0.50	Slope	0.04	Too clayey	0.50
		Slope	0.04			Slope	0.04
LlB:							
Lily--------	87	Very limited		Very limited		Very limited	
		Depth to bedrock	1.00	Seepage	1.00	Depth to bedrock	1.00
		Seepage (bottom layer)	1.00	Depth to bedrock	1.00	Seepage	0.52
		Too clayey	0.50			Too clayey	0.50
LlC:							
Lily--------	85	Very limited		Very limited		Very limited	
		Depth to bedrock	1.00	Seepage	1.00	Depth to bedrock	1.00
		Seepage (bottom layer)	1.00	Depth to bedrock	1.00	Seepage	0.52
		Too clayey	0.50	Slope	0.04	Too clayey	0.50
		Slope	0.04			Slope	0.04
LlD:							
Lily--------	85	Very limited		Very limited		Very limited	
		Depth to bedrock	1.00	Seepage	1.00	Depth to bedrock	1.00
		Seepage (bottom layer)	1.00	Depth to bedrock	1.00	Slope	1.00
		Slope	1.00	Slope	1.00	Seepage	0.52
		Too clayey	0.50			Too clayey	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
LwB:							
Lonewood----	90	Very limited		Somewhat limited		Somewhat limited	
		Depth to bedrock	1.00	Depth to bedrock	0.04	Depth to bedrock	0.04
LwC:							
Lonewood----	90	Very limited		Somewhat limited		Somewhat limited	
		Depth to bedrock	1.00	Slope	0.04	Slope	0.04
		Slope	0.04	Depth to bedrock	0.04	Depth to bedrock	0.04
Me:							
Melvin------	85	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
MnC2:							
Minvale-----	90	Somewhat limited		Somewhat limited		Somewhat limited	
		Too clayey	0.50	Slope	0.04	Gravel content	0.69
		Slope	0.04			Too clayey	0.50
						Slope	0.04
MnD2:							
Minvale-----	90	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Too clayey	0.50			Gravel content	0.69
						Too clayey	0.50
MoB2:							
Monongahela-	90	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to cemented pan	1.00	Depth to cemented pan	1.00
				Depth to saturated zone	0.96	Depth to saturated zone	0.98
MoC2:							
Monongahela-	90	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to cemented pan	1.00	Depth to cemented pan	1.00
		Slope	0.04	Depth to saturated zone	0.96	Depth to saturated zone	0.98
				Slope	0.04	Slope	0.04
MtB2:							
Mountview---	85	Very limited		Not limited		Very limited	
		Too clayey	1.00			Hard to compact	1.00
MtC2:							
Mountview---	85	Very limited		Somewhat limited		Very limited	
		Too clayey	1.00	Slope	0.04	Hard to compact	1.00
		Slope	0.04			Slope	0.04
NeC:							
Nella-------	90	Somewhat limited		Somewhat limited		Somewhat limited	
		Too clayey	0.50	Slope	0.04	Too clayey	0.50
		Content of large stones	0.35			Content of large stones	0.35
		Slope	0.04			Slope	0.04

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
NeD, NeE:							
Nella-------	85	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Too clayey	0.50			Too clayey	0.50
		Content of large stones	0.35			Content of large stones	0.35
NrF:							
Nella-------	50	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Too clayey	0.50			Too clayey	0.50
		Content of large stones	0.35			Content of large stones	0.35
Talbott-----	25	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Depth to bedrock	1.00
		Depth to bedrock	1.00	Depth to bedrock	1.00	Slope	1.00
		Too clayey	1.00			Too clayey	1.00
						Hard to compact	1.00
Rock outcrop	15	Not rated		Not rated		Not rated	
Oc:							
Ocana-------	85	Very limited		Very limited		Somewhat limited	
		Flooding	1.00	Flooding	1.00	Gravel content	0.65
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Seepage	0.52
		Seepage (bottom layer)	1.00	Seepage	1.00		
Pd:							
Purdy-------	85	Very limited		Very limited		Very limited	
		Flooding	1.00	Flooding	1.00	Depth to saturated zone	1.00
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Too clayey	1.00
		Too clayey	1.00			Hard to compact	1.00
Qr:							
Pits, quarry	100	Not rated		Not rated		Not rated	
RaC:							
Ramsey------	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	Slope	0.04	Seepage	1.00
		Slope	0.04			Slope	0.04
RaD:							
Ramsey------	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	Slope	1.00	Seepage	1.00
		Slope	1.00			Slope	1.00

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
RrC:							
Ramsey------	65	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	0.04	Seepage	1.00
		Slope	0.04			Slope	0.04
Rock outcrop	25	Not rated		Not rated		Not rated	
RrE:							
Ramsey------	55	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	1.00	Seepage	1.00
		Slope	1.00			Slope	1.00
Rock outcrop	40	Not rated		Not rated		Not rated	
SeC2:							
Sengtown----	85	Very limited		Somewhat limited		Very limited	
		Too clayey	1.00	Slope	0.04	Too clayey	1.00
		Slope	0.04			Gravel content	0.55
						Slope	0.04
SeD2:							
Sengtown----	85	Very limited		Very limited		Very limited	
		Too clayey	1.00	Slope	1.00	Too clayey	1.00
		Slope	1.00			Slope	1.00
						Gravel content	0.55
SeE2:							
Sengtown----	85	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Too clayey	1.00			Too clayey	1.00
						Gravel content	0.55
SfE:							
Sequoia-----	80	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Depth to bedrock	1.00
		Depth to bedrock	1.00	Depth to bedrock	1.00	Slope	1.00
		Too clayey	1.00			Too clayey	1.00
						Hard to compact	1.00
						Gravel content	0.01
ShB:							
Shady-------	90	Very limited		Very limited		Somewhat limited	
		Seepage (bottom layer)	1.00	Seepage	1.00	Seepage	0.22
ShC2:							
Shady-------	90	Very limited		Very limited		Somewhat limited	
		Seepage (bottom layer)	1.00	Seepage	1.00	Seepage	0.22
		Slope	0.04	Slope	0.04	Slope	0.04

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
SpF:							
Shelocta----	50	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Depth to bedrock	1.00	Depth to bedrock	0.26	Too clayey	0.50
		Too clayey	0.50			Gravel content	0.28
						Depth to bedrock	0.26
Pineville---	40	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
						Gravel content	0.43
St:							
Staser------	95	Very limited		Very limited		Somewhat limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Seepage	0.22
		Seepage (bottom layer)	1.00	Seepage	1.00		
		Flooding	0.40	Flooding	0.40		
Su:							
Sullivan----	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		
Sv:							
Sullivan----	90	Very limited		Very limited		Not limited	
		Flooding	1.00	Flooding	1.00		
		Depth to saturated zone	1.00	Depth to saturated zone	1.00		
TrD:							
Talbott-----	60	Very limited		Very limited		Very limited	
		Depth to bedrock	1.00	Depth to bedrock	1.00	Depth to bedrock	1.00
		Too clayey	1.00	Slope	0.63	Too clayey	1.00
		Slope	0.63			Hard to compact	1.00
						Slope	0.63
Rock outcrop	30	Not rated		Not rated		Not rated	
TrE:							
Talbott-----	65	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Depth to bedrock	1.00
		Depth to bedrock	1.00	Depth to bedrock	1.00	Slope	1.00
		Too clayey	1.00			Too clayey	1.00
						Hard to compact	1.00
Rock outcrop	20	Not rated		Not rated		Not rated	
Ud:							
Udarents----	100	Not rated		Not rated		Not rated	
W:							
Water-------	100	Not rated		Not rated		Not rated	
WaB2:							
Waynesboro--	85	Somewhat limited		Not limited		Somewhat limited	
		Too clayey	0.50			Too clayey	0.50
						Hard to compact	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
WaC2:							
Waynesboro--	85	Somewhat limited		Somewhat limited		Somewhat limited	
		Too clayey	0.50	Slope	0.04	Too clayey	0.50
		Slope	0.04			Hard to compact	0.50
						Slope	0.04
WaD2:							
Waynesboro--	85	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Too clayey	0.50			Too clayey	0.50
						Hard to compact	0.50

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
Ak:					
Atkins	85	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
BA:					
Bethesda	50	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
Pits	40	Not rated		Not rated	
BeB2, BeC2:					
Bewleyville	85	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
BoC:					
Bodine	90	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
BoD, BoF:					
Bodine	85	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
ByF:					
Bouldin	50	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
Grimsley	35	Poor		Poor	
		Thickest layer	0.00	Bottom layer	0.00
		Bottom layer	0.00	Thickest layer	0.00
CaE:					
Carbo	70	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
Rock outcrop	20	Not rated		Not rated	
ChC2, ChD2, ChE2, ChE3:					
Christian	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
CkB, CkC:					
Clarkrange----------	90	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
CoC:					
Colbert-------------	90	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
Cv:					
Craigsville---------	85	Poor		Poor	
		Thickest layer	0.00	Thickest layer	0.00
		Bottom layer	0.00	Bottom layer	0.00
DeD2:					
Dellrose------------	85	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
DeF:					
Dellrose------------	65	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
Mimosa--------------	30	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
DfC2:					
Dewey---------------	90	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
DkB2:					
Dickson-------------	85	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
Ea:					
Ealy----------------	90	Poor		Fair	
		Bottom layer	0.00	Thickest layer	0.02
		Thickest layer	0.00	Bottom layer	0.10
EwB:					
Etowah--------------	90	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
EwC2, EwD2:					
Etowah--------------	85	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
FhC:					
Faywood-------------	50	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
FhC:					
Hawthorne-----------	40	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
GnF:					
Garmon--------------	50	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
Newbern-------------	40	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
GpC, GpD, GpE:					
Gilpin--------------	85	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
GsF:					
Gilpin--------------	50	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
Shelocta------------	40	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
Ha:					
Hamblen-------------	90	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
HhC, HhF:					
Hawthorne-----------	85	Fair		Poor	
		Thickest layer	0.00	Bottom layer	0.00
		Bottom layer	0.20	Thickest layer	0.00
HmF:					
Hawthorne-----------	48	Fair		Poor	
		Thickest layer	0.00	Bottom layer	0.00
		Bottom layer	0.20	Thickest layer	0.00
Rock outcrop--------	47	Not rated		Not rated	
HnF:					
Hayter--------------	45	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
Talbott-------------	25	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
Rock outcrop--------	20	Not rated		Not rated	
HoB, HoC2:					
Holston-------------	85	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	Potential source of gravel: Value	Potential source of sand: Rating class	Potential source of sand: Value
HuB, HuC:					
Humphreys-----------	95	Fair		Poor	
		Thickest layer	0.00	Bottom layer	0.00
		Bottom layer	0.20	Thickest layer	0.00
LlB:					
Lily----------------	87	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
LlC, LlD:					
Lily----------------	85	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
LwB, LwC:					
Lonewood------------	90	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
Me:					
Melvin--------------	85	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
MnC2, MnD2:					
Minvale-------------	90	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
MoB2, MoC2:					
Monongahela---------	90	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
MtB2, MtC2:					
Mountview-----------	85	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
NeC:					
Nella---------------	90	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
NeD, NeE:					
Nella---------------	85	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
NrF:					
Nella---------------	50	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
Talbott-------------	25	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
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
Oc:					
Ocana	85	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
Pd:					
Purdy	85	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
Qr:					
Pits, quarry	100	Not rated		Not rated	
RaC, RaD:					
Ramsey	90	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
RrC:					
Ramsey	65	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	
RrE:					
Ramsey	55	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
Rock outcrop	40	Not rated		Not rated	
SeC2, SeD2, SeE2:					
Sengtown	85	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
SfE:					
Sequoia	80	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
ShB, ShC2:					
Shady	90	Poor		Fair	
		Bottom layer	0.00	Thickest layer	0.00
		Thickest layer	0.00	Bottom layer	0.07
SpF:					
Shelocta	50	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
Pineville	40	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
St:					
Staser	95	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
Su, Sv:					
Sullivan	90	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
TrD:					
Talbott	60	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
Rock outcrop	30	Not rated		Not rated	
TrE:					
Talbott	65	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
Rock outcrop	20	Not rated		Not rated	
Ud:					
Udarents	100	Not rated		Not rated	
W:					
Water	100	Not rated		Not rated	
WaB2, WaC2, WaD2:					
Waynesboro	85	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00

Table 13.—Construction Materials, 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 0.00 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
Ak:							
Atkins------	85	Fair		Poor		Poor	
		Too acid	0.50	Depth to saturated zone	0.00	Depth to saturated zone	0.00
		Low content of organic matter	0.50			Too acid	0.88
BA:							
Bethesda----	50	Fair		Poor		Poor	
		Low content of organic matter	0.02	Slope	0.00	Hard to reclaim (dense layer)	0.00
		Too acid	0.50			Rock fragments	0.00
		Droughty	0.62			Slope	0.00
						Hard to reclaim (rock fragments)	0.05
						Too acid	0.59
Pits--------	40	Not rated		Not rated		Not rated	
BeB2:							
Bewleyville-	85	Fair		Poor		Fair	
		Low content of organic matter	0.12	Low strength	0.00	Too acid	0.98
		Too acid	0.54				
		Water erosion	0.90				
BeC2:							
Bewleyville-	85	Fair		Poor		Fair	
		Low content of organic matter	0.12	Low strength	0.00	Slope	0.96
						Too acid	0.98
		Too acid	0.54				
		Water erosion	0.90				
BoC:							
Bodine------	90	Fair		Fair		Poor	
		Too acid	0.12	Cobble content	0.32	Hard to reclaim (rock fragments)	0.00
		Low content of organic matter	0.12			Rock fragments	0.00
		Cobble content	0.87			Too clayey	0.53
		Too clayey	0.92			Too acid	0.59
		Droughty	0.99			Slope	0.96
BoD:							
Bodine------	85	Fair		Fair		Poor	
		Too acid	0.12	Cobble content	0.32	Slope	0.00
		Low content of organic matter	0.12	Slope	0.98	Hard to reclaim (rock fragments)	0.00
		Cobble content	0.87			Rock fragments	0.00
		Too clayey	0.92			Too clayey	0.53
		Droughty	0.99			Too acid	0.59
BoF:							
Bodine------	85	Fair		Poor		Poor	
		Too acid	0.12	Slope	0.00	Slope	0.00
		Low content of organic matter	0.12	Cobble content	0.32	Hard to reclaim (rock fragments)	0.00
		Cobble content	0.87			Rock fragments	0.00
		Too clayey	0.92			Too clayey	0.53
		Droughty	0.99			Too acid	0.59

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
ByF:							
Bouldin-----	50	Fair		Poor		Poor	
		Low content of organic matter	0.12	Slope	0.00	Slope	0.00
		Too acid	0.50	Cobble content	0.28	Hard to reclaim (rock fragments)	0.00
		Cobble content	0.93			Rock fragments	0.00
						Too acid	0.88
Grimsley----	35	Fair		Poor		Poor	
		Low content of organic matter	0.12	Slope	0.00	Slope	0.00
		Droughty	0.22	Cobble content	0.09	Rock fragments	0.00
		Too acid	0.32	Depth to bedrock	0.92	Hard to reclaim (rock fragments)	0.39
						Too acid	0.88
CaE:							
Carbo-------	70	Poor		Poor		Poor	
		Too clayey	0.00	Depth to bedrock	0.00	Slope	0.00
		Low content of organic matter	0.12	Low strength	0.00	Too clayey	0.00
		Droughty	0.19	Slope	0.00	Depth to bedrock	0.58
		Depth to bedrock	0.58	Shrink-swell	0.12	Rock fragments	0.95
		Too acid	0.88				
		Water erosion	0.99				
Rock outcrop	20	Not rated		Not rated		Not rated	
ChC2:							
Christian---	90	Poor		Poor		Poor	
		Too clayey	0.00	Low strength	0.00	Too clayey	0.00
		Low content of organic matter	0.12	Shrink-swell	0.87	Hard to reclaim (rock fragments)	0.00
		Too acid	0.32	Depth to bedrock	0.98	Rock fragments	0.76
		Water erosion	0.99			Too acid	0.88
						Slope	0.96
ChD2:							
Christian---	90	Poor		Poor		Poor	
		Too clayey	0.00	Low strength	0.00	Slope	0.00
		Low content of organic matter	0.12	Shrink-swell	0.87	Too clayey	0.00
		Too acid	0.32	Slope	0.98	Hard to reclaim (rock fragments)	0.00
		Water erosion	0.99	Depth to bedrock	0.98	Rock fragments	0.76
						Too acid	0.88
ChE2:							
Christian---	90	Poor		Poor		Poor	
		Too clayey	0.00	Slope	0.00	Slope	0.00
		Low content of organic matter	0.12	Low strength	0.00	Too clayey	0.00
		Too acid	0.32	Shrink-swell	0.87	Hard to reclaim (rock fragments)	0.00
		Water erosion	0.99	Depth to bedrock	0.98	Rock fragments	0.76
						Too acid	0.88
ChE3:							
Christian---	90	Poor		Poor		Poor	
		Too clayey	0.00	Slope	0.00	Slope	0.00
		Low content of organic matter	0.12	Low strength	0.00	Too clayey	0.00
		Too acid	0.50	Shrink-swell	0.87	Rock fragments	0.41
		Water erosion	0.99	Depth to bedrock	0.98	Too acid	0.88

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
CkB:							
Clarkrange--	90	Fair		Fair		Fair	
		Low content of organic matter	0.12	Low strength	0.22	Depth to saturated zone	0.53
		Too acid	0.32	Depth to saturated zone	0.53	Rock fragments	0.68
		Droughty	0.55			Too acid	0.88
		Water erosion	0.99				
CkC:							
Clarkrange--	90	Fair		Fair		Fair	
		Low content of organic matter	0.12	Low strength	0.22	Depth to saturated zone	0.53
		Too acid	0.32	Depth to saturated zone	0.53	Rock fragments	0.68
		Droughty	0.55			Too acid	0.88
		Water erosion	0.99			Slope	0.96
CoC:							
Colbert-----	90	Poor		Poor		Poor	
		Too clayey	0.00	Low strength	0.00	Too clayey	0.00
		Low content of organic matter	0.12	Shrink-swell	0.12	Slope	0.96
		Too acid	0.68			Rock fragments	0.99
Cv:							
Craigsville-	85	Poor		Poor		Poor	
		Droughty	0.00	Cobble content	0.00	Hard to reclaim (rock fragments)	0.00
		Low content of organic matter	0.12			Rock fragments	0.00
		Cobble content	0.20			Too acid	0.88
		Too acid	0.50				
DeD2:							
Dellrose----	85	Fair		Fair		Poor	
		Low content of organic matter	0.12	Slope	0.98	Slope	0.00
		Too acid	0.54			Rock fragments	0.00
						Hard to reclaim (rock fragments)	0.26
						Too acid	0.98
DeF:							
Dellrose----	65	Fair		Poor		Poor	
		Low content of organic matter	0.12	Slope	0.00	Slope	0.00
		Too acid	0.54			Rock fragments	0.00
						Hard to reclaim (rock fragments)	0.26
						Too acid	0.98
Mimosa------	30	Poor		Poor		Poor	
		Too clayey	0.00	Low strength	0.00	Slope	0.00
		Low content of organic matter	0.12	Slope	0.00	Too clayey	0.00
		Too acid	0.54	Shrink-swell	0.15	Too acid	0.98
		Water erosion	0.99	Depth to bedrock	0.68		
DfC2:							
Dewey-------	90	Poor		Fair		Poor	
		Too clayey	0.00	Low strength	0.10	Too clayey	0.00
		Low content of organic matter	0.12			Rock fragments	0.50
		Too acid	0.50			Too acid	0.88
						Slope	0.96

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
DkB2:							
Dickson-----	85	Fair		Poor		Fair	
		Low content of organic matter	0.12	Low strength	0.00	Depth to saturated zone	0.44
		Droughty	0.50	Depth to saturated zone	0.44	Too acid	0.88
		Too acid	0.50				
		Water erosion	0.90				
Ea:							
Ealy--------	90	Fair		Good		Poor	
		Too acid	0.50			Hard to reclaim (rock fragments)	0.00
		Low content of organic matter	0.88			Too acid	0.88
		Too sandy	0.98			Rock fragments	0.95
						Too sandy	0.98
EwB:							
Etowah------	90	Fair		Fair		Fair	
		Low content of organic matter	0.12	Low strength	0.22	Rock fragments	0.32
		Too acid	0.50			Too acid	0.88
		Water erosion	0.99				
EwC2:							
Etowah------	85	Fair		Fair		Fair	
		Low content of organic matter	0.12	Low strength	0.22	Rock fragments	0.32
		Too acid	0.50			Too acid	0.88
		Water erosion	0.99			Slope	0.96
EwD2:							
Etowah------	85	Fair		Fair		Poor	
		Low content of organic matter	0.12	Low strength	0.22	Slope	0.00
		Too acid	0.50	Slope	0.98	Rock fragments	0.32
		Water erosion	0.99			Too acid	0.88
FhC:							
Faywood-----	50	Poor		Poor		Poor	
		Too clayey	0.00	Depth to bedrock	0.00	Too clayey	0.00
		Droughty	0.07	Low strength	0.00	Depth to bedrock	0.54
		Low content of organic matter	0.12	Shrink-swell	0.94	Rock fragments	0.95
		Depth to bedrock	0.54			Slope	0.96
		Water erosion	0.99				
Hawthorne---	40	Poor		Poor		Poor	
		Droughty	0.00	Depth to bedrock	0.00	Rock fragments	0.00
		Low content of organic matter	0.12			Depth to bedrock	0.58
		Too acid	0.50			Too acid	0.59
		Depth to bedrock	0.58			Slope	0.96
GnF:							
Garmon------	50	Poor		Poor		Poor	
		Droughty	0.00	Depth to bedrock	0.00	Slope	0.00
		Low content of organic matter	0.11	Slope	0.00	Rock fragments	0.00
		Depth to bedrock	0.46			Depth to bedrock	0.46
		Too acid	0.88				

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
GnF:							
Newbern-----	40	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
		Low content of organic matter	0.12			Rock fragments	0.00
GpC:							
Gilpin------	85	Fair		Poor		Fair	
		Low content of organic matter	0.12	Depth to bedrock	0.00	Rock fragments	0.41
						Too acid	0.59
		Too acid	0.50			Depth to bedrock	0.93
		Droughty	0.76			Slope	0.96
		Depth to bedrock	0.93				
GpD:							
Gilpin------	85	Fair		Poor		Poor	
		Low content of organic matter	0.12	Depth to bedrock	0.00	Slope	0.00
				Slope	0.98	Rock fragments	0.41
		Too acid	0.50			Too acid	0.59
		Droughty	0.76			Depth to bedrock	0.93
		Depth to bedrock	0.93				
GpE:							
Gilpin------	85	Fair		Poor		Poor	
		Low content of organic matter	0.12	Depth to bedrock	0.00	Slope	0.00
				Slope	0.00	Rock fragments	0.41
		Too acid	0.50			Too acid	0.59
		Droughty	0.76			Depth to bedrock	0.93
		Depth to bedrock	0.93				
GsF:							
Gilpin------	50	Fair		Poor		Poor	
		Low content of organic matter	0.12	Depth to bedrock	0.00	Slope	0.00
				Slope	0.00	Rock fragments	0.41
		Too acid	0.50			Too acid	0.59
		Droughty	0.76			Depth to bedrock	0.93
		Depth to bedrock	0.93				
Shelocta----	40	Fair		Poor		Poor	
		Low content of organic matter	0.12	Slope	0.00	Slope	0.00
				Low strength	0.22	Rock fragments	0.00
		Too acid	0.50	Depth to bedrock	0.74	Hard to reclaim (rock fragments)	0.46
						Too acid	0.88
Ha:							
Hamblen-----	90	Fair		Fair		Fair	
		Low content of organic matter	0.50	Depth to saturated zone	0.44	Rock fragments	0.32
						Depth to saturated zone	0.44
		Too acid	0.97				
HhC:							
Hawthorne---	85	Poor		Poor		Poor	
		Droughty	0.00	Depth to bedrock	0.00	Rock fragments	0.00
		Depth to bedrock	0.05			Depth to bedrock	0.05
		Low content of organic matter	0.12			Slope	0.16
						Too acid	0.59
		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
HhF:							
Hawthorne---	85	Poor		Poor		Poor	
		Droughty	0.00	Depth to bedrock	0.00	Slope	0.00
		Depth to bedrock	0.05	Slope	0.00	Rock fragments	0.00
		Low content of organic matter	0.12			Depth to bedrock	0.05
		Too acid	0.50			Too acid	0.59
HmF:							
Hawthorne---	48	Poor		Poor		Poor	
		Droughty	0.00	Depth to bedrock	0.00	Slope	0.00
		Depth to bedrock	0.05	Slope	0.00	Rock fragments	0.00
		Low content of organic matter	0.12			Depth to bedrock	0.05
		Too acid	0.50			Too acid	0.59
Rock outcrop	47	Not rated		Not rated		Not rated	
HnF:							
Hayter------	45	Fair		Poor		Poor	
		Too acid	0.84	Slope	0.00	Slope	0.00
		Low content of organic matter	0.88	Depth to bedrock	0.39	Rock fragments	0.01
		Droughty	0.90			Hard to reclaim (rock fragments)	0.95
Talbott-----	25	Poor		Poor		Poor	
		Too clayey	0.00	Depth to bedrock	0.00	Slope	0.00
		Droughty	0.10	Low strength	0.00	Too clayey	0.00
		Low content of organic matter	0.12	Slope	0.00	Depth to bedrock	0.79
				Shrink-swell	0.87		
		Depth to bedrock	0.79				
		Too acid	0.84				
		Water erosion	0.99				
Rock outcrop	20	Not rated		Not rated		Not rated	
HoB:							
Holston-----	85	Fair		Good		Fair	
		Low content of organic matter	0.12			Too clayey	0.51
						Rock fragments	0.76
		Too acid	0.50			Too acid	0.88
		Too clayey	0.88				
HoC2:							
Holston-----	85	Fair		Good		Fair	
		Low content of organic matter	0.12			Too clayey	0.51
						Rock fragments	0.76
		Too acid	0.50			Too acid	0.88
		Too clayey	0.88			Slope	0.96
HuB:							
Humphreys---	95	Fair		Good		Poor	
		Low content of organic matter	0.12			Hard to reclaim (rock fragments)	0.00
		Too acid	0.54			Rock fragments	0.04
		Too clayey	0.98			Too clayey	0.57
						Too acid	0.98

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
HuC:							
Humphreys---	95	Fair		Good		Poor	
		Low content of organic matter	0.12			Hard to reclaim (rock fragments)	0.00
		Too acid	0.54			Rock fragments	0.04
		Too clayey	0.98			Too clayey	0.57
						Slope	0.96
						Too acid	0.98
LlB:							
Lily--------	87	Fair		Poor		Fair	
		Low content of organic matter	0.12	Depth to bedrock	0.00	Too acid	0.59
		Too acid	0.50			Depth to bedrock	0.65
		Depth to bedrock	0.65			Rock fragments	0.88
		Droughty	0.69				
LlC:							
Lily--------	85	Fair		Poor		Fair	
		Low content of organic matter	0.12	Depth to bedrock	0.00	Depth to bedrock	0.58
		Too acid	0.50			Too acid	0.59
		Depth to bedrock	0.58			Rock fragments	0.88
		Droughty	0.62			Slope	0.96
LlD:							
Lily--------	85	Fair		Poor		Poor	
		Low content of organic matter	0.12	Depth to bedrock	0.00	Slope	0.00
		Too acid	0.50	Slope	0.98	Depth to bedrock	0.54
		Depth to bedrock	0.54			Too acid	0.59
		Droughty	0.58			Rock fragments	0.88
LwB:							
Lonewood----	90	Fair		Fair		Fair	
		Low content of organic matter	0.12	Depth to bedrock	0.96	Too acid	0.88
		Too acid	0.32				
		Water erosion	0.99				
LwC:							
Lonewood----	90	Fair		Fair		Fair	
		Low content of organic matter	0.12	Depth to bedrock	0.96	Too acid	0.88
		Too acid	0.32			Slope	0.96
		Water erosion	0.99				
Me:							
Melvin------	85	Fair		Poor		Poor	
		Low content of organic matter	0.88	Depth to saturated zone	0.00	Depth to saturated zone	0.00
		Water erosion	0.90	Low strength	0.00		
MnC2:							
Minvale-----	90	Fair		Good		Poor	
		Low content of organic matter	0.12			Rock fragments	0.00
		Too acid	0.32			Hard to reclaim (rock fragments)	0.00
						Too acid	0.88
						Slope	0.96

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
MnD2:							
Minvale-----	90	Fair		Fair		Poor	
		Low content of organic matter	0.12	Slope	0.98	Slope	0.00
		Too acid	0.32			Rock fragments	0.00
						Hard to reclaim (rock fragments)	0.00
						Too acid	0.88
MoB2:							
Monongahela-	90	Fair		Fair		Fair	
		Low content of organic matter	0.12	Depth to saturated zone	0.24	Depth to saturated zone	0.24
		Too acid	0.32	Low strength	0.78	Too acid	0.88
		Droughty	0.68			Rock fragments	0.99
		Water erosion	0.90				
MoC2:							
Monongahela-	90	Fair		Fair		Fair	
		Low content of organic matter	0.12	Depth to saturated zone	0.24	Depth to saturated zone	0.24
		Too acid	0.32	Low strength	0.78	Too acid	0.88
		Droughty	0.68			Slope	0.96
		Water erosion	0.90			Rock fragments	0.99
MtB2:							
Mountview---	85	Fair		Poor		Fair	
		Low content of organic matter	0.12	Low strength	0.00	Too acid	0.88
				Shrink-swell	0.99		
		Too acid	0.32				
		Water erosion	0.90				
MtC2:							
Mountview---	85	Fair		Poor		Fair	
		Low content of organic matter	0.12	Low strength	0.00	Too acid	0.88
				Shrink-swell	0.99	Slope	0.96
		Too acid	0.32				
		Water erosion	0.90				
NeC:							
Nella-------	90	Fair		Fair		Poor	
		Low content of organic matter	0.12	Cobble content	0.08	Hard to reclaim (rock fragments)	0.00
		Too acid	0.50			Rock fragments	0.00
		Cobble content	0.65			Too acid	0.88
						Slope	0.96
NeD:							
Nella-------	85	Fair		Fair		Poor	
		Low content of organic matter	0.12	Cobble content	0.08	Slope	0.00
				Slope	0.98	Hard to reclaim (rock fragments)	0.00
		Too acid	0.50			Rock fragments	0.00
		Cobble content	0.65			Too acid	0.88
NeE:							
Nella-------	85	Fair		Poor		Poor	
		Low content of organic matter	0.12	Slope	0.00	Slope	0.00
				Cobble content	0.08	Hard to reclaim (rock fragments)	0.00
		Too acid	0.50			Rock fragments	0.00
		Cobble content	0.65			Too acid	0.88

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
NrF:							
Nella-------	50	Fair		Poor		Poor	
		Low content of organic matter	0.12	Slope	0.00	Slope	0.00
		Too acid	0.50	Cobble content	0.08	Hard to reclaim (rock fragments)	0.00
		Cobble content	0.65			Rock fragments	0.00
						Too acid	0.88
Talbott-----	25	Poor		Poor		Poor	
		Too clayey	0.00	Depth to bedrock	0.00	Slope	0.00
		Droughty	0.03	Low strength	0.00	Too clayey	0.00
		Low content of organic matter	0.12	Slope	0.00	Depth to bedrock	0.58
		Depth to bedrock	0.58	Shrink-swell	0.87		
		Too acid	0.84				
		Water erosion	0.99				
Rock outcrop	15	Not rated		Not rated		Not rated	
Oc:							
Ocana-------	85	Fair		Good		Poor	
		Low content of organic matter	0.88			Rock fragments	0.00
						Hard to reclaim (rock fragments)	0.00
Pd:							
Purdy-------	85	Poor		Poor		Poor	
		Too clayey	0.00	Depth to saturated zone	0.00	Depth to saturated zone	0.00
		Low content of organic matter	0.12	Low strength	0.00	Too clayey	0.00
		Too acid	0.50	Shrink-swell	0.87	Too acid	0.76
		Water erosion	0.99				
Qr:							
Pits, quarry	100	Not rated		Not rated		Not rated	
RaC:							
Ramsey------	90	Poor		Poor		Poor	
		Droughty	0.00	Depth to bedrock	0.00	Depth to bedrock	0.00
		Depth to bedrock	0.00			Rock fragments	0.32
		Low content of organic matter	0.12			Too acid	0.88
		Too acid	0.50			Slope	0.96
RaD:							
Ramsey------	90	Poor		Poor		Poor	
		Droughty	0.00	Depth to bedrock	0.00	Depth to bedrock	0.00
		Depth to bedrock	0.00	Slope	0.98	Slope	0.00
		Low content of organic matter	0.12			Rock fragments	0.32
		Too acid	0.50			Too acid	0.88
RrC:							
Ramsey------	65	Poor		Poor		Poor	
		Droughty	0.00	Depth to bedrock	0.00	Depth to bedrock	0.00
		Depth to bedrock	0.00			Rock fragments	0.32
		Low content of organic matter	0.12			Too acid	0.88
		Too acid	0.50			Slope	0.96
Rock outcrop	25	Not rated		Not rated		Not rated	

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
RrE:							
Ramsey------	55	Poor		Poor		Poor	
		Droughty	0.00	Depth to bedrock	0.00	Depth to bedrock	0.00
		Depth to bedrock	0.00	Slope	0.00	Slope	0.00
		Low content of organic matter	0.12			Rock fragments	0.32
						Too acid	0.88
		Too acid	0.50				
Rock outcrop	40	Not rated		Not rated		Not rated	
SeC2:							
Sengtown----	85	Poor		Poor		Poor	
		Too clayey	0.00	Low strength	0.00	Too clayey	0.00
		Low content of organic matter	0.12	Shrink-swell	0.92	Rock fragments	0.00
						Hard to reclaim (rock fragments)	0.16
		Too acid	0.54				
						Slope	0.96
						Too acid	0.98
SeD2:							
Sengtowm----	85	Poor		Poor		Poor	
		Too clayey	0.00	Low strength	0.00	Too clayey	0.00
		Low content of organic matter	0.12	Shrink-swell	0.92	Slope	0.00
				Slope	0.98	Rock fragments	0.00
		Too acid	0.54			Hard to reclaim (rock fragments)	0.16
						Too acid	0.98
SeE2:							
Sengtown----	85	Poor		Poor		Poor	
		Too clayey	0.00	Slope	0.00	Slope	0.00
		Low content of organic matter	0.12	Low strength	0.00	Too clayey	0.00
				Shrink-swell	0.92	Rock fragments	0.00
		Too acid	0.54			Hard to reclaim (rock fragments)	0.16
						Too acid	0.98
SfE:							
Sequoia-----	80	Poor		Poor		Poor	
		Too clayey	0.00	Depth to bedrock	0.00	Slope	0.00
		Droughty	0.11	Low strength	0.00	Too clayey	0.00
		Low content of organic matter	0.12	Slope	0.00	Rock fragments	0.76
				Shrink-swell	0.87	Too acid	0.88
		Too acid	0.50			Depth to bedrock	0.99
		Depth to bedrock	0.99				
ShB:							
Shady-------	90	Fair		Good		Poor	
		Low content of organic matter	0.12			Hard to reclaim (rock fragments)	0.00
		Too acid	0.54			Rock fragments	0.99
ShC2:							
Shady-------	90	Fair		Good		Poor	
		Low content of organic matter	0.12			Hard to reclaim (rock fragments)	0.00
		Too acid	0.54			Slope	0.96
						Rock fragments	0.99

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
SpF:							
Shelocta----	50	Fair		Poor		Poor	
		Low content of organic matter	0.12	Slope	0.00	Slope	0.00
		Too acid	0.50	Low strength	0.22	Rock fragments	0.00
				Depth to bedrock	0.74	Hard to reclaim (rock fragments)	0.46
						Too acid	0.88
Pineville---	40	Fair		Poor		Poor	
		Too acid	0.12	Slope	0.00	Slope	0.00
		Low content of organic matter	0.50			Rock fragments	0.00
						Hard to reclaim (rock fragments)	0.26
						Too acid	0.59
St:							
Staser------	95	Good		Good		Good	
Su, Sv:							
Sullivan----	90	Fair		Good		Fair	
		Low content of organic matter	0.50			Rock fragments	0.32
		Too acid	0.97				
TrD:							
Talbott-----	60	Poor		Poor		Poor	
		Too clayey	0.00	Depth to bedrock	0.00	Too clayey	0.00
		Droughty	0.10	Low strength	0.00	Slope	0.37
		Low content of organic matter	0.12	Shrink-swell	0.87	Depth to bedrock	0.79
		Depth to bedrock	0.79				
		Too acid	0.84				
		Water erosion	0.99				
Rock outcrop	30	Not rated		Not rated		Not rated	
TrE:							
Talbott-----	65	Poor		Poor		Poor	
		Too clayey	0.00	Depth to bedrock	0.00	Slope	0.00
		Droughty	0.10	Low strength	0.00	Too clayey	0.00
		Low content of organic matter	0.12	Slope	0.00	Depth to bedrock	0.79
				Shrink-swell	0.87		
		Depth to bedrock	0.79				
		Too acid	0.84				
		Water erosion	0.99				
Rock outcrop	20	Not rated		Not rated		Not rated	
Ud:							
Udarents----	100	Not rated		Not rated		Not rated	
W:							
Water-------	100	Not rated		Not rated		Not rated	
WaB2:							
Waynesboro--	85	Poor		Fair		Poor	
		Too clayey	0.00	Low strength	0.10	Too clayey	0.00
		Low content of organic matter	0.12			Rock fragments	0.88
		Too acid	0.50			Too acid	0.88

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
WaC2:							
Waynesboro--	85	Poor		Fair		Poor	
		Too clayey	0.00	Low strength	0.10	Too clayey	0.00
		Low content of organic matter	0.12			Rock fragments	0.88
						Too acid	0.88
		Too acid	0.50			Slope	0.96
WaD2:							
Waynesboro--	85	Poor		Fair		Poor	
		Too clayey	0.00	Low strength	0.10	Slope	0.00
		Low content of organic matter	0.12	Slope	0.98	Too clayey	0.00
						Rock fragments	0.88
		Too acid	0.50			Too acid	0.88

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		Embankments, dikes, and levees		Aquifer-fed excavated ponds	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
Ak:							
Atkins------	85	Very limited		Very limited		Somewhat limited	
		Seepage	1.00	Depth to saturated zone	1.00	Cutbanks cave	0.10
				Piping	0.99		
BA:							
Bethesda----	50	Very limited		Not limited		Very limited	
		Slope	1.00			No ground water	1.00
		Seepage	0.04				
Pits--------	40	Very limited		Not rated		Not rated	
		Slope	1.00				
BeB2, BeC2:							
Bewleyville-	85	Somewhat limited		Somewhat limited		Very limited	
		Seepage	0.72	Piping	0.24	No ground water	1.00
BoC:							
Bodine------	90	Very limited		Somewhat limited		Very limited	
		Seepage	1.00	Content of large stones	0.01	No ground water	1.00
BoD:							
Bodine------	85	Very limited		Somewhat limited		Very limited	
		Seepage	1.00	Content of large stones	0.01	No ground water	1.00
		Slope	0.04				
BoF:							
Bodine------	85	Very limited		Somewhat limited		Very limited	
		Seepage	1.00	Content of large stones	0.01	No ground water	1.00
		Slope	0.97				
ByF:							
Bouldin-----	50	Very limited		Somewhat limited		Very limited	
		Seepage	1.00	Content of large stones	0.02	No ground water	1.00
		Slope	0.97				
Grimsley----	35	Very limited		Somewhat limited		Very limited	
		Seepage	1.00	Piping	0.85	No ground water	1.00
		Slope	0.97	Content of large stones	0.10		
		Depth to bedrock	0.01				
				Thin layer	0.02		
CaE:							
Carbo-------	70	Somewhat limited		Very limited		Very limited	
		Depth to bedrock	0.85	Hard to pack	1.00	No ground water	1.00
		Slope	0.72	Thin layer	0.85		
Rock outcrop	20	Somewhat limited		Not rated		Not rated	
		Slope	0.72				
ChC2:							
Christian---	90	Somewhat limited		Somewhat limited		Very limited	
		Depth to bedrock	0.01	Hard to pack	0.07	No ground water	1.00
				Thin layer	0.01		

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
ChD2:							
Christian---	90	Somewhat limited		Somewhat limited		Very limited	
		Slope	0.04	Hard to pack	0.07	No ground water	1.00
		Depth to bedrock	0.01	Thin layer	0.01		
ChE2:							
Christian---	90	Somewhat limited		Somewhat limited		Very limited	
		Slope	0.50	Hard to pack	0.07	No ground water	1.00
		Depth to bedrock	0.01	Thin layer	0.01		
ChE3:							
Christian---	90	Somewhat limited		Somewhat limited		Very limited	
		Slope	0.50	Hard to pack	0.18	No ground water	1.00
CkB, CkC:							
Clarkrange--	90	Somewhat limited		Very limited		Very limited	
		Seepage	0.72	Depth to saturated zone	0.99	Slow refill	1.00
						Cutbanks cave	0.10
				Piping	0.96	Depth to water	0.01
CoC:							
Colbert-----	90	Not limited		Somewhat limited		Very limited	
				Hard to pack	0.70	Slow refill	1.00
						Depth to water	0.90
						Cutbanks cave	0.10
Cv:							
Craigsville-	85	Very limited		Somewhat limited		Very limited	
		Seepage	1.00	Content of large stones	0.87	No ground water	1.00
				Seepage	0.04		
DeD2:							
Dellrose----	85	Very limited		Somewhat limited		Very limited	
		Seepage	1.00	Piping	0.28	No ground water	1.00
		Slope	0.04				
DeF:							
Dellrose----	65	Very limited		Somewhat limited		Very limited	
		Seepage	1.00	Piping	0.29	No ground water	1.00
		Slope	0.88				
Mimosa------	30	Somewhat limited		Somewhat limited		Very limited	
		Slope	0.88	Hard to pack	0.21	No ground water	1.00
		Depth to bedrock	0.08	Thin layer	0.08		
DfC2:							
Dewey-------	90	Somewhat limited		Not limited		Very limited	
		Seepage	0.03			No ground water	1.00
DkB2:							
Dickson-----	85	Somewhat limited		Very limited		Very limited	
		Seepage	0.72	Depth to saturated zone	1.00	No ground water	1.00
				Piping	0.42		
Ea:							
Ealy--------	90	Very limited		Somewhat limited		Very limited	
		Seepage	1.00	Seepage	0.10	No ground water	1.00
EwB:							
Etowah------	90	Somewhat limited		Somewhat limited		Very limited	
		Seepage	0.72	Piping	0.93	No ground water	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
EwC2:							
Etowah------	85	Somewhat limited		Somewhat limited		Very limited	
		Seepage	0.72	Piping	0.91	No ground water	1.00
EwD2:							
Etowah------	85	Somewhat limited		Somewhat limited		Very limited	
		Seepage	0.72	Piping	0.91	No ground water	1.00
		Slope	0.04				
FhC:							
Faywood-----	50	Somewhat limited		Somewhat limited		Very limited	
		Depth to bedrock	0.86	Thin layer	0.86	No ground water	1.00
Hawthorne---	40	Very limited		Somewhat limited		Very limited	
		Seepage	1.00	Thin layer	0.85	No ground water	1.00
		Depth to bedrock	0.11				
GnF:							
Garmon------	50	Very limited		Somewhat limited		Very limited	
		Seepage	1.00	Thin layer	0.88	No ground water	1.00
		Slope	1.00				
		Depth to bedrock	0.88				
Newbern-----	40	Very limited		Very limited		Very limited	
		Depth to bedrock	1.00	Thin layer	1.00	No ground water	1.00
		Slope	1.00				
GpC:							
Gilpin------	85	Somewhat limited		Somewhat limited		Very limited	
		Seepage	0.72	Piping	0.94	No ground water	1.00
		Depth to bedrock	0.03	Thin layer	0.66		
GpD:							
Gilpin------	85	Somewhat limited		Somewhat limited		Very limited	
		Seepage	0.72	Piping	0.94	No ground water	1.00
		Slope	0.04	Thin layer	0.66		
		Depth to bedrock	0.03				
GpE:							
Gilpin------	85	Somewhat limited		Somewhat limited		Very limited	
		Seepage	0.72	Piping	0.94	No ground water	1.00
		Slope	0.50	Thin layer	0.66		
		Depth to bedrock	0.03				
GsF:							
Gilpin------	50	Very limited		Somewhat limited		Very limited	
		Slope	1.00	Piping	0.94	No ground water	1.00
		Seepage	0.72	Thin layer	0.66		
		Depth to bedrock	0.03				
Shelocta----	40	Very limited		Somewhat limited		Very limited	
		Slope	1.00	Piping	0.87	No ground water	1.00
		Seepage	0.72	Thin layer	0.06		
		Depth to bedrock	0.01				
Ha:							
Hamblen-----	90	Somewhat limited		Very limited		Somewhat limited	
		Seepage	0.72	Depth to saturated zone	1.00	Slow refill	0.28
						Cutbanks cave	0.10
				Piping	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
HhC:							
Hawthorne---	85	Very limited		Somewhat limited		Very limited	
		Seepage	1.00	Thin layer	0.99	No ground water	1.00
		Depth to bedrock	0.34	Seepage	0.20		
		Slope	0.01				
HhF:							
Hawthorne---	85	Very limited		Somewhat limited		Very limited	
		Seepage	1.00	Thin layer	0.99	No ground water	1.00
		Slope	0.97	Seepage	0.20		
		Depth to bedrock	0.34				
HmF:							
Hawthorne---	48	Very limited		Somewhat limited		Very limited	
		Seepage	1.00	Thin layer	0.99	No ground water	1.00
		Slope	1.00	Seepage	0.20		
		Depth to bedrock	0.34				
Rock outcrop	47	Very limited		Not rated		Not rated	
		Slope	1.00				
HnF:							
Hayter------	45	Very limited		Somewhat limited		Very limited	
		Seepage	1.00	Thin layer	0.16	No ground water	1.00
		Slope	0.97				
		Depth to bedrock	0.16				
Talbott-----	25	Somewhat limited		Somewhat limited		Very limited	
		Slope	0.97	Thin layer	0.77	No ground water	1.00
Rock outcrop	20	Somewhat limited		Not rated		Not rated	
		Slope	0.97				
HoB:							
Holston-----	85	Somewhat limited		Somewhat limited		Very limited	
		Seepage	0.72	Piping	0.95	No ground water	1.00
HoC2:							
Holston-----	85	Somewhat limited		Somewhat limited		Very limited	
		Seepage	0.72	Piping	0.94	No ground water	1.00
HuB, HuC:							
Humphreys---	95	Very limited		Somewhat limited		Very limited	
		Seepage	1.00	Seepage	0.20	No ground water	1.00
LlB:							
Lily--------	87	Very limited		Very limited		Very limited	
		Seepage	1.00	Piping	1.00	No ground water	1.00
		Depth to bedrock	0.83	Thin layer	0.83		
LlC:							
Lily--------	85	Very limited		Very limited		Very limited	
		Seepage	1.00	Piping	1.00	No ground water	1.00
		Depth to bedrock	0.85	Thin layer	0.85		
LlD:							
Lily--------	85	Very limited		Very limited		Very limited	
		Seepage	1.00	Piping	1.00	No ground water	1.00
		Depth to bedrock	0.86	Thin layer	0.86		
		Slope	0.04				

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
LwB, LwC:							
Lonewood----	90	Somewhat limited		Very limited		Very limited	
		Seepage	0.72	Piping	1.00	No ground water	1.00
		Depth to bedrock	0.01	Thin layer	0.01		
Me:							
Melvin------	85	Somewhat limited		Very limited		Somewhat limited	
		Seepage	0.72	Ponding	1.00	Slow refill	0.28
				Depth to saturated zone	1.00	Cutbanks cave	0.10
				Piping	0.39		
MnC2:							
Minvale-----	90	Somewhat limited		Not limited		Very limited	
		Seepage	0.72			No ground water	1.00
MnD2:							
Minvale-----	90	Somewhat limited		Not limited		Very limited	
		Seepage	0.72			No ground water	1.00
		Slope	0.04				
MoB2, MoC2:							
Monongahela-	90	Somewhat limited		Very limited		Very limited	
		Depth to cemented pan	0.91	Depth to saturated zone	1.00	No ground water	1.00
		Seepage	0.72	Piping	1.00		
				Thin layer	0.91		
MtB2, MtC2:							
Mountview---	85	Somewhat limited		Somewhat limited		Very limited	
		Seepage	0.72	Piping	0.07	No ground water	1.00
NeC:							
Nella-------	90	Somewhat limited		Somewhat limited		Very limited	
		Seepage	0.72	Piping	0.66	No ground water	1.00
				Content of large stones	0.12		
NeD:							
Nella-------	85	Somewhat limited		Somewhat limited		Very limited	
		Seepage	0.72	Piping	0.66	No ground water	1.00
		Slope	0.04	Content of large stones	0.12		
NeE:							
Nella-------	85	Somewhat limited		Somewhat limited		Very limited	
		Seepage	0.72	Piping	0.66	No ground water	1.00
		Slope	0.50	Content of large stones	0.12		
NrF:							
Nella-------	50	Somewhat limited		Somewhat limited		Very limited	
		Slope	0.97	Piping	0.66	No ground water	1.00
		Seepage	0.72	Content of large stones	0.12		
Talbott-----	25	Somewhat limited		Somewhat limited		Very limited	
		Slope	0.97	Thin layer	0.85	No ground water	1.00
		Depth to bedrock	0.85	Hard to pack	0.41		
Rock outcrop	15	Somewhat limited		Not rated		Not rated	
		Slope	0.97				

Table 14.—Water Management—Continued

Map symbol and soil name	Pct. of map unit	Pond reservoir areas		Embankments, dikes, and levees		Aquifer-fed excavated ponds	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
Oc:							
Ocana-------	85	Very limited		Not limited		Very limited	
		Seepage	1.00			Cutbanks cave	1.00
						Depth to water	0.96
Pd:							
Purdy-------	85	Not limited		Very limited		Somewhat limited	
				Depth to saturated zone	1.00	Slow refill	0.46
						Cutbanks cave	0.10
				Hard to pack	0.26		
Qr:							
Pits, quarry	100	Not rated		Not rated		Not rated	
RaC:							
Ramsey------	90	Very limited		Very limited		Very limited	
		Depth to bedrock	1.00	Thin layer	1.00	No ground water	1.00
RaD:							
Ramsey------	90	Very limited		Very limited		Very limited	
		Depth to bedrock	1.00	Thin layer	1.00	No ground water	1.00
		Slope	0.04				
RrC:							
Ramsey------	65	Very limited		Very limited		Very limited	
		Depth to bedrock	1.00	Thin layer	1.00	No ground water	1.00
Rock outcrop	25	Not limited		Not rated		Not rated	
RrE:							
Ramsey------	55	Very limited		Very limited		Very limited	
		Depth to bedrock	1.00	Thin layer	1.00	No ground water	1.00
		Slope	0.32				
Rock outcrop	40	Somewhat limited		Not rated		Not rated	
		Slope	0.32				
SeC2:							
Sengtown----	85	Somewhat limited		Not limited		Very limited	
		Seepage	0.72			No ground water	1.00
SeD2:							
Sengtown----	85	Somewhat limited		Not limited		Very limited	
		Seepage	0.72			No ground water	1.00
		Slope	0.04				
SeE2:							
Sengtown----	85	Somewhat limited		Not limited		Very limited	
		Seepage	0.72			No ground water	1.00
		Slope	0.50				
SfE:							
Sequoia-----	80	Somewhat limited		Somewhat limited		Very limited	
		Slope	0.50	Hard to pack	0.73	No ground water	1.00
		Depth to bedrock	0.02	Thin layer	0.56		
ShB, ShC2:							
Shady-------	90	Very limited		Somewhat limited		Very limited	
		Seepage	1.00	Seepage	0.07	No ground water	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
SpF:							
Shelocta----	50	Somewhat limited		Somewhat limited		Very limited	
		Slope	0.97	Piping	0.87	No ground water	1.00
		Seepage	0.72	Thin layer	0.06		
		Depth to bedrock	0.06				
Pineville---	40	Somewhat limited		Not limited		Very limited	
		Slope	0.97			No ground water	1.00
		Seepage	0.70				
St:							
Staser------	95	Very limited		Very limited		Somewhat limited	
		Seepage	1.00	Piping	1.00	Depth to water	0.54
				Depth to saturated zone	0.09	Cutbanks cave	0.10
Su:							
Sullivan----	90	Somewhat limited		Very limited		Very limited	
		Seepage	0.72	Piping	1.00	No ground water	1.00
				Ponding	1.00	Slow refill	0.28
Sv:							
Sullivan----	90	Somewhat limited		Very limited		Very limited	
		Seepage	0.72	Piping	1.00	No ground water	1.00
						Slow refill	0.28
TrD:							
Talbott-----	60	Somewhat limited		Somewhat limited		Very limited	
		Depth to bedrock	0.77	Thin layer	0.77	No ground water	1.00
		Slope	0.01	Hard to pack	0.44		
Rock outcrop	30	Somewhat limited		Not rated		Not rated	
		Slope	0.01				
TrE:							
Talbott-----	65	Somewhat limited		Somewhat limited		Very limited	
		Depth to bedrock	0.77	Thin layer	0.77	No ground water	1.00
		Slope	0.50	Hard to pack	0.44		
Rock outcrop	20	Somewhat limited		Not rated		Not rated	
		Slope	0.50				
Ud:							
Udarents----	100	Not rated		Not rated		Not rated	
W:							
Water-------	100	Not rated		Not rated		Not rated	
WaB2, WaC2:							
Waynesboro--	85	Somewhat limited		Not limited		Very limited	
		Seepage	0.72			No ground water	1.00
WaD2:							
Waynesboro--	85	Somewhat limited		Not limited		Very limited	
		Seepage	0.72			No ground water	1.00
		Slope	0.04				

Table 15.—Engineering Index Properties

(Absence of an entry indicates that data were not estimated)

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				Pct	Pct					Pct	
Ak:												
Atkins----------	0-6	Loam	ML, CL-ML, CL	A-4, A-6	0	0	89-100	74-100	59-97	43-75	20-40	3-20
	6-36	Loam, silt loam	SM, ML, CL, SC	A-4, A-6	0	0	90-100	74-100	62-93	43-67	20-40	3-20
	36-65	Sandy loam, loam	SC, GM, ML, SM	A-2, A-4, A-6	0	0	69-100	37-100	27-89	16-61	20-40	1-15
BA:												
Bethesda--------	0-1	Channery loam	GC-GM, SC, GM, ML	A-4, A-6	0	0-12	71-91	42-91	35-86	26-64	25-40	4-14
	1-65	Very channery loam, extremely channery clay loam	ML, SC, GC-GM, CL	A-2, A-4, A-6, A-7	0	8-19	62-88	24-88	20-88	15-73	24-50	3-23
Pits.												
BeB2, BeC2:												
Bewleyville-----	0-9	Silt loam	ML, CL-ML	A-4	0	0	100	94-100	88-100	82-99	20-30	2-7
	9-30	Silt loam, silty clay loam	CL	A-6, A-7	0	0	95-100	90-100	88-100	82-100	30-45	11-22
	30-57	Silty clay loam, silt loam	CL	A-6, A-7	0	0	95-100	90-100	81-100	76-97	30-45	11-22
	57-77	Clay, silty clay loam	ML, MH, CL, CH	A-6, A-7	0	0-3	93-100	86-100	75-100	62-88	35-65	12-32

Table 15.—Engineering Index Properties—Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				Pct	Pct					Pct	
BoC, BoD, BoF:												
Bodine----------	0-6	Gravelly silt loam	SM, ML, GC, CL	A-1-b, A-2, A-4	0	0-9	53-91	7-91	6-88	5-78	15-30	NP-8
	6-12	Very gravelly silt loam, very gravelly loam, gravelly loam	SC-SM, SC, GC, GC-GM	A-1, A-2, A-4, A-6	0	0-22	50-84	14-84	13-84	12-84	20-38	3-15
	12-44	Very cobbly silty clay loam, very gravelly clay loam	CL, GM, SM, SC, GW-GM, GW-GC	A-6	0	10-37	30-91	26-91	24-91	21-91	26-42	8-16
	44-70	Very cobbly clay, very cobbly silty clay loam, very gravelly clay loam	SC, GC	A-7	0	10-37	30-91	26-91	20-91	17-91	26-50	8-22
ByF:												
Bouldin---------	0-7	Gravelly loam	SC-SM, GM, ML	A-2, A-4	0	10-22	70-89	45-89	37-82	26-60	15-25	2-7
	7-24	Very cobbly loam	SC-SM, ML, GM, SC	A-2, A-4	0	10-31	68-89	41-89	32-85	22-64	15-25	2-10
	24-87	Very cobbly clay loam, stony sandy clay loam, stony loam	SC, GC	A-2, A-4, A-6	0	26-37	65-88	42-88	33-84	23-64	25-39	8-16

Table 15.—Engineering Index Properties—Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				Pct	Pct					Pct	
ByF:												
Grimsley--------	0-2	Gravelly loam	SM, CL, ML, CL-ML	A-1-b, A-2, A-4	0	4-26	70-93	46-93	38-86	26-62	15-30	NP-10
	2-12	Very cobbly loam, cobbly clay loam, cobbly sandy clay loam	CL, SC-SM	A-4, A-6	0	15-46	61-100	60-100	47-100	33-80	21-45	6-25
	12-44	Very cobbly loam, very cobbly clay loam, cobbly sandy clay loam	SC-SM, CL	A-4, A-6	0	15-46	61-97	60-97	42-92	28-70	21-45	6-25
	44-55	Channery silty clay loam, very cobbly loam, cobbly sandy clay loam	GC, SC-SM	A-7	0	0-42	24-97	21-97	15-97	13-91	21-45	6-25
	55-57	Weathered bedrock			---	---	---	---	---	---	---	---
CaE:												
Carbo-----------	0-4	Silt loam	CL	A-6, A-7	0	0-2	94-100	83-100	78-100	76-100	30-50	10-25
	4-38	Clay	CH	A-7	0	0-5	95-100	79-100	50-100	46-100	60-80	35-55
	38-44	Unweathered bedrock			---	---	---	---	---	---	---	---
Rock outcrop.												

Table 15.—Engineering Index 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	
ChC2, ChD2, ChE2:												
Christian-------	0-8	Loam, silt loam	ML, CL-ML	A-4	0	0	86-100	72-100	58-96	42-73	15-30	NP-7
	8-18	Clay loam, silty clay loam, gravelly silty clay loam	GC, SC, ML, CL	A-4, A-6	0	0	86-100	73-100	62-98	48-79	20-40	2-20
	18-48	Clay, silty clay loam, gravelly clay	CL, CH, SC, GC	A-7	0	0	92-100	76-100	53-100	42-85	41-70	20-42
	48-57	Extremely channery clay loam, gravelly clay, clay, silty clay loam	SC, GC, CL, CH	A-2	0	0	56-100	12-100	10-100	8-96	41-70	20-42
	57-59	Weathered bedrock			---	---	---	---	---	---	---	---
ChE3:												
Christian-------	0-5	Loam, silt loam	CL-ML, ML	A-4	0	0	86-100	72-100	57-94	45-78	15-30	NP-7
	5-22	Clay, silty clay loam, gravelly clay	GC, SC, CL, CH	A-7	0	0	92-100	76-100	55-100	46-91	41-70	20-42
	22-57	Extremely channery clay loam, gravelly clay, clay, silty clay loam	CH, CL, GC, SC	A-7	0	0	56-100	12-100	10-100	8-95	41-70	20-42
	57-59	Unweathered bedrock			---	---	---	---	---	---	---	---
CkB, CkC:												
Clarkrange------	0-9	Loam	ML, CL-ML, CL	A-6, A-4	0	0	86-100	68-100	64-100	52-87	21-32	3-12
	9-24	Silt loam, silty clay loam	CL, CL-ML, ML	A-4, A-6	0	0	86-100	69-100	64-100	59-98	23-39	3-16
	24-41	Clay loam, silty clay loam, loam	CL, CL-ML, ML	A-4, A-6	0	0	87-100	71-100	64-100	54-97	23-39	3-16
	41-53	Clay loam, silty clay loam	CL, CL-ML, ML	A-4, A-6	0	0	87-100	70-100	61-100	51-93	23-39	3-16
	53-55	Unweathered bedrock			---	---	---	---	---	---	---	---

Table 15.—Engineering Index 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	
CoC:												
Colbert---------	0-7	Silt loam, silty clay loam	CL	A-4, A-6, A-7	0	0	94-100	83-100	80-100	70-99	25-45	7-25
	7-20	Silty clay loam, silty clay, clay	MH, CH, CL, ML	A-6, A-7	0	0	95-100	89-100	82-100	72-96	35-68	15-35
	20-60	Silty clay, clay	CH, MH	A-7	0	0	94-100	81-100	71-100	65-100	50-85	25-50
	60-62	Unweathered bedrock			---	---	---	---	---	---	---	---
Cv:												
Craigsville-----	0-2	Cobbly loam	CL-ML, SC-SM, SM, ML	A-2, A-4	0	25-42	80-98	60-98	49-90	34-65	0-25	NP-10
	2-12	Very cobbly loam	CL-ML, ML, SC-SM, SM	A-2, A-4	0	25-60	73-98	47-98	38-90	26-65	0-25	NP-10
	12-65	Very gravelly loamy sand, very gravelly sandy loam, very cobbly sandy loam	GC, SC-SM, GM, GP-GM	A-1, A-2	0	30-47	49-87	29-87	22-69	10-35	0-25	NP-8
DeD2:												
Dellrose--------	0-5	Gravelly silt loam	CL-ML, GC, CL, SC	A-4, A-6	0	0-8	63-90	34-90	30-90	25-76	20-35	5-15
	5-22	Gravelly silt loam	CL, GC, SC, CL-ML	A-4, A-6	0	0-8	63-90	34-90	29-89	25-78	20-35	5-15
	22-66	Gravelly silty clay loam	CL, GC, ML, SC	A-4, A-6, A-7	0	0-12	65-90	35-90	32-90	28-84	30-45	8-18
	66-80	Clay, silty clay, gravelly silty clay loam	CH, MH	A-7	0	0	95-100	85-100	61-100	51-90	51-65	25-35
DeF:												
Dellrose--------	0-7	Gravelly silt loam	CL, CL-ML, GC, SC	A-4, A-6	0	0-8	63-90	34-90	30-90	25-76	20-35	5-15
	7-22	Gravelly silt loam	CL, GC, CL-ML, SC	A-4, A-6	0	0-8	63-90	34-90	29-89	25-78	20-35	5-15
	22-66	Gravelly silty clay loam	SC, ML, GC, CL	A-4, A-6, A-7	0	0-12	65-90	35-90	32-90	28-84	30-45	8-18
	66-80	Clay, silty clay, gravelly silty clay loam	MH, CH	A-7	0	0	95-100	85-100	61-100	51-90	51-65	25-35

Table 15.—Engineering Index 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	
DeF:												
Mimosa----------	0-11	Silt loam	CL, ML	A-4, A-6, A-7	0	0	83-100	61-100	59-100	55-100	25-45	7-20
	11-51	Clay, silty clay	CH, MH	A-7	0	0	95-100	85-100	74-100	65-92	51-65	25-35
	51-53	Unweathered bedrock			---	---	---	---	---	---	---	---
DfC2:												
Dewey-----------	0-7	Silt loam	CL-ML, CL	A-4, A-6	0	0	90-100	72-100	68-100	62-96	24-30	5-11
	7-14	Silty clay loam, silty clay, clay	CL	A-6	0	0	91-100	73-100	70-100	66-100	27-40	12-20
	14-70	Clay, silty clay	ML, MH, CL, CH	A-6, A-7	0	0-2	86-100	65-100	57-100	48-89	38-68	12-34
DkB2:												
Dickson---------	0-9	Silt loam	CL-ML, ML	A-4	0	0	100	94-100	89-100	83-99	20-28	2-7
	9-23	Silt loam, silty clay loam	CL-ML, CL	A-4, A-6	0	0	100	95-100	89-100	84-100	25-38	5-17
	23-38	Silt loam, silty clay loam	CL-ML, CL	A-4, A-6	0	0	100	95-100	88-100	84-100	25-38	5-17
	38-79	Clay	GC, CL, MH, ML	A-6, A-7	0	0-14	75-100	42-100	37-100	31-90	35-65	12-30
Ea:												
Ealy------------	0-8	Fine sandy loam	SM, SC-SM, ML, CL-ML	A-2, A-4	0	0	86-100	65-100	54-96	20-44	0-30	NP-8
	8-38	Fine sandy loam	CL-ML, ML, SC-SM, SM	A-2, A-4	0	0	87-100	66-100	56-99	21-45	0-30	NP-8
	38-63	Stratified very gravelly loamy sand, fine sandy loam	CL-ML, ML, SM, SW-SM	A-2, A-1	0	0	56-100	13-100	10-90	3-34	0-30	NP-8
EwB:												
Etowah----------	0-8	Loam, silt loam	SC-SM, ML, CL-ML, CL	A-4	0	0	83-100	61-100	52-97	41-79	20-30	3-10
	8-72	Clay loam, silty clay loam	CL	A-6	0	0	83-100	62-100	53-97	42-80	25-35	10-15

Table 15.—Engineering Index Properties—Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				Pct	Pct					Pct	
EwC2, EwD2:												
Etowah----------	0-5	Loam, silt loam	CL, CL-ML, ML, SC-SM	A-4	0	0	83-100	61-100	52-97	41-79	20-30	3-10
	5-72	Clay loam, silty clay loam	CL	A-6	0	0	83-100	62-100	53-97	42-80	25-35	10-15
FhC:												
Faywood---------	0-1	Silt loam	ML, CL-ML	A-4	0	0	100	90-100	83-100	79-100	25-35	4-10
	1-8	Silty clay loam	ML, CL	A-6	0	0	100	90-100	70-100	65-94	30-60	11-22
	8-25	Clay, silty clay	CL, CH	A-7	0	0-13	89-100	78-100	60-100	55-96	42-70	20-45
	25-27	Unweathered bedrock			---	---	---	---	---	---	---	---
Hawthorne-------	0-1	Gravelly silt loam	GM, CL-ML, ML, GC-GM	A-4	0	0-8	66-83	46-83	41-83	37-78	18-30	3-9
	1-4	Very gravelly silt loam, very channery silt loam, very channery silty clay loam	GM, ML, CL-ML, GC-GM	A-2, A-4, A-6	0-4	0-11	62-82	36-82	32-82	29-78	20-35	3-12
	4-14	Very channery silt loam, very gravelly silt loam, very channery silty clay loam	GM, ML, CL-ML, GC-GM	A-2, A-4, A-6	0-4	0-11	62-82	36-82	32-82	28-77	20-35	3-12
	14-23	Extremely channery silt loam, very channery silt loam, very channery silty clay loam	CL-ML, GC-GM, GM, ML	A-2, A-4, A-1	0-3	0-9	28-82	7-82	6-82	5-72	20-35	3-12
	23-26	Weathered bedrock			---	---	---	---	---	---	---	---

Table 15.—Engineering Index 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	
GnF:												
Garmon----------	0-3	Channery silt loam	GC-GM, GC, CL, CL-ML	A-4, A-6	0	0-8	62-82	37-82	30-82	24-70	25-35	5-15
	3-6	Channery silt loam, channery loam	SC, GC-GM, CL, CL-ML	A-4, A-6	0	0-11	66-87	37-87	32-87	28-80	20-40	5-20
	6-20	Channery silt loam, channery silty clay loam	CL, CL-ML, GC-GM, SC	A-4, A-6	0	0-11	66-87	37-87	32-87	27-79	20-40	5-20
	20-29	Very channery silt loam, channery silt loam, channery silty clay loam	CL, CL-ML, GC-GM, SC	A-4, A-2	0	0-11	66-87	37-87	32-87	28-80	20-40	5-20
	29-31	Unweathered bedrock			---	---	---	---	---	---	---	---
Newbern---------	0-3	Channery silt loam	CL-ML, ML, CL	A-4	0	0-5	82-100	59-100	52-100	47-96	10-20	NP-10
	3-14	Very channery silt loam, channery silt loam, channery loam	CL, GC-GM, GM, ML	A-2, A-4, A-6	0	0-4	52-100	19-100	17-100	16-100	10-30	NP-15
	14-18	Weathered bedrock			---	---	---	---	---	---	---	---
	18-20	Unweathered bedrock			---	---	---	---	---	---	---	---
GpC, GpD, GpE:												
Gilpin----------	0-4	Loam	CL, CL-ML	A-4, A-6	0	0	82-94	63-94	53-89	38-67	20-40	4-15
	4-13	Loam	CL-ML, CL	A-4, A-6	0	0	82-94	63-94	53-89	39-69	20-40	4-15
	13-29	Silty clay loam, channery silty clay loam, channery silt loam	SC, GC, CL-ML, CL	A-2, A-4, A-6	0	0	77-100	54-100	47-100	41-98	20-40	4-15
	29-36	Channery silty clay loam, channery clay, clay	GC-GM, SC	A-1, A-2, A-4, A-6	0	0	79-100	38-100	30-100	26-93	20-40	4-15
	36-38	Weathered bedrock			---	---	---	---	---	---	---	---

Table 15.—Engineering Index Properties—Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				Pct	Pct					Pct	
GsF:												
Gilpin----------	0-4	Loam	CL, CL-ML	A-4, A-6	0	0	82-94	63-94	53-89	38-67	20-40	4-15
	4-13	Loam	CL, CL-ML	A-4, A-6	0	0	82-94	63-94	53-89	39-69	20-40	4-15
	13-29	Silty clay loam, channery silty clay loam, channery silt loam	SC, GC, CL-ML, CL	A-2, A-4, A-6	0	0	77-100	54-100	47-100	41-98	20-40	4-15
	29-36	Channery silty clay loam, channery clay, clay	GC-GM, SC	A-1, A-2, A-4, A-6	0	0	79-100	38-100	30-100	26-93	20-40	4-15
	36-38	Weathered bedrock			---	---	---	---	---	---	---	---
Shelocta--------	0-2	Loam	SC-SM, ML	A-4	0	0	82-94	57-94	46-90	32-67	0-35	NP-10
	2-10	Gravelly loam	SC, ML	A-4	0	0	69-94	46-94	37-89	28-71	0-35	NP-10
	10-29	Gravelly clay loam, channery silty clay loam, silty clay loam, silt loam	CL, CL-ML, SC, GC	A-4, A-6	0	0	67-96	33-96	27-93	21-77	25-40	4-15
	29-52	Channery silty clay loam, silty clay loam, silt loam	SC, GC, CL, CL-ML	A-4, A-6	0	0	100	50-91	43-91	37-82	25-40	4-15
	52-54	Weathered bedrock		A-1-b, A-2, A-4, A-6	---	---	---	---	---	---	---	---
Ha:												
Hamblen---------	0-6	Loam, silt loam	ML, CL, CL-ML	A-4, A-6	0	0-2	90-100	72-100	60-94	43-70	22-38	3-14
	6-65	Loam, silt loam	ML, CL-ML, CL	A-4, A-6	0	0-2	83-100	61-100	50-97	37-75	22-40	3-17

Table 15.—Engineering Index Properties—Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				Pct	Pct					Pct	
HhC, HhF:												
Hawthorne-------	0-1	Gravelly silt loam	GM, CL-ML, ML, GC-GM	A-4	0	0-8	66-83	46-83	41-83	37-78	18-30	3-9
	1-4	Very gravelly silt loam, very channery silt loam, very channery silty clay loam	ML, GM, GC-GM, CL-ML	A-2, A-4, A-6	0-4	0-11	62-82	36-82	32-82	29-78	20-35	3-12
	4-14	Very channery silt loam, very gravelly silt loam, very channery silty clay loam	ML, CL-ML, GC-GM, GM	A-2, A-4, A-6	0-4	0-11	62-82	36-82	32-82	28-77	20-35	3-12
	14-23	Extremely channery silt loam, very channery silt loam, very channery silty clay loam	CL-ML, ML, GC-GM, GM	A-2, A-4, A-1	0-3	0-9	28-82	7-82	6-82	5-72	20-35	3-12
	23-26	Weathered bedrock			---	---	---	---	---	---	---	---

Table 15.—Engineering Index Properties—Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				Pct	Pct					Pct	
HmF:												
Hawthorne-------	0-1	Gravelly silt loam	GC-GM, GM, ML, CL-ML	A-4	0	0-8	66-83	46-83	41-83	37-78	18-30	3-9
	1-4	Very gravelly silt loam, very channery silt loam, very channery silty clay loam	ML, GM, GC-GM, CL-ML	A-2, A-4, A-6	0-4	0-11	62-82	36-82	32-82	29-78	20-35	3-12
	4-14	Very channery silt loam, very gravelly silt loam, very channery silty clay loam	ML, GM, GC-GM, CL-ML	A-2, A-4, A-6	0-4	0-11	62-82	36-82	32-82	28-77	20-35	3-12
	14-23	Extremely channery silt loam, very channery silt loam, very channery silty clay loam	GM, ML, GC-GM, CL-ML	A-2, A-4, A-1	0-3	0-9	28-82	7-82	6-82	5-72	20-35	3-12
	23-26	Weathered bedrock			---	---	---	---	---	---	---	---
Rock outcrop.												
HnF:												
Hayter----------	0-8	Gravelly loam	SM, SC, ML, CL	A-4, A-6	0	0	91-100	48-91	39-87	28-65	15-40	NP-15
	8-34	Gravelly loam, very cobbly loam, very cobbly fine sandy loam	CL, ML, SC, SM	A-2, A-4, A-6	0	0	92-100	39-91	33-88	26-71	15-40	NP-15
	34-46	Gravelly clay loam, clay loam	SC, CL	A-2, A-6, A-7	0	0	92-100	39-91	32-88	24-70	30-45	11-20
	46-72	Very gravelly clay loam, cobbly clay loam	SC, CL	A-2, A-6, A-7	0	0	93-100	22-69	17-65	13-52	30-45	11-20

Table 15.—Engineering Index Properties—Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				Pct	Pct					Pct	
HnF:												
Talbott----------	0-5	Silty clay loam	CL	A-4, A-6	0	0-5	95-100	84-100	83-100	79-100	25-40	8-16
	5-33	Clay, silty clay	CL, CH	A-7	0	0-10	94-100	83-100	67-100	63-95	41-80	20-45
	33-35	Unweathered bedrock			---	---	---	---	---	---	---	---
Rock outcrop.												
HoB:												
Holston----------	0-9	Loam	SC-SM, CL-ML, SM, ML	A-2, A-4	0	0-4	83-100	61-100	49-99	34-71	15-22	NP-6
	9-20	Loam, clay loam	CL-ML, SM, SC-SM, ML	A-2, A-4	0	0-4	83-100	62-100	50-99	37-77	21-33	3-10
	20-65	Clay loam, loam	SC, GC, CL, ML	A-2, A-4, A-6, A-7	0	0-4	68-100	33-100	26-99	19-79	30-50	7-22
HoC2:												
Holston----------	0-5	Loam	SC-SM, ML, CL-ML, SM	A-2, A-4	0	0-4	83-100	61-100	49-99	34-71	15-22	NP-6
	5-20	Loam, clay loam	ML, SC-SM, SM, CL-ML	A-2, A-4	0	0-4	83-100	62-100	50-99	37-77	21-33	3-10
	20-65	Clay loam, loam	ML, GC, CL, SC	A-2, A-4, A-6, A-7	0	0-4	68-100	33-100	26-99	19-79	30-50	7-22
HuB:												
Humphreys--------	0-5	Gravelly silt loam	GC-GM, CL, GC, ML	A-4	0	0-4	66-78	50-78	44-78	36-67	18-28	3-10
	5-17	Gravelly silty clay loam, gravelly silt loam	SC, GC, CL	A-6	0	0-4	63-79	44-79	38-79	34-71	28-40	10-16
	17-35	Gravelly clay loam, gravelly silty clay loam, gravelly silt loam	SC, GC, CL	A-2, A-4, A-6	0	0-7	59-79	32-79	26-75	22-65	25-35	8-15
	35-55	Gravelly silty clay loam, gravelly silt loam	SC, CL, GC	A-6	0	0-4	63-79	44-79	39-79	34-72	28-40	10-16
	55-80	Very gravelly silty clay loam, gravelly silty clay loam, gravelly silt loam	CL, GC, SC	A-2	0	0-3	27-79	11-79	10-79	9-72	28-40	10-16

Table 15.—Engineering Index Properties—Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas-ticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				Pct	Pct					Pct	
HuC:												
Humphreys-------	0-5	Gravelly silt loam	ML, GC-GM, CL-ML, GC	A-4	0	0-4	66-78	50-78	44-78	36-67	18-28	3-10
	5-17	Gravelly silty clay loam, gravelly silt loam	GC, CL, SC	A-6	0	0-4	63-79	44-79	38-79	34-71	28-40	10-16
	17-35	Gravelly clay loam, gravelly silty clay loam, gravelly silt loam	CL, GC, SC	A-2, A-4, A-6	0	0-7	59-79	32-79	26-75	22-65	25-35	8-15
	35-55	Gravelly silty clay loam, gravelly silt loam	CL, GC, SC	A-6	0	0-4	63-79	44-79	39-79	34-72	28-40	10-16
	55-80	Very gravelly silty clay loam, gravelly silty clay loam, gravelly silt loam	SC, GC, CL	A-2	0	0-3	27-79	11-79	10-79	9-72	28-40	10-16
LlB, LlC, LlD:												
Lily------------	0-7	Loam	CL-ML, ML	A-4	0	0-5	89-100	73-100	57-98	39-74	15-35	NP-10
	7-16	Loam, clay loam, sandy clay loam	CL, ML, SC, SM	A-4, A-6	0	0-5	89-100	73-100	60-99	44-77	15-35	3-15
	16-31	Clay loam, sandy clay loam, loam	SC, CL, SM, ML	A-6, A-4	0	0-5	89-100	73-100	59-100	45-82	15-35	3-15
	31-33	Unweathered bedrock			---	---	---	---	---	---	---	---
LwB, LwC:												
Lonewood--------	0-4	Loam	CL-ML, ML, CL	A-4	0	0	100	89-100	78-98	60-78	18-26	3-9
	4-29	Loam, clay loam	SC, CL, GC	A-6, A-4, A-2	0	0-5	65-100	23-100	18-100	14-90	20-34	6-14
	29-45	Sandy clay loam, clay loam	CL, GC, SC	A-2, A-4, A-6	0	0-5	65-100	23-100	17-100	12-77	20-34	6-14
	45-65	Sandy loam, loam, clay loam	CL, GC, SC-SM	A-2, A-4, A-6	0	0-5	65-100	23-100	16-92	9-64	20-34	6-14

Table 15.—Engineering Index 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	
Me:												
Melvin----------	0-7	Silt loam	ML, CL	A-4	0	0	95-100	84-100	80-100	76-95	25-35	4-10
	7-39	Silt loam	ML, CL-ML, CL	A-6	0	0	95-100	84-100	77-100	73-100	25-40	4-20
	39-65	Silty clay loam, silt loam	CL-ML, CL	A-6	0	0	87-100	70-100	56-100	53-100	25-40	5-20
MnC2, MnD2:												
Minvale---------	0-12	Gravelly loam	ML, SC-SM, CL	A-4	0	0-5	78-94	60-94	49-91	35-69	15-30	NP-10
	12-48	Gravelly clay loam, gravelly silt loam, gravelly silty clay loam, gravelly loam	CL, GC, GC-GM, CL-ML	A-6, A-4	0	0-4	61-79	42-79	34-76	26-61	20-40	5-15
	48-65	Very gravelly clay, gravelly clay, gravelly silty clay loam, gravelly silty clay	SC, CL, GC, ML	A-4, A-6, A-7	0	0-4	64-82	41-82	32-79	25-65	25-50	7-23
MoB2, MoC2:												
Monongahela-----	0-5	Silt loam	CL-ML, ML, SC-SM, SM	A-4	0	0-4	96-100	80-100	70-100	63-96	20-35	1-10
	5-24	Silt loam, loam	CL, CL-ML, ML	A-4, A-6	0	0-3	96-100	81-100	72-100	62-94	20-40	5-15
	24-28	Silt loam, clay loam, loam	ML, CL, SM, SC	A-4, A-6	0	0-9	83-100	68-100	60-100	51-91	20-40	3-15
	28-68	Loam, clay loam, gravelly loam	ML, CL, SC, SM	A-4, A-6	0	0-14	81-100	51-100	40-100	30-83	20-40	1-15
	68-80	Gravelly loam, clay loam, loam	SC, SM, ML, CL	A-4, A-6	0	0-14	80-100	50-100	39-100	28-81	20-40	1-15
MtB2, MtC2:												
Mountview-------	0-8	Silt loam	CL-ML, ML	A-4	0	0	100	95-100	89-100	82-97	20-30	2-7
	8-28	Silt loam, silty clay loam	CL	A-6, A-7	0	0	95-100	90-100	85-100	80-100	30-43	10-23
	28-45	Silt loam, silty clay loam	CL	A-6, A-7	0	0	85-100	69-100	61-100	56-100	30-43	10-23
	45-80	Clay, cherty clay, cherty silty clay loam	CL, MH, ML, CH	A-6, A-7	0	0-10	78-100	46-100	39-100	33-92	35-65	11-32

Table 15.—Engineering Index Properties—Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				Pct	Pct					Pct	
NeC, NeD, NeE:												
Nella-----------	0-3	Cobbly loam	SC-SM, GM, CL, ML	A-2, A-4	0	0-19	68-91	40-91	33-87	23-64	15-30	NP-8
	3-30	Cobbly clay loam, cobbly sandy clay loam	SC-SM, SC, CL-ML, CL	A-2, A-4, A-6	0	0-36	72-96	35-96	30-96	24-83	25-40	6-20
	30-70	Very cobbly clay loam, gravelly sandy clay loam, cobbly clay	CL, SC	A-4, A-6, A-7	0	0-41	58-96	37-96	31-96	25-83	30-55	8-27
NrF:												
Nella-----------	0-3	Cobbly loam	SC-SM, CL, GM, ML	A-2, A-4	0	0-19	68-91	40-91	33-87	23-64	15-30	NP-8
	3-30	Cobbly clay loam, cobbly sandy clay loam	SC-SM, CL, CL-ML, SC	A-2, A-4, A-6	0	0-36	72-96	35-96	30-96	24-83	25-40	6-20
	30-70	Very cobbly clay loam, gravelly sandy clay loam, cobbly clay	CL, SC	A-4, A-6, A-7	0	0-41	58-96	37-96	31-96	25-83	30-55	8-27
Talbott---------	0-5	Silty clay loam	CL	A-4, A-6	0	0-5	95-100	84-100	83-100	79-100	25-40	8-16
	5-33	Clay, silty clay	CH, CL	A-7	0	0-10	94-100	83-100	67-100	63-95	41-80	20-45
	33-35	Unweathered bedrock			---	---	---	---	---	---	---	---
Rock outcrop.												

Table 15.—Engineering Index 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	
Oc:												
Ocana----------	0-7	Gravelly silt loam	CL, GM, SM, CL-ML	A-6, A-4	0	0-7	69-83	53-83	48-83	42-73	20-35	3-12
	7-36	Gravelly loam, gravelly silt loam, very gravelly silt loam	CL, SC, GC-GM, GM	A-2, A-4, A-6	0	0-7	66-83	46-83	39-80	30-64	20-40	3-18
	36-48	Gravelly clay loam, gravelly loam, gravelly silt loam, very gravelly silt loam	GC, GC-GM, GM, CL	A-2, A-4, A-6	0	0-7	66-83	46-83	38-79	30-63	20-40	3-18
	48-65	Very gravelly loam, gravelly loam, gravelly silt loam, very gravelly silt loam	GC, GC-GM, CL, GM	A-2, A-4, A-6	0	0-19	63-83	41-83	37-83	29-68	20-40	3-18
Pd:												
Purdy----------	0-8	Silt loam	CL, CL-ML, ML	A-4, A-6	0	0	100	94-100	79-99	73-93	25-35	4-11
	8-14	Silty clay, clay, silty clay loam	CL, CH	A-7	0	0	100	77-100	73-100	70-100	45-70	20-40
	14-65	Silty clay, clay, silty clay loam	CH, CL	A-7	0	0	100	84-100	66-100	63-100	45-70	20-40
Qr.												
Pits, quarry												
RaC, RaD:												
Ramsey----------	0-2	Loam	SM, SC-SM, ML, CL-ML	A-2, A-4	0	0	77-100	60-100	48-97	33-72	0-25	NP-7
	2-18	Sandy loam, loam, fine sandy loam	SC-SM, SM, CL-ML, ML	A-2, A-4	0	0	76-100	58-100	39-84	22-54	0-25	NP-7
	18-20	Unweathered bedrock			---	---	---	---	---	---	---	---

Table 15.—Engineering Index 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	
RrC, RrE:												
Ramsey----------	0-2	Loam	CL-ML, ML, SM, SC-SM	A-2, A-4	0	0	77-100	60-100	48-97	33-72	0-25	NP-7
	2-18	Sandy loam, loam, fine sandy loam	SM, SC-SM, ML, CL-ML	A-2, A-4	0	0	76-100	58-100	39-84	22-54	0-25	NP-7
	18-20	Unweathered bedrock			---	---	---	---	---	---	---	---
Rock outcrop.												
SeC2, SeD2, SeE2:												
Sengtown--------	0-15	Cobbly loam, gravelly silt loam	SC, CL-ML, GM, ML	A-6	0	0-22	65-91	35-91	28-88	21-69	25-35	4-15
	15-20	Gravelly silty clay loam, gravelly silt loam	CL, CL-ML, GC-GM	A-4, A-6	0	0-4	68-91	41-91	34-91	29-81	25-40	5-20
	20-70	Gravelly clay, gravelly silty clay	CL, GC, CH	A-7	0	0	65-91	30-91	25-91	21-82	45-70	20-40
SfE:												
Sequoia---------	0-3	Gravelly silt loam	CL, SC	A-6	0	0	78-100	38-100	35-100	30-90	23-35	5-15
	3-11	Gravelly silty clay loam, silty clay, clay	SC, CL	A-7	0	0	78-100	38-100	33-100	30-100	43-74	20-40
	11-38	Silty clay, clay	CH, CL	A-7	0	0	80-100	61-100	46-100	46-100	43-74	20-40
	38-40	Weathered bedrock			---	---	---	---	---	---	---	---

Table 15.—Engineering Index 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	
ShB:												
Shady	0-7	Loam	SM, CL-ML, ML	A-2, A-4	0	0-5	83-100	61-100	49-96	35-72	15-30	NP-10
	7-20	Loam	CL, ML, SM	A-2, A-4	0	0-5	83-100	61-100	46-91	32-68	15-30	NP-10
	20-28	Clay loam, sandy clay loam, loam	CL, ML, CL-ML, SC	A-4, A-6	0	0-5	83-100	61-100	49-94	33-69	20-35	2-15
	28-50	Loam, gravelly loam, sandy loam	ML, SC-SM, GC-GM	A-2, A-4	0	0-14	71-100	38-100	29-90	19-62	15-30	NP-7
	50-65	Very gravelly sandy loam, gravelly loam, sandy loam	GC-GM, SC-SM, ML	A-1, A-2, A-4	0	0-14	71-100	38-100	26-80	10-39	0-30	NP-7
ShC2:												
Shady	0-5	Loam	SM, CL-ML, ML	A-2, A-4	0	0-5	83-100	61-100	49-96	35-72	15-30	NP-10
	5-20	Loam	SM, CL, ML	A-2, A-4	0	0-5	83-100	61-100	46-91	32-68	15-30	NP-10
	20-28	Clay loam, sandy clay loam, loam	ML, CL, CL-ML, SC	A-4, A-6	0	0-5	83-100	61-100	49-94	33-69	20-35	2-15
	28-50	Loam, gravelly loam, sandy loam	ML, GC-GM, SC-SM	A-2, A-4	0	0-14	71-100	38-100	29-90	19-62	15-30	NP-7
	50-65	Very gravelly sandy loam, gravelly loam, sandy loam	ML, SC-SM, GC-GM	A-1, A-2, A-4	0	0-14	71-100	38-100	26-80	10-39	0-30	NP-7
SpF:												
Shelocta	0-2	Loam	SC-SM, ML	A-4	0	0	82-94	57-94	46-90	32-67	0-35	NP-10
	2-10	Gravelly loam	ML, SC	A-4	0	0	69-94	46-94	37-89	28-71	0-35	NP-10
	10-29	Gravelly clay loam, channery silty clay loam, silty clay loam, silt loam	CL, CL-ML, GC, SC	A-4, A-6	0	0	67-96	33-96	27-93	21-77	25-40	4-15
	29-52	Channery silty clay loam, silty clay loam, silt loam	CL, SC, GC, CL-ML	A-4, A-6	0	0	100	50-91	43-91	37-82	25-40	4-15
	52-54	Weathered bedrock		A-1-b, A-2, A-4, A-6	---	---	---	---	---	---	---	---

Table 15.—Engineering Index 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	
SpF:												
Pineville-------	0-2	Gravelly loam	CL-ML, ML, SC-SM, SM	A-2, A-4	0	0-9	63-80	40-80	34-75	24-56	25-35	4-10
	2-58	Gravelly loam, gravelly clay loam, very gravelly loam	CL, CL-ML, SC, SC-SM	A-2, A-4, A-6	0	0-8	64-86	36-86	30-83	22-63	25-40	6-15
	58-72	Clay loam, very gravelly loam	CL, SC-SM	A-1, A-2, A-4, A-6	0	0	69-91	69-91	56-91	43-75	25-35	4-12
St:												
Staser----------	0-13	Fine sandy loam	CL, CL-ML, SM	A-4, A-6	0	0	91-100	73-100	61-98	33-60	20-35	3-15
	13-60	Loam, fine sandy loam	CL, CL-ML, SC, SC-SM	A-2, A-4, A-6	0	0-3	63-100	22-100	19-96	14-74	20-35	5-15
Su, Sv:												
Sullivan--------	0-5	Silt loam	CL-ML, SM, ML, CL	A-4	0	0	83-100	61-100	57-100	50-89	20-31	3-10
	5-26	Silt loam	ML, SM, CL-ML, CL	A-4	0	0	83-100	61-100	56-100	48-88	20-31	3-10
	26-62	Loam, silt loam, gravelly loam	GM, SC, CL-ML, SM	A-2, A-4	0	0	73-100	38-100	33-100	26-80	20-30	3-10
TrD, TrE:												
Talbott---------	0-5	Silty clay loam	CL	A-4, A-6	0	0-5	95-100	84-100	83-100	79-100	25-40	8-16
	5-33	Clay, silty clay	CH, CL	A-7	0	0-10	94-100	83-100	67-100	63-95	41-80	20-45
	33-35	Unweathered bedrock			---	---	---	---	---	---	---	---
Rock outcrop.												
Ud.												
Udarents												
W.												
Water												
WaB2, WaC2, WaD2:												
Waynesboro------	0-5	Loam	CL-ML, ML, SM, CL	A-4	0	0-5	86-100	68-100	55-100	43-82	18-30	2-9
	5-68	Clay, clay loam	MH, ML	A-4, A-6, A-7	0	0-5	90-100	72-100	63-100	51-86	35-68	9-32

Table 16.—Physical Properties of the Soils

(Entries under "Erosion factors--T" apply to the entire profile. Absence of an entry indicates that data were not estimated)

Map symbol and soil name	Depth	Sand	Silt	Clay	Moist bulk density	Permeability (Ksat)	Available water capacity	Linear extensibility	Organic matter	Erosion factors Kw	Erosion factors Kf	Erosion factors T
	In	Pct	Pct	Pct	g/cc	In/hr	In/in	Pct	Pct			
Ak:												
Atkins------------------	0-6	23-52	28-50	10-27	1.20-1.40	0.60-2.00	0.14-0.22	0.0-2.9	1.0-3.0	.32	.32	5
	6-36	23-52	28-50	18-27	1.20-1.50	0.60-2.00	0.14-0.22	0.0-2.9	0.2-0.8	.32	.37	
	36-65	43-85	0-49	10-27	1.20-1.50	0.60-6.00	0.08-0.18	0.0-2.9	0.0-0.5	.28	.43	
BA:												
Bethesda----------------	0-1	23-52	28-50	18-27	1.40-1.55	0.60-2.00	0.10-0.16	0.0-2.9	0.0-0.5	.28	.49	5
	1-65	20-52	15-53	18-40	1.60-1.90	0.20-0.60	0.04-0.10	0.0-2.9	0.0-0.5	.32	.64	
Pits.												
BeB2, BeC2:												
Bewleyville-------------	0-9	0-50	50-80	15-27	1.30-1.50	0.60-2.00	0.20-0.22	0.0-2.9	1.0-3.0	.43	.43	5
	9-30	0-50	40-80	22-35	1.35-1.55	0.60-2.00	0.18-0.20	0.0-2.9	0.0-0.5	.37	.37	
	30-57	0-19	40-80	22-35	1.35-1.55	0.60-2.00	0.18-0.20	0.0-2.9	0.0-0.5	.37	.37	
	57-77	0-44	0-50	35-50	1.30-1.50	0.60-2.00	0.12-0.17	3.0-5.9	0.0-0.5	.37	.32	
BoC, BoD, BoF:												
Bodine------------------	0-6	0-50	50-80	8-20	1.35-1.55	2.00-6.00	0.07-0.12	0.0-2.9	1.0-2.0	.28	.37	5
	6-12	0-50	23-80	20-35	1.40-1.60	2.00-6.00	0.05-0.10	0.0-2.9	0.0-0.5	.24	.32	
	12-44	0-80	15-73	23-50	1.40-1.60	2.00-6.00	0.05-0.10	0.0-2.9	0.0-0.5	.15	.28	
	44-70	0-45	15-73	23-50	1.40-1.60	2.00-6.00	0.05-0.10	0.0-2.9	0.0-0.5	.15	.28	
ByF:												
Bouldin-----------------	0-7	23-52	28-50	10-20	1.35-1.50	2.00-6.00	0.06-0.10	0.0-2.9	1.0-3.0	.20	.28	5
	7-24	23-52	28-50	10-27	1.35-1.50	2.00-6.00	0.06-0.10	0.0-2.9	0.0-0.5	.20	.28	
	24-87	20-65	15-53	17-35	1.40-1.55	2.00-6.00	0.06-0.10	0.0-2.9	0.0-0.5	.20	.28	
Grimsley----------------	0-2	23-52	28-50	10-20	1.35-1.45	2.00-6.00	0.07-0.12	0.0-2.9	0.5-3.0	.20	.24	4
	2-12	20-80	15-53	10-35	1.40-1.50	1.98-5.95	0.05-0.11	1.5-4.0	0.0-0.8	.20	.32	
	12-44	20-80	15-53	10-35	1.40-1.50	1.98-5.95	0.05-0.11	1.5-4.0	0.0-0.5	.20	.32	
	44-55	20-80	20-50	15-50	1.40-1.50	0.20-0.57	0.08-0.15	1.5-4.0	0.0-0.5	.20	.32	
	55-57	---	---	---	---	0.00-0.00	---	---	---	---	---	
CaE:												
Carbo-------------------	0-4	0-50	50-80	20-40	1.20-1.40	0.60-2.00	0.16-0.19	3.0-5.9	0.5-3.0	.37	.37	2
	4-38	0-44	0-39	35-80	1.30-1.45	0.00-0.20	0.10-0.14	6.0-8.9	0.0-0.8	.24	.24	
	38-44	---	---	---	---	0.00-0.00	---	---	---	---	---	
Rock outcrop.												

Table 16.—Physical Properties of the Soils—Continued

Map symbol and soil name	Depth	Sand	Silt	Clay	Moist bulk density	Permea- bility (Ksat)	Available water capacity	Linear extensi- bility	Organic matter	Erosion factors		
										Kw	Kf	T
	In	Pct	Pct	Pct	g/cc	In/hr	In/in	Pct	Pct			
ChC2, ChD2, ChE2:												
Christian	0-8	20-52	28-80	12-27	1.20-1.40	0.60-2.00	0.18-0.20	0.0-2.9	1.0-3.0	.37	.37	4
	8-18	0-45	15-73	27-40	1.20-1.50	0.60-2.00	0.14-0.19	3.0-5.9	0.2-0.8	.28	.32	
	18-48	0-44	0-73	30-60	1.30-1.60	0.06-0.20	0.10-0.16	3.0-5.9	0.0-0.8	.28	.28	
	48-57	0-45	15-73	30-60	1.30-1.60	0.06-0.20	0.10-0.16	3.0-5.9	0.0-0.8	.28	.28	
	57-59	---	---	---	---	0.00-0.00	---	---	---	---	---	
ChE3:												
Christian	0-5	0-52	28-80	12-27	1.20-1.40	0.60-2.00	0.18-0.20	0.0-2.9	1.0-3.0	.37	.37	4
	5-22	0-44	0-73	30-60	1.30-1.60	0.00-0.20	0.10-0.16	3.0-5.9	0.0-0.8	.28	.28	
	22-57	0-45	15-73	30-60	1.30-1.60	0.00-0.20	0.10-0.16	3.0-5.9	0.0-0.8	.28	.28	
	57-59	---	---	---	---	0.00-0.00	---	---	---	---	---	
CkB, CkC:												
Clarkrange	0-9	23-52	28-50	15-25	1.30-1.50	0.60-2.00	0.18-0.22	0.0-2.9	0.5-2.0	.37	.43	3
	9-24	0-15	40-80	20-32	1.35-1.55	0.60-2.00	0.16-0.20	0.0-2.9	0.0-0.5	.37	.43	
	24-41	0-50	15-80	20-40	1.55-1.70	0.00-0.20	0.00-0.02	0.0-2.9	0.0-0.5	.32	.37	
	41-53	0-45	15-73	20-40	1.35-1.55	0.00-0.20	0.00-0.02	0.0-2.9	0.0-0.5	.32	.37	
	53-55	---	---	---	---	0.00-0.00	---	---	---	---	---	
CoC:												
Colbert	0-7	0-50	40-80	25-40	1.20-1.40	0.20-0.60	0.15-0.20	3.0-5.9	0.5-2.0	.32	.32	3
	7-20	0-25	0-73	35-50	1.20-1.60	0.06-0.20	0.14-0.20	6.0-8.9	0.5-1.0	.32	.32	
	20-60	0-45	0-60	50-70	1.00-1.30	0.00-0.06	0.12-0.16	6.0-8.9	0.0-0.5	.32	.32	
	60-62	---	---	---	---	0.00-0.00	---	---	---	---	---	
Cv:												
Craigsville	0-2	23-52	28-50	5-15	1.20-1.40	2.00-20.00	0.07-0.15	0.0-2.9	1.0-3.0	.20	.24	5
	2-12	23-52	28-50	5-15	1.20-1.40	2.00-20.00	0.07-0.15	0.0-2.9	1.0-3.0	.20	.24	
	12-65	43-85	0-49	5-10	1.35-1.55	6.00-20.00	0.04-0.09	0.0-2.9	0.0-0.5	.17	.28	
DeD2:												
Dellrose	0-5	20-50	50-80	15-27	1.20-1.40	2.00-6.00	0.10-0.17	0.0-2.9	1.0-3.0	.24	.32	5
	5-22	20-50	50-80	15-27	1.20-1.40	2.00-6.00	0.10-0.17	0.0-2.9	1.0-3.0	.24	.32	
	22-66	0-19	40-73	20-35	1.20-1.40	2.00-6.00	0.09-0.16	0.0-2.9	0.0-0.5	.24	.28	
	66-80	0-44	0-73	30-60	1.35-1.55	0.00-0.20	0.10-0.16	3.0-5.9	0.0-0.5	.24	.24	
DeF:												
Dellrose	0-7	20-50	50-80	15-27	1.20-1.40	2.00-6.00	0.10-0.17	0.0-2.9	1.0-3.0	.24	.32	5
	7-22	20-50	50-80	15-27	1.20-1.40	2.00-6.00	0.10-0.17	0.0-2.9	1.0-3.0	.24	.32	
	22-66	0-19	40-73	20-35	1.20-1.40	2.00-6.00	0.09-0.16	0.0-2.9	0.0-0.5	.24	.28	
	66-80	0-44	0-73	30-60	1.35-1.55	0.00-0.20	0.10-0.16	3.0-5.9	0.0-0.5	.24	.24	
Mimosa	0-11	0-50	50-80	24-40	1.30-1.50	0.60-2.00	0.12-0.20	0.0-2.9	1.0-2.0	.37	.37	3
	11-51	0-44	0-60	45-60	1.35-1.55	0.00-0.20	0.10-0.16	6.0-8.9	0.0-0.5	.24	.24	
	51-53	---	---	---	---	0.00-0.06	---	---	---	---	---	

Table 16.—Physical Properties of the Soils—Continued

Map symbol and soil name	Depth	Sand	Silt	Clay	Moist bulk density	Permeability (Ksat)	Available water capacity	Linear extensibility	Organic matter	Erosion factors Kw	Erosion factors Kf	Erosion factors T
	In	Pct	Pct	Pct	g/cc	In/hr	In/in	Pct	Pct			
DfC2:												
Dewey	0-7	0-50	50-80	17-27	1.35-1.50	0.60-2.00	0.18-0.20	0.0-2.9	1.0-3.0	.32	.32	5
	7-14	0-44	0-73	35-50	1.45-1.55	0.60-2.00	0.12-0.18	0.0-2.9	0.0-0.5	.24	.24	
	14-70	0-44	0-60	45-60	1.45-1.55	0.20-0.57	0.12-0.17	0.0-2.9	0.0-0.5	.24	.24	
DkB2:												
Dickson	0-9	0-50	50-80	15-26	1.30-1.50	0.60-2.00	0.18-0.22	0.0-2.9	0.5-3.0	.43	.43	4
	9-23	0-50	40-80	18-30	1.35-1.55	0.60-2.00	0.18-0.20	0.0-2.9	0.0-0.5	.43	.43	
	23-38	0-50	40-80	18-30	1.55-1.70	0.00-0.20	0.01-0.02	0.0-2.9	0.0-0.5	.43	.43	
	38-79	0-44	0-39	35-50	1.35-1.55	0.00-0.20	0.01-0.02	3.0-5.9	0.0-0.5	.28	.32	
Ea:												
Ealy	0-8	43-85	0-49	5-18	1.40-1.60	2.00-6.00	0.14-0.18	0.0-2.9	1.0-3.0	.32	.32	5
	8-38	43-85	0-49	5-18	1.40-1.65	2.00-6.00	0.12-0.18	0.0-2.9	0.0-1.5	.32	.32	
	38-63	70-90	0-29	5-18	1.40-1.65	2.00-6.00	0.12-0.18	0.0-2.9	0.0-0.5	.32	.32	
EwB:												
Etowah	0-8	0-52	28-80	15-27	1.30-1.45	0.60-2.00	0.15-0.20	0.0-2.9	1.0-3.0	.37	.37	5
	8-72	0-45	15-73	23-35	1.35-1.50	0.60-2.00	0.16-0.20	0.0-2.9	0.0-0.8	.32	.32	
EwC2, EwD2:												
Etowah	0-5	0-52	28-80	15-27	1.30-1.45	0.60-2.00	0.15-0.20	0.0-2.9	1.0-3.0	.37	.37	5
	5-72	0-45	15-73	23-35	1.35-1.50	0.60-2.00	0.16-0.20	0.0-2.9	0.0-0.8	.32	.32	
FhC:												
Faywood	0-1	0-50	50-80	15-27	1.30-1.40	0.57-1.98	0.18-0.22	0.0-2.9	1.0-3.0	.37	.37	2
	1-8	0-19	40-73	18-40	1.30-1.45	0.20-0.57	0.15-0.20	0.0-2.9	0.2-1.0	.37	.37	
	8-25	0-44	0-60	35-60	1.35-1.45	0.00-0.20	0.12-0.17	3.0-5.9	0.0-0.8	.28	.28	
	25-27	---	---	---	---	0.00-0.00	---	---	---	---	---	
Hawthorne	0-1	0-50	50-80	12-25	1.40-1.50	2.00-6.00	0.14-0.18	0.0-2.9	1.0-3.0	.20	.37	3
	1-4	0-50	50-80	15-32	1.40-1.50	2.00-6.00	0.05-0.10	0.0-2.9	0.0-2.0	.10	.32	
	4-14	0-50	50-80	15-32	1.40-1.50	2.00-6.00	0.05-0.10	0.0-2.9	0.0-0.5	.10	.32	
	14-23	0-50	50-80	15-32	1.40-1.50	2.00-6.00	0.05-0.10	0.0-2.9	0.0-0.5	.10	.32	
	23-26	---	---	---	---	0.00-0.00	---	---	---	---	---	
GnF:												
Garmon	0-3	0-50	50-80	7-27	1.20-1.40	2.00-6.00	0.05-0.16	0.0-2.9	0.5-3.0	.28	.32	3
	3-6	0-52	28-80	18-34	1.20-1.50	2.00-6.00	0.05-0.16	0.0-2.9	0.2-1.0	.28	.32	
	6-20	0-50	40-80	18-34	1.20-1.50	2.00-6.00	0.05-0.16	0.0-2.9	0.0-0.8	.20	.32	
	20-29	0-50	40-80	18-34	1.20-1.50	2.00-6.00	0.05-0.16	0.0-2.9	0.0-0.8	.20	.32	
	29-31	---	---	---	---	0.00-0.00	---	---	---	---	---	
Newbern	0-3	0-50	50-80	10-27	1.20-1.50	1.98-5.95	0.07-0.20	0.0-2.9	1.0-2.0	.28	.28	1
	3-14	0-52	28-80	10-27	1.30-1.60	1.98-5.95	0.07-0.20	0.0-2.9	0.0-0.5	.28	.32	
	14-18	---	---	---	---	0.00-0.20	---	---	---	---	---	
	18-20	---	---	---	---	0.00-0.00	---	---	---	---	---	

Table 16.—Physical Properties of the Soils—Continued

Map symbol and soil name	Depth	Sand	Silt	Clay	Moist bulk density	Permea-bility (Ksat)	Available water capacity	Linear extensi-bility	Organic matter	Erosion factors		
										Kw	Kf	T
	In	Pct	Pct	Pct	g/cc	In/hr	In/in	Pct	Pct			
GpC, GpD, GpE:												
Gilpin------------------	0-4	23-52	28-50	15-27	1.20-1.40	0.60-2.00	0.12-0.18	0.0-2.9	1.0-3.0	.32	.32	3
	4-13	23-52	28-50	15-27	1.20-1.40	0.60-2.00	0.12-0.18	0.0-2.9	0.5-1.0	.32	.32	
	13-29	0-50	40-80	18-40	1.20-1.50	0.60-2.00	0.12-0.16	0.0-2.9	0.0-0.5	.24	.28	
	29-36	0-44	0-73	15-40	1.20-1.50	0.60-2.00	0.08-0.12	0.0-2.9	0.0-0.5	.24	.32	
	36-38	---	---	---	---	0.00-0.00	---	---	---	---	---	
GsF:												
Gilpin------------------	0-4	23-52	28-50	15-27	1.20-1.40	0.60-2.00	0.12-0.18	0.0-2.9	1.0-3.0	.32	.32	3
	4-13	23-52	28-50	15-27	1.20-1.40	0.60-2.00	0.12-0.18	0.0-2.9	0.5-1.0	.32	.32	
	13-29	0-50	40-80	18-40	1.20-1.50	0.60-2.00	0.12-0.16	0.0-2.9	0.0-0.5	.24	.28	
	29-36	0-44	0-73	15-40	1.20-1.50	0.60-2.00	0.08-0.12	0.0-2.9	0.0-0.5	.24	.32	
	36-38	---	---	---	---	0.00-0.00	---	---	---	---	---	
Shelocta----------------	0-2	23-52	28-50	10-25	1.15-1.30	0.60-2.00	0.16-0.22	0.0-2.9	0.5-3.0	.32	.32	4
	2-10	23-52	28-50	10-25	1.15-1.30	0.60-2.00	0.16-0.22	0.0-2.9	0.2-0.8	.32	.32	
	10-29	0-80	40-80	18-34	1.30-1.55	0.60-2.00	0.10-0.20	0.0-2.9	0.2-0.5	.28	.32	
	29-52	0-50	40-80	18-34	1.30-1.55	0.60-2.00	0.10-0.20	0.0-2.9	0.0-0.5	.28	.32	
	52-54	---	---	---	---	0.00-0.00	---	---	---	---	---	
Ha:												
Hamblen-----------------	0-6	20-52	28-80	15-25	1.30-1.45	0.60-2.00	0.18-0.20	0.0-2.9	1.0-3.0	.32	.32	5
	6-65	20-52	28-80	18-32	1.30-1.45	0.60-2.00	0.17-0.20	0.0-2.9	0.0-1.0	.32	.32	
HhC, HhF:												
Hawthorne---------------	0-1	0-50	50-80	12-25	1.40-1.50	2.00-6.00	0.14-0.18	0.0-2.9	1.0-3.0	.20	.37	3
	1-4	0-50	50-80	15-32	1.40-1.50	2.00-6.00	0.05-0.10	0.0-2.9	0.0-2.0	.10	.32	
	4-14	0-50	50-80	15-32	1.40-1.50	2.00-6.00	0.05-0.10	0.0-2.9	0.0-0.5	.10	.32	
	14-23	0-50	50-80	15-32	1.40-1.50	2.00-6.00	0.05-0.10	0.0-2.9	0.0-0.5	.10	.32	
	23-26	---	---	---	---	0.00-0.00	---	---	---	---	---	
HmF:												
Hawthorne---------------	0-1	0-50	50-80	12-25	1.40-1.50	2.00-6.00	0.14-0.18	0.0-2.9	1.0-3.0	.20	.37	3
	1-4	0-50	50-80	15-32	1.40-1.50	2.00-6.00	0.05-0.10	0.0-2.9	0.0-2.0	.10	.32	
	4-14	0-50	50-80	15-32	1.40-1.50	2.00-6.00	0.05-0.10	0.0-2.9	0.0-0.5	.10	.32	
	14-23	0-50	50-80	15-32	1.40-1.50	2.00-6.00	0.05-0.10	0.0-2.9	0.0-0.5	.10	.32	
	23-26	---	---	---	---	0.00-0.00	---	---	---	---	---	
Rock outcrop.												
HnF:												
Hayter------------------	0-8	23-52	28-50	10-25	1.25-1.55	2.00-6.00	0.10-0.16	0.0-2.9	1.0-3.0	.28	.37	4
	8-34	23-85	28-50	15-27	1.30-1.60	2.00-6.00	0.06-0.10	0.0-2.9	0.5-1.0	.17	.64	
	34-46	20-45	15-53	20-35	1.30-1.60	2.00-6.00	0.11-0.19	3.0-5.9	0.0-0.5	.28	.37	
	46-72	20-45	15-53	20-35	1.30-1.60	2.00-6.00	0.11-0.19	3.0-5.9	0.0-0.5	.28	.37	

Table 16.—Physical Properties of the Soils—Continued

Map symbol and soil name	Depth	Sand	Silt	Clay	Moist bulk density	Permea- bility (Ksat)	Available water capacity	Linear extensi- bility	Organic matter	Erosion factors Kw	Kf	T
	In	Pct	Pct	Pct	g/cc	In/hr	In/in	Pct	Pct			
HnF:												
Talbott------------------	0-5	0-19	40-73	28-40	1.35-1.50	0.60-2.00	0.16-0.20	0.0-2.9	0.5-2.0	.37	.37	2
	5-33	0-44	0-60	40-60	1.30-1.50	0.00-0.20	0.10-0.14	3.0-5.9	0.0-0.5	.24	.24	
	33-35	---	---	---	---	0.00-0.00	---	---	---	---	---	
Rock outcrop.												
HoB:												
Holston------------------	0-9	23-52	28-50	10-25	1.35-1.50	0.60-2.00	0.15-0.20	0.0-2.9	0.5-2.0	.28	.28	5
	9-20	20-50	15-53	18-35	1.40-1.55	0.60-2.00	0.13-0.20	0.0-2.9	0.0-0.5	.32	.32	
	20-65	20-50	15-53	20-40	1.40-1.60	0.60-2.00	0.10-0.18	0.0-2.9	0.0-0.5	.32	.32	
HoC2:												
Holston------------------	0-5	23-52	28-50	10-25	1.35-1.50	0.60-2.00	0.15-0.20	0.0-2.9	0.5-2.0	.28	.28	5
	5-20	20-50	15-53	18-35	1.40-1.55	0.60-2.00	0.13-0.20	0.0-2.9	0.0-0.5	.32	.32	
	20-65	20-50	15-53	20-40	1.40-1.60	0.60-2.00	0.10-0.18	0.0-2.9	0.0-0.5	.32	.32	
HuB, HuC:												
Humphreys----------------	0-5	20-50	50-80	12-25	1.35-1.50	2.00-6.00	0.10-0.15	0.0-2.9	2.0-4.0	.28	.32	5
	5-17	0-50	40-80	18-32	1.35-1.55	2.00-6.00	0.09-0.14	0.0-2.9	0.2-0.8	.24	.28	
	17-35	0-50	15-80	18-32	1.40-1.60	2.00-6.00	0.06-0.12	0.0-2.9	0.0-0.5	.24	.28	
	35-55	0-50	40-80	18-32	1.35-1.55	2.00-6.00	0.09-0.14	0.0-2.9	0.0-0.5	.24	.28	
	55-80	0-50	40-80	18-32	1.35-1.55	2.00-6.00	0.09-0.14	0.0-2.9	0.0-0.5	.24	.28	
LlB, LlC, LlD:												
Lily---------------------	0-7	23-52	28-50	7-27	1.20-1.40	0.60-6.00	0.13-0.18	0.0-2.9	0.5-2.0	.28	.37	2
	7-16	20-80	15-53	18-35	1.25-1.35	2.00-6.00	0.12-0.18	0.0-2.9	0.0-0.5	.28	.28	
	16-31	20-80	15-53	20-40	1.25-1.35	2.00-6.00	0.12-0.18	0.0-2.9	0.0-0.5	.28	.28	
	31-33	---	---	---	---	0.00-0.00	---	---	---	---	---	
LwB, LwC:												
Lonewood-----------------	0-4	23-52	28-50	15-25	1.30-1.40	0.60-2.00	0.18-0.20	0.0-2.9	1.0-3.0	.37	.37	4
	4-29	20-50	15-53	10-40	1.40-1.55	0.60-2.00	0.05-0.11	0.0-2.9	0.0-0.5	.32	.32	
	29-45	20-80	15-53	15-40	1.40-1.55	0.60-2.00	0.05-0.11	0.0-2.9	0.0-0.5	.32	.32	
	45-65	23-85	15-53	5-30	1.40-1.55	0.60-2.00	0.05-0.11	0.0-2.9	0.0-0.5	.32	.32	
Me:												
Melvin-------------------	0-7	0-50	50-80	12-17	1.20-1.60	0.60-2.00	0.18-0.23	0.0-2.9	0.5-3.0	.43	.43	5
	7-39	0-50	50-80	18-35	1.20-1.60	0.60-2.00	0.18-0.23	0.0-2.9	0.5-1.0	.43	.43	
	39-65	0-50	40-80	12-40	1.40-1.70	0.60-2.00	0.16-0.23	0.0-2.9	0.2-0.8	.43	.43	
MnC2, MnD2:												
Minvale------------------	0-12	23-52	28-50	15-30	1.30-1.45	0.60-2.00	0.16-0.22	0.0-2.9	0.5-3.0	.28	.37	5
	12-48	0-52	15-80	20-35	1.40-1.55	0.60-2.00	0.12-0.18	0.0-2.9	0.0-0.5	.28	.32	
	48-65	0-44	0-73	25-45	1.40-1.55	0.60-2.00	0.11-0.17	0.0-2.9	0.0-0.5	.28	.32	

Table 16.—Physical Properties of the Soils—Continued

Map symbol and soil name	Depth	Sand	Silt	Clay	Moist bulk density	Permea- bility (Ksat)	Available water capacity	Linear extensi- bility	Organic matter	Erosion factors Kw	Kf	T
	In	Pct	Pct	Pct	g/cc	In/hr	In/in	Pct	Pct			
MoB2, MoC2:												
Monongahela	0-5	0-50	50-80	10-27	1.20-1.40	0.60-2.00	0.18-0.24	0.0-2.9	1.0-3.0	.43	.43	4
	5-24	0-52	28-80	18-35	1.30-1.50	0.60-2.00	0.14-0.18	0.0-2.9	0.0-0.5	.43	.43	
	24-28	20-50	15-80	18-35	1.30-1.60	0.60-2.00	0.14-0.18	0.0-2.9	0.0-0.5	.37	.43	
	28-68	20-52	15-53	10-35	1.55-1.75	0.00-0.20	0.01-0.01	0.0-2.9	0.0-0.5	.32	.32	
	68-80	20-52	15-53	10-35	1.20-1.55	0.00-0.20	0.01-0.01	0.0-2.9	0.0-0.5	.28	.32	
MtB2, MtC2:												
Mountview	0-8	0-50	50-80	15-25	1.35-1.55	0.60-2.00	0.18-0.22	0.0-2.9	1.0-3.0	.43	.43	5
	8-28	0-50	50-80	20-35	1.40-1.60	0.60-2.00	0.17-0.20	0.0-2.9	0.0-0.5	.43	.43	
	28-45	0-50	40-80	20-40	1.40-1.60	0.20-0.57	0.17-0.20	3.0-5.9	0.0-0.5	.43	.43	
	45-80	0-44	0-73	35-55	1.30-1.50	0.20-0.57	0.10-0.15	3.0-5.9	0.0-0.5	.32	.37	
NeC, NeD, NeE:												
Nella	0-3	23-52	28-50	12-25	1.30-1.45	1.98-5.95	0.08-0.15	0.0-2.9	0.5-3.0	.28	.32	5
	3-30	20-80	15-53	22-40	1.35-1.55	0.60-2.00	0.08-0.15	0.0-2.9	0.0-0.5	.15	.20	
	30-70	0-80	15-53	27-45	1.30-1.45	0.60-2.00	0.07-0.14	0.0-2.9	0.0-0.5	.15	.20	
NrF:												
Nella	0-3	23-52	28-50	12-25	1.30-1.45	1.98-5.95	0.08-0.15	0.0-2.9	0.5-3.0	.28	.32	5
	3-30	20-80	15-53	22-40	1.35-1.55	0.60-2.00	0.08-0.15	0.0-2.9	0.0-0.5	.15	.20	
	30-70	0-80	15-53	27-45	1.30-1.45	0.60-2.00	0.07-0.14	0.0-2.9	0.0-0.5	.15	.20	
Talbott	0-5	0-19	40-73	28-40	1.35-1.50	0.60-2.00	0.16-0.20	0.0-2.9	0.5-2.0	.37	.37	2
	5-33	0-44	0-60	40-60	1.30-1.50	0.00-0.20	0.10-0.14	3.0-5.9	0.0-0.5	.24	.24	
	33-35	---	---	---	---	0.00-0.00	---	---	---	---	---	
Rock outcrop.												
Oc:												
Ocana	0-7	0-50	50-80	18-27	1.35-1.50	2.00-6.00	0.12-0.18	0.0-2.9	1.0-3.0	.28	.32	5
	7-36	20-80	28-80	20-32	1.35-1.50	2.00-6.00	0.10-0.17	0.0-2.9	0.5-1.0	.28	.32	
	36-48	0-52	15-80	20-32	1.35-1.50	2.00-6.00	0.10-0.17	0.0-2.9	0.5-1.0	.28	.32	
	48-65	20-52	28-80	20-32	1.35-1.50	2.00-6.00	0.10-0.17	0.0-2.9	0.2-1.0	.28	.32	
Pd:												
Purdy	0-8	0-50	50-80	12-27	1.20-1.40	0.20-2.00	0.19-0.23	0.0-2.9	1.0-3.0	.37	.37	5
	8-14	0-44	0-73	35-60	1.40-1.65	0.00-0.20	0.14-0.18	3.0-5.9	0.0-0.5	.28	.28	
	14-65	0-44	0-73	35-60	1.40-1.65	0.00-0.20	0.14-0.18	3.0-5.9	0.0-0.5	.28	.28	
Qr.												
Pits, quarry												
RaC, RaD:												
Ramsey	0-2	23-52	28-50	8-25	1.25-1.50	6.00-20.00	0.09-0.12	0.0-2.9	1.0-2.0	.20	.20	1
	2-18	23-85	0-50	8-25	1.20-1.40	6.00-20.00	0.09-0.12	0.0-2.9	0.0-0.5	.17	.20	
	18-20	---	---	---	---	0.00-0.00	---	---	---	---	---	

Table 16.—Physical Properties of the Soils—Continued

Map symbol and soil name	Depth	Sand	Silt	Clay	Moist bulk density	Permeability (Ksat)	Available water capacity	Linear extensibility	Organic matter	Erosion factors Kw	Kf	T
	In	Pct	Pct	Pct	g/cc	In/hr	In/in	Pct	Pct			
RrC:												
Ramsey------------------	0-2	23-52	28-50	8-25	1.25-1.50	6.00-20.00	0.09-0.12	0.0-2.9	1.0-2.0	.20	.20	1
	2-18	23-85	0-50	8-25	1.20-1.40	6.00-20.00	0.09-0.12	0.0-2.9	0.0-0.5	.17	.20	
	18-20	---	---	---	---	0.00-0.00	---	---	---	---	---	
Rock outcrop.												
RrE:												
Ramsey------------------	0-2	23-52	28-50	8-25	1.25-1.50	6.00-20.00	0.09-0.12	0.0-2.9	1.0-2.0	.20	.20	1
	2-18	23-85	0-50	8-25	1.20-1.40	6.00-20.00	0.09-0.12	0.0-2.9	0.0-0.5	.17	.20	
	18-20	---	---	---	---	0.00-0.00	---	---	---	---	---	
Rock outcrop.												
SeC2, SeD2, SeE2:												
Sengtown----------------	0-15	23-52	28-50	12-27	1.35-1.55	0.60-2.00	0.10-0.16	0.0-2.9	1.0-2.0	.28	.37	5
	15-20	0-50	40-80	23-40	1.35-1.55	0.60-2.00	0.10-0.15	3.0-5.9	0.0-0.5	.24	.32	
	20-70	0-44	0-60	40-60	1.35-1.60	0.20-0.57	0.08-0.12	3.0-5.9	0.0-0.5	.24	.28	
SfE:												
Sequoia-----------------	0-3	20-50	50-80	15-27	1.35-1.55	0.60-2.00	0.17-0.20	0.0-2.9	1.0-3.0	.24	.28	2
	3-11	0-44	0-73	28-60	1.35-1.55	0.20-0.60	0.08-0.16	3.0-5.9	0.2-1.0	.24	.28	
	11-38	0-44	0-60	35-60	1.35-1.55	0.00-0.20	0.08-0.16	3.0-5.9	0.0-0.5	.32	.37	
	38-40	---	---	---	---	0.00-0.00	---	---	---	---	---	
ShB:												
Shady-------------------	0-7	23-52	28-50	10-25	1.35-1.50	0.60-6.00	0.12-0.18	0.0-2.9	1.0-3.0	.28	.28	5
	7-20	23-52	28-50	10-25	1.35-1.50	0.60-6.00	0.12-0.18	0.0-2.9	0.2-1.0	.28	.28	
	20-28	20-80	15-53	20-35	1.35-1.55	0.60-2.00	0.14-0.20	0.0-2.9	0.0-0.5	.28	.28	
	28-50	23-85	0-50	8-20	1.40-1.60	0.60-6.00	0.09-0.15	0.0-2.9	0.0-0.5	.20	.28	
	50-65	23-85	0-50	8-20	1.40-1.60	5.95-19.98	0.06-0.12	0.0-2.9	0.0-0.5	.20	.28	
ShC2:												
Shady-------------------	0-5	23-52	28-50	10-25	1.35-1.50	0.60-6.00	0.12-0.18	0.0-2.9	1.0-3.0	.28	.28	5
	5-20	23-52	28-50	10-25	1.35-1.50	0.60-6.00	0.12-0.18	0.0-2.9	0.2-1.0	.28	.28	
	20-28	20-80	15-53	20-35	1.35-1.55	0.60-2.00	0.14-0.20	0.0-2.9	0.0-0.5	.28	.28	
	28-50	23-85	0-50	8-20	1.40-1.60	0.60-6.00	0.09-0.15	0.0-2.9	0.0-0.5	.20	.28	
	50-65	23-85	0-50	8-20	1.40-1.60	5.95-19.98	0.06-0.12	0.0-2.9	0.0-0.5	.20	.28	
SpF:												
Shelocta----------------	0-2	23-52	28-50	10-25	1.15-1.30	0.60-2.00	0.16-0.22	0.0-2.9	0.5-3.0	.32	.32	3
	2-10	23-52	28-50	10-25	1.15-1.30	0.60-2.00	0.16-0.22	0.0-2.9	0.2-0.8	.32	.32	
	10-29	0-80	40-80	18-34	1.30-1.55	0.60-2.00	0.10-0.20	0.0-2.9	0.2-0.5	.28	.32	
	29-52	0-50	40-80	18-34	1.30-1.55	0.60-2.00	0.10-0.20	0.0-2.9	0.0-0.5	.28	.32	
	52-54	---	---	---	---	0.00-0.00	---	---	---	---	---	

Table 16.—Physical Properties of the Soils—Continued

Map symbol and soil name	Depth	Sand	Silt	Clay	Moist bulk density	Permea-bility (Ksat)	Available water capacity	Linear extensi-bility	Organic matter	Erosion factors Kw	Kf	T
	In	Pct	Pct	Pct	g/cc	In/hr	In/in	Pct	Pct			
SpF:												
Pineville----------------	0-2	23-52	28-50	15-25	1.00-1.30	0.57-1.98	0.10-0.16	0.0-2.9	0.5-5.0	.20	.24	4
	2-58	20-52	15-53	18-30	1.30-1.60	0.57-1.98	0.08-0.14	0.0-2.9	0.0-1.0	.15	.17	
	58-72	23-52	15-53	20-40	1.30-1.60	0.57-1.98	0.06-0.14	0.0-2.9	0.0-0.5	.15	.20	
St:												
Staser------------------	0-13	43-85	0-49	12-27	1.40-1.60	0.60-2.00	0.15-0.22	0.0-2.9	2.0-4.0	.32	.32	5
	13-60	23-85	0-50	18-27	1.40-1.60	0.60-6.00	0.07-0.18	0.0-2.9	1.0-2.0	.28	.32	
Su, Sv:												
Sullivan----------------	0-5	0-50	50-80	18-25	1.30-1.45	0.60-2.00	0.12-0.20	0.0-2.9	1.0-3.0	.32	.32	5
	5-26	0-50	50-80	18-27	1.30-1.45	0.60-2.00	0.12-0.20	0.0-2.9	0.5-1.0	.32	.32	
	26-62	20-52	28-80	15-27	1.30-1.45	0.60-2.00	0.09-0.14	0.0-2.9	0.0-1.0	.32	.32	
TrD, TrE:												
Talbott-----------------	0-5	0-19	40-73	28-40	1.35-1.50	0.60-2.00	0.16-0.20	0.0-2.9	0.5-2.0	.37	.37	2
	5-33	0-44	0-60	40-60	1.30-1.50	0.00-0.20	0.10-0.14	3.0-5.9	0.0-0.5	.24	.24	
	33-35	---	---	---	---	0.00-0.00	---	---	---	---	---	
Rock outcrop.												
Ud.												
Udarents												
W.												
Water												
WaB2, WaC2, WaD2:												
Waynesboro--------------	0-5	23-52	28-50	10-30	1.40-1.55	0.60-2.00	0.15-0.21	0.0-2.9	0.5-2.0	.28	.28	5
	5-68	0-45	15-53	35-50	1.40-1.55	0.60-2.00	0.13-0.18	0.0-2.9	0.0-1.0	.28	.28	

Table 17.—Chemical Properties of the Soils

(Absence of an entry indicates that data were not estimated or available)

Map symbol and soil name	Depth	Cation-exchange capacity	Effective cation-exchange capacity	Soil reaction
	In	meq/100 g	meq/100 g	pH
Ak:				
Atkins	0-6	---	5.0-15	4.5-5.5
	6-36	---	5.0-15	4.5-5.5
	36-65	---	5.0-15	4.5-5.5
BA:				
Bethesda	0-1	---	2.0-10	3.6-5.5
	1-65	---	2.0-8.0	3.6-5.5
Pits.				
BeB2, BeC2:				
Bewleyville	0-9	5.0-15	---	4.5-6.5
	9-30	5.0-15	---	4.5-6.0
	30-57	2.0-10	---	4.5-6.0
	57-77	2.0-10	---	4.5-5.5
BoC, BoD, BoF:				
Bodine	0-6	---	2.0-10	3.6-5.5
	6-12	---	2.0-10	3.6-5.5
	12-44	---	0.0-8.0	3.6-5.5
	44-70	---	0.0-8.0	3.6-5.5
ByF:				
Bouldin	0-7	---	2.0-10	4.5-5.5
	7-24	---	0.0-8.0	4.5-5.5
	24-87	---	0.0-8.0	4.5-5.5
Grimsley	0-2	---	2.0-10	4.5-5.5
	2-12	---	1.9-7.4	4.5-5.5
	12-44	---	1.9-7.4	4.5-5.5
	44-55	---	1.9-7.4	4.5-5.5
	55-57	---	---	---
CaE:				
Carbo	0-4	10-20	---	4.5-7.3
	4-38	20-40	---	5.6-7.8
	38-44	---	---	---
Rock outcrop.				
ChC2, ChD2, ChE2:				
Christian	0-8	5.0-15	5.0-10	4.5-6.5
	8-18	5.0-10	2.0-8.0	4.5-5.5
	18-48	5.0-10	2.0-8.0	4.5-5.5
	48-57	5.0-10	2.0-8.0	4.5-5.5
	57-59	---	---	---
ChE3:				
Christian	0-5	5.0-15	5.0-10	4.5-6.5
	5-22	5.0-10	2.0-8.0	4.5-5.5
	22-57	5.0-10	2.0-8.0	4.5-5.5
	57-59	---	---	---

Table 17.—Chemical Properties of the Soils—Continued

Map symbol and soil name	Depth	Cation-exchange capacity	Effective cation-exchange capacity	Soil reaction
	In	meq/100 g	meq/100 g	pH
CkB, CkC:				
Clarkrange	0-9	---	2.0-10	4.5-5.5
	9-24	---	2.0-10	4.5-5.5
	24-41	---	2.0-8.0	4.5-5.5
	41-53	---	2.0-8.0	4.5-5.5
	53-55	---	---	---
CoC:				
Colbert	0-7	---	---	4.5-6.5
	7-20	---	---	4.5-6.5
	20-60	---	---	4.5-6.5
	60-62	---	---	---
Cv:				
Craigsville	0-2	---	2.5-10	4.5-5.5
	2-12	---	2.5-5.0	4.5-5.5
	12-65	---	2.5-5.0	4.5-5.5
DeD2:				
Dellrose	0-5	5.0-15	3.8-11	4.5-6.0
	5-22	5.0-10	3.8-7.0	4.5-6.0
	22-66	5.0-10	3.8-7.0	4.5-6.0
	66-80	5.0-10	3.8-7.0	4.5-6.0
DeF:				
Dellrose	0-7	5.0-15	3.8-11	4.5-6.0
	7-22	5.0-10	3.8-7.0	4.5-6.0
	22-66	5.0-10	3.8-7.0	4.5-6.0
	66-80	5.0-10	3.8-7.0	4.5-6.0
Mimosa	0-11	10-15	5.0-10	4.5-6.0
	11-51	10-30	5.0-15	4.5-6.0
	51-53	---	---	---
DfC2:				
Dewey	0-7	---	5.0-10	4.5-5.5
	7-14	---	2.0-10	4.5-5.5
	14-70	---	2.0-10	4.5-5.5
DkB2:				
Dickson	0-9	---	2.0-10	4.5-5.5
	9-23	---	2.0-10	4.5-5.5
	23-38	---	2.0-10	4.5-5.5
	38-79	---	5.0-15	4.5-5.5
Ea:				
Ealy	0-8	---	5.0-10	4.5-5.5
	8-38	---	2.0-8.0	4.5-5.5
	38-63	---	0.0-5.0	4.5-5.5
EwB:				
Etowah	0-8	---	2.0-10	4.5-5.5
	8-72	---	2.0-5.0	4.5-5.5
EwC2, EwD2:				
Etowah	0-5	---	2.0-10	4.5-5.5
	5-72	---	2.0-5.0	4.5-5.5

Table 17.—Chemical Properties of the Soils—Continued

Map symbol and soil name	Depth	Cation-exchange capacity	Effective cation-exchange capacity	Soil reaction
	In	meq/100 g	meq/100 g	pH
FhC:				
Faywood	0-1	15-30	---	5.1-7.8
	1-8	15-30	---	5.1-7.8
	8-25	15-30	---	5.1-7.8
	25-27	---	---	---
Hawthorne	0-1	---	2.5-8.0	3.6-5.5
	1-4	---	0.0-5.0	3.6-5.5
	4-14	---	0.0-5.0	3.6-5.5
	14-23	---	0.0-5.0	3.6-5.5
	23-26	---	---	---
GnF:				
Garmon	0-3	5.0-15	---	4.5-7.3
	3-6	5.0-10	---	4.5-7.3
	6-20	2.0-10	---	5.6-7.3
	20-29	2.0-10	---	5.6-7.3
	29-31	---	---	---
Newbern	0-3	10-15	---	5.6-7.3
	3-14	5.0-15	---	5.6-7.3
	14-18	---	---	---
	18-20	---	---	---
GpC, GpD, GpE:				
Gilpin	0-4	---	5.0-15	3.6-5.5
	4-13	---	5.0-15	3.6-5.5
	13-29	---	2.0-10	3.6-5.5
	29-36	---	2.0-10	3.6-5.5
	36-38	---	---	---
GsF:				
Gilpin	0-4	---	5.0-15	3.6-5.5
	4-13	---	5.0-15	3.6-5.5
	13-29	---	2.0-10	3.6-5.5
	29-36	---	2.0-10	3.6-5.5
	36-38	---	---	---
Shelocta	0-2	---	5.0-15	4.5-5.5
	2-10	---	2.0-10	4.5-5.5
	10-29	---	2.0-10	4.5-5.5
	29-52	---	2.0-10	4.5-5.5
	52-54	---	---	---
Ha:				
Hamblen	0-6	---	---	5.1-7.3
	6-65	---	---	5.1-7.3
HhC, HhF:				
Hawthorne	0-1	---	2.5-8.0	3.6-5.5
	1-4	---	0.0-5.0	3.6-5.5
	4-14	---	0.0-5.0	3.6-5.5
	14-23	---	0.0-5.0	3.6-5.5
	23-26	---	---	---

Table 17.—Chemical Properties of the Soils—Continued

Map symbol and soil name	Depth	Cation-exchange capacity	Effective cation-exchange capacity	Soil reaction
	In	meq/100 g	meq/100 g	pH
HmF:				
Hawthorne----------------	0-1	---	2.5-8.0	3.6-5.5
	1-4	---	0.0-5.0	3.6-5.5
	4-14	---	0.0-5.0	3.6-5.5
	14-23	---	0.0-5.0	3.6-5.5
	23-26	---	---	---
Rock outcrop.				
HnF:				
Hayter-------------------	0-8	5.0-15	---	5.1-6.5
	8-34	2.0-10	---	5.1-6.5
	34-46	2.0-10	---	5.1-6.5
	46-72	2.0-10	---	5.1-6.5
Talbott------------------	0-5	10-20	---	5.1-6.5
	5-33	10-30	---	5.1-6.5
	33-35	---	---	---
Rock outcrop.				
HoB:				
Holston------------------	0-9	---	---	4.5-5.5
	9-20	---	---	4.5-5.5
	20-65	---	---	4.5-5.5
HoC2:				
Holston------------------	0-5	---	---	4.5-5.5
	5-20	---	---	4.5-5.5
	20-65	---	---	4.5-5.5
HuB, HuC:				
Humphreys----------------	0-5	5.0-15	---	4.5-6.0
	5-17	5.0-10	---	4.5-6.0
	17-35	2.0-10	---	4.5-6.0
	35-55	2.0-10	---	4.5-6.0
	55-80	2.0-15	---	4.5-6.0
LlB, LlC, LlD:				
Lily---------------------	0-7	---	5.0-10	3.6-5.5
	7-16	---	2.0-8.0	3.6-5.5
	16-31	---	2.0-8.0	3.6-5.5
	31-33	---	---	---
LwB, LwC:				
Lonewood-----------------	0-4	---	5.0-10	4.5-5.5
	4-29	---	2.0-8.0	4.5-5.5
	29-45	---	2.0-8.0	4.5-5.5
	45-65	---	2.0-8.0	4.5-5.5
Me:				
Melvin-------------------	0-7	5.0-10	---	5.6-7.8
	7-39	5.0-10	---	5.6-7.8
	39-65	5.0-15	---	5.6-7.8
MnC2, MnD2:				
Minvale------------------	0-12	---	2.0-10	4.5-5.5
	12-48	---	2.0-5.0	4.5-5.5
	48-65	---	2.0-5.0	4.5-5.5

Table 17.—Chemical Properties of the Soils—Continued

Map symbol and soil name	Depth	Cation-exchange capacity	Effective cation-exchange capacity	Soil reaction
	In	meq/100 g	meq/100 g	pH
MoB2, MoC2:				
Monongahela------------	0-5	---	5.0-20	4.5-5.5
	5-24	---	5.0-15	4.5-5.5
	24-28	---	2.0-10	4.5-5.5
	28-68	---	2.0-10	4.5-5.5
	68-80	---	2.0-10	4.5-5.5
MtB2, MtC2:				
Mountview--------------	0-8	---	2.0-10	4.5-5.5
	8-28	---	2.0-10	4.5-5.5
	28-45	---	2.0-10	4.5-5.5
	45-80	---	2.0-10	4.5-5.5
NeC, NeD, NeE:				
Nella------------------	0-3	---	2.0-10	4.5-5.5
	3-30	---	2.0-8.0	4.5-5.5
	30-70	---	2.0-8.0	4.5-5.5
NrF:				
Nella------------------	0-3	---	2.0-10	4.5-5.5
	3-30	---	2.0-8.0	4.5-5.5
	30-70	---	2.0-8.0	4.5-5.5
Talbott----------------	0-5	10-20	---	5.1-6.5
	5-33	10-30	---	5.1-6.5
	33-35	---	---	---
Rock outcrop.				
Oc:				
Ocana------------------	0-7	5.0-20	---	5.6-7.3
	7-36	5.0-15	---	5.6-7.3
	36-48	5.0-15	---	5.6-7.3
	48-65	5.0-15	---	5.6-7.3
Pd:				
Purdy------------------	0-8	---	5.0-10	4.5-5.5
	8-14	---	2.5-8.0	4.5-5.5
	14-65	---	2.5-8.0	4.5-5.5
Qr.				
Pits, quarry				
RaC, RaD:				
Ramsey-----------------	0-2	---	2.0-5.0	4.5-5.5
	2-18	---	2.0-5.0	4.5-5.5
	18-20	---	---	---
RrC, RrE:				
Ramsey-----------------	0-2	---	2.0-5.0	4.5-5.5
	2-18	---	2.0-5.0	4.5-5.5
	18-20	---	---	---
Rock outcrop.				
SeC2, SeD2, SeE2:				
Sengtown---------------	0-15	---	5.0-10	4.5-6.0
	15-20	---	5.0-15	4.5-6.0
	20-70	---	5.0-15	4.5-6.0

Table 17.—Chemical Properties of the Soils—Continued

Map symbol and soil name	Depth	Cation-exchange capacity	Effective cation-exchange capacity	Soil reaction
	In	meq/100 g	meq/100 g	pH
SfE:				
Sequoia	0-3	---	2.0-10	4.5-5.5
	3-11	---	2.0-10	4.5-5.5
	11-38	---	2.0-15	4.5-5.5
	38-40	---	---	---
ShB:				
Shady	0-7	2.0-15	2.0-10	4.5-6.5
	7-20	2.0-10	2.0-8.0	4.5-6.5
	20-28	2.0-10	2.0-8.0	4.5-6.0
	28-50	2.0-5.0	0.0-5.0	4.5-6.0
	50-65	2.0-5.0	0.0-5.0	4.5-6.0
ShC2:				
Shady	0-5	2.0-15	2.0-10	4.5-6.5
	5-20	2.0-10	2.0-8.0	4.5-6.5
	20-28	2.0-10	2.0-8.0	4.5-6.0
	28-50	2.0-5.0	0.0-5.0	4.5-6.0
	50-65	2.0-5.0	0.0-5.0	4.5-6.0
SpF:				
Shelocta	0-2	---	5.0-15	4.5-5.5
	2-10	---	2.0-10	4.5-5.5
	10-29	---	2.0-10	4.5-5.5
	29-52	---	2.0-10	4.5-5.5
	52-54	---	---	---
Pineville	0-2	---	3.0-15	3.6-7.3
	2-58	---	2.0-5.0	3.6-5.5
	58-72	---	2.0-5.0	3.6-5.5
St:				
Staser	0-13	5.0-20	3.8-15	5.6-7.3
	13-60	5.0-15	3.8-11	5.6-7.3
Su, Sv:				
Sullivan	0-5	10-20	---	5.1-7.3
	5-26	5.0-15	---	5.1-7.3
	26-62	5.0-15	---	5.1-7.3
TrD, TrE:				
Talbott	0-5	10-20	---	5.1-6.5
	5-33	10-30	---	5.1-6.5
	33-35	---	---	---
Rock outcrop.				
Ud.				
Udarents				
W.				
Water				
WaB2, WaC2, WaD2:				
Waynesboro	0-5	---	5.0-10	4.5-5.5
	5-68	---	3.0-10	4.5-5.5

Table 18.—Water Features

(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	Hydro-logic group	Surface runoff	Month	Water table: Upper limit	Water table: Lower limit	Surface water depth	Ponding: Duration	Ponding: Frequency	Flooding: Duration	Flooding: Frequency
				Ft	Ft	Ft				
Ak:										
Atkins	D	Negligible								
			January	0.0-0.8	>6.0	---	---	None	Very brief	Occasional
			February	0.0-0.8	>6.0	---	---	None	Very brief	Occasional
			March	0.0-0.8	>6.0	---	---	None	Very brief	Occasional
			April	0.0-0.8	>6.0	---	---	None	Very brief	Occasional
			May	0.0-0.8	>6.0	---	---	None	Very brief	Occasional
			December	0.0-0.8	>6.0	---	---	None	Very brief	Occasional
BA:										
Bethesda	C	Very high								
			Jan-Dec	---	---	---	---	None	---	---
Pits.										
BeB2:										
Bewleyville	B	Low								
			Jan-Dec	---	---	---	---	None	---	---
BeC2:										
Bewleyville	B	Medium								
			Jan-Dec	---	---	---	---	None	---	---
BoC, BoD:										
Bodine	B	Low								
			Jan-Dec	---	---	---	---	None	---	---
BoF:										
Bodine	B	Medium								
			Jan-Dec	---	---	---	---	None	---	---
ByF:										
Bouldin	B	High								
			Jan-Dec	---	---	---	---	None	---	---
Grimsley	B	High								
			Jan-Dec	---	---	---	---	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				
CaE:										
Carbo----------------	C	Very high								
			Jan-Dec	---	---	---	---	None	---	---
Rock outcrop.										
ChC2, ChD2:										
Christian-----------	C	Medium								
			Jan-Dec	---	---	---	---	None	---	---
ChE2, ChE3:										
Christian-----------	C	High								
			Jan-Dec	---	---	---	---	None	---	---
CkB:										
Clarkrange----------	C	Low								
			January	1.5-2.5	2.0-3.0	---	---	None	---	None
			February	1.5-2.5	2.0-3.0	---	---	None	---	None
			March	1.5-2.5	2.0-3.0	---	---	None	---	None
			April	1.5-2.5	2.0-3.0	---	---	None	---	None
			December	1.5-2.5	2.0-3.0	---	---	None	---	None
CkC:										
Clarkrange----------	C	Medium								
			January	1.5-2.5	2.0-3.0	---	---	None	---	None
			February	1.5-2.5	2.0-3.0	---	---	None	---	None
			March	1.5-2.5	2.0-3.0	---	---	None	---	None
			April	1.5-2.5	2.0-3.0	---	---	None	---	None
			December	1.5-2.5	2.0-3.0	---	---	None	---	None
CoC:										
Colbert-------------	D	Very high								
			January	3.5-5.0	4.0-6.7	---	---	None	---	None
			February	3.5-5.0	4.0-6.7	---	---	None	---	None
			March	3.5-5.0	4.0-6.7	---	---	None	---	None
			April	3.5-5.0	4.0-6.7	---	---	None	---	None
			December	3.5-5.0	4.0-6.7	---	---	None	---	None
Cv:										
Craigsville---------	B	Negligible								
			January	---	---	---	---	None	Very brief	Occasional
			February	---	---	---	---	None	Very brief	Occasional
			March	---	---	---	---	None	Very brief	Occasional
			April	---	---	---	---	None	Very brief	Occasional
			May	---	---	---	---	None	Very brief	Occasional
			December	---	---	---	---	None	Very brief	Occasional

Table 18.—Water Features—Continued

Map symbol and soil name	Hydro- logic group	Surface runoff	Month	Water table		Ponding			Flooding	
				Upper limit	Lower limit	Surface water depth	Duration	Frequency	Duration	Frequency
				Ft	Ft	Ft				
DeD2:										
Dellrose------------	B	Medium								
			Jan-Dec	---	---	---	---	None	---	---
DeF:										
Dellrose------------	B	High								
			Jan-Dec	---	---	---	---	None	---	---
Mimosa--------------	C	High								
			Jan-Dec	---	---	---	---	None	---	---
DfC2:										
Dewey---------------	B	Medium								
			Jan-Dec	---	---	---	---	None	---	---
DkB2:										
Dickson-------------	C	Low								
			January	1.5-2.5	2.5-3.0	---	---	None	---	None
			February	1.5-2.5	2.5-3.0	---	---	None	---	None
			March	1.5-2.5	2.5-3.0	---	---	None	---	None
			April	1.5-2.5	2.5-3.0	---	---	None	---	None
			December	1.5-2.5	2.5-3.0	---	---	None	---	None
Ea:										
Ealy----------------	B	Negligible								
			January	---	---	---	---	None	Very brief	Occasional
			February	---	---	---	---	None	Very brief	Occasional
			March	---	---	---	---	None	Very brief	Occasional
			April	---	---	---	---	None	Very brief	Occasional
			December	---	---	---	---	None	Very brief	Occasional
EwB:										
Etowah--------------	B	Low								
			Jan-Dec	---	---	---	---	None	---	---
EwC2, EwD2:										
Etowah--------------	B	Medium								
			Jan-Dec	---	---	---	---	None	---	---
FhC:										
Faywood-------------	C	High								
			Jan-Dec	---	---	---	---	None	---	---
Hawthorne-----------	B	Low								
			Jan-Dec	---	---	---	---	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				
GnF:										
Garmon----------------	C	High								
			Jan-Dec	---	---	---	---	None	---	---
Newbern---------------	C	Very high								
			Jan-Dec	---	---	---	---	None	---	---
GpC, GpD:										
Gilpin----------------	C	Medium								
			Jan-Dec	---	---	---	---	None	---	---
GpE:										
Gilpin----------------	C	High								
			Jan-Dec	---	---	---	---	None	---	---
GsF:										
Gilpin----------------	C	High								
			Jan-Dec	---	---	---	---	None	---	---
Shelocta--------------	B	High								
			Jan-Dec	---	---	---	---	None	---	---
Ha:										
Hamblen---------------	C	Negligible								
			January	1.5-2.0	>6.0	---	---	None	Brief	Occasional
			February	1.5-2.0	>6.0	---	---	None	Brief	Occasional
			March	1.5-2.0	>6.0	---	---	None	Brief	Occasional
			April	1.5-2.0	>6.0	---	---	None	Brief	Occasional
			December	1.5-2.0	>6.0	---	---	None	Brief	Occasional
HhC:										
Hawthorne-------------	B	Low								
			Jan-Dec	---	---	---	---	None	---	---
HhF:										
Hawthorne-------------	B	Medium								
			Jan-Dec	---	---	---	---	None	---	---
HmF:										
Hawthorne-------------	B	Very high								
			Jan-Dec	---	---	---	---	None	---	---
Rock outcrop.										

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				
HnF:										
Hayter	B	Medium								
			Jan-Dec	---	---	---	---	None	---	---
Talbott	C	Very high								
			Jan-Dec	---	---	---	---	None	---	---
Rock outcrop.										
HoB:										
Holston	B	Low								
			Jan-Dec	---	---	---	---	None	---	---
HoC2:										
Holston	B	Medium								
			Jan-Dec	---	---	---	---	None	---	---
HuB, HuC:										
Humphreys	B	---								
			January	5.0-6.0	>6.0	---	---	None	---	None
			February	5.0-6.0	>6.0	---	---	None	---	None
			March	5.0-6.0	>6.0	---	---	None	---	None
			April	5.0-6.0	>6.0	---	---	None	---	None
			December	5.0-6.0	>6.0	---	---	None	---	None
LlB:										
Lily	B	Low								
			Jan-Dec	---	---	---	---	None	---	---
LlC, LlD:										
Lily	B	Medium								
			Jan-Dec	---	---	---	---	None	---	---
LwB:										
Lonewood	B	Low								
			Jan-Dec	---	---	---	---	None	---	---
LwC:										
Lonewood	B	Medium								
			Jan-Dec	---	---	---	---	None	---	---

Table 18.—Water Features—Continued

Map symbol and soil name	Hydro-logic group	Surface runoff	Month	Water table		Ponding			Flooding	
				Upper limit	Lower limit	Surface water depth	Duration	Frequency	Duration	Frequency
				Ft	Ft	Ft				
Me:										
Melvin----------------	D	Negligible								
			January	0.0	>6.0	0.5-2.0	Long	Frequent	---	None
			February	0.0	>6.0	0.5-2.0	Long	Frequent	---	None
			March	0.0	>6.0	0.5-2.0	Long	Frequent	---	None
			April	0.0	>6.0	0.5-2.0	Long	Frequent	---	None
			May	0.0	>6.0	0.5-2.0	Long	Frequent	---	None
			December	0.0	>6.0	0.5-2.0	Long	Frequent	---	None
MnC2, MnD2:										
Minvale---------------	B	Medium								
			Jan-Dec	---	---	---	---	None	---	---
MoB2:										
Monongahela-----------	C	Medium								
			January	1.5-2.5	2.5-3.0	---	---	None	---	None
			February	1.5-2.5	2.5-3.0	---	---	None	---	None
			March	1.5-2.5	2.5-3.0	---	---	None	---	None
			April	1.5-2.5	2.5-3.0	---	---	None	---	None
			December	1.5-2.5	2.5-3.0	---	---	None	---	None
MoC2:										
Monongahela-----------	C	High								
			January	1.5-2.5	2.5-3.0	---	---	None	---	None
			February	1.5-2.5	2.5-3.0	---	---	None	---	None
			March	1.5-2.5	2.5-3.0	---	---	None	---	None
			April	1.5-2.5	2.5-3.0	---	---	None	---	None
			December	1.5-2.5	2.5-3.0	---	---	None	---	None
MtB2:										
Mountview-------------	B	Low								
			January	1.7-2.3	2.1-3.0	---	---	None	---	None
			February	1.7-2.3	2.1-3.0	---	---	None	---	None
			March	1.7-2.3	2.1-3.0	---	---	None	---	None
			December	1.7-2.3	2.1-3.0	---	---	None	---	None
MtC2:										
Mountview-------------	B	Medium								
			Jan-Dec	---	---	---	---	None	---	---
NeC:										
Nella-----------------	B	Low								
			Jan-Dec	---	---	---	---	None	---	---
NeD:										
Nella-----------------	B	Medium								
			Jan-Dec	---	---	---	---	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				
NeE:										
Nella	B	High								
			Jan-Dec	---	---	---	---	None	---	---
NrF:										
Nella	B	Medium								
			Jan-Dec	---	---	---	---	None	---	---
Talbott	C	Very high								
			Jan-Dec	---	---	---	---	None	---	---
Rock outcrop.										
Oc:										
Ocana	B	Negligible								
			January	4.0-6.0	>6.0	---	---	None	Very brief	Occasional
			February	4.0-6.0	>6.0	---	---	None	Very brief	Occasional
			March	4.0-6.0	>6.0	---	---	None	Very brief	Occasional
			December	4.0-6.0	>6.0	---	---	None	Very brief	Occasional
Pd:										
Purdy	D	Negligible								
			January	0.0	>6.0	0.5-2.0	Long	Frequent	---	None
			February	0.0	>6.0	0.5-2.0	Long	Frequent	---	None
			March	0.0	>6.0	0.5-2.0	Long	Frequent	---	None
			April	0.0	>6.0	0.5-2.0	Long	Frequent	---	None
			May	0.0	>6.0	0.5-2.0	Long	Frequent	---	None
			December	0.0	>6.0	0.5-2.0	Long	Frequent	---	None
Qr.										
Pits, quarry										
RaC, RaD:										
Ramsey	D	Low								
			Jan-Dec	---	---	---	---	None	---	---
RrC, RrE:										
Ramsey	D	Low								
			Jan-Dec	---	---	---	---	None	---	---
Rock outcrop.										
SeC2, SeD2:										
Sengtown	B	Medium								
			Jan-Dec	---	---	---	---	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				
SeE2:										
Sengtown	B	High								
			Jan-Dec	---	---	---	---	None	---	---
SfE:										
Sequoia	C	Very high								
			Jan-Dec	---	---	---	---	None	---	---
ShB:										
Shady	B	Low								
			Jan-Dec	---	---	---	---	None	---	---
ShC2:										
Shady	B	Medium								
			Jan-Dec	---	---	---	---	None	---	---
SpF:										
Shelocta	B	High								
			Jan-Dec	---	---	---	---	None	---	---
Pineville	B	Medium								
			Jan-Dec	---	---	---	---	None	---	---
St:										
Staser	B	Negligible								
			January	3.0-4.0	>6.0	---	---	None	---	Rare
			February	3.0-4.0	>6.0	---	---	None	---	Rare
			March	3.0-4.0	>6.0	---	---	None	---	Rare
			December	3.0-4.0	>6.0	---	---	None	---	Rare
Su:										
Sullivan	B	Negligible								
			January	4.0-6.0	>6.0	0.5-2.0	Very brief	Occasional	---	---
			February	4.0-6.0	>6.0	0.5-2.0	Very brief	Occasional	---	---
			March	4.0-6.0	>6.0	0.5-2.0	Very brief	Occasional	---	---
			December	4.0-6.0	>6.0	0.5-2.0	Very brief	Occasional	---	---
Sv:										
Sullivan	B	Negligible								
			January	4.0-6.0	>6.0	---	---	None	Brief	Occasional
			February	4.0-6.0	>6.0	---	---	None	Brief	Occasional
			March	4.0-6.0	>6.0	---	---	None	Brief	Occasional
			December	4.0-6.0	>6.0	---	---	None	Brief	Occasional

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				
TrD:										
Talbott-------------	C	High								
			Jan-Dec	---	---	---	---	None	---	---
Rock outcrop.										
TrE:										
Talbott-------------	C	Very high								
			Jan-Dec	---	---	---	---	None	---	---
Rock outcrop.										
Ud.										
Udarents										
W.										
Water										
WaB2:										
Waynesboro----------	B	Low								
			Jan-Dec	---	---	---	---	None	---	---
WaC2, WaD2:										
Waynesboro----------	B	Medium								
			Jan-Dec	---	---	---	---	None	---	---

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			Potential for frost action	Risk of corrosion	
	Kind	Depth to top	Hardness		Uncoated steel	Concrete
		In				
Ak:						
Atkins	---	---	---	None	High	Moderate
BA:						
Bethesda	---	---	---	None	High	High
Pits.						
BeB2, BeC2:						
Bewleyville	---	---	---	None	Moderate	Moderate
BoC, BoD, BoF:						
Bodine	---	---	---	None	Low	High
ByF:						
Bouldin	---	---	---	None	Low	Moderate
Grimsley	Bedrock (paralithic)	40-60	Very strongly cemented	None	Low	High
CaE:						
Carbo	Bedrock (lithic)	20-40	Indurated	None	High	Low
Rock outcrop.						
ChC2, ChD2, ChE2:						
Christian	Bedrock (paralithic)	40-72	Very strongly cemented	None	High	Moderate
ChE3:						
Christian	Bedrock (paralithic)	40-72	Very strongly cemented	None	High	High
CkB, CkC:						
Clarkrange	Fragipan	20-36	---	None	Moderate	High
CoC:						
Colbert	Bedrock (lithic)	40-72	Indurated	None	High	Moderate
Cv:						
Craigsville	---	---	---	None	Moderate	Moderate
DeD2:						
Dellrose	---	---	---	None	Moderate	Moderate
DeF:						
Dellrose	---	---	---	None	Moderate	Moderate
Mimosa	Bedrock (lithic)	40-60	Indurated	None	High	Moderate
DfC2:						
Dewey	---	---	---	None	High	Moderate
DkB2:						
Dickson	Fragipan	18-36	---	None	Moderate	Moderate

Table 19.—Soil Features—Continued

Map symbol and soil name	Restrictive layer: Kind	Depth to top	Hardness	Potential for frost action	Risk of corrosion: Uncoated steel	Risk of corrosion: Concrete
		In				
Ea:						
Ealy	---	---	---	None	Low	Moderate
EwB, EwC2, EwD2:						
Etowah	---	---	---	None	Low	Moderate
FhC:						
Faywood	Bedrock (lithic)	20-40	Indurated	None	High	Moderate
Hawthorne	Bedrock (paralithic)	20-40	Very strongly cemented	None	Low	High
GnF:						
Garmon	Bedrock (lithic)	20-40	Very strongly cemented	None	Low	Low
Newbern	Bedrock (paralithic)	10-20	Very strongly cemented	None	Low	Low
	Bedrock (lithic)	10-20	Indurated			
GpC, GpD, GpE:						
Gilpin	Bedrock (paralithic)	20-40	Very strongly cemented	None	Low	High
GsF:						
Gilpin	Bedrock (paralithic)	20-40	Very strongly cemented	None	Low	High
Shelocta	Bedrock (paralithic)	40-61	Very strongly cemented	None	Low	High
Ha:						
Hamblen	---	---	---	None	Moderate	Moderate
HhC, HhF:						
Hawthorne	Bedrock (paralithic)	20-40	Very strongly cemented	None	Low	Moderate
HmF:						
Hawthorne	Bedrock (paralithic)	20-40	Very strongly cemented	None	Low	High
Rock outcrop.						
HnF:						
Hayter	Bedrock (lithic)	48-48	---	None	Moderate	Moderate
Talbott	Bedrock (lithic)	20-40	Indurated	None	High	Moderate
Rock outcrop.						
HoB, HoC2:						
Holston	---	---	---	None	Moderate	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				
HuB, HuC:						
Humphreys	---	---	---	None	Moderate	Moderate
LlB, LlC, LlD:						
Lily	Bedrock (lithic)	20-40	Indurated	None	Moderate	High
LwB, LwC:						
Lonewood	Bedrock (lithic)	40-72	Indurated	None	Low	Moderate
Me:						
Melvin	---	---	---	None	High	Low
MnC2, MnD2:						
Minvale	---	---	---	None	Moderate	Moderate
MoB2:						
Monongahela	Fragipan	18-30	---	None	Moderate	Moderate
MoC2:						
Monongahela	Fragipan	18-30	---	Moderate	Moderate	Moderate
MtB2, MtC2:						
Mountview	---	---	---	None	Moderate	Moderate
NeC, NeD, NeE:						
Nella	---	---	---	None	Moderate	Moderate
NrF:						
Nella	---	---	---	None	Moderate	Moderate
Talbott	Bedrock (lithic)	20-40	Indurated	None	High	Moderate
Rock outcrop.						
Oc:						
Ocana	---	---	---	None	Low	Low
Pd:						
Purdy	---	---	---	None	High	Moderate
Qr.						
Pits, quarry						
RaC, RaD:						
Ramsey	Bedrock (lithic)	10-20	Indurated	None	Low	Moderate
RrC, RrE:						
Ramsey	Bedrock (lithic)	10-20	Indurated	None	Low	Moderate
Rock outcrop.						
SeC2, SeD2, SeE2:						
Sengtown	---	---	---	None	High	Moderate
SfE:						
Sequoia	Bedrock (paralithic)	20-40	Very strongly cemented	None	High	Moderate
ShB, ShC2:						
Shady	---	---	---	None	Low	Moderate

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				
SpF:						
Shelocta----------	Bedrock (lithic)	40-65	Indurated	None	Low	High
Pineville--------	---	---	---	None	Low	High
St:						
Staser-----------	---	---	---	None	Low	Low
Su, Sv:						
Sullivan---------	---	---	---	None	Low	Low
TrD, TrE:						
Talbott----------	Bedrock (lithic)	20-40	Indurated	None	High	Moderate
Rock outcrop.						
Ud.						
Udarents						
W.						
Water						
WaB2, WaC2, WaD2:						
Waynesboro-------	---	---	---	None	Moderate	Moderate

Table 20.—Classification of the Soils

Soil name	Family or higher taxonomic class
Atkins	Fine-loamy, mixed, active, acid, mesic Fluvaquentic Endoaquepts
Bethesda	Loamy-skeletal, mixed, active, acid, mesic Typic Udorthents
Bewleyville	Fine-silty, siliceous, semiactive, thermic Typic Paleudults
Bodine	Loamy-skeletal, siliceous, semiactive, thermic Typic Paleudults
Bouldin	Loamy-skeletal, siliceous, subactive, mesic Typic Paleudults
Carbo	Very-fine, mixed, active, mesic Typic Hapludalfs
Christian	Fine, mixed, semiactive, mesic Typic Hapludults
Clarkrange	Fine-silty, siliceous, semiactive, mesic Typic Fragiudults
Colbert	Fine, smectitic, thermic Vertic Hapludalfs
Craigsville	Loamy-skeletal, mixed, superactive, mesic Fluventic Dystrudepts
Dellrose	Fine-loamy, mixed, semiactive, thermic Typic Paleudults
Dewey	Fine, kaolinitic, thermic Typic Paleudults
Dickson	Fine-silty, siliceous, semiactive, thermic Glossic Fragiudults
Ealy	Coarse-loamy, siliceous, semiactive, mesic Fluventic Dystrudepts
Etowah	Fine-loamy, siliceous, semiactive, thermic Typic Paleudults
Faywood	Fine, mixed, active, mesic Typic Hapludalfs
Garmon	Fine-loamy, mixed, semiactive, mesic Dystric Eutrudepts
Gilpin	Fine-loamy, mixed, active, mesic Typic Hapludults
Grimsley	Loamy-skeletal, siliceous, semiactive, mesic Typic Hapludults
Hamblen	Fine-loamy, siliceous, semiactive, thermic Fluvaquentic Eutrudepts
Hawthorne	Loamy-skeletal, siliceous, semiactive, thermic Typic Dystrudepts
Hayter	Fine-loamy, mixed, semiactive, mesic Ultic Hapludalfs
Holston	Fine-loamy, siliceous, semiactive, thermic Typic Paleudults
Humphreys	Fine-loamy, mixed, semiactive, thermic Ultic Hapludalfs
Lily	Fine-loamy, siliceous, semiactive, mesic Typic Hapludults
Lonewood	Fine-loamy, siliceous, semiactive, mesic Typic Hapludults
Melvin	Fine-silty, mixed, active, nonacid, mesic Fluvaquentic Endoaquepts
Mimosa	Fine, mixed, semiactive, thermic Typic Hapludalfs
Minvale	Fine-loamy, siliceous, subactive, thermic Typic Paleudults
Monongahela	Fine-loamy, mixed, semiactive, mesic Typic Fragiudults
Mountview	Fine-silty, siliceous, semiactive, thermic Oxyaquic Paleudults
Nella	Fine-loamy, siliceous, semiactive, thermic Typic Paleudults
Newbern	Loamy, mixed, active, mesic Lithic Eutrudepts
Ocana	Fine-loamy, mixed, active, thermic Dystric Fluventic Eutrudepts
Pineville	Fine-loamy, mixed, active, mesic Typic Hapludults
Purdy	Fine, mixed, active, mesic Typic Endoaquults
Ramsey	Loamy, siliceous, subactive, mesic Lithic Dystrudepts
Sengtown	Fine, mixed, semiactive, thermic Typic Paleudalfs
Sequoia	Fine, mixed, active, mesic Typic Hapludults
Shady	Fine-loamy, mixed, subactive, thermic Typic Hapludults
Shelocta	Fine-loamy, mixed, active, mesic Typic Hapludults
Staser	Fine-loamy, mixed, active, thermic Cumulic Hapludolls
Sullivan	Fine-loamy, siliceous, active, thermic Dystric Fluventic Eutrudepts
Talbott	Fine, mixed, semiactive, thermic Typic Hapludalfs
Udarents	Udarents
Waynesboro	Fine, kaolinitic, thermic Typic Paleudults

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